

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): ___FHWA Pavement and Materials Team

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(399)	Transportation Pooled Fund Program - Report Period: <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"/> Quarter 4 (October 1 – December 31)	
Project Title: Improve pavement surface distress and transverse profile data collection and analysis, Phase II		
Name of Project Manager(s): Christy Poon-Atkins	Phone Number: (202) 893-0559	E-Mail Christy.Poon-Atkins@dot.gov
Lead Agency Project ID: N/A	Other Project ID (i.e., contract #): N/A	Project Start Date: December 17, 2024
Original Project End Date: December 18, 2028	Current Project End Date: December 18, 2028	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
\$995,392.00	\$356,398.21	Time = 25.92%; Money = 35.80%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$0	\$0	\$0

Project Description:

The scope of this work plan is to improve the existing American Association of State Highway and Transportation Officials (AASHTO) R87 rut and cross slope definitions, addressing any identified limitations in the current standard. The revised standard will include clear definitions, guidelines and algorithms for data collection, processing, and analysis. These definitions should balance accuracy with computational efficiency. The ultimate objective for this work plan is to standardize these definitions and algorithms in a robust and consistent manner – similar to how IRI is standardized – for widespread industry use. In revising the standard practice for collecting transverse pavement profiles, AASHTO R88 will also be updated to align with requirements stipulated in AASHTO PP 106-111 standards along with rutting and cross slope definitions in the revised AASHTO R87. The following tasks outline the planned approach to achieve the objectives.

- ❖ Task 1 Kick-Off Meeting
 - The kick-off meeting was completed on December 20, 2024. Based on coordination, the research team met virtually with the project panel on Friday, March 21, 2025, to present some of the findings and facilitate a discussion on critical considerations for improving AASHTO R87 existing rut and cross slope definitions. The Technical Advisory Committee meeting was held in conjunction with the Road Profiler Users Group (RPUG) April 28, 2025, annual meeting Pooled Fund session.
- ❖ Task 2.1 Quantifying Accuracy Requirements for Rut Depth and Cross Slope Based on End-User Applications
- ❖ Task 2.2. Vendor Practices and Algorithm Review for Rut Depth and Cross Slope Standardization
- ❖ Task 2.3. Building a Diverse TPP Database
- ❖ Task 2.4 Development of Data Collection and Processing Protocols
- ❖ Task 2.5 Development of Rut Depth and Cross-Slope Calculation Algorithm
- ❖ Task 2.6 Validation of the Developed Definitions and Algorithms
- ❖ Task 2.7 Refining the Rut Depth and Cross Slope Definitions and Revising AASHTO R88
- ❖ Task 2.8 Prepare the Work Plan for Remaining Items
- ❖ Task 2.9 Execution of the Work Plan for Remaining Items (Optional Task 2.3 in RFP)
- ❖ Task 2.10 Prepare the Draft Task 2 Report
- ❖ Task 2.11 Prepare the Final Task 2 Report
- ❖ Task 3.1 Conduct preparatory activities to conduct TPP tests [*complete*]
- ❖ Task 3.2 Conduct TPP tests and assess TPP test procedures
- ❖ Task 3.3 Prepare Task 3 Documents
- ❖ Task 4.1 Develop Work Plan
- ❖ Task 4.2 Execute Work Plan
- ❖ Task 4.4 Prepare Task 4 Documents
- ❖ Task 5 Technical Assistance and Analysis to implement products developed within TPF-5(299) / (399) and related to TPF-5(299) / (399)
- ❖ Task 6 Final Report summarizing the work accomplished in Tasks 2, 3, 4, and 5.
- ❖ Task 7 Travel and Other Direct Costs

Task 2: Develop definitions to meet pavement and safety analyses requirements for rutting and cross slope that are not sensitive to equipment variability, operator use, and pavement deterioration. Additionally, the definitions are expected to be explicitly clear to support software algorithm development and improvements. This task will build upon AASHTO R87 and R88, as each section and subsection must be

critically reviewed. The rutting and cross-slope definition validations will rely on using diverse pavement surface data sets.

Task 3: Conduct transverse pavement profile (TPP) tests and analyze the results to improve AASHTO Transverse Pavement Profile, rutting, and cross slope Standards. More specifically, the standards that will be continually updated and verified by the AASHTO Technical Subcommittee (TS) 5a include the following:

- PP106 – Standard Practice for Assessment of Static Performance in Transverse Pavement Profiling Systems.
- PP107 – Standard Practice for Assessment of Body Motion Cancellation in Transverse Pavement Profiling Systems.
- PP108 – Standard Practice for Assessment of Navigation Drift Mitigation in Transverse Pavement Profiling Systems.
- PP109 – Standard Practice for Assessment of Highway Performance of Transverse Pavement Profiling Systems.
- PP110 – Standard Practice for Assessment of Ground Reference Data for Transverse Pavement Profiling System Assessment.
- PP111 – Standard Practice for Definition of Terms Related to Transverse Pavement Profiling Systems and Ground Reference Equipment.

Task 4: Conduct activities such as a literature review, obtain information from industry and transportation agencies, and other activities to develop work plans to assess the feasibility of establishing a publicly accessible annotated quality pavement surface condition image library for developers' and researchers' use in developing automated image analysis tools. The image library can be accessed and used by end users, including state DOTs, to access the developer's analysis tools. This task also includes developing and maintaining the image library functionality with clearly defined library attributes, key processes, and definitions.

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

State agency partners: AL, AR, CA, CO, FL, GA, IL, KS, KY, MD, MS, MT, NC, ND, NJ, OH, OR, PA, SD, TN, TX, VA, WA, WI

This quarterly report covers the new project scope of work to develop improved rut and cross slope definitions and implement TPF-5(299) products. The objectives identified for TPF-5(299) include: improving the Quality of Pavement Surface Distress and Transverse Profile Data Collection and Analysis. To support this objective, the State DOT partners, FHWA, and industry representatives collaborate to: (1) Identify data collection integrity and quality issues, (2) Identify data analysis needs, (3) Suggest approaches to address identified issues and needs. This project includes focus on applying the TPP data collected to improve the AASHTO standards expected to be used with the State DOT pavement data analysis software.

Based on invoices: The billing for activities included in the progress report may not reflect in the same month.

- **Invoice # P24-3401-10** [*Performance Period: Sept. 28, 2025 – Nov. 1, 2025*],
 - Task 2.2. Execute Work Plan [Vendor Practices and Algorithm Review for Rut Depth and Cross Slope Standardization]
 - 14.00% complete [Invoice fee = \$7,217.50]:
 - The contractor's work to engage vendors to gain detailed insights into their current practices for collecting, processing, and analyzing TPP data for rut depth and cross slope calculations. The contractor's work was performed by J. Ferris and M. Nobakht, as provided in Invoice 10.
 - Task 2.4 Development of Data Collection and Processing Protocols
 - 5.4% complete [Invoice fee = \$1,500.00]:
 - The contractor's invoice identifies the task activity as questionnaire review along with a meeting, preparation, and follow-up.
 - Task 3.1 Conduct preparatory activities to conduct TPP tests [*work complete with Invoice 7, contract-based task fee money drawdown with Invoice 10*]
 - 100.00% complete [Invoice fee = \$803.00].
 - The contractor requested the remaining funds for the total task contract amount, as presented in the bid. There is a zero balance for the task.
 - Task 3.2 Conduct TPP tests and assess TPP test procedures
 - 26.62% complete [Invoice fee = \$17,290.71].
 - Contractor updates. QES completed TPP activities planned for the Montana DOT TPP Event, scheduled for the week of September 22, 2025. The testing order was planned for PP109 and 110 on September 23, 2025, morning and PP106 during the afternoon. PP107 and 108 took place on September 24, 2025.
 - Task 4.2 Execute Work Plan
 - 42.45% complete [Invoice fee = \$8,256.00].
 - Contractor updates. QES completed work in execution of the work plan, as contracted (firm fixed price (FFP)). The contractor's work was performed by D. Frith and K. Keifer, as provided in Invoice 10.
 - Task 5 Technical Assistance and Analysis to implement products developed within TPF-5(299) / (399) and related to TPF-5(299) / (399)
 - 38.37% complete [Invoice fee = \$3,000.00]
 - The contractor's work was performed by M. Nobakht based on the contract, includes assessments of different analysis approaches on-site and/or remote, as provided in Invoice 10. [reference the contractor's files.]
 - Task 7 Travel and Other Direct Costs
 - 40.66% complete [Invoice fee = \$20,915.27].

- There were advanced travel payments for the September 22, 2025, Montana TPP Testing Event. The travel costs requested were for Jeff Hummer, Jason Clinton, and Zachary Sheard.

Total Contract progress as of November 1, 2025: % Time: 21.82%; % Money: 33.55%

- **Invoice # P24-3401-11** [Nov. 1, 2025 – Nov. 29, 2025],
 - Task 2.2. Execute Work Plan [Vendor Practices and Algorithm Review for Rut Depth and Cross Slope Standardization].
 - 19.6% complete [Invoice fee = \$5,730.00]:
 - The contractor’s invoice identifies the task activity as data format along with a meeting, preparation, and follow-up. For this work, the contractor subcontracted 20% with WSP with the majority portion by internal HR, M. Nobakht.
 - Task 3.2 Conduct TPP tests and assess TPP test procedures
 - 30.72% complete [Invoice fee = \$11,002.00].
 - Held Montana DOT planning meetings/performed preparatory work for the Montana TPP Event up to the week prior to the event.
 - Contractor updates. QES completed TPP activities related to the planned Montana DOT TPP Event, held during the week of September 22, 2025. The contractor’s work was performed by J. Ferris, M. Nobakht, M. Baker, and J. Uhlmeyer based on the contract, which includes assessments of different analysis approaches on-site and/or remote, as provided in Invoice 11. [reference the contractor’s files.]
 - Task 3.3 Prepare Task 3 Documents
 - 9.30% complete [Invoice fee = \$515.00].
 - Contractor updates. QES fee for services included Task 3 report preparation to include activities, findings, conclusions, and recommendations to present findings and recommendations to the oversight panel. The contractor’s work was performed by M. Baker, as provided in Invoice 11. [reference the contractor’s files.]

Total Contract progress as of November 29, 2025: % Time: 23.80%; % Money: 35.33%

- **Invoice # P24-3401-12** [Nov. 30, 2025 – Dec. 27, 2025],
 - Task 2.2. Execute Work Plan [Vendor Practices and Algorithm Review for Rut Depth and Cross Slope Standardization]
 - 21.7% complete [Invoice fee = \$2,250.00].
 - The contractor’s invoice identifies the task activity as data format. For this work, the contractor’s internal HR, M. Nobakht, completed the work.

- Task 3.2 Conduct TPP tests and assess TPP test procedures
 - 31.30% [Invoice fee = \$1,617.50].
 - Based on the contract, this task is tracked as time and materials. Under this task, the contractor assesses the test procedures quality, practicality in conducting the tests, and other potential improvements to better meet the test objectives with the minimum resources, and propose revisions to the test procedures, if applicable. The contractor's work was performed by J. Ferris and M. Baker, as provided in Invoice 12. [reference the contractor's files.].

- Task 3.3 Prepare Task 3 Documents
 - 9.90% [Invoice fee = \$103.00].
 - Contractor updates. QES fee for services included Task 3 report preparation to include activities, findings, conclusions, and recommendations to present findings and recommendations to the oversight panel. The contractor's work was performed by M. Baker, as provided in Invoice 12.

- Task 5 Technical Assistance and Analysis to implement products developed within TPF-5(299) / (399) and related to TPF-5(299) / (399)
 - 38.83% complete [Invoice fee = \$750.00].
 - The contractor's work was performed by M. Nobakht based on the contract, includes assessments of different analysis approaches on-site and/or remote, as provided in Invoice 12. [reference the contractor's files.].

Total Contract progress as of December 31, 2025: % Time: 25.92%; % Money: 35.80%

Anticipated work next quarter:

Ongoing work on improving rut and cross slope definition. Preparing for transverse profiler pavement assessment testing. Developing work for feasibility study to create a reference quality annotated image library for AI/ML applications.

Activities planned for Quarter 4 (January 1, 2026 – March 31, 2026)

- As related to Task 2, the contractor plans to develop the TPP database and a visualization interface to support protocol development, improvement, and implementation based on algorithms developed for rutting and cross-slope. A literature review will also be presented with other information that the contractor decides to include with observations and findings for recommendations to the panel.
- As related to Task 3, the contractor plans perform a TPP Assessment at the National Center for Asphalt Technology (NCAT) during May 11-May 12, 2026. The focus for the NCAT Event will be PP106 – PP110, as the technical operations standards that will determine the updates to the definitions in PP111. The contractor expects to provide an update to the panel at the 2026 Road Profile Users’ Group (RPUG) Conference / annual meeting scheduled for April 28 – May 1, 2026, in Pittsburg, PA. However, a schedule has not been finalized for this project’s presentation. The contractor is also still working to confirm vendors that will participate in the NCAT Event. A total of eight (8) events are planned for PP107 and PP108 upcoming work. Additional work to identify improvements will continue to be ongoing for all provisional standards, as noted in the overview.
- As related to Task 4, the contractor plans to determine quality requirements and evaluation criteria, assess approaches to check images, and establish a library hosting framework.
- As related to Task 5, the contractor will prepare the provisional standards for AASHTO 2026 Balloting through the AASHTO Technical Subcommittee 5a, with Ian Rish and Scott George. The coordination on the submittal version for balloting must be complete prior June 2026 and sent to Ian and Scott by June 3, 2026.
- As related to Task 7, the contractor will process other travel expenses related to the September 22, 2025, Montana Event as well as provide updates for planning travel for the NCAT Event scheduled for May 11-12, 2026.

Significant Results:

The significant results for the project work completed thus far is related to completing the initial updates to the standards. The updated standards, including PP106, PP107, PP109, PP110, and PP111 were submitted to AASHTO Technical Subcommittee (TS) 5a on June 9, 2025. The AASHTO balloting process resulting in the updated standards being approved. The approved standards were included in the release of the AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, August 8, 2025, 45th Edition. Furthermore, the standards are now referred to as PP 106-25, PP 107-25, PP 108-25, PP 109-25, PP 110-25, and PP 111-25.

Furthermore, PP 107-25 and PP 108-25 are available for use in the pavement analysis software for piloting under TPF-5(354), as planned.

Task 2 (Rut Definition Study): The QES team began executing the work plan in August 2025. As part of this effort, the research team designed two questionnaires, one focused on cross-slope and the other on

rutting which were distributed to all 24 pooled fund agencies. In parallel, the QES developed a vendor questionnaire, which was distributed to TPP vendors. Responses for both surveys were received and QES is currently compiling and summarizing this information for presentation to the oversight panel / Technical Advisory Committee.

Task 3 (TPP Study): QES conducted two Transverse Pavement events and continues to analyze event data using the 2025 AASHTO Standards. Additional analysis is ongoing to analyze TPP event data using the proposed 2026 AASHTO Standards and to incorporate revisions into TPP algorithms. Revisions to algorithms were made to allow an automative procedure to align the TPP and ground reference data sets as well as to transform GPS coordinates provided in TPP data into path coordinates.

- The contractor has completed two (2) TPP Events, one in Florida and one in Montana.
- The contractor has begun preparing a project report which will include activities, findings, conclusions, and recommendations to present findings and recommendations to the oversight panel.
- The contractor's collaboration with NCAT may result in a notable increase in the number of state agencies participating in the TPP study.

Task 4 (AI Reference Library Study): The final work plan was submitted to FHWA and participating State DOT panel staff. The QES team held a meeting with FHWA staff and State DOT panel members to review the final work plan. The State DOT panel members approved the plan. During the month of August, QES worked with FHWA staff to begin execution of the work plan. QES and FHWA staff developed a questionnaire for distribution to select DOTs to determine current requirements and existing QC/QA practices. FHWA staff performed an internal review of preliminary findings. Based on feedback and questions from FHWA staff, QES presented "typical QC/QA processes" to FHWA staff. Based on the results of interviews and the QES presentation, follow-up questions for the DOTs were developed.

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).

A focus for the project scope of work includes processing standards based on transverse pavement profile (TPP) testing results collected during planned State DOT TPP Testing Events.

In the TPF-5(399) Work Plan, Task 2.3, Building a Diverse TPP Database, the plan indicates that several DOTs have indicated interest in providing samples to the contractor. The State DOTs noted in the work plan include Texas, Washington, North Carolina, Virginia, Georgia, New Hampshire, North Dakota, Massachusetts, Ohio, and Oregon.

As of June 30, 2025, the project contractor has completed TPP testing for the first event that was scheduled with Florida DOT (FDOT) as the host state. The FDOT TPP Testing event was held on June 10 – 11, 2025.

As of September 30, 2025, the project contractor completed TPP testing for the second event for September 23 in Montana. For states previously scheduled to participate in the Montana DOT TPP Event, there were cancellations. The states that did not participate as planned include Idaho, Washington, and North Dakota. The TPP testing was performed with Montana DOT only who provided two TPP's.

The impacts of the NCAT Event are to be determined.

The contractor's quarterly report is attached for reference. *see Attachment A.*

Potential Implementation:

The planned implementation for the standards updated through this project include merging the standards into the pavement analysis software developed under TPF-5(354), Improving the Quality of Highway Profile Measurement, led by South Dakota DOT.

- The provisional standards PP107 and PP108 have been processed for implementation under Pooled Fund Project TPF-5(354).
- The pooled fund project TPF-5(537) includes alignment for the pooled fund project TPF-5(399) task work with **(1)** Implementation of American Association of State and Highway Transportation Officials (AASHTO) Provisional Standards for Inertial Profilers, **(2)** Advancement of the development, maintenance, and training for Profile Analysis Software (i.e. ProVAL or its progressive alternatives), and potentially **(3)** Examination of external factors influencing data collection such as environmental conditions or evolving standards.
 - o The implementation for pooled fund project TPF-5(399) tasks will be determined by Illinois DOT (IDOT), as the lead agency for pooled fund project TPF-5(537). The lead point of contact for pooled fund project is John Senger with IDOT.

ATTACHMENT A



**Quarterly Progress Report for FHWA Indefinite
Delivery/Indefinite Quantity Project:**

***Technical and Program Support for
Pavement Programs***

**Task Order No. 693JJ325F00015N
TPF-5(399) Rut/Cross Slope TPP Implementation**

FHWA Contract 693JJ325D000001

Quarterly Reporting Period: October 2025 to December 2025

Prepared for:

Federal Highway Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Prepared by:

Quality Engineering Solutions, Inc.
9930 Grubbs Road
Wexford, PA 15090

January 15, 2026

TABLE OF CONTENTS

	<u>Page</u>
Summary of Work Performed This Quarter	1
Task 1: Kick-off Meeting.....	1
Task 2: Improve Existing Rut and Cross-Slope Definitions	1
Task 3: Conduct Transverse Pavement Profiler (TPP) Assessment Tests: AASHTO PP 106, 107, 108, 109, 110 and 111	1
Task 4: Feasibility Assessment of Establishing Reference Annotated Image Library as a Benchmark that can be used to Train/Evaluate Machine Learning/Artificial Intelligence Applications for Pavement Surface Condition Assessments.....	3
Task 5: Technical Assistance and Analysis to Implement Products Developed Within TPF-5(299)/(399) and Related to TPF-5(299)/(399)	3
Task 6: Final Report Summarizing the Work Accomplished in Tasks 2, 3, 4, and 5.....	3
Work To Be Accomplished Next Quarter.....	3
Task 1: Kick-off Meeting.....	3
Task 2: Improve Existing Rut and Cross-Slope Definitions	4
Task 3: Conduct Transverse Pavement Profiler (TPP) Assessment Tests: AASHTO PP 106, 107, 108, 109, and 110	4
Task 4: Feasibility Assessment of Establishing Reference Annotated Image Library as a Benchmark that can be used to Train/Evaluate Machine Learning/Artificial Intelligence Applications for Pavement Surface Condition Assessments.....	5
Task 5: Technical Assistance and Analysis to Implement Products Developed Within TPF-5(299)/(399) and Related to TPF-5(299)/(399)	5
Revisions to the AASHTO Standards will be made, as necessary.	5
Task 6: Final Report Summarizing the Work Accomplished in Tasks 2, 3, 4, and 5.....	5
Task 7: Other Direct Costs/Travel	5
Identification of Problems and Recommended Solutions.....	5
Tabulation of Project Person-Hours	5
Project Billings by Task	6

LIST OF TABLES

Table 1. TM/LH Hours Expended by Personnel	6
Table 2. Project Billings by Work Task for 693JJ325F00015N.....	6

**TASK ORDER NO. 693JJ325F00015N:
TPF-5(399) Rut/Cross Slope TPP Implementation**

Task Order Summary	
Title:	TPF-5(399) Rut/Cross Slope TPP Implementation
Task Order Number:	693JJ325F00015N
Delivery Order Type:	Firm-Fixed Price (FFP) and Time and Materials (T&M) / Labor-Hour (LH)
Start Date:	December 17, 2024
Completion Date:	December 18, 2028
Task Order Contracting Officer’s Representative:	Christy Poon-Atkins
Task Order Objectives:	The objective of this Task Order is to improve existing rut and cross slope definitions and assist agencies in assessing and implementing products developed within TPF-5(299)/(399) and related to TPF-5(299)/(399).
Principal Investigator:	Jeff Uhlmeyer, PE
Key Personnel:	Jeff Uhlmeyer, PE Mona Nobakht, PhD, PE Kurt Keifer, PhD, PE
Budget:	\$995,392

Summary of Work Performed This Quarter

Task 1: Kick-off Meeting

This task is complete.

Task 2: Improve Existing Rut and Cross-Slope Definitions

Task 2.1 Develop Work Plan

This task is complete.

Task 2.2 Execute Work Plan

During October and November, the QES team completed the review, compilation, and summary of responses from transportation agencies and vendors to the QES surveys. These findings will be used to support the development and refinement of project algorithms and to update related specifications.

QES also held multiple meetings with vendors to discuss access to the data and resources required to create the TPP database, including pavement images, transverse profiles, and lane edge files. Through these discussions, the team and vendors agreed that the TPP database will be developed using (1) data from agencies that provided support letters to QES and (2) data collected during QES certification events. In addition, the research team established a clear path forward for receiving the required data directly from vendors.

In December, QES coordinated with transportation agencies to support database development. QES developed a condition matrix and requested that each DOT identify a set of roadway segments meeting the matrix criteria using a PDF form. Completed forms were received from the agencies and forwarded to the vendors to support the next steps in data acquisition and database assembly.

Optional Task 2.3

This Task will begin in future months.

Task 2.4 Prepare Task 2 Documents

QES summarized survey responses from transportation agencies and under Task 2.2. These will be included in the final contract report.

Task 3: Conduct Transverse Pavement Profiler (TPP) Assessment Tests: AASHTO PP 106, 107, 108, 109, 110 and 111

Task 3.1 Conduct Preparatory Activities to Conduct TPP Tests

This task is complete. QES invoiced the FHWA for the remaining contract funds for this lump-sum task.

Task 3.2 Conduct TPP Tests and Assess TPP Test Procedures

October:

QES completed analyzing TPP data submitted for the Florida TPP Assessment Event.

QES prepared and delivered on October 27th a PowerPoint presentation reporting Florida DOT Assessment event results.

QES prepared a PowerPoint presentation summarizing SSI's results from the Florida Assessment event.

On October 23rd, QES met with the National Center for Asphalt Technology (NCAT) to discuss hosting a TPP Assessment Event. NCAT agreed to host the event during the week of May 11, 2026. QES committed to coordinating event planning over the coming months. Due to NCAT track availability, PP 110 Ground Reference Testing and PP 109 Highway Performance Testing must occur on May 11th. Remaining tests will begin on May 11th and conclude on May 12th as time allows.

On October 30th Pathway Services, Inc. delivered to QES the Montana DOT TPP Assessment event data.

QES utilized Vendors' responses under Task 2 to guide the research team's assessment of potential improvements to the AASHTO PP 106–111 specifications to better align them with the current state of technology and practice. The team began a thorough literature review and evaluated the existing specifications to identify areas for improvement.

November:

On November 3rd, QES delivered a PowerPoint presentation to SSI reporting the Florida DOT results for Florida DOT TPP Assessment Event. Following the presentation, SSI sent revised Lidar data for PP 108 Navigation Drift to improve easting and northing results and sent revised Lidar data for PP 109 Highway Performance Tests to include closer interval data. QES reprocessed the updated data.

QES analyzed Montana DOT Assessment Event data and prepared a PowerPoint presentation reporting the Montana DOT TPP results.

QES summarized data from the Florida and Montana events for inclusion in the final report.

QES continued the assessment of potential improvements to the AASHTO PP 106–111 specifications to better align them with the current state of technology and practice. The research team conducted a thorough literature review and evaluated the existing specifications to identify areas for improvement.

December:

QES continued analysis of Montana DOT Assessment Event data and prepared a PowerPoint presentation reporting the Montana DOT TPP results.

On December 8, QES delivered a PowerPoint presentation to Pathway Services, Inc. and the Montana DOT summarizing the Montana DOT TPP Assessment Event results.

The research team developed a list of actionable items for potential improvements. This list was discussed with Dr. John Ferris through multiple meetings and follow-up discussions. Based on these discussions, the actionable items were refined and will be assessed during future certification events for implementation.

Task 3.3 Prepare Task 3 Documents

QES summarized Florida and Montana event data for inclusion in the final report.

Task 4: Feasibility Assessment of Establishing Reference Annotated Image Library as a Benchmark that can be used to Train/Evaluate Machine Learning/Artificial Intelligence Applications for Pavement Surface Condition Assessments

Task 4.1 Develop Work Plan

This task is complete.

Task 4.2 Execute Work Plan

During the month of October, QES worked with FHWA to develop follow-up questions for the participating DOTs based on the interviews performed in the previous quarter. Follow-up questions were sent to the DOTs in October, and responses were collected through late October.

Based on the feedback from the DOTs, QES worked with FHWA staff to develop a Technical Memorandum for the first task (4.1) of the work plan. This memorandum was submitted to participating DOT panelists for comment and review. As of the end of December, we have not received feedback from the panelists.

Optional Task 4.3 Execute Work Plan

This Task will begin in future months.

Task 4.4 Prepare Task 4 Documents

This task will begin in future months.

Task 5: Technical Assistance and Analysis to Implement Products Developed Within TPF-5(299)/(399) and Related to TPF-5(299)/(399)

QES analyzed TPP data collected during previous certification events to evaluate the effectiveness of current approaches and data formats for scan registration, strip creation, and alignment of TPP and GRE data, and to identify gaps. Existing algorithms and results were thoroughly reviewed and visualized to support recommendations for modifications.

Task 6: Final Report Summarizing the Work Accomplished in Tasks 2, 3, 4, and 5

This task will begin in future months.

Work To Be Accomplished Next Quarter

Task 1: Kick-off Meeting

This Task is complete.

Task 2: Improve Existing Rut and Cross-Slope Definitions*Task 2.1 Develop Work Plan*

This task is complete.

Task 2.2 Execute Work Plan

Once data are received from vendors, the QES team will develop the TPP database and a visualization interface to support development of processing protocols and associated code/algorithms for rutting and cross-slope. Concurrently, the research team will conduct a literature review of existing methods for data processing and calculation.

Optional Task 2.3

This Task will begin in future months.

Task 2.4 Prepare Task 2 Documents

Additional documentation will be done as necessary to summarize Task 2.2 activities for inclusion in the final report.

Task 3: Conduct Transverse Pavement Profiler (TPP) Assessment Tests: AASHTO PP 106, 107, 108, 109, and 110*Task 3.1 Conduct Preparatory Activities to Conduct TPP Tests*

This task is complete.

Task 3.2 Conduct TPP Tests and Assess TPP Test Procedures

QES will continue collaboration with the NCAT to plan and schedule a TPP assessment event for an assessment testing May 11-12, 2026. Discussion will include vendor attendance, testing schedules for PP 106-110 tests, test location selection for PP 106-110, and support needs from NCAT staff. At least five vendors are expected to participate. Both QES and NCAT will engage TPP vendors during the 2026 TRB meeting to confirm interest. A planning meeting is scheduled for January 7, 2026.

Once vendors are confirmed, QES will coordinate with participants to ensure familiarity with testing requirements, data collection procedures, and system performance expectations. QES will continue revising the TPP algorithms to accommodate the changes necessary to implement the 2026 AASHTO Standards. Additional work will continue to identify improvements needed for PP 106-PP109 standards.

Task 3.3 Prepare Task 3 Documents

QES will continue to summarize and update the final report as necessary.

Task 4: Feasibility Assessment of Establishing Reference Annotated Image Library as a Benchmark that can be used to Train/Evaluate Machine Learning/Artificial Intelligence Applications for Pavement Surface Condition Assessments*Task 4.1 Develop Work Plan*

This task is complete.

Task 4.2 Execute Work Plan

Once feedback is received from the panel, we will incorporate it into our work plan and proceed with the following tasks in Quarter 1 of 2026:

Work Plan Task 1.2. Determine Quality Requirements and Eval. Criteria for Image Data

Work Plan Task 1.3. Acquire Crack Images

Work Plan Task 1.4. Establish Library Hosting Framework

Optional Task 4.3 Execute Work Plan

This Task will begin in future months.

Task 4.4 Prepare Task 4 Documents

This task will begin in future months.

Task 5: Technical Assistance and Analysis to Implement Products Developed Within TPF-5(299)/(399) and Related to TPF-5(299)/(399)

Revisions to the AASHTO Standards will be made, as necessary.

Task 6: Final Report Summarizing the Work Accomplished in Tasks 2, 3, 4, and 5

This task will begin in future months.

Task 7: Other Direct Costs/Travel

QES invoiced travel costs for the Montana DOT TPP Assessment Event held on September 22, 2025.

Identification of Problems and Recommended Solutions

There are currently no problems with the administration of this task order.

Tabulation of Project Person-Hours

This project is being performed on a Firm-Fixed Price (FFP) and Time and Materials (T&M) / Labor-Hour (LH), with billings tied to the submission of key project deliverables. Travel and other direct expenses are reimbursed at cost. Table 1 provides the labor hours for T&M /LH tasks.

Table 1. TM/LH Hours Expended by Personnel

Tasks	Person-Hours		
	Planned	Current Quarter	Cumulative
Task 2.2	640	93	141
Task 2.3 (optional)	208	0	0
Task 3.2	1,974	196	673
Task 4.3 (optional)	62	0	0
Task 5	1,000	10	409

Project Billings by Task

The current status of the project billings by task is shown in Table 2.

Table 2. Project Billings by Work Task for 693JJ325F00015N

Work Task	Current Quarter Billings	Previous Billings	Total Billings to Date	Budget
Task 1: Kick-off Meeting*	\$0.00	\$12,087.00	\$12,087.00	\$12,087.00
Task 2: Improve Existing Rut and Cross-Slope Definitions				
<i>Task 2.1 Develop Work Plan*</i>	\$0.00	\$44,925.00	\$44,925.00	\$44,925.00
<i>Task 2.2 Execute Work Plan**</i>	\$15,156.25	\$7,217.50	\$22,373.75	\$102,900.00
<i>Task 2.4 Prepare Task 2 Documents*</i>	\$1,500.00	\$0.00	\$1,500.00	\$27,910.00
Task 3: Conduct Transverse Pavement Profiler (TPP) Assessment Tests: AASHTO PP 106, 107, 108, 109, and 110				
<i>Task 3.1 Conduct Preparatory Activities to Conduct TPP Tests*</i>	\$803.00	\$26,457.00	\$27,260.00	\$27,260.00
<i>Task 3.2 Conduct TPP Tests and Assess TPP Test Procedures**</i>	\$30,350.21	\$57,015.50	\$87,365.71	\$279,100.00

Work Task	Current Quarter Billings	Previous Billings	Total Billings to Date	Budget
<i>Task 3.3 Prepare Task 3 Document*</i>	\$618.00	\$1,330.00	\$1,948.00	\$19,760.00
Task 4: Feasibility Assessment of Establishing Reference Annotated Image Library as a Benchmark that can be used to Train/Evaluate Machine Learning/Artificial Intelligence Applications for Pavement Surface Condition Assessments				
<i>Task 4.1 Develop Work Plan*</i>	\$0.00	\$16,176.00	\$16,176.00	\$16,176.00
<i>Task 4.2 Execute Work Plan*</i>	\$8,256.00	\$4,940.00	\$13,196.00	\$31,084.00
<i>Task 4.4 Prepare Task 4 Documents*</i>	\$0.00	\$0.00	\$0.00	\$14,224.00
Task 5: Technical Assistance and Analysis to Implement Products Developed Within TPF-5(299)/(399) and Related to TPF-5(299)/(399)**	\$3,750.00	\$60,759.00	\$64,509.00	\$166,150.00
Task 6: Final Report Summarizing the Work Accomplished in Tasks 2, 3, 4, and 5*	\$0.00	\$0.00	\$0.00	\$49,920.00
Travel and Other Direct Costs (do not exceed)	\$20,915.27	\$44,142.48	\$65,057.75	\$160,000.00
Subtotal Base	\$81,348.73	\$275,049.48	\$356,398.21	\$951,496
Optional Task 2.3 Execute Work Plan**	\$0.00	\$0.00	\$0.00	\$31,880.00
Optional Task 4.3 Execute Work Plan**	\$0.00	\$0.00	\$0.00	\$12,016.00
Subtotal Options	\$0.00	\$0.00	\$0.00	\$43,896.00
Total	\$81,348.73	\$275,049.48	\$356,398.21	\$995,392.00

* FFP

**Time and Materials