

Traffic Safety Improvement Program

Studies, Research, Public Information Initiatives Category FY 2020



Lincoln Way Ames 1960's

Applications Received by August 15, 2018

STUDIES, RESEARCH, PUBLIC INFORMATION INITIATIVES FY 2020

Applications listed in order received.

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15	Iowa DOT – Office of Rail	Railroad Crossing Safety Education Support	\$62,500.00	\$17,500.00
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27	Iowa DOT – Office of Traffic & Safety	"Investigation of 3-lane Road Impacts on Businesses, Response Times, and Travel Times"	\$50,000.00	\$50,000.00
29	Iowa DOT – Office of Traffic & Safety	"Synthesis of the Safety and Operational Experience of Multi-Lane Roundabouts"	\$30,000.00	\$30,000.00
31	City of Waterloo	Vision Zero Initiative	\$6,800.00	\$6,800.00
36	Iowa DOT – Office of Traffic & Safety	Guidelines on use of Temporary Barriers in Work Zones	\$75,000.00	\$75,000.00
39	Iowa DOT – Office of Traffic & Safety	Update of Iowa's Crash Analysis Manual	\$30,000.00	\$30,000.00
41	Iowa DOT	Iowa Crash Analysis Tool Training	\$70,000.00	\$70,000.00
44	Iowa DOT – Office of Traffic & Safety	2020 Midwest Work Zone Round Table Meeting	\$3,500.00	\$3,500.00

46	Iowa DOT – Office of Traffic & Safety	"Study Unreported Deer Crashes and B-C Analysis of Deer Fence"	\$40,000.00	\$40,000.00
48	Iowa DOT – Office of Traffic & Safety	"Interactive Virtual Reality Simulation for Enhancing Safety in Work Zones"	\$65,000.00	\$65,000.00
	Totals	Projects	\$867,800	\$707,800



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATIONDATE: 8/13/2018

Location / Title of Project Data-Driven Identification of Candidates for Operational Improvement

Applicant Iowa DOT

Contact Person Tim Crouch Title State Traffic Engineer

Complete Mailing Address Office of Traffic and Safety, 800 Lincoln Way, Ames, IA
50010

Phone 515-239-1513

(Area Code)

E-Mail Tim.crouch@iowadot.us

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____

(Area Code)

E-Mail _____

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:**Funding Amount**Total Safety Cost \$ 80,000Total Project Cost \$ 80,000**Safety Funds Requested** \$ 80,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain _____
 No

Project Title: Data-Driven Identification of Candidates for Operational Improvement

Problem: The Safety Improvement Candidate List (SICL) process has been used by Iowa DOT for nearly 20 years as a method of identifying locations where investments should be made. These determinations are made from analysis of crash data that consider both severity and frequency. A similar approach would be desirable for identifying locations for improvements to traffic operations: an Operational Improvement Candidate List (OICL). A challenge in compiling such a list is that operational data collection is more difficult to obtain than crash data. The emergence of new data sets offers opportunities to develop new approaches to analyzing traffic operations on a widespread basis.

Recent research on the effectiveness of adaptive signal control has suggested the use of segment speed data as a screening tool. This type of data can be very effective at evaluating corridor operations. Intersections can be more challenging to assess, since not all movements at intersections will be captured with segment speed data. However, this type of data, which is already being collected by Iowa DOT for assessing interstate route performance, represents one option for high-level screening using existing resources. Corridor travel times and travel time reliability can be characterized with this type of data, taking into account variation by time of day, and corridors can be ranked using a variety of metrics. These analyses can identify bottlenecks in the roadway system and locations where travel time is unreliable.

Another strategy is to use data from traffic cabinets at signalized intersections. In recent years, most controller vendors have implemented data logging capability in newer controllers, and several external data collection devices have come to market that can implement this capability for older controllers. One such data set, “high-resolution” data, logs individual detection times and signal state changes, which can be used to derive numerous analytics that reveal detailed information about traffic signal performance, and can be used to suggest potential adjustments to signal timing as well as to determine where capital improvements are likely needed. By analyzing all of the movements at an intersection, this can fill in details not captured by segment speed data. This can capture the causes of poor corridor travel times and heavy delays, which can be attributed to oversaturation, poor coordination, or poor distribution of capacity.

Objective: This research would investigate potential uses of the identified data sets to develop a methodology for populating an OICL. The research would approach the problem on two levels. The first would be to use segment speed data to perform ranking of facilities at a corridor level. The second approach would be to examine the use of high-resolution data at signalized intersections, using locations with existing capability, and using the results of the corridor level analysis to identify sites where adding this capability may be considered or temporarily deployed

Project Tasks: The following tasks are proposed as a part of this study:

1. **Data Sources** – This effort will identify all applicable data sources to be included in the OICL and a literature review of what other agencies are using to evaluate the operational performance of intersections. It is anticipated that some data will be relevant to corridor operation (e.g., segment speed data) and others will be relevant to intersection operation (e.g., high-resolution event data).
2. **Establishing Performance Measures** – Based on the literature review and data available, performance measures will be established which will be used in the rankings for the OICL.

3. Identify Corridor and Intersection Locations – Corridors and Intersections will be identified which have data available that was identified in Task 1. It is anticipated that corridor data will have a high degree of coverage while intersection data will be available at a subset of locations.
4. Develop OICL – Similar to the SICL, an OICL list will be developed for the state for corridors and intersections identified in Task 3. Depending on the number of locations identified, rankings will be provided statewide as well as for each county. These will be based on performance measures identified in Task 2.
5. Prepare Project Report – A final report will be prepared that summarizes the tasks and outcomes of study.

Benefits of Research: This research will establish a method of evaluating the operational performance of intersections statewide. In addition, poor performing intersections will be identified which could be candidates for future improvements.

Estimated Cost: \$75,000 - \$80,000

Proposed Schedule: 18 months



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 10 August 2017

Location / Title of Project Non-motorized traffic monitoring: Phase 3

Applicant Sam Sturtz

Contact Person Sam Sturtz Title Transportation Planner

Complete Mailing Address 800 Lincoln Way
Ames, IA 50010

Phone 515.233.7801 E-Mail Samuel.sturtz@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Safety Cost \$ 50,000

Total Project Cost \$ 50,000

Safety Funds Requested \$ 50,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain _____

No

B. NARRATIVE

Monitoring of non-motorized traffic (bicycles and pedestrians) is needed for project evaluation (e.g., before/after impact studies) and planning as well as safety evaluation through computation of crash exposure rates, which can then be compared over time and across different travel modes. However, bicycle and pedestrian counts are collected on a very limited basis in Iowa (e.g., project specific or limited 2-hr counts), not allowing for estimation of key values such as bicycle and pedestrian miles traveled (BMT and PMT), as is traditionally done with vehicles in the form of VMT. This proposal is for a third phase of an ongoing process to develop and expand non-motorized traffic counting programs in Iowa. Specifically, the proposed Phase 3 project will use data collected in the first two phases to develop models to predict bicycle and pedestrian traffic. Validation studies will be conducted in other areas within the state, including other larger urban areas (such as Des Moines) and other smaller urban areas (such as Muscatine, Burlington).

The long-term goal of this project to provide a basis for the establishment of non-motorized traffic monitoring programs statewide. Specifically, the aim is to provide 'plug and play' formulas and adjustment factors from the models developed from this project so that they can be used by regions/municipalities to estimate and adjust their bike/ped traffic volumes. The goal is to make it easy for a municipality to collect data at a minimal number of sites, but be able to use output from this project to apply to their region and come up with estimates, with very minimal additional validation on their end.

C. ESTIMATED COST

Item	QTY	Total
Salaries		
Students (conduct validation field work and assist with data management, analysis, and report preparation)	2	18,240
Research Specialists (project management, analysis, report preparation)	2	26,056
Supplies and fees (misc. supplies and replacements for expendable counter items—e.g., tape, tubes, etc.)		1,000
Travel (to counting validation sites, to present results)		1,000
Indirect Costs (8%)		3,947
Total		50,000



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATIONDATE: August 15, 2018Location / Title of Project Statewide Multi-Disciplinary Safety Team (MDST) Facilitator ProgramApplicant Iowa DOTContact Person Jan Laaser-Webb Title Traffic & Safety EngineerComplete Mailing Address 800 Lincoln Way
Ames, IA 50010Phone 515-239-1349 E-Mail jan.laaser-webb@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____
_____Phone _____ E-Mail _____
(Area Code)**PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:****Funding Amount**Total Safety Cost \$ 50,000Total Project Cost \$ 50,000**Safety Funds Requested** \$ 50,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

 Yes – Explain _____ No

Background

Iowa's Statewide Multidisciplinary Safety Team (MDST) Program assists with the facilitation, development and operation of local multi-disciplinary safety teams to help identify and resolve local crash causes and enhance crash response practices in the state of Iowa. These teams include a wide range of local and state safety participants from various backgrounds. These professionals meet on a regular basis to discuss safety topics, problems, projects, and improvements along local roadways within regional areas of Iowa.

By coordinating communication and collaborating with other stakeholders, participants gain a broader perspective on safety issues and learn best practices from professionals outside their area of expertise. This ultimately leads to the development of solutions that may not have been considered otherwise.

The Statewide MDST program assists with a number of technical services that can help further develop existing safety groups, establish new relationships and foster growth of innovative and effective safety practices within the transportation community.

Project

One of the program's main goals is interagency collaboration and information exchange. This approach will improve communication on technical transportation issues among professionals from local governments, cities, counties, metropolitan planning organizations and regional entities and the DOT statewide. The program also assists MDSTs by providing technical briefs, technical reports, and research documents; technical and safety workshops; outreach and technology services; and traffic safety assessments.

More specifically, the program, organized and applied by the statewide MDST program facilitator, will continue with the following initiatives with existing and new MDSTs: promotion of the ongoing growth of a safety culture in Iowa; work with DOT safety staff, and others to provide appropriate topics, presentations, crash maps, GIS data, workshops, contacts, and requested safety analysis for MDST meetings; attendance and involvement with meetings to keep current on safety related information and issues, as well as current research projects and studies to share with our safety partners and MDSTs; provision of crash summary data; facilitation of multi-disciplinary processes to identify safety issues and improvements; the provision of assistance, information, and support to promote and enhance the formation and active participation of area agencies in MDSTs; the development and/or evolution of MDSTs and the MDST website (to be used as a tool and resource for MDSTs and their members); development of marketing material; and creation of an MDST planning, operation, and management document for local safety groups.

The \$50,000 in funding requested will be used over a 12-month period and allow the continuation of the statewide MDST program facilitator.



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

 DATE: 8/13/18

 Location / Title of Project Work Zone Safety Training

 Applicant Iowa Department of Transportation

 Contact Person Dan Sprengeler Title Work Zone Traffic Control Engineer

 Complete Mailing Address 800 Lincoln Way
Ames, IA 50010

 Phone (515) 239-1823 E-Mail Dan.sprengeler@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

 Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:
Funding Amount

 Total Safety Cost \$ 90,000.00

 Total Project Cost \$ 90,000.00
Safety Funds Requested \$ 30,000.00

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

 Yes – Explain _____

 No

Work Zone Safety Training

Background

CFR Part 630.1.1. Work Zone Safety and Mobility requires training for persons involved in any aspect of temporary traffic control on roadways open to public traffic. For many years the Iowa Department of Transportation has worked with a large range of partners to offer Work Zone Safety Workshops throughout Iowa. These workshops improve roadway safety and the safety of the workers within work zones. The objectives of these workshops are to

- Introduce the principles and convey the importance of using proper methods for safe and efficient temporary traffic control at work sites;
- Examine specific applications relevant to situations routinely encountered by city, county, contractor, Iowa DOT, and utility crews; and,
- Reduce motor vehicle traffic crashes at road work sites, resulting in greater safety for highway users and workers alike.

Regular attendance at these workshops is recommended for all Iowa workers and their supervisors that have duties on or near roadways for work zone activities. In addition to the general sessions, the workshops include five concurrent tracks that focus on different work zone audiences with training needs. These sessions focus on county employees, city employees, Iowa DOT construction personnel and contractors, Iowa DOT maintenance personnel, and utility workers. These workshop sessions are typically held in six to eight locations a year.

Project

Continue funding the annual Work Zone Safety Workshops to provide basic work zone training for state, local and contractor employees. TSIP funds are used to keep the cost below \$100 per person.

Requested funding: \$30,000

Proposed by: Dan Sprengeler



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATIONDATE: 8/14/18Location / Title of Project Railroad Crossing Safety Education SupportApplicant Iowa Department of Transportation; Office of Rail TransportationContact Person Phillip Meraz Title Regulation and Analysis
Project CoordinatorComplete Mailing Address Iowa Department of Transportation; Office of Rail
Transportation800 Lincoln Way, Ames, IA 50036Phone 515-239-1420 E-Mail phillip.meraz@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)**PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:****Funding Amount**Total Safety Cost \$ 62500Total Project Cost \$ 62500**Safety Funds Requested** \$ 17500

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain _Part of the State of Iowa Highway-Rail Grade Crossing Safety Action

Plan

No

APPLICATION CERTIFICATION FOR PUBLIC AGENCY

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating public agency(ies). I understand the attached resolution(s), where applicable, binds the participating public agency(ies) to assume responsibility for any additional funds, if required, to complete the project. In addition, the participating public agency(ies) agrees to maintain any new or improved public streets or roadways for a minimum of five years.

I understand that, although this information is sufficient to secure a commitment of funds, a firm contract between the applicant and the Department of Transportation is required prior to the authorization of funds.

Representing the Iowa Department of Transportation; Office of Rail Transportation

Signed:  8/14/18
Signature Date Signed

Phillip Meraz
Printed Name

Attest:  8/14/18
Signature Date Signed

Ed Engle
Printed Name

A

In 2010, the Federal Railroad Administration (FRA) identified Iowa to be among the top ten states for the number of railroad crossing collisions. Due to this fact, federal legislation 49 CFR part 234 mandated that the state of Iowa research and create a rail crossing safety action plan. The plan prepared by the department's Office of Rail Transportation was approved by the FRA in 2012 and can be found at: <https://iowadot.gov/iowarail/pdfs/ActionPlan.pdf>

The partnership with Iowa Operation Lifesaver identified in the plan and its new innovations in larger events has shown to be very successful. The Office of Rail Transportation is in the process of updating this plan and will again identify the partnership with Iowa Operation Lifesaver and its education programs as a key component.

B

The *State of Iowa Highway-Rail Grade Crossing Safety Action Plan* recognizes "education" as one of the four action categories. The main component of the department's educational effort is a working partnership with Iowa Operation Lifesaver (OL); a non-profit education and awareness program dedicated to ending tragic collisions, fatalities, and injuries at highway, rail grade crossings and on railroad right-of-way.

Historically, OL has conducted free presentations for small groups such as driver's education classes and civic organizations. These programs, conducted by certified volunteers, are the "public face" for railroad crossing safety and an integral part of the educational efforts in Iowa. However, the majority of the funding is used for presentation materials and handouts leaving inadequate resources for advertising and building the program.

To broaden the reach of their message, the OL board has modified their approach to add a focus for larger venues such as the Iowa State Fair, the Farm Progress Show and the Thresher's Reunion, increasing their previous educational contacts by tens of thousands. They have grown their presence on social media and have a standing morning announcement on Iowa Public Radio. These more informal educational contacts have also increased the number of formal small group program opportunities. In the upcoming years they would like to add a television commercial spot during in-state rivalry college football games.

Exploration of a new initiative using virtual reality has been identified as a goal for the coming year. This will incorporate the use of a computer program running on "VR goggles" for an interactive experience to demonstrate the need for safe decision-making.

Because of the implementation of other action items, the reduction of deaths that can be attributed to these programs is not easily quantifiable. However, OL is accepted by the FRA as a *significant* contributing factor for the downward trend in rail crossing collisions over the past 30 years.

Railroad Crossing Safety Education Support

The objective for the use of this requested funding is to better support the department's partnership with OL by:

- Purchasing VR goggles
- Purchasing needed presentation materials and equipment for dozens of volunteers
- Providing vendor fees for large-scale events
- Increasing their visibility and media campaign
- Funding community "blitzes" in areas that demonstrate high-risk driving behavior or have imminent events near railroad right-of-way

It is anticipated that continuing these educational initiatives will increase the number of Iowans being educated and raise awareness of the safety issues at railroad crossings.

C

As a non-profit organization, the amount of funding currently being used for OL operations changes from year to year. All funding comes from contributions. Last year's funding was approximately:

\$30,000	provided by \$8/crossing request from the railroads operating in Iowa
<u>\$10,000</u>	provided by Iowa DOT TSIP (\$10,000 is provided for FY 2018)
\$40,000	

These Funds have been used for operations, displays, and materials for presentations by volunteer labor in an organization with one staff member employed one-quarter time. The estimated costs for usage of the requested funds are:

\$13,000	presentation materials and equipment
\$7,500	initial computer programming and VR development
\$10,000	vendor fees
\$5,000	marketing and transportation costs for community blitzes
<u>\$12,000</u>	production and on-air time during in-state rivalry football games
\$47,500	

D

These funds will be used throughout a 12-month period beginning July 1, 2019 and ending June 30, 2020.



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATIONDATE: August 15, 2018Location / Title of Project Iowa Safety Circuit Rider Program Supplement SupportApplicant Iowa DOTContact Person Jan Laaser-Webb Title Traffic & Safety EngineerComplete Mailing Address 800 Lincoln Way
Ames, IA 50010Phone 515-239-1349 E-Mail jan.laaser-webb@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____
_____Phone _____ E-Mail _____
(Area Code)**PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:****Funding Amount**Total Safety Cost \$ 75,000Total Project Cost \$ 75,000**Safety Funds Requested** \$ 20,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

 Yes – Explain _____ No

The Safety Circuit Rider program was created nearly 30 years ago as a strategy to bring safety training to local government agency personnel at their own place of work. Often, local governments are short on funds for training and find it difficult to send all personnel in need of specific training long distances. This is especially true for training such as work zone flagging. The Safety Circuit Rider program was established as a part of the Local Transportation Assistance Program residing within the Institute for Transportation at Iowa State University in Ames.

The Safety Circuit Rider program was established by a coalition including the Iowa DOT, Governor's Traffic Safety Bureau, Federal Highway Administration, and the Institute for Transportation at Iowa State University.

The Iowa safety circuit rider provides needed training in transportation safety to local agencies across the State of Iowa in such topics as roadway safety, work zones and flagging, and permanent signing and pavement markings from the Manual on Uniform Traffic Control Devices (MUTCD). In addition, the circuit rider also provides information and advice on problems and concerns related to these topics and conducts research in related areas. The program provides multidisciplinary training, outreach and evaluation across Iowa through a variety of activities such as those previously listed and other, including:

- Organize and coordinate multidisciplinary safety assessment efforts for local agencies (including on-call and for the GTSB High Five program)
- Plan and facilitate workshops on safety topics, including roadside safety, signing, low cost safety countermeasures, etc.
- Organize, coordinate and moderate the annual multidisciplinary Local Road Safety Workshops
- Prepare and present transportation safety-related topics at various meetings, conferences, etc.
- Conduct on-call training and outreach on topics such as signing, pavement marking, retroreflectivity, etc.
- Provide technical assistance and feedback on safety-related questions
- Plan and assist with periodic conferences, such as MINK (Missouri, Iowa, Nebraska, Kansas)
- Identify needs and conduct locally-focused research projects that will be of benefit to local transportation agencies
- Serve on various safety-related committees as requested

Crash analysis, sign management and inventory, and other miscellaneous topics fill in the comprehensive program.

The program currently receives \$55,000 annually in Section 402 Highway Safety funds from the Governor's Traffic Safety Bureau. Over time the program has expanded and requires a budget substantially greater than that. In light of this, the Safety Circuit Rider program has been partially funded by the Traffic Safety Improvement Program at the Iowa Department of Transportation. The funds being requested from the TSIP will help the program meet the safety training needs of Iowa's local agency transportation staff in the future.

The funding requested will be used for labor and travel expenses for a one year period, beginning on January 1, 2019 and ending December 31, 2019. The budget requested as supplementary support for the Safety Circuit Rider program is \$20,000.



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATIONDATE: August 15, 2018Location / Title of Project Work Zone Sign Package Program ExtensionApplicant Iowa DOTContact Person Dan Sprengeler Title Work Zone Traffic Control EngineerComplete Mailing Address 800 Lincoln Way
Ames, IA 50010Phone 515-239-1823 E-Mail dan.sprengeler@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____
_____Phone _____ E-Mail _____
(Area Code)**PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:****Funding Amount**Total Safety Cost \$ 60,000Total Project Cost \$ 60,000**Safety Funds Requested** \$ 60,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

 Yes – Explain _____ No

Background

The first year for this project was completed July 31, 2017 and has been funded again for FY 2018-2019. This request for funding would continue this much-needed program. The goal of the project is to make work zones safer for smaller cities by providing an avenue for the selected cities to receive a basic work zone sign package. The introductory year of the program saw 10 cities apply for and receive new work zone traffic control devices in compliance with the Manual on Uniform Traffic Control Devices (MUTCD) through the project.

Project

This project is directed towards Iowa cities with populations of 10,000 residents or less. These smaller cities often have budget shortfalls that result in the use of temporary traffic control devices for work zones that are old, faded and not in compliance with the requirements determined by the MUTCD. Eligibility for the program may potentially include smaller cities that have had staff attend an Iowa Work Zone Safety Workshop, sponsored by the Iowa DOT, within the last 3 years, (which is the recommended interval by Iowa DOT) or other criteria set forth by the Technical Advisory Committee. The cities that are awarded a sign package demonstrate a need for the devices and a commitment to work zone safety based on the application they submit for the project.

Awarded cities are granted a work zone sign package that possibly includes:

- 4 – ROAD WORK AHEAD Signs
- 2 – ONE LANE ROAD AHEAD Signs
- 2 – BE PREPARED TO STOP Signs
- 8 – Portable Sign Stands
- 2 – Type III Barricades
- 16 – 28” Traffic Cones
- 10 – 42” Channelizer Cones with Bases
- 6 – ANSI Class 2 Safety Vests

The \$60,000 in funding requested will be used over a 12-month period.



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATIONDATE: August 15, 2018Location / Title of Project Evaluation and Preparation for Future Iowa Work Zone Safety WorkshopsApplicant Iowa DOTContact Person Dan Sprengeler Title Work Zone Traffic Control EngineerComplete Mailing Address 800 Lincoln Way
Ames, IA 50010Phone 515-239-1823 E-Mail dan.sprengeler@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____
_____Phone _____ E-Mail _____
(Area Code)**PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:****Funding Amount**Total Safety Cost \$ 30,000Total Project Cost \$ 30,000**Safety Funds Requested** \$ 30,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

 Yes – Explain _____ No

Background

For many years the Iowa Department of Transportation has worked with a large range of partners to offer Work Zone Safety Workshops throughout Iowa. These workshops improve roadway safety and the safety of the workers within work zones. The objectives of these workshops are to

- Introduce the principles and convey the importance of using proper methods for safe and efficient temporary traffic control at work sites;
- Examine specific applications relevant to situations routinely encountered by city, county, contractor, Iowa DOT, and utility crews; and,
- Reduce motor vehicle traffic crashes at road work sites, resulting in greater safety for highway users and workers alike.

Regular attendance at these workshops is recommended for all Iowa workers and their supervisors that have duties on or near roadways for work zone activities. In addition to the general sessions, the workshops include five concurrent tracks that focus on different work zone audiences with training needs. These sessions focus on county employees, city employees, Iowa DOT construction personnel and contractors, Iowa DOT maintenance personnel, and utility workers. These workshop sessions are typically held in six to eight locations a year.

Project

In the near future, due to a series of retirements and/or adjustments in personnel or job descriptions, a reduction in the current number of Work Zone Safety Workshops instructors will occur. It was determined that this would be a good time to consider how the material of these workshops should be offered in the future. This project will focus on alternatives that might be used to offer the content of this workshop after about 2019 or 2020. It will evaluate the advantages and disadvantages of the different methodologies and technologies available to offer each of the five concurrent sessions individually. It is expected that the job duties of each audience, the characteristics of their position, and their specific job location, may be a few of the factors that impact how these groups might be instructed in the future. The need to maintain the material used for the instruction will also be considered. In addition, an assessment of the preferred instruction method of past attendees and those with similar agency positions will be completed. A technical advisory committee will discuss the evaluation and assessment results to determine the most appropriate instruction approach to follow in the future for each audience. A summary report of the recommended approaches will then be produced and an estimate of cost related to accomplishing these adjustments completed. If any funding remains after the completion of these tasks, one or more adjustments (e.g., a webinar recorded) to the approach currently being used may be completed.

The \$30,000 in funding requested will be used over a 12-month period.



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 8/15/18

Location / Title of Project Investigation of 3-lane Road Impacts on Businesses, Response Times, and Travel Times

Applicant Iowa DOT Office of Traffic and Safety

Contact Person Chris Poole Title Safety Programs Engineer

Complete Mailing Address 800 Lincoln Way
Ames, IA 50010

Phone (515) 239-1267 E-Mail chris.poole@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Safety Cost \$ 50,000

Total Project Cost \$ 50,000

Safety Funds Requested \$ 50,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain _____

No

A. Application Certification: Not applicable

B. Narrative:

Conversion of a 4-lane undivided road to a 3-lane road is a proven safety countermeasure that has the potential to reduce crashes and improve livability. The state continues to support these improvements, where feasible, especially at those locations identified through the DOT's "Statewide Screening for Potential Lane Reconfiguration" effort.

Unfortunately, in most cities where conversions are being considered, gaining public support for the project can be difficult. Often, citizens and/or public officials may be concerned about the potential for increased travel times, longer emergency response times, and negative impacts to local businesses along the converted road.

While federal guidance addresses these issues and states that they should not be problematic in most cases, local evidence supporting these claims is practically nonexistent. This lack of local evidence combined with skepticism of the federal claims can derail an otherwise promising safety improvement project.

The goal of this project is to investigate the business, travel time, and response time impacts of 3-lane conversion projects in Iowa.

With more than 90 cities in Iowa having at least one 3-lane road within their jurisdiction, there are many opportunities for businesses and emergency responders to provide input on the function and impact of 3-lane roads in the state. It is anticipated that a survey for each of these groups would be developed to gather responses.

With several cities either considering or awaiting construction projects to convert an existing 4-lane road to a 3-lane road, there is an opportunity to collect travel time information before a conversion is completed. Once each of these conversions is completed, travel times can be collected again, and a before-after comparison of travel times can be established.

C. Estimated Cost: \$50,000

D. Project Schedule: July 1, 2019 through June 30, 2020



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 8/15/18

Location / Title of Project Synthesis of the Safety and Operational Experience of Multi-Lane Roundabouts

Applicant Iowa DOT Office of Traffic and Safety

Contact Person Chris Poole Title Safety Programs Engineer

Complete Mailing Address 800 Lincoln Way
Ames, IA 50010

Phone (515) 239-1267 E-Mail chris.poole@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Safety Cost \$ 30,000

Total Project Cost \$ 30,000

Safety Funds Requested \$ 30,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain _____

No

A. Application Certification: Not applicable

B. Narrative:

Roundabouts are a proven safety countermeasure that can reduce crashes, improve traffic operations, and increase livability.

In locations where a roundabout is a feasible alternative, single-lane roundabouts are preferred due to their simplicity, reduced construction footprint, and lower cost. However, multi-lane roundabouts may be considered where traffic volumes exceed certain thresholds.

Because multi-lane roundabouts are generally more complex than single-lane roundabouts, there is a perception that they are difficult for motorists to navigate, resulting in public dissatisfaction. In fact, it is rumored that Wisconsin – a very “pro-roundabout” state, is removing and/or no longer constructing multi-lane roundabouts due to poor performance.

These perceptions and rumors can result in a potential multi-lane roundabout alternative being removed from consideration when it may, in fact, significantly improve the safety and operations at a particular intersection.

The goal of this project is to conduct a synthesis of the safety and operational performance of multi-lane roundabouts in Iowa and nearby states, including Wisconsin. If it is indeed true that other states are removing multi-lane roundabouts, this study would seek to determine the reasons behind the removals – was it due to the inherent complexity of multi-lane roundabouts, or were the roundabouts poorly designed to begin with, perhaps using outdated guidance?

It is envisioned that documenting the performance of properly designed multi-lane roundabouts would reduce the stigma associated with them, and encourage their consideration in more locations across the state of Iowa.

C. Estimated Cost: \$30,000

D. Project Schedule: July 1, 2019 through June 30, 2020



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 7/30/2018

Location / Title of Project Vision Zero Initiative

Applicant City of Waterloo

Contact Person Mohammad Elahi Title Traffic Engineer

Complete Mailing Address 625 Glenwood Street
Waterloo, Iowa 50703

Phone (319) 291-4440 E-Mail Mohammad.elahi@waterloo-ia.org
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Safety Cost \$ 6,800

Total Project Cost \$ 6,800

Safety Funds Requested \$ 6,800

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

- Yes – Explain _____
- No

APPLICATION CERTIFICATION FOR PUBLIC AGENCY

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating public agency(ies). I understand the attached resolution(s), where applicable, binds the participating public agency(ies) to assume responsibility for any additional funds, if required, to complete the project. In addition, the participating public agency(ies) agrees to maintain any new or improved public streets or roadways for a minimum of five years.

I understand that, although this information is sufficient to secure a commitment of funds, a firm contract between the applicant and the Department of Transportation is required prior to the authorization of funds.

Representing the City of Waterloo

Signed: Quentin Hart 7/30/18
Signature Date Signed

Quentin Hart
Printed Name

Attest: Kelley Felchle 7-30-18
Signature Date Signed

Kelley Felchle
Printed Name

B. NARRATIVE

City of Waterloo

TRAFFIC SAFETY INFORMATION INITIATIVE

Vision Zero Workshop

Sufferings from traffic accidents are preventable. Death and injury while operating a motorized vehicle, bicycling, or traveling on foot must be eliminated. These are unnecessary losses to the society with huge emotional and economical consequences. Combination of a proper street and traffic control design, enforcements, and appropriate behavior can reduce deaths and injuries. The result is improved public safety and quality of life. A consorted effort is needed which requires a vision zero initiative. Zero fatalities is not being addressed and nothing is being done in that regards in Waterloo, the metro area, and Black Hawk County. A workshop is proposed with the intention to bring the matter into center stage and public attention and prepare the grounds for further vision zero planning and possible action plans.

The main purpose of the workshop is to educate and bring awareness in order to prepare a platform for a Waterloo/regional vision zero policy and action plan generation. If successful the model can be used statewide to bring local jurisdiction onboard vision zero. To do this the workshop will orient toward educating public officials and other stake holders. An important goal is to prepare the background to approach the City of Waterloo and the region's governing bodies to enact a vision zero policy followed by appropriate City council and staff actions. A consortium of local governments, the school boards, and other public and private entities can be brought together for a regional vision zero policy. The next step will be to develop a local or regional action plan to identify and implement steps towards zero fatalities. The workshop will have speakers that have experience and knowledge in this area particularly in starting vision zero initiatives. Invitations will also be sent to the Iowa DOT, major Iowa universities, and FHWA Iowa division. This will spread the Vision Zero message to a wider audience while their participation can enhance the workshop. This will be a 1 day program with speakers from national organizations and possible speakers from Iowa DOT, FHWA, and universities.

Why A Workshop

A workshop will be a good starting venue to introduce the concept of Vision Zero. Select target audience will be invited. It will go beyond introduction. Other entities' experiences as to how to approach it and how others are doing it can be shared. Participants will have plenty of time to interact to ask questions and express their own opinions. They might come up with ideas of their own appropriate for our area. The traditional method of a council work session to educate the council and others is not very helpful. In a work session a few minutes is appropriated for presentations to council. A council work session has very limited possibilities. There is not enough time to muster support for this cause or educate the audience on the subject matter. On the other hand those who attend the workshop will have a better opportunity to learn about Vision Zero. The participants will be asked to share their thoughts and experiences concerning traffic fatalities and injury crashes. They can share suggestions, concerns, and particular issues. This should prepare a launching pad for further action towards zero fatalities. A council work

session will follow when the time comes for an official Vision Zero policy and commitment. When we send out invitations and reminders about the workshop, these invitations and reminders by themselves will help bring Vision Zero to the recipients' attention and help make it be a familiar term.

Value Added of Safety Grant

Safety grants from Iowa DOT typically receive local media attention. We expect that this grant, if approved, would receive more attention due to its nature and is something new in our area. The workshops will be perceived with higher prestige being funded by a state grant. A work shop sponsored by a state grant adds to the credibility of the event. Attendance can be expected to be higher.

C. Anticipated Costs

\$3,000	Honorarium, 2 Speakers
1,400	Transportation, 2 Plane Tickets
300	1 Night Lodging, 2 Hotel Rooms
600	Lunch & Snacks for 30
200	Workshop Material
1,000	PR & Ads
300	Location
\$6,800	TOTAL

D. Schedule

July 2019	FUNDS AVAILABLE
JULY-SEPTEMBER 2019	SEARCH FOR SPEAKERS, WORKSHOP TOPICS, LOCATION DETERMINATION, PARTICIPANTS LISTS, LOGISTICS PLANNING, INVITATIONS
NOVEMBER 2019	PR, WORKSHOP

COST ESTIMATE



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 8/15/18

Location / Title of Project Guidelines on Use of Temporary Barriers in Work Zones

Applicant Iowa DOT – Office of Traffic & Safety

Contact Person Willy Sorenson, P.E. Title Traffic & Safety Engineer

Complete Mailing Address 800 Lincoln Way – North Annex
Ames, Iowa 50010

Phone 515-239-1212 E-Mail willy.sorenson@iowaDOT.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Safety Cost \$ \$75,000

Total Project Cost \$ \$75,000

Safety Funds Requested \$ \$75,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

- Yes – Explain
- No

Willy Sorenson
8/15/18

Project Title: Guidelines on Use of Temporary Barriers in Work Zones

Need/Objective

Different types of channelizing devices are utilized for head to head work zone scenarios (i.e. tubular markers, temporary barrier, barrels). Each has different advantages/disadvantages in terms of cost, safety, mobility, and ease of application/removal. Channelizers are the most cost effective and easy to place in a work zone. However, in high speed operations, they provide minimal separation of opposing vehicles. Concrete median barriers, on the other hand, provide full separation and protection from on-coming vehicles but are significantly more expensive and not as easily installed. A brief literature review did not yield any information pertaining to guidelines or safety impacts. As a result, agencies have little guidance on when and where different configurations should be used.

The objective of this research is to assess when each type of barrier should be used in head to head work zones and to develop guidelines for their use. This includes evaluation of the safety and operational impacts as well as an assessment of the tradeoffs in terms of benefit and cost.

This research statement was ranked in the top four safety research statements in the 2018 research focus group.



Or



Project Tasks

The research will consist of the following main tasks

- Summarize existing research on safety and mobility impacts of different types of barriers used in head-to-head work zones
- Identify potential test sites (upcoming work zones with planned head-to-head configurations)
- Review past projects with both configurations
- Work with corresponding agency to develop work zone control plans
- Conduct a side-by-side comparison as a minimum of one type of tubular markers and one type of concrete barrier
- Evaluate impacts on speed and lateral position as surrogates for mobility and safety (Schurr et al, 2010)
- Summarize results
- Work with technical advisory committee to develop guidelines for use

Benefits of Research

Completion of this research will lead to better information for agencies to select the appropriate traffic control devices for head-to-head work zone configuration in order to effectively utilize resources.

Proposed Schedule: 18 months

References

Schurr, Karen S., Brian R. Gardner, and Shashwat Rijal. Optimal Design of Work Zone Median Crossovers. Nebraska Department of Roads. Lincoln Nebraska. September 2010. [ne-ltap.unl.edu/Documents/NDOR/design_workzone_median.pdf](http://ltap.unl.edu/Documents/NDOR/design_workzone_median.pdf)



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 8/15/18

Location / Title of Project Update of Iowa's Crash Analysis Manual

Applicant Iowa DOT Office of Traffic and Safety

Contact Person Chris Poole Title Safety Programs Engineer

Complete Mailing Address 800 Lincoln Way

Ames, IA 50010

Phone (515) 239-1267 E-Mail chris.poole@iowadot.us

(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____

(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Safety Cost \$ 30,000

Total Project Cost \$ 30,000

Safety Funds Requested \$ 30,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain _____

No

A. Application Certification: Not applicable

B. Narrative:

A draft Crash Analysis Manual for Iowa was written approximately ten years ago, however it's unclear if the manual was ever finalized or published. Regardless, the information in the manual is sorely out-of-date, and an update is necessary, especially as user access to crash and infrastructure data becomes more widespread.

Some of the chapters of the draft manual include:

1. Identifying Locations
2. Analyzing Crash Data
3. Analysis Software
4. Economic Analysis

While the draft manual does contain much of the general information associated with how to go about conducting an analysis of crashes, it lacks guidance on many of the intricacies associated with selecting appropriate crashes for analysis.

For example, users could benefit greatly from a more in-depth discussion of what constitutes an "intersection" crash. Should they rely solely on what's coded on the crash report, should only specific crash types be selected (such as rear-ends or broadsides), or should all crashes within a specified radius of the intersection be considered?

The Crash Analysis Manual would also provide a central location for listing the Iowa Crash Values, which are commonly referenced in economic analysis.

Publishing an updated Crash Analysis Manual for Iowa would provide a common, central resource for all users to work from when conducting their own crash analyses and would improve the consistency of the analyses being conducted.

C. Estimated Cost: \$30,000**D. Project Schedule: July 1, 2019 through December 31, 2019**



Application for TRAFFIC SAFETY FUNDS

GENERAL INFORMATION

DATE: August 15, 2018

Location / Title of Project Iowa Crash Analysis Tool Training

Applicant Iowa DOT

Contact Person Jan Laaser-Webb Title Traffic & Safety Engineer

Complete Mailing Address 800 Lincoln Way
Ames, IA 50010

Phone 515-239-1349 E-Mail Jan.laaser-webb@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Application Type

- Site Specific
- Traffic Control Device
- Safety Study

Funding Amount

Total Safety Cost \$ \$70,000

Total Project Cost \$ \$70,000

Safety Funds Requested \$ \$70,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project? Yes – Explain _____
 No

APPLICATION CERTIFICATION FOR LOCAL GOVERNMENT

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating local government(s). I understand the attached resolution(s) binds the participating local government(s) to assume responsibility if any additional funds are committed, and to ensure maintenance of any new or improved city streets or secondary roads.

I understand that, although this information is sufficient to secure a commitment of funds, a firm contract between the applicant and the Department of Transportation is required prior to the authorization of funds.

Representing the _____

Signed: _____
Signature Date Signed

Typed Name

Attest: _____
Signature Date Signed

Typed Name

Background

A geographical information systems (GIS) is designed to collect, visualize, interpret, process, store, and analyze spatial or geographic data. A GIS can be a very effective tool for many purposes. Over the past several years, considerable effort has been devoted to developing an easy to use software program that provides convenient access to Iowa crash data through a simple GIS online interface.

For years, the Iowa DOT has utilized GIS tools for presentation and analysis of crash data. However, existing tools, such as ESRI ArcView Safety Analysis, Visualization, and Evaluation Resource (SAVER) and Crash Mapping and Analysis Tool (CMAT), are beyond their useful life. Under the direction of the Office of Traffic and Safety, a new modern software has been developed called Iowa Crash Analysis Tool (ICAT) formerly referred to as WEBSAVER. This system was designed with local and state agency input, enabling these agencies and the research community to conduct regional and site-specific analyses of crash, driver, injury and road-related features. The system allows local law enforcement and engineers to use comprehensive state or local data to identify and mitigate highway safety problems.

Project

The Iowa DOT is committed to providing guidance in using this new innovative online software. The goal of this effort is to offer easily accessible streamlined online basic, intermediate and advanced training to a broad base of multidiscipline users, both technically-advanced and novice.

This project will be a continuation effort of the basic tutorials developed through the introductory phase of software training designed for multiple agencies and different levels of users. Further efforts are needed to reach as many users as possible so a seamless transition can be made from existing practices accessing and requesting crash data. Software edits are an ongoing improvement to the website and users will have to have instruction on how to use the updated, newly released tools and functionality changes. Online training is essential, in person demonstration presentations, advanced webinars and videos will be offered in addition.

Tasks will be divided into three phases.

- Phase I: A review of the introductory level using the website. In person demonstrations at conferences, workshops and meetings will be conducted as well as promoting the series of short videos previously developed and available through an Iowa DOT website.
- Phase II: Training on updated tools (versioning), exploring data and analytics, functionality and demonstrations previously not addressed in the basic training. Accurate data queries and a broader perspective and understanding the data results. A webinar will be offered and videos developed to compliment the introductory phase. A User Guide will be updated with the material developed in this phase.
- Phase III: Where the data originates, tailored training designed for specific agencies, and how to work with exported data. Exploration of alternative software platforms with data migration, integration and management. A User Guide will be updated with the material developed in this phase.

Cost

Requested Funding: \$70,000 (12 month period)

Proposed by: Jan Laaser-Webb



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 8/15/18

Location / Title of Project 2020 Midwest Work Zone Round Table Meeting

Applicant Iowa DOT – Office of Traffic & Safety

Contact Person Willy Sorenson, P.E. Title Traffic & Safety Engineer

Complete Mailing Address 800 Lincoln Way – North Annex

Ames, Iowa 50010

Phone 515-239-1212 E-Mail willy.sorenson@iowaDOT.us

(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____

(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Protection Cost \$ \$3,500

Total Project Cost \$ \$3,500

Safety Funds Requested \$ \$3,500

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

- Yes – Explain
- No

Project Title: 2020 Midwest Work Zone Round Table Meeting

Need/Objective: Each year, representatives from approximately 12 state DOTs, FHWA division offices and tolling agencies gather together for a three-day peer to peer exchange of work zone information. Iowa is geographically located in the middle of the peer states which allows all representatives to travel by car. This reduces travel costs for everyone and allows representatives from some states to travel over for the day then back to their home state for overnight expenses.

During the 3-day event, work zone engineers and representatives are able to ask the group questions on problems they currently have, or get information on proposed treatments they are considering and would like to hear about the good, bad and ugly experiences that other states have already implemented. The amount of information sharing, ideas and best practices has made our group a success that other regions in the US are now coping.

This type of meeting also allows the coordinating of multistate issues. For example, during the 2018 meeting a lengthy discussion on the MASH implementation of work zone devices. The outcome of the meeting was a 12-state position on a response to AASHTO and FHWA.

This venue has also been a resource for researchers to hear comments, opinions and suggestions on the latest research topics going on. Nowhere else is it this convenient to get these 12 agencies together for discussion. During the 2018 meeting, we have 3 separate research groups come in and gather data from the practitioners.

Project Tasks:

- 1) Conduct a meeting.
- 2) Pay for the meeting room, miscellaneous equipment rental and morning and afternoon snacks and refreshments.

Benefits of Research: The whole point of the meeting is for the free and uninhibited exchange of work zone information from state agency work zone engineers and practitioners. Ideas such as the lane closure planning tool, intelligent work zones, portable rumble strips, contra-flow work zones, Transportation Management Plans, ect. are all work zone efforts in Iowa that have a connection to how they began or matured from peer to peer discussions at this meeting.

Proposed Schedule: May 2020 (3 days), Exact dates of meeting have not been determined.

References: None



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 8/15/18

Location / Title of Project Study Unreported Deer Crashes and B-C Analysis of Deer Fence

Applicant Iowa DOT – Office of Traffic & Safety

Contact Person Willy Sorenson, P.E. Title Traffic & Safety Engineer

Complete Mailing Address 800 Lincoln Way – North Annex
Ames, Iowa 50010

Phone 515-239-1212 E-Mail willy.sorenson@iowaDOT.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Protection Cost \$ \$40,000

Total Project Cost \$ \$40,000

Safety Funds Requested \$ \$40,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain

No

Project Title: Study Unreported Deer Crashes and B-C Analysis of Deer Fence

Need/Objective: Iowa is the 4th highest state in the US for deer crashes with a 1 in 69 odds of hitting a deer (1). Not all deer-vehicle collisions are reported. Not all deer that are hit die immediately and land on the pavement/shoulder requiring state maintenance crews to remove them (and therefore be counted). Because of these two facts, deer-vehicle collisions are underreported. Due to this underreporting, it can be difficult to calculate a true Benefit/Cost ratio for the installation of deer fence as a counter measure to reduce animal crashes.

The objective of this research would be to determine methods to better estimate the actual number of deer-vehicle crashes in Iowa.

A second objective is to determine all the costs associated with deer-vehicle crashes. Such costs could include DOT maintenance crew resources for the removal of carcasses. Another cost is emergency response resources for responding to crash scenes and writing crash reports.

Project Tasks:

- 1) Conduct a survey of Iowa driver's to understand the magnitude of the underreporting.
- 2) Review semi-truck-animal crashes to see if there are any underreporting issues.
- 3) Create a plan on how to collect actual crash data from various test and control sections in Iowa.
- 4) Put together a list of items that should be considered as "Costs" when determining a B/C ratio.

Benefits of Research: Once we can understate the "real number" of deer-vehicle crashes in Iowa, we proactively put together countermeasures to reduce the number of crashes

Proposed Schedule: 12 months

References:

- 1) <https://www.carinsurance.com/Articles/odds-of-hitting-deer.aspx>



Application for SAFETY STUDY TSIP FUNDS

GENERAL INFORMATION

DATE: 8/15/18

Location / Title of Project Interactive Virtual Reality Simulation for Enhancing Safety
in Work Zones

Applicant Iowa DOT Office of Traffic and Safety

Contact Person Dan Sprengeler Title Work Zone Traffic Control
Engineer

Complete Mailing Address 800 Lincoln Way
Ames, IA 50010

Phone (515) 239-1823 E-Mail dan.sprengeler@iowadot.us
(Area Code)

If more than one highway authority is involved in this project, please indicate and fill in the information below (use additional sheets if necessary).

Co-Applicant(s) _____

Contact Person _____ Title _____

Complete Mailing Address _____

Phone _____ E-Mail _____
(Area Code)

PLEASE COMPLETE THE FOLLOWING PROJECT INFORMATION:

Funding Amount

Total Safety Cost \$ 65,000

Total Project Cost \$ 65,000

Safety Funds Requested \$ 65,000

Does this project appear on a Safety Improvement Candidate List or is there a safety study recommendation for this project?

Yes – Explain _____

No

A. Application Certification: Not applicable

B. Narrative:

Virtual reality (VR) taps into areas of the brain that when delivered in conjunction with interactive experiences forces the brain to think what it should be seeing in reality and thus encourages the brain to fill in the gaps. The strong sensation of being present in the space generated by the virtual reality, the perception that events in the virtual environment are really happening, and the utilization of multisensory correlations to provide people the perception that virtual objects are part of their physical experience, facilitate the capacity to create a replacement for reality experiences and evoke emotional and visceral responses, that in turn create strong, memorable experiences.

Developing 3D, fully immersive, interactive virtual reality simulation for workzone, where people can interact with objects and control features in the simulated workzone, can utilize the characteristics of VR described above to significantly enhance safety education, training and practice in the many various aspects of workzones. Simulation and interactivity design will allow for utilizing the simulated workzone for audiences such as young drivers, workzone workers, and other stakeholders and audiences of interest. It will also allow for simulating a variety of environmental conditions such as extreme weather conditions, different lighting and visibility conditions, and designs and placement of signage.

C. Estimated Cost: \$65,000

D. Project Schedule: 24 months