

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(438)		Transportation Pooled Fund Program - Report Period: Quarter 1 (January 1 – March 31, 2021) Quarter 2 (April 1 – June 30) Quarter 3 (July 1 – September 30) X 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 733	Project Start Date: January 1, 2020	
Original Project End Date: December 31, 2020	Current Project End Date: December 31, 2022	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
\$500,000	\$215,319.86	100% (for 2021)

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$40,117.28		

Project Description:

The Smart Work Zone Deployment Initiative (SWZDI) 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 December 31, 2021 (Overall)**

During this quarter, work on three PY 2020 and two PY 2021 projects continued. In addition, two PY 2022 projects were selected and work is ongoing at the Iowa DOT to get them contracted. The request for proposal for PY 2022 was released with two topics on September 29, 2021 with a deadline of October 27, 2021. Five proposals were received and then distributed to the pooled fund states on November 3 for ranking by November 17. Two projects were selected and are currently under contract negotiation. These two projects are noted below. They have not yet officially started.

As noted the last two quarters, concerns have been raised about the progress on two SWZDI projects. One of these projects is currently being funded on this account. The PY 2020 project, "Work Zone Activity Data Logging – Phase II" was terminated by SWZDI due to lack of project and decreased relevancy. The Iowa DOT processed the paperwork on the termination and a final summary of the work completed was requested. This summary was submitted to DOT on October 20, 2021.

In addition to the above, the final project on the older SWZDI project fund account was finished (see the quarterly report for that fund account for status). The 2022 SWZDI administration workplan/budget was submitted for contracting and reviewed and finalized. The 2022 workplan for the pooled fund was also submitted for review. The draft report for the Michigan State project (see below) by Gates (PI) was also submitted and is currently under finalization for review.

The following is a summary of accomplishments provided by the project principal investigators for the October to December 2021 time period for their individual research projects underway with fund account TPF-5(438).

2022 Program Projects

- Mobility and Safety Impacts of Work Zone Lane and Shoulder Widths, University of Wisconsin-Madison, David Noyce as PI

Project has not started, but a draft agreement has been sent to the university. The university is working on creating their TAC. Negotiations continue. Proposed start date is February 1.

- Analysis of Improvements in the Effectiveness of Speed Feedback Trailers. Michigan State University, Tim Gates as PI

Project has not started, but a draft agreement has been sent to the university. The university is working on creating the project TAC. Negotiations continue. Proposed start date is April 1.

2021 Program Projects

- Evaluation of Messaging Techniques to Increase Vehicle Spacing at Work Zones, Iowa State University, Jing Dong as PI

Analyze video data to extract headway information
Collected and analyzed individual vehicle records from Houston radar sensors

This project was contracted to start on March 1, 2021 and end on June 30, 2022. This contract has also been extended to December 31, 2022. The project is 10% complete.

- Work Zone Speed Limits and Motorist Compliance, Michigan State University, Peter Savolainen as PI

Task 0: Formation of the Technical Advisory Committee – Task complete.

Task 1: Synthesis of Existing Practices – The University of Missouri is conducting a review of research literature focused on work zone speed limits. A state agency survey has also been developed to document existing practices for establishing work zone speed limits, with emphases on the SWZDI states.

Task 2: Site Selection and Data Collection – Data have been collected at five freeway work zone locations: I-69 Imlay City, I-69 Capac, I-75 Bay City, I-75 Saginaw, I-275 Wayne County. These work zones were used to assess the impacts of four factors: (1) rumble strips; (2) speed feedback signs; (3) targeted enforcement; and (4) worker presence.

Task 3: Data Analysis – Detailed speed profiles have been obtained for more than 1200 vehicles and analysis results to date show significant impacts based upon the presence of enforcement, as well as with respect to the presence and location of the speed feedback signs.

Task 4: Develop and Submit Deliverables - No progress to report.

This project was contracted to start on March 1, 2021 and end on September 30, 2022. It is 50% complete.

2020 Program Projects

- Work Zone Activity Data Logging – Phase II, Iowa State University, John Shaw as PI

Due to a lack of progress and the subject material of this project losing its relevancy the SWZDI Board decided to terminate this project in the third quarter of 2021.

The project final report (describing the partially completed work) was transmitted in October. This summary was submitted to the Iowa DOT on October 20. This project is now completed.

- Temporary Traffic Control Devices at Driveways within a One-Lane, Two-Way Section, Tim Gates as PI

Task 1: Review of Literature and Practice - The literature review was completed in Q4 2020 and is included in the Final Report.

Task 2: Expert and Public Survey of DADs Displays - The MSU team designed and implemented a public survey in Qualtrics to a panel of 1,000 drivers nationwide in early August 2020. Data were compiled and presented to the technical panel on November 12, 2020. This task is complete and is included in the Final Report.

Task 3: Field Evaluation - A series of field evaluations of DADS implementations occurred in June, July and August of 2020 on US-31 in Benzonia, Michigan. The field data was collected used elevated video cameras positioned at each subject driveway/minor road approach where the DADS device was installed. This setup allowed for the following measures to be assessed: 1.) Proportion of drivers on the subject minor approach that perform appropriate/inappropriate maneuver; 2.) Gap selection and dwell time; 3.) Minor approach queue length. The feedback from the survey was utilized to determine various auxiliary sign messages to field test. Five different auxiliary signs, including the standard MDOT sign, were rotated through the various DADS installations at the US-31 site to determine the impact of sign message on driver behavior. Data were compiled and presented to the technical panel on November 12, 2020. This task is complete and is included in the Final Report.

Task 4: Simulation Modeling - Synchro modeling of various DADs scenarios was completed in Q4 2021.

Task 5: Develop Guidelines - Guidelines for use of DADs have been included in the final report.

Task 6: Develop and Submit Deliverables. - Webinars on the project were given on Feb 26, 2021 (FHWA) and March 19, 2021 (Iowa LTAP). The final draft deliverables (final report, presentation, tech brief) were submitted and reviewed by the TAC and SWZDI board in Q4 2021. The report was re-formatted and minor organizational changes made and will be submitted by 1/5/22.

The project was contracted to start on May 1, 2020 to October 31, 2021. The contract was extended to December 31, 2021. The final report was submitted January 5, 2022 and is being finalized for posting. The PI has indicated the project is 99% complete due to the project not being finalized and posted. The posting is expected to be soon and the contract has ended.

Anticipated work next quarter:

The project contracts for 2022 will be finalized and work started as appropriate. Projects from PY 2020 and PY 2021 will continue. Request for problem statements for the PY 2023 RFP may be distributed with a July 15 RFP release.

Significant Results:

The projects under this administrative contract continued toward completion. One project was terminated and completed this quarter. Another project completed on time and the report is being finalized for posting.

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, with recommended solutions to those problems).

None of the projects under this funding account number appear to be encountering any unusual challenges at this time.

Potential Implementation:

Potential implementation includes project report posting when completed.