

## TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: 01/02/2020

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.*

<b>Transportation Pooled Fund Program Project #</b>  TPF-5(332)	<b>Transportation Pooled Fund Program - Report Period:</b> <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input checked="" type="checkbox"/> <b>Quarter 4 (October 1 – December 31)</b>	
<b>Project Title:</b> LTPP Forensic Evaluations		
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<b>Lead Agency Project ID:</b> Y-12005	<b>Other Project ID (i.e., contract #):</b> Y-12005	<b>Project Start Date:</b> December 11, 2017
<b>Original Project End Date:</b> November 30, 2019	<b>Current Project End Date:</b> December 31, 2020	<b>Number of Extensions:</b> 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)	\$179,196.52	35.6%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$179,196.52 (6.6% spent this quarter)	\$33,142.32	38.0%

**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 of work (SOW) 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. Work on this task through November 30, 2019 was performed under Task Order AA. Work since December 1, 2019 through December 31, 2020 is being performed under Task Order AE.

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 41 test sections in Arizona, California, Colorado, Florida, Iowa, Kansas, Mississippi, New Mexico, Ohio, Oklahoma, Texas and Washington. All of these nominations were completed prior to November 30, 2019, which was the end date for Task Order AB. New nominations will resume in earnest in January 2020 under Task Order AF, which extends the period of performance for the task through December 30, 2020.

Desktop studies and the associated technical memoranda documenting the studies have been completed for 17 of the 41 approved test sections. Desktop studies and preparation of the associated memoranda have also been started for the remaining 24 test sections. Work on these 24 desktop studies stopped on November 30, 2019, which was the end date for Task Order AB, but they will resume in earnest in January 2020.

3. Forensic Evaluations (Task Orders AC and AG)

Follow-up forensic evaluations were completed during a previous reporting period for Washington State test section 54-53\_1005. These evaluations continued during the reporting period in question. Field activities at the Texas test section 48\_1111 were completed, including coring operations, FWD deflection testing, manual distress survey and longitudinal and transverse profile surveys. Once the data have been processed and entered into the LTPP database, the desktop study technical memorandum will be updated to complete the forensic investigation at the test section. Field activities were also completed at the Colorado SPS-2 project with the exception of coring – further field activities may be pursued depending on the new data analysis results. In addition, follow-up investigations have commenced for the test sections in California (06\_7452), Mississippi (28\_5025) and Ohio (39\_5003), with most of the effort focusing on communication and coordination activities. Follow-up investigations also continued to be pursued for the Arizona SPS\_2 project, but the agency remains unresponsive.

Activities on this task will continue to be performed under Task Order AC through March 31, 2020 or until Task Order AC funds are expended, and they will then continue through December 31, 2020 under Task Order AG.

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 seventh quarterly progress report for the project covering the period of October 1 to December 31, 2019. Also, prepared and submitted invoices for the months of October, November and December 2019.
- Prepared for and participated in monthly 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.
- **Provided support to WSDOT staff on matters related to the extension of Task Order AC to March 31, 2020 and AD to December 31, 2020 and to the execution of Task Orders AE, AF and AG, which replace Tasks Orders AA, AB and AC and extend the period of performance through December 31, 2020.**
- Worked with WSDOT staff to produce LTPP forensic evaluations presentation to be delivered at the annual TRB meeting in Washington, D.C. on January 13, 2020.

**Test Section Selection (Task Orders AB and AF)**

- Completed and submitted to WSDOT on November 22, 2019 the nomination for nine LTPP test sections in the following three States:
  - Oklahoma SPS-10 (Warm Mix Asphalt [WMA] overlay ) project (6 test sections) – objective is to (1) determine if the cracks that have appeared on the WMA overlay surface are reflection cracks, (2) capture the time to crack initiation and (3) compare the performance of the six test sections and identify the factors contributing to differences in performance.
  - New Mexico SPS-8 (environmental effects in the absence of traffic) project (2 test sections) – objective is to (1) identify the reason(s) for the presence of (actual or apparent) fatigue cracking in the two test sections and (2) compare the performance (surface distresses, rutting, IRI and deflections) of the two test sections, which are subjected to the same traffic and climatic conditions and constructed on the same subgrade soil.
  - Iowa test section 19\_1044 – objective is to help explain the incongruous distress versus ride trends; i.e., significant distresses but excellent ride quality (IRI).
- Completed technical memoranda for Mississippi test section 28\_5025, which was submitted to WSDOT on October 10, 2019.
- Continued working on the Florida SPS-2 project desktop study and associated technical memorandum, which will be completed and submitted to WSDOT during the first quarter of 2020.
- Began working on the Iowa 19-1044 desktop study and associated technical memorandum, which will be completed and submitted to WSDOT during the first quarter of 2020.

**Forensic Evaluations (Task Orders AC and AG)**

- Worked with DOT staff and LTPP contractor staff to carry out follow-up forensic evaluations for the following test sections:
  - Completed field activities – coring, FWD deflection testing, manual distress survey, and longitudinal and transverse profile surveys – associated with the follow-up forensic evaluations at Texas test section 48\_1111.
  - Completed field activities – FWD deflection testing, manual distress survey, and longitudinal and transverse profile surveys – associated with the follow-up forensic evaluations at the Colorado SPS-2 project despite coordination and weather challenges; however, it was not possible to perform the planned coring operations.
  - Began working on the California test section 06\_7452, Mississippi test section 28\_5025, and Ohio test section 39-5003 follow-up forensic evaluations, with a focus on the communications and coordination activities.
- Continued to pursue follow-up forensic evaluations for the Arizona SPS-2 project, but this has not been fruitful to date as the staff have been too busy to respond.

**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 January 1 through March 31, 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.
- Complete desktop studies for the Florida SPS-5 project, Oklahoma SPS-10, New Mexico SPS\_8 and Iowa test section 19\_0144. This includes preparation of draft technical memoranda detailing each desktop study and the associated findings.

**Forensic Evaluations (Task Orders AC and AG)**

- Complete follow-up forensic evaluations of Texas test section 48\_1111 and the Colorado SPS-2 sections, including updated technical memorandum.
- Continue working on the California test section 06\_7452, Mississippi test section 28\_5025, and Ohio test section 39-5003 follow-up forensic evaluations.
- Continue to pursue follow-up forensic evaluations for the Arizona SPS-2 project, but this will depend on the agency.

**Project Report (Task Order AD)**

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

**Significant Results:**

Technical memoranda for desktop studies addressing 17 LTPP test sections have been completed and similar memoranda for another 24 test sections are presently being prepared. These memoranda provide valuable information explaining the performance of the 41 test section pavements and, as appropriate, recommended follow-up investigations to better explain their performance. In addition, the technical memoranda that has been generated to date or 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 17 of the 41 test sections, and as appropriate, the associated technical memoranda has been or is being updated to include the results from these evaluations. In turn, the resulting memorandum has 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

**Potential Implementation:**

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