

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Iowa 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(295)		Transportation Pooled Fund Program - Report Period: Quarter 1 (January 1 – March 31, 2018) Quarter 2 (April 1 – June 30) X Quarter 3 (July 1 – September 30) Quarter 4 (October 1 – December 31)	
Project Title: Midwest Smart Work Zone Deployment Initiative			
Name of Project Manager(s): Dan Sprengeler	Phone Number: 515-239-1823	E-Mail Dan.Sprengeler@dot.iowa.gov	
Lead Agency Project ID: Keith Knapp	Other Project ID (i.e., contract #): Addendum 535	Project Start Date: July 1, 2014	
Original Project End Date: June 30, 2020	Current Project End Date: June 30, 2019	Number of Extensions: None	

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
\$1,375,000	\$917,342	

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$382,696		

Project Description:

The Midwest Smart Work Zone Deployment Initiative (MwSWZDI) was initiated in 1999 as a Federal Highway Administration (FHWA) Pooled Fund Study intended to coordinate and promote research among the participating states related to safety and mobility in highway work zones.

The program is an ongoing cooperative effort between State Departments of Transportation, universities, and industry. The studies completed have consisted of evaluations of various work zone related products, various innovative topics, and several synthesis studies. Completed reports and descriptions of ongoing projects can be obtained at the Iowa State University's Institute for Transportation (InTrans) website (www.intrans.iastate.edu/smartwz/) link to the Smart Work Zone Deployment Initiative. InTrans currently operates as the program manager of the pooled fund efforts and completes administrative tasks related to request for ideas and proposals, meetings, project files, quarterly reports, and recommending reimbursement.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**Quarter Ending September 30, 2018 (Overall)**

During this quarter we communicated with a number of principal investigators as needed and resolved progress issues if they occurred. Projects from Program Year 2015 to 2018 contracts progressed (see below). A board meeting was held on May 15, 2018 and project updates provided along with a webinar of a recently completed project. Problem statements for Program Year 2019 were requested and received. A problem statement board meeting is currently being scheduled. Planning for a September 18, 2018 face to face meeting continued. Two projects were finished and their reports posted this quarter.

The following is a summary of accomplishments from July to September 2018 for the individual research projects underway with fund account TPF-5(295).

2019 Program Projects

The following projects were selected in September for funding during the 2019 program year.

- An Intelligent Video-Based End of Queue Warning System for Work Zones, Shauna Hallmark as PI.

The contract for this project is not yet in place.

- Field Testing of Non-Motorized Road User Accommodations for Work Zones, John Shaw as PI.

The contract for this project is not yet in place.

- Investigation of Autonomous/Connected Vehicles in Works Zones, Carlos Sun as PI.

The contract for this project is not yet in place.

2018 Program Projects

- Smart Work Zone App, University of Missouri-Columbia, Yam Adu-Gyamfi as PI.

The key components of the SWIZAPP have been completed and ready for field data collection and evaluation. The android version of the app is currently available on google playstore. We are currently waiting on apple to complete their internal verification processes before deploying the iOS version. Literature review section of the project report has been updated.

This project started on January 20, 2018 and is expected to finish on January 19, 2019. There will be a two month extension request forthcoming. It is 65% complete.

- Development of Adjustment Factors for HCM Sixth Edition Freeway Work Zone Capacity Methodology, Iowa State University, Jing Dong as PI.

Continue data collection at the TCP work zone sites.
Identify active work days/hours based on the snapshots.
A TAC meeting will be scheduled for the next quarter.

This project is contracted to start on April 1, 2018 and finish on July 31, 2019. It is 10% complete.

- Guidance on Active Work Zone Data Archival, Iowa State University, Anuj Sharma is now PI.

In May 2018 the former PI (Peter Savoliainen) and the Project Manager (John Shaw) attended the FHWA-sponsored Midwest Work Zone Roundtable in Davenport, IA to gather information on the status of the FHWA Work Zone Data Initiative and determine the appropriate level of coordination with that effort. In this quarter, additional discussions were held with FHWA, TTI, and UW-Madison to clarify the scope, schedule, and status of their work zone data archival projects. The intent has been to avoid duplication of effort and maximize relevance to practitioners in the SWZDI states. These coordination efforts have revealed that at the national level, there is considerable uncertainty about the appropriate scope, scale, and content of work zone data archives. Additionally, there appears to be disagreement between transportation agencies and mobile navigation companies about the format and content of traffic management center work zone data feeds (which could be a major data source for the archives).

It appears that reaching consensus on US national work zone data interchange protocols will take many months, if not years. To keep this SWZDI project moving forward, a second line of investigation in this quarter was the international work zone data interchange protocols documented in the Datex standards, which are incorporated by reference in the US NTCIP. In the next two quarters, an expedient work zone data archival approach based on Datex will be developed for consideration by the project TAC.

This project started on January 1, 2018 and was expected to finish on December 31, 2018. The kick-off meeting was held on March 26, 2018 and due to some additional match funding a request for a no-cost extension was submitted to extend the project to December 31, 2019. This extension has been approved. The project is 5% complete.

2017 Program Projects

- Extension of Safety Assessment Tool for Construction Work Zone Phasing Plans, University of Missouri-Columbia, Henry Brown as PI.

The final report was submitted based on feedback received from ISU. The spreadsheet tool was revised and finalized. The final report and spreadsheet tool were published on the SWZDI website. The PI gave a presentation on the project at the National Work Zone Management Conference in Herndon, Virginia on September 11, 2018.

This project started on March 1, 2017 and is expected to finish on May 31, 2018, but a three month no cost extension was granted to August 31, 2018. It is 100% complete and posted.

- Testing Non-Proprietary Devices to MASH 2016 Criteria. University of Nebraska-Lincoln, Jennifer Schmidt as PI.

MASH test 3-71 was conducted on a 0-degree and 90-degree barricade on May 23, 2018. The results were processed, and the test successfully passed all evaluation criteria according to MASH test 3-71. A meeting was held with the TAC on June 26, 2018, and the TAC provided their approval to proceed and had no major recommendations. The final report was published in August 2018. The results of the research were presented at the SWZDI Board of Directors meeting on September 18, 2018. The project is now complete, and this is the final quarterly progress report.

This project started on May 1, 2017 and is expected to finish on April 30, 2018. It was extended to September 30, 2018. It is 100% complete and posted.

2016 Program Projects

- Design Optimal and Effective Queue Detection and Notification: Design of a Low-Cost Work Zone Warning System, University of Wisconsin, Madhav Chitturi as PI.

Project began June 15, 2016. Due to staff turnover, we could not make much progress.

The TAC meeting happened in October, 2016 and we obtained their input on the proposed design. Lot of discussion in the TAC meeting about what sign should be used "Be prepared to stop" or "Slow traffic ahead" or "Watch for stopped traffic". Have been in communication with TAPCO about design of the low-cost system. TAPCO has developed a potential design already. We have gone through multiple iterations to make the design MUTCD compatible. Design changes were required to satisfy crashworthiness requirements of roadside hardware without having to go through crash testing requirements. On February 20, 2018, we presented the design changes to TAC. We communicated with FHWA to ascertain the need for submitting a Request for Experiment to FHWA before proceeding with the field testing. Based on feedback from TAC, we redesigned the sign to avoid the Request to Experiment. Working with TAPCO (private sector partner) on the redesigned sign. Before the fabrication, we reached out to TAC to get their approval for the sign. However, we received comments about crashworthiness/need for crash testing specifically about being MASH compliant. We had to do further review and in consultation with WisDOT staff and Nebraska staff, we had to do another major revision in the design of the sign. We presented the newest version of the sign to the TAC and have not received any comments. We are moving forward with the latest design.

WisDOT was not able to find locations for field testing. We contacted Counties in Wisconsin to identify potential sites for field testing.

Project started on June 15, 2016 and was expected to finish on December 15, 2017. An extension to December 31, 2018 has been requested and granted. The project is 48% complete.

Anticipated work next quarter:

Work will continue to work to finalize projects and in the next quarter the contracts for PY 2019 projects will be developed.

Significant Results:

Two reports were posted this quarter. All the 2019 PY projects have been selected.

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).

Currently there are no problems to report with the administrative contract. Any issues that have come up with the individual projects that may impact schedule or budget are resolved on a case by case basis.

Potential Implementation:

Two project reports were posted for use.