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Helping engineers make safety decisions

Countermeasures That Work

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HSRC News Briefs

HSRC seeking applications for \$1000 scholarship

NCSRTS awards 2008 James L. Oberstar Award

2008 HSRC Annual Report released

HSRC research assistant retires

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(Left to Right) Robert E. Skinner, Jr.; TRB, Jane Stutts; HSRC, Richard D. Blomberg; Dunlap and Associates, Inc., Lauren Marchetti; HSRC, Martin Levy; NHTSA, Charles Zegeer; HSRC, Yingling Fan; University of Minnesota, Libby Thomas; HSRC, Austin Brown; HSRC, Laura Sandt; HSRC, David Henderson; Miami-Dade Office of the County Manager, Robert Johns; University of Minnesota CTS.



(Left to Right) Robert E. Skinner, Jr.; TRB, Nancy Lefler; VHB, Frank Gross; VHB, Forrest Council; HSRC, Bhagwant Persaud; Ryerson University, Craig Lyon; Ryerson University, Robert Johns; University of Minnesota CTS. Not pictured Raghavan Srinivasan, HSRC.

Researchers from the UNC Highway Safety Research Center have received two of the six awards given by the Transportation Research Board (TRB) for outstanding published research in transportation safety. The Patricia F. Waller Award and the D. Grant Mickle Award were presented to Center researchers on January 13, 2009, at the 88th Annual TRB Meeting in Washington, DC. Award winners were selected from approximately 2800 submitted papers from around the world.

"Evaluation of the Miami-Dade Pedestrian Safety Demonstration Program" received the 2008 Patricia F. Waller Award for the outstanding paper in the field of safety and system users. The study aimed to implement a comprehensive program to reduce pedestrian deaths and injuries in a large urban environment. Results of the program showed that the pedestrian safety program reduced countywide pedestrian crash rates by between 8.5 percent and 13.3 percent, depending on which control group was used.

Study authors include Charles V. Zegeer, Scott Vincent Masten, Lauren Marchetti, Laura S. Sandt, Austin Brown, Jane Stutts, and Libby J. Thomas, of the UNC Highway Safety Research Center; Richard D. Blomberg of Dunlap and Associates, Inc., Connecticut; David Henderson of the Miami-Dade Office of the County Manager; Martin M. Levy of the National Highway Traffic Safety Administration; and Yingling Fan of the University of Minnesota.

"Safety-Effectiveness of Selected Treatments at Urban Signalized Intersections" received the D. Grant Mickle Award for the outstanding paper in the field of operation, safety, and maintenance of transportation facilities. In the study, researchers conducted a before-and-after evaluation of four types of treatments at signalized intersections. Results indicated that changing to protected left-turn phasing from permissive or permissive-protected phasing could lead to a virtual elimination of left-turn crashes.

The authors of the paper are Raghavan Srinivasan and Forrest M. Council, of the UNC Highway Safety Research Center; Frank Gross, and Nancy X. Lefler, of Vanasse Hangen Brustlin, Inc., Raleigh, North Carolina; and Craig Lyon and Bhagwant Persaud, of Ryerson University, Ontario, Canada.

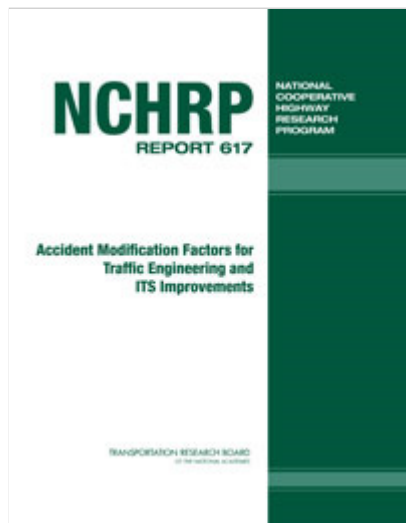
"Evaluation of the Miami-Dade Pedestrian Safety Demonstration Program" will be published in the Transportation Research Record: Journal of the Transportation Research Board, No. 2084. For more information on the NHTSA-funded study Evaluation of the Miami-Dade Pedestrian Safety Demonstration Program, please [download the final report](#) (PDF 5.4 MB).

"Safety-Effectiveness of Selected Treatments at Urban Signalized Intersections" has been published in the Transportation Research Record: Journal of the Transportation Research Board, No. 2056. For more information on this study, please visit http://www.trb.org/news/blurb_detail.asp?id=8965.

The Patricia F. Waller Award was established in 2004 in memory of Waller, a UNC professor who worked for nearly two decades as a researcher at the UNC Highway Safety Research Center. The D. Grant Mickle Award was established in 1976 and honors the fifth executive director of TRB.

Helping engineers make safety decisions

Transportation planners and engineers use accident modification factors (AMFs), also known as crash reduction factors (CRFs), to estimate the impact certain roadway treatments, such as a traffic signal, could have in reducing crashes. AMFs are used as a tool in the decision-making process of which treatments to implement and can also help in conducting a cost/benefit analysis of alternative treatments.



Researchers at the UNC Highway Safety Research Center have done significant work in the development, analysis and modification of AMFs. In 2003, HSRC researchers joined other highway safety experts as part of [National Cooperative Highway Research Project \(NCHRP\) 17-25](#) to examine AMFs and their effectiveness. HSRC recently completed that effort, which resulted in the [NCHRP Report 617: Accident Modification Factors for Traffic Engineering and ITS Improvements](#). The report outlines 35 AMFs that are deemed to be of high or medium-high quality.

HSRC researchers also contributed to the FHWA-sponsored low-cost safety improvements pooled fund study. This ongoing study is meant to evaluate low cost treatments identified as safety strategies in the NCHRP Report 500 Guides. The overall goal of the study is to provide a CRF and benefit/cost economic analysis for each of the targeted safety strategies, and to learn and improve the process to assist in the field implementation of these safety strategies.

In Phase 1 of the study, HSRC researchers evaluated the safety impact of installing flashing beacons at stop-controlled intersections. The approach utilized the empirical Bayes method that compared the frequency, type, and severity of crashes before and after implementation of the treatment. The evaluation used data from North and South Carolina and showed that flashing beacons can be effective in reducing angle crashes at rural stop controlled intersections. In Phase 2 of the study that is currently ongoing, HSRC researchers are examining the safety effect of improving delineation on

horizontal curves. Data from Connecticut and Washington are being used for this evaluation.

"Through this research being conducted at HSRC, transportation engineers now have access to additional research-based information to help make sound safety decisions," said David Harkey, HSRC director.

The development of AMFs will also contribute to future safety policies and guides, including the [Highway Safety Manual \(HSM\)](#). With an expected completion date of early 2010, the HSM is meant to provide practitioners with the best factual information and tools to facilitate roadway design and operational decisions based on explicit consideration of their safety consequences. Currently, there are no such widely accepted tools available for agencies responsible for managing the safety of U.S. roadways. HSRC staff recently reviewed and updated the AMFs that will be included in the first edition of the HSM.

The Center has also expanded its work in this area to include information dissemination. The Center has been awarded a contract with the Federal Highway Administration to develop an informational Web site that will contain a centralized database of AMFs. The Web site will be continuously updated to provide the most recent information available, will include a mechanism for practitioners and researchers to submit AMFs for potential inclusion on the site, and will provide resources on the application of AMFs.

Countermeasures That Work



HSRC researchers have revised and updated the 4th edition of *Countermeasures That Work*, a reference guide to assist State Highway Safety Offices in selecting effective, science-based traffic safety countermeasures for major highway safety problem areas. Researchers who prepared this edition include Arthur H. Goodwin, William L. Hall, J. Craig Raborn, Libby J. Thomas, and Mary Ellen Tucker. In this Fourth Edition, the chapter on seat belts has been expanded to include child passenger safety.

Funded by the National Highway Traffic Safety Administration, the guide contains a chapter for each problem area, including alcohol-impaired driving, seat belt use, aggressive driving and speeding, distracted and fatigued driving, motorcycle safety, young drivers, older drivers, pedestrians and bicyclists. Each chapter begins with a brief overview of the problem area, the main countermeasure strategies, a glossary of key terms and a few general references.

Countermeasures That Work will be updated on an annual basis. Users are invited to provide their suggestions and recommendations for the guide including how it can be improved and what additional problem areas should be included. To provide comments or suggestions, please contact NHTSA at countermeasuresthatwork@nhtsa.dot.gov.

[Download a PDF of Countermeasures That Work](#)

HSRC News Briefs

HSRC seeking applications for \$1000 scholarship

The UNC Highway Safety Research Center (HSRC) is seeking scholarship applications from graduate students with an interest in the field of highway safety.

The \$1,000 scholarship is available to a full-time graduate student with an interest in transportation safety who will be enrolled in the fall of 2009 at any of the University of North Carolina campuses. Candidates will be evaluated based on academic performance, extracurricular and professional activities and work experience. Applicants will also be asked to explain how their field of study could be used to prevent motor-vehicle-related deaths and injuries.

The purpose of the Highway Safety Research Center Scholarship is to foster the education and professional development of graduate students with an interest in transportation safety-related areas, including, but not limited to, engineering, driver behavior, planning, public health and environment.

HSRC awarded the 2008 scholarship in July to Kathryn Martin, a graduate student at UNC Chapel Hill studying in the School of Public Health. Her dissertation research is on the influence of community resources on North Carolinians' health-related quality of life and functional health status, including accessibility and availability of public transportation for senior citizens in North Carolina.

The deadline for applications is April 1, 2009.

For more information on the HSRC Scholarship and to download an application, please visit <http://www.hsrc.unc.edu/scholarship>.

The scholarship recipient will be announced in June 2009.

NCSRTS awards 2008 James L. Oberstar Award

The National Center for Safe Routes to School, one of HSRC's national-level information clearinghouses, announced that Bear Creek Elementary School in Boulder, Colorado, is the recipient of the 2008 James L. Oberstar Award. The school's Safe Routes to School program involves 70 percent of students in walking and bicycling activities throughout the year.

A City of Boulder study conducted during the first year of the school's Car-Free Commute program (2007–2008) showed a 36 percent reduction in cars and corresponding traffic congestion. During the program's second year, students accrued 4,800 miles from 6,600 Car-Free Commute trips in a single month (September 2008).

Bear Creek Elementary School, one of the first in the country to have walking school buses throughout the school year, keeps track of students' travel through monthly tallies. Kent Cruger, principal at Bear Creek Elementary, challenges students daily with his own examples of car-free travel.

"I am extremely proud of the Safe Routes to School program at Bear Creek Elementary," says Congressman James L. Oberstar, after whom the award is named. "The students, parents, faculty, and staff have given us an outstanding example of how we can change the lifestyle habits of an entire generation. I heartily congratulate the Bear Creek community for its achievements and would like to see it become a model for Safe Routes to School programs across the country."

The award is named for Congressman Oberstar (D-MN) to honor his dedication to American school children as the pioneer for the National Safe Routes to School Program. Oberstar, current Chairman of the House Transportation and Infrastructure Committee, sponsored the Safe Routes to School legislation that strives to create safe settings to enable more parents and children to walk and bicycle to school.

For more information, please visit http://www.saferoutesinfo.org/news_room/oberstar_award.

2008 HSRC Annual Report released

The UNC Highway Safety Research Center has released its 2008 Annual Report. The report covers the program areas and new initiatives the Center embarked upon for the 2008 fiscal year (July 1, 2007 – June 30, 2008).

During this time, the Center took on some significant milestones in highway safety, including the first-ever evaluation of a state law banning cell phone use among teenage drivers, the completion of an international research exchange that was the first of its kind for HSRC, and the conclusion of a nearly decade-long study on pedestrian safety in large, urban environments.

To download the report, please visit http://www.hsrc.unc.edu/news_room/annual_reports.cfm.

HSRC research assistant retires

HSRC Statistical Research Assistant Charles Hamlett, who has worked on and off for the Center since 1997, retired in January 2009. Referred to as a "jack of all trades" by co-workers, Charles worked on a variety of highway safety-related projects during his tenure with HSRC. He was responsible for coding approximately 15,000 crash reports for inclusion in the Pedestrian and Bicycle Crash Analysis Tool (PBCAT). His work has also included traveling across the country for data observation. Hamlett received his B.S. in Electrical Engineering from N.C. State University. Charles has been a real asset to the Center and will be hard to replace. We wish him all the best in his retirement.
