**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.*

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| **Transportation Pooled Fund Program Project #***TPF-5(081)* | **Transportation Pooled Fund Program - Report Period:**X Quarter 1 (January 1 – March 31, 2014)□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.sprendeler@dot.iowa.gov |
| **Lead Agency Project ID:**Keith Knapp | **Other Project ID (i.e., contract #):**Addendum 189 | **Project Start Date:**2001 to Present |
| **Original Project End Date:**Ongoing | **Current Project End Date:**June 30, 2015 | **Number of Extensions:**None |

Project schedule status:

X On schedule □ On revised schedule □ Ahead of schedule □ Behind schedule

Overall Project Statistics:

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|  **Total Project Budget** |  **Total Cost to Date for Project** |  **Percentage of Work**  **Completed to Date** |
| $1,917,500 | $1,879,237.80 | Ongoing |

***Quarterly*** Project Statistics:

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|  **Total Project Expenses**  **and Percentage This Quarter** |  **Total Amount of Funds**  **Expended This Quarter** |  **Total Percentage of**  **Time Used to Date** |
| $21,899.50 | N/A | Ongoing |

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| **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/](http://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. |

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| **Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):****Quarter Ending March 31, 2014 (Overall)**Received and recorded final quarterly report information from all but one of the Principal Investigators (PIs) for the contracted projects. Communicated and met (by phone) with Board of Directors (BOD) to rank and discuss proposals for pooled fund administration and research during PY2014. Communicated with selected principal investigators and started paperwork for Iowa DOT to start contract negotiations. Finalized calendar year administrative contract between InTrans and Iowa DOT. Sent out to BOD, for review, two final reports. Received comments. Finalized and posted one report. Second report will be finalized in the coming month. Sent the draft program work plan to BOD for review. Document will be posted soon. The following is a summary of accomplishments during the quarter for individual projects under contract.**2011 Program Projects*** Influencing Work Zone Traffic Flow Through Variable Messaging Technologies, Missouri University of Science and Technology with Ming Leu as PI.

Extension to March 15, 2014 was granted in the fourth quarter of 2013 for this project. Final report is completed and reviewed by the BOD, author has responded and report will be finalized in the coming weeks and distributed to BOD.**2012 Program Projects*** Development of a TL-3 Transition between Temporary Concrete Barrier and Guardrail, University of Nebraska with Ron Faller as PI.

During the 1st Quarter of 2014, researchers at MwRSF continued computer simulations of design concepts for the transition between portable concrete barriers and guardrail. The third design concept involving 31 inch MGS and F-shape PCB was finished and key metrics were compiled and analyzed. Once the simulations for the third design concept were finished, the results were analyzed and the fifteen different designs were ranked within each concept. A no-cost extension to 6/30/2014 was granted in the last quarter of 2013 for this project. It is approximately 85% complete. * Effects of Road Construction Intensity and Operations on Rural Freeway Work Zone Capacity, Missouri University of Science and Technology with Ronaldo Luna as PI.

The team for this project submitted their final 2013 quarterly report this quarter. They also submitted the quarterly report for the first quarter of 2014. During the first quarter of 2014. During the last quarter (January-March 2014) work continued on the analysis of the field data acquired from the ASTI Transportation Systems. The work on Task 1 has been completed and the preparation of the final report is currently underway. An assessment of the potential contributions and deliverables was made to bring the project to completion. Only the analysis required to bring the project to a successful outcome will be made. No additional data will be collected. We have been in communication with the subject expert on smart work zones at MoDOT, Daniel Smith. A meeting with has been arranged for April 17th in Jefferson City. The principal investigator provided a draft outline. This project is approximately 85% complete. **2012 Program Projects*** Highway Work Zone Capacity Estimation using Field Data from Kansas State University, Kansas State University with Sunanda Dissanayake as PI.

Project is progressing well and the project team is keeping busy with analyzing the collected data. Task is expected to be completed in 2-3 weeks. A paper is being drafted to be submitted for TRB Annual Meeting or any other suitable conference. Continued communication is maintained with PM via email/phone on as needed basis, who has been extremely helpful. Data analysis is taking longer than expected and an extension may be necessary. The project is 50% complete.* Modeling Merging Behavior at Lane Drops, Iowa State University with Shauna Hallmark as PI.

Task 1, the literature review is approximately 50 percent complete. The TAC has been developed and met recently. Work zone sites with cameras placed by Iowa DOT at construction sites in 2013 were reviewed but none were adequate for research proposes. Team is working with a vendor and identifying sites for potential camera placement in 2014. Countermeasures to improve merging behavior for evaluation by the project team were selected. * Intelliroute: A Smart Phone – Based Real Time Work Zone Detour Information System Driven by Crowd-Sourced Data; Yue Liu as PI.

Server-side programming was done and tested. App interface programing, data feeds programming and compatibility check and fix. Some delays in the app development due to data compatibility problems have occurred. A no-cost request for project end date extension is forthcoming. The project is approximately 65 percent complete. * Calibration of Highway Safety Manual Work Zone Crash Modification Factors, University of Missouri-Columbia with Carlos Sun as PI.

For this quarter. Task 1 – completed. Task 2 – a similar procedure from the HSM was followed for the development of Midwest models. Missouri crash and work zone data are being collected and fused together. Task 3 – HSM-type modeling and prediction has begun. Project is approximately 54 percent complete. |
| **Anticipated work next quarter**:Work will continue on contracted projects. Several contracted projects will expire in 2014. We will continue to work to close out research projects and establish project under the new TPF number. This quarter the objective is to get the projects selected for PY 2014 funding under contract. The request for ideas for PY 2015 may also begin. |

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| **Significant Results:**Two project reports were completed. Projects were selected for PY2014. Additional detail is provided above in the summary for the overall pooled fund program for the quarter. |
| **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 noted in the summary for those projects above. |

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| **Potential Implementation:** Two project reports were completed this quarter. One has been posted and the other is being finalized. Those that download the report and/or hear the PI present the material may potentially use the information to change their decision-making. |