

**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.

<b>Transportation Pooled Fund Program Project #</b> <i>(i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i>  <p style="text-align: center;">TPF-5(490)</p>	<b>Transportation Pooled Fund Program - Report Period:</b> <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)	
<b>TPF Study Number and Title:</b> <b>TPF-5(490) ENTERPRISE-Phase III (Phase II Continuation)</b>		
<b>Lead Agency Contact:</b> Michigan Department of Transportation	<b>Lead Agency Phone Number:</b> 517-636-0036	<b>Lead Agency E-Mail:</b> FeldpauschE1@michigan.gov
<b>Lead Agency Project ID:</b> OR17-101	<b>Other Project ID (i.e., contract #):</b> 2018-0172	<b>Project Start Date:</b> 3/6/2023
<b>Original Project Start Date:</b> 3/6/2023	<b>Original Project End Date:</b> 9/30/2028	<b>If Extension has been requested, updated project End Date:</b> Click or tap to enter a date.

**Project schedule status:**

<input checked="" type="checkbox"/> On schedule	<input type="checkbox"/> On revised schedule	<input type="checkbox"/> Ahead of schedule	<input type="checkbox"/> Behind schedule
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**Overall Project Statistics:**

Total Project Budget	Total Funds Expended This Quarter	Percentage of Work Completed to Date
\$1,195,980.00	\$62,100.79	61%

## 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 13 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
8. ITS Simple Innovations
9. Uncontrolled Pedestrian Crossing ITS Countermeasures
10. Defining and Advancing Digital Infrastructure
11. Role of AI in ITS
12. Alternate Methods of Traffic Data Analysis
13. Truck Parking Technologies

## Progress this Quarter

**(includes meetings, work plan status, contract status, significant progress, etc.):**

Board teleconferences held on May 15, and June 18, 2024. CTC & Associates developed the agenda, took notes, and finalized, distributed and posted meeting minutes.

A two day, in-person Board Meeting was held from April 2-3, 2024 in Ankeny, IA. CTC & Associates finalized the planning for the hybrid meeting including setting up the virtual platform, agenda development, booking flights, securing a hotel, meeting logistics, notetaking during the meeting, finalizing meeting minutes, posting/distributing meeting minutes, reimbursements and follow up meeting action items.

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

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

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

### Research projects

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

- Task 1: Synthesis of Current WWD In-Vehicle or Mobile Applications – Task Complete.

- Task 2: Industry Outreach - Automobile Manufacturers and Application Providers – Task Complete.
- Task 3: Industry Outreach – Enhance Phase 1 White Paper – Task Complete.
- Task 4: Outreach to Providers that May Contribute to a National WWD Data Feed – Task Complete.
- Task 5: Outreach to Public/Private Entities that May Ingest from a National WWD Data Feed – Task Complete.
- Task 6: Draft Report – Task Complete.
- Task 7: Final Report – Routed draft report to project champions and agencies interviewed, for review and comment.

#### Project 4: Procurement Specification for Physical Security of ITS

- Task 1: Investigate Best Practices for Security of ITS Field Devices – Task complete.
- Task 2: Best Practices Checklist – Task complete
- Task 3: Create a “Model” Procurement Specification – Task complete.
- Task 4: Draft Report – Finalized the draft report. Task complete.
- Task 5: Final Report – Incorporated edits on the draft report and finalized the report. Task complete.

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

- Task 1: Literature Search, Survey, and/or Interviews – Task complete.
- Task 2: Use Cases and Applications – Task complete.
- Task 3: Draft Report – Task complete.
- Task 4: Final Report – Incorporated edits on the draft report and finalized the report. Task complete.

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

- Task 1: Propose Assessment Options – Completed draft evaluation plan. Task complete.
- Task 2: Conduct a High-Level Systems Engineering Approach – Revised high-level systems engineering approach for the sensor selected in Task 1 based on comments received from vendor and ENTERPRISE members. Task complete.
- Task 3: Draft Report – Completed developing a draft report that includes findings in Tasks 1 and 2. Task complete.
- Task 4: Final Report – Revised and submitted final report based on comments received from ENTERPRISE members. Task complete.

#### Project 7: Administration of Communications

- Task 1: Gather Agency Examples – Finalized gathering of agency examples of cost-saving or efficient approaches for communications infrastructure to support ITS systems. Task Complete.
- Task 2: Complete Agency Interviews – Developed a question guide for agency interviews. Scheduled and completed 5 agency interviews. Scheduling underway for additional interviews. Began documenting interview summaries.

#### Project 8: ITS Simple Innovations

- Task 1: Gather Agency Examples – Began conducting research to gather examples of ITS simple innovations.

#### Project 9: Uncontrolled Pedestrian Crossing ITS Countermeasures

- Task 1: Review of Existing Guidance Resources – Continued the literature search. Expanded the search to “uncontrolled locations” and general guidance for identifying countermeasures through non-traditional methods. Task complete.
- Task 2: Document Selected Case Studies of ITS Deployments – Planned and scheduled an interactive meeting with State DOT traffic safety engineers, to gather input for the project, including potential case studies.
- Task 3: Identify Needs and Gaps – Developed an approach and questions for State DOT traffic safety engineers, to identify possible needs gaps in guidance.

#### Project 10: Defining and Advancing Digital Infrastructure

- No progress. Per direction from the ENTERPRISE Board, pausing the start of this project.

#### Project 11: Role of AI in ITS

- Kicked off project at in-person ENTERPRISE Board Meeting on April 2.
- No progress. Per direction from the ENTERPRISE Board, pausing the start of this project.

#### Project 12: Alternate Methods of Traffic Data Analysis

- Task 1: Gather Agency Examples – Began conducting research to identify alternative methods of traffic data analysis.

#### Project 13: Truck Parking Technologies

- Task 1: Research and Interviews with Selected Agencies – Began to document truck parking detection types, experiences, and status used by agencies. Also began to document safety issues with illegal truck parking on shoulders, roadway maintenance issues, technology maintenance with truck parking detection systems, and other industries with vehicle counting detection systems.

Project 14: Documenting Current Road Weather Information System (RWIS) Technologies Related to ITS and Operations

- Kicked off project at in-person ENTERPRISE Board Meeting on April 2.
- Task 1: Gather Information – conducted high-level literature search of agency resources.

See “Schedule of Current Projects” at the end of this quarterly report for graphical information depicting the schedule of research activities for each current research project.

The following research projects are complete, and the final report is posted to the ENTERPRISE PFS website:

- **Completed December 2023:** State of the Art Roadway Sensors – Phase 1: <https://enterprise.prog.org/wp-content/uploads/ENT-Roadway-Sensors-Phase-1-Final-Report.pdf>
- **Completed March 2024:** New Methods of Traffic Data Collection (Comparison of Emerging Traffic Data Collection Methods to Traditional Methods): <https://enterprise.prog.org/wp-content/uploads/ENT-Comparison-Traffic-Data-Collection-Methods-Final-Report.pdf>
- **Completed April 2024:** Project 5: Novel Uses of Unmanned Aerial Systems (UAS) in ITS: <https://enterprise.prog.org/projects/novel-uses-of-unmanned-aerial-systems-uas-in-its/>
- **Completed June 2024:** Project 4: Procurement Specification for Physical Security of ITS
- **Completed June 2024:** Project 6: State of the Art of Roadway Sensors – Phase 2: <https://enterprise.prog.org/projects/state-of-the-art-roadway-sensors-phase-2/>

## Anticipated work next quarter:

The Board will hold teleconferences on July 17, August 20 and September 18, 2024. CTC & Associates will create agendas, take notes, and finalize, distribute and post meeting minutes for monthly Board meetings.

CTC will begin planning a hybrid in-person/virtual meeting taking place from October 22-23, 2024 in Detroit, MI. Planning activities will include agenda development, finding and contracting with a hotel, booking flights, and setting up the virtual platform.

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

CTC & Associates will monitor the research projects schedules and assist Athey Creek with activities related to individual research projects.

### Research projects - Athey Creek (Project updates are presented at monthly Board meetings.)

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

- Task 7: Final Report - Incorporate comments/edits received and finalize the report.

Project 7: Administration of Communications

- Task 2: Complete Agency Interviews – Continue agency interviews.

Project 8: ITS Simple Innovations

- Task 1: Gather Agency Examples – Continue gathering agency examples of ITS simple innovations through conferences, meetings, and webinars.

Project 9: Uncontrolled Pedestrian Crossing ITS Countermeasures

- Task 2: Document Selected Case Studies of ITS Deployments – Determine case study documentation approach using input from literature search and the interactive meeting with traffic safety engineers.
- Task 3: Identify Needs and Gaps – Document needs and gaps as noted during meeting with traffic safety engineers, as well as from literature and existing guidance resources.

Project 10: Defining and Advancing Digital Infrastructure

- Kick off the project and begin webinars with ENTERPRISE agencies to advance Digital Infrastructure sharing among agencies.

Project 11: Role of AI in ITS

- Per direction from the ENTERPRISE Board, pausing the start of this project.

Project 12: Alternate Methods of Traffic Data Analysis

- Task 1: Gather Agency Examples – Continue to research alternative methods of traffic data analysis.

Project 13: Truck Parking Technologies

- Task 1: Research and Interviews with Selected Agencies – Continue to conduct literature search.
- Task 2: Document Lessons Learned, Best Practices, and Emerging Technologies or Approaches – Analyze Task 1 information gathered and begin documenting lessons learned, best practices, and emerging technologies or approaches.

Project 14: Documenting Current RWIS Technologies

- Task 1: Gather Information – Continue literature review, as needed, based on survey findings.
- Task 2: Conduct Practitioner Survey –Develop survey instrument and share with ENTERPRISE members for review and input; distribute survey via Aurora Pooled Fund and others, as directed.

**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:**

None