TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Virginia Department 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.

Transportation Pooled Fund Program Project # *(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX)* TPF-5 (225)		**Transportation Pooled Fund Program - Report Period:** ☐ Quarter 1 (January 1 – March 31) ☑ Quarter 2 (April 1 – June 30) ☐ Quarter 3 (July 1 – September 30) ☐ Quarter 4 (October 1 – December 31)
Project Title: Validation of Hot-Poured Crack Sealant Performance Based Guidelines		
Name of Project Manager(s): Imad L. Al-Qadi	**Phone Number:** 217-265 0427	**E-Mail** alqadi@illinois.edu
Lead Agency Project ID: VCTIR 98160	**Other Project ID (i.e., contract #):**	**Project Start Date:** 09/01/2010
Original Project End Date: 09/01/2013	**Current Project End Date:** 09/01/2013	**Number of Extensions:** -

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
730,000	53,230.70	20%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
26,976.67 (3.7%)	26,976.67	20%

Project Description:

Recently, performance-based guidelines were developed as a systematic procedure to select hot-poured bituminous crack sealants. These guidelines are the outcome of the pool-fund North American Consortium led by the University of Illinois at Urbana-Champaign and the National Research Council of Canada . The work proposed a “Sealant Grade” (SG) system to select hot-poured crack sealant based on environmental conditions. A special effort was made to use the equipment originally developed by the Strategic Highway Research Program (SHRP), which was used to measure binder rheological behavior as part of the Performance Grade (PG) system.

These developed laboratory tests allow for measuring hot-poured bituminous-based crack sealant’s rheological and mechanical properties over a wide range of service temperatures. Preliminary thresholds for each test were identified to ensure desirable field performance. Then, the preliminary thresholds were utilized in the SG system based on extensive laboratory testing, limited between-laboratory testing, and limited field performance data. However, because the preliminary thresholds were determined based on only limited field data, mainly from Canada, a comprehensive field study is urgently needed to validate and fine-tune the present threshold values. Furthermore, the developed guidelines should be validated in several states under various climate zones.

Objectives:

The developed laboratory tests and the new guidelines must be verified for precision and bias between laboratories as well as within laboratories. In addition, since preliminary thresholds were established for each test based on extensive laboratory testing but with limited field and within-laboratory data, an extensive field study is urgently needed to validate and fine-tune the threshold values. Hence, this proposed study aims 1) to validate the developed laboratory tests, 2) to determine the thresholds using a more diverse array of field performance data, and 3) to implement crack sealant guidelines for field application.

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

Meetings:

A tele-conference took place on April 5th, 2011. The details of upcoming field installations were discussed in addition to the approval of proposed installation guidelines.

Field:

The first field installation took place on June 20-22, 2011 in Sandston, Virginia. Five different products were laid down on a test site proposed by Virginia DOT. Detailed survey of sections before and after installation was completed.

A field survey was conducted in Wisconsin for the proposed test site by Wisconsin DOT. A 2-3 mile section was identified for the test site out of a 12 mile sealant project in Belleville, Wisconsin.

Preparation of field installation for other test sites is underway. Twelve materials from different manufacturers were received and stored in University of Illinois facilities.

Lab:

In progress with calibration experimental devices to be used for testing (BBR, DSR, viscometer, etc.).

Anticipated work next quarter:

Field installations for the next 6 states is anticipated in August-September.

Laboratory testing for the materials used in the field installations will be started. Special focus will be on the evaluation of aging of sealants during installation. Field samples were collected from Virginia and Wisconsin installations. These samples will be tested to determine rheological and mechanical properties.

A small kettle will be borrowed from Sherwin Industries (a Crafco product distributor) to run a laboratory aging study. This is anticipated in the first two weeks of August.

Significant Results:

No significant results are available up to date.

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).

No major problems were encountered during this quarter.

Potential Implementation:

Based on the field validation study at different test sites, performance thresholds will be updated for the laboratory tests designed for sealant grading. These thresholds were initially determined based on limited field data. The finalized grading system can be used by the states on the selection of sealants in their climatic region. Sealant field installation guidelines will also be available at the end of this project for the use of states.