ANNUAL REPORT **2012**

CONTENTS

MESSAGE FROM THE DIRECTOR

In the past year, the UNC Highway Safety Research Center (HSRC) celebrated a milestone in child passenger safety in North Carolina, organized a symposium to tackle the growing speed and safety problem on the state's roadways, expanded our professional development offerings, and continued to conduct evaluations of safety policies and interventions nationwide. Please read Center Highlights in this report for more details.

Our feature story in this year's report focuses on pedestrians and bicyclists. In the 1990s, bicycling and walking were described as "the forgotten modes" of transportation by the Federal Highway Administration (FHWA) because of the dramatic decline in their use as modes of transportation. In 2012, that is no longer the case. Thanks in part to great efforts made and research conducted focusing on pedestrians and bicyclists, there has been a significant shift in attention to walking and bicycling over the past 20 years. We are proud to be a part of this effort.

HSRC has been a leader in the field of pedestrian and bicycle safety over the past two decades – conducting groundbreaking research and developing innovative resources in the ped/bike area for transportation professionals and advocates since the early 1990s. HSRC staff have created research-based tools and resources to support and inform other researchers, roadway professionals, advocates, local supporters and community members across the country.

In 1994, HSRC researchers produced the first-ever *National Bicycling and Walking Study*, which outlined a plan of action to promote walking and bicycling as a viable transportation option for all Americans. In 1997, the first Walk to School Day was organized as part of the Partnership for a Walkable America, an organization housed within HSRC. The Center then was selected to run two national clearinghouses important to the movement; the Pedestrian and Bicycle Information Center (PBIC) in 1999, and the National Center for Safe Routes to School in 2006. In addition, our work, paired with simultaneous efforts of partners across the country, has led to great policy change at the local, state and national level.

The Center demonstrated its leadership in the ped/bike world with the creation of the Walk Friendly Communities recognition program in 2011 and the first-ever National Bike to School Day in 2012. I hope you'll read more about both of these programs in the feature article of this annual report.

HSRC remains committed to encouraging walking and biking across the country and to help local, state and federal officials better understand how pedestrians and bicyclists fit into the larger need to have the facilities in place to accommodate all road users.

As we look ahead to 2013 and beyond, HSRC will continue to work on existing pedestrian and bicycling initiatives, and we will begin new efforts.

Where better to start than at home. In the coming year, HSRC will provide support for North Carolina's adoption of a statewide Complete Streets policy, which promotes roadway designs that safely accommodate all road users including motorists, transit riders, pedestrians and bicyclists. We will also work with the North Carolina Department of Transportation on its Watch for Me NC campaign, a campaign specifically targeted to reducing the number of pedestrians hit and injured in crashes with vehicles.

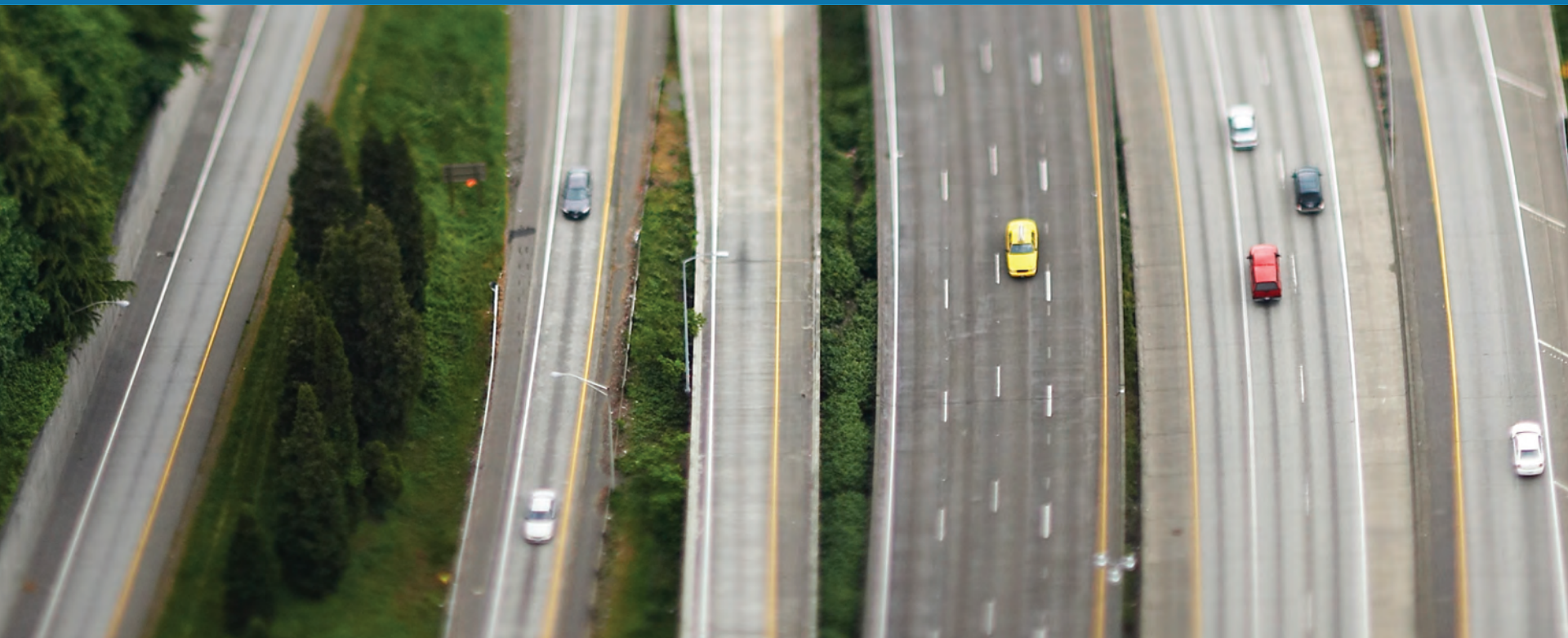
HSRC is fortunate to employ some of the brightest minds and leading researchers in the field of transportation safety, and I am inspired by the dedication of my colleagues who work tirelessly every day striving to make it not only a possibility but a reality for citizens across North Carolina and the country to safely walk and bike in their communities.

Pedestrian and bicycle safety is an important piece of HSRC's heritage and I'm honored to be a part of it. As citizens of North Carolina, we should all be proud of the work that has been and continues to be done here at the Center.

We look forward to continuing our work in this area in the years – and decades – to come. There is still much more to be done.

DAVID HARKEY, DIRECTOR

OUR MISSION



The mission of the University of North Carolina Highway Safety Research Center (HSRC) is to improve the safety, sustainability and efficiency of all surface transportation modes through a balanced, interdisciplinary program of research, evaluation, and information dissemination. For more than 45 years, HSRC has been a leading research institute that has helped shape the field of transportation safety.

HSRC CONTRIBUTIONS AT A GLANCE

- Released more than **35 publications and presentations** on a variety of topics, from parental awareness of supervised driving requirements for beginning drivers to leveraging the health benefits of active transportation
- Generated **more than $16 in revenue** for every $1 of support provided by the state of North Carolina
- Awarded HSRC's **fifth annual scholarship** to encourage more interest among graduate students in the field of highway safety
- Awarded **13 Walk Friendly Community designations**, bringing the total number of communities recognized since the program's launch in April 2011 to 24 (as of June 30, 2012)
- Launched the first-ever **National Bike to School Day** in May 2012

CENTER HIGHLIGHTS

HSRC continuously works on issues that affect all road users – from motorists and motorcyclists to bicyclists and pedestrians. Our research is ongoing to ensure the most current information is available to decision makers and citizens across North Carolina and the entire country.
The following items highlight a selection of HSRC project accomplishments and milestones from the reporting period for this annual report (July 1, 2011-June 30, 2012).

TRAFFIC OPERATIONS AND ROADWAY DESIGN

Sharing safety data

Safety data is a critical component of the transportation world. For example, researchers can examine the impact of engineering countermeasures made to an existing roadway to inform transportation professionals about the best way to address safety concerns in another situation or location.

In 2011, HSRC researchers and staff continued to distribute this kind of information via the CMF Clearinghouse, **www.cmfclearinghouse.org**, a web-based database of crash modification factors (CMFs), which is supported by the FHWA. The CMF Clearinghouse grew tremendously in the past year; HSRC staff reviewed and added more than 300 CMFs to the searchable database and planned four focus groups to identify areas of improvement for the Clearinghouse. These CMFs are easily accessible to enable transportation professionals across the country to make more informed decisions when estimating or comparing the safety effectiveness of a roadway feature or countermeasure, as well as when conducting a cost-benefit analysis.

Providing national and state guidance

Through several different projects and activities over the past year, HSRC work provided state and national guidance for traffic operations and roadway design.

HSRC researchers and staff worked to support the Roadway Safety Data Partnership (RSDP)— a collaborative effort between FHWA and states to ensure that they are best able to develop robust data-driven safety capabilities. As a part of the larger project team, HSRC conducted interviews with department of transportation staff from 13 states to evaluate the status of their crash and roadway data, and their ability to use that data in safety management and evaluation studies. This work and analysis will help guide FHWA as the agency develops future program support, technical support and guidance to assist the evolution of data-driven safety planning across the country.

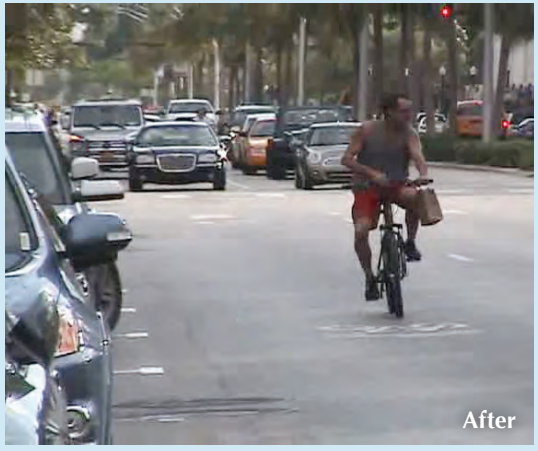
MORE ABOUT RSDP

Learn more about RSDP and individual state's assessments at **http://safety.fhwa.dot.gov/rsdp/** .

At the state level, HSRC staff prepared the North Carolina Highway Safety Plan for the Governor's Highway Safety Program (GHSP) and GHSP's Annual Report to help prioritize and inform funding decisions for road safety. The HSRC team also created a strategic plan for the North Carolina Traffic Records Coordinating Committee (NCTRCC). The guidance provided in this plan will enable NCTRCC to better measure its success in providing accurate and complete traffic records data, and encourage an environment of collaboration. The driving goal of the GHSP, NCTRCC and HSRC's work is not only to set forth more informed state guidance but, more importantly, to reduce traffic fatalities, injuries and crashes in North Carolina.

Evaluating roadway markings

In early 2012, HSRC researchers completed a study on bicycle-motor vehicle crashes along a main arterial traffic corridor near Miami Beach, Fla., finding that "doorings" were the most prominent reason for the crashes. A dooring occurs when the door of a parked car is suddenly opened into the path of a bicyclist who is riding too close to the parking lane. The research team found that the percentage of bicyclists positioned near parked vehicles decreased from 71 to 55 percent after shared lane markings were installed. There was also an increase of about 10 inches between bicyclists and parked motor vehicles after the introduction of the shared lane markings – allowing bicyclists to ride outside of the "door zone." This is great news for the safety of Miami Beach bicyclists and these findings provide evidence of an effective countermeasure for other localities with similar issues.



RESEARCH RESULT

In Miami Beach, Fla.: After shared lane markings were installed to address potential "doorings," the percentage of bicyclists riding near parked vehicles decreased from 71 to 55 percent.

HSRC studied another kind of roadway marking as a part of researchers' work on the Highway Safety Information System (HSIS) project. Specifically, the safety impact of transverse rumble strips (TRSs) on approaches to stop-controlled intersections was examined. TRSs typically consist of grooves crossing the roadway surface to provide a tactile (or physical) and audible warning for drivers. This engineering countermeasure is often used to warn drivers in rural areas that they are approaching a stop sign.

HSRC researchers found that TRSs may be effective in reducing severe injury crashes at minor road stop-controlled intersections, possibly as a result of reduced speeds. However, it is important to recognize that, coupled with the reduction in fatal and severe injury crashes, there was an increase in crashes that resulted in property damage only. While it was not possible to determine the reasons for this tradeoff, a limited economic analysis indicated a reduction in crash harm of about $6,600 per intersection per year due to the installation of TRSs.

DRIVER BEHAVIOR

Studying young drivers

HSRC continues to be a leader in young driver research through work at the Center for the Study of Young Drivers (CSYD). Sometimes in research, what you don't find can be just as informative as what you do find. This year, the CSYD published a study on teen driver cell phone use where this was indeed the case.

In 2006, North Carolina implemented a law restricting cell phone use among teen drivers. Over a two-year period from 2006 to 2008, researchers observed cell phone use among more than 18,000 teen drivers in North Carolina and South Carolina. In both states, there was a general decrease in cell phone use, but there was no significant difference between North Carolina, which did have a statewide cell phone restriction, and South Carolina, which did not.

Observers in North Carolina also tracked how teens were using their cell phone. Over the study period, there was a 24 percent decrease in teens talking on a phone while driving and a 39 percent increase in teens operating a cell phone manually (e.g., texting).

The study found that North Carolina's cell phone restriction has been ineffective, and that young drivers seem to be exchanging one potentially dangerous behavior – talking on a cell phone while driving – for another behavior that is substantially more dangerous – texting while driving.

Although the cell phone restriction did not have its intended effect of decreasing distracted driving among NC's youngest drivers, CYSD researchers emphasized the need for additional research on ways to enhance the restriction. Laws alone seldom change behavior. A comprehensive approach was implemented for North Carolina's Click It or Ticket program, an education and enforcement effort to promote the state's seat belt laws that started in the early 1990s. A similar multi-pronged effort may be needed to reduce distracted driving among young people.

The study was published in the journal *Accident Analysis and Prevention*.

OTHER CSYD REPORTS AND ARTICLES

The Effect of Passengers on Teen Driver Behavior (National Highway Traffic Safety Administration)

Graduated Driver Licensing and Fatal Crashes Involving 16-19-Year-Old Drivers. (Journal of the American Medical Association)

The Role of Supervised Driving Requirements in Graduated Driver Licensing Programs (National Highway Traffic Safety Administration)

Distracted Driving Among Newly Licensed Teen Drivers (AAA Foundation for Traffic Safety)

Measuring Changes in Teenage Driver Crash Characteristics during the Early Months of Driving (AAA Foundation for Traffic Safety)

Supervised Hours Requirements in Graduated Driver Licensing: Effectiveness and Parental Awareness. (Accident Analysis & Prevention)

The Transition to Unsupervised Driving (AAA Foundation for Traffic Safety)

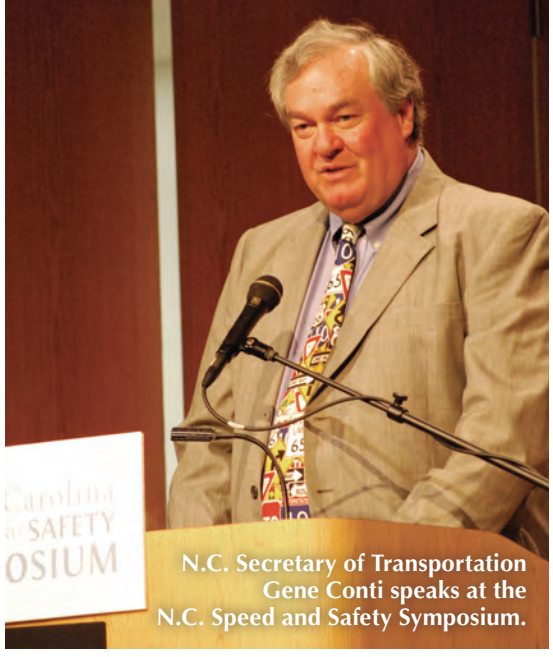
Learn more about CSYD's research at **www.csyd.unc.edu/projects**.

Addressing dangerous speeds

Nearly 5,000 people lost their lives in speeding-related crashes in North Carolina during the past ten years and nearly twice as many suffered disabling injuries. Speeding and speed-related crashes, injuries, and fatalities are a problem on all types of roads in North Carolina, including urban and rural roads.

In October 2011, HSRC held a Speed and Safety Symposium in Raleigh to bring this safety issue to the forefront. The Symposium featured presentations by international experts on effective speed management practices worldwide, as well as presentations on crashes and other issues in North Carolina.

The following day a stakeholders meeting involving the North Carolina Department of Transportation, HSRC project team members, speed and safety experts, and officials and representatives from nine other North Carolina agencies and a legislative task force, met to continue discussing potential speed management strategies and research needs. This group was able to identify key issues that need to be addressed and HSRC has submitted recommendations for the state to consider to continue improving speed management practices and policies. Addressing speed is a key component to creating livable communities and safe roadways for all users.



N.C. Secretary of Transportation Gene Conti speaks at the N.C. Speed and Safety Symposium.

DID YOU KNOW?

Speed-related crashes result in a higher number of injuries and fatalities than crashes involving alcohol in North Carolina.

Persons injured in crashes, 2007-2011

Speed-related	11.6%
Alcohol-related	8.1%

Child Passenger Safety

March 2012 marked a milestone for child passenger safety (CPS) in North Carolina – the 35th anniversary of the state's CPS program and the 30th anniversary of the first North Carolina CPS Conference. The North Carolina CPS Conference provides continuing education and networking opportunities to Nationally Certified CPS Technicians, advocates, and educators.

The 2012 CPS Conference – planned and coordinated by HSRC, the North Carolina CPS Training Committee, the North Carolina Department of Insurance Office of State Fire Marshal, and the North Carolina Governor's Highway Safety Program – was attended by more than 320 participants.

North Carolina's CPS program is considered by many to be one of the strongest in the country. This fact is particularly important for HSRC since the Center and several staff have been and continue to be involved in the effort at a state and national level since child passenger safety efforts began in the late 1970s.

PEDESTRIAN AND BICYCLE SAFETY

Encouraging active transportation

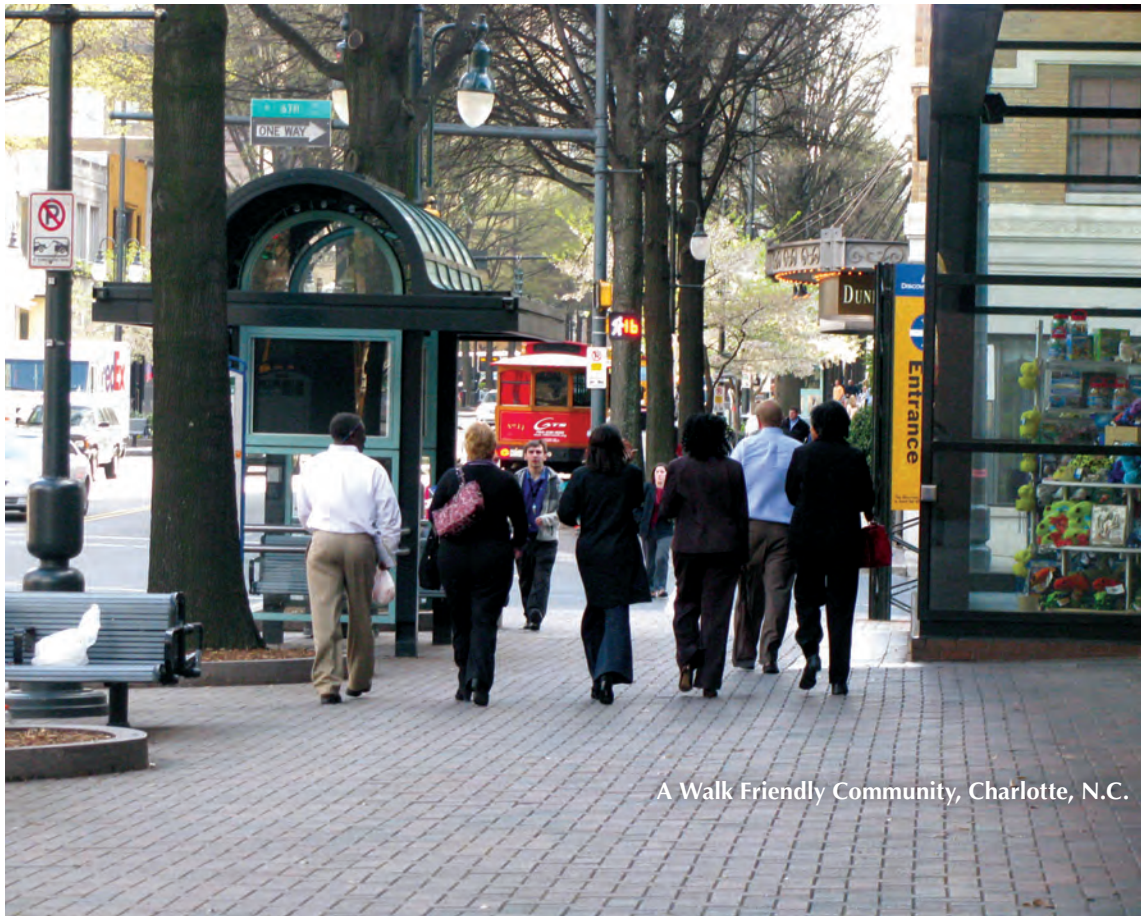
The past year brought many exciting firsts for the National Center for Safe Routes to School, including the launch of the first-ever National Bike to School Day in May. This event encouraged communities across the country to join together to organize bike rides to school. As part of this event, the National Center also launched a new GIS-powered route mapping tool, Map-a-Route (**http://maps.walkbiketoschool.org**), and a pilot peer-to-peer assistance program for Safe Routes to School State Coordinators.

In addition, the Walk Friendly Communities (WFC) program, administered by the Pedestrian Bicycle Information Center (PBIC), continued to recognize cities for their efforts to create walkable communities.

For more about both of these efforts, read the feature article, "Two New HSRC Programs Encourage U.S. Communities to Walk and Bike," on page 16.

Lyndale Community School, Minneapolis, Minn.


Forest Park Elementary, Little Rock, Ark.



A Walk Friendly Community, Charlotte, N.C.

SUPPORTING THE TRANSPORTATION SAFETY PROFESSION

Providing professional development

Since opening its doors in 1966, HSRC has provided training on a local, state and national level, developing a reputation for high quality training materials and sessions. That focus and commitment to professional development – both in-person and online – continued this year.

In October 2011, the Road Safety Academy (RSA), the training arm of HSRC, launched Road Safety 101, an online certificate course that teaches the fundamentals of successful road safety programs and contributing crash factors, and an understanding of data collections and systems. Seasoned HSRC researchers and staff served as instructors. This pilot program enrolled 20 students from a large pool of applicants. Based on feedback from this initial course, the program will be expanded over the next several years to meet the needs of transportation professionals in the private and public sector.

The PBIC offered several webinars this year, including sessions featuring the updated American Association of State Highway Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities. The free, seven-part webinar series covered all aspects of the guide, which serves as a key resource for creating and designing bicycle facilities in the U.S. For more information, visit **www.walkinginfo.org/webinars**.

The National Center for Safe Routes to School held 13 webinars for SRTS practitioners and taught two SRTS National Course Instructor trainings, training 25 new instructors. To date, 243 professionals have participated in a SRTS National Course Instructor Training. The National Center also held its first Peer Exchange with the topic of including tribal nations in SRTS programs. Eight states participated in the meeting, which was held in conjunction with the Bureau of Indian Education's annual Summer Institute meeting in Denver.

In addition to project-related training and development activities, HSRC staff remains active in supporting the University of North Carolina-Chapel Hill as guest lecturers and in the larger transportation safety sphere by serving as manuscript reviewers for a number of professional publications.

Safe Routes to School National Course Instructor Training, Sterling, Va.

FIND OUT MORE

Visit HSRC's Road Safety Academy to learn about upcoming training sessions, webinars and other opportunities at **www.rsa.unc.edu**.

SUPPORTING THE TRANSPORTATION SAFETY PROFESSION

Protecting young passengers

Some of HSRC's professional development activities are very hands-on, particularly when it comes to teaching about protecting children.

This year, as a part of the Child Passenger Safety (CPS) program, HSRC helped coordinate the training of several hundred certified CPS Technicians. This training provides the technical and instructional skills needed to serve as occupant protection resources for their organization, community or state. Certification courses combine classroom instruction, hands-on work with car seats and vehicles, and community CPS check-up events, where students demonstrate proper use and installation of child restraints and safety belts and then teach these skills to parents.

RECALL UPDATES

Browse the latest child safety seat recalls at **www.hsrc.unc.edu/safety_info/child_passenger_safety/child_restraint_recalls.cfm**.

HSRC maintains the website **www.buckleupnc.org**, including links to up-to-date safety seat recall information, and supports a host of other ongoing activities for this project.

Recognizing young professionals

HSRC takes pride in recognizing students with innovative ideas in the field of highway safety. In July, HSRC awarded the 2011 Megan Cornog Memorial Highway Safety Scholarship to Zachery Bugg, a transportation systems engineering student at North Carolina State University. The purpose of the annual $1,000 scholarship is to foster the education and professional development of graduate students with an interest in transportation safety-related areas. The scholarship is named in memory of a former HSRC staff member, Megan Cornog, who died in 2010 after a courageous battle with cancer.

FINANCIAL REPORT

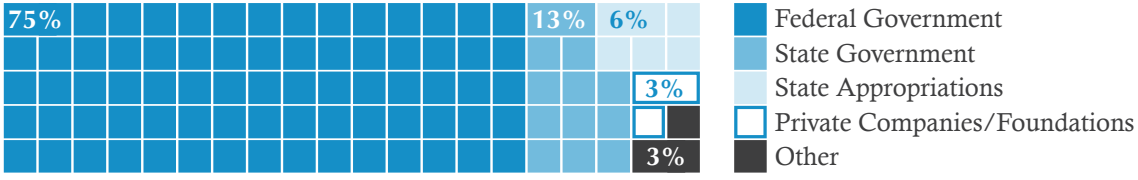
The UNC Highway Safety Research Center (HSRC) was established by the North Carolina General Assembly in 1965 and began operation on the UNC-Chapel Hill campus the following year. For more than 45 years, the Center has expanded its funding sources to include an array of public and private sector organizations that have a common interest in making our surface transportation system safer.

HSRC is a part of the UNC system, located on the UNC-CH campus. Work is funded through state and national level project monies.

For each dollar appropriated to HSRC by the state of North Carolina in FY12, HSRC staff generated $16 in research and program funding. External revenues to support the mission of HSRC were received from contracts, grants, cooperative agreements and donations.

HSRC is pleased to have the opportunity to work with a diverse group of government, non-government, corporate and foundation sponsors, including:

FY2012 Funding Sources



U.S. and International Government Sponsors

- American Association of State Highway and Transportation Officials
- British Columbia Ministry of Transportation
- California Department of Transportation
- Florida Department of Transportation
- Kansas Bureau of Traffic Safety
- Kansas Turnpike Authority
- Land Transport New Zealand/The Beca Group
- National Institutes of Health
- National Institute on Alcohol Abuse and Alcoholism
- National Institute of Child Health and Human Development
- New York Department of Transportation
- North Carolina Department of Transportation
- North Carolina Governor's Highway Safety Program
- Traffic Injury Research Foundation of Canada
- Transportation Research Board of the National Academies
- U.S. Centers for Disease Control and Prevention
- U.S. Department of Transportation
  - Federal Highway Administration
  - National Highway Traffic Safety Administration
- U.S. Environmental Protection Agency
- Volpe National Transportation Systems Center
- Wisconsin Department of Transportation

Corporate and Foundation Sponsors

- AAA Foundation for Traffic Safety
- AAA Kansas
- FedEx Corporation
- General Motors
- Green Works
- Insurance Institute for Highway Safety
- John Rex Endowment
- Motorcycle Safety Foundation
- National Safety Council
- Robert Wood Johnson Foundation
- Safe Kids Worldwide
- Society for the Advancement of Violence and Injury Research
- State Farm Insurance Company

Two New HSRC Programs Encourage U.S. Communities to Walk and Bike

Safety and transportation aren't just about vehicles. All users of a roadway need to be considered – including pedestrians and bicyclists. Fortunately, this is not a new concept at HSRC. Researchers and staff have been leading the way in this space for more than two decades.

In the past year, HSRC has developed two innovative programs to encourage communities to embrace and celebrate active transportation on one specific day and every day. National Bike to School Day and Walk Friendly Communities help communities identify, promote and evaluate biking and walking environments.

Both efforts also help illustrate HSRC's commitment to more, safer walkable and bikable communities across the country.

The National Center's director, Lauren Marchetti, kicks off the first National Bike to School Day in Takoma Park, Md.

National Bike to School Day

On May 9, 2012, the first-ever National Bike to School Day shifted straight into high gear with 950 events in 49 states across the country. Across the U.S., children, families, community leaders, educators and guests bicycled to school to promote safer routes to school, cleaner air and healthier habits.

WHY WALK OR BIKE TO SCHOOL?

Walking or bicycling to school gives children time for physical activity and a sense of responsibility and independence. It also creates an opportunity to be outdoors and provides time to connect with parents, friends and neighbors.

"We knew there was support for a bike to school day, as many local bike-focused events have been held in the past," said Lauren Marchetti, director of the National Center for Safe Routes to School, which coordinates National Bike to School Day. "But the turnout for this first-time event was spectacular! We couldn't be more pleased with how many communities and families came together to promote biking to school."

The event was coordinated by the National Center as a part of the League of American Bicyclists' National Bike Month. Many communities and schools

Vista Del Sur, Ariz.

had been holding spring walk and bicycle to school events for years, but National Bike to School Day provided the first opportunity for schools across the country to join together on one special day to celebrate the many reasons that biking to school is important.

Bike to School Day builds on the popularity and success of International Walk to School Day, which is celebrated across the country – and the world – each October. The National Center continues to coordinate Walk to School events in the U.S. each October. In 2011, participation reached a record high with more than 4,000 registered Walk to School Day events from all 50 states and the District of Columbia.

In Washington, D.C.'s Lincoln Park, David Strickland, National Highway Traffic Safety Administration (NHTSA) administrator, joined students from Capitol Hill schools to officially launch National Bike to School Day and awarded "National Bike to School Day Pioneer" medals to students.

Ann Arbor, Mich.

Walk Friendly Communities

In April 2011, HSRC's Pedestrian and Bicycle Information Center (PBIC) began a national recognition program to encourage towns and cities across the U.S. to prioritize support for safe walking environments. Walk Friendly Communities (WFC) encourages communities to create prudent policies and designs that provide safety, access, comfort and mobility and recognizes them by awarding communities a Platinum, Gold, Silver or Bronze status.

The following are just a few examples of communities that have been recognized for embracing walk-friendly ideas.

Seattle, Wash. is the only Platinum level WFC to date, due to the city's top-notch planning and engineering, outstanding outreach and education and strong enforcement and evaluation practices. Its most significant recent accomplishment is the Vulnerable User Law, which addresses negligent-but-not-criminal traffic errors that result in the death or serious injury of someone walking or biking. This law went into effect July 1, 2012.

Ann Arbor, Mich. is another example of a community that excelled in the WFC evaluation process – earning Gold status. Ann Arbor showed outstanding planning practices, an excellent sidewalk network and walking volumes. The city's strengths also include: the priority placed on a comfortable and attractive walking environment, crossing amenities, traffic calming initiatives and crossing guard programs at schools, and pedestrian and bicycle counts. In 2011, nearly 60 percent of residents voted to fund a city-wide, 5-year sidewalk repair program.

Decatur, Ga., part of the Atlanta Metropolitan Area, promotes active living as a way to increase quality of life for city residents. Decatur has created a pedestrian-friendly environment through development and marking management, while encouraging walking through education and outreach programs. In 2011, Team Decatur had 256 members that participated in the Kaiser Permanente Walk/Run 5k. The city's successful Safe Routes to School Program added a middle school and private school during the 2011-12 school year.

Walk Friendly Communities is sponsored by FedEx and the U.S. Department of Transportation Federal Highway Administration.

WALK FRIENDLY COMMUNITIES

The following 24 communities have earned WFC designation as of June 30, 2012:

Platinum Level
Seattle, Wash.

Gold Level
Ann Arbor, Mich.
Arlington, Va.
Chicago, Ill.
Corvallis, Ore.
Eugene, Ore.
Hoboken, N.J.
Minneapolis, Minn.
San Francisco, Calif.
Santa Barbara, Calif.

Silver Level
Alexandria, Va.
Charlottesville, Va.
Decatur, Ga.
Philadelphia, Pa.
Santa Monica, Calif.

Bronze Level
Austin, Texas
Cary, N.C.
Charlotte, N.C.
Davidson, N.C.
Flagstaff, Ariz.
Forest Park, Ill.
Lee's Summit, Mo.
New Orleans, La.
Wilsonville, Ore.

MAKING IT HAPPEN:

THE PEOPLE OF HSRC

Our people are truly the foundation of HSRC. It is through their creativity, passion, energy and expertise that the Center been able to achieve success.

MAKING IT HAPPEN: THE PEOPLE OF HSRC

Business Services

Matthew Glassman
Technical Support Analyst

Daniel Harper
Contract Specialist

Dianne Harrington
Senior Accounting Specialist

Harvey Hou
Information Technology Systems Manager

Jean Justice
Administrative Support

Paulette McKoy
Senior Contracts Specialist

Jeana Nickerson
Business Officer

Linette Tyson
Human Resources Manager and Executive Administrative Assistant

Research Programs

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Research Associate and Project Manager, National Center for Safe Routes to School

Austin Brown, M.P.H., M.R.P.
Research Associate and Program Manager, National Center for Safe Routes to School

Max Bushell, M.A.
Research Assistant

Daniel Carter, M.S.C.E., P.E.
Senior Engineering Research Associate

Forest Council, Ph.D.
Senior Research Scientist

Hilary Culbertson, M.A.
Communications and Marketing Coordinator, National Center for Safe Routes to School

Caroline Dickson
Senior Manager of Communications, Education and Outreach

Ryan Downs, M.S.S.
Data Specialist, National Center for Safe Routes to School

Rob Foss, Ph.D.
Senior Research Scientist and Director, Center for the Study of Young Drivers

James Gallagher, M.A.
Communications Manager, Pedestrian and Bicycling Programs

Dan Gelinne
Project Coordinator

Arthur Goodwin, M.A.
Senior Research Associate

Bill Hall, M.A.
Manager, Occupant Protection Program

David Harkey, M.S.C.E., P.E.
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Stephanie Harrell, M.A.
Project Coordinator

Bill Hunter, M.C.E.
Research Associate

Patty Harrison
Communications Coordinator

Bevan Kirley, M.P.H.
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Senior Applications Specialist

Charles Zegeer, M.S.C.E., P.E.
Associate Director for Engineering and Planning and Director, Pedestrian and Bicycle Information Center

SPECIAL ACCOMPLISHMENTS

Pam Barth received a graduate certificate in project management from Western Carolina University.

Bevan Kirley was appointed as the first System Users Group representative to the newly-created Transportation Research Board (TRB) Young Members Council.

Daniel Carter was appointed to serve as a young member to the TRB Highway Safety Performance Committee.

Carl Sundstrom was appointed to serve as a young member to the TRB Bicycle Transportation Committee.

A team of HSRC researchers from the Center for the Study of Young Drivers, including **Arthur Goodwin**, **Stephanie Harrell**, **Bevan Kirley**, **Natalie O'Brien** and **Rob Foss**, won the first annual Carolina Mobile Apps competition, sponsored by Innovate@ Carolina. The team's proposal to create an app for the parents of beginning drivers was selected because of its ability to translate their research findings into practice.

MAKING IT HAPPEN: THE PEOPLE OF HSRC

Advisory Board

The HSRC Advisory Board consists of the following group of distinguished professionals, and serves to assist in the identification of strategies and program direction for the Center.

Herb Garrison, M.D., M.P.H., FACEP
Advisory Board chairperson
Director, Eastern Carolina
Injury Prevention Program
University Health Systems of
Eastern Carolina

Alice Ammerman, RdPH, RD
Director, Center for Health Promotion
& Disease Prevention
UNC-Chapel Hill

Jo Anne Earp, ScD
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Transportation Research Board

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Division Administrator
Federal Highway Administration

C. Michael Walton, Ph.D.
Chairman, Department of Civil
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University of Texas at Austin

Ex Officio Members

David Harkey, P.E.
Director
UNC Highway Safety Research Center

REMEMBERING MARY ELLEN TUCKER

This year HSRC lost friend and long-time staff member Mary Ellen Tucker. Mary Ellen served as HSRC librarian and has been an important part of the staff for the past 19 years. She also served as a member of the Transportation Research Board Committee on Library and Information Science for Transportation. Mary Ellen was a vital part of HSRC and was a mentor to countless students. In addition to her professional responsibilities, Mary Ellen never missed an opportunity to contribute – especially to social events hosted at the Center. HSRC will not be the same without her.

PUBLICATIONS AND PRESENTATIONS

This listing includes publications and presentations by HSRC staff produced during fiscal year 2012 (July 1, 2011 to June 30, 2012). To learn more about current and past research publications of HSRC, visit **www.hsrc.unc.edu/research_library**.

July - December 2011

Foss, R.D. (2011). The myth of binge drinking: field studies of alcohol use in North America – adapting roadside survey techniques to other domains. Tel Aviv, Israel: Ran Naor Foundation Quarterly Researcher Colloquium.

Foss, R.D. (2011) Young driver crashes in the U.S.: Matching a solution to the nature of the problem. Invited international address, Young Drivers-The Road Ahead (European Traffic Safety Commission PIN Talk in Israel). Tel Aviv, Israel.

Foss, R.D., Martell, C., Goodwin, A., O'Brien, N. (2011). Measuring changes in teenage driver crash characteristics during the early months of driving. Washington DC: AAA Foundation for Traffic Safety.

Goodwin, A., Foss, R.D., O'Brien, N. (2011). The transition to unsupervised driving. Washington DC: AAA Foundation for Traffic Safety.

Hunter, W.W., Srinivasan, R., Thomas, L., Martell, C., Seiderman, C.B. 2011). Evaluation of shared lane markings in Cambridge, Massachusetts. *Transportation Research Record*, (2247), 72-80.

Martell, C. (2011). A picture is worth a lot of puts. Alexandria, VA: Southeast SAS Users Group 2011.

Masten, S.V., Foss, R.D., Marshall, S.W. (2011). Graduated driver licensing and fatal crashes involving 16- to 19-year old drivers. *Journal of the American Medical Association, 306*(10), 1098-1103.

McDonald, N.C., Brown, A.L., Marchetti, L.M., Pedroso, M.S. (2011). U.S. school travel 2009: An assessment of trends. *American Journal of Preventive Medicine, 41*(2), 146-151.

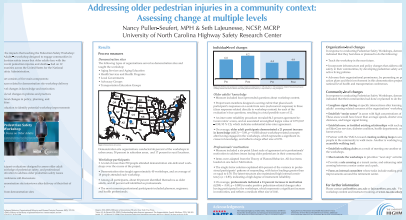
Pullen-Seufert, LaJeunesse, S. (2011). Addressing older pedestrian injuries in a community context: Assessing change at multiple levels. Washington, D.C.: Emerging Issues in Safe and Sustainable Mobility for Older People, Transportation Research Board.

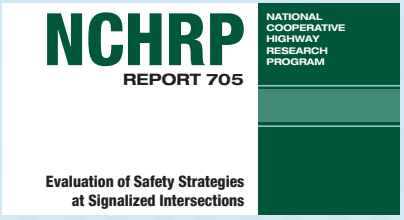
Richard, K.R., and Srinivasan, R. (2011). Separation of safety effects of multiple improvements by alternate empirical Bayes methods. *Transportation Research Record*, (2236), 27-40.

Sandt, L., McKeel, D., Beddingfield, E., McCreedy, M. (2011). Advancing pedestrian safety in North Carolina: Talking the talk and walking the walk. Charlotte, NC: 2011 North Carolina – American Planning Association Conference.

Srinivasan R., Carter D. (2011). Development of safety performance functions for North Carolina. (Report No. FHWA/NC/2010/09). Raleigh, NC: North Carolina Department of Transportation.

PUBLICATIONS AND PRESENTATIONS





Srinivasan, R. (2011). Effectiveness of engineering treatments at signalized intersections. Raleigh, NC: North Carolina Section Institute of Traffic Engineers Annual Meeting.

Srinivasan, R. (2011). Safety effects of changes in left turn phasing. Charlotte, NC: 37th Annual International Forum on Traffic Safety and Highway Information Systems.

Srinivasan, R., Baek, J., Smith, S., Sundstrom, C., Carter, D., et al. (2011). Evaluation of safety strategies at signalized intersections. (NCHRP Report 705). Washington, DC: Transportation Research Board.

Srinivasan, R., Carter, D. (2011). Safety performance functions for North Carolina. Raleigh, NC: North Carolina Section Institute of Traffic Engineers Annual Meeting.

Srinivasan, R., Ullman, G.L., Finley, M.D., Council, F.M. (2011). Use of empirical Bayesian methods to estimate crash modification factors for daytime versus nighttime work zones. *Transportation Research Record*, (2241), 29-38.

Villaveces, A., Garrison, H.G., Smith, J.L., King, J.P., Bowling, J.M., Rodgman, E.A. (2011). Effect of a post-violation driver improvement class on traffic convictions and crashes. *Traffic Injury Prevention, 12*(5), 432-437.

January - June 2012

Carter, D., Srinivasan, R., Gross, F., Council, F. (2012). Recommended protocols for developing crash modification factors. (NCHRP 20-7 314 Final Report). Washington, DC: American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Highway Traffic Safety.

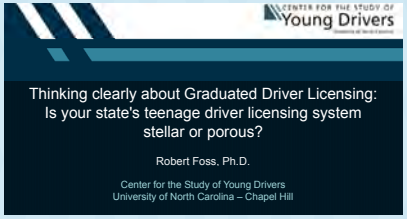
Chen, L., Chen, C., Srinivasan, R., McKnight, C., Ewing, R., Roe, M. (2012). Evaluating the safety effects of bicycle lanes in New York City. *American Journal of Public Health*, 102(6), 1120-1127.

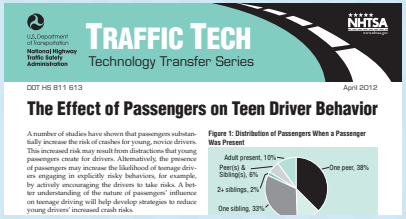
Forbes, G.J., Gardner, T., McGee, H., Srinivasan, R. (2012). Methods and practices for setting speed limits: An informational report. (Report No. FHWA-SA-12-004). Washington, D.C.: Federal Highway Administration.

Foss, R.D. (2012). Building partnerships to promote & strengthen graduated driver licensing. Atlanta, GA: 2012 Joint Annual Meeting of the Safe States Alliance and CDC Core Violence and Injury Prevention Program.

Foss, R.D. (2012). Parent surveys in rural states: Driving age opinions & behaviors. Washington D.C.: Human Factors Workshop: At What Age Should Teenagers Begin to Drive: The

PUBLICATIONS AND PRESENTATIONS





Research Evidence, Transportation Research Board 91st Annual Meeting.

Foss, R.D., Masten, S.V., Goodwin, A., O'Brien, N.P. (2012). The role of supervised driving requirements in graduated driver licensing programs. (Report No. DOT-HS-811-550). Washington, DC: National Highway Traffic Safety Administration.

Foss, R.D. (2012). Thinking clearly about graduated driver licensing: Is your state's teenage driver licensing system stellar or porous? Atlanta, GA: 2012 Joint Annual Meeting of the Safe States Alliance and CDC Core Violence and Injury Prevention Program.

Goodwin A. (2012). Motor vehicle crash injuries: Preventing the leading cause of death for North Carolinians in the first four decades of life. Panel Discussion at the 2012 Injury and Violence Prevention Conference. Chapel Hill, NC.

Goodwin, A., Foss, R.D., Harrell, S.S., O'Brien, N.P. (2012). Distracted driving among newly licensed teen drivers. Washington, DC: AAA Foundation for Traffic Safety.

Goodwin, A., Foss, R.D., O'Brien, N. (2012). The effect of passengers on teen driver behavior. Washington, DC: National Highway Traffic Safety Administration.

Goodwin, A., O'Brien, N.P., Foss, R.D. (2012). Effect of North Carolina's restriction on teenage driver cell phone use two years after implementation. *Accident Analysis & Prevention*, 48, 363-367.

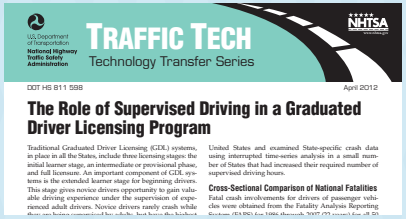
Gross, F., Lyon, C., Persaud, B., Srinivasan, R. (2012). Safety-effectiveness of converting signalized intersections to roundabouts. (Paper #12-1658). Washington, DC: Transportation Research Board 91st Annual Meeting.

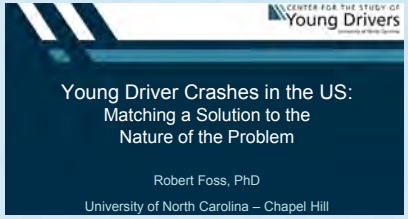
Hauer, E., Bonneson, J.A., Council, F.M., Srinivasan, R., Zegeer, C. (2012). Crash modification factors: Foundational issues. (Paper #12-0326). Washington, DC: Transportation Research Board 91st Annual Meeting.

Hauer, E., Bonneson, J.A., Council, F., Srinivasan, R., Bahar, G. (2012). The value of research about safety effect of actions. (Paper #12-1099). Washington, DC: Transportation Research Board 91st Annual Meeting.

Hunter, W.W., Srinivasan, R., Martell, C.A. (2012). Evaluation of the rectangular rapid flash beacon at Pinellas Trail crossing in St. Petersburg, Florida. (Paper #12-1637). Washington, DC: Transportation Research Board 91st Annual Meeting.

PUBLICATIONS AND PRESENTATIONS





Hunter, W.W., Srinivasan, R., and Martell, C.A. (2012). Evaluation of shared lane markings in Miami Beach, Florida. Tallahassee, FL: Florida Department of Transportation.

Kirley, B., Foss, R.D., Goodwin, A., O'Brien, N., Harrell, S. (2012). Investigating a unique motorcycle crash cluster and planning evidence-based interventions. Atlanta, GA: 2012 Joint Annual Meeting of the Safe States Alliance and CDC Core Violence and Injury Prevention Program.

Martell, C.A., Lococo, K.H., Staplin, L., Sifrit, K.J. (2012). Pedal application errors. (Report No. DOT HS 811 597). Washington, DC: National Highway Traffic Safety Administration.

Lan, B., Persaud N. B (2012). Evaluation of multivariate poisson log normal fully Bayesian methods for before-after treatment effect analysis. *Journal of Transportation Safety and Security, 4* (3), 193-210.

Persaud, B., Gross, F., Srinivasan, R. (2012). Evaluation of two treatments for reducing crashes related to traffic signal change intervals. (Paper #12-4067). Washington, DC: Transportation Research Board 91st Annual Meeting.

Sandt, L., Pullen-Seufert, N., LaJeunesse, S., Gelinne, D. (2012). Leveraging the health benefits of active transportation: creating an actionable agenda for transportation professionals. *TR News*, 280, 18-25.

Srinivasan, R., Lyon, C., Persaud, B., Baek, J., Gross, F., Smith, S., Sundstrom, C. (2012). Crash modification factors for changing left-turn phasing. (Paper No. 12-2521). Washington, DC: Transportation Research Board 91st Annual Meeting.

Srinivasan, R., Baek, J., Council, F. (2012). Safety evaluation of transverse rumble strips on approaches to stop-controlled intersections in rural areas. HSIS Summary Report. (Report # FHWA-HRT-12-047). Federal Highway Administration.

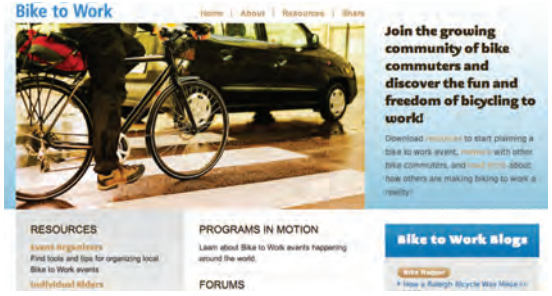
Zegeer, C.V., Bushell, M. (2012). Pedestrian crash trends and potential countermeasures from around the world. *Accident Analysis & Prevention, 44*(1), 3-11.

Zegeer, C.V. Sundstrom, C.A., Hummer, J.E., Rasdorf, W., Findley, D.J. (2012). Suggestions on how agencies should apply the highway safety manual to two-lane road curves. (Paper #12-0011). Washington, DC: Transportation Research Board 91st Annual Meeting.

WEBSITES

HSRC maintains more than 20 websites for various highway safety related projects and tools. For a complete list of Center websites, please visit **www.hsrc.unc.edu/websites**. The majority of projects and information summarized within the HSRC Annual Report can be found within these websites.

Bike to Work Info



www.biketoworkinfo.org

Tools and tips for organizing local Bike to Work events and improving biking knowledge and skills

Center for the Study of Young Drivers

www.csyd.unc.edu

Provides insight into why motor-vehicle crashes are the leading cause of death among teenagers and information on the research being conducted at the Center to investigate this issue

Crash Modification Factors Clearinghouse

www.cmfclearinghouse.org

A searchable database of Crash Modification Factors (CMFs), helpful tools in evaluating road safety engineering countermeasures

Highway Safety Information System

www.hsisinfo.org

Multi-state database that contains crash, roadway inventory and traffic volume data for a select group of states and urban centers

International Walk to School

www.iwalktoschool.org

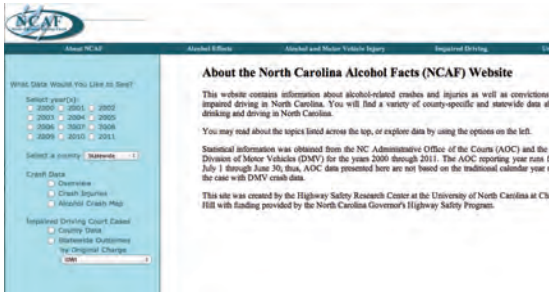
Information about International Walk to School Month, recognized in October across the globe

National Center for Safe Routes to School

www.saferoutesinfo.org

Includes steps on starting a Safe Routes to School program, frequently asked questions, helpful links and a list of sample programs currently in place across the country

North Carolina Alcohol Facts



www.hsrc.unc.edu/ncaf

Provides statewide and county-specific data for North Carolina regarding DWI arrests and convictions as well as alcohol involvement in crashes

North Carolina Child Passenger Safety Resource Center

www.buckleupnc.org

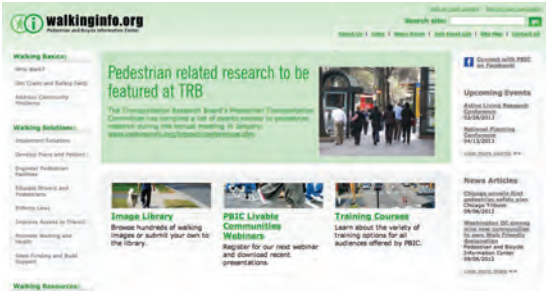
Information about North Carolina occupant restraint laws as well as tips for choosing and using child occupant protection

North Carolina Crash Data Query

www.hsrc.unc.edu/crash

A data analysis tool to create tables reflecting crash, vehicle and driver/occupant information for crashes in North Carolina

Pedestrian and Bicycle Information Center



www.walkinginfo.org
www.bicyclinginfo.org
www.pedbikeimages.org

National clearinghouse of pedestrian and bicycle information about health and safety, engineering, advocacy, education, enforcement and access, and mobility

U.S. Walk and Bike to School

www.walkbiketoschool.org

Information about Walk and Bike to School events in the U.S., how to get involved and resources to help plan a walk in your community

Walk Friendly Communities

www.walkfriendly.org

Recognizes communities that are working to improve a wide range of conditions related to walking, including safety, mobility, access and comfort

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