ROADWAY SAFETY INSTITUTE

Advancing roadway safety with user-centered solutions

UTC Project Information	
Project Title	Development of Guidelines for Work Zone Diversion Rate and Capacity Reduction
University	University of Minnesota Duluth
Principal Investigator	Eil Kwon
PI Contact Information	eilkwon@d.umn.edu 218-726-6452
Funding Source(s) and Amounts Provided (by each agency or organization)	Minnesota Department of Transportation: $107,000
Total Project Cost	$107,000
Agency ID or Contract Number	UTC Grant Number: DTRT13-G-UTC35 MnDOT contract 99008 work order 87 CTS# 2014004
Start and End Dates	05/23/2013 – 03/31/2016
Brief Description of Research Project	*Final report abstract:* This study develops a comprehensive guideline to estimate the traffic diversion rates and capacity reduction for work zones. The analysis of the traffic diversion patterns with data from past work zones in the metro freeway network in Minnesota resulted in a set of the diversion-estimation models that relate the diversion rates at freeway ramps with the travel times and speed levels on a freeway and alternative routes during construction. The interrelationship between diversion and work-zone traffic conditions has led to the development of an iterative process, where a freeway simulation model interacts with the diversion-estimation models until a convergence is achieved between diversion and resulting freeway delays. Freeval is adopted in this study as the simulation tool for freeways. The test results of the iterative process with the work zone data showed promising results in determining both the diversion rates and freeway delay for a given work-zone. Due to the types of the work zones used in developing the diversion models, the iterative process developed in this study can be applicable to only “two-toone” lane reduction cases in estimating the diversion rates for the mainline exit flows, while the diversion rates at entrance ramps can be determined without such restrictions. The capacity analysis of the lane-closure sections performed in this study has also resulted in a set of the suggested capacity values for the work zones with two-toone lane reduction.
Describe Implementation of Research Outcomes (or why not implemented)	Nothing to report.

Place Any Photos Here	
Impacts/Benefits of Implementation (actual, not anticipated)	Nothing to report.
Web Links • Reports • Project website	http://www.cts.umn.edu/Research/ProjectDetail.html?id=2014004 http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2516