

**TRANSPORTATION POLLED 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(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 1—December 31)	
Project Title: Characterization of Drainage Layer Properties for MEPDG			
Name of Project Manager(s): Brain K. Diefenderfer	Phone Number: (434)293-1944	E-Mail: Brain.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	64,573.15	25%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$8,109	\$8,109	40%

Project Description:

The objectives of this pooled fund study are to develop methods for characterizing the elastic modulus and strength of pavement drainage layers for the Mechanistic-Empirical Pavement Design Guide (MEPDG), to perform analysis of the stability and failure of the drainage layer in the pavement structure, and to develop specifications for required minimum porosity for effective drainage.

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

1. Determine the theoretical maximum specific gravity (G_{mm}) of the material for drainage layer
The objectives of this pooled fund study are to develop methods for characterizing the elastic modulus and strength of pavement drainage layers for the Mechanistic-Empirical Pavement Design Guide (MEPDG), to perform analysis of the stability and failure of the drainage layer in the pavement structure, and to develop specifications for required minimum porosity for effective drainage.

2. Personnel were trained to make specimens using the gyratory compactor The gyratory compactor was used to compact specimen with air void content ranging from 20% to 30%. Personnel are trained to use the gyratory compactor to prepare specimens.

3. Making specimens
Specimens of 6" diameter and 7" height with 20% to 30% air void content were made using the gyratory compactor with the material from Virginia. Samples were cored and cut to reach 4" diameter and 6" height, which is the standard size used for other strength test. Also, specimens with more than 30% air void content have been made by hand using 4" diameter mold.

4. Determine the bulk specific gravity and air void content of specimens
The SSD method of testing G_m is not applicable for the specimen with high air void content and water absorption, therefore, the parafilm method is used instead to determine the specific bulk gravity of these specimens.

Anticipated work next quarter:

More specimens with air void ratios ranging from 20% to 35% will be made using the gyratory compactor or by hand using the asphalt stabilized open graded drainage material from Virginia. The dynamic modulus testing will be conducted on these specimens. The AASHTO T215, Permeability of Granular Soils (Constant Height) will be followed to perform the permeability testing on these specimens.

The data acquired from laboratory testing will be analyzed. The relationship between the dynamic modulus, the permeability of ATPB and the porosities will be investigated.

The location effects of drainage layer will continue to be investigated and suggestions would be made for selecting the location of drainage layer.

Significant Results:

1. The theoretical maximum specific gravity of the asphalt stabilized open graded material from Virginia has been determined.
2. Personnel have been trained to make specimens by using the gyratory compactor and to conduct the SSD method and parafilm method to determine the bulk specific gravity of these specimens.
3. Specimens with air void content ranging from 20% to 30% have been made and the bulk specific gravity of these specimens has been determined.

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: