

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: 04/02/2019

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 checked="" 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 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 UhlmeyerJ@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 |
|--|---|--------------------------------------|
| Current contract = \$210,000 (Y-12005) | \$56,480.76 | 40.3% (based on obligated funds) |
| Current funds = \$265,000 | (\$140,116.10 of \$210,000 obligated to date) | 26.9% (based on contract funds) |
| Total commitments = \$545,000 | | |

Quarterly Project Statistics:

| Total Project Expenses and Percentage This Quarter | Total Amount of Funds Expended This Quarter | Total Percentage of Time Used to Date |
|--|---|--|
| \$56,480.76 (33.0% spent this quarter) | \$18,658.90 | 37.1% (based on hours under obligated funds) |

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 following four tasks:

1. Project Management (Task Order AA)
2. Test Section Selection (Task Order AB)
3. Forensic Evaluations
4. Final Project Report

To date, task orders have been executed for the first two tasks; i.e., funds have been obligated. These two task orders are ongoing and on schedule. All project management activities under Task Order AA are up to date and on schedule. In terms of Task Order AB, more than 100 LTPP test sections have been identified for potential forensic evaluation. Nominations have been submitted for 13 LTPP test sections in Arizona, Colorado, Kansas and Washington State, and they have been approved for preliminary forensic investigations (referred to as desk top studies). Additional LTPP test section nominations are being pursued in the States of California and Texas, as well as 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 are also being pursued directly through the LTPP program through participation in their periodic team meetings involving FHWA and contractor staff (next meeting is set for April 2-3, 2019).

The Washington State desk top study was completed during the previous reporting period, including submittal of a technical memorandum with recommendations for follow-up investigations. These follow-up investigations will be carried out by WSDOT and LTPP contractor staff during the first week of April 2019, and the original technical memorandum will be updated to include the follow-up results. Draft desk top study memoranda have also been completed for the 8 LTPP test sections in Kansas and Arizona, and they are undergoing internal review. These memoranda will be completed in April 2019 and they will contain recommendations for any warranted follow-up investigations. The desk top study for the four LTPP test sections in Colorado has also been started and it is anticipated that a draft technical memorandum will be ready in late April or early May 2019.

It is anticipated that Task Order AC Follow-up Investigations will be executed during the month of April 2019 to enable action on the follow-up investigations being recommended in the desk top study memoranda. While this task order has not yet been executed, as indicated earlier, the follow-up investigations of the WSDOT LTPP test section are being carried out by WSDOT and LTPP contractor personnel – i.e., Task Order AC funding was not required. Execution of Task Order AD Final Project Report is also anticipated in April 2019.

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

- As requested by WSDOT, provided information on project expenses through January 2019 as well as planned expenditures through June 2019
- Have been working with WSDOT staff to prepare and executed Task Orders AC Follow-Up Investigations 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 fourth quarterly progress report for the project covering the period of January 1 to March 31, 2019. Also, prepared and submitted invoices for the months of January, February and March 2019.

- Prepared for and participated in bi-weekly to monthly internal project status meeting to review the work done and planned as well as to address issues that may be affecting the project. Virtual meeting were held on January 30, February 13, March 14 and March 29, 2019.
- As needed, communicated with WSDOT staff via telephone or e-mail message to address issues related to the project.
- Prepared for and participated in the February 6, 2019 Technical Advisory Committee meeting, and provided support to WSDOT staff with preparation of agenda, presentation and meeting minutes.

Task Order AB Test Section Selection

- Completed and submitted on January 20, 2019 the nomination for four LTPP test sections located in the Colorado SPS-2 project – the nomination was approved.
- Continued to pursue other LTPP test sections for possible nomination for desk top studies. More specifically, LTPP test sections are being pursued in Texas (via discussions with Mr. Enad Mahmoud), California (via Caltrans staff), via discussions with Mr. Larry Scofield, and via discussions with FHWA LTPP staff and its contractors. These efforts will be continued during the upcoming reporting period.
- Completed draft memoranda of the Kansas and Arizona SPS-2 project desk top studies, which address eight LTPP test sections. The memoranda are undergoing internal review and it is anticipated they will be submitted to WSDOT during the month of April 2019. The objective of the Kansas LTPP SPS-2 project investigation was to study the cracking mirroring the presence of dowel bars to determine if depth of the dowel bars was an issue. In the case of the Arizona LTPP SPS-2 project, 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.
- Began working on the Colorado SPS-2 project desk top study, The goal of this investigation is to explore changes in IRI over the course of a day. More specifically, this study will attempt to evaluate the role of locked-in surface curvature, temperature, and PCC pavement structure properties that potentially influence significant changes in IRI over the time of a single day, as shown with existing LTPP diurnal measurements on JPCC test sections. It is anticipated that the desk top study will be completed during the month of May 2019.
- Worked with WSDOT and LTPP contractor staff in preparation for the follow-up investigations for WSDOT LTPP test section 531005. These follow-ups were detailed in the desktop study submitted to WSDOT on December 17, 2018. Focus of coordination activities was on the (1) coring to be carried out to determine if rutting at test section is the results of surface wear or deformations within the pavement layers, (2) conduct of the FWD testing to assess structural conditions and (3) pursue additional construction records to confirm explanation of test section performance. The follow-up activities will take place during the first week of April 2019 and the results will be used to update the December 17, 2018 technical memorandum.

Anticipated work next quarter:

The following work activities will be conducted throughout the period of April 1 through June 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 for review and approval. It is anticipated that nominations will be submitted for test section in California, Texas and at least two other states.
- Complete desktop studies for LTPP test sections located in the Arizona and Kansas LTPP SPS-2 projects. This includes preparation of draft and final technical memoranda detailing each desktop study and the associated findings. Also, as appropriate, pursue follow-up investigations under Task Order AC.
- Work on the Colorado SPS-2 project desk top study and, if possible, complete it during the upcoming reporting period, including preparation of draft and final technical memorandum and associated follow-up investigations.
- As appropriate provide support to WSDOT and LTPP contractor staff in carrying out the follow-up investigations at the WSDOT LTPP test section 531005 per the December 17, 2018 technical memorandum – these follow-up investigations will take place during the first week of April 2019. Also, update the December 17, 2018 technical memorandum to reflect the results of the follow-up investigations.

Significant Results:

The follow-up investigations on WSDOT LTPP test section 531005 will be completed in early April 2019, and the resulting information will be used to update and finalize the December 17, 2018 technical memorandum. Once done, the resulting memorandum will be submitted to the FHWA LTPP for inclusion into the LTPP Ancillary Information Management System (AIMS) for use by data analysts and other users. In addition, the technical memorandum could support the respective agencies (in this case WSDOT) with M&R decision making processes related to the test section(s) in question. It is expected that technical memoranda may also be ready during the reporting period in question for the Arizona and Kansas SPS-2 projects, which address eight LTPP test sections.

In addition to the above, it is anticipated that the LTPP test section identification, nomination, preliminary investigation and follow-up field/office investigations process became better established during the reporting period in question, 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.