

## TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): \_\_\_\_\_Maryland 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(285)	Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31, 2014) <input type="checkbox"/> Quarter 2 (April 1 – June 30, 2014) <input type="checkbox"/> Quarter 3 (July 1 – September 30, 2014) <input type="checkbox"/> Quarter 4 (October 1 – December 31, 2014) <input type="checkbox"/> Quarter 5 (January 1 – March 31, 2015) <input type="checkbox"/> Quarter 6 (April 1 – June 30, 2015) <input type="checkbox"/> Quarter 7 (July 1 – September 30, 2015) <input type="checkbox"/> Quarter 8 (October 1 – December 31, 2015) <input type="checkbox"/> Quarter 9 (January 1 – March 31, 2016) <input type="checkbox"/> Quarter 10 (April 1 – June 31, 2016) <input type="checkbox"/> Quarter 11 (July 1 – September 30, 2016) <input checked="" type="checkbox"/> Quarter 12 (October 1 – December 31, 2016)	
Project Title: Standardizing Lightweight Deflectometer Measurements for QA and Modulus Determination in Unbound Bases and Subgrades		
Name of Project Manager(s): Rodney Wynn	Phone Number: 443-572-5043	E-Mail <a href="mailto:RWynn@sha.state.md.us">RWynn@sha.state.md.us</a>
Lead Agency Project ID: TPF-5(285)	Other Project ID (i.e., contract #):	Project Start Date: January/15/2014
Original Project End Date: December/31/2015	Current Project End Date: November/30/2016	Number of Extensions: 2

**Project schedule status:**

- On schedule    
  On revised schedule    
  Ahead of schedule    
  Behind schedule

**Overall Project Statistics:**

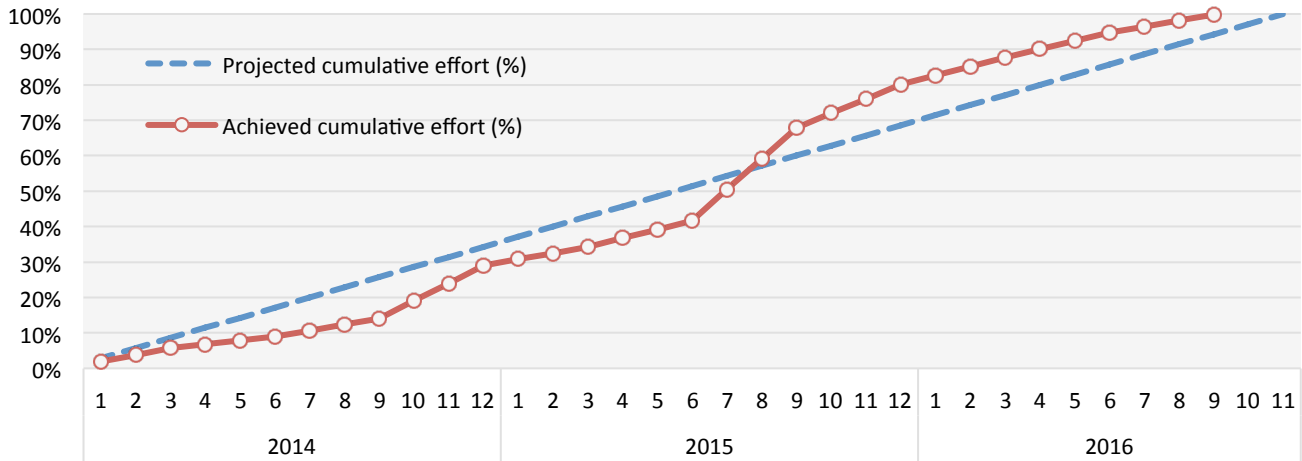
Total Project Budget	Total Cost to Date for Project	Percentage of Work Completed to Date
\$371,984.00	\$371,984.00	99%

**Quarterly Project Statistics:**

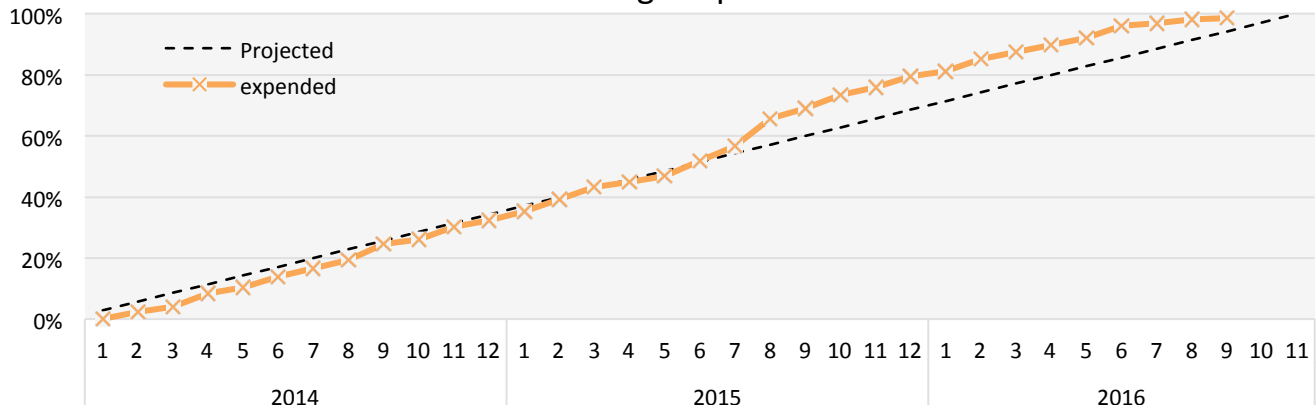
Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$14,661.38 (3.9%)	\$14,661.38	100%

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

**Percentage Effort**



**Percentage Expenditure**



The progress with respect to each Task is as followed:

**Literature Review. Percent completion of Task 1: 100%**

Project personnel participating in these activities: Schwartz, Khosravifar, and Afsharikia.

**Equipment Evaluation. Percent completion of Task 2: 100%**

Project personnel participating in these activities: Schwartz, Afsharikia, and Khosravifar.

**Model Refinement/Development. Percentage completion of Task 3: 100%**

Project personnel participating in these activities: Schwartz, Afsharikia, and Khosravifar.

**Controlled Trials. Percentage completion of Task 4: 100%**

Project personnel participating in these activities: Schwartz, Khosravifar, and Afsharikia.

**Field Validation. Percentage completion of Task 5: 100%**

Project personnel participating in these activities: Schwartz, Afsharikia, and Khosravifar.

**Draft Test Specifications. Percentage completion of Task 6: 95%**

Two proposed specifications were prepared in AASHTO format for implementation of (1) LWD on mold method of target surface modulus derivation, and (2) field quality control using LWD:

(1) The sample preparation in lab along with the LWD testing has been illustrated in details. Field range of acceptable compaction moisture content to be determined and reported. Then the target calculation was explained based on LWD deflection measurements on mold, within the acceptable moisture range, for one-layer or two-layer systems.

(2) In this specification, in-situ LWD testing, procedure, and comparison to the lab determined target modulus was provided. Recommendations for choosing the type of material, placing, compaction, and gravimetric water content measurement were also offered.

Project personnel participating in these activities: Schwartz, Afsharikia, and Khosravifar.

**Workshop and Final Report. Percentage completion of Task 7: 98%**

The draft final report was substantially completed during this reporting period. The report will also include suggestions for future work. This report will be delivered to SHA in a format suitable for online publication.

UMD personnel contact information:

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**Anticipated work next quarter:**

- Delivering the Final Report draft and specifications.
- Scheduling the final workshop focusing on the research findings from Tasks 3 through 5 and the draft specification from Task 6.
- Applying potential feedbacks from technical advisory committee.

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).

None

**Potential Implementation:**

LWDs should be implemented more widely using standardized testing procedures and data interpretation methods. LWDs are a tools for performance based construction quality assurance testing that not only result in a better product but also provide the quantitative measures critical to better understanding the connection between pavement design and long term pavement performance. As the benefits of performance based quality assurance testing become increasingly apparent, more public agencies and private consultants are expected to acquire these tools and implement the standardized procedures. The product of this research will allow state DOT construction specifications to be modified to include this new lightweight deflectometer (LWD) option for construction quality assurance.