

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, 2020) X Quarter 2 (April 1 – June 30) 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, 2021	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
\$1,425,000 committed	\$1,218,960	0

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$37,953		100

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 June 30, 2020 (Overall)**

During this quarter we communicated with principal investigators as needed and resolved progress issues if they occurred. Projects from Program Years 2018 and 2019 contracts progressed (see below). A meeting was held with the board to discuss a new proposed methodology for SWZDI request for problem statements and proposals.

The following is a summary of accomplishments from April to June 2020 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, Iowa State University, Shauna Hallmark as PI.

Task 1: A Technical Advisory Committee (TAC) was formed which currently consists of Dan Sprengeler, (Dan.Sprengeler@iowadot.us) and Willy Sorenson (Willy.Sorenson@iowadot.us).

A kick-off meeting was held May 8, 2019

The team will continue to provide quarterly progress reports.

Task 2: Task is complete and included in the final report.

Task 3: Task is complete and included in the final report.

Task 4: Task is complete and included in the final report.

Task 5: Task is complete and included in the final report.

Task 6: Task is complete and included in the final report. A final report was submitted to the TAC and a meeting was held with them and updates made based on their comments. The report was submitted to the board and we are waiting on comments.

This project has a start date of 1/1/2019 and an end date of 3/31/2020. A quarterly report was provided that indicates the progress on each tasks and the percentage complete of each task. It appears that at the end of June Tasks 1 to 5 were 100% complete and Task 6 was 90% complete. The report was submitted to the SWZDI board and was subsequently finalized June 9. It will be posted and published soon.

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

Major restructuring of the data collection plan is underway to comply with the University's temporary ban on contact with research participants. The restructuring is expected to increase the emphasis on the Task 4 pedestrian test track, a controlled environment where face-to-face interaction with participants can be limited and frequently-touched surfaces such as handrails can be sanitized between participants.

The project team is restructuring the data collection plan due to impacts of the Covid-19 epidemic, which include temporary restrictions on face-to-face interaction with study participants and substantial changes in pedestrian traffic volumes. The project team is preparing a revised Institutional Research Board application and will confer with the Technical Advisory Committee to affirm the adjustments.

This work has a contract of 1/1/2019 and an end date of 3/31/2020. It was extended to December 31, 2020. It has been or soon will be extended to March 31, 2021. The project is at 5% completion.

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

Campus permission was granted to the research team to return to campus and access the simulator lab. Work is restarting concerning the preparation of the simulator lab for human subject studies. The lab has to be made safe for the COVID-19 situation by reducing the number of people in the lab at one time, providing personal protection equipment, and wiping down surfaces where they are touched by humans.

This project is contracted to start on 4/15/2019 and end on 7/31/2020. It has been extended to March 31, 2021. It is 65 percent complete.

2018 Program Projects

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

Prepare draft final report and send to TAC and BOD for review.
Held a TAC meeting to present the results and key findings.

This project was contracted to start on April 1, 2018 and was scheduled to finish on July 31, 2019. This end date has been extended to December 31, 2019. It has been extended again to June 30, 2020. It is 100% complete.

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

Task 1. Develop and Convene TAC - COMPLETED.

Task 2. Conduct Literature Review - COMPLETED. The research team conducted an analysis of existing technical standards and protocols related to work zone traffic data interchange. These included the Traffic Management Data Dictionary (TMDD), SAE standard J2540 / International Traveler Systems Information (ITIS), the European

DATEX2 standard, and the draft work zone data exchange protocols currently being proposed by FHWA. Agency work zone data use cases were also compiled and summarized based on the FHWA draft report and other sources. A TAC meeting was held to review the results of this task.

Task 3. Develop Survey - COMPLETED. The first draft of the survey was completed in March 2019 and major revisions were made in May-June 2019 based on TAC recommendations.

Task 4. Conduct Survey - COMPLETED. Survey distribution began on June 24, 2019 and responses were received from 20+ states. Follow-up interviews have been completed.

Task 5. Analyze Survey Results - COMPLETED. Analysis of survey results has been completed.

Task 6. Meet with TAC - Final TAC meeting was held on April 29, 2020 to review the project findings and prepare for Phase II.

Task 7. Develop Prototype and Report - COMPLETED. A conceptual work zone data collection and management tool has been developed.

Task 8. Finalize Prototype and Report - Final Report to be transmitted to TAC and SWZDI board in July 2020.

This project started on January 1, 2018 and was expected to finish on December 31, 2018. A no-cost extension has been provided to extend the project to December 31, 2019. An extension to June 3, 2020 has occurred. Currently a request to extend the project to September 30, 2020 has been submitted. The project is 95% complete.

Anticipated work next quarter:

Work will continue to work to finalize the 2018 and 2019 projects listed.

Significant Results:

A 2018 and 2019 project were generally completed during this quarter. Reports will be posted and published early in the next quarter.

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might 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. The COVID 19 situation has impacted the progress of at least two projects that may need to be adjusted to be completed on schedule.

Potential Implementation:

The website for the SWZDI pooled fund is updated on a regular and on an as needed basis for finished reports.