

## 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(368)	<b>Transportation Pooled Fund Program - Report Period:</b> Quarter 1 (January 1 – March 31, 2018) X Quarter 2 (April 1 – June 30, 2018) Quarter 3 (July 1 – September 30, 2018) Quarter 4 (October 1 – December 31, 2018)	
<b>Project Title:</b> Performance Engineered Concrete Paving Mixtures		
<b>Project Manager:</b> Todd Hanson	<b>Phone:</b> 239-1471	<b>E-mail:</b> todd.hanson@dot.iowa.gov
<b>Project Investigator:</b> Peter Taylor	<b>Phone:</b> 515-294-9333	<b>E-mail:</b> ptaylor@iastate.edu
<b>Lead Agency Project ID:</b>	<b>Other Project ID (i.e., contract #):</b> Addendum 629	<b>Project Start Date:</b> 10/1/17
<b>Original Project End Date:</b> 12/31/2019	<b>Current Project End Date:</b>	<b>Number of Extensions:</b> PFS

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
\$1,345,000	\$196,698.82	2%

**Quarterly** Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$142,641.82		

## Project Description:

Concrete for pavements has historically been specified and field controlled around acceptance criteria that do not relate well to durability (slump, air content, strength). Paving concrete specifications need to be built upon engineering properties that directly relate to good field performance. With the recent advancements in research knowledge on failure mechanisms, and the parallel development of better tests, this is possible.

A review of many current and new specifications has found that they are still largely based on strength, slump, and air, which provide limited correlation with the mechanisms of pavement failure currently observed. The need for change in the way we specify concrete, especially concrete for paving mixtures, is becoming increasingly apparent as mixtures become more complex with a growing range of chemical admixtures and supplementary cementitious materials. Traffic loadings continue to increase, more aggressive winter maintenance practices are implemented, and demand increases to build systems more quickly, cheaply, and with increased longevity.

Tasks include:

- Task 1: Implementing What We Know
- Task 2: Performance Monitoring and Specification Refinement
- Task 3: Measuring and Relating Early Age Concrete Properties to Performance

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

For Quarter ending June 30, 2018

- PEM Team members provided a PEM update at the National Concrete Consortium (NC<sup>2</sup>) spring meeting at Couer d'Alene, ID in April.
- The PEM TAC joined for a conference call on May 11, 2018. Topics discussed included PEM progress, tests/testing updates, data collection protocol and progress in preparation of PP-84-19, (Standard Practice for Developing Performance Engineered Concrete Pavement Mixtures).
- CP Tech Center staff delivered a PEM update to the ACPA Chapter/State Paving Association Executives at their spring meeting in Skamania, WA. Participants discussed how they might work with contractor members toward implementation of the PEM tests and procedures.
- On May 17, 2018, PEM Team members collaborated with the FHWA MCT lab personnel and the CO/WY Chapter – ACPA to present an open house on a paving project near Denver. The PEM tests were demonstrated by FHWA and CP Tech Center staff. Nearly 60 people attended the event with representation from agency, engineering companies and industry.
- CP Tech Center staff joined ACPA contractors and associates at the Association's Strategic Board meeting in Denver in June. They addressed the group with an overview of the PEM initiative and participated in an open forum discussion about PEM with concrete paving contractors from across the nation. A primary objective of the meeting was to identify contractor needs related to PEM.
- PEM Team members worked throughout the quarter, refining and responding to industry comments as they prepared the PP-84-19 that is due in the hands of the AASHTO COMP Technical
- Conversations continue with state DOT participants to identify and respond to their needs, questions and plans for PEM shadow testing. Activity is anticipated in MN, IA, PA, and SD during the 2018 construction season. Currently, NC, NY and ID are discussing events/training/shadow testing for 2019. PEM Team members continue additional outreach with the states.
- The PEM Website was launched this quarter through the CP Tech Center. Users will find valuable information about PEM, test method summaries, videos, slideshows or You Tube links, a schedule of shadow project and information pertinent to test data entry. The link is [www.cptechcenter.org/pem](http://www.cptechcenter.org/pem).

**Anticipated work next quarter:**

- PEM open houses with the FHWA MCT lab in MN (July 18) and IA (August 1).
- Submittal of PP-84-19 to AASHTO for their consideration at the COMP meeting in August at Cleveland, OH.
- Shadow testing with SD in September on I-90 in western SD.
- Training and open houses in W and E PA in late August or early September.
- PEM update for the PCA at their August meeting in Chicago.
- PEM updates and agency presentations at the NC<sup>2</sup> meeting in Saratoga Springs, NY in September.
- PEM TAC meeting in conjunction with the NC<sup>2</sup> meeting on the evening of September 18, 2018 in Saratoga Springs, NY.
- Outreach and assistance to SHA and industry.
- Continued effort to expand participation in the study.

**Significant Results:**

**Circumstances 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 members**

Ahlstrom, Gina / Federal Highway Administration  
Baer, Patricia / Pennsylvania Department of Transportation  
Covay, Jeff / Arkansas Department of Transportation  
Dennis, Dan / New York State Department of Transportation  
Hanson, Todd / Iowa Department of Transportation  
Hayes, Chad / Wisconsin Department of Transportation  
Hodges, Darin / South Dakota Department of Transportation  
Hunter, Brian / North Carolina Department of Transportation  
Krstulovich, James / Illinois Department of Transportation  
Lim, S. David / California Department of Transportation  
Masten, Maria / Minnesota Department of Transportation  
Meggers, Dave / Kansas Department of Transportation  
Miller, Dan / Ohio Department of Transportation  
Prieve, Eric / Colorado Department of Transportation  
Romero, Matt / Oklahoma Department of Transportation  
Staton, John / Michigan Department of Transportation  
Wielenga, Craig / Idaho Transportation Department