TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Michigan DOT

INSTRUCTIONS:

Lead Agency contacts 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 # *(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX)* *TPF-5(490)*	**Transportation Pooled Fund Program - Report Period:** ☐Quarter 1 (January 1 – March 31) ☒Quarter 2 (April 1 – June 30) ☐Quarter 3 (July 1 – September 30) ☐Quarter 4 (October 1 – December 31)	
TPF Study Number and Title: **TPF-5(490) ENTERPRISE-Phase III (Phase II Continuation)**		
Lead Agency Contact: **Michigan Department of Transportation**	**Lead Agency Phone Number:** **517-636-0036**	**Lead Agency E-Mail** FeldpauschE1@michigan.gov
Lead Agency Project ID: **OR17-101**	**Other Project ID (i.e., contract #):** **2018-0172**	**Project Start Date:** 3/6/2023
Original Project Start Date: **3/6/2023**	**Original Project End Date:** **9/30/2028**	**If Extension has been requested, updated project End Date:** Click or tap to enter a date.

Project schedule status:

☒On schedule	☐On revised schedule	☐Ahead of schedule	☐ Behind schedule

Overall Project Statistics:

Total Project Budget	Total Funds Expended This Quarter	Percentage of Work Completed to Date
$1,135,980.00	84,986.26	12%

Project Description:

TPF-5(490) is a continuation of TPF-5(359) led by the Michigan Department of Transportation. This pooled fund federal project originated under the project titled "ENTERPRISE Group" that was established in 1991. Each year, partner members contribute funds in support of ITS projects of mutual interest.

Selected research studies/projects typically involve private sector partners contracted to work with designated member agencies. An administrative contract, currently with CTC & Associates LLC, covers project management, meeting planning, website and other tasks. Over time ENTERPRISE has grown into a multi-national consortium dedicated to the advancement of ITS. The consortium provides a focus for coordinating ITS developments and sharing results within and outside the ENTERPRISE program.

Primary Focus:
To enhance innovation in highway operations and intelligent transportation systems through research and technology transfer, as well as to continue assessing transformational technologies and their impact on the transportation industry.

Objectives: The Board has selected the following 14 research projects for this phase of the pooled fund study.
Primary Projects
1. State of the Art Roadway Sensors – Phase 1
2. New Methods of Traffic Data Collection
3. Potential Approaches for Wrong Way Driving Applications – Phase 2
4. Procurement Specification for Physical Security of ITS
5. Novel Uses of Unmanned Aerial Systems in ITS
6. State of the Art of Roadway Sensors – Phase 2

Secondary Projects
7. Administration of Communications – Phase 1
8. Something Old, Something New – New Applications of Old Technologies
9. Uncontrolled Pedestrian Crossing ITS Countermeasures
10. Communication Future - Phase 1
11. Quick Connect DMS Replacement
12. Administration of Communications – Phase 2
13. Analysis of the Benefits of Connected Street Lighting
14. Communication Future - Phase 2

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

Board teleconferences held on May 17 and June 21, 2023. CTC & Associates developed the agenda, took notes, and finalized, distributed and posted meeting minutes.

A two day, virtual Board Meeting was held from April 11-12, 2023. CTC & Associates finalized the planning for the virtual meeting including setting up the virtual platform, agenda development, notetaking during the meeting, finalizing meeting minutes, posting/distributing meeting minutes and following up meeting action items.

CTC & Associates assisted MDOT with members' pooled fund commitments and transfers.

CTC updated the website with current information. (http://enterprise.prog.org)

CTC & Associates assisted Athey Creek with activities related to individual research projects.

<u>Research projects</u>
Project 1: State of the Art Roadway Sensors – Phase 1

- Task 1: Literature Search, Survey, and/or Interviews – Conducted online search to identify roadway sensors used within the transportation sector and in other industries. Developed survey questions, which were distributed together with the survey questions developed for Project 2.

- Task 2: Roadway Sensor Analysis – organized sensors identified in Task 1 and conducted preliminary assessment of relevance to transportation.

Project 2: New Methods of Traffic Data Collection
- Task 1: Literature Search, Survey, and or/Interviews – Continued online search to identify traditional and emerging data collection methodologies. Developed and distributed a survey to identify state DOTs that have used or are using emerging methodologies for collecting traffic data.
- Task 2: Industry Scan – Conducted an online search of vendors that provide data collection methodologies.

Project 3: Potential Approaches for Wrong Way Driving Applications – Phase 2
- Task 1: Synthesis of Current WWD In-Vehicle or Mobile Applications – Completed the online search to identify WWD in-vehicle and mobile applications and prepared the draft synthesis. Presented a project update at the April ENTERPRISE Board meeting.
- Task 2: Industry Outreach - Automobile Manufacturers and Application Providers – Began discussing an outreach strategy.
- Task 3: Industry Outreach – Enhance Phase 1 White Paper – Completed the draft white paper focusing on a WWD data feed and communication standard. Routed the draft white paper to the project champions for review.

Project 4: Procurement Specification for Physical Security of ITS
- Task 1: Investigate Best Practices for Security of ITS Field Devices – Began the literature search and identified existing publications and resources. Met with the project champion to kick off the project and discuss initial literature findings and the approach for gathering best practices via agency interviews. Kicked off the project at the June ENTERPRSISE Board Meeting webinar.

Project 5: Novel Uses of Unmanned Aerial Systems (UAS) in ITS
- Task 1: Literature Search, Survey, and/or Interviews – Kicked off the project and began an online search to identify agencies using UAS for ITS.

Anticipated work next quarter:

The Board will hold teleconferences on July 19 and August 16, 2023. CTC & Associates will create agendas, take notes, and finalize, distribute and post meeting minutes for monthly Board meetings.

A hybrid in-person/virtual meeting will take place on September 19-10, 2023 in Kansas City, Kansas.
-- CTC & Associates will be responsible for the meeting planning and logistics including meeting agenda, meals, hotel, flights, facilities, and the virtual platform. CTC will take the meeting notes, and finalize, distribute and post meeting minutes.
-Athey Creek will present project updates and discuss the secondary projects.

CTC & Associates will update the website with current information. (http://enterprise.prog.org).

CTC & Associates will produce a new ENTERPRISE program brochure to highlight current completed projects and highlight the new in-progress projects.

CTC & Associates will monitor the research projects schedules and obtain TAC approval for the researcher's invoices.

<u>Research projects - Athey Creek (Project updates are presented at monthly Board meetings.)</u>
Project 1: State of the Art Roadway Sensors – Phase 1
- Task 1: Literature Search, Survey, and/or Interviews – Complete Task 1 by compiling and organizing findings from the literature search and survey.
- Task 2: Roadway Sensor Analysis – Conduct a webinar with interested ENTERPRISE Board members to prioritize use case areas and specific sensors in order to focus in-depth analysis on items of interest for Task 2 and 3 activities.
- Task 3: Use Cases – Document use cases that were identified in Tasks 1 and 2.
- Task 4: Draft Final Report – begin development of the report based on findings from Tasks 1 and 2.

Project 2: New Methods of Traffic Data Collection
- Task 1: Literature Search, Survey, and/or Interviews –Complete literature search. Summarize survey results compiling

- additional details on traditional and emerging data collection methodologies utilized by State DOTs. Begin to define preliminary criteria for comparing traffic data collection alternatives.
- Task 2: Industry Scan – Complete an online search of traffic data collection vendors products.
- Task 3: Compare Traffic Data Collection Alternatives – Develop initial comparisons of traffic data collection methods.

Project 3: Potential Approaches for Wrong-Way Driving Applications – Phase 2

- Task 1: Synthesis of Current WWD In-Vehicle or Mobile Applications – Incorporate any comments to the draft synthesis and finalize the synthesis documentation.
- Task 2: Industry Outreach - Automobile Manufacturers and Application Providers –Work with the project champions to finalize the outreach approach.
- Task 3: Industry Outreach – Enhance Phase 1 White Paper – Finalize the white paper per comments from project champions.
- Task 4: Industry Outreach – Engage Products/Vehicles Representatives – Develop an outreach strategy in cooperation with the project champions and begin outreach efforts.
- Task 5: Industry Outreach – Engage Public and Private Entities - Develop an outreach strategy in cooperation with the project champion and begin outreach. Work with the project champions to finalize the approach for engaging USDOT through current data exchange development efforts and begin conducting outreach to share the concept.

Project 4: Procurement Specification for Physical Security of ITS

- Task 1: Investigate Best Practices for Security of ITS Field Devices – Finalize the literature search. Develop a one page project overview document to distribute to introduce the project when requesting agency interviews. Develop a question guide for agency interviews. Begin scheduling and conducting agency interviews.
- Task 2: Develop Best Practices Checklist – Based on findings from Task 1, begin developing the checklist.

Project 5: Novel Uses of Unmanned Aerial Systems (UAS) in ITS

- Task 1: Literature Search, Survey, and/or Interviews – Continue an online search to identify agencies using UAS for ITS. Conduct an online survey to document transportation agencies utilizing UAS for ITS and gather additional details on these real-world deployments.

Project 6: State of the Art of Roadway Sensors – Phase 2

- Activities not yet planned, pending findings from Project 1 to inform this effort
- Task 1: Propose Assessment Options – In conjunction with a project kickoff with ENTERPRISE Board members preliminary discussions with ENTERPRISE board members may occur pending availability of findings from Project 1 to identify specific sensors or possible testing locations to support Project 6 activities.

Significant Results:

See Progress This Quarter section.

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).

None

Potential Implementation:

To be determined as individual projects progress.