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) Quarter 2 (April 1 – June 30, 2014) X 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.edu
Paul Tikalsky (Univ of Utah- now at Oklahoma State)	801-581-6931	deantikalsky@okstate.edu

Lead Agency Project ID:	**Other Project ID (i.e., contract #):**	**Project Start Date:**
RT 0149	**Addendum 241**	12/01/05
Original Project End Date:	**Current Project End Date:**	**Number of Extensions:**
8/25/11	5/31/14	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	$701,890.64	100

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
$19,200.75		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.):

- Manual has been published and is available on CPTech Website http://www.cptechcenter.org/technical-library/documents/ternary_mix_manual-508-compliant.pdf
- 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

See Guidance Document
http://www.cptechcenter.org/technical-library/documents/ternary_mix_manual-508-compliant.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).

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

Last	First	Affiliation
Todd	Hanson	IA DOT
Scott	Andrus	Utah DOT
Boisvert	Denis	NH DOT-Mat/Res
Browne	Adam	MS DOT-Materials
Matt	Mueller	IL DOT
Ingram	Paul	PA DOT
Jain	Vijay	CA DOT
Pyle	Tom	CA DOT
Meggers	Dave	KS DOT-Mat/Res
Parry	Jim	WI DOT
Seward	Kenny	OK DOT
Adams	Tom	Am Coal Ash Assn
Melander	John	Slag Cement Assn
Franklin	Ben	Headwaters
Kosmatka	Steve	PCA
Smith	Gordon	ICPA
Voigt	Jerry	ACPA
Ahlstrom	Gina	FHWA
Meininger	Rick	FHWA
Mcdaniel	Lisa	FHWA-Iowa
Grove	Jim	FHWA
Tikalsky	Paul	Oklahoma State Univ
Taylor	Peter	ISU CP Tech Center