



Smart Work Zone Deployment Initiative

Evaluation Plan

2010

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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. 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 50 studies have been completed, consisting of evaluations of various work zone related products, numerous 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) will annually draft a list of proposed problem statements based on high priority issues related to work zone safety and/or mobility. Problem statements will be developed for consideration by university-based Principal Investigators (PIs).
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. To rank each proposal, the scores of each BOD member will be weighted by their State Transportation Agency (STA) contributions to the pool fund. 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 Monitors.

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 language 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 contract 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. These quarterly reports will be entered into the Iowa DOT database 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 Carol Culver 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 Bill Zaccagnino at 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, as computed by InTrans.
10. FHWA Headquarters and/or member STA's with funding contributions other than SPR will then reimburse Iowa DOT.

For the 2010 program, a list of eight requests for proposals were developed and distributed to potential researchers at research institutions in contributing states, including one evaluation suggestion submitted by a vendor. Researchers submitted a total of eight proposals totally \$372,925 with \$108,589 in matching funds and these proposals were distributed to the contributing state DOT representatives on the BOD for prioritization. Using a ranking system based on contribution levels, InTrans staff ranked the proposals and distributed the list to the Board of Directors for approval. Considering available funding, the top ranked three proposals, plus a carry-over smart work zone conference, and the administrative agreement with the Institute Transportation will comprise the 2010 program. A budget surplus of approximately \$4,888 will remain after award of all approved contracts.

YEAR 2010 PROGRAM

The three proposals approved by the BOD plus the administrative budget total \$ 173,958. Available funding totaled \$ 189,646 comprised of states' contribution and carryover funds from prior year programs. Participating states funding contributions are shown in Table 1. The 2010 program is summarized in Table 2.

Table 1-Contributions of States

Agency	Funding level
Iowa	\$30,000
Kansas	\$50,000
Wisconsin	\$40,000
Missouri	\$50,000
Nebraska	\$10,000
*Carryover from Previous Years	\$ 9,646
Total	\$ 189,646

Table 2 – BOD Approved Projects

Proposal	PI	University	Amount	Status
Administration	Tom McDonald	ISU	\$34,757	Funded
Determining the Effectiveness of Graphic-aided Dynamic Message Signs in Work Zones	Yong Bai	KU	\$47,588 \$20,760	Funded Other funds
Development of a Traffic Diversion Estimation Model for Freeway Construction Work Zones	Alan Horowitz	UW-Milwaukee	\$49,784	Funded
Cost-Benefit Analysis of Sequential Warning Lights in Nighttime Work Zone Tapers	Carlos Sun	UM-Columbia	\$41,829 \$5,066	Funded Other funds
Total Budget for 2010 Program Year**			\$173,958	

** Carryover Smart Work Zone Conference of \$ 10,800 will be included in the final budget for 2010.

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.

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.

APPENDIX A:

PROPOSAL for ADMINISTRATION

Calendar Year 2010

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 named 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 and the Institute for Transportation (InTrans) at Iowa State University. This was accomplished in calendar year 2005.

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 60 studies and evaluations have been completed since the inception of the SWZDI.

Evaluation Process

A Board of Directors (BOD) comprised of representatives from the FHWA and cooperating states is responsible for developing problem statements describing the highest priority issues related to work zone safety and mobility. Members of the BOD and researchers submit ideas for proposed research study in the next 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 researchers in pooled fund state universities. 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.

Administration Responsibilities

The Iowa Department of Transportation has assumed the lead for this pooled fund activity, initiating encumbrances and reimbursements for research activities. Assistance with the administration effort will be provided by InTrans at Iowa State University.

Specific duties provided by InTrans will include:

- facilitate vendor solicitation
- assemble group reports for distribution
- convene BOD meetings
- maintain states' research reports
- provide a quarterly report of project activities
- verify billings and recommend reimbursement for research
- solicit and invite participation by other states
- serve as contact for inquiries
- maintain and monitor web site and electronic distribution list
- maintain accuracy of project records
- provide general administrative assistance as needed

The Iowa DOT will be the lead state with Dan Sprengeler as technical representative and Carol Culver as financial administrator. InTrans staff will coordinate the project with Tom McDonald as the principal investigator, project manager and primary administrative contact. Tim Morris will provide financial advice and support.

Estimated Cost

Estimated 2010 administrative costs for InTrans services are \$34,757 which include staff time, necessary editing, postage, copying, and travel.

Research Period

The administrative services described above will be provided for calendar year 2010 and renewed annually as requested.