



SAPR Report for University Transportation Centers

This is a semi-annual report of program progress and performance for the Collaborative Sciences Center for Road Safety, a national UTC focused on safety.

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1. Accomplishments

1.1 What are the major goals and objectives of the program?

CSCRS's [Strategic Roadmap](#) outlines our goals and objectives detailed in this report.

1.2 What was accomplished under these goals?

Selected highlights for this performance period include:

- Worked with multiple partners to release findings from the June 2023 Federal Highway Administration (FHWA) report “Improving Pedestrian Safety on Urban Arterials: Learning from Australasia,” which came out of the agency’s Fall 2022 Global Benchmarking Program tour of Australia and New Zealand that CSCRS Director Laura Sandt participated in.
- Launched planning for the Safe Mobility Conference, to be held in March 2024 in Chapel Hill, NC, with co-host/CSCRS partner AAA Foundation for Traffic Safety.
- Hosted the third annual NC Vision Zero Leadership Team Institute in June 2023.
- Highlighted when University of California, Berkeley (UCB) researcher Jill Cooper received the 2023 NHTSA Public Service Award at the 2023 Lifesavers National Conference.
- Spotlighted research accomplishments of several CSCRS students through webinars, articles, and more.
- Concluded CSCRS’s [Research to Practice Bytes online learning series](#) with two sessions.
- Generated dozens of CSCRS research-related peer-reviewed publications and presentations.
- Concluded work on several [research projects](#).
- Taught 11 transportation safety-related university courses and engaged hundreds of K-12, undergraduate, graduate, and doctoral students in CSCRS research, education, and professional development projects.

The bulleted sections below describe the accomplishments according to specific goals and objectives of CSCRS.

Goal 1:

To support Goal 1—ensuring that Safe Systems and systems science principles and approaches are shared, understood, and adopted by traffic safety professionals—we performed activities related to the following objectives:

Objective 1-1: Conduct research to generate a model(s) for what a Safe Systems approach, enhanced with systems science tools, can look like now and in the future and identify promising policies/practices that can be adopted to reduce fatalities and serious injuries.

All work on research projects that meet this objective is complete.

Objective 1-2: Lead training, outreach, and professional development related to Safe Systems approach and related policies and practices.

Key examples:

- In June 2023, several CSCRS researchers presented at the third annual [NC Vision Zero Leadership Institute](#) in Chapel Hill, NC. The Institute is a training opportunity for North Carolina communities with Vision Zero initiatives, or those who are considering the adoption of the initiative.
- CSCRS concluded its [webinar series](#) through this reporting period with 2 final webinars:
 - [Unplanned pandemic planning: Lessons learned from rapid COVID street transformations](#), May 31, 2023 (69 attendees; 47 video views)
 - [Developing an online Vision Zero resource library](#), April 26, 2023 (48 attendees; 45 video views)
- Launched planning for the Safe Mobility Conference, to be held in March 2024 in Chapel Hill, NC, with co-host/CSCRS partner AAA Foundation for Traffic Safety.

Objective 1-3: Integrate Safe Systems principles into other road safety/public health/planning initiatives.

- CSCRS’s UNC team of the Highway Safety Research Center (HSRC), Injury Prevention Research Center (IPRC), and the Department of City and Regional Planning (DCRP) continued its leadership of the Road to Zero Coalition’s Safe System Working Group. CSCRS researchers at UNC have been members of the working group for years under the leadership of the Institute of Transportation Engineers and have supported the coalition’s effort to compile Safe System resources and embed the Safe System concept into roadway safety practice. The group is collaborating with other working groups under the Road to Zero Coalition to advance the discussion on speed safety cameras, equity, and effective collaborations for safety. Other members of the working group include several CSCRS Advisory Board members.

Objective 1-4: Facilitate states and cities in implementing a Safe Systems approach in different contexts, utilizing the tools and research from CSCRS.

CSCRS continues to engage with multiple agencies, particularly in consortium member states and cities, to determine the needs of state and local governments in implementing Safe Systems. The following activities contributed in this area:

- Eric Dumbaugh, Florida Atlantic University (FAU), assisted the City of Deerfield Beach, FL, in the development of a Vision Zero Action Plan. Dumbaugh also served on a working group for the Broward metropolitan planning organization (MPO) developing a safety framework for a “smart corridor” pilot project.
- CSCRS has representatives on the North Carolina Executive Committee for Highway Safety; work on this committee has included creating white papers for the NC Strategic Highway Safety Plan.

For additional specific projects bridging research to local practice, see Objective 2-3.

Goal 2:

To support Goal 2—ensuring that cutting-edge research, tools, data, and resources compatible with a Safe Systems approach are developed and utilized—we performed activities related to the following objectives:

Objective 2-1: Perform road safety research that explores core safety issues and transformational changes (from technology, ride-sharing services, etc.) and integrates public health concepts and methods.

Work continued on this project:

- [R36](#): Laying the Groundwork for a National Pedestrian Injury Surveillance System
 - PI: Katherine Harmon, HSRC
 - Wrapping up final analysis.

All work on other research projects that meet this objective is complete.

In addition, work continued on a project funded with matching funds from CSCRS partner AAA Foundation for Safety. The project, “Predicting Automated Vehicle Safety in an Uncertain Future,” aims to develop a configurable model and interface representing how the numbers of crashes and fatal and nonfatal injuries change over time because of different advanced driver-assistance system (ADAS) diffusion scenarios on U.S. roadways.

Objective 2-2: Develop research-driven tools, resources, and data sets to support problem identification and understanding.

All work on research projects that meet this objective is complete.

Objective 2-3: Translate research knowledge to support the development of comprehensive programs, policies, and practices that are proven to reduce fatalities and severe injuries.

All work on research projects that meet this objective is complete.

Objective 2-4: Broadly disseminate research products and findings, with emphasis on reaching new and non-traditional audiences.

Objective 1-2 covered efforts to disseminate research, specifically relating to systems-oriented projects.

Table 1 highlights additional presentations made in this reporting period to disseminate research findings to diverse groups.

Table 1: Select CSCRS outreach highlights

UCB	Griswold, J. Understanding Bicycle Suitability. ITS Research Roundtable, May 5, 2023 (about 40 attendees).
UNC	McDonald, N. The Congestion Impacts of Urban Freight. ATINER Conference on Transportation, Athens, Greece, May 2023.
	Naumann, R.B., Hassmiller Lich, K., Keefe, E., & Lajeunesse, S. Implementation Planning for the Burlington-Graham MPO Transportation Safety Plan. Burlington, NC, March 9 and April 14, 2023 (two-part planning workshop series).
	Keefe, E.M. A Novel Support Hub for Safe System Planning and Implementation. Lifesavers Conference, Seattle, WA, April 4, 2023.
	Keefe, E.M. NC Vision Zero Coalition Support Model. National Safety Council webinar (virtual), August 17, 2023.
	Sandt, L. What We Don't Know CAN Hurt Us: Data Needs and Opportunities to Improve Micromobility Safety. Traffic Records Forum, Nashville, TN, July 2023.
	Sandt, L., Harmon, K., & Cherry, C. Established and Emerging Data Sources for Micromobility Safety. Traffic Records Forum, Nashville, TN, July 10, 2023.
UTK	Cherry, C. Micromobility Policy Insights Drawn from Emerging Data Sources. Arizona State University Transportation Seminar, April 27, 2023.
	Huff, S., Chakraborty, S., Beck, J., Nafziger, E., Taylor, C., & Carter, J. Advancing Accelerated Testing Protocols for Safe and Reliable Self-Driving Operations through Iterative Deployment in Physical and Digital Worlds. SAE 2023 WCX, Detroit, MI, April 18 - 20, 2023.
	Khattak, A. The Role of Crash Preventative Systems for Vulnerable Road Users. Transportation Safety Conference, Kansas Department of Transportation, Wichita, KS, April 2023.
	Khattak, A. The role of intelligent transportation systems. Tongji University, Shanghai, China, July 8, 2023.

Goal 3:

To support Goal 3—to ensure that a growing body of students and future leaders are engaged and well-trained in road safety principles, Safe Systems approaches, and systems science methods—we performed activities related to the following objectives:

Objective 3-1: Develop and deliver courses at consortium member universities that integrate CSCRS concepts.

Highlights from spring 2023 to fall 2023 that include graduate courses:

- FAU course:
 - Designing the City. Instructor: Eric Dumbaugh. (58 students)
- UCB courses:
 - Upper Division course on Advanced Topics in Urban Studies. Instructor: Daniel A Rodriguez. (49 students)
 - Graduate courses:

- Traffic Safety and Injury Control. Instructors: David Ragland and Offer Grembek. (7 students)
- Transportation Sustainability. Instructor: Susan Shaheen. (46 students)
- Quantitative Reasoning. Instructor: Daniel A Rodriguez. (45 students)
- Public Health Injury Prevention and Control. Instructor: Glenn Shor. (10 students)
- DCRP courses:
 - International Transportation Planning. Instructor: Allie Thomas. (17 students)
 - Planning Methods. Instructor: Matthew Wigginton Bhagat-Conway. (33 students)
- University of Tennessee, Knoxville (UTK) courses:
 - Transportation Safety (graduate course). Instructor: Asad Khattak. (22 students)
 - Sustainable Transportation (graduate course). Instructor: Chris Cherry. (40 students)
 - Transportation Planning. Instructor: Asad Khattak. (21 students)

Objective 3-2: Engage students through student-directed activities and professional opportunities.

This reporting period featured several CSCRS student accomplishments. Examples:

- UTK Ph.D. student A. Latif Patwary was named as a 2023 Lifesavers Traffic Safety Scholar. The civil and environmental engineering student has worked on the UTK CSCRS project [Advancing crash investigation with connected and automated vehicle data – Phase 2](#), in addition to other CSCRS work.
- Evan Iacobucci, Ph.D., Postdoctoral Research Associate, DCRP, co-authored the journal article [“Examining injury trends in parcel delivery drivers in the United States: Challenges and opportunities”](#) for the *American Journal of Industrial Medicine*; his co-authors included CSCRS researchers Noreen McDonald, DCRP, and Becky Naumann, IPRC.
- Bhavna Singichetti graduated from UNC with her Ph.D. in Public Health focused on transportation safety; her dissertation, “Examining factors that influence initial and repeated alcohol driving while intoxicated (alcohol-DWI) license suspensions and future crash events in North Carolina, 2006-2016,” was funded through CSCRS. She then began a career at the Centers for Disease Control and Prevention, focusing on approaching transportation safety from a public health perspective.
- Four UNC graduate students presented the April 2023 session [Developing an online Vision Zero resource library](#):
 - Jordan April, Master of Public Health and Master of City and Regional Planning student
 - Lacie Emmerich, Health Behavior Master of Public Health student
 - Alessandro Figueroa, Health Equity, Social Justice, and Human Rights Master of Public Health student
 - Deborah Shoola, Health Behavior Master of Public Health student

Table 2 describes additional key student engagement and awards offered during this reporting period.

Table 2: Select CSCRS student engagement activities

UCB	UCB CSCRS Road Safety Fellow Meiqing Li submitted her final report, Cross-Country Comparison of Micromobility Safety, Built Environment and User Behavior .
	Helen Klass-Warch (MCRP student; Transportation Fellow). Working on a project on transportation equity as it relates to freight transportation.
	Jordan Kinigh (EPID master’s student) summer practicum for her degree program, explored the public health contributions in Vision Zero plans.
	Kristin Podsiad (MCRP student; graduated) assisted with R37 and developed and maintained the micromodes.org website through May 2023.
	Luke Neuroth (EPID doctoral student), helped with coding and checking on plans along with Jordan Kinigh.
	Luke Pullo (MCRP student). Working on a project to evaluate effectiveness of microtransit deployments in NC.

	MCRP graduates with CSCRS-related MPs: Sylvia Greer (Stakeholder and community engagement in Vision Zero Plan Development), Walker Harrison (Renewing equity, safety, and townwide collaboration in sidewalk construction prioritization), David Kunz (Comparative analysis of street connectivity ordinances in NC), Luke Morin (Pre-existing supports and factors influencing rapid implementation of COVID-19 public space accommodations), Sophia Nelson (Is it fare? A comparison of public transit fare enforcement strategies), Kristin Podsiad (A surveillance tool for E-Bike fatalities).
	Nandi Taylor (Ph.D. Epidemiology student); trauma data linkage work and dissertation proposal work exploring the relationship between structural racism and pedestrian safety supported by CSCRS.
	Sam Hayes (MCRP student; Transportation Fellow). Working on compiling and summarizing data related to COVID-streets planning processes.
	Sylvia Greer (DCRP master’s student) graduated; masters project on partnerships and community engagement in Vision Zero plans.
UTK	One postdoc, Iman Mahdinia, worked on CSCRS research.
	Three students worked on additional CSCRS research.
	Four engineering Ph.D. students defended their dissertations in transportation safety and micromobility. Several engineering students worked on CSCRS projects.
	In Mechanical Engineering, three students worked with Chakraborty on various CSCRS projects.
	Three students and one postdoc worked to process data on pedestrians and vehicles at intersections and write the draft final report.
	Three grad students and one postdoc finalized the analysis of questionnaire data from law enforcement/accident reconstruction experts and wrote the draft final report.
	One Ph.D. Student was funded from April-September on a AAA Foundation cooperative project.

Objective 3-3: Develop mentorship and internship opportunities for students to engage in critical thinking about road safety issues from a variety of perspectives and connect with traditional and non-traditional partners.

CSCRS continued to update its [Jobs Board](#) of student and post-graduation opportunities.

Objective 3-4: Provide exposure to road safety principles in K-12 settings, to enhance early interest in traffic safety.

HSRC researchers presented an interactive session at the 2023 Chapel Hill High School TigerFest event on May 24. The annual TigerFest is an alternative educational day where students can take classes on subjects that aren’t traditionally offered during the school year, and it provided the HSRC team a great opportunity to discuss road safety scenarios with high school students. Also, during this period, planning took place to participate in the Durham Public Schools Acceler8 Career Exploration Day on October 24, 2023.

In addition, CSCRS staff met with partners at North Carolina A&T State University to discuss future collaborations for K-12 mentorship and educational opportunities.

1.3 What opportunities for training and professional development has the program provided?

Myriad teaching, training, and learning opportunities have been highlighted in this report (see Table 1 and 2).

1.4 How have the results been disseminated?

Results are being disseminated in accordance with the CSCRS [Technology Transfer Plan](#). Consortium members coordinated to co-promote CSCRS news/updates on their websites, in newsletters, and on social media. Communications staff continuously maintained the CSCRS Twitter feed, which now has 823 followers. CSCRS’s YouTube channel is updated regularly with new educational content.

CSCRS staff updated project descriptions, titles, and end dates on the [CSCRS website](#) and in the TRB Research in Progress (RiP) Database, tagged as UTC research. CSCRS researchers engaged with the Advisory Board. Project-related publications and presentations from this reporting period are listed in the Products section.

1.5 What do you plan to do during the next reporting period?

A key focus of the next reporting period (10/1/2023-3/31/24) will be working on closing out the CSCRS grant. Additional examples of what CSCRS plans to complete during the next reporting period:

- **Research activities planned:**
 - Completion, posting, and reporting of CSCRS research projects will conclude.
 - Work will continue on additional projects supported with matching funds.
- **Professional development activities planned:**
 - A research poster on the FHWA global benchmarking program focused on Australasia pedestrian safety will be presented at the American Association of State Highway and Transportation Officials 2023 Safety Summit in Kansas City, October 2023.
 - Significant participation in the Transportation Research Board (TRB) 103rd Annual Meeting in Washington, DC, in January 2024. In addition to multiple workshops, poster presentations, and lectern sessions, CSCRS is planning its final Safety Sunday networking reception.
 - Participation in and presentations at multiple other professional conferences and events.
- **Teaching and student enrichment activities planned:**
 - Participation in the Durham Public Schools Acceler8 Career Exploration Day on October 24, 2023.
 - Choosing a final CSCRS Student of the Year, to be honored at the student awards ceremony held in conjunction with the TRB Annual Meeting.
 - Student activities, such as poster presentations, at the TRB Annual Meeting
 - Teaching several university courses, as well as incorporating CSCRS research findings and opportunities into other/existing courses and seminars.

In addition to activities specific to the 3 goals, we will continue conducting administrative functions that support all Center activities, including sending out newsletters, managing the Center’s website and communications platforms, engaging with the Advisory Board, and responding to USDOT or other requests.

2. Participants and Collaborating Organizations

2.1 What organizations have been involved as partners?

The following organizations have been involved as CSCRS partners:

Table 3: Select CSCRS collaborator and sponsor organizations

Business
*Accenture (Collaborative Support)
AT&T Fleet Complete, Atlanta, GA (Financial Support)
Bird, Inc. (Collaborative Support)
PhD Posters, Durham, NC (Financial Support)
Rovélo Creative, Toronto, Canada (Collaborative Support)
SoftServe, Inc., Austin, TX (Collaborative Support)
Toyota Motor North America, Saline, MI (Financial Support)
Uber, San Francisco, CA (Financial Support)
VHB, Watertown, MA (Financial Support)
Volkswagen Group of America, Herndon, VA (Collaborative Support)
Foundation
AAA Foundation for Traffic Safety, Washington, DC (Collaborative Support)
de Beaumont Foundation, Bethesda, MD (Collaborative Support)
Health Foundation of South Florida, Miami, FL (Collaborative Support)

John D. and Catherine T. MacArthur Foundation, Chicago, IL (Financial Support)
Local Government
*City of Deerfield Beach, FL (Collaborative Support)
Town of Chapel Hill Staff, Chapel Hill, NC (Collaborative Support)
Other Non-Profits
American Institute of Architects, Miami, FL (Collaborative Support)
America Walks, Portland, OR (Collaborative Support)
American Planning Association, Chicago, IL, and Washington, DC (Collaborative Support)
American Public Health Association, Washington, DC (Collaborative Support)
Association of Pedestrian and Bicycle Professionals, Lexington, KY (Collaborative Support)
Broward Metropolitan Planning Organization, Fort Lauderdale, FL (Collaborative Support)
Dream in Green, Miami, FL (Collaborative Support)
Greater Nashville Regional Council, Nashville, TN (Collaborative Support)
Institute of Transportation Engineers, Washington, DC (Collaborative Support)
Insurance Institute for Highway Safety, Vehicle Research Center, Ruckersville, VA (Collaborative Support)
The Miami Center for Architecture and Design, Miami, FL (Collaborative Support)
Miami-Dade Transportation Planning Organization, Miami, FL (Collaborative Support)
Mobility Lab, Arlington, VA (Collaborative Support)
National Association of City Transportation Officials, New York, NY (Collaborative Support)
National Cooperative Highway Research Program, Washington, DC (Financial Support)
National Indian Justice Center, Santa Rosa, CA (Collaborative Support)
National Local Technical Assistance Program Association, US (Collaborative Support)
North Carolina Center for Automotive Research, Garysburg, NC (Collaborative Support)
Palm Beach Transportation Planning Agency, West Palm Beach, FL (Collaborative Support)
Palm Beach Planning Congress, Palm Beach, FL (Collaborative Support)
The Road to Zero Coalition/The National Safety Council, Itasca, IL (Financial and Collaborative Support)
Transportation Research Board Standing Committee on Pedestrians, Washington, DC (Collaborative Support)
Safe States, Atlanta, GA (Collaborative Support)
Transportation Research Board Standing Committee on Transportation Safety Management, Washington, DC (Collaborative Support)
Urban Impact Lab, Miami FL (Collaborative Support)
Vision Zero Network, San Francisco, CA (Collaborative Support)
WTS International, Washington, DC (Collaborative Support)
School District
Knox County School District, Knoxville, TN (Collaborative Support)
State Government
California Emergency Medical Systems Authority (Collaborative Support, Data Request)
California Center for Medical Outcomes, California Department of Public Health, Sacramento, CA (Collaborative Support, Data Request)
Florida Department of Transportation (Collaborative Support)
North Carolina Division of Public Health, Raleigh, NC (Collaborative Support)
North Carolina Department of Transportation, Raleigh, NC (Financial Support)
North Carolina Governor’s Highway Safety Program, Raleigh, NC (Collaborative and Financial Support)
North Carolina Turnpike Authority, Raleigh, NC (Collaborative Support)
Tennessee Department of Transportation, Nashville, TN (Matching Request and Data)
Tennessee Department of Safety and Homeland Security, Nashville, TN (Data Request)
Tennessee Department of Health, Nashville, TN (Data Request)
Tennessee Technology Access Program, Nashville, TN (Collaborative Support)
U.S. Agency
National Science Foundation, Washington, DC (Sponsor of Projects)
Centers for Disease Control and Prevention, Atlanta, GA (Collaborative Support)

U.S. Facility
Oak Ridge National Laboratory, Oak Ridge, TN (Collaborative Support)
U.S. Government
U.S. Department of Energy, Washington, DC (Collaborative Support)
U.S. Department of Transportation, Washington, DC (Sponsor of Projects and Collaborative Support)
University
Duke Initiative for Science & Society Science Policy Tracking Program, Durham, NC (Financial Support)
East Tennessee State University, Johnson City, TN (Collaborative Support)
Johns Hopkins Center for Injury Research & Policy, Baltimore, MD (Collaborative Support)
*North Carolina A&T State University, Greensboro, NC (Collaborative Support)
North Carolina Central University, Durham, NC (Collaborative Support)
North Carolina State University Institute for Transportation Research and Education, Raleigh, NC (Collaborative Support)
Planning Society @ FAU, Boca Raton, FL (Collaborative Support)
Queensland University of Technology (CARRS-Q) (Collaborative Support)
Renaissance Computing Institute, Chapel Hill, NC (Collaborative Support)
*San Diego State University, San Diego, CA (Collaborative Support)
Tennessee Technological University, Cookeville, TN (Collaborative Support)
University of Aveiro (Collaborative Support)
University of Miami (Collaborative Support)
*The University of New Mexico, Albuquerque, NM (Collaborative Support)
University of Tennessee, Chattanooga, TN (Collaborative Support)
*University of Wisconsin-Milwaukee, Milwaukee, WI (Collaborative Support)
Various Jiaotong Universities in China (Collaborative Support)

* Indicates a new partner this reporting period.

2.2 Have other collaborators or contacts been involved?

Nothing to report beyond the table above.

3. Outputs

CSCRS included 2 performance measures related to outputs in its Technology Transfer Plan:

- Organize and hold conferences and/or other events through 2023 and 2024.
- Author annual journal manuscripts, publications, articles, posts, media stories, etc.

Sections 3.1-3.3 present the considerable number of outputs related to CSCRS research and tech transfer.

3.1 Publications, conference papers, and presentations

Presentations given during this reporting period are summarized in Table 1 of this report.

The following are select highlights of publications produced by CSCRS team members:

Table 4: Select CSCRS publications

Peer-Reviewed Publications
Ahmad, N. (2021). Role of human factors, driving instability, and roadway environment in safety critical events: Safe System Approach [Doctoral dissertation, University of Tennessee]. https://trace.tennessee.edu/utk_graddiss/6961 .
Cochran, A. L., Wang, J., Wolfe, M., Iacobucci, E., Vinella-Brusher, E., & McDonald, N. C. (2023). Spatial and temporal trends in travel for COVID-19 vaccinations. <i>AJPM Focus</i> , 2(3), 100122. Advance online publication. https://doi.org/10.1016/j.focus.2023.100122

Dumbaugh, E., Stiles, J., Mitsova, D., & Saha, D. (2023). The most vulnerable user: Examining the role of income, race, and the built environment on pedestrian injuries and deaths. <i>Transportation Research Record</i> . https://doi.org/10.1177/03611981231175888
Evenson, K. R., Keefe, E., LaJeunesse, S., & Naumann, R. B. (2023). Creating a community-level document library: Application using Vision Zero plans. <i>Journal of Public Health Management and Practice</i> , 29(3), 284–286.
Evenson, K. R., LaJeunesse, S., Keefe, E., & Naumann, R. B. (2023). Mixed-methods approach to describing Vision Zero initiatives in United States’ municipalities. <i>Accident Analysis & Prevention</i> , 184, 107012.
Haque, A. M., Mahdinia, I., Patwary, A. L., & Khattak, A. J. (2023). Are damages to remainder parcels in right-of-way acquisitions stationary? A spatial analysis of appraisal report data. <i>Transportation Research Record</i> , 2677(1), 1510–1523. https://doi.org/10.1177/03611981221105073
Harris, L., Ahmad, N., Khattak, A., & Chakraborty, S. (2023). Exploring the effect of visibility factors on vehicle–pedestrian crash injury severity. <i>Transportation Research Record</i> . https://doi.org/10.1177/03611981231164070
Iacobucci, E., McDonald, N. C., Naumann, R. B., & Kucera, K. L. (2023). Examining injury trends in parcel delivery drivers in the United States: Challenges and opportunities. <i>American Journal of Industrial Medicine</i> , 66(6), 441–453. https://doi.org/10.1002/ajim.23473
Jing, S., Hui, F., Zhao, X., Rios-Torres, J., & Khattak, A. J. (2022). Integrated longitudinal and lateral hierarchical control of cooperative merging of connected and automated vehicles at on-ramps. <i>IEEE Transactions on Intelligent Transportation Systems</i> , 23(12), 24248-24262.
Khattak, Z. H., Rios-Torres, J., Fontaine, M. D., & Khattak, A. J. (2023). Inferring safety critical events from vehicle kinematics in naturalistic driving environment: Application of deep learning algorithms. <i>Journal of Intelligent Transportation Systems</i> , 27 (4), 423-440. https://doi.org/10.1080/15472450.2022.2048655
King, M., Khattak, A., Adeel, M., & Usman, S. (2024). Advancing crash investigation with connected and automated vehicle data: Insights from a survey of law enforcement. Accepted for presentation at the Transportation Research Board Annual Meeting, Washington, D.C.
Magassy, T. B., Batur, I., Mondal, A., Asmussen, K. E., Bhat, C. R., Salon, D., Bhagat-Conway, M., Javadinasr, M., Chauhan, R., Mohamaddian, A., Derrible, S., & Pendyala, R. M. (2023). Evolution of mode use during the COVID-19 pandemic in the United States: Implications for the future of transit. <i>Transportation Research Record</i> , 03611981231166942. https://doi.org/10.1177/03611981231166942
Mohammadi, M. (Y.), Rahimi, E., Davatgari, A., Javadinasr, M., Mohammadian, A. (K.), Bhagat-Conway, M. W., Salon, D., Derrible, S., Pendyala, R., & Khoeini, S. (2023). Examining the persistence of telecommuting after the COVID-19 pandemic. <i>Transportation Letters</i> , 15(6), 608-621. doi:10.1080/19427867.2022.2077582.
Neuroth, L. M., Singichetti, B., Harmon, K. J., Waller, A. E., & Naumann, R. B. (2023). Racial and ethnic disparities in motor vehicle crash-related outcomes in North Carolina surrounding the COVID-19 pandemic. <i>Injury Prevention: Journal of the International Society for Child and Adolescent Injury Prevention</i> . Advance online publication. https://doi.org/10.1136/ip-2023-045005
Peterson, L. A., Cooper, J. F., Greiner, B. A., & MacLeod, K. E. (2023). Obituary: David R. Ragland (1943–2023). <i>Journal of Transport & Health</i> , 32, 101680. https://doi.org/10.1016/j.jth.2023.101680
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3.2 Policy Papers

- None during this reporting period.

3.3 Website(s) or other Internet site(s)

- The UTK team provided multiple training resources at the sites ctr.utk.edu and tesp.utk.edu/ite/.
- Other CSCRS resources were updated with new data and information during this period:
 - Micromodes.org
 - [Resource Hub](#)
 - [Shifting Streets Dataset](#)
 - [Vision Zero Plan Guide repository](#).
 - [National Pedestrian and Bicycle Safety Data Clearinghouse](#).

3.4 New methodologies, technologies, or techniques

The matching project “Predicting Automated Vehicle Safety in an Uncertain Future,” which continued during this period, aims to develop a configurable model and interface representing how the numbers of crashes and fatal and nonfatal injuries change over time as a result of different advanced driver-assistance system (ADAS) diffusion scenarios on U.S. roadways.

3.5 Inventions, patent applications, and/or licenses

None to report for this period.

3.6 Other products

None to report for this period.

4. Outcomes

CSCRS included 2 performance measures related to outcomes in its Technology Transfer Plan:

- Average annual number of opportunities/instances to share transportation safety expertise at conferences, professional meetings and through media. (Please see presentations listed in Section 3.1 and media described in Section 4.1.)
- Annual number of adoptions, use or reference to CSCRS products, or influence on national or state research agendas (see Section 4.6).

4.1 Increased understanding and awareness of transportation issues

CSCRS researchers and students engaged with high-profile and local media outlets. Key examples:

- Eric Dumbaugh, FAU, was interviewed for multiple news pieces including:
 - The June 12, 2023, *Palm Beach Post* article [“One road linked nearly half of Palm Beach County's most dangerous intersections in 2022.”](#)
 - The May 1, 2023, *Newsday* article [“How to make streets safer for pedestrians, cyclists around Gordon Heights, Deer Park and Hempstead Village.”](#)
- Jonathon Stiles, postdoctoral fellow at FAU, wrote the May 24, 2023, piece [“Crash Data Shows Why NYC's Truck Routes Need a Long Overdue Fix”](#) for *Streetsblog NYC*.
- Daniel Rodriguez and Julia Griswold, both UCB, were interviewed for the August 29, 2023, article [“Outdated and dangerous: collisions on Ashby Avenue raise safety concerns”](#) for the *Daily Californian*.
- Susan Shaheen, UCB, was interviewed for the August 7, 2023, article [“Shared e-scooters can be sustainable - but there's a catch”](#) for *Popular Science*.

- Julia Griswold, UCB, was interviewed for the June 17, 2023, article [“Left to die: Sacramento hit-and-runs have killed 140 people since 2018”](#) for the *Sacramento Bee*.

CSCRS continues to coordinate with other key media and national initiatives to share research and to increase understanding of key transportation issues.

4.2 Passage of new policies, regulation, rulemaking, or legislation

CSCRS has engaged in several activities in this area:

- Eric Dumbaugh, FAU, assisted the City of Deerfield Beach, FL, in the development of a Vision Zero Action Plan. Dumbaugh also served on a working group for the Broward MPO developing a safety framework for a “smart corridor” pilot project.
- FHWA continued the [Vision Zero Community Pairing Program](#), modeled after CSCRS’s work in partnership with the Governor’s Highway Safety Program; the program recently solicited new applications for communities interested in participating.

4.3 Increases in the body of knowledge

Already mentioned are three key activities during this period designed to further CSCRS’s Safe System knowledge:

- Releasing the findings through webinars and other media from the FHWA report “Improving Pedestrian Safety on Urban Arterials: Learning from Australasia,” based on the FHWA Global Benchmarking Program Laura Sandt participated in.
- Launched planning for the Safe Mobility Conference, to be held in March 2024, with co-host/CSCRS partner AAA Foundation for Traffic Safety. This event is a first-of-its-kind opportunity for professionals and students from industry, academia, government, and advocacy organizations to connect, share information, and identify challenges, solutions, and best practices geared toward achieving safer mobility for all road users.
- Hosted the third annual NC Vision Zero Leadership Team Institute in June 2023. This event provides multi-sector teams with best practice tools and approaches to help them move toward effective Vision Zero planning and implementation.

4.4 Improved processes, technologies, techniques, and skills in addressing transportation issues

As mentioned, the matching project, “Predicting Automated Vehicle Safety in an Uncertain Future,” aims to develop a configurable model and interface representing how the numbers of U.S. crashes and fatal and nonfatal injuries change over time.

4.5 Enlargement of the pool of trained transportation professionals

CSCRS’s university programs and student activities continue to attract new students to each campus and enlarge the pool of future professionals that are invested in improving safety. This reporting period, the results of these efforts are shown with several CSCRS researchers showcasing their impressive expertise in multiple ways (see Objective 3-2 for more info).

4.6 Adoption of new technologies, techniques, or practices

We have been working on releasing the findings through webinars and other media from the June 2023 FHWA report “Improving Pedestrian Safety on Urban Arterials: Learning from Australasia,” based on the FHWA Global Benchmarking Program tour of Australia and New Zealand Laura Sandt participated in.

5. Impacts

CSCRS included 2 performance measures related to impacts in its Technology Transfer Plan:

- Annual instances integrating CSCRS research results into agency or stakeholder practices that demonstrate use of research results in practice (see Section 5.1).
- Annual instances integrating CSCRS research results into organizational/workforce capacity building that demonstrate use of research results in capacity building activities conducted by local, regional, state, or national level agencies (see Section 5.2).

5.1 Impact on the effectiveness of the transportation system

The fresh approach CSCRS has taken over the last 7 years to apply public health principles and systems science to provide more effective tools for solving complex safety challenges advances Safe System concepts through research, education, workforce development, and technology transfer. Seeing these concepts codified into state and national legislation and policy is a testament to the effectiveness of CSCRS’s efforts.

5.2 Impact on the adoption of new practices, or instances where research outcomes have led to the initiation of a start-up company

As mentioned, CSCRS and its partners have been working on releasing the findings from the June 2023 FHWA report “Improving Pedestrian Safety on Urban Arterials: Learning from Australasia,” based on the FHWA Global Benchmarking Program tour of Australia and New Zealand Laura Sandt participated in. These findings provide fresh perspectives on approaches to reduce pedestrian fatalities and serious injuries on urban, signalized arterial roadways.

Also, Eric Dumbaugh’s work with the City of Deerfield Beach, FL, and the Broward MPO provide a direct example of helping agencies adopt new practices.

5.3 Impact on the body of scientific knowledge

Using the numerous and varied methods listed previously, CSCRS is continuing efforts to contribute to the body of knowledge surrounding Safe Systems and systems-science approaches to road safety.

Evidence of our impact on the body of scientific knowledge can be found through other honors and appointments that recognize our expertise and provide opportunities to influence scientific discourse. For example, as mentioned, Jill Cooper, UCB, received the [2023 NHTSA Public Service Award](#) at the April 2023 Lifesavers National Conference.

Other key examples:

- Laura Sandt, HSRC, attended the August 2023 [Executive Networking Conference](#) hosted by the [National Institute of Minority Economic Development](#) in Pinehurst, NC. She also served on the following committees or technical advisory groups:
 - NCDOT Executive Committee for Highway Safety
 - NCDOT Fully Automated Vehicle Task Force
 - NCDOT State Freight Advisory Committee
 - Chapel Hill, NC Vision Zero Executive Committee
 - FHWA *Safe System Approach for the Urban Core* project Technical Panel
 - FHWA *National Complete Streets Assessment* Project Technical Review Panel
- Katie Harmon, HSRC, was involved in the following endeavors:
 - Editorial board of the *Journal of Safety Research*
 - Member of the following groups:
 - NC Trauma System Strategic Plan - Injury Prevention Committee
 - NC Traffic Records Coordinating Committee Access to Exercise Opportunities Workgroup

- Nancy Lefler, HSRC, served as co-chair of the NC Traffic Records Coordinating Committee
- Julia Griswold, UCB, served as a member of the California Walk & Bike Technical Advisory Committee
- Eric Dumbaugh, FAU, served on a working group for the Broward MPO developing a safety framework for a "smart corridor" pilot project.
- Asad Khattak, UTK, continued serving as a Board Member of TennSMART, a consortium of transportation CEOs, research institutions, and government officials. Dr. Khattak’s leadership positions also include:
 - Editor-in-chief of the *Journal of Intelligent Transportation Systems*
 - Associate editor of the *International Journal of Sustainable Transportation*
 - Member of TRB’s Standing Committee on Traveler Behavior and Values
 - Special adviser to the *Journal of Transportation Safety & Security*
 - Advisory board member of *Analytic Methods in Accident Research*
- Chris Cherry, UTK, leadership activities include:
 - Leading a [consortium of international researchers](#) on micromobility research, including safety research.
 - Member of the following committees:
 - City of Knoxville Vision Zero Working Group
 - SAE’s Powered Micromobility Committee
 - Editor positions for:
 - *Transportation Research Part D: Transport and Environment*
 - *Journal of Cycling and Micromobility Research*
 - *International Journal of Sustainable Transportation*

5.4 Impact on transportation workforce development

Over the 7 years that CSCRS has been in existence, we have continually reached new audiences through a variety of workforce development activities including conferences, webinar series, presentations, and more. We have worked with hundreds of students, from K-12 to doctoral level, to inspire new generations of transportation safety professionals to think ahead to a Safe System for transportation.

6. Changes/Problems

6.1 Changes in approach and reasons for change

Nothing to report.

6.2 Actual or anticipated problems or delays

The CSCRS team was deeply saddened when we learned that our CSCRS research colleague and friend David Ragland, founder and Co-Director of the UCB Safe Transportation Research and Education Center (SafeTREC), [died on May 7, 2023](#). Ragland, who was also professor emeritus of epidemiology at UCB’s School of Public Health, was a transportation injury research visionary, bringing together the public health and engineering perspectives long before a “systems” approach was popular. We are so fortunate to have been able to work with him as part of the CSCRS consortium and know he will be missed by all of his colleagues and friends in the field.

CSCRS researcher Becky Naumann left her position at IPRC.

6.3 Changes that have a significant impact on expenditures

Nothing to report.

6.4 Significant changes in use or care of animals, human subjects, and/or biohazards

Nothing to report.

7. Special Reporting Requirements

Nothing to report. This entire report is available on the [CSCRS website](#).