

ROADWAY SAFETY INSTITUTE

Advancing roadway safety with user-centered solutions

UTC Project Information	
Project Title	Investigation of the Impact the I-94 ATM System has on the Safety of the I-94 Commons High-Crash Area
University	University of Minnesota
Principal Investigator	John Hourdos
PI Contact Information	hourd001@umn.edu 612-626-5492
Funding Source(s) and Amounts Provided (by each agency or organization)	Minnesota Department of Transportation: \$140,000
Total Project Cost	\$140,000
Agency ID or Contract Number	UTC Grant Number: DTRT13-G-UTC35 MnDOT contract 99008 work order 65 CTS# 2013017
Start and End Dates	08/09/2012 – 08/31/2014
Brief Description of Research Project	<p><i>Final Report Abstract:</i> Active Traffic Management (ATM) strategies are being deployed in major cities worldwide to deal with pervasive system congestion and safety concerns. While such strategies include a diverse array of components, in the Twin Cities metropolitan area the deployment of the Intelligent Lane Control Signs (ILCS) allowed for the implementation of Variable Speed Limits (VSL). The VSL system in the Twin Cities aims to detect congestion and preemptively warn upstream drivers to reduce speed. By reducing the severe change in speed between upstream and downstream traffic, safety and operational benefits are sought. This report presents an investigation of the effect the I-94 VSL system has on the safety of the high frequency crash area located on the westbound lanes of the freeway through downtown Minneapolis (I-94/I-35W commons).</p> <p>This report describes several methodologies that were used to examine the impact of the VSL system within the I-94/I-35W commons high crash area. Numerous data sources were utilized, including video records of crash and near crash events, loop detector traffic measurements, machine vision sensor data, and actuations from the VSL system. A before-after approach was taken to examine the incident rates for crashes and near crashes using visually identified events within video data.</p> <p>Utilizing the unique capabilities of the Minnesota Traffic Observatory's I-94 Freeway Lab, high resolution traffic measurements, collected by machine vision sensors at the bottleneck location, were used within a new cross-correlation based analysis methodology to measure and visualize shockwave activity before and after the implementation of the VSL system.</p>

Last updated (9/30/2019)



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Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Based on the results of this project, and pending further investigation, the Minnesota Department of Transportation has suspended the operation of the Variable Speed Limits (VSL) system. The results of Dr. Hourdos' project show that the system only had a marginal effect and wasn't operating as well as it should be.
Impacts/Benefits of Implementation (actual, not anticipated)	See above.
Web Links <ul style="list-style-type: none">• Reports• Project website	http://www.cts.umn.edu/Research/ProjectDetail.html?id=2013017 http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2366