

**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 # TPF-5(229)		Transportation Pooled Fund Program-Report Period: Quarterly 1 (January 1—March 31) ✓ Quarterly 2 (April 1—June 30) Quarterly 3 (July 1—September 30) Quarterly 4 (October 4—December 31)	
Project Title: Characterization of Drainage Layer Properties for MEPDG			
Name of Project Manager(s): Brian K. Diefenderfer	Phone Number: (434) 293-1944	E-Mail: Brian.Diefenderfer@VDOT.Virginia.gov	
Lead Agency Project ID:	Other Project ID (i.e., contract #): VTRC-MOA-11-005(98289)	Project Start Date: September 1, 2010	
Original Project End Date: August 31,2013	Current Project End Date: August 31,2013	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
270,000.00	11.43%	18%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$30861/ 30%	\$9258	13%

Project Description:

The objectives of this pooled fund study are to:

1. develop methods for characterizing the elastic modulus and strength of pavement drainage layers for the Mechanistic-Empirical Pavement Design Guide (MEPDG),
2. to perform analysis of the stability and failure of the drainage layer in the pavement structure, and
3. to develop specifications for required minimum porosity for effective drainage.

Progress this Quarter (Includes meetings, work plan status, contract status, significant progress, etc.):**1. Collection of the information of drainage material for laboratory testing**

The participating states in this program have been contacted for their typical drainage layer information. The types of drainage material (unbound open graded base, asphalt treated permeable base or cement treated permeable base), gradation of aggregates, the type of stabilizing agent used and the typical binder content have been provided by Idaho, Oklahoma, Virginia and Wisconsin in accordance with their specifications. The collected material information will be used to prepare specimens for laboratory testing.

2. Estimation of the quantity of material for testing

The quantities of the typical drainage material for testing have been estimated according to the specification of each participating state. The dimensions of the specimens are estimated in accordance with the ASTM standard, with the requirement that the diameter of the specimen is at least four times the maximum particle size and the height of the specimen is at least twice the diameter. The estimated quantity of drainage material will be followed to acquire material from each participating state.

3. Collection of the drainage material for laboratory testing from participating state

The drainage layer material from Virginia (asphalt-stabilized, open-graded drainage layer) has been collected. This material was collected at an asphalt plant located in Danville, Virginia on July 12, 2011. Some properties of this material such as the identified aggregate gradation and asphalt content have also been obtained. The location of the drainage layer in the pavement structure has been identified as well.

4. Laboratory equipment calibration

The laboratory equipment for resilient modulus test is from Interlaken Inc. and we have contacted the representative from Interlaken to calibrate the laboratory equipment. The instrument setup for modulus testing has also been performed by our working group.

5. Test protocol planning

The resilient modulus testing will be conducted according to AASHTO T294-92 for the unbound

granular materials and the ATPB. The modulus of cement treated materials will be tested in accordance with ASTM C469. In addition, the strength of unbound granular base, asphalt treated permeable base and the cement treated permeable base will be tested for the 3-level inputs of MEPDG. The AASHTO T215, Permeability of Granular Soils (Constant Height) will be followed to perform the permeability testing of the drainage material at different porosities. .

Anticipated work next quarter:

Acquire drainage layer materials from participating states Idaho, Oklahoma and Wisconsin.

Conduct resilient modulus tests of the selected drainage materials.

The data acquired from laboratory testing will be analyzed. The relationship between fine content, asphalt content, cement content and porosity, and the influence of these variables on the modulus and permeability of each typical drainage material will be investigated.

Significant Results:

Information of typical drainage material of each participating state has been collected.

The asphalt-stabilized, open graded drainage materials have been acquired from Virginia and are ready to be tested.

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).

No problems have been encountered to date.

Potential Implementation: