

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(081)	Transportation Pooled Fund Program - Report Period: X Quarter 1 (January 1 – March 31, 2013) Quarter 2 (April 1 – June 30, 2013) Quarter 3 (July 1 – September 30, 2013) Quarter 4 (October 4 – December 31, 2013)	
Project Title: Midwest Smart Work Zone Deployment Initiative		
Project Manager: Dan Sprengeler	Phone: 515-239-1823	E-mail: dan.sprengeler@dot.iowa.gov
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Lead Agency Project ID: RT 63	Other Project ID (i.e., contract #): Addendum 189	Project Start Date: 2001-On-going Pooled Fund
Original Project End Date: On-going	Current Project End Date: On-going	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	Total Percentage of Work Completed
\$1,917,500	\$1,648,293.71	On-going

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
N/A	N/A	On-going

Project Description:

- Vendor Solicitation
- Distribute Group Reports
- Maintain website
- TAC meetings
- Maintain research report
- Recommend research reimbursement
- Solicit state participation
- Inquiry contact
- (On-going project)

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):Quarter Ending March 31, 2013:

Work has been completed on all program projects prior to 2008 and continues on subsequent program year projects as listed below. Projects for the 2013 program have been approved by the Board of Directors and contracts sent to the Principal Investigators.

Received and recorded quarterly report data from Principal Investigators for contracted projects. Following is a summary of accomplishment for individual projects under contract.

2008 Program

-Evaluation of Variable Advisory Speed Limits for Work Zones, University of Missouri, Praveen Edara, PI

VASL data from a site on I-270 in St. Louis, Missouri, under congested and uncongested conditions were obtained and analyzed. Simulation models were developed to conduct sensitivity analysis regarding truck percentages and varying VSL algorithms. An additional site on rural Hwy. 54 was also investigated and speed measures are being analyzed. Project is 75 % complete at this time and is expected to be completed later this summer.

-Ramp Metering for Work Zone Mobility & Safety, University of Missouri, Praveen Edara, PI

Draft final report was submitted in November 2012 and is under review by the Smart Work Zone Board of Directors. Project is 99% complete at this time.

2011 Program

-Investigation of Incentive Contracting for Minimizing Work Zone Traffic Impacts, University of Missouri with Carlos Sun as PI. Draft final report was submitted in November and is currently under review by the Board of Directors. 99% complete at this time.

-Influencing Work Zone Traffic Flow Through Variable Messaging Technologies, Missouri University of Science and Technology with Ghulam Bham as PI. Dr. Bham has left the University and the work has been assumed by Dr. Ming Leu. Work continues has been hampered while simulation equipment was configured to present a realistic driving experience, but now the equipment is fully functional and testing has begun, project is about 88% complete at this time and a no-cost extension is being contemplated.

2012 Program

-Development of a TL-3 Transition between Temporary Concrete Barrier and Guardrail, University of Nebraska with Ron Faller as PI. The initial LS-DYNA modeling consisted of the MGS system overlaying the flared PCB system with no attachment between the guardrail and PCB system was selected. The MGS model was converted to the G4(1s) by

changing the top mounting height of the posts and block-out depths. The model was simulated with the G4(1s) guardrail overlaying the PCB system with no system-to-system attachment.

Different impact locations were simulated in order to analyze some of the hazards associated with overlaying the systems without attaching them. Simulations near the end of the guardrail system partially overlapped on the PCB's should some potential for safer vehicle redirection. However, impacts just downstream of the end of the PCB system tended to produce excessive barrier motions and pocketing of the PCB system which resulted in vehicle instability and rollover. In addition, impacts on the guardrail, but upstream of the end of the PCB system demonstrated a tendency to gate through the end of the guardrail and impact the exposed PCB end. Thus, it was determined that simple overlapping of the existing system is not sufficient. In addition, considerations for developing tension upstream of the PCB segments and preventing vehicle impact on the end of the PCB system will be critical for any transition system to perform safely. simulation testing. Project is approximately 15% complete.

-Work Zone Performance Measures, Iowa State University with Shauna Hallmark as PI. Work continues on the literature review, references identified and summarized. The TAC has been formed and an initial meeting conducted. Initial work on a guidebook has also been accomplished. Project is about 25% complete at this time.

-Effectiveness of Work Zone Intelligent Transportation Systems, University of Missouri with Praveen Edara as PI. Data gathering has been underway at a worksite on I-70 in St. Louis consisting of traffic counts before and after lane restrictions. In addition a survey of drivers has been implemented. Another study site has been requested from MoDOT. Project is approximately 50% complete.

-Effects of Road Construction Intensity and Operations on Rural Freeway Work Zone Capacity, Missouri University of Science and Technology with Ghulam Bham as PI. Dr. Bham has left the University and Dr. Ronaldo Luna has assumed the duties of PI. Data on traffic volumes and work activity has been obtained from MoDOT and analysis has begun on that. Work on the project continues to progress and is about 20% completion at this time.

Anticipated work next quarter:

Work will continue on contracted projects and projects contracted for the 2013 program should be underway soon.

Significant Results:

Several projects were completed in 2012 and others should be completed before the end of the year. Contracts for 2013 program work have been sent to the principal investigators.

Circumstance affecting project or budget (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).

No problems to report.