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) 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 733	**Project Start Date:** January 1, 2020
Original Project End Date: December 31, 2020	**Current Project End Date:** December 31, 2021	**Number of Extensions:** None

Project schedule status:

X 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	$175,202.58	75%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
$94,570.49		

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 September 30, 2021 (Overall)
During this quarter, work on three PY 2020 and two PY 2021 projects continued. Discussions about the approach to be taken to request problem statements and proposals for PY 2022 began. Problem statement requests were sent out last quarter and received and evaluated during this quarter. Fourteen problem statements were submitted and each topic had more than one for each of topics of interest. Each of the problem statements were discussed at a SWZDI advisory board meeting on September 16, 2021. It was decided to advance adjusted problem statements for two of the topics. These topics included "Analysis of Improvements in the Effectiveness of Speed Feedback Trailers" and "Mobility and Safety Impacts of Lane and Shoulder Width Combinations in Work Zones". The request for proposal including these topics was released on September 29, 2021 with a deadline of October 27, 2021.

As noted last quarter, concerns have been raised about the progress on two SWZDI projects. One of these projects is currently being funded on this account. The principal investigator of the PY 2020 project, "Work Zone Activity Data Logging – Phase II" was asked to have a TAC meeting (it was held June 22, 2021), provide monthly progress reports to the SWZDI program coordinator and his TAC project monitor, and to submit a work plan that shows how the effort will be completed by the current end of this project contract (i.e., April 30, 2022). Due to lack of progress, and the subject of the project losing its relevancy, the SWZDI board decided to terminate this project at its meeting in September. The Iowa DOT has process the paperwork on the termination.

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

2021 Program Projects

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

  Visited the I-80 work zone at Colfax on July 13 with the TAC (only Iowa members)
  Collected video and traffic data from the Colfax work zone

  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 8% 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 subcontract with the University of Missouri is in place. A state agency survey is under development. A literature review focused on work zone speed limits is also under way.

  Task 2: Site Selection – Data have been collected at five freeway work zone locations throughout lower Michigan. The freeway work zone locations include: I-69 Imlay City, I-69 Capac, I-75 Bay City, I-75 Saginaw, I-275 Wayne County.

  Task 3: Data Collection – Data collection efforts have sought to determine the impact of various speed management strategies on work zone speeds. To date, data have been collected to evaluate the potential effects of: (1) presence and location of radar speed feedback trailers within the work zone; (2) temporary rumble strip arrays in advance of the work zone; and (3) presence of targeted enforcement activities. Detailed speed profiles have been obtained for more than 1200 vehicles to date.

  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 25 percent 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 it relevancy the SWZDI Board decided to terminate this project.

  This project was contracted to start on May 1, 2020 and end on April 30, 2022. This project before termination was 4% complete.

- 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.

  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. A full statistical analysis is complete and will be 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. A full statistical analysis is complete and will be included in the final report.
Task 4: Simulation Modeling - Simulation modeling of various DADs scenarios began during Q3 of 21 with delivery in final report.

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

Task 6: Develop and Submit Deliverables. - Development of deliverables, including the final report, is underway. Webinars on the project were given on Feb 26, 2021 (FHWA) and March 19, 2021 (Iowa LTAP). A draft TRB manuscript has been prepared for submission in August 2022. The deliverables will be submitted in late October 2021.

The project was contracted to start on May 1, 2020 to October 31, 2021. It is 90% complete. The researcher has indicated he will be asking for an extension to December 31, 2021 to finish the report.

Anticipated work next quarter:

The projects from PY 2020 and PY 2021 will continue. PY 2022 proposals will be reviewed and likely selected in the next quarter.

Significant Results:

The projects under this administrative contract continued toward completion.

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).

It is not expected that the COVID 19 shut downs will have an impact on the administration of the SWZDI pooled fund but it may impact the progress of the projects above.

Potential Implementation:

Potential implementation includes project report posting when completed.