

ROADWAY SAFETY INSTITUTE

Advancing roadway safety with user-centered solutions

UTC Project Information	
Project Title	Performance Measures for Bicycle and Pedestrian Safety: Methodologies for Monitoring Traffic Volumes and Assessing Exposure to Risk
University	University of Minnesota
Principal Investigator	Greg Lindsey
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Funding Source(s) and Amounts Provided (by each agency or organization)	Minnesota Department of Transportation: \$40,631 Roadway Safety Institute (USDOT): \$165,780 Roadway Safety Institute-Office of the Dean, Humphrey School of Public Affairs: \$19,736 Roadway Safety Institute-Office of the Vice President for Research: \$24,120
Total Project Cost	\$250,267
Agency ID or Contract Number	UTC Grant Number: DTRT13-G-UTC35 CTS# 2015026
Start and End Dates	7/1/2014 – 12/31/2017
Brief Description of Research Project	<p>Research priorities established by MAP-21 legislation with input from Region 5 state departments of transportation include traffic operational safety and identify bicyclists and pedestrians as high-risk road users. While the Minnesota Department of Transportation and other state DOTs have developed countermeasures and interventions to increase the safety of bicyclists and pedestrians, the effects of their efforts on risk, exposure to risk, and crash and fatality rates cannot be determined because state and local officials lack information about bicycle and pedestrian traffic volumes.</p> <p>This project is developing tools for estimating bicycle and pedestrian traffic volumes that can be used to inform assessments of exposure to risk. Researchers are collaborating with state and local agencies to conduct and analyze manual counts, deploy commercially available monitoring technologies, and collect and analyze bicycle and pedestrian traffic data. To date, researchers have estimated bicycle and pedestrian facility demand models from manual counts in Minneapolis (Hankey and Lindsey 2016, forthcoming (1)). Additionally, researchers have used counts of bicycle traffic and facility demand models estimated from those counts to characterize exposure to risk on the street network and assess crash risk in Minneapolis (Wang, Lindsey and Hankey, 2017(in revision)). Researchers also have used automated counts to assess the need for traffic controls at urban trail crossings in Minneapolis (Lindsey, Peterka, Wang, 2017(in revision)). Case studies in the smaller communities of Bemidji and Duluth involve analyses of bicycle counts and estimation of demand models similar to those estimated for Minneapolis.</p>

Last updated (5/2/2018)



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<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	<p>MnDOT traffic engineers and local bicycle, planning, and health staff are interested in the results of Greg Lindsey's study. The data and models developed in the project have already been used in local decision-making contexts and are being incorporated and replicated in other research projects.</p> <p>The Federal Highway Administration is distributing an early version of the bicycle demand model developed as part of this project in its Nonmotorized Planning Toolkit.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>Greg Lindsey reports impacts on the fields of traffic engineering and transportation planning related to this project:</p> <ul style="list-style-type: none">• Traffic Engineering: Project findings related to trail closings show that warrants for traffic signals and pedestrian hybrid beacons at these locations are most likely to be met on weekends. However, transportation engineers have historically focused on warrants during the weekday peak hours because it was assumed motorized and pedestrian traffic volumes were highest during that time. This research illustrates the importance of considering the need for controls during different time periods.• Transportation Planning: The models of exposure to risk developed as part of this project can be used by planners to identify locations that justify further, site-specific investigation to assess risk factors that may not be included in the models.
<p>Web Links</p> <ul style="list-style-type: none">• Reports• Project website	<p>http://www.roadwaysafety.umn.edu/research/search/projectdetail.html?id=2015026</p>

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