

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: 07/01/2020

Lead Agency (FHWA or State DOT): Washington State DOT

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(332)	Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input checked="" type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> Quarter 4 (October 1 – December 31)	
Project Title: LTPP Forensic Evaluations		
Name of Project Manager(s): Jeff Uhlmeyer, P.E. Mustafa Mohamedali P.E. M.ASCE PMP	Phone Number: 360-709-5485 360-704-6307	E-Mail UhlmeyJ@wsdot.wa.gov MohameM@wsdot.wa.gov
Lead Agency Project ID: Y-12005	Other Project ID (i.e., contract #): Y-12005	Project Start Date: December 11, 2017
Original Project End Date: November 30, 2019	Current Project End Date: December 31, 2020	Number of Extensions: 1

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
Current contract = \$502,959.08 (Y-12005)	\$321,542.90	63.9%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$321,542.90 (14.3% spent this quarter)	\$69,558.32	79.5%

Project Description:

The objective of this project is to perform forensic evaluations on Long-Term Pavement Performance (LTPP) test sections as they go out of service, in general accordance with the guidelines provided in the Transportation Research Board's National Cooperative Highway Research Program (NCHRP) Report 747: "Guide for Conducting Forensic Investigations of Highway Pavements."

The forensic evaluations are to be performed on LTPP test sections, capturing data on exactly why the section performed as it did, and what ultimately led to its removal from the program. Consistent with the NCHRP Report 747 Guidelines, LTPP test sections considered for forensic evaluation will first undergo a desktop study to determine additional data needs, if any, to explain its performance. Follow-up investigations may entail trenching and coring, measuring lift deflection, and potential lab testing of field samples for materials characteristics.

The project is task order based and its scope consists of the four tasks detailed below. The task orders associated with each task have been executed and a summary of the progress to date for each task is also detailed below:

1. Project Management (Task Orders AA and AE)

All project management activities under this task are up to date and on schedule.

2. Test Section Selection (Task Orders AB and AF)

Well over 100 LTPP test sections have been identified for potential forensic evaluation. Nominations have been submitted and approved for 49 test sections in Arizona, California, Colorado, Florida, Georgia, Iowa, Kansas, Maine, Mississippi, Montana, New Mexico, Ohio, Oklahoma, South Carolina, Texas, Utah and Washington. During the reporting period in question, nominations were submitted and approved for six test sections – one in Texas, one in South Carolina, one in Maine and three in Utah. It is anticipated that any additional test section nominations will be submitted through the end of August 2020, which should allow for adequate time to complete any required follow-up investigations.

Desktop studies and the associated technical memoranda documenting the studies have been completed for 44 of the 49 approved test sections. The studies and preparation of the associated memoranda have also been started for the remaining 5 test sections – Texas, Maine and Utah (3).

3. Forensic Evaluations (Task Orders AC and AG)

Follow-up forensic evaluations and the associated documentation have been completed or they were not required for the test sections in Colorado, Florida, Georgia, Kansas, Ohio, South Carolina, Texas and Washington. These follow-up investigations are ongoing for test sections in Arizona, California, Iowa, Mississippi, and Ohio. In addition, a determination has yet to be made for the need of follow-up investigations at the five Maine, Texas and Utah test sections, as the associated desktop studies are just getting underway.

4. Final Project Report (Task Order AD)

Activities associated with the preparation of the final report are not anticipated to commence until October 2020. The period of performance for this task order was extended from November 30, 2019 to December 31, 2020.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**Project Management (Task Orders AA and AE)**

- Continued working on those management activities necessary for the successful completion of the project including cost control, subcontractor control, preparation of progress reports and invoices, and participation in meeting/conference calls with WSDOT.
- As part of the above bullet item and working with WSDOT staff, completed and submitted the ninth quarterly progress report for the project covering the period of April 1 to June 30, 2020. Also, prepared and submitted invoices for the months of April, May and June 2020.
- Prepared for and participated in routine internal project status meeting to review the work done and planned as well as to address issues that may be affecting the project.
- As needed, communicated with WSDOT staff via telephone or message to address issues related to the project and the associated task orders.
- Continued communication and coordination activities with the FHWA LTPP team and the LTPP Data Collection Contractor (DCC) team.

- Began working on proposal to explore possibility of shifting travel and ODC funds from one task order to labor funds under another task order. The available travel and ODC funds have not been used as anticipated due to the support being provided by the FHWA LTPP team as well as the State DOTs where we are conducting follow-up investigations.
- Prepared for and participated in the FHWA Transportation Pooled-Fund Studies Using LTPP Test Sections webinar, which was held on April 2, 2020.
- Prepared for and participated in April 15, 2020 FHWA LTPP Team virtual meeting.
- Prepared for and participated in the TPF-5(291) Development of an SPS-2 Pavement Preservation Experiment TAC virtual meeting on April 22, 2020. Also, contributed to development of the meeting minutes.
- Prepared for and participated in TPF-5(332) LTPP Forensic Evaluations TAC Project Status virtual meeting, which was held on June 25, 2020. Also, prepared the draft meeting minutes and submitted to WSDOT on June 30, 2020.

Test Section Selection (Task Orders AB and AF)

- Completed and submitted to WSDOT nominations for forensic investigations at the following five LTPP test sections:
 - South Carolina test section 45_1024; nomination was submitted to WSDOT on April 29, 2020. The objectives are to: (1) investigate the long-term performance of the pavement structure in terms of cracking, rutting and IRI, (2) assess performance of pavement in the absence of traffic, (3) explore the initiation and propagation of the various crack types, and (4) identify those factors most responsible for the performance of the pavement.
 - Maine test section 23_1028; nomination was submitted to WSDOT on June 15, 2020. The primary objective of the proposed desktop study is to determine what is driving the performance of the pavement – it appears that environmental-related factors may be the drivers. In addition, there appears to be a need to look into some values in the LTPP database that do not appear to be reasonable.
 - Utah test sections 49_7082, 49_7085 and 49_7086; nomination was submitted to WSDOT on June 24, 2020. The primary objectives of the proposed desktop study are to compare the performance of three LTPP jointed plain concrete pavement test sections in the State of Utah in terms of the IRI, faulting and load transfer measures, and to identify those factors driving the differences in the performance of the three measures.
- Worked on the technical memoranda for the following forensic investigation desktop studies:
 - Completed Florida SPS-5 project (15 test sections); technical memorandum was submitted to WSDOT on April 3, 2020. Memorandum was also submitted to the FHWA LTPP Team and to the State DOT. Follow-up investigations were not recommended.
 - Completed Oklahoma SPS-10 project (6 test sections) desktop study; technical memorandum was submitted to WSDOT on April 7, 2020. Memorandum was also submitted to the FHWA LTPP Team and to the State DOT. Follow-up investigations were not recommended.
 - Completed Montana test section 30_8129 desktop study; technical memorandum was completed and it was submitted to WSDOT on May 20, 2020. Memorandum was also submitted to the FHWA LTPP Team and to the State DOT. Follow-up investigations were not recommended.
 - Completed South Carolina test section 45_1024 desktop study; technical memorandum was completed and it was submitted to WSDOT on May 29, 2020. Memorandum was also submitted to the FHWA LTPP Team and to the State DOT. Follow-up investigations were not recommended.
 - Completed Georgia test section 13_7028 desktop study; technical memorandum was completed and it was submitted to WSDOT on June 18, 2020. Memorandum was also submitted to the FHWA LTPP Team and to the State DOT. Follow-up investigations were not recommended.

Forensic Evaluations (Task Orders AC and AG)

- Worked with DOT staff and LTPP data collection contractor staff to carry out follow-up forensic evaluations for the following test sections:
 - Completed follow-up investigations for the Colorado SPS-2 project. Revised technical memorandum was submitted to WSDOT on May 19, 2020. Memorandum was also submitted to the FHWA LTPP Team and to the State DOT. Input on memorandum was provided by Mr. Ahmad Ardani (FHWA; formerly with Colorado DOT). An updated memorandum was submitted to all parties involved on June 9, 2020.
 - Completed follow-up investigations for the Texas test section 48_1111. Revised technical memorandum was submitted to WSDOT on June 30, 2020. Memorandum was also submitted to the FHWA LTPP Team and to the State DOT.
 - Worked with the LTPP Data Collection Contractor in preparation for the field follow-up investigations that are schedule to take place during the upcoming reporting period, including the New Mexico SPS-8 project (2 test sections) and Iowa test section 19_1044.

- Continued to pursue follow-up forensic evaluations for the Arizona SPS-2 project, but this has not been successful despite many attempts. Accordingly, follow-up investigations of the referenced project will not be pursued further.

Project Report (Task Order AD)

- No work was performed under this task.

Anticipated work next quarter:

The following work activities will be conducted throughout the period of July 1 through September, 2020.

Project Management (Task Orders AA and AE)

Continue working on those management activities necessary for successful completion of project including cost control, subcontractor control preparation of progress report, preparation of invoices, and participation in meetings/conference calls with WSDOT and other TPF personnel.

Test Section Selection (Task Orders AB and AF)

- Continue to identify candidate LTPP test section for forensic evaluation and, as appropriate, submit to WSDOT for review and approval consideration. Cut-off date for this activity is August 2020.
- Complete desktop study and associated technical memorandum for South Carolina test section 45_1024, Maine test section 23_1028 (June 15, 2020) and Utah test sections 49_7082, 49_7085 and 49_7086.

Forensic Evaluations (Task Orders AC and AG)

- Continue to work on follow-up investigation activities for the following test sections:
 - Carry out field investigation for the New Mexico SPS-8 project (2 test sections) and Iowa test section 19_1044.
 - If processing and entry into the LTPP database is completed during the upcoming period for the follow-up field evaluation data for the California GPS test section 06_7452, begin data analysis and updated of the desktop study technical memorandum.
 - Continue to work on various follow-up forensic evaluations for the Mississippi GPS test section 28_5025 and Ohio GPS test section 39-5003, including review of information received for those two test sections to date.

Project Report (Task Order AD)

- No work is scheduled under this task until October 2020.

Significant Results:

Technical memoranda for desktop studies addressing 44 LTPP test sections have been completed and similar memoranda for another five test sections are presently being prepared. These memoranda provide valuable information explaining the performance of the 49 test section pavements and, as appropriate, recommended follow-up investigations to better explain their performance. In addition, the technical memoranda that have been generated to date or are under preparation could potentially support the respective agencies with their M&R decision-making processes related to the test section(s) in question.

Follow-up forensic evaluation activities have been or are being carried out for the above referenced test sections, and as appropriate, the associated technical memoranda has been or are being updated to include the results from these evaluations. In turn, the resulting memoranda have been or will be submitted to the FHWA LTPP for inclusion into the LTPP AIMS for use by data analysts and other users.

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 significant problems, challenges or issues have been encountered to date and none are anticipated. However, should Covid-19 impact the follow-up field investigations past the end of August 2020, it is the intention of the project team to shift effort towards the nomination of test sections and to desktop studies assuming a portion of the travel and ODC funds under Task Order AG can be transferred to Task Order AF. Alternatively, targeted studies could be pursued such as the source of rutting for the asphalt concrete LTPP test sections considered in the pooled fund study to date could be pursued under Task Order AG without the need to transfer funds.

Potential Implementation:

Please see "Significant Results" write-up at the top of this page.