**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:** Quarter 1 (January 1 – March 31, 2014) X Quarter 2 (April 1 – June 30, 2014) Quarter 3 (July 1 – September 30, 2014) Quarter 4 (October 1 – December 31, 2014) |
| **Project Title:**Development of Performance Properties of Ternary Mixtures: Field Demonstration Projects |
| **Project Manager: Phone: E-mail:**Todd Hanson 239-1226 todd.hanson@iowa.dot.gov |
| **Project Investigator: Phone: E-mail:**Peter Taylor 294-9333 ptaylor@iastate.eduPaul Tikalsky (Univ of Utah- now at Oklahoma State) 801-581-6931 deantikalsky@okstate.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:**5/31/2014 | **Number of Extensions:**Pooled fund project; interim funding |

Project schedule status:

□ On schedule X 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 | $682,689.89 | 100 |

***Quarterly*** Project Statistics:

|  |  |  |
| --- | --- | --- |
|  **Total Project Expenses** **This Quarter** |  **Total Amount of Funds**  **Expended This Quarter** | **Percentage of Work Completed** **This Quarter** |
| $11,445.08 |  | 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.):**

* Use of Ternary Mixtures in Concrete Manual has been edited and will be posted to the pooled fund and C.P. Tech Center web sites in the near future.
* Hard copies have been handed to ACPA and PCA representatives – others are available on request

**Anticipated work next quarter:**

* Work is complete

**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>

The final Guidance Document for Use of Ternary Mixtures in Concrete will be posted soon.

**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).**

An extension was requested to allow completion of the Manual

TAC – last meeting held 11/12/2013 electronic, attended by

Todd Hanson IA DOT Linda Narigon IA DOT

Denis Boisvert NH DOT Paul Ingram PA DOT

Dave Meggers KS DOT Kenny Seward OK DOT

John Melander SCA Steve Kosmatka PCA

Rick Meininger FHWA Jim Grove FHWA

 TAC MEMBERS

