RANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Michigan Department of Transportation

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(231)	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)

Project Title: ITS Pooled Fund Program (ENTERPRISE)		
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Lead Agency Project ID:	**Other Project ID (i.e., contract #):** 2010-0316	**Project Start Date:** January 2010
Original Project End Date: December 2015	**Current Project End Date:**	**Number of Extensions:**

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	Total Percentage of Work Completed
$2,200,000 (5 year estimated budget, final Budget dependent on member contributions)	$896,582	40%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
$105,696	$105,696	5%

Project Description:
The ENTERPRISE Pooled Fund Program performs technical projects to serve the needs of the member agencies. Currently, 16 member agencies participate in the ENTERPRISE Pooled Fund. Each year, the members identify current needs of their organization that they feel are most suited to be addressed by pooled fund projects. After identifying candidate projects, the members discuss and ultimately vote to elect the projects to be included in the year's Work Plan. Technical projects are then performed to execute the projects and address member needs. Overall, three high level tasks are performed:

- *Management support* to the program, the lead state, and to members;
- *Administrative support* to organize and conduct in-person meetings and monthly webinars; and
- *Technical support* to execute the technical projects selected for each year's Work Plan.

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

Administrative/Management Task:

- Three conference calls were held during the 4th Quarter with the ENTERPRISE board members.

Technical Task:

- Project 5: ICWS Coordination and Systems Engineering – Phase 2
  Project Goal: An extension of Project 1, this project will further support the standardization of ICWS by coordinating among the various national standards and association groups, and by developing a concept of operations and system requirements for the four types of ICWS identified in the Design and Evaluation Guidance for Intersection Conflict Warning Systems.
  - An update email was sent to ICWS stakeholders on 11/25 highlighting the Low Cost pooled fund's continued research, ENTERPRISE warrants review with SCOTE, ICWS article in ATSSA's Signal, MnDOT's TIGER funding and WSDOT's recent ICWS installation.

- Project 6: Next Generation Traffic Data and Incident Detection from Video
  Project Goal: To develop and test software systems to analyze video streams to collect traffic data, and to detect incidents. Test environments are expected to include rural area animal detection (to warn of animal crossings), and metropolitan area incident detection.
  - Ongoing coordination with video analytics vendors and a thermal camera vendor continued for the Iowa DOT installation.

- Project 7: ITS Warrants to a Permanent Home
  Project Goal: To transition the ENTERPRISE warrants process to a selected agency/organization as a permanent home and identify a warrant review process. The project will also focus on developing a warrant for ICWS.
  - Project completed. The final ICWS warrant was approved and posted in December 2013 on the ENTERPRISE warrants website: http://enterprise.prog.org/itswarrant.

- Project 9: Crashworthiness and Protection of ITS Field Devices
  Project Goal: The objective of this project is to determine if there are appropriate crashworthy supports for ITS Field Devices (signs, detectors, solar panels, control cabinets, etc.), that meet federal MUTCD and AASHTO standards and guidelines for crashworthy roadside appurtenances.
  - Results from the search of online standards, request to crash testing facilities, and request to State DOTs were compiled into a summary table and posted to the ENTERPRISE website. Milestone 1: Summary of Breakaway Support for ITS Devices was completed in December 2013.

- Project 10: HAR – Best Practices and Future Direction
  Project Goal: The intent of this project is to research the current HAR 'state of the practice', and document how effective HAR is, and provide additional details that will allow ENTERPRISE members to make decisions about whether or not to invest (or continue investing) in HAR technologies.
  - Interviews have been conducted to understand how HAR is being used.

- The synthesis of HAR Research and Assessments was completed in mid-November
- A summary to understand the current uses for HAR and the potential for HAR was presented during the December Board meeting.

- Project 11: Intelligent Workzone – Synthesis of Best Practices
  Project Goal: Document the best practices and lessons learned regarding IWZ technologies (Dynamic Merge, End of Queue Warning, Alternate Routes, and Variable Speed Limits) from various sources to draw conclusions about what approaches work best in what situations.
  - Work continued on summarizing work zone material available related to the four work zone applications. Information gathered to date was presented during the 11.07.13 monthly ENTERPRISE Board meeting.

- Project 12: Connected Vehicles Data Element ConOps
  Project Goal: This effort will examine the opportunities for state DOT's to improve highway operations and safety through the use of Connected Vehicles sourced data.
  - Project was authorized by ENTERPRISE on 8.29.13.

- Project 13: Assessment of Emergency Service Providers Data Feeds
  Project Goal: Research the current data feed available from emergency service providers, document the feeds, and work with ENTERPRISE member agencies to understand if the member agencies wish to receive this data feed (either for emergency response or for travel information) and what value the data may have for operations, travel information, and planning.
  - Information from OnStar was compiled in an interim summary report (deliverable 1 for the project) in December. This included all of the information gathered from OnStar. Following project champion approval, additional information will be added from the remaining providers and transportation agencies.

- Project 14: Next Generation Traffic Data and Incident Detection from Video (Phase 2) – Evaluation
  Project Goal: To evaluate video streams of traffic data and incident detection. Test environments are expected to include rural area animal detection (to warn of animal crossings), and metropolitan area incident detection.
  - An intensive 2-week incident detection test with the Iowa DOT was conducted from November 18-29. During this time, IA DOT traffic management center staff recorded incidents in the video analytics coverage area, to provide data to compare video analytics detection alerts to actual incidents. The project team was on-site in Iowa for testing and evaluation of three 'wrong-way' vehicle movement detection systems.
  - Data collection from test sites in Iowa and Kansas City, MO continued and concluded on December 31, 2013.

Anticipated work next quarter:

Administrative/Management Support Task:
- Monthly webinars will be conducted in January and February. An in person meeting will be held in San Antonio, Texas in February.

Technical Task:

- Project 5: Intersection Conflict Warning System – Phase 2
  - Outreach and collaboration will continue under the remaining budget or until the next phase of ICWS work is authorized by Michigan DOT. Emphasis will be placed on the Low Cost and Traffic Control Devices pooled funds (ENTEPRISE letter sent updated information to the TCD pooled fund to support their human factors research), NCUTCD ICWS task force and ATSSA.
- Project 6: Next Generation Traffic Data and Incident Detection from Video
  - Continue vendor coordination.
- Project 9: Crashworthiness and Protection of ITS Field Devices
  - A summary of resources for ITS engineers is being prepared. The summary will provide steps to consider and relevant resources for ITS engineers to utilize when installing ITS devices in the roadway clear zone.

- Project 10: HAR – Best Practices and Future Direction
  - The next steps will be to research technology state of the art. An overall project report will be completed in February.
- Project 11: Intelligent Workzone – Synthesis of Best Practices
  - A final summary of the work zone material will be available in February 2014.
- Project 12: Connected Vehicles Data Element ConOps
  - A project update will be provided in January 2014.
- Project 13: Assessment of Emergency Service Providers Data Feeds
  - Additional information will be gathered from other service providers and from agencies (e.g. ID, OR) that have used OnStar or other service provider data.
- Project 14: Next Generation Traffic Data and Incident Detection from Video (Phase 2) – Evaluation
  - Continue Traffic data analysis. This detailed analysis is comparing traffic data (e.g. speeds, volumes, vehicle classifications) collected by video analytics vendors to traffic data collected by in-place DOT-installed detectors. Traffic data analysis is being conducted for deployments near Iowa City, Iowa and in the Kansas City, MO metro area
  - Data that was collected is being analyzed and will be presented at the ENTERPRISE Board meeting in February, 2014.
- Additional projects from the 2010-2012 Work Plan will begin to commence during the next quarter.

Significant Results:

Project completed:
- Project 7: Supporting the Transition of ITS Warrants to a Permanent Home

Projects authorized:
- None

Circumstance affecting project or budget (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).

N/A