

## 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.*

<b>Transportation Pooled Fund Program Project #</b> TPF-5(183)	<b>Transportation Pooled Fund Program - Report Period:</b> xQuarter 1 (January 1 – March 31, 2016) Quarter 2 (April 1 – June 30, 2016) Quarter 3 (July 1 – September 30, 2016) Quarter 4 (October 1 – December 31, 2016)	
<b>Project Title:</b> Improving the Foundation Layers for Concrete Pavement		
<b>Project Manager:</b> Brian Worrel	<b>Phone:</b> 239-1471	<b>E-mail:</b> brian.worrel@dot.iowa.gov
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<b>Lead Agency Project ID:</b> RT 0314	<b>Other Project ID (i.e., contract #):</b> Addendum 352	<b>Project Start Date:</b> 3/16/09
<b>Original Project End Date:</b> 3/15/14	<b>Current Project End Date:</b> 3/15/2016	<b>Number of Extensions:</b> On-going pooled fund project

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
\$875,000	\$851,473.88	97

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$54,947.98		1

**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 research team provided a comprehensive update to TAC members on February 3, 2016 on each of the state project reports and the manual of practice. The meeting was held on-line. Key findings from each project was provided. By the end of last quarter, 12 out of the 14 reports have been completed and uploaded to the FTP site. The team is finishing writing on the remaining two reports. There was unexpected delay on these two reports due to some analysis that had to be repeated and figures replotted to be consistent with the other state reports. The PIs are working with the students to finalize these early next quarter. A binder with printed copy of each report is being prepared and is anticipated to be sent out to all state representatives early next quarter.

<b>Report</b>	<b>First Draft by Authors</b>	<b>Technical Editor Review</b>	<b>Updates by Authors</b>	<b>Technical Editor Final Review</b>	<b>Upload to FTP site for TAC</b>
Non-Uniformity Analysis Report	Done	Done	Done	Done	Done
MEPDG Sensitivity Analysis Report	Done	Done	Done	Done	Done
Wisconsin US10 Report	Done	Done	Done	Done	Done
Michigan I96 Report	Done	Done	Done	Done	Done
Iowa I29 Report	Done	Done	Done	Done	Done
Pennsylvania US422 Report	Done	Done	Done	Done	Done
Michigan I94 Report	Done	Done	Done	Done	Done
Iowa Urbandale Drive Field Study Report	Done	Done	Done	Done	Done
Iowa US34 Report	Done	Done	Done	Done	Done
Iowa US30 Report	Done	Done	Done	Done	Done
California I15 Report	Done	Done	Done	Done	Done
Iowa Seasonal Variations Report	Done	Done	Done	Done	Done
Pennsylvania US22 Report	Done	Done	In Progress		
Iowa I35 Report	Done	Done	In Progress		

InTrans publications is doing a final run through of all the reports that are posted on the TAC to ensure they meet compliance requirements for FHWA.

Manual of Practice: The research team presented a flow chart with various issues pertaining to the pavement foundations manual of practice to the TAC members on Feb 3, 2016. The flow chart consisted the following attributes:

- main goals
- key engineering challenges
- key design objectives
- failure mechanisms
- pavement distresses
- contributing factors
- measurement methods
- key parameter values
- controls/measures
- specification requirements

The team is working to finalize this flowchart and send to TAC for review early next quarter.

**Anticipated work next quarter:**

- Finish the two remaining project reports and an tech brief (8 pages) that highlights the key findings from the project.
- Finish flow chart and manual.

**Significant Results:**

- Several project reports.
- Flow chart for manual of practice.

**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:

First	Last	Organization	Email
<b>Pooled Fund Members</b>			
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