

## TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): New Hampshire 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> <i>(i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i>  <p style="text-align: center;">TPF-5(230)</p>	<b>Transportation Pooled Fund Program - Report Period:</b> <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input checked="" type="checkbox"/> Quarter 4 (October 1 – December 31)	
<b>Project Title:</b> <p style="text-align: center;"><b>Evaluation of Plant-Produced High-Percentage RAP Mixtures in the Northeast</b></p>		
<b>Name of Project Manager(s):</b> <p style="text-align: center;">Jo Sias Daniel</p>	<b>Phone Number:</b> <p style="text-align: center;">603-862-3277</p>	<b>E-Mail</b> <p style="text-align: center;">jo.daniel@unh.edu</p>
<b>Lead Agency Project ID:</b>	<b>Other Project ID (i.e., contract #):</b>	<b>Project Start Date:</b> <p style="text-align: center;"><b>8/11/2010</b></p>
<b>Original Project End Date:</b> <p style="text-align: center;"><b>12/31/2013</b></p>	<b>Current Project End Date:</b> <p style="text-align: center;">12/31/2015</p>	<b>Number of Extensions:</b> <p style="text-align: center;">2</p>

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	Percentage of Work Completed to Date
781,706 Revised to 731,287 Revised to 796,706	703,507	85%

**Quarterly** Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
	0	

## **Project Description:**

### Research Objectives

The objectives of this research project are to:

1. Evaluation the performance in terms of low temperature cracking, fatigue cracking, and moisture sensitivity of plant produced RAP mixtures in the laboratory and field.
2. Establish guidelines on when it is necessary to bump binder grades with RAP mixtures.
3. Provides further understanding of the blending that occurs between RAP and virgin binder in plant-produced mixtures.
4. Refine fatigue failure criteria for RAP mixtures that can be used in the simplified Viscoelastic Continuum Damage (S-VECD) model.

### Research Plan

The research plan is broken down into three phases with an additional task. Phase I focused on evaluating the effects of binder grade and plant type on the properties of mixtures with various percentages of RAP. Phase II of the study evaluated silo storage time and the fatigue failure criteria in the S-VECD model. Phase III was a laboratory study to isolate the effects of mixture variables without changing plant production variables. The additional task is to complete the silo storage study that was started in Phase II.

The following tasks will be required to achieve the research objectives for all phases of this project:

1. Producing Plant Mixtures.
2. Testing and Analysis of Asphalt Binders and Mixtures.
3. Construction and Evaluation of Field Test Sections.
4. Reporting.

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

During this quarter, the research team has focused on two tasks:

1. Phase II testing, analysis, and report writing
2. Phase III report writing

### **1. Phase II**

Testing of the Phase II NH mixtures is underway. The Phase II report will be completed and sent to the technical committee for review as soon as the testing is complete.

### **2. Phase III**

The Phase III testing is complete. Results of this work were presented at TRB and will be published in the TRR. The poster presentation and final version of the paper are attached. The Phase III report will be completed very soon and submitted to the technical committee for review.

The subcontracts for the additional silo storage study task were finally set up and approved in December; testing will begin on this task in the upcoming quarter.

Additionally, the paper submitted to AAPT examining all of the Phase I fatigue data and analysis will be presented at the 2015 AAPT meeting in March.

## **Anticipated work next quarter:**

1. Continue Phase II testing and draft report writing
2. Submit Phase III draft report to technical committee
3. Begin testing the new set of virgin mixtures for the silo storage study additional task

**Significant Results:**

There are no new results to present this quarter.

**Circumstance affecting project or budget. (Please 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).**

There were delays in the execution of the subcontracts for the new silo storage study task. These have been resolved and testing will commence in the upcoming quarter.

**Potential Implementation:**