



Smart Work Zone Deployment Initiative

Evaluation Plan

2013

Table of Contents

<u>Section</u>	<u>Page</u>
Introduction	1
Program Process	2
Year 2013 Program	4
Appendix A – Proposal for Administration	6

INTRODUCTION

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. Led by Pat McCoy at the University of Nebraska, the original four states of Iowa, Kansas, Missouri, and Nebraska were joined by Wisconsin in 2001. In 2003, the Nebraska Department of Roads stepped down from its role as lead state, and the Kansas Department of Transportation assumed those responsibilities for the pooled fund administration. To best facilitate the transition, a new pooled fund study was initiated with the same title and participants. Various circumstances led to another change of lead state in 2004, when that role moved from Kansas to Iowa and the pooled fund was designated the Smart Work Zone Deployment Initiative (SWZDI).

The program is an ongoing cooperative effort between State Departments of Transportation, universities, and industry. Commercial products are provided by private vendors for evaluation, although this is not the only focus of contracted projects. State DOTs provide funds, prioritize products with respect to the anticipated benefits to their construction and maintenance activities, and cooperate with researchers to identify test sites and conduct the evaluations. To date, over 80 studies have been completed, consisting of evaluations of various work zone related products, numerous innovative topics researched, 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 (<http://www.intrans.iastate.edu/smartwz/index.cfm>) link to Smart Work Zone Deployment Initiative.

PROGRAM PROCESS

1. The SWZDI Board of Directors, (BOD), with the assistance of the Program Manager (currently Tom McDonald-InTrans) annually drafts a list of proposed problem statements based on high priority issues related to work zone safety and/or mobility. Problem statements are developed for consideration by university-based Principal Investigators (PIs) in the pooled fund states.
2. The Program Manager will distribute Requests for Proposals (RFPs) to university-based Principal Investigators. Unless there is a special circumstance requiring unique skills or a specific testing facility, the PIs receiving RFPs will be limited to researchers at universities within states represented by members of the BOD. If specific commercial products are deemed to be of possible interest in addressing the selected issues, those vendors' products must be part of the university's proposal.
3. Upon receipt of proposals from PIs, the Program Manager will distribute those documents for ranking by members of the BOD. The Program Manager shall work with the BOD using the determined rankings to select a program of projects which will be constrained by the available funding, which is determined by annual contributions to the pooled fund by member states.. To rank each proposal, the scores of each BOD member will be weighted by their State Transportation Agency (STA) contributions to the pool fund. Most STA funding is obtained from the State Planning & Research (SP & R) funds from the Federal Highway Administration (FHWA). Once the BOD, with the assistance of the Program Manager has developed an annual work plan of projects, the Project Manager will notify the PIs who authored the selected and rejected proposals, debrief those authors on the outcomes and request modification to the proposal scope and/or budget if necessary.
4. The BOD, with the assistance of the Program Manager, will select and assign a Project Monitor for each approved project. The Project Monitor will be either a member of the BOD or a representative from one of the member STAs. The Project Monitor will work with the PI to establish a project Technical Advisory Committee, TAC, for each project, consisting of one to five individuals depending on the scale and attributes of the project. The Project Monitor will serve as chair of the project TAC. Working with the TAC, the Project Monitor will be responsible for approving a final work plan and schedule, approving modification of the work plan and schedule, monitoring project progress, and approval of the final draft. At least once per quarter, the Program Manager will discuss progress of each project with the Project Monitor.

For each project contracted by universities outside Iowa, the Program Manager will draft a project contract to outline the work and schedule to be performed by the selected PI and university. The contract details and format will be derived from Iowa Department of Transportation, Iowa DOT, standard contract language and structure. For research contracted to universities located in Iowa, projects will be contracted through an addendum to the basic agreement between those universities and the Iowa DOT.

5. The Iowa DOT will use the form developed by the Program Manager to contract with appropriate non-Iowa universities for services to be performed by the selected PI's. For contracts with InTrans, PIs will furnish RFPs to the Program Coordinator at InTrans (Judy Thomas) for proposal approval by the ISU Office of Sponsored Programs Administration, OSPA, (Gold Sheet) prior to responding to the RFP sponsor. After acceptance of the RFP by the sponsor, the OSPA office and the Iowa DOT will approve the addendum which will be prepared by the InTrans Program Coordinator. Following final approval by the Iowa DOT, the Program Manager will furnish a copy of the addendum and project proposal to the PI.
6. Each PI will submit progress reports each quarter, following the Iowa DOT's standard progress reporting format, to both the Program Manager and the Project Monitor. A summary of these quarterly reports will be transmitted to the Iowa DOT by the Program Manager or directly by the PI. Progress payment requests (invoices) will be submitted to the Program Manager for payment by the Iowa DOT. All research and evaluation efforts will require at least a quarterly report to both the Program Manager and Project Monitor.
7. The Program Manager will evaluate project process and forward invoices to the Iowa DOT with recommendations for reimbursement. Dan Sprengeler and Linda Narigon are the points of contact at the DOT.
8. The Iowa DOT will either deny the invoice and so notify the respective university or send payment directly to that university.
9. On an annual basis, the Iowa DOT will request reimbursement for expended funds from the FHWA Headquarters, Turner-Fairbanks Office and/or member STA's if funds other than SP & R have been contributed. Attached to this reimbursement request, the Iowa DOT will include the suggested draw down of SP & R funds based on each STA's contribution level percentage.
10. FHWA Headquarters and/or member STA's with funding contributions other than SP & R will then reimburse Iowa DOT.

For the 2013 program, a list of thirteen requests for proposals were developed and distributed to potential researchers at research institutions in contributing states. Researchers submitted a total of twenty-two proposals totaling \$1,107,572 and these proposals were distributed to the contributing state DOT representatives on the BOD for prioritization, first on a topic basis and then ranked by proposal. Using a ranking system based on contribution levels, InTrans staff ranked the remaining proposals and distributed the list to the Board of Directors for approval. Considering available funding, the top ranked four proposals, plus the administrative agreement with the Institute for Transportation will comprise the 2013 program. A budget surplus of approximately \$65,000 will remain after award of all approved contracts.

YEAR 2013 PROGRAM

The four proposals approved by the BOD plus the administrative budget total \$244,986. Available funding totaled \$310,858 comprised of states' contributions and carryover funds from prior year programs. Participating states funding contributions are shown in Table 1. The 2013 program is summarized in Table 2.

Table 1-Contributions of States

Agency	Funding level
Iowa	\$45,000
Kansas	\$50,000
Wisconsin	\$40,000
Missouri	\$50,000
Nebraska	\$30,000
Carryover from Previous Years	\$95,858
Total	\$310,858

This program and associated work has been approved by the Board of Directors (BOD).

Details of the Work Plan and budget details per project are provided in Appendix A.

Table 2 – BOD Approved Projects

Universities will contract directly with the Iowa DOT for individual projects, with InTrans facilitating contract administration. Participating State DOTs will assist InTrans in monitoring project performance. Changes in project budget or work plan require approval of the BOD. For minor changes, the Project Monitor in the local state DOT shall represent the BOD, deferring to the BOD when deemed appropriate.

Proposal	PI	University	Amount	Status
Administration	Tom McDonald	ISU	\$43,358	Funded
Highway Work Zone Capacity Estimation Using Field Data from Kansas	Sunanda Dissanayake	Kansas State University	\$49,962	Funded
Modeling Merging Behavior at Lane Drops	Shauna Hallmark	ISU	\$51,863	Funded
Intelliroute: A Smartphone-based Real-time Work Zone Detour Information System Driver by Crowd-sourced Data	Yue Liu	U of Wisconsin-Milwaukee	\$50,000	Funded
Calibration of Highway Safety Manual Work Zone Crash Modification Factors	Carlos Sun	U. of Missouri-Columbia	\$49,803	Funded
Total Contracts for 2013 Program Year			\$244,986	

APPENDIX A:

Smart Work Zone Deployment Initiative (SWZDI)
for 2013

Amendment to Proposal prepared for:

Iowa Department of Transportation
800 Lincoln Way
Ames, Iowa 50010

Prepared by:

Principal Investigator: Tom McDonald
Institute for Transportation
Iowa State University
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Dates: January 1, 2013 - December 31, 2013

Additional Funding of \$4,307.00 for a
Total Budget of \$ 43,358.00

AMENDMENT to PROPOSAL for ADMINISTRATION Calendar Year 2013

Title

Smart Work Zone Deployment Initiative (SWZDI)
[Federal Highway Administration project number TPF-5(081)]

Introduction

The MwSWZDI was established in 1999 as a Federal Highway Administration, (FHWA), pooled fund study to promote and coordinate research related to safety and mobility in work zones among several cooperating states; Iowa, Kansas, Missouri, Nebraska, and Wisconsin. The association name has been subsequently changed to Smart Work Zone Deployment Initiative, (SWZDI). Originally administered through the University of Nebraska and later by the Kansas Department of Transportation, the FHWA and cooperating states recommended transfer of administration and coordination responsibilities to the Iowa Department of Transportation, (DOT) and the Institute for Transportation, (InTrans) at Iowa State University in calendar year 2005.

Pooled Fund Objectives

This initiative represents an on-going effort among cooperating states' DOTs, the FHWA, universities, and industry to evaluate new products and conduct related research focused on the enhancement of safety and mobility in highway work zones. State DOTs contribute funding necessary for these activities, prioritize products for evaluation considering potential benefits, and cooperate with university researchers to identify evaluation sites and conduct studies. Over 80 studies and evaluations have been completed since the inception of the SWZDI and final reports are posted in the Smart Work Zone Deployment Initiative web site at www.intrans.iastate.edu/smartwz/.

Objectives of this Amendment

Program administration for the SWZDI initiative includes a broad range of activities from meeting scheduling through contract negotiations and completion. The Program Manager at InTrans will monitor research projects progress to assure substantial compliance with contract tasks and schedule, ensure that Board of Directors, (BOD) meetings are productive and documented, as well as manage the financial and administrative needs so that pooled fund members can focus on the technical aspects of the project goals. The activities of InTrans will be transparent and monitored by the SWZDI BOD. InTrans will consult with the BOD on all technical project matters. In addition, InTrans will develop and implement a plan to assure that the BOD will consider implementation opportunities for research findings and recommendations as well as include outreach initiatives for research project results, including such examples as technical briefs, webinars, workshops, and DVDs or videos.

Evaluation Process

The BOD, comprised of representatives from cooperating states with non-voting members from the FHWA, is responsible for developing problem statements describing the highest priority issues related to work zone safety and mobility. Members of the BOD, vendors, and researchers are invited to submit ideas for proposed research study for each program year. In addition, selected vendors are invited to submit products or processes for evaluation studies. Following a review of the submitted topics and products by the BOD, Request for Proposals (RFPs,) are distributed to interested university researchers in pooled fund states. Researchers then submit proposals and work plans to the BOD for prioritization and selection of projects to be included in the next year's work plan based on anticipated benefits and available funding as provided by member states contributions.

Administration Responsibilities as Revised by this Amendment* (shown in bold italics)

The Iowa Department of Transportation has assumed the lead for this pooled fund activity and has requested program management assistance from InTrans in administering and supporting the activities of this pooled fund consortium.

Primary administrative tasks provided by InTrans will include:

- Serve as central location/clearinghouse for receipt and distribution of project information
- Maintain project files including an electronic distribution list, meeting notes, status report summaries, correspondence, financial data, action item lists, meeting notes, completed final reports and other deliverables.
- Facilitate vendor solicitation for evaluations and invite submission of problem statements from state DOTs and researchers in pooled fund states
- Distribute Requests for Proposals, receive submitted proposals, coordinate proposal review and the selection process by the BOD
- Receive completed draft research project reports, distribute to the BOD for review and comment, convey received comments to researchers, and distribute approved final reports to the Board
- Schedule BOD meetings, prepare agendas, facilitate meetings, and record notes.
- ***Send completed project reports with proper identification and Form F1700.7 to Iowa DOT Librarian for posting to federally required repositories***
- Obtain quarterly reports from researchers and provide a summarized quarterly report of all project activities
- ***Monitor research accomplishment schedules and deliverables to assure compliance with individual project objectives***
- Verify partial and final billings and recommend reimbursement for work accomplished to the Iowa DOT

- Solicit and invite participation in the pooled fund by other states
 - Serve as contact for inquiries
 - Maintain and monitor the SWZDI web site and assure posting of all completed research reports
 - *Initiate and facilitate discussion with principal investigators for 2013 contracts and with the BOD for implementation and potential benefit outreach opportunities from completed research projects and document that information**
 - provide general administrative assistance as needed
- revised 8/2/13 TJM

The Iowa DOT will be the lead state with Dan Sprengeler as technical representative and a financial administrator from the Office of Research and Analytics. The InTrans staff will coordinate the SWZDI pooled fund with Tom McDonald as the principal investigator, program manager and primary administrative contact. Tim Morris from InTrans will provide financial advice and support.

Research Implementation and Technology Transfer Benefits

The benefits from the SWZDI pooled fund include a wide variety of products including completed research reports, possible technical transfer documents, potential presentations and training, safety equipment evaluations, support toward other research, as well as development and/or implementation of research results in areas of mutual interest and benefit to pooled fund members and others in the industry.

Estimated Cost for Amendment

The estimated 2013 administrative costs for additional InTrans implemental and coordination services included in this amendment as described above are \$ 4,307.00 which will compensate for increased staff time and miscellaneous costs. A detailed budget is shown on the following page.

Research Period

The administrative services described above will be provided for calendar year 2013 and renewed annually as requested.

Amendment Budget by Category

Direct Costs:

Staff salary	\$2,349
Staff benefits	\$869

Other Direct Costs:

Communication charges	\$100
Other (BOD meetings, etc.)	<u>\$100</u>

Total Direct Costs:	\$3,418
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Indirect Costs	@	26%	<u>\$889</u>
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Total Amendment Costs	\$4,307
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Total 2013 Smart Work Zone Administration Budget including Amendment

Direct Costs:

Staff salary	\$21,650
Staff benefits	\$8,010

Other Direct Costs:

Out-of-state travel (BOD meetings)	\$500
Project supplies (BOD meetings)	\$500
Telecommunication charges (basic, toll, data)	\$100
Printing/Copying	\$250
Communications Services (editing, web, publications, etc.)	\$2,600
Postage	\$200
Other (BOD meetings, etc.)	<u>\$601</u>

Total Direct Costs	\$34,411
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Indirect Costs	@	26%	<u>\$8,947</u>
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Total All Costs	\$43,358
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