

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(117) | Transportation Pooled Fund Program - Report Period: X Quarter 1 (January 1 – March 31, 2013) Quarter 2 (April 1 – June 30, 2013) Quarter 3 (July 1 – September 30, 2013) Quarter 4 (October 4 – December 31, 2013) | |
| Project Title: Development of Performance Properties of Ternary Mixtures: Field Demonstration Projects | | |
| Project Manager: Todd Hanson | Phone: 239-1226 | E-mail: todd.hanson@iowa.dot.gov |
| Project Investigator: Peter Taylor Paul Tikalsky (Univ of Utah) | Phone: 294-9333 801-581-6931 | E-mail: ptaylor@iastate.edu tikalsky@civil.utah.edu |
| Lead Agency Project ID: RT 0149 | Other Project ID (i.e., contract #): Addendum 241 | Project Start Date: 12/01/05 |
| Original Project End Date: 8/25/11 | Current Project End Date: 06/30/2013 | Number of Extensions: Pooled fund project; interim funding |

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 |
|----------------------|--------------------------------|------------------------------------|
| \$715,000 | \$667,395 | 99 |

Quarterly Project Statistics:

| Total Project Expenses This Quarter | Total Amount of Funds Expended This Quarter | Percentage of Work Completed This Quarter |
|-------------------------------------|---|---|
| \$0 | | 1% |

Project Description:

Plan for the *Development of Ternary Concrete Mixtures Manual of Practice*

DRAFT Table of contents

1. Introduction

The introduction will describe the purpose of the manual and define terminology. The scope of the manual will be clearly defined and the organization of the manual will also be presented.

2. Fresh properties

This chapter will discuss how fresh properties of mixtures are affected by ternary systems. Properties to be discussed include workability, heat of hydration, setting time and air entrainment. The discussion will be built around the composition of the individual components that may be used in a ternary mixture.

3. Hardened properties

Similar to the previous chapter, this section will focus on hardened properties of mixtures containing ternary systems. Properties to be discussed include potential durability, strength, stiffness, shrinkage and cracking risk.

4. Sustainability

This chapter will discuss how ternary mixtures can be used to improve sustainability of concrete mixtures and how these improvements can be quantified.

5. Design

Guidance will be provided on what factors a structural or pavement designer needs to be aware of when considering the use of ternary mixtures. Also in this section will be guidance on selecting materials to be used in a ternary mixture and how to proportion them.

6. Constructability

The focus of the discussion will be the changes in construction practice that are necessary, including paying closer attention to setting times, finishing activities and curing.

7. Quality Assurance

Language will be provided for use in a specification, along with recommendations on the factors that will need special attention in quality control and acceptance activities.

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

- Gathered literature for inclusion in the document

Anticipated work next quarter:

- TAC meeting
- Work on text for the Manual

Significant Results:

See report on laboratory study on concrete:

http://www.intrans.iastate.edu/research/documents/research-reports/ternary_mixtures_lab_study_w_cvr1.pdf

See final report on Field demonstrations and project summary:

http://www.intrans.iastate.edu/research/documents/research-reports/ternary_final_w_cvr.pdf

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 – last meeting held 2/2012 in Chicago; emails regarding the project and scope have been on-going.

| Last | First | Affiliation |
|--------------|--------------|--------------------|
| Pyle | Tom | CA DOT |
| Berger | Jim | IA DOT |
| Linda | Narrigon | IA DOT |
| James | Krstulovich | IL DOT |
| Dirks | Douglas | IL DOT |
| Meggers | Dave | KS DOT |
| Browne | Adam | MS DOT |
| Boisvert | Denis | NH DOT |
| Seward | Kenny | OK DOT |
| Ingram | Paul | PA DOT |
| Andrus | Scott | Utah DOT |
| Parry | Jim | WI DOT |
| Adams | Tom | Am Coal Ash Assn |
| Fiorato | Tony | Slag Cement Assn |
| Franklin | Ben | Headwaters |
| Melander for | John | PCA |
| Kosmatka | Steve | PCA |
| Smith | Gordon | ICPA |
| Voigt | Jerry | ACPA |
| Taylor | Peter | ISU CP Tech Center |
| Tikal'sky | Paul | University of Utah |