

State of Minnesota  
Department of Transportation

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**APPLICATION FOR  
SPECIAL EXPERIMENTAL PROJECT:**

**S.P. 8816-1765**

**State Aid S.P 088-0700-035**

**RURAL INTERSECTION CONFLICT  
WARNING SYSTEM (RICWS)**

**Indefinite delivery / indefinite quantity,  
(ID/IQ) contract**

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## **A—INTRODUCTION**

In 1995 Minnesota introduced its Toward Zero Death safety program. This program has demonstrated success in improving safety for the state's people with fatality rates decreasing over 35 percent. In keeping with the approach of focusing on countermeasures proven effective against crashes, MnDOT and its county partners have identified an on-going safety challenge at rural stop controlled intersections. Crashes at these intersections continue to represent a significant share of transportation fatalities and injuries throughout rural Minnesota. In 2010, 9,956 of 31,176 crashes and 63 of 411 fatalities occurred at stop controlled intersections. In response to this MnDOT and its partners have successfully completed in-state research projects and operation field tests of intersection conflict warning systems. To build on the success of these projects MnDOT has identified up to 150 rural, stop controlled intersections throughout Minnesota that could benefit from intersection conflict warning systems. Available funding allows MnDOT to address only a fraction of the potential intersections that could benefit from these systems.

## **B - PROJECT DESCRIPTION**

This project will install rural intersection conflict warning systems at high crash rate intersections throughout the state. MnDOT has reviewed available STAR safety criteria and five year crash data to establish a priority list to the approximate 150 rural intersections identified in our study that could benefit from a rural intersection conflict warning system. We have collaborated with counties in which these intersections are located to further vet the priority list. In this process many intersections have been eliminated. Currently there are approximately 100 intersections identified as candidates for installing an intersection conflict warning system. These intersections have been prioritized using the criteria mentioned above.

Under a design-build contract, intersection conflict warning systems will be designed to provide drivers with warnings that range in complexity from gap and speed to simple presence detection of approaching vehicles. Intersection conflict warning systems typically consist of static signing, detection and dynamic elements. As vehicle approaches the intersection on the major road, it is detected and a warning sign is activated for a vehicle waiting at the stop sign on the minor road. The opposite occurs to activate a warning sign for the vehicle on the major road.

The project is a combination of State Project (S.P.) 8816-1765, State Aid S.P. 088-0700-035. The current available funding for the project is \$2,500,000

## **C—PURPOSE**

The currently available funding is estimated to fund 20 locations of the identified 100 candidates. Through collaboration with counties and our district representatives there is markedly more interest in reviewing other potential sites. These factors have led MnDOT to consider an alternative format to contracting.

Each intersection conflict warning system at a given location will have a total design and construction cost may be in the \$60,000 to \$100,000 range. Because of this, soft costs associated with procuring individual locations can prove to be incrementally high compared to the work effort and material cost to design and install a location. This in conjunction with obtaining scalable design cost savings for groupings of multiple costs has lead MnDOT to the conclusion of an indefinite delivery / indefinite quantity contracting approach to enable MnDOT to incrementally add locations to a base contract up to an established period of time in order to capitalize on established unit costs, design efficiencies and procurement efficiencies.

The implementation of an ID/IQ approach will provide the following benefits:

- Ability to quickly add intersections as additional funding is secured.
- ID/IQ eliminates maintaining dissimilar systems let under different contracts.
- ID/IQ should motivate the contractor to provide a high quality product. If the contractor does not provide a high quality product, MnDOT has the option to re-let the additional intersections under a separate contract.
- Lower design and installation costs through competitive bidding compared to adding intersections via negotiated change orders.
- Allow MNDOT to capitalize on a single procurement process.

## **D—SCOPE**

The scope of this application is limited to the Rural Intersection Conflict Warning system program. Further it will be limited to a maximum number of 50 locations. Although there is markedly high interest by counties involved in this program to add additional locations, MnDOT will limit the initial contract to a maximum of 50 locations of either already identified locations or new locations from new interest if some of the already identified locations are rejected or removed from the list for other reasons.

Since this is a new concept to MnDOT, we are proposing the following plan to implement this concept:

1. The initial base contract will be for 20 locations.
2. Time constraints will be defined in the contract to a maximum of 3 years, 50 intersections, or \$6,000,000, whichever occurs first.
3. MnDOT will procure the contract through a two phase design-build best-value selection process.
  - a. Phase I (Request for Qualification) - The RFQ process will allow MnDOT to shortlist up to five proposers based primarily on proposers key personnel and history of performance on similar projects. The RFQ is attached as Appendix B.
  - b. Phase II (Request for Proposal) - The RFP process will allow MnDOT to select the contractor based on Best Value in accordance with our current statutes and federal , as

partially defined in these steps. The proposed best-value scoring criteria is included as Appendix C.

4. Proposers will be required to break their lump sum price for the initial base contract lump sum price into a schedule of values similar to Exhibit A. The schedule of values establishes the price for adding additional intersections under the ID/IQ concept.
5. Additional intersections will be added via the ID/IQ concept only after the following criteria are met
  - a. Funding for the additional sites have been encumbered.
  - b. Confirmation that the additional sites meet the project categorical exclusion criteria.
  - c. Local cost participation and/or maintenance agreements are executed

## **E—SCHEDULE**

This project is currently on schedule and will be ready for letting in January 2013. Construction will likely begin in the Spring of 2013 with substantial completion for the first 20 locations estimated for November 2013. To allow for additional locations to be added, MnDOT is considering an option to extend the contract two years from the expected substantial completion period. The following schedule lists the anticipated timelines:

- RFQ release – August, 2012
- RFP release – September, 2012
- Letting – November, 2012
- Contract Award and Execution – January 2013

## **F—MEASURES**

This innovation of ID/IQ contracting will be measured using the following:

1. The cost of the contract versus the engineer's estimate to determine the cost impact of ID/IQ.
2. The viability of the schedule of values for MnDOT to construct a location anywhere within the state.
3. The number of locations MnDOT adds to the contract.
4. The number of times MnDOT is able to add locations to the contract.
5. The ability for the Contractor to meet the initial substantial completion date of the base build out.
6. The ability of the Contractor to meet subsequent established substantial completion dates.

## **G—REPORTING**

MnDOT anticipates that it will file two reports; 1) at the end of award of contract and comments from industry and 2) after project completion and comments from the contractor. The reports will be submitted within 3 months after approval of the contract and after contract final acceptance.

In addition to documenting the measures outlined in Section F, the report will also include:

- contract complications encountered during the bidding process,
- industry reaction to the procurement process,
- estimated cost and time savings for added locations,
- contractor overall assessment of process,
- lessons learned, pitfalls to avoid, and suggestions for improvements on future innovative procurements, and
- contract complications encountered and claims made during construction.

MnDOT believes the procedures described herein will result in very successful project. MnDOT looks forward to working with the FHWA as the project progresses and to providing FHWA and others with the benefits of MnDOT's experience.

# Exhibit A PROPOSED Bidding Schedule of Values

## RICWS COST BREAKDOWN

Proposer Name:

Item/Line No.	Description	# of Sites	Unit	Item Total
<hr/>				
<b>2021.601</b>	<b>Mobilization</b>			
1	Region A - Mobilization	XX	Each	\$
2	Region B - Mobilization	XX	Each	\$
3	Region C - Mobilization	XX	Each	\$
4	Region D - Mobilization	XX	Each	\$
<hr/>				
TOTAL (must match item 2021.601)			<b>Lump Sum</b>	\$
<hr/>				
<b>2011.601</b>	<b>Design Services</b>			
1	Type I - Design	XX	Each	\$
2	Type II - Design	XX	Each	\$
3	Type III - Design	XX	Each	\$
4	Type IV - Design	XX	Each	\$
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TOTAL (must match item 2011.601)			<b>Lump Sum</b>	\$
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<b>2564.601</b>	<b>Traffic Signs and Devices Construction</b>			
1	Type I - Construction	XX	Each	\$
2	Type II - Construction	XX	Each	\$
3	Type III - Construction	XX	Each	\$
4	Type IV - Construction	XX	Each	\$
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TOTAL (must match item 2564.601)			<b>Lump Sum</b>	\$

Intersection lighting cost per intersection: MnDOT will divide the item 2545.601 (Electric Lighting Systems) by XX sites.

Boring under railroad costs per location: MnDOT will divide the item XXXX.601 (XXXXXX) by XX sites. Includes the cost of boring and hand holes on each side of the railroad R/W.

# **Exhibit B**

## **Request for Qualifications**

See Attached

# **Exhibit C**

## **Request for Proposal Best-Value Selection Criteria (DRAFT)**

### **4.2.4.4 Quality (XX Points)**

The Proposer shall provide a narrative describing their proposed RICWS system. Include:

- a description of the types of detection to be used, software, and hardware system components, along with the quality factors used for selection of these items.
- the advantages of your system,
- a narrative describing the reliability of each of the system components
- a description on how the system will withstand Minnesota climate,
- past examples of implementing the proposed system or system components (does not need to be from a transportation project). Include the name, title, and phone number of an owner representative. Include information regarding the quality control programs utilized on these implementations.
- a description on how replacement parts can be readily obtained by MnDOT for future maintenance

MnDOT will evaluate the following sub factors:

- Quality and reliability of the proposed system
- Ability of the proposed system to withstand Minnesota Climate
- Maintainability of the proposed system

### **4.2.4.5 Safety and Innovation (XX Points)**

#### **4.2.4.5.1 LED Blankout Signs (X Points)**

If the Proposal commits to installing a LED Blank-Out “TRAFFIC APPROACHING” sign on the minor roadway approaches at all Sites, the Proposer will receive X points.

#### **4.2.4.5.2 Exceeding Delay Alert Requirements (XX Points)**

The Proposer shall provide a narrative describing their commitment to meet or exceed the Mile per Hour (MPH) requirement for user-configurable and inactive lag timing whenever vehicle speeds are within +/- 10 MPH of the posted speed on the major road (excluding vehicles that may be decelerating to execute a turn at the intersection).

MnDOT will evaluate the following sub factors:

- 0 Points for meeting the minimum requirement
- Up to X points for exceeding the minimum requirement. MnDOT will evaluate the commitment and approach to exceeding the minimum requirement.

### **4.2.4.6 Schedule (XX Points)**

#### **4.2.4.6.1 Installation per Site (X Points)**

The Proposal shall include the Proposer’s number of Days to meet or reduce the maximum allowable time of 21 consecutive Calendar Days to complete all work including notification of Turn on Test (Test Case 6)

date at each Site. Points will be awarded based on the following formula:

$$\text{Point} = (\text{Lowest Proposer Time}) / (\text{Proposer Time}) * X$$

Where: Lowest Proposer Time = The lowest number of Days by any responsive Proposer

Proposer Time = number of Days by the Proposer

**4.2.4.6.2 Intermediate Completion Deadline #1 (X Points)**

The Proposal shall include the Proposer's date to achieve Intermediate Completion Deadline #1. Any date beyond the date specified in Book 1, Section 4.3.1.1 will be deemed non-responsive. Points will be awarded based on the following:

- Any date on or prior to August 15, 2013 will be given X Points.
- Any date between August 15, 2013 and December 1, 2013 will be prorated on a linear scale between X points (August 15, 2013) and 0 Points (December, 2013).