

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(366)	Transportation Pooled Fund Program - Report Period: X Quarter 1 (January 1 – March 31, 2018) Quarter 2 (April 1 – June 30, 2018) Quarter 3 (July 1 – September 30, 2018) Quarter 4 (October 4 – December 31, 2018)	
Project Title: Development of a Design Guide for the Structural Design of Ultra High Performance Concrete		
Project Manager: Ahmad Abu-Hawash Brian Worrel	Phone: 239-1393 239-1471	E-mail: ahmad.abu-hawash@dot.iowa.gov brian.worrel@dot.iowa.gov
Project Investigator: Sri Sriharan	Phone: 294-5238	E-mail: sri@iastate.edu
Lead Agency Project ID:	Other Project ID (i.e., contract #): Addendum 618	Project Start Date: 6/15/17
Original Project End Date: 5/31/18	Project End Date: 5/31/18	Number of Extensions: Pooled fund project – yearly budgets

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
\$90,000	\$26,442	29%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$8,423		9%

Project Description: Ultra-High Performance Concrete (UHPC) has been recognized as a choice of material for mitigating bridge infrastructure challenges as well as to introduce innovative construction projects. In recent years, the use of UHPC has gained momentum in bridge projects across the country. However, formal structural design guidance for this material does not exist in North America, and therefore a comprehensive effort is required to formulate recommended design guidance so that the application of this material can be broadened.

The overall objective of this study is to facilitate advancement in the state-of-the-practice for UHPC in the US highway sector, which will include development of a design and construction guide specification. These advancements will also focus on other critical needs that are currently hindering the wider use of UHPC

A Steering Committee will be formed for this Pooled Fund Project. This Steering Committee can include contributing entities and will be led by the host State. The tasks are:

1. Coordinate meetings amongst committee members with the goal of study execution and information dissemination.
2. Provide guidance on national level advancement efforts.
3. Develop and prioritize research needs statements.
4. Develop, verify, and/or standardize test methods for assessment of UHPC material properties.
5. Complete structural performance-related research as necessary to develop greater knowledge of structural behavior.
6. Complete construction-related research as necessary to develop greater understanding of optimal construction processes.
7. Coordinate, share, and advance existing special provisions for the use of UHPC in highway construction projects.

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

March 31, 2018

Iowa State researchers have interacted with Ben Graybeal from FHWA to understand the scope of the tension tests as several variables had not been previously decided. Although 60 tension tests were originally discussed, it is now agreed that we will have to perform 180 tension tests that will include three different UHPCs and three different fiber quantities. The needed testing created some challenges. The project will develop two instrumentation scheme and provide all test samples. We are still in the process of identifying six different tests sites that can handle the tension samples with 2 in. wide grips.

Anticipated work next quarter:

Begin casting of the test samples.

Significant Results:

The tension tests will focus on finalizing a tension test method.