



THE UNIVERSITY OF NORTH CAROLINA
**HIGHWAY SAFETY
RESEARCH CENTER**

ANNUAL OPERATIONS REPORT 2017



Since 1965, HSRC has helped shape the field of transportation safety as a leading research institution. The mission of 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. We conduct our everyday work with that ideal at the forefront, and in 2017, we continued to grow experience and build expertise in conducting cutting-edge transportation safety research, program analysis and implementation.

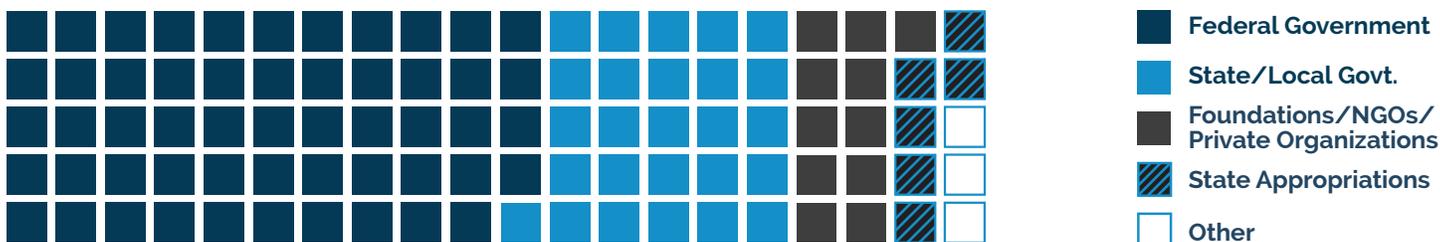
This operations report provides a summary of FY2017 (July 1, 2016 - June 30, 2017) HSRC activities in the following areas: financial report, HSRC researchers and staff, and graphic and website design projects.

FINANCIAL REPORT

HSRC is a part of the University of North Carolina system, located on the UNC-Chapel Hill campus. Our work is funded through a combination of federal, state, and local government projects, and corporate, non-government organization, and foundation sponsored projects.

For each dollar appropriated to HSRC by the state of North Carolina in FY2017, 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.

FY2017 FUNDING SOURCES



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

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 of Child Health and Human Development
 - National Institute on Alcohol Abuse and Alcoholism
- New York City Department of Transportation
- North Carolina Department of Health and Human Services
- North Carolina Department of Transportation
- North Carolina Governor's Highway Safety Program
- Traffic Injury Research Foundation of Canada
- University of North Carolina at Chapel Hill
- U.S. Centers for Disease Control and Prevention

- U.S. Department of Transportation
 - Federal Highway Administration
 - National Highway Traffic Safety Administration
 - Office of the Assistant Secretary for Research and Technology
 - Research and Innovative Technology Administration
- U.S. Environmental Protection Agency
- Volpe National Transportation Systems Center
- Wisconsin Department of Transportation

CORPORATE, NGO, AND FOUNDATION SPONSORS

- AAA Foundation for Traffic Safety
- AAA Kansas
- FedEx Corporation
- FIA Foundation
- General Motors
- Insurance Institute for Highway Safety
- John Rex Endowment
- Motorcycle Safety Foundation
- National Safety Council
- Robert Wood Johnson Foundation
- Safe Kids Worldwide
- Schwinn
- Society for the Advancement of Violence and Injury Research
- State Farm Insurance Company
- Transportation Research Board of The National Academies
 - National Cooperative Highway Research Program

RESEARCHERS AND STAFF

HSRC has a dynamic team of researchers and staff with extensive expertise in a broad range of disciplines. It is through their creativity, passion, energy and expertise that HSRC has been able to achieve many successes in 2017. This list includes current, former and retired staff who were employed by HSRC during FY2017 (July 1, 2016, to June 30, 2017).

BUSINESS SERVICES

Neil Batson
Business Officer

Dianne Harrington
Business Manager

Jean Justice
Administrative Support
30 years of NC service

Matthew Glassman
Technical Support Analyst

Ann Hume
Accounting Technician

Paulette McKoy
Senior Contracts Specialist
Retired February 2017

Daniel Harper
Contract Specialist

Latisha Johnson, M.S.
HR Consultant

Linette Tyson
Contract Specialist

RESEARCH PROGRAMS

Kristin Blank
Pedestrian and Bicyclist Projects
Communications Manager

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

Nancy Lefler, M.C.R.P.
Senior Research Associate
and Program Manager

Kristen Brookshire, M.C.R.P.
Research Associate

David Harkey, Ph.D., P.E.
Director

Daniel Levitt
Research Associate

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

Stephanie Harrell, M.A.
Social/Clinical Research Assistant

Richard Lytle
Web Applications Programmer

Forrest Council, Ph.D.
Senior Research Scientist

Stephen Heiny, M.C.R.P.
Junior Research Associate

Lauren Marchetti
Senior Strategic Adviser

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

Bevan Kirley, M.S.
Research Associate

Caroline Mazingo
Senior Manager of Communications,
Education and Outreach

Dan Gelinne
Research Associate

Wesley Kumfer, Ph.D.
Postdoctoral Research Associate

Krista Nordback, Ph.D., P.E.
Senior Research Associate

Christine Gomola Mullin, M.S.
Embedded Research Librarian

Seth LaJeunesse, M.A., M.C.R.P.
Research Associate and
Assistant Director, National Center
for Safe Routes to School

Natalie O'Brien, M.S.
Senior Research Associate

Arthur Goodwin, M.A.
Senior Research Associate

Bo Lan, Ph.D.
Research Associate

Colleen Oliver
Communications Manager,
Safe Routes to School Programs

RESEARCH PROGRAMS (CONT.)

Jennifer Palcher-Silliman, M.A.
Communications Manager

Nancy Pullen-Seufert, M.P.H.
**Senior Research Associate and
Director, National Center for
Safe Routes to School**

Kristel Robison, M.S.W.
Research Associate

Eric Rodgman, M.P.H.
Senior Database Analyst

Graham Russell
Graphic Designer
5 years of NC service*

Taha Saleem, Ph.D.
Postdoctoral Research Associate

Laura Sandt, Ph.D., M.R.P.
**Senior Research Associate and
Director, Pedestrian and Bicycle
Information Center**

Kari Signor, M.S.
Research Assistant

Sarah Smith
Engineering Research Associate

Raghavan Srinivasan, Ph.D.
**Senior Transportation
Research Engineer**

Carl Sundstrom, M.S.C.E., P.E.
Senior Research Associate

Donna Suttles
Research Assistant

Libby Thomas, M.S.
Senior Research Associate

Yudan Wang, Ph.D.
Senior Research Associate

Jonathon Weisenfeld
Design Services Manager
5 years of NC service*

Carolyn Williams, M.B.A.
Senior Applications Specialist

Charles Zegeer, M.S.C.E., P.E.
Senior Technical Adviser

* All years of service at HSRC

ADVISORY BOARD

The HSRC Advisory Board serves to assist in the identification of strategies and program direction for the Center. The board meets once a year to review HSRC's strategic plan, review progress and discuss future direction.

Dr. Herb Garrison — Chair
**Professor of Emergency Medicine,
East Carolina University**

Dr. Alice Ammerman
**Director, Center for Health
Promotion and Disease Prevention,
UNC-Chapel Hill**

Mr. Alan Dellapenna
**North Carolina Department of
Health and Human Services, Injury
and Violence Prevention Branch**

Dr. Kelly R. Evenson
**Research Professor, Department of
Epidemiology, UNC-Chapel Hill**

Dr. Edd Hauser, P.E.
**Director, Center for Transportation
Policy Studies, UNC-Charlotte**

Dr. Stephen Marshall
**Director, Injury Prevention Research
Center, UNC-Chapel Hill**

Colonel Glenn M. McNeill
**Commander, North Carolina State
Highway Patrol**

Dr. Richard F. Pain
**Transportation Research Board
(retired)**

Mr. John F. Sullivan III
**North Carolina
Division Administrator,
Federal Highway Administration**

STAFF HONORS



Bill Hall wins award

In May 2017, Bill Hall received the Safe Kids Champion Award at the Safe Kids NC Injury Prevention Conference near Charlotte, N.C.



Yudan Wang wins scholarship

HSRC researcher Yudan Wang received a 2017 Lifesavers Traffic Safety Scholarship at the Lifesavers conference in Charlotte, N.C.

STAFF MILESTONES

Jean Justice



Jean Justice has worked at HSRC for 10 years and at UNC for more than 30 years – she came to HSRC after 20 years of experience in UNC administration. She served with the Chapel Hill TEACCH Center, UNC School of Pharmacy and

UNC Student Health Services. She is responsible for day-to-day needs of HSRC including financial, clerical and organizational tasks.

Graham Russell



Graham Russell began working at HSRC as a graphic designer in January 2012. Graham serves HSRC's various print design, web design and multimedia needs. Graham is a 2008 graduate of UNC-CH, where he earned a

degree in journalism and mass communication. Prior to joining the HSRC team, he worked as a designer at The News & Observer. In addition, Graham has gained valuable experience in his work as a freelance editor, writer, game designer and web developer.

Jonathon Weisenfeld



Jonathon Weisenfeld joined HSRC in December 2011 as design services manager, overseeing the print and web design activities of HSRC. He is responsible for creating and managing more than 20 HSRC

program identities – designing and building web interfaces, designing promotional materials, formatting printed reports and developing marketing collateral. Jonathon has more than 20 years of graphic design experience. Before joining the HSRC team, Jonathon worked as the creative director for Performance Bicycles and staff designer for Global Knowledge Training. He earned his B.F.A. in visual communications from Auburn University.

PUBLICATIONS AND PRESENTATIONS

This listing includes publications and presentations covering a wide variety of highway safety topics, many of which overlap. The works were produced by HSRC staff during FY2017 (July 1, 2016, to June 30, 2017).

PEDESTRIAN AND BICYCLIST SAFETY

- Budowski, A., McLaughlin, F., Nordback, K., & Montufar, J. (2017). Estimating seasonal average daily bicyclists from 2-hour short duration counts. Proceedings of the 96th Annual Meeting of the Transportation Research Board, Washington, DC.
- Carter, D. (2017, May). Safety evaluation of pedestrian countdown signals: Data challenges in pedestrian studies. [Presentation]. The 5th Urban Street Symposium, Raleigh, NC.
- Carter, D. (2017, June). Overview of progress on evaluations conducted to date: Pedestrian and bicycle safety. [Presentation]. Annual Meeting of the Technical Advisory Committee for the Evaluation of Low Cost Safety Improvements Pooled Fund Study, Washington, DC.
- Carter, D.; Nordback, K. & Thomas, L. (2017, May). Urban road safety -- strategies for pedestrian and bicycle crashes. [Workshop]. The 5th Urban Street Symposium, Raleigh, NC.
- Gibson, G., Nordback, K., Kothuri, S., Ferenchak, N., & Marshall, W. (2017). Motorist-cyclist crash data needs for safety analysis. Proceedings of the 96th Annual Meeting of the Transportation Research Board, National Academies, Washington, DC.
- Kothuri, S., Nordback, K., McLeod, P., Petritsch, T., Rose, E., & Twaddell, H. (2017). Pedestrians count! How to measure foot traffic. Paper presented at the 96th Annual Meeting of the Transportation Research Board, Washington, DC.
- LaJeunesse, S. (2017, January). How to reverse the increase in pedestrian fatalities: Identifying the problems and solutions. [Workshop].
- LaJeunesse, S. (2017, March). How Partnerships are Making Walking and Biking Safer and More Appealing in North Carolina [PowerPoint slides]. Paper presented at the 35th Lifesavers National Conference on Highway Safety Priorities. Retrieved from <https://lifesaversconference.org/wp-content/uploads/2017/04/LaJeunesseS.pdf>.
- LaJeunesse, S. (2017, April). Vision Zero: What is it, where did it come from, and how does it work? [Invited guest lecture]. University of North Carolina at Chapel Hill, Chapel Hill, NC.
- LaJeunesse, S. & Heiny, S. (2016, December). Vision Zero with a Youth Lens: A Positive Deviance Study of Pedestrian and Bicyclist Safety Outcomes [PowerPoint slides]. Paper presented at the 10th University Transportation Center Spotlight Conference Pedestrian and Bicycle Safety. Retrieved from <http://onlinepubs.trb.org/onlinepubs/Conferences/2016/UTC/CH-7-LaJeunesse.pdf>.
- LaJeunesse, S.; DeMarco, M. (2016, November). Physical Activity and Economic Impacts of Walking Distance Signs: A Downtown Chapel Hill, NC Panel Study [PowerPoint slides]. Paper presented at the 144th American Public Health Association Annual Meeting and Expo.
- LaJeunesse, S. & Validzic, A. (2017, June). Safe Routes to School evaluation resources and best practices. [Webinar]. California Active Transportation Resource Center.
- LaJeunesse, S. (2017, May). Vision Zero Approaches that Just Might Work in North Carolina. [PowerPoint slides]. Paper presented at the 5th Urban Street Symposium. Retrieved from https://www.urbanstreet.info/wp-content/uploads/2017/06/PresPDF-S06_LaJeunesse.pdf.
- Laustsen, K.; Mah, S.; Semler, C.; Nordback, K.; Sandt, L.; Sundstrom, C.; Raw, J.; Jessberger, S. (2016). Coding Nonmotorized Station Location Information in the 2016 Traffic Monitoring Guide Format. (Report No. FHWA-HEP-17-011). University of North Carolina, Chapel Hill; Kittelson & Associates; Federal Highway Administration.
- Lan, B. and Thomas, L. Changing the Future? Systemic Pedestrian Safety Analyses in Seattle, Washington. TRB Pedestrian and Bicycle Safety Analysis subcommittee presentation.
- Nordback, K. (2016, May). Pedestrian Exposure Data. National Transportation Safety Board (NTSB) Pedestrian Safety Panel, Washington DC.
- Nordback, K. (2016, September). National bicycle and pedestrian data quality. Paper presented at the ProWalk/ProBike/ProPlace Conference, Vancouver, BC.
- Nordback, K. (2017, February). Pedestrian and bicycle count programs, Parts 1 & 2. [Webinar]. Pedestrian & Bicycle Information Center.

- Nordback, K., Figliozzi, M., Kothuri, S., Phillips, T., Schrope, A., & Gorecki, C. (2016). Bicycle counts using pneumatic tubes. Paper presented at NATMEC, Miami, FL.
- Nordback, K., Gibson, G., Kothuri, S., Ferenchak, N., & Marshall, W. (2016, December). Motorist-cyclist crash data needs for safety analysis. Paper presented at the University Transportation Center Spotlight Conference, Washington, DC.
- Nordback, K., Sellinger, M., & Phillips, T. (2017). Estimating walking and bicycling at the state level. (No. NITC-RR-708). Portland, OR: National Institute for Transportation and Communities.
- Sandt, L. (2017, January). The Role of Hospital and Police Crash Data in Understanding Pedestrian Crash Incidence: A Comparison of Data Sources. TRB Workshop.
- Sandt, L. (2017, January). Quality Volume Data for Bicycling and Walking: Data User Perspectives. TRB Workshop.
- Sandt, L.; Marshall, S.W.; Rodriguez, D.; Evenson, K.; Ennett, S.T.; Robinson, W. (2016, August). Effect of a Community-Based Pedestrian Injury Prevention Program on Driver Yielding Behavior at Marked Crosswalks. *Accident Analysis and Prevention*. pp. 169-178. doi: 10.1016/j.aap.2016.05.004
- Semler, C.; Vest, A.; Kingsley, K.; Mah, S.; Kittelson, W.; Sundstrom, C.; Brookshire, K. (2016). Guidebook for Developing Pedestrian and Bicycle Performance Measures. (Report No. FWA-HEP-16-037). Washington, DC: Federal Highway Administration.
- Thomas, L.; Thirsk, N. J.; Zegeer, C. V. (2016). Application of Pedestrian Crossing Treatments for Streets and Highways. (NCHRP Synthesis Report 498). Washington, DC: National Transportation Research Board.
- Zegeer, C. V., Lyon, C., Srinivasan, R., Persaud, B., Lan, B., Smith, S., Carter, D., Thirsk, N., Zegeer, J., Ferguson, E., Van Houten, R., Sundstrom, C. (2017). Development of crash modification factors for uncontrolled pedestrian crossing treatments. *Transportation Research Record: Journal of the Transportation Research Board*, 2636, 1-8. doi:http://dx.doi.org/10.3141/2636-01
- Zegeer, C.; Srinivasan, R.; Lan, B.; Carter, D.; Smith, S.; Sundstrom, C.; Thirsk, N.J.; Lyon, C.; Persaud, B.; Zegeer, J.; Ferguson, E.; Van Houten, R. (2016). Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. NCHRP Research Report 841. Transportation Research Board, Washington, D.C.
- C. Zegeer, R. Srinivasan, B. Lan, S. Smith, D. Carter, N. J. Thirsk, C. Sundstrom, C. Lyon, B. Persaud, J. Zegeer, E. Ferguson, and R. Van Houten (2017), Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments, Presented at the 5th Urban Street Symposium, Raleigh, NC, May 21-24, 2017.
- Thomas, L., Lan, B., Sanders, R. L., Frackelton, A., Gardner, S., Hintze, M. Predicting the Future? Systemic Pedestrian Safety Analyses in Seattle, WA. Accepted, *Transportation Research Record*, 2017.
- Thomas, L., Lan, B., Sanders, R. L., Frackelton, A., Gardner, S., Hintze, M. In Pursuit of Safety: Systemic Bicycle Crash Analysis in Seattle, WA. Presentation, Transportation Research Board, 2017.
- Sandt, L., LaJeunesse, S., Johnson, S. (May 2017). Bicycle and Pedestrian Safety, Education, and Enforcement Program: 2016 Summary. NCDOT Research Project No. RP 201641. Chapel Hill, NC. http://www.watchformenc.org/wp-content/uploads/2017/06/WFM-2016-report_FINAL-002.pdf.
- Injury Surveillance Workgroup 8 (ISW8). Consensus Recommendations for Pedestrian Injury Surveillance. Atlanta (GA): Safe States Alliance, 2017.
- Sandt, L. Watch for Me NC: A Formula for Improving Ped/Bike Safety. Presentation made at ProWalk/Bike (September 2016).
- Sandt, L. Developing and Evaluating Population-Level Interventions Aimed at Behavior Change to Reduce Ped/Bike Crashes. Plenary presentation made at UTC Spotlight Conference (November 2016).
- Sandt, L. NCHRP 17-56: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. Presentation made at UTC Spotlight Conference (December 2016).
- Sandt, L. Saving (Pedestrian and Bicyclist) Lives and Engaging the Public: A 12 Step Program. Presentation made at Lifesavers Conference (March 2017).
- Pullen-Seufert, N. Vision Zero Starting with Children. Presentation made at Global Initiative for Children's Health and Mobility Partners Meeting (February 2017).
- Pullen-Seufert, N. Saving Lives and Engaging the Public Starting Where Children Walk and Bike. Presentation made at Lifesavers Conference (March 2017).
- Pullen-Seufert, N. Vision Zero Starting with Children. Presentation made at Safe Kids Road Safety Summit (December 2016).
- Thomas, L. Changing the Future? Systemic Pedestrian Safety Analyses in Seattle, Washington. Presentation at UTC Spotlight Conference (November 2016).

CHANGING BEHAVIORS

- Foss, R. (2017, January). How a bill really becomes a law: Combining evidence and political savvy to increase teen driver safety. [Graduate Seminar Presentation]. Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD.
- Foss, R. (2017, March). High school start times and teenage driver crashes. [Presentation]. 10th International Conference on Managing Fatigue, San Diego, CA.
- Foss, R. (2017, June). Applying social psychology: From experiments to social policy. [Invited presentation.] Duke University Psychology Department's Vertical Integration Program, Durham NC.
- Foss, R. (2016, November). Faculty participant in DWI Training for Judges and Magistrates conducted by UNC School of Government.
- Foss, R. (2017, February). Driving after drinking: Problem, prevalence & prevention. NC Department of Health & Human Services, Raleigh, NC.
- Foss, R. (2017, March). Designing the driver licensing system to reduce crashes, deaths & injuries involving young drivers. Ohio GDL Coalition, Worthington, OH.
- Foss, R. (2017, March). Fine-tuning your message to get action on young driver safety policies. Lifesavers National Conference on Highway Safety Priorities, Charlotte, NC.
- Foss, R. (2017, March). Reducing nighttime teen driver crashes with science-based driver licensing policies. Lifesavers National Conference on Highway Safety Priorities, Charlotte, NC.
- Goodwin, A. (2017, March). Light the fire: How to reach and engage parents of novice drivers. Lifesavers National Conference on Highway Safety Priorities, Charlotte, NC.
- Goodwin, A. (2017, April). Improving teen driver safety through parents of new drivers. Annual North Carolina Driver & Traffic Safety Education Association (NCDTSEA) Conference. Clemmons, NC.
- Hall, Bill (2017, March). What's Happening with Seat Belts on School Buses? What's New with Transporting Children with Special Health Care Needs on School Buses? Lifesavers National Conference on Highway Safety Priorities, Charlotte, NC.
- Harkey, David (2017, March). Reversing the Numbers, an Expert Panel Discussion, Plenary Session, Lifesavers National Conference on Highway Safety Priorities, Charlotte, NC.
- North Carolina. (2016, June). FY 2017 North Carolina Highway Safety Plan. Raleigh, NC: The Program. [HSRC contributing authors: Bill Hall, Arthur Goodwin, Bevan Kirley, Eric Rodgman, and Natalie O'Brien].
- LaJeunesse, S. (2017, January). Theory and Evidence-Based Means of Addressing Speeds and other Risky Behaviors [PowerPoint slides]. Paper presented at the 96th Transportation Research Board Annual Meeting, Washington DC. Retrieved from <https://annualmeeting.mytrb.org/interactiveprogram/Details/5359>.
- North Carolina Governor's Highway Safety Program FY2016 Annual Report. Prepared for the North Carolina Governor's Highway Safety Program. Raleigh, NC (2016, December). [HSRC contributing authors: Bill Hall, Arthur Goodwin, Bevan Kirley, Eric Rodgman, and Kristel Robison]
- State of North Carolina MAP21 Section 405 Grant Application: FY 2017. Submitted to the National Highway Traffic Safety Administration on behalf of the North Carolina Governor's Highway Safety Program. (2016, June). Raleigh, NC: The Program. [HSRC contributing authors: Bill Hall, Arthur Goodwin, Bevan Kirley, Eric Rodgman, and Natalie O'Brien].

SHAPING THE FUTURE OF TRANSPORTATION SAFETY

- Highway Safety Research: Need for Translation, lecture for UNC class Innovation to Impact: The Translation of Scientific Research into Societal Benefit, January 2017, David Harkey.
- Harkey, David (2017, April). The Changing Face of Road Safety: Expectations for the Future. Carolina Arbors Seminar Series, Durham, NC.
- Road Safety 101, Road Safety Academy. Courses: Orientation; Foundations of Road Safety; Measuring Safety; Solving Safety Problems (Part I); Solving Safety Problems (Part II); Human Behavior and Road Safety; Implementing Road Safety Programs; Final Discussion. Webinar series (March 9 – April 27, 2017).

THE BUILT ENVIRONMENT

- Aguero-Valverde, J., Lan, B., Lovegrove, G. Bayesian Statistics in Transport. Chapter submission for the 2017 TRB Circular on Statistics in Transport. Sponsored by the ABJ80 Statistical Methods Committee.
- Bahar, G.; Srinivasan, R.; Gross, F. (2016, August). Reliability of Safety Management Methods: Countermeasure Selection, FHWA Report FHWA-SA-16-039, Federal Highway Administration, Washington, D.C.
- Carter, D. (September 2016, December 2016, February 2017, May 2017). Traffic Accident Analysis Engineering System [Training course], North Carolina Department of Transportation.
- Carter, D. (2017, March). Crash Modification Factors [Invited guest lecture]. North Carolina State University, Raleigh, NC.
- Carter, D. (2016, December). GIS: Safety researcher perspective. [Presentation]. FHWA Data Convening Meeting, Washington, DC.
- Carter, D. (2017, May). Safety evaluation of pedestrian countdown signals: Data challenges in pedestrian studies. [Presentation]. The 5th Urban Street Symposium, Raleigh, NC.
- Carter, D. (2017, June). Overview of progress on evaluations conducted to date: Pedestrian and bicycle safety. [Presentation]. Annual Meeting of the Technical Advisory Committee for the Evaluation of Low Cost Safety Improvements Pooled Fund Study, Washington, DC.
- Carter, D.; Nordback, K. & Thomas, L. (2017, May). Urban road safety -- strategies for pedestrian and bicycle crashes. [Workshop]. The 5th Urban Street Symposium, Raleigh, NC.
- Gross, F.; Harmon, T.; Albee, M.; Himes, S.; Srinivasan, R.; Carter, D.; Dugas, M. (2016, October). Evaluation of Four Network Screening Performance Measures, (Report No. FHWA-SA-16-103). Washington, DC: Federal Highway Administration.
- Hummer, J.E.; Cunningham, C.M.; Srinivasan, R.; Warchol, S.; Claros, B.; Edara, P.; Sun, C. (2016). Safety Evaluation of Seven of the earliest Diverging Diamond Interchanges Installed in the United States. Transportation Research Record: Journal of the Transportation Research Board, No. 2583, 25-33. doi: 10.3141/2583-04
- Hummer, J., C.M. Cunningham, R. Srinivasan, S. Warchol, P. Edara, B. Claros, C. Sun, Safety Findings at Seven of the First DDI's in the Country, Presented at the 5th Urban Street Symposium, Raleigh, NC, May 21-24, 2017.
- Smith, S. 2016. Highway Safety Improvement Program 2015 National Summary Report. FHWA-SA-16-063.
- Smith, S. 2017. Highway Safety Improvement Program 2016 National Summary Report. FHWA-SA-17-040.
- Smith, S., R. Srinivasan, D. Carter. 2017. Updated and Regional Calibration Factors for the Highway Safety Manual Crash Prediction Models. NCDOT 2016-09.
- Srinivasan, R., Carter, D. (2017, May). Evaluation of the interaction between horizontal and vertical alignment on rural two lane roads: Early Findings from Phase 2 and Plans for Phase 3. [Presentation]. FHWA SHRP2 Implementation Assistance Program Committee, Arlington, VA.
- Srinivasan, R., Carter, D., & Lan, B. (2017). Crash modification factors for signal installation with and without left turn lanes on two lane roads in rural and suburban areas. 96th Annual Meeting of the Transportation Research Board, Washington, DC., Paper 17-03743
- Srinivasan, R.; Bahar, G.; Gross, F. (2016, September). Reliability of Safety Management Methods: Diagnosis. (Report No. FHWA-SA-16-038). Washington, DC: Federal Highway Administration.
- Srinivasan, R.; Colety, M.; Bahar, G.; Crowther, B.; Farnen, M. (2016). Estimation of Calibration Functions for Predicting Crashes on Rural Two Lane Roads in Arizona. Transportation Research Record: Journal of the Transportation Research Board, No. 2583, 17-24. doi: 10.3141/2583-03
- Srinivasan, R.; Gross, F.; Lan, B.; Bahar, G. (2016, October). Reliability of Safety Management Methods: Network Screening. (Report No. FHWA-SA-16-037). Washington, DC: Federal Highway Administration.

Srinivasan, R., B. Lan, D. Carter, S. Smith, and K. Signor, Safety Evaluation of Flashing Yellow Arrow Treatment, Presented at the 5th Urban Street Symposium, Raleigh, NC, May 21-24, 2017.
This paper was selected as a Top 5 Paper presented at the Symposium.

Thomas, L.; Thirsk, N. J.; Zegeer, C. V. (2016). Application of Pedestrian Crossing Treatments for Streets and Highways. (NCHRP Synthesis Report 498). Washington, DC: National Transportation Research Board.

Zegeer, C. V., Lyon, C., Srinivasan, R., Persaud, B., Lan, B., Smith, S., Carter, D., Thirsk, N., Zegeer, J., Ferguson, E., Van Houten, R., Sundstrom, C. (2017). Development of crash modification factors for uncontrolled pedestrian crossing treatments. Transportation Research Record: Journal of the Transportation Research Board, 2636, 1-8. doi:http://dx.doi.org/10.3141/2636-01

Zegeer, C.; Srinivasan, R.; Lan, B.; Carter, D.; Smith, S.; Sundstrom, C.; Thirsk, N.J.; Lyon, C.; Persaud, B.; Zegeer, J.; Ferguson, E.; Van Houten, R. (2016). Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. NCHRP Research Report 841. Transportation Research Board, Washington, D.C.

C. Zegeer, R. Srinivasan, B. Lan, S. Smith, D. Carter, N. J. Thirsk, C. Sundstrom, C. Lyon, B. Persaud, J. Zegeer, E. Ferguson, and R. Van Houten (2017), Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments, Presented at the 5th Urban Street Symposium, Raleigh, NC, May 21-24, 2017.

WEBSITES AND SOCIAL MEDIA

HSRC maintains dozens of websites for various highway safety-related projects. In this section of the operations report, we highlight newly created websites or websites that have undergone major design changes in FY2017, as well as a selection of other sites that continue to be maintained by HSRC.

NEW AND UPDATED WEBSITES

Collaborative Sciences Center for Road Safety

roadsafety.unc.edu

The website for CSCRS, a National University Transportation Center supporting the FAST Act research priority of promoting safety. The website contains information on the research, education and professional development activities of CSCRS.

 @CSCRSinfo  facebook.com/CSCRSinfo

CMF Clearinghouse Comparison Tool

cmfclearinghouse.org

A new tool on the Crash Modification Factors (CMF) Clearinghouse website that facilitates comparing two or more CMFs side by side.

Walk and Bike to School Day

walkbiketoschool.org

A website with information about National Walk and Bike to School events in the U.S., how to get involved and resources to help plan an event in your community.

 facebook.com/walkbiketoschoolday

Walk Friendly Communities

walkfriendly.org

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

 @WalkFriendly



Countermeasure Name	Provide a left-turn lane on one major-road approach	Provide a left-turn lane on one major-road approach
CMF ID	261	263
CMF	0.73	0.76
Study Reference	Harwood et al., 2002	Harwood et al., 2002
Unadjusted Standard Error CMF	0.03	0.03
CMFunction		
Star Rating	★★★★★	★★★★★
Crash Type	All	All
Crash Severity	All	All
Crash Time of Day		
Area Type	Urban	Urban
Road Division Type		
Road Type	Not Specified	Not Specified
Number of Lanes		
Intersection Type	Roadway/roadway (not interchange)	Roadway/roadway (not interchange)



WEBSITES HSRC MAINTAINS

Accessible Pedestrian Signals: A Guide to Best Practices

apsguide.org

A comprehensive source of information on Accessible Pedestrian Signals (APS), including recommended or required features, and how to design intersection corners to accommodate APS appropriately.

Bicycle Safer Journey

pedbikeinfo.org/bicyclesaferjourney

An online educational resource that introduces kids and teens to bicycle safety skills.

BIKESAFE Guide & Countermeasure Selection System

pedbikesafe.org/bikesafe

An online guide that provides practitioners with up-to-date information, such as engineering or enforcement treatments, for improving the safety and mobility of bicyclists.

BuckleUpNC.org

buckleupnc.org

A comprehensive website that provides information about North Carolina's seat belt and child passenger safety laws; tips for choosing and using car seats; and a list of locations where families can go for education and assistance with car seat installation.

Center for the Study of Young Drivers

csyd.unc.edu

A website that provides insight into why motor-vehicle crashes are the leading cause of death among teenagers, and information on the research being conducted to investigate this issue.

Crash Modification Factors Clearinghouse

cmfclearinghouse.org

A searchable database of crash modification factors, helpful tools in evaluating road safety engineering countermeasures.

Highway Safety Information System

hsinfo.org

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

Highway Safety Research Center

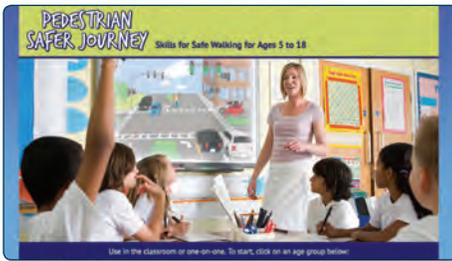
hsrc.unc.edu

HSRC's own website where visitors can access information including updates about our work, publication lists, news updates, staff bios and contact information.

@HSRCinfo

facebook.com/HSRCinfo





Pedestrian and Bicycle Information Center

pedbikeinfo.org

A clearinghouse for pedestrian and bicycle resources, with information about health and safety, engineering, advocacy, education, enforcement and access and mobility. Hosted first Twitter chat about Vision Zero.

 @pedbikeinfo  facebook.com/pedbikeinfo

Pedestrian Safer Journey

pedbikeinfo.org/pedsaferjourney

Curriculum for teaching pedestrian safety to children and teens, available in both English and Spanish.

PEDSAFE Guide and Countermeasure Selection System

pedbikesafe.org/pedsafe

An online guide intended to provide practitioners with the latest information including engineering, education or enforcement treatments, for improving the safety and mobility of pedestrians.

Road Safety Academy

rsa.unc.edu

The Road Safety Academy is the training and education arm of HSRC. Through this site, the RSA offers both in-person and web-based trainings that cover a broad range of road safety topics.

Safe Kids Orange County

safekidsorangenc.org

A website that provides the Orange County, North Carolina, community with information and resources to decrease injury, disability and death, and the costs to the community that are associated with injuries.

Safe Routes Wake County

saferouteswakecounty.org

A website created to support Safe Routes Wake County, an effort to improve safety and to encourage more children to walk or bike to school.

Watch for Me NC

watchformenc.org

A website about the Watch for Me NC education and enforcement campaign aimed to encourage safety among pedestrians, bicyclists and drivers.

WANT TO LEARN MORE ABOUT HSRC?

Visit hsrc.unc.edu to see our latest news, download our brochure, view our staff bios and more.



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