

Transportation Pooled Fund Program

Project Title: “Improving the Quality of Pavement Profiler Measurement”

Project Manager and Phone Number: Robert L. Orthmeyer, P.E. (708) 283-3533 robert.orthmeyer@.dot.gov	Project No: TPF 5(063)	Project is: <input type="checkbox"/> PLANNING <input checked="" type="checkbox"/> R&D
Reporting Period: January 1 through March 31, 2010	Multi Year Project Through September 2014	

Description of Work Performed and Progress:

PLEASE NOTE THAT THE ProVAL support contract has been awarded!! (See Priority 3).

Priority	Contract Amount	TPF5063 Funds
One - A	\$ 483,423.00	Benchmark Testing FHWA Contract DTFH61-07-C-00024
One - B	\$ 60,000.00	Reference Device APR: FHWA Contract DTFH61-07-P-00204
One - B	\$ 58,909.00	Reference Device ICC: FHWA Contract DTFH61-07-P-00211
One - B	\$ 60,000.00	Reference Device SSI: FHWA Contract DTFH61-07-P-00212
One - B	(FHWA - LTPP)	Ref. Device VATech: FHWA Contract DTFH61-07-P-00213
Two	\$ 102,002.12	UMTRI: TPF 5(063) funds through WFLHD
Three A	(FHWA - HIPT)	Karamihas (FHWA: HIPT)
Three B - 1	(FHWA - HIPT)	ProVAL Support - Year 1(FHWA: HIPT)
Three B - 2	\$ 147,239.00	ProVAL Support - Option Yr 1
ProVAL Support	(FHWA - HIPT)	ProVAL Support Year 3 & 4 (FHWA: HIPT)
Travel Nevada 04	\$ 19,474.00	Nevada Meeting October 2004: TPF 5(063) funds
Travel June 05	(FHWA - MD)	Chicago Meeting- June 2005:HIPT (MD Funds)
Travel - Ohio 05	\$ 13,438.00	Columbus, OH meeting Sept. 2005: TPF 5(063) funds (FMIS)
Travel - Iowa 06	\$ 5,503.00	Des Moines, IA meeting Sept. 2006: TPF 5(063) funds (FMIS)
Travel - MN 07	\$ 16,826.75	Bloomington, MN meeting July 2007: Continuation of study
Travel - VA 07	\$ 17,135.55	Danville, VA meeting October 2007: Priority One & Five
Travel - TX 08	\$ 15,898.00	Austin, TX meeting October 2008: Priority 1, 3, 4, 5
Three - ProVAL	\$ 22,000.00	Transtec for Cross Correlation Upgrade
Five - Phase I	\$ 99,800.00	Starodub, Inc.
Five - Phase II	\$ 156,008.00	Starodub, Inc.
Travel - GA 09	\$ 40,000.00	Atlanta, GA meeting & RPUG conference
Total	\$ 1,317,656.42	

A Technical Advisory Committee (TAC) meeting was held December 8, 2009 prior to the RPUG annual meeting in Atlanta, GA. The participating agencies were updated on the study progress. There were 18 participating State Highway Agencies in the session and representatives from FHWA Federal Lands, LTPP, and the Resource Center. An update was provided by UMTRI on the benchmark testing conducted at the MnROAD facility in October and at the Wisconsin DOT longitudinal tined concrete section. The first session provided good insights into the process and the TAC recommended a second round of testing in the Spring of 2010 at the same locations. Transtec provided an update on the latest version of ProVAL 3.0 and presented an advanced workshop for the pooled fund study participants on December 9th. The group voted to pursue development of a profiler system that will function in an urban

setting that includes stopping and starting that will provide an urban IRI. See images below for devices and equipment at the benchmark evaluation:



UMTRI Benchmark Cart



Benchmark cart laser



Virginia Tech System



ICC SurPRO



SSI Surface Profiling System



APR Auto Rod & Level



Benchmark Cart System Following Steel Tape

The group voted to extend the pooled fund study for five more years – through September 2014, seek additional participating agencies and seek additional funding of \$15,000 per year. A notice will be sent out through the pooled fund study website.

The following list of priorities was reviewed and approved by the TAC:

1. Reference Profile Device (development of)
 - a. Benchmark Testing
 - b. Reference Device
2. Critical Profile Accuracy Requirements (definition) - Completed
3. Construction Acceptance and Correction Software (ProVAL: www.roadprofile.com) - Ongoing
4. Regional Certification / Validation Sites – On Hold for completion of Priority One.
5. Evaluating Upper Limits of Single Accelerometer and Single Height Sensor – Contractor is on board and Phase II has begun.
6. Emerging Technology That Enhances Profile Measurement
 - a. Automated Faulting Measurement – (In procurement for ProVAL module).
 - b. Urban IRI Measurement
7. Support for Road Profiler User's Group

Priority One – Reference Device(s):

Benchmark testing and evaluation of potential reference devices was conducted during the week of October 19th beginning at MnROAD for five sections and included a longitudinal tined concrete section near Junction City, WI on an unopened section US 10 near the junction of WI 34.

The vendors selected to provide potential profiler reference devices are:

1. APR Consultants
2. International Cybernetics Corporation - ICC
3. Surface Systems International, LLC -SSI
4. Virginia Tech (FHWA – LTTP Funds)

Priority Three: A new ProVAL Support contract has been awarded!! The Transtec Group, Inc. will be providing technical support for the software and maintaining the www.roadprofile.com website. The full new version of ProVAL 3.0 is available!!

The latest version of ProVAL is available for download free of charge at the website: www.roadprofile.com.

Priority Five - Evaluating Upper Limits of Single Accelerometer and Single Height Sensor: The project has begun with Dr.'s Nicolas Gagarine and James Mekemson of Starodub, Inc. providing the research and report. The phase I report has been provided to FHWA. The second phase will quantify the aspects identified in the first phase report.

Funding - There is currently \$1,361,800.00 of obligated funds from the participating SHA's in the pooled fund study account. A total of \$1.43 Million has been committed to the project over the four year time frame from the participating SHA's. When combined with FHWA funding, a total of \$2,558,000 has been committed to this pooled fund study.

Participating Agencies: California, Colorado, Connecticut, Florida, Georgia, Illinois, Kansas, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas and Wisconsin. FHWA offices include: Federal Lands, LTPP, the Office of Technical Services Resource Center and the Office of Pavement Technology (HIPT).

Accomplishments to Date:

Priority One: Benchmark testing tool to evaluate potential profiler reference devices;
Priority Two: Critical Profile Accuracy Requirements study and report (see website for CPAR report);
Priority Three: ProVAL software and support (www.roadprofile.com) that includes grinding simulation;
Priority Five: First phase of understanding the limitations of a single accelerometer.

Note: A web site has been developed to manage all of the pooled fund study proposals, solicitations and projects. The TPF-5(063) Profile Quality study that includes all documents and reports can be found at: <http://www.pooledfund.org/projectdetails.asp?id=280&status=4>.

NEXT MEETING: Our next face-to-face meeting will be held in Roanoke, VA in conjunction with and include the 2010 RPUG meeting during the week of October 24th. The TAC voted to include the RPUG session and registration through 2014. Please check the RPUG site for meeting registration and additional hotel rate information.

STATUS AND COMPLETION DATE

Percentage of work completed to date for total project

Project is: 70 %

X on schedule ____ behind schedule, explain:

Expected Completion Date: September 30, 2014

Robert L. Orthmeyer, P.E.

Project Manager