



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



**ANNUAL OPERATIONS REPORT  
JULY 1, 2018 - JUNE 30, 2019**



**S**ince 1965, the UNC Highway Safety Research Center 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 2019, we continued to build expertise in conducting cutting-edge transportation safety research, program analysis, and implementation.

This report provides a summary of HSRC activities during FY2019 (July 1, 2018-June 30, 2019) in the following areas: financial report, HSRC researchers and staff, publications and presentations, graphic and website design projects, and key highlights.

## HSRC DIVERSITY STATEMENT

The UNC Highway Safety Research Center affirms the University's core values regarding diversity, inclusion, and multiculturalism. The HSRC is committed, through its policies, practices, programs, and services, to creating and fostering an environment of inclusion, equity, non-discrimination, and pluralism, grounded in respect and appreciation for all, and promoting and celebrating individual and collective achievement.

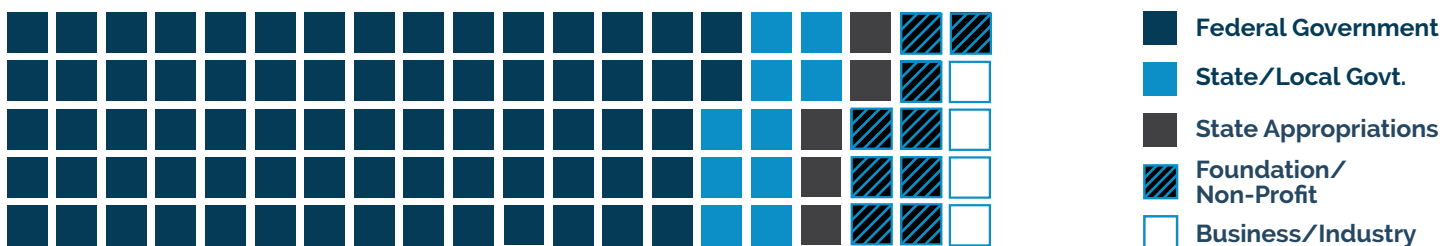
# FY2019 FINANCIAL REPORT

The UNC Highway Safety Research Center 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 state and federal level projects, and corporate- and foundation-sponsored projects.



For each dollar appropriated to HSRC by the state of North Carolina in FY2019, HSRC staff generated **\$17.47** in research and program funding. External revenues to support the mission of HSRC were received from contracts, grants, cooperative agreements, and donations.

## FY2019 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
- Appalachian Regional Commission
- 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
- Transportation Research Board of The National Academies
  - National Cooperative Highway Research Program

- 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 AND FOUNDATION SPONSORS

- AAA Foundation for Traffic Safety
- AAA Kansas
- America Walks
- 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

## FY2019 HSRC RESEARCHERS AND STAFF

The UNC Highway Safety Research Center 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 2019. This list includes current, former, and retired staff who were employed by HSRC during FY2019 (July 1, 2018 - June 30, 2019).

### BUSINESS SERVICES

Neil Batson  
**Business Officer**  
20 years of NC service

Courtney Blake  
**Administrative Support Specialist**

Daniel Harper  
**Contract Specialist**

Dianne Harrington  
**Business Manager**  
20 years of NC service

Ann Hume  
**Accounting Technician**

Linette Tyson  
**Contract Specialist**  
25 years of NC service

### RESEARCH PROGRAMS

Kristin Blank, M.L.A.  
**Pedestrian and Bicyclist Projects  
Communications Manager**

Kristen Brookshire, M.C.R.P.  
**Research Associate**  
5 years of NC service\*

Daniel Carter, M.S.C.E., P.E.  
**Senior Engineering  
Research Associate**  
15 years of NC service\*  
Served as HSRC Interim Director  
(Jan. 1-Dec. 2, 2018)

Michael Clamann, Ph.D.  
**Senior Human Factors Engineer**

Kara Lusk Dudley  
**Communications Specialist**

Dan Gelinne  
**Research Associate**

Christine Gomola, M.S.  
**Embedded Research Librarian**

Arthur Goodwin, M.A.  
**Senior Research Associate and  
Associate Director for  
Behavioral Sciences Research**

Katherine Harmon, Ph.D.  
**Postdoctoral Research Associate**

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

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

Bevan Kirley, M.S.  
**Senior Research Associate**

Wesley Kumfer, Ph.D.  
**Engineering Research Associate**

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

Bo Lan, Ph.D.  
**Research Associate**

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

Daniel Levitt  
**Research Associate**

Richard Lytle  
**Web Applications Programmer**

Lauren Marchetti  
**Senior Strategic Adviser**

Marie Melendez  
**Communications Specialist**

Caroline Mozingo  
**Senior Manager of Communications,  
Education and Outreach and  
Associate Director,  
Research Services**  
10 years of NC service\*  
Served as HSRC Interim Deputy  
Director (Jan. 1-Dec. 2, 2018)

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

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

Sarah O'Brien, M.E.S.M.  
**Senior Research Associate**  
15 years of NC service

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**  
15 years of NC service\*

## RESEARCH PROGRAMS (CONTINUED)

Randa Radwan, Ph.D., P.M.P.  
**HSRC Director**

Kristel Robison, M.S.W.  
**Research Associate**

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

Graham Russell  
**Graphic Designer**

Taha Saleem, Ph.D.  
**Postdoctoral Research Associate**

Laura Sandt, Ph.D., M.R.P.  
**Senior Research Associate and Associate Director, Vulnerable Road User Group**

Raghavan Srinivasan, Ph.D.  
**Senior Transportation Research Engineer and Associate Director, Engineering and Data Sciences Group**

Libby Thomas, M.S.  
**Senior Research Associate**

Yudan Wang, Ph.D.  
**Senior Research Associate**

Jonathon Weisenfeld  
**Design Services Manager**

Alyson West, M.C.R.P.  
**Junior Research Associate**

Michael Vann, M.S.  
**Junior Geospatial Data Analyst**

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

Charles Zegeer, M.S.C.E., P.E.  
**Senior Technical Advisor**

\* All years of service at HSRC

### Dr. Randa Radwan Named Director of HSRC

Randa Radwan, Ph.D., became the new director of the UNC Highway Safety Research Center in December 2018. She is the fifth person and first woman to lead the center. Randa has extensive experience in transportation safety and vehicle crashworthiness research. After earning a master's degree in electrical engineering from Rice University, she started her career at the U.S. Department of Transportation's National Highway Traffic Safety Administration. For 17 years, Randa served as a research program manager at NHTSA where she directed research in side crash protection, vehicle upper interior protection, vehicle and restraint system model development, crash test instrumentation, and signal analysis. Randa led a multi-disciplinary research program from concept to the notice for proposed rulemaking for NHTSA's 2007 Federal Motor Vehicle Safety Standard for side crash protection, which annually has been forecasted to save over 300 lives and reduce 400 serious injuries.



Randa Radwan addresses colleagues at a North Carolina Department of Transportation meeting.

## STAFF MILESTONES

### Neil Batson | Business Officer



Neil Batson started working at UNC 20 years ago; in 2017 he joined the HSRC staff. Neil is responsible for monitoring accounts to ensure that accurate and appropriate expenditures are within federal and university guidelines. He manages accounts for awarded projects and is responsible for planning, developing, and preparing cost proposals for a variety of federal, state, and private agencies, and assists with proposal development. Before joining the staff at UNC, Neil spent many years working in finance in the non-profit world.

### Kristen Brookshire | Research Associate



Kristen Brookshire celebrated her fifth anniversary as a full-time employee with HSRC. As a research associate, she conducts and supports research and programs related to bicycle/pedestrian safety and mobility. Kristen has developed guidance documents and research reports for a variety of audiences, including a primer for state highway transportation officials and transportation course materials for university instructors. She is currently leading the effort to develop a "state of knowledge" report for NHTSA on pedestrian and bicyclist safety. She has also contributed to projects about facility design and countermeasure selection, including the Guide to Improving Pedestrian Safety at Uncontrolled Crossing Locations and BIKESAFE: Bicycle Safety Guide and Countermeasure Selection System.

### Daniel Carter | Senior Engineering Research Associate



Daniel Carter worked at HSRC for 15 years, joining the staff in 2004. He was a senior research associate, using his civil engineering background to address highway safety from the standpoint of infrastructure improvements. Daniel was involved in numerous projects to evaluate safety improvements and produce crash modification factors (CMFs). He was integrally involved with a series of Federal Highway Administration projects, including Evaluation of Low Cost Safety Strategies, a project which focus on evaluating the crash saving benefits of low cost safety strategies, such as signing, striping, rumble strips, and flashing beacons. He also managed the FHWA CMF Clearinghouse to disseminate and communicate CMFs to the safety community. (Daniel departed HSRC in the summer of 2019.)

### Dianne Harrington | Business Manager



Dianne Harrington has worked at UNC for 21 years; 16 of those years have been at HSRC. She is the Research Administrator at HSRC, applying her expertise in financial management by working with a variety of complex, multi-year projects. In addition to working with the University Office of Sponsored Research to negotiate contract terms, Dianne is responsible for monitoring accounts to ensure that accurate and appropriate expenditures are within federal and university guidelines. Dianne manages accounts for awarded projects and is responsible for planning, developing, and preparing cost proposals for a variety of federal, state, and private agencies.

**Caroline Mazingo** | Senior Manager of Communications, Education and Outreach and Associate Director, Research Services



Now at HSRC for a decade, Caroline Mazingo began serving as the senior manager of communications, education, and outreach in January 2012. She leads HSRC's internal and external

communications, strategic development, and education efforts, and supports individual project communications needs, proactively disseminating key research findings to transportation, health, and safety practitioners, state and national-level policymakers, and researchers. Before joining the transportation research world in 2009, Caroline was a manager at a strategic communications and public relations firm in New York City, where she gained a range of media strategy, community relations, and crisis communications experience.

**Sarah O'Brien** | Senior Research Associate



Sarah O'Brien has worked in the UNC system for 15 years, joining the HSRC staff in 2018. Her experience covers a variety of bicycle and pedestrian transportation areas including planning, education, policy, and

research. She enjoys conducting observational studies and provides technical assistance to practitioners through program development and course delivery on topics like design, accessibility, enforcement, and decision-making processes to improve safe walking and bicycling within communities. Sarah is a certified National Highway Institute (NHI) instructor and led the development of the North Carolina Department of Transportation (NCDOT) Let's Go NC! curriculum.

**Nancy Pullen-Seufert** | Senior Research Associate and Director, National Center for Safe Routes to School



Nancy Pullen-Seufert has been with HSRC for 15 years, focusing on pedestrian and bicyclist safety and mobility, particularly for children and older adults. She brings a background in public health and injury prevention to

the team. Nancy serves as the director for the National Center for Safe Routes to School, associate director for the Pedestrian and Bicycle Information Center, and as a senior research associate for HSRC. She also leads the Vision Zero for Youth initiative, which includes an international scope. Her work includes technical assistance and resource development to translate research into practice, program evaluation, and training development. Nancy has served as the principal investigator for projects for the federal government, private foundations, and state government agencies.

**Linette Tyson** | Contract Specialist



Linette Tyson has worked for UNC for 25 years. She started with HSRC in 2012 as a human resources facilitator and executive assistant to the director. Linette now serves as a contract specialist and

research administrator for HSRC, helping with research proposals, awards, and transactions; maintaining records in compliance with institutional and research-sponsored policies; and managing grant, contract, and award administrative work.

## HSRC researchers recognized with three outstanding paper awards at TRB 2019

HSRC researchers were recognized with three outstanding paper awards at the 2019 Transportation Research Board Annual Meeting:

- The Standing Committee on Pedestrians (ANF10) presented the 2019 Outstanding Paper Award to *Midblock Pedestrian Crash Predictions in a Systemic, Risk-Based Pedestrian Safety Process*, written by Engineering Research Associate Wesley Kumfer (lead author) and Senior Research Associates Bo Lan, Laura Sandt, and Libby Thomas. (see photo)
- The Standing Committee on Highway Safety Performance (ANB25) presented the 2019 Ronald C. Pfefer Best Paper Award to the author team led by Raghavan Srinivasan and Daniel Carter for the paper, *A Before-After Evaluation of the Realignment of Horizontal Curves on Rural Two-Lane Roads*.



HSRC's Laura Sandt and Libby Thomas accept the 2019 Outstanding Paper Award on behalf of the author team from members of TRB's Standing Committee on Pedestrians.

- The Bicycle and Pedestrian Data Subcommittee (ABJ35(3)) presented the 2019 Outstanding Paper Award to the author team led by Senior Research Associate Krista Nordback for *Minimizing AADNT Estimation Errors: How Many Counters are Needed per Factor Group?*

## ADVISORY BOARD

The HSRC Advisory Board assists 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. Kelly R. Evenson  
**Research Professor, Department of  
 Epidemiology, UNC-Chapel Hill**

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

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

Dr. Ashok Krishnamurthy  
**Deputy Director,  
 Renaissance Computing Institute,  
 UNC-Chapel Hill**

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

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

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

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



## FY2019 PUBLICATIONS AND PRESENTATIONS

In FY2019 (July 1, 2018-June 30, 2019), HSRC researchers published 90 publications and presentations that reflect the many areas of HSRC's expertise including engineering, data, design of facilities for pedestrians, cyclists and motor vehicles, human factors, safety, Safe Systems, technology, teen driving, and more.

- Anarkooli, A. J., Persaud, B., Hosseinpour, M., & Saleem, T. (2018, September). Comparison of univariate and two-stage approaches for estimating crash frequency by severity - Case study for horizontal curves on two-lane rural roads. *Accident Analysis and Prevention*. doi:10.1016/j.aap.2018.08.015
- Blackburn, L., Zegeer, C. V., & Brookshire, K. (2018). *Field guide for selecting countermeasures at uncontrolled pedestrian crossing locations* (Field Guide No. FHWA SA 18 018) (p. 22). Washington, DC: FHWA.
- Blank, K., S. LaJeunesse, L. Sandt, S. Johnson, and S. O'Brien. (May 2019). *Watch for Me NC Bicycle and Pedestrian Safety, Education, and Enforcement Program: 2018 Summary*. North Carolina Department of Transportation Report.
- Carter, D., & O'Brien, S.W. (2019, January). *Glow-in-the-dark pathways and transportation materials: A synthesis of currently available technologies, completed projects, and associated costs*. In Proceedings of the 98th Annual Meeting of the Transportation Research Board, Washington, DC.
- Carter, D., Harrell, S., & Gomola Mullin, C. (2019). *Synthesis of information on red-light camera programs and effects*. Chapel Hill, NC: UNC Highway Safety Research Center.
- Cherry, C., Hezaveh, A. M., Noltinius, M., Khattak, A., Merlin, L., Dumbaugh, E., Ragland, D., & Sandt, L. (2018). *Completing the picture of traffic injuries: Understanding data needs and opportunities for road safety* (p. 150) [Final Report]. Chapel Hill, NC: Collaborative Sciences Center for Road Safety.
- Clamann, M. (2018, November). Guest lecture: *Introduction to human factors*, ECE590-Human-Computer Interaction, Duke University Pratt School of Engineering.
- Clamann, M. (2019). *Automated vehicles and schools: An analysis of deployment issues*. In Stanton, N. et al. (eds.) 10th International Conference on Applied Human Factors & Ergonomics and the Affiliated Conferences, Springer.
- Clamann, M. (2019, January). *A human factors perspective on designing for all*. Collaborative Sciences Center for Road Safety, Coffee and Conversation Lecture Series.
- Clamann, M. (2019, January). *First pedestrian fatality from an automated vehicle*. TRB Pedestrians and Autonomous Vehicle Interaction Subcommittee.
- Clamann, M. (2019, January). Guest lecture: *Autonomous vehicles: Technology and policy, law of emerging policies*, UNC School of Law.
- Clamann, M. (2019, June). Autonomous vehicle technology and regulation. Guest lecture, Traffic Crash Reconstruction and Analysis (CE556) Department of Civil and Environmental Engineering, University of Tennessee, Knoxville.
- Clamann, M. (2019, June). Communication challenges for automated vehicles and vulnerable road users. Department of Civil and Environmental Engineering, University of Tennessee, Knoxville.
- Clamann, M. (2019, June). How do I make eye contact with a robot car? Oregon Department of Transportation Joint Meeting on Bicyclist and Pedestrian Safety. Portland, OR.
- Clamann, M., & Kaber, D. B. (2018). Augmenting fine motor skill training with Haptic error amplification. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 62(1), 1547-1551. doi:10.1177/1541931218621350
- Clamann, M., & Pullen-Seufert, N. (2019, January). *Automated vehicles and safety around schools*. TRB School Transportation Subcommittee.
- Combs, T. S., Sandt, L. S., Clamann, M. P., & McDonald, N. C. (2018). Automated vehicles and pedestrian safety: Exploring the promise and limits of pedestrian detection. *American Journal of Preventive Medicine*, 56(1), 1-7. doi:10.1016/j.amepre.2018.06.024

- Combs, T. S., Sandt, L. S., Clamann, M.P., & McDonald, N. C. (2019). Automated vehicles and pedestrian safety: Exploring the promise and limits of pedestrian detection. *American Journal of Preventive Medicine*, 56(1), 1–7. doi:10.1016/j.amepre.2018.06.024
- Feng, Z., Yang, M., Kumfer, W., Zhang, W., Du, Y., & Bai, H. (2018). Effect of longitudinal slope of urban underpass tunnels on drivers' heart rate and speed: A study based on a real vehicle experiment. *Tunneling and Underground Space Technology*, 81, 525–533. doi:10.1016/j.tust.2018.08.032
- Foss, R. D. (2018). Adolescent drivers, experiential learning, and the driver licensing process: New findings, emerging questions, and continuing policy needs. *The Journal of Adolescent Health*, 63(5), 521–522. doi:10.1016/j.jadohealth.2018.08.008
- Foss, R., Wang, Y., O'Brien, N., Goodwin, A., & Harrell, S. (2019) *Evaluation of an advanced driver training program for young traffic offenders*. 98th Annual Meeting of the Transportation Research Board, Washington, DC.
- Goodwin, A. H., Kirley, B. B., & Foss, R. D. (2018). *Motorcycle Safety: A review of the state of the knowledge*. Washington, DC: NHTSA.
- Goodwin, A.H. (2019, April). Young Drivers Today: Where Do We Go from Here? Panel presentation at the annual Lifesavers meeting, Louisville, KY.
- Goodwin, A.H. (2019, February). A Comprehensive Program to Support Parents of New Drivers in North Carolina. Presentation to the Driver Education Advisory Committee. Raleigh, NC.
- Goodwin, A.H. (2019, February). Young Drivers, Driver Education, and the Change in Age of Licensure. Presentation at the Collaborative Sciences Center for Road Safety Speaker Series. Chapel Hill, NC.
- Goodwin, A.H. (2019, January). Recent Research on Motorcycles and Mopeds. Poster presenter at the 98th Annual Meeting of the Transportation Research Board, Washington, DC.
- Goodwin, A.H. (2019, July). Parents of New Drivers: Helpful or Hopeless? Presentation at the 63rd Annual ADTSEA Conference. Burlington, VT.
- Goodwin, A.H. (2019, March). Social Norms and Health Behaviors. Presentation to the NC Department of Health and Human Services. Raleigh, NC.
- Goodwin, A.H. (2019, March). GDL Effectiveness: Engaging Parents & Strengthening Laws. Panel presentation at the annual Lifesavers meeting, Louisville, KY.
- Goughnour, E., Carter, D., Lyon, C., Persaud, B., Lan, B., Chun, P., Hamilton, I., & Signor, K. (2018). *Safety evaluation of protected left-turn phasing and leading pedestrian intervals on pedestrian safety* (Safety Evaluation FHWA-HRT-18-044; p. 96). Washington, DC: Federal Highway Administration.
- Harmon, K.J. (2019, March). *Opioids, emerging response, and the problem of drugged driving*. Collaborative Sciences Center for Road Safety, Coffee and Conversation Lecture Series.
- Harmon, K.J., Ising A., Sandt, L., & Waller, A. (2019, January). *Evaluation of pedestrian/bicycle crash injury case definitions for use with NC DETECT*. Poster session presented at the International Society for Disease Surveillance Annual Conference, San Diego, CA.
- Harmon, K.J., Peticolas, K., Waller, A.E. (2019, April). *North Carolina data integration for motor vehicle crash injury research: The long road ahead*. Poster session presented at the Safe Systems Summit, Durham, NC.
- Johnson, E., Kolbe, M. B., & LaJeunesse, S. (2018, October). *Better together: Partnering to advance bicycling and walking*. Presented at the NC Bike/Walk Summit. Raleigh, NC.
- Johnstone, D., Nordback, K., & Kothuri, S. (2018). Annual average nonmotorized traffic estimates from manual counts: Quantifying error. *Transportation Research Record: The Journal of the Transportation Research Board*, 2672(43), 134–144. <https://doi.org/10.1177/0361198118792338>
- Kumfer, W., Harkey, D., Lan, B., Srinivasan, R., Carter, D., Patel Nujjetty, A., Eigen, A. M., & Tan, C. (2019). Identification of critical intersection angle through crash modification functions. *Transportation Research Record: The Journal of the Transportation Research Board*, 1–13. <https://doi.org/10.1177/0361198119828682>
- Kumfer, W., LaJeunesse, S., Sandt, L., & Thomas, L. (2019, April). Speed, kinetic energy, and the safe systems approach to safer roadways. *ITE Journal*, 32–36.

- Kumfer, W., Thomas, L., Sandt, L., & Lan, B. (2019). Midblock pedestrian crash predictions in a systemic, risk-based pedestrian safety process. *Transportation Research Record: The Journal of the Transportation Research Board*, 1–13. <https://doi.org/10.1177/0361198119847976>
- LaJeunesse, S. (2018, November). *Getting to Safe Systems: Changing the road safety paradigm one coordinated action at a time*. Invited presentation for the Active Knox Healthy Communities by Design Speaker Series. Knoxville, TN.
- LaJeunesse, S. (2018, October). *A brief history of road safety in the U.S. and potential pathways forward*. Invited presentation for the PLAN 636 Urban Transportation Planning course. Chapel Hill, NC.
- LaJeunesse, S. (2018, October). *Active routes to school: What's "behind the data?"* NC Bike/Walk Summit. Raleigh, NC.
- LaJeunesse, S. (2018, October). *Designing Vision Zero for diffusion with a focus on youth*. Invited presentation for the Northeast Pedestrian Safety Summit. Waltham, MA.
- LaJeunesse, S. (2018, October). *Making active school travel happen*. Keynote address presented at the Ontario Active School Travel Summit. Toronto, Ontario.
- LaJeunesse, S. (2018, October). *Pedestrian injury: A little understood public health crisis*. Invited presentation for the UNC Injury as a Public Health Problem course. Chapel Hill, NC.
- LaJeunesse, S. (2019, April). *Setting the scene for shared safety goals*. Presentation at the inaugural Safe Systems Summit. Durham, NC.
- LaJeunesse, S. (2019, January). *Building systems into a safe system: From theory to practice*. Presentation at the 98th Annual Meeting of the Transportation Research Board, Washington, DC.
- LaJeunesse, S. (2019, January). *Complete streets as safe systems*. Invited presentation for the PLAN 590 Complete, Safe, Equitable Streets course. Chapel Hill, NC.
- LaJeunesse, S. (2019, January). *Safe systems and safety culture*. Invited presentation to the Roadway Safety Culture Subcommittee. Washington, DC.
- LaJeunesse, S. (2019, May). *Shifting toward and active school travel culture: Perspectives on social marketing*. Invited presentation to the Ontario Active School Travel Council Parent Engagement Working Group. Toronto, ON.
- LaJeunesse, S. (2019, May). *The epidemiology of bicyclist and pedestrian injuries in North Carolina: What we know, what we don't, and where we're headed*. Invited presentation to the Epidemiology Section of the NC Department of Health and Human Services. Raleigh, NC.
- LaJeunesse, S., Heiny, S., Evenson, K. R., Fiedler, L. M., & Cooper, J. F. (2018). Diffusing innovative road safety practice: A social network approach to identifying opinion leading U.S. cities. *Traffic Injury Prevention*, 19(8), 832–837. <https://doi.org/10.1080/15389588.2018.1527031>
- LaJeunesse, S., Marshall, S., Heiny, S., Naumann, B., Evenson, K., Cooper, J., & Doggett, S. (2018). *Structures of stakeholder relationships in making road safety decisions* (Final Report No. CSCRS-R1; p. 27). Chapel Hill, NC: CSCRS.
- LaJeunesse, S., Edwards, C., Lacy, K., Watterson, B., & Watson, B. (2018, October). *Shaping better transit safety outcomes through a systems perspective*. NCDOT Public Transit Division Training Conference. Chapel Hill, NC.
- Lan, B., Srinivasan, R., Carter, D., Persaud, B., & Eccles, K. (2018, January). *Safety evaluation of cable median barriers in combination with rumble strips on divided roads*. 5. 98th Annual Meeting of the Transportation Research Board, Washington, DC.
- Le, H.T., West, A., Quinn, F., & Hankey, S. (2019). Advancing cycling among women: An exploratory study of North American cyclists. *Journal of Transport and Land Use*, 12(1), 355–374.
- Liu, J., Wen, H., Zhu, D., & Kumfer, W. (2019). Investigation of the contributory factors to the guessability of traffic signs. *International Journal of Environmental Research and Public Health*, 16(1). <https://doi.org/10.3390/ijerph16010162>
- National Highway Traffic Safety Administration, & UNC Highway Safety Research Center. (2018). *2017 FARS/CRSS pedestrian bicyclist crash typing manual: A guide for coders using the FARS/CRSS ped/bike typing tool* (User Manual No. DOT HS 812 564; p. 75). Washington, DC: NHTSA.

- Naumann, R. B., Heiny, S., Evenson, K. R., LaJeunesse, S., Cooper, J. F., Doggett, S., & Marshall, S. W. (2019). Organizational networks in road safety: Case studies of U.S. Vision Zero cities. *Traffic Injury Prevention*, 20(4), 378–385. <https://doi.org/10.1080/15389588.2019.1587752>
- Naumann, R.B., Kuhlberg, J., Sandt, L., Heiny, S., Apostolopoulos, Y., Marshall, S.W., & Lich, K. H. (2019). Integrating complex systems science into road safety research and practice, part 1: Review of formative concepts. *Injury Prevention*. <https://doi.org/10.1136/injuryprev-2019-043315>
- Naumann, R.B., Kuhlberg, J., Sandt, L., Heiny, S., Kumfer, W., Marshall, S.W., & Lich, K. H. (2019). Integrating complex systems science into road safety research and practice, part 2: Applying systems tools to the problem of increasing pedestrian death rates. *Injury Prevention*. <https://doi.org/10.1136/injuryprev-2019-043316>
- O'Brien, S. (2018, October) *Watch for Me NC – A plan for action*. Presented at the NC Bike/Walk Summit, Raleigh, NC.
- O'Brien, S. (2018, September). *Help that counts: How state-level bicycle and pedestrian counting programs can assist cities and regions*. Presented at Walk/Bike/Places, New Orleans, LA.
- Owens, J. M., Sandt, L., Morgan, J. F., Sundararajan, S., Clamann, M., Manocha, D., Steinfeld, A., Maheshwari, T., & Cooper, J. F. (2019). Challenges and opportunities for the intersection of vulnerable road users (VRU) and automated vehicles (avs). In G. Meyer & S. Beiker (Eds.), *Road vehicle automation 5* (pp. 207–217). Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-319-94896-6\\_18](https://doi.org/10.1007/978-3-319-94896-6_18)
- Peticolas, K., Barnett, C., Harmon, K.J., Ising, A., Waller, A.E. (2019, April). *Motor vehicle crash injury research in North Carolina: An overview of data sources*. Poster session presented at the Safe Systems Summit, Durham, NC.
- Pullen-Seufert, N. (2018, December). *Vision Zero for Youth*. Presentation to Safe Systems Adoption in Mid-Size Cities, Road to Zero Grantees.
- Pullen-Seufert, N. (2018, December). *Vision Zero for Youth: Saving Lives Starting with Children*. Presentation to the US Department of State International Visitor Leadership Program.
- Pullen-Seufert, N. (2018, July). Pedestrian and bicycle safety: New tools for teaching. Panel presentation at the American Driver and Traffic Safety Education Association Annual Meeting.
- Pullen-Seufert, N. (2018, October). *Vision Zero for Youth symposium*. Symposium moderator and presenter at WALK21 Conference in Bogota, Colombia.
- Pullen-Seufert, N. (2019, February). *Vision Zero for Youth Leadership Award Presentation*. Remarks at United Nations Global Road Safety Strategy Launch.
- Pullen-Seufert, N. (2019, March). *Vision Zero for Youth*. Panel presentation at Lifesavers Conference on Highway Safety Priorities.
- Pullen-Seufert, N. (2019, March). *Vision Zero for Youth*. Presentation to Advisory Committee on Transportation Choices, Arlington, VA.
- Pullen-Seufert, N. (2019, May). *Walk to School Day National Event Welcome*. [Remarks]. National Walk to School Day Event, Capitol Hill, Washington, DC.
- Radwan, R. (2019, January). Remarks on Vision Zero for Youth at the Fédération Internationale de l'Automobile Foundation (FIAF) meeting at the 98th Annual Meeting of the Transportation Research Board, Washington, DC.
- Radwan, R., Marshall, S., & McDonald, N. (2019, April). *The Road Ahead*. Presentation at the Safe Systems Summit Closing Session, Durham, NC.
- Radwan, R., & Sandt, L. (2019, May). *Safe Systems Summit Recap and Takeaways*. Presentation at the NC Executive Committee on Highway Safety, Raleigh, NC.
- Raulerson, M. T., Leahy, A., Semler, C., Mah, S., Gelinne, D., Brookshire, K., Kumfer, W., Leahu-Aluas, O., Stout, M., & Smith, B. (2018). *Strategies for accelerating multimodal project delivery* (Workbook FHWA-HEP-19-006; p. 54). Washington, DC: US Department of Transportation.
- Saleem, T., Lan, B., Srinivasan, R., Sandt, L., Blank, K., & Blank, S. A. (2018, September). *Crash based evaluation of the Watch for Me NC program* (Final Report No. NCDOT Research Project No. 2018-38; p. 42). Raleigh, NC: North Carolina Department of Transportation.

- Sandt, L. (2018-2019). *Dockless electric kick scooter systems: What we know and don't know*. Presentations made at the Brain Injury Council, Raleigh, NC (2018, December 12); NCDOT ECHS, Raleigh, NC (2019, January 11); TRB Pedestrian Committee, Raleigh, NC (2019, January 14); DHHS Injury and Violence Prevention Branch Meeting, Raleigh, NC (2019, February 18).
- Sandt, L. (2019, April 23). *Past successes and future challenges in traffic safety*, Safe Systems Summit Opening Session, Durham, NC.
- Sandt, L. (2019, May 30). *Emerging technologies and what disruption means for active travel*. America College of Sports Medicine presentation, Orlando, FL.
- Sandt, L. (2019, June 20). *Automated vehicle technologies and what disruption means for active travel*. ITE webinar.
- Sandt, L., West, A., Johnson, S., Brookshire, K., Evenson, K., Blackburn, L., Peach, K., Tartala, M., Ricklin, A., Shah, S., Rodriguez, D.A., & Corburn, J. (2019, June). *A research roadmap for transportation and public health*. The National Academies Press, Washington, DC. <https://doi.org/10.17226/25644>
- Sandt, L., West, A., Johnson, S., Brookshire, K., Evenson, K., Blackburn, L., Peach, K., Tartala, M., Ricklin, A., Shah, S., Rodriguez, D.A., & Corburn, J. (2019, June). *A research roadmap for transportation and public health final report: Research methods and background materials supporting the research roadmap*. The National Academies Press, Washington, DC.
- Schneider, R. J., Kothuri, S., Blackburn, L., Manaugh, K., Sandt, L., & Fish, J. (2019, April 26). *Pedestrian Transportation Research: Past and Future*. Transportation Research Board Centennial Paper. [In press].
- Smock, R., DeLisle, D., Harmon, K.J., Waller, A.E. (2019, April). *Systems thinking to prevent pedestrian deaths on railroads*. Poster session presented at the Safe Systems Summit, Durham, NC.
- Srinivasan, R., (2019, May 7). *Crash Based Evaluation of the Watch for Me Program*, Presented at *North Carolina Department of Transportation Research and Innovation Summit*, North Carolina A&T State University.
- Srinivasan, R., Carter, D., Lan, B., & Signor, K. (2018). Investigation of driver performance in different horizontal and vertical curve combinations using SHRP2 naturalistic driving data. *ATS International Journal, Special Issue*, 121-136.
- Srinivasan, R., Lan, B., Carter, D., Smith, S., & Signor, K. (2018, July). Crash modification factors for the flashing yellow arrow treatment at signalized intersections. *Transportation Research Record: The Journal of the Transportation Research Board*, 1-11. doi:10.1177/0361198118788192
- Srinivasan, R., Lan, B., Carter, D., Smith, S., Signor, K., & Persaud, B. (2019). *Safety evaluation of pedestrian countdown signals* (No. FHWA-HRT-19-045; p. 52). McLean, VA: Federal Highway Administration.
- Thomas, L., Gelinne, D., Brookshire, K., LaJeunesse, S., & Sundstrom, C. (2018). *Coordinating road safety reviews with bicycle and pedestrian project prioritization: Final report on development and implementation of a guide for North Carolina agencies* (Final Report No. FHWA NC 2016-14) (20 p.). Raleigh, NC: NC Department of Transportation.
- Thomas, L., Gelinne, D., Brookshire, K., Sundstrom, C., & LaJeunesse, S. (2018). *North Carolina pedestrian and bicycle road safety assessment guide* (Guide No. RP 2016-14) (90 p.). Chapel Hill, NC: UNC Highway Safety Research Center.
- Thomas, L., Sandt, L. S., Zegeer, C. V., Kumfer, W., Lang, K., Lan, B., Horowitz, Z., Butsick, A., Toole, J., & Schneider, R. J. (2018). *Systemic pedestrian safety analysis* (p. 111). Washington, DC: Transportation Research Board. <https://doi.org/10.17226/25255>
- Wang, Y., Choi, B.J., Kuo, M., & Baggett, C. (2019). *Linking data from multiple sources to enhance research on young drivers*. 98th Annual Meeting of the Transportation Research Board, Washington, DC.

# Safe Systems Summit convenes hundreds to pave new path to safer roadways



Panelists discussed past successes and future challenges in traffic safety during the opening plenary session.



Above: Students from all over the U.S. showcased research projects.

Below: The Duke HAL van showed simulations of autonomous vehicles.



In April 2019, CSCRS and the North Carolina Governor's Highway Safety Program hosted the Safe Systems Summit: Redefining Transportation Safety, a two-day conference held in Durham, NC, devoted to exploring the changing nature of traffic safety challenges.

More than 340 participants gathered together to share and develop a stronger understanding of principles of Safe Systems and systems science that can help frame efforts to reduce traffic injuries and fatalities. Attendees from across the United States included transportation, public health, and city and government professionals and advocates, as well as students.

The Summit featured 17 sessions, two keynote addresses, a student poster showcase and contest, networking events, a walking tour of historic downtown Durham, and the Duke University Humans and Autonomy Lab (HAL) mobile command center van.

More highlights by the numbers:

- Attendees from **29 different states**
- Students from **33 universities and colleges**
- A diverse faculty of **51 speakers** representing federal, state, and local governments and agencies; universities; private industry; and other institutions invested in safety
- 43 research posters** by students and other researchers
- 11 sponsors** including safety and public health organizations and private companies

The Safe Systems Summit utilized the expertise of all HSRC staff—communications and event planning, curriculum development, research presentations, and on-site coordination were part of the all-hands-on-deck approach leading to the successful event. To learn more about the event, visit [www.roadsafety.unc.edu/summit/summit-presentations/](http://www.roadsafety.unc.edu/summit/summit-presentations/).

# FY2019 STRATEGIC COMMUNICATIONS HIGHLIGHTS

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 FY2019, as well as a selection of others that continue to be maintained by HSRC.

## NEW AND UPDATED WEBSITES

### North Carolina Senior Driver

[ncseniordriver.org](http://ncseniordriver.org)

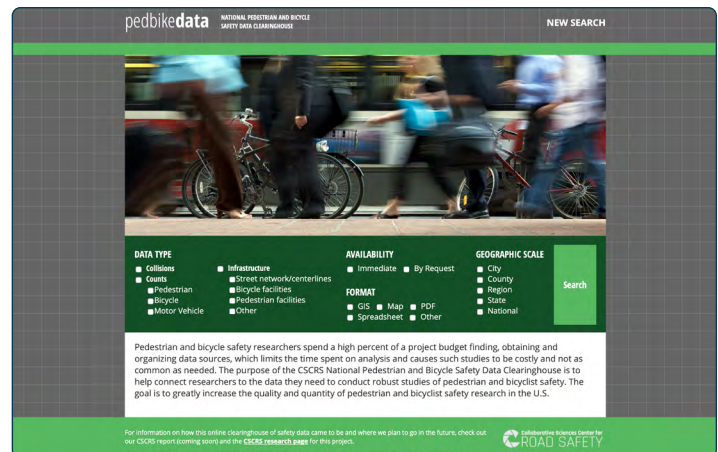
Launched in FY2019, this site offers resources and information on how aging drivers can stay safe behind the wheel; suggestions for caregivers who support aging drivers and assist with their transportation needs; and multidisciplinary information related to serving the unique needs of aging drivers.



### National Pedestrian and Bicycle Safety Data Clearinghouse

[pedbikedata.org](http://pedbikedata.org)

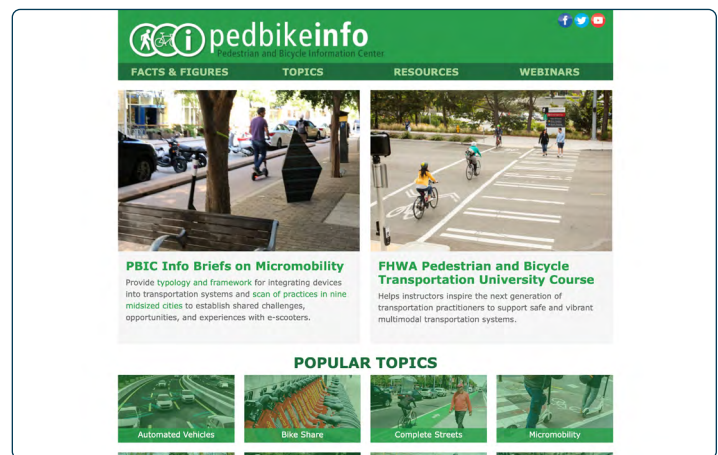
Serves as a central, open data source for traffic safety professionals to access for planning and safety analysis purposes, launched in FY2019.



### Pedestrian and Bicycle Information Center

[pedbikeinfo.org](http://pedbikeinfo.org)

This is a clearinghouse for pedestrian and bicycle resources, with information about health and safety, engineering, advocacy, education, enforcement, and access and mobility. The site underwent a sweeping structural redesign placing more emphasis on topic areas and making it easier for visitors to find resources related to those topics.



[@pedbikeinfo](https://twitter.com/pedbikeinfo) [facebook.com/pedbikeinfo](https://facebook.com/pedbikeinfo)

## OTHER WEBSITES HSRC MAINTAINS

### Accessible Pedestrian Signals: A Guide to Best Practices

[apsguide.org](http://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](http://pedbikeinfo.org/bicyclesaferjourney)

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

### BIKESAFE Guide & Countermeasure Selection System

[pedbikesafe.org/bikesafe](http://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](http://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 listing of locations where families can go for education and assistance with car seat installation.

### Center for the Study of Young Drivers

[csyd.unc.edu](http://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.

### Collaborative Sciences Center for Road Safety

[roadsafety.unc.edu](http://roadsafety.unc.edu)

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

 @CSCRSinfo
  [facebook.com/CSCRSinfo](https://facebook.com/CSCRSinfo)

### Crash Modification Factors Clearinghouse

[cmfclearinghouse.org](http://cmfclearinghouse.org)

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

### Highway Safety Information System

[hsisinfo.org](http://hsisinfo.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](http://hsrc.unc.edu)

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

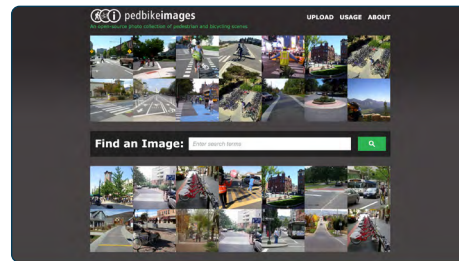
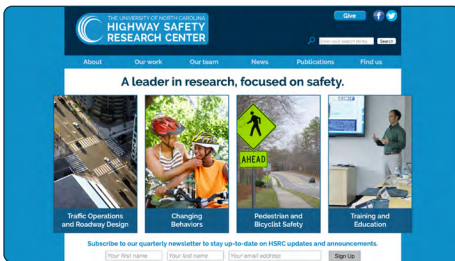
 @HSRCinfo
  [facebook.com/HSRCinfo](https://facebook.com/HSRCinfo)

### PedBikeImages

[pedbikeimages.org](http://pedbikeimages.org)

An open access collection of pedestrian- and bicyclist-related images maintained by the Pedestrian and Bicycle Information Center.





## Pedestrian Safer Journey

[pedbikeinfo.org/pedsaferjourney](http://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](http://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](http://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](http://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](http://saferouteswakecounty.org)

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

## Vision Zero for Youth

[visionzeroforyouth.org](http://visionzeroforyouth.org)

A website for Vision Zero for Youth, an organization working to accelerate getting to zero traffic deaths, starting with children.

## Walk and Bike to School

[walkbiketoschool.org](http://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](https://facebook.com/walkbiketoschoolday)

## Walk Friendly Communities

[walkfriendly.org](http://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](https://twitter.com/walkfriendly)

## Watch for Me NC

[watchformenc.org](http://watchformenc.org)

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



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