## UTC Project Information

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<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Implementation of a V2I Highway Safety System and Connected Vehicle Testbed</th>
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<tr>
<td><strong>University</strong></td>
<td>University of Minnesota</td>
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<tr>
<td><strong>Principal Investigator</strong></td>
<td>John Hourdos</td>
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| **PI Contact Information** | hourdos@umn.edu  
612-626-5492 |
| **Funding Source(s) and Amounts Provided (by each agency or organization)** |  
Minnesota Department of Transportation: $38,000  
Roadway Safety Institute (USDOT): $375,000  
Roadway Safety Institute-Office of the Dean, College of Science & Engineering: $49,925  
Roadway Safety Institute-Office of the Vice President for Research: $61,021 |
| **Total Project Cost** | $523,946 |
| **Agency ID or Contract Number** | UTC Grant Number: DTRT13-G-UTC35  
CTS# 2015037 |
| **Start and End Dates** | 8/1/2014 – 4/30/2018 |
| **Brief Description of Research Project** | *Final report abstract:*  
To better prepare for the Connected Vehicle (CV) roadway, RSI has established a CV testbed along a highly crashed section of I-94, building on the Minnesota Traffic Observatory’s existing field lab infrastructure. This real-world testbed was designed to implement and evaluate the next generation of vehicle-based freeway safety applications. The priority of this project was to establish the backbone of the sensor communication network and data collection system along the testbed length. |
| **Describe Implementation of Research Outcomes (or why not implemented)** | As part this project, Hourdos and his team have perfected a queue warning algorithm that is being considered for commercialization. The algorithm’s success also prompted the Minnesota Department of Transportation to fund implementations in more locations on Minnesota’s the freeway network.  
As part of this project, research related to queue warnings was transferred to an actual deployed system operated on I-94 by the Minnesota Department of Transportation. |
| **Impacts/Benefits of Implementation (actual, not anticipated)** | This project has impacted traffic engineering by developing the first-of-its-kind, real-time shockwave and queue warning system. It has also impacted human factors; the sensor systems developed for this project have since been used to evaluate work zone traffic control layouts and their effect on drivers. In addition, the data collected in the Connected Vehicle Testbed have already shed light on driver behavior and characteristics such as response time and preferred deceleration, as well as validated existing traffic flow models of shockwave |

Last updated (9/27/2019)
propagation.

This project established a new, unique field lab for the study of Connected Vehicle technology.

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