

## TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: 12/31/2014

Lead Agency (FHWA or State DOT): Vermont Agency of Transportation

**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.*

<p><b>Transportation Pooled Fund Program Project #</b> (i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</p> <p>TPF-5(222)</p>	<p><b>Transportation Pooled Fund Program - Report Period:</b></p> <p><input type="checkbox"/> Quarter 1 (January 1 – March 31)</p> <p><input type="checkbox"/> Quarter 2 (April 1 – June 30)</p> <p><input type="checkbox"/> Quarter 3 (July 1 – September 30)</p> <p><input checked="" type="checkbox"/> Quarter 4 (October 1 – December 31)</p>	
<p><b>Project Title:</b> New England Transportation Consortium (VI)</p>		
<p><b>Name of Project Manager(s):</b> Bill Ahearn</p>	<p><b>Phone Number:</b> 802-828-2561</p>	<p><b>E-Mail</b> <a href="mailto:Bill.Ahearn@state.vt.us">Bill.Ahearn@state.vt.us</a></p>
<p><b>Lead Agency Project ID:</b> CA0306</p>	<p><b>Other Project ID (i.e., contract #):</b> NETC 06-4 NETC 07-1 NETC 09-2 NETC 09-3 NETC 10-3 NETC 13-1 NETC 13-2</p>	<p><b>Project Start Date:</b> 9/16/13 7/1/13 9/1/13 9/1/13 9/16/13 9/1/14 6/1/14</p>
<p><b>Original Project End Date:</b> NETC 06-4 9/15/15 NETC 07-1 3/31/16 NETC 09-2 2/28/16 NETC 09-3 8/31/15 NETC 10-3 9/15/15 NETC 13-1 8/31/16 NETC 13-2 5/31/16</p>	<p><b>Current Project End Date:</b> 9/15/15 3/31/16 2/28/16 8/31/15 9/15/15 8/31/16 5/31/16</p>	<p><b>Number of Extensions:</b> 0 0 0 0 0 0 0</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
NETC 06-4	\$242,909	\$5,247.26	15%
NETC 07-1	\$198,154	\$90,489.26 92,237.22	45%
NETC 09-2	\$80,000	\$17,295.14	45%
NETC 09-3	\$165,000	\$38,810.83 76,869.23	73%
NETC 10-3	\$150,158	\$13,611.77	30%
NETC 13-1	\$174,923	\$17,491.75	15%
NETC 13-2	\$249,785	\$0	0%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter			Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
NETC 06-4	\$5,247.26	0%	\$0	65%
NETC 07-1	\$92,237.22	1%	\$1,747.96	54%
NETC 09-2	\$17,295.14	0%	\$0	51%
NETC 09-3	\$76,869.23	23%	\$38,058.40	66%
NETC 10-3	\$13,611.77	0%	\$0	65%
NETC 13-1	\$17,491.75	10%	\$17,491.75	21%
NETC 13-2	\$0	0%	\$0	26%

**Project Description:**

- 06-4 Preventative Maintenance and Timing of Applications
- 07-1 In-Place Response Mechanisms of Recycled Layers Due to Temperature and Moisture Variations
- 09-2 Effective Establishment of Native Grasses on Roadsides
- 09-3 Advanced Composite Materials: Prototype Development and Demonstration
- 10-3 Low Temperature and Moisture Susceptibility of RAP Mixtures with Warm Mix Technology
- 13-1 Development of High-Early Strength Concrete for Accelerated Bridge Construction Closure Pour Connections
- 13-2 HMA Mixtures Containing Recycled Asphalt Shingles (RAS): Low Temperature and Fatigue Performance of Plant-Produced Mixtures

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

06-4, UMass Dartmouth continued work on the literature review and internet survey (Task 2 and 3). A new contract was prepared for the consultant Mr. David Peshkin.

07-1, During this period, the instrumentation of the Auburn, ME site on Rt. 122 was completed and ME DOT conducted baseline FWD testing for the two sites. The research team contracted with Mr. Bob Eaton to have data loggers installed at the three NH Kancamagus sections to collect hourly temperature in the pavements through the winter and spring thaw period. The research team has also contracted with CRREL to conduct the FWD testing on the Warren Flats and Kancamagus sections during the winter and 2015 spring thaw and recovery season. ME DOT has generously agreed to conduct the FWD testing at the two ME locations during the winter and 2015 spring thaw and recovery season. The proposed plan for the FWD testing is listed below: 1. Fall baseline (completed) 2. Frozen condition (Jan/early Feb) 3. Pre-thaw (late Feb/early March) 4. Weekly during thaw and early recovery 5. Bi-weekly through recovery 6. Early July. If possible, early thaw and refreeze events will also be captured. The research team will be monitoring the temperature data and air temperatures to determine the appropriate timing for the FWD teams to begin the weekly testing to capture the spring thaw. The research team held a web conference with the technical committee on December 5th to discuss the project status and plans. Additional questions were received after the meeting from TC member David Kilpatrick and the research team sent a response to all TC members on December 22nd.

09-2, The following activities were implemented during this reporting period:

Survey and Interviews:

- November 17, 2014 – interview with the RI DOT managers
- December 8, 2014 – interview with the Maine DOT managers
- December 22, 2014 – interview with the New Hampshire DOT managers
- January 6, 2014 – scheduled to interview the Massachusetts DOT managers

Maintenance of the demonstration sites along Rt. 6:

- October 15, 2014: Campanelli established native cool-season grass plots
- December 1, 2014: Kuzovkina and Campanelli prepared clay balls with native grass seeds for dormant seeding
- December 15, 2014: Campanelli established dormant seeding plots using clay balls and direct seeding
- Kuzovkina and Campanelli conducted regular visits to the three sites to evaluate the germination rates of grasses and forbs seeded in fall.

Campanelli visited a meadow in Western Connecticut installed by the DEEP using a TRUAX seed drill in spring 2014 (Trust Land location: 262 Grantville Rd, Winsted, CT).

November 21, 2014: Native plant specialist Mark Brownlee from American Native Plant Nursery/ArcheWild (Pennsylvania) was consulted to assist with the establishment protocols for native species.

09-3, The following activities were implemented during this reporting period:

- Demonstration projects in Bangor, ME and Richmond, ME have been visited and installations of FRP bridge drains were documented. One project in Westbrook, ME has the specification from this project available for bid and closed on December 10, 2014. This bridge uses 8 FRP bridge drains with specifications from this project with an average line item price of all 5 contractors bidding of \$2,900 each (range of \$2,000 to \$3,500 ea).
- Materials testing for baseline strength and durability specimens of ACO and Kenway specimens were completed. FRP Bridge Drain Pipe/Grace composites have baseline control values completed. Durability testing is on going.
- An additional supplier of FRP bridge drains was identified who provide the drains for the Richmond-Dresden bridge project in Maine. These drains are documented in the report for demonstration projects to be submitted. This company is United Fiberglass of America in Springfield, OH.

10-3, Tilcon CT produced 12.5mm mixtures required for this study on 10/11/14. UMass Dartmouth was on-site during production to sample each mixture and document production parameters (RAP moisture content, etc.). UMass Dartmouth began verifying the volumetric properties of each produced mixture. The mixtures verified did not meet the volumetric properties. The contractor assured UMass Dartmouth that these mixtures will be reproduced again during spring 2015.

13-1, The following activities were performed during this reporting period:

- Executed a kickoff meeting with members of the NETC Project Technical Committee.
- Compiled and analyzed responses to the survey that was sent to New England State DOTs and precast/prestressed producer members of the PCI Northeast Bridge Technical Committee, including previously used high-early strength concrete mix designs and specifications.
- Began to prepare concrete mix design specifications based on the literature review and feedback from surveys.

NETC 13-2, UMass Dartmouth contacted several producers of asphalt mixtures in New England about their availability and willingness to participate in the study. One contractor located in Massachusetts agreed to produce the necessary mixtures to fulfill the objectives of the study.

**Anticipated work next quarter:**

06-4, Continue to obtain information on new or planned pavement preservation projects in New England. Investigate and order need laboratory equipment.

07-1, The research team will be analyzing the temperature data to determine the appropriate timing for FWD tests at all sites. The research team will be collecting pavement distress and cross-section information for all of the sites for pavement analysis. The research team will also be investigating the available moisture data from the Warren Flats site,

the possibility of PSPA testing in the summer, and cores to verify the pavement thicknesses at the ME sites.

09-2, Continue to interview the DOT managers (Massachusetts and Vermont). Analyze the results of the interview and write up the summary for the Report. Write a chapter about the establishment of the demonstration plots along Rt. 6. Make preparation for the next growing season to establish additional experimental plots.

09-3, Final Submission of reports for task 1, 2 and 3. Vendor evaluation checklist to be submitted. Complete durability testing of witness plates and submit report. Report on bridge installations

10-3, UMass Dartmouth will seek additional contractors that can produce the required mixtures as a backup for the current two contractors.

13-1, Prepare a written summary of the literature review including main findings of relevant research reports, technical papers and survey responses. Begin testing preliminary concrete mix designs and comparing the test results with the four initial short-term performance criteria (set time, air content, slump and compressive strength). Adjust existing concrete mix design specifications based on preliminary test results and feedback from the NETC Project Technical Committee.

13-2, Complete Literature Review. The contractor (P.J.Kneating) will deliver the virgin materials (asphalt binder, aggregates, and shingles) that will be used in producing the mixture to UMass. UMass will start performing mix designs.

#### **Significant Results:**

None as of this reporting period.

#### **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).**

NETC 06-4, UMass Dartmouth requested a no-cost time extension (September 2014) in order to include more new pavement preservation projects ongoing in the New England states to this study, investigate and purchase the needed testing devices, and to allow more time for field evaluation of the preservation projects included in the study. The requested time extension was for one year with a new end date of 9/15/2016. UMass Dartmouth has not yet received a response regarding if this extension has been approved.

NETC 07-1, The data logger at the Waterford site is experiencing intermittent issues with data collection/transmission. The research team and ME DOT are working with Beaded Stream to diagnose the issue. The thermistor string at the Warren Flats site is currently reporting inaccurate data. The research team is investigating this issue and developing a backup plan if the thermistor string is not functioning.

NETC 09-2, No problems were encountered during this reporting period.

NETC 09-3, ACO baseline tensile strength values appear to be below specified values.

NETC 10-3, 1. In September 2014, UMass Dartmouth formally requested a no additional cost time extension for this project of twelve month (new end date 9/15/2016). The basis of the request is that the contractors have not produced or provided the mixtures required for this study. UMass Dartmouth is waiting for a response on this time extension request. 2. One contractor produced the necessary mixtures to conduct the study, however, these mixtures did not meet the volumetric requirements and accordingly no further testing will be performed on these mixtures. The contractor will reproduce these mixtures again during spring 2015.

NETC 13-1 and 13-2, none at this time.

#### **Potential Implementation:**

The 7 research projects listed above are still in progress. Implementations of the results of those projects are not anticipated in the near future.

