

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: 07/03/2019

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 (Task Order AB executed in May 2018)
Original Project End Date: November 30, 2019	Current Project End Date: November 30, 2019	Number of Extensions: 0

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
Total commitments =	\$100,433.12	47.8%
Current contract = \$210,000 (Y-12005)		

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$100,433.12 (43.8% spent this quarter)	\$43,952.36	50.3%

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. All four tasks have been executed and a summary of the progress to date for each task order is also detailed below:

1. Project Management (Task Order AA)

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

2. Test Section Selection (Task Order AB)

More than 100 LTPP test sections have been identified for potential forensic evaluation. Nominations have been submitted and approved for 15 LTPP test sections in Arizona, Colorado, Kansas, Ohio, Texas and Washington State. Additional LTPP test section nominations are being pursued for a LTPP SPS-2 project targeted at investigating the effects of PCC slab-lean concrete base bonding on the performance of the pavements. Nominations also continue to be pursued directly through the LTPP program through participation in their periodic team meetings involving FHWA and contractor staff (last meeting took place on April 2-3, 2019).

Preliminary forensic investigations (referred to as desktop studies) have been completed for 13 of the 15 accepted test sections and technical memoranda document documenting the study have been prepared for 9 of the 13 test sections, with the technical memorandum for the remaining 4 test sections undergoing final internal review prior to submittal to WSDOT. Desktop studies for the Ohio and Texas test sections, which were just recently approved, are just getting underway.

3. Forensic Evaluations

Follow-up forensic evaluation activities got off to a good start during the reporting period in question. The recommended follow-up investigations—coring, distress and profile surveys and FWD testing—resulting from the Washington State test section 531005 desktop study were completed, including submittal of an updated technical memorandum addressing the outcomes of the follow-up investigations as well as the implications in terms of explaining the performance of the referenced test section. Follow-up investigations have also been recommended for the Arizona and Colorado SPS-2 test sections, but not for the Kansas SPS-2 test sections.

4. Final Project Report

Activities associated with the preparation of the final report are not anticipated to commence until September or October 2019.

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

Task Order AA Project Management

- Working with WSDOT staff, prepared and executed Task Orders AC Forensic Evaluations and AD Final Project Report.
- 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 fifth quarterly progress report for the project covering the period of April 1 to June 30, 2019. Also, prepared and submitted invoices for the months of April, May and June 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.
- Prepared for and participated in the May 2, 2019 Technical Advisory Committee meeting, and provided support to WSDOT staff with preparation of agenda, presentation and meeting minutes. Also, began preparing for the July 17, 2019 Technical Advisory Committee meeting.

Task Order AB Test Section Selection

- Completed and submitted to WSDOT on June 13, 2019 the nomination for LTPP test sections in Ohio and Texas. The nominations were also submitted to Ohio and Texas DOT staff who approved the nominations and agreed to provide support with the follow-up forensic evaluations to the extent possible within the agency. The Ohio test section (395003) entails the performance evaluation of a CRCP pavement over 24 years and of the same CRCP pavement with a 3.4 inch AC overlay over the next 7 years. Performance for the two periods appears to be “as expected,” but there are some interesting. This test section also happens to be the first one nominated east of the Mississippi. The Texas test section (481111) has exhibited excellent performance. It received a 2.6 inch AC overlay in 1999, and after 20 years (and only the application of a 0.5 inch chip seal in 2011), the test section is still performing well. Desktop studies for the Ohio and Texas test sections are just getting underway.
- Continued to pursue other LTPP test sections for possible nomination for desk top studies. More specifically, LTPP test sections are being pursued via discussions with Mr. Larry Scofield (assessing bond condition between PCC slabs and lean concrete base at SPS-2 projects) and via discussions with FHWA LTPP staff and its contractors. A member of the project team participated via conference call in the FHWA LTPP Team meeting held on April 2 and 3, 2019; he delivered a project status update and solicited help from the FHWA LTPP team with the nomination process. Routine communications with the FHWA LTPP data collection contractor were also held in support of the test section nomination process. These efforts will be continued during the upcoming reporting period.
- Completed and submitted to WSDOT technical memoranda on the Kansas (April 31, 2019) and Arizona (April 23, 2019) SPS-2 project desktop studies, which investigated 8 LTPP test sections. The objective of the Kansas LTPP SPS-2 investigation was to study the cracking mirroring the presence of dowel bars to determine if depth of the dowel bars was an issue. Mr. Rick Miller of the Kansas DOT was also provided a copy of the memorandum for review and comment. In the case of the Arizona LTPP SPS-2, the investigation was conducted to determine whether the difference in performance is related exclusively to the influence of the section-specific design features, or if there are other contributing factors. Follow-up forensic evaluations were recommended for the Arizona SPS-2, but not for the Kansas SPS-2.
- Completed the Colorado SPS-2 project desktop study. The goal of this investigation was to explore changes in IRI over the course of a day and, more specifically, to evaluate the role of locked-in surface curvature, temperature, and PCC pavement structure properties that potentially influence significant changes in IRI over time in a single day. The technical memorandum documenting the desktop study and its findings, conclusions and recommendations is undergoing internal review and it will be submitted to WSDOT in July 2019.

Task Order AC Forensic Evaluations

- Worked with WSDOT and LTPP contractor staff to carry out the follow-up investigation activities for WSDOT LTPP test section 531005, which took place the week of April 1, 2019. The investigations included coring, distress and profile surveys, and FWD testing, and their primary focus was on determining if rutting at test section is the results of surface wear or deformations within the pavement layers and assessing structural conditions. The analyses of the resulting data were completed during the reporting period in questions, and the analysis results were used to update the December 17, 2018 technical memorandum. Work on this test section is now considered complete and the final memorandum has been provided to FHWA LTPP for posting on the LTPP Ancillary Information Management System (AIMS) for use by data analysts and other users.

Anticipated work next quarter:

The following work activities will be conducted throughout the period of July 1 through October 30, 2019.

Task Order AA Project Management

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. Also, work with WSDOT staff to execute Task Orders AC Follow-up Investigations and AD Final Project Report.

Task Order AB Test Section Selection

- Continue to pursue candidate LTPP test section nominations for possible conduct of desktop study and, as appropriate, submit nomination forms to WSDOT and respective highway agencies for review and approval.
- If comments are received from WSDOT or the Colorado DOT, make changes as appropriate to the technical memorandum resulting from desktop study for the four LTPP test sections located in the Colorado SPS-2 project.
- Complete desktop studies for the Ohio 395003 and Texas 481111 test sections. This includes preparation of draft technical memoranda detailing each desktop study and the associated findings. Also, as appropriate, pursue follow-up investigations under Task Order AC.

Task Order AC Forensic Evaluations

- If approved and as appropriate, provide support to DOTs and LTPP contractor staff in carrying out follow-up investigation activities, including preparation of updated technical memoranda. Follow-up forensic investigations have been recommended for the Arizona and Colorado SPS-2 projects, but decisions to pursue them have not yet been made.

Significant Results:

Technical memoranda for desktop studies addressing 15 LTPPP test sections have been completed. These memoranda provide valuable information explaining the performance of the 15 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 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 carried out for one of the 15 test sections, and the associated technical memorandum has been updated to include the results from this evaluation. In turn, the resulting memorandum was submitted to the FHWA LTPP for possible inclusion into the LTPP AIMS for use by data analysts and other users.

Also, it is anticipated that the LTPP test section identification, nomination, preliminary investigation and follow-up field/office investigations process will continue to improve during the upcoming reporting period, which will help lead to an increased number of investigations.

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 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.