

## 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> Quarter 1 (January 1 – March 31, 2020) Quarter 2 (April 1 – June 30, 2020) <b>X</b> Quarter 3 (July 1 – September 30, 2020) Quarter 4 (October 1 – December 31, 2020)	
<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
<b>Project Investigator:</b> Peter Taylor (David White)	<b>Phone:</b> 294-3781	<b>E-mail:</b> ptaylor@iastate.edu
<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> 12/31/2018	<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	\$875,000	98

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter

## **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.):**

A TAC meeting was held October 5<sup>th</sup>.

- The implementation report is 80% complete.
- The TAC will need to review the report and the plan will be to have several meetings to discuss the report and implementation of the findings.
- Bora Cetin, formally at ISU and now at Michigan State, has agreed to provide a technical review as well.
- Document will be ~ 100 pages
  - Chapter 1 Introduction
  - Chapter 2: Summary of what was learned from the field studies
  - Chapter 3: Mechanistic characterization. The advancements on pavement design with an emphasis on mechanistic design.
  - Chapter 4: The how-to. Specifications, work flow for construction and inspection.
  - Chapter 5: Wrap-up; final recommendations.

## **Anticipated work next quarter:**

- The report will be sent to the TAC at the end of October
- TAC meeting will be scheduled for early November

## **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).**

TAC committee:

Brian Worrel Iowa DOT

Todd Hanson Iowa DOT

Kevin Merryman Iowa DOT

Jeff Horsfall, Wisconsin DOT

John Staton Michigan DOT

Mehdi Parvini California DOT

Lydia Peddicord Georgia DOT

David White, Ingios, Researcher

Tom Cackler, Woodland Consulting

Peter Taylor, CP Tech Center