



## 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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Robin Kline, Grant Manager

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1200 New Jersey Avenue, SE, Work Station E33-466

Washington, DC 20590-0001

Submitted by:

Collaborative Sciences Center for Road Safety

Laura Sandt Ph.D., Center Director

sandt@hsrc.unc.edu

919-962-2358

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## Table of Contents

1. Accomplishments.....	3
1.1 What are the major goals and objectives of the program? .....	3
1.2 What was accomplished under these goals? .....	3
1.3 What opportunities for training and professional development has the program provided?.....	10
1.4 How have the results been disseminated?.....	10
1.5 What do you plan to do during the next reporting period?.....	10
2. Participants and Collaborating Organizations.....	11
2.1 What organizations have been involved as partners? .....	11
2.2 Have other collaborators or contacts been involved? .....	12
3. Outputs.....	12
3.1 Publications, conference papers, and presentations.....	13
3.2 Policy Papers.....	14
3.3 Website(s) or other Internet site(s).....	14
3.4 New methodologies, technologies, or techniques.....	14
3.5 Inventions, patent applications, and/or licenses .....	15
3.6 Other products.....	15
4. Outcomes.....	15
4.1 Increased understanding and awareness of transportation issues.....	15
4.2 Passage of new policies, regulation, rulemaking, or legislation.....	15
4.3 Increases in the body of knowledge.....	15
4.4 Improved processes, technologies, techniques, and skills in addressing transportation issues.....	16
4.5 Enlargement of the pool of trained transportation professionals.....	16
4.6 Adoption of new technologies, techniques, or practices.....	16
5. Impacts.....	16
5.1 Impact on the effectiveness of the transportation system.....	16
5.2 Impact on the adoption of new practices, or instances where research outcomes have led to the initiation of a start-up company .....	17
5.3 Impact on the body of scientific knowledge.....	17
5.4 Impact on transportation workforce development .....	19
6. Changes/Problems.....	19
6.1 Changes in approach and reasons for change.....	19
6.2 Actual or anticipated problems or delays.....	19
6.3 Changes that have a significant impact on expenditures.....	19
6.4 Significant changes in use or care of animals, human subjects, and/or biohazards.....	19
7. Special Reporting Requirements.....	19

## 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?

Having reached the 6th anniversary of our Center, we released new multimedia materials to tell our stories, highlight the breadth of our research and outreach activities, and spread the word about the Safe System approach to road safety:

- The video [“CSCRS Vision For a Safer Road System.”](#)
- The two-page executive summary [“Applying Fresh Approaches to Enduring Road Safety Problems.”](#)
- The report [“Vision for a Safer Road System.”](#)

Selected other highlights for this performance period include:

- Hosted activities designed to teach about designing safe roads for hundreds of kids and families during the Apr. 2022 North Carolina Science Festival.
- Launched [micromodes.org](#), a new site that tracks fatalities involving micromobility devices, in August 2022.
- Hosted the second annual [NC Vision Zero Leadership Team Institute](#) in Jun. 2022.
- Created the one-page guide [“Reframing crash reporting in the news media.”](#)
- Built the [CSCRS Vision Zero Map](#) with access to almost 70 Vision Zero plans by state.
- Wrote an article about [CSCRS's Vision Zero work](#) for the Apr. 2022 USDOT UTC Spotlight newsletter.
- Presented in plenary sessions during the Aug. 2022 Association of Transportation Safety Information Professionals Traffic Records Forum.
- Continued CSCRS's [Research to Practice Bytes online learning series](#) with 6 new sessions.
- Generated dozens of CSCRS research-related peer-reviewed publications and presentations.
- Continued work on [research projects](#) and concluded other projects.
- Taught 19 transportation safety-related university courses and engaged hundreds of 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.

Work continued on these projects:

- [R39](#): Integrating systems thinking tools into Vision Zero and Safe Systems approaches
  - PI: Becky Naumann, UNC Injury Prevention Research Center (IPRC)
  - Systems thinking content development and testing have been completed with 5 different sites. All results have been analyzed. Final case study and “how to” guide development for practitioners near completion.
- [R40](#): A Safe Systems approach to motorcycle safety
  - PI: Eric Dumbaugh, Florida Atlantic University (FAU)

- Literature review and preliminary analysis completed. Draft final report in progress.

The following projects are near completion:

- [R24](#): Developing a framework to combine the different protective features of a Safe System
  - PI: Offer Grembek, University of California, Berkeley (UCB)
- [R35](#): Using Safe Systems approach to assess traffic impact and land development
  - PI: Tab Combs, UNC Department of City and Regional Planning (DCRP)

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

Key examples:

- CSCRS researchers from UNC IPRC, Highway Safety Research Center (UNC HSRC), and Gillings School of Global Public Health that make up the North Carolina Vision Zero Support Team hosted the second annual [NC Vision Zero Leadership Team Institute](#) in Jun. 2022. The Institute is an annual team training resource for North Carolina communities with or considering adopting Vision Zero initiatives. The two-day Institute provides best practice tools and approaches to help them move toward effective Vision Zero planning and implementation. CSCRS consortium presentations during the institute included:
  - “Land Use, Environmental Design, and Road Safety,” Eric Dumbaugh, FAU
  - “Safer Speeds: Considerations for Speed Limits and Management,” Offer Grembek, UCB
- CSCRS modified and reintroduced UNC HSRC’s popular Road Safety 101 program during this period. The multi-week course covers fundamentals including road safety principles, safety data and analysis, processes for diagnosing and solving problems, human factors and behavior, and emerging issues. The 12 participants included planners, engineers, and researchers.
- CSCRS continued its [webinar series](#) through this reporting period with 6 new webinars:
  - [Creative placemaking techniques to advance traffic safety](#), Apr. 27 (65 attendees; 59 recording views)
  - [Vision Zero in U.S. Communities](#), May 25 (64 attendees; 68 recording views)
  - [Strategies for managing the effects of kinetic energy in crashes](#), Jun. 22 (77 attendees; 52 recording views)
  - [Safe vehicles: How effective are pedestrian crash prevention systems?](#), Jul. 27 (86 attendees; 58 recording views)
  - [Introducing micromodes.org: The first surveillance system for micromobility fatalities](#), Aug. 31 (102 attendees; 58 recording views)
  - [Bringing development review into Safe Systems](#), Sep. 28 (103 attendees; 54 recording views)
- Eric Dumbaugh, FAU, served as an advisor on and CSCRS co-sponsored the video production of [“The Street Project.”](#) described as “an inspiring story about a massive movement across the US and around the world to reclaim our largest public spaces, our streets.”

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

- CSCRS and the [Road to Zero Coalition](#) held discussions during this performance period exploring additional ways we can support the organization moving forward. CSCRS researcher Wes Kumfer presented on the group’s Jul. 20, 2022, webinar [“The Role of Traffic Safety Culture in Addressing Roadway Fatalities.”](#)
- CSCRS continued to participate in the Safe Systems Consortium, a working group convened by the [Johns Hopkins Center for Injury Research & Policy](#) and ITE that includes CSCRS researchers and Advisory Board

members that discussed principles of a systems approach to road safety. We are pursuing additional match funding from Johns Hopkins to coordinate new research.

**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. In addition to the previously mentioned [NC Vision Zero Leadership Team Institute](#), the following activities contributed in this area:

- On Jun. 14, 2022, Offer Grembek, UCB, provided [expert testimony](#) at the California Senate Committee on Transportation hearing for AB 1909, the Bicycle Omnibus Bill, which addresses different issues related to bicycle law in the state including e-bikes and bicycle lanes. Grembek focused his testimony on how the bill aligns with the Safe System approach to road safety.
- FAU researchers began work with the Florida Department of Transportation to integrate fundings from [R31](#) into state planning and design practice.
- 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.
- The University of Tennessee, Knoxville (UTK) team started on a new work zone safety project sponsored by the Tennessee Department of Transportation.

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 (i.e., from technology, ride-sharing services, etc.) and integrates public health concepts and methods.

Work continued on these projects:

- [R34](#): COVID-19 streets: Mobility justice and the rapid rollout of pedestrian and bicyclist improvements
  - PI: Tab Combs, UNC DCRP
  - Finishing analyses of ped/bike count data and preparing draft final materials.
- [R36](#): Laying the Groundwork for a National Pedestrian Injury Surveillance System
  - PI: Katherine Harmon, UNC HSRC
  - Completed key informant interviews and summarized results; completed surveillance pedestrian safety indicators for crash, hospital discharge, and fatality data.
- [R42](#): Advancing crash investigation with connected and automated vehicle data – Phase 2
  - PI: Asad Khattak, UTK
  - Two questionnaires are being designed. Potential participants have been selected. Data will be collected.
- [R43](#): Applying AI to data sources to improve driver-pedestrian interactions at intersections
  - PI: Subhadeep Chakraborty, UTK
  - Data on pedestrians and vehicles at intersections are being processed in collaboration.

The following projects are complete:

- [R27](#): Safety testing for connected and automated vehicles through physical and digital iterative deployment

- PI: Subhadeep Chakraborty, UTK / Co-Investigator: Asad J. Khattak, UTK
- [R28](#): Reducing motorcyclist injuries: Engaging stakeholders to apply evidence-based countermeasures
  - Jerry Everett, UTK / Co-PI: Asad Khattak, UTK

In addition, work began 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.

Work continued on these projects:

- [R38](#): Assessing how private beliefs conflict with public action on Safe Systems
  - PI: Seth Lajeunesse, UNC HSRC
  - Closed the NC population survey, cleaned data, weighted the data based on demographics, and analyzed survey responses. Thus far, have identified three distinct “classes” of NC road user based upon their trans-contextual transportation values and travel mode aspirations, and have identified pluralistic ignorance around self and others' valuation of “avoiding being stuck in traffic,” whereby 43.9% of participants mistakenly believed that other valued avoiding traffic congestion more than they really do. Working on the North Carolina Department of Transportation (NCDOT) policy analysis now and illustrating alignment and misalignment between what the public most wants from their transportation system and what DOT most prioritizes.
- [R44](#): Safety enhancement by detecting driver impairment through analysis of real-time volatilities
  - PI: Asad Khattak, UTK
  - Biometrics, vehicle kinematics, and roadway environment data have been collected and are being processed.

**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.

Work continued on these projects:

- [R33](#): US Regional Vision Zero Implementation
  - PI: Kelly Evenson, UNC IPRC
  - Completed coding of interviews with MPO entities. Finished abstracting information on MPOs with Vision Zero from their websites. Wrote manuscript on the Vision Zero municipalities and submitted it to a journal (currently under review). Wrote a manuscript on community level changes impacting walking/bicycling that occurred because of the pandemic and submitted it to a journal (currently under review).
- [R37](#): Applying AcciMap to e-Scooter Crashes: A Safe Systems approach to analyzing micromobility
  - PI: Katie Harmon, UNC HSRC
  - Drafted AcciMap for e-scooter fatality. Revised AcciMap to be discussed and finalized during two scheduled, upcoming workshops. Results will be summarized in a manuscript to be submitted by December 31, 2022.
- [RR2](#): US Vision Zero implementation

- PI: Kelly Evenson, UNC Gillings School of Public Health / Co-I's: Seth LaJeunesse, UNC HSRC, and Becky Naumann, UNC IPRC
- (Work on this project is connected to R33.)

**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.

In Sep. 2022, Laura Sandt participated in the Federal Highway Administration’s (FHWA’s) [Global Benchmarking Program](#) in Australia and New Zealand. The program involved a series of meetings and research exchanges to discuss safe system practices in Australia and New Zealand, two countries at the forefront of the Safe System approach to road safety. (Travel for this was paid for with non-CSCRS funds.)

Other instances:

- On Apr. 12, 2022, Eric Dumbaugh, FAU, and Seth LaJeunesse, UNC HSRC, participated in the online panel discussion [“Acting with Urgency: What does ‘Safer People’ mean?”](#) hosted by partner organization Vision Zero Network.
- On Apr. 22 and 23, 2022, UNC DCRP, led by Tab Combs, hosted the [Flipping the Script on Traffic Violence](#) workshop. The event featured a guided bike ride and walk, a facilitated discussion about marketing/storytelling by Tom Flood of Rovélo Creative, and training to develop marketing content.
- On May 17, 2022, Laura Sandt presented to the Iowa Advisory Council on Automated Transportation Policy & Legislation Subcommittee Meeting.
- On July 20, 2022, Wes Kumfer, UNC HSRC, co-presented on the Road to Zero Coalition webinar [“The Role of Traffic Safety Culture in Addressing Roadway Fatalities.”](#)
- At the Association of Transportation Safety Information Professionals [Traffic Records Forum](#) in early Aug. 2022, CSCRS Director Laura Sandt participated as a panelist in the opening plenary session discussing the role of traffic records in a Safe System. Advisory Board member Nadia Anderson, INRIX, also delivered a morning plenary address at the event.
- Several CSCRS researchers presented at the [2022 North Carolina Traffic Safety Conference](#), held Aug. 2022. Examples:
  - “Hidden Injuries, Missing Bicyclists, & Other Lessons Learned from the NC Crash Injury Surveillance System (NC-CISS),” presented by Katie Harmon, UNC HSRC
  - “Traffic Crashes As Seen On TV: An Opportunity to Reshape the Dialogue Around Road User Injury,” presented by Seth LaJeunesse, UNC HSRC
  - “The Role of Advocates for Achieving Vision Zero,” presented by Elyse Keefe, UNC IPRC
- Susan Shaheen, University of California, Berkeley (UCB), participated in the virtual panel discussion “Creating a more Equitable Transportation System Through Mobility on Demand (MOD)” on September 14, 2022, as part of ITS America’s [UTC Guest Speaker Series](#).

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

*Table 1: Select CSCRS outreach highlights*

FAU	Dumbaugh, E. “Acting with Urgency: What does ‘Safer People’ mean?” Webinar sponsored by the Vision Zero Network. Apr. 12, 2022. <a href="https://visionzeronetwork.org/acting-with-urgency-what-does-safer-people-mean/">https://visionzeronetwork.org/acting-with-urgency-what-does-safer-people-mean/</a>
UCB	On Apr. 21, 2022, Offer Grembek presented “The Safe System Approach: Considerations for Speed Limits and Management” at the ITE San Diego Virtual Luncheon, “Setting Speed Limits for Safety.”

	On Apr. 28, 2022, Offer Grembek presented “Longitudinal Analysis Comparing Provisional and Final Crash Data in SWITRS” at the California Department of Motor Vehicles R&D Bi-Weekly Brownbag seminar.
UNC	LaJeunesse, S. (2022, Aug. 22). “I really want to bike and walk, but no one else does.” Pluralistic ignorance as a silent barrier to active transportation investment. [PowerPoint presentation]. APBP Conference, Twin Cities, MN. <a href="https://www.apbp.org/2022-conference-program">https://www.apbp.org/2022-conference-program</a> . ~50 participants
	Taylor N., Harmon K. (2022, Ap. 1). Racial/ethnicity differences in crash and hospital outcomes using linked North Carolina motor vehicle crash and trauma registry data [Oral presentation]. Society for Advancement of Violence and Injury Research, Washington, DC, USA.
	Combs, T., Gelinne, D., Harmon, K.J. (2022, Aug. 17). Data don’t drive: The limitations of crash data for understanding community pedestrian and bicycle safety [Webinar]. Association of Pedestrian and Bicycle Professionals Annual Conference.
	Harmon, K. (2022, Sep. 20.) Transforming transportation: Why you should care about micromobility [Panelist]. Governor’s Highway Safety Association Annual Meeting, Louisville, KY, USA.
	Naumann RB, Hassmiller Lich K. Aligning action to create safer transportation systems in Berkeley, California. Two virtual workshops with SafeTREC and California Walks. May 18 & 25, 2022.
	Naumann RB, Hassmiller Lich K. Safe System workshop to inform King County Target Zero alignment and planning. Virtual workshop with King County Target Zero Task Force and partners. May 12, 2022.
	Keefe EK. Using an Innovative Support Model to Advance Vision Zero Community Initiatives to Prevent Road Traffic Injury. Council of State and Territorial Epidemiologists. Presented Jun. 21, 2022.

### 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.

(Note: Some of these continued to be virtual classes.) Highlights:

- FAU Spring 2022 course: Designing the City. Instructor: Eric Dumbaugh. (60 students)
- UCB Spring 2022 – Fall 2022 courses:
  - Injury Prevention and Control. Instructors: David Ragland, Lisa Peterson & Glenn Shor. (5 students)
  - Traffic Safety and Injury Control. Instructors: David Ragland, Praveen Vayalamkhuzi & Offer Grembek. (5 students)
  - Transportation Sustainability. Instructor: Susan Shaheen. (56 students)
- UNC DCRP Spring 2022 – Fall 2022 courses:
  - Complete, Safe, Equitable Streets. Instructor: Instructor: Tab Combs, with guest speakers guest including Carlos Pardo, Missy Cummings, Stephen Heiny, Leta Huntsinger, and local real estate developer Susana Dancy. (24 students)
  - Community Engagement. Instructor: Danielle Spurlock. (17 students)
  - Urban Transportation Planning. Instructor: Leta Hunting. (26 students)
- UNC Public Health Fall 2022 course: Injury as a Public Health Problem. Instructor: Steve Marshall, with guest speakers Seth LaJeunesse and Becky Naumann. (18 students)
- UTK Spring 2022 – Fall 2022 courses:
  - Intelligent Transportation Systems. Instructor: Asad Khattak. (11 students)
  - 10 additional courses covering transportation engineering, traffic, and rail.

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



Kristin Podsiad, a dual UNC Master of Public Health and Master of City and Regional Planning Student and a graduate research assistant at UNC HSRC, presented the Aug. 2022 Research to Practice Bytes session “Introducing micromodes.org: The first surveillance system for micromobility fatalities.”

Additional UNC students were hired to work on transportation safety projects, and one UNC journalism master’s student was hired to assist with CSCRS research dissemination efforts.

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

Table 2: Select CSCRS student engagement activities

UCB	2 students enrolled in an independent research component during which they prepare a paper for publication.
	4 CSCRS Road Safety Graduate Student Fellows conducted road safety research.
FAU	1 master’s student on R35 and R40.
	1 postdoc student worked on R40
UNC	1 postdoc student worked on R30.
	1 master’s student worked on R34.
	1 master’s student worked on R35.
	10 students attended the “Flipping the Script on Road Traffic Violence” workshop in Apr. 2022.
	1 PhD research assistant for R39.
	2 undergraduate research assistants worked on Vision Zero projects.
	2 undergraduate, 4 master’s, and 2 PhD research assistants worked on other projects.
UTK	1 postdoc worked with Dr. Khattak on CSCRS research.
	8 engineering students worked on various CSCRS projects
	4 PhD students defended their dissertations related to transportation safety.

**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.

- Katie Harmon, UNC HSRC, worked with Nandi Taylor, graduate research assistant for the UNC Gillings School of Global Public Health, on submitting two papers to academic journals:
  - “The Past Creates the Present: Examining Connections Between Structural Racism, Redlining, and Contemporary Neighborhood-Level Inequities in U.S. Pedestrian Fatalities”
  - “Structural Racism and Pedestrian Safety: Measuring the Association Between Historical Redlining and Contemporary Pedestrian Fatalities Across the United States, 2010-2019”
- UCB’s SafeTREC continued its Friday traffic safety seminars for students; examples of seminar topics:
  - “Public-Private Partnerships (PPP)s: What, Why, and How”
  - “Proposed Road Safety Legislation in California”
  - “The Infrastructure Investment and Jobs Act and Transportation Safety”
  - “Updates on Crash Data Collection and New Fields in SWITRS”
  - “Transportation safety and the arrival of driverless, commercial robotaxis in SF”
  - “Perceptions of Bicycle Safety: A Data and User-Experience Approach”
- 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.

As part of the annual [2022 North Carolina Science Festival](#) in Apr. 2022, CSCRS presented two activities designed to engage young students in imagining what it takes to make roads safe. On Apr. 6, 2022, CSCRS researcher Seth LaJeunesse, UNC HSRC, guided approximately 70 North Carolina middle school students through a virtual safe road demonstration. A teacher from one participating class shared, “They were so incredibly excited when they found

out that they would be able to talk with ‘real engineers’ (as they put it), and they absolutely loved seeing you implement their suggestions. I had several students tell me that they now wanted to explore engineering as a career.” Then on Apr. 9, 2022, several CSCRS colleagues hosted a table at the [UNC Science Expo](#), an in-person event coordinated by the UNC Morehead Planetarium & Science Center. The Expo was held on the UNC campus with dozens of booths featuring family-focused science activities. At the CSCRS exhibit, kids were invited to use miniature road design features to plan a safe path to school along a busy street. Approximately 5,000 people attended the event this year.

### 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 780 followers. A recent month’s analytics showed more than 2,600 visits. CSCRS’s YouTube channel is updated regularly with new educational content, and staff also maintained the CSCRS Facebook page.

CSCRS staff updated project descriptions, titles, and end dates on the [CSCRS website](#) and in the Transportation Research Board (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?

CSCRS will continue implementation of its strategic research agenda. The following section provides additional examples of what CSCRS plans to complete during the next reporting period (10/1/2022-3/31/23) to accomplish its goals:

- **Research activities planned:**
  - Completion, posting, and reporting of several current CSCRS research projects will continue.
  - Work will continue on additional projects supported with matching funds.
- **Professional development activities planned:**
  - Significant participation in the TRB 102nd Annual Meeting on Jan. 23. In addition to multiple workshops, poster presentations, and lectern sessions, CSCRS is planning the return of its Safety Sunday networking reception.
  - Continuation of the [CSCRS Webinar series](#); the next two webinars scheduled for Oct. and Nov. 2022 will focus on real-world applications of the Safe System concept.
  - Continued work with the Florida Department of Transportation to address the safety of low-income and minority populations.
  - Continue the Road Safety 101 program.
- **Teaching and student enrichment activities planned:**
  - UNC IPRC researchers to deliver an in-person guest lecture at Columbia University on systems approaches to transportation research and practice for their graduate students.
  - Awarding the CSCRS Student of the Year to this year’s standout student.
  - Supporting student participation in the TRB Annual Meeting.
  - Teaching several university courses, as well as incorporating CSCRS research findings and opportunities into other/existing courses and seminars.
  - Planning for the Apr. 2023 North Carolina Science Festival.

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

## 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

<b>Business</b>
AT&T Fleet Complete, Atlanta, GA (Financial Support)
*New this period: 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)
<b>Foundation</b>
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)
<b>Local Government</b>
Town of Chapel Hill Staff, Chapel Hill, NC (Collaborative Support)
<b>Other Non-Profits</b>
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)
<b>School District</b>
Knox County School District, Knoxville, TN (Collaborative Support)
<b>State Government</b>
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 & Data)
Tennessee Dept. of Safety & Homeland Security, Nashville, TN (Data Request)
Tennessee Department of Health, Nashville, TN (Data Request)
Tennessee Technology Access Program, Nashville, TN (Collaborative Support)
<b>U.S. Agency</b>
National Science Foundation, Washington, DC (Sponsor of Projects)
Centers for Disease Control and Prevention, Atlanta, GA (Collaborative Support)
<b>U.S. Facility</b>
Oak Ridge National Laboratory, Oak Ridge, TN (Collaborative Support)
<b>U.S. Government</b>
U.S. Dept. of Energy, Washington, DC (Collaborative Support)
U.S. Dept. of Transportation, Washington, DC (Sponsor of Projects & Collaborative Support)
<b>University</b>
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 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)
*New this period: Queensland University of Technology (CARRS-Q) (Collaborative Support)
Renaissance Computing Institute, Chapel Hill, NC (Collaborative Support)
Tennessee Technological University, Cookeville, TN (Collaborative Support)
University of Aveiro (Collaborative Support)
University of Miami (Collaborative Support)
University of Tennessee, Chattanooga, TN (Collaborative Support)
Various Jiaotong Universities in China (Collaborative Support)

## 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.
- 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. Key highlights:

Jill Cooper and Aqshems Nichols, both of UCB, created the research brief [“Peer Influence and Perceptions of Safety”](#) that explores the impacts of pluralistic ignorance on traffic safety perceptions. The brief highlights research from CSCRS project [R38](#).

In addition, CSCRS researchers from UNC and UTK and other partners, including Advisory Board member Charles T. Brown of Equitable Cities, published a [Results Research Digest](#) for the related project [Behavioral Traffic Safety Cooperative Research Program \(BTSCR\)-10: “E-scooter Safety: Issues and Solutions.”](#) The digest identifies emerging behavioral safety issues arising from the expanding use of e-scooters and summarizes how communities are working to prevent and mitigate injuries.

Also, CSCRS researchers released the one-page guide [“Reframing crash reporting in news media.”](#) a quick resource for transportation and public health professionals to use when engaging with the media on news about crashes.

CSCRS’s extensive work connecting Vision Zero with the Safe System approach was highlighted in the April 2022 edition of the USDOT UTC Spotlight newsletter. The article [“Achieving the Vision of Zero Roadway Deaths Through the Safe System Approach”](#) explains the Vision Zero concept as a way to address the steady increase in roadway fatalities and injuries over the years.

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

Table 4: Select CSCRS publications

Peer-Reviewed Publications
Beaulieu, E., Naumann, R. B., Deveaux, G., Wang, L., Stringfellow, E., Hassmiller Lich, K., & Jalali, M. S. (2022). Impacts of alcohol and opioid polysubstance use on road safety: Systematic review. <i>Accident Analysis &amp; Prevention</i> , 173, 106713.
Dong, X, Hamidi, S., & Dumbaugh, E. (2022) Investigating safety in numbers in cycling after the entry of dock-based bikeshare programs in three U.S. cities. <i>Transportation Research Record: Journal of the Transportation Research Board</i> . Accepted July 29, 2022.
Fu, X., Liu, J., Jones, S., Barnett, T., & Khattak, A. J. (2022). From the past to the future: Modeling the temporal instability of safety performance functions. <i>Accident Analysis &amp; Prevention</i> , 167, 106592.
Fu, X., Nie, Q., Liu, J., Khattak, A., Hainen, A., & Nambisan, S. (2022). Constructing spatiotemporal driving volatility profiles for connected and automated vehicles in existing highway networks. <i>Journal of Intelligent Transportation Systems</i> , 26(5), 572-585. <a href="https://doi.org/10.1080/15472450.2021.1944133">https://doi.org/10.1080/15472450.2021.1944133</a>
Grembek, O., Vayalamkuzhi, P., & Oum, S. (2023). Highway crashes in California during the COVID-19 pandemic: Insights and considerations. In: A. Loukaitou-Sideris, A. M. Bayen, G. Circella, & R. Jayakrishnan (Eds.), <i>Pandemic in the Metropolis</i> . Springer Tracts on Transportation and Traffic, 20. Springer. <a href="https://doi.org/10.1007/978-3-031-00148-2_11">https://doi.org/10.1007/978-3-031-00148-2_11</a>
Iacobucci, E., McDonald, N. C., Edwards, C. H. W., Steiner, R., & Griffith, J. (2022). Stemming the tide: Approaching urban freight in the era of e-commerce. <i>Institute of Transportation Engineers. ITE Journal</i> , 92(8), 27–32.
Khattak, Z. H., Smith, B. L., Fontaine, M. D., Ma, J., & Khattak, A. J. (2022). Active lane management and control using connected and automated vehicles in a mixed traffic environment. <i>Transportation Research Part C: Emerging Technologies</i> , 139, 103648.

Kutela, B., Combs, T., Mwekh'iga, R. J., & Langa, N. (2022). Insights into the long-term effects of COVID-19 responses on transportation facilities. <i>Transportation Research Part D: Transport and Environment</i> , 111. <a href="https://doi.org/10.1016/j.trd.2022.103463">https://doi.org/10.1016/j.trd.2022.103463</a> .
Liu, Z., Grant, J., Simpson, S. P., Khattak, A., Anderson, J. G., Gao, Z., & Zhao, X. (2022). Driving ability evaluation and rehabilitation for people with Alzheimer's disease and related dementias. <i>Alzheimer Disease &amp; Associated Disorders</i> . doi: 10.1097/WAD.0000000000000524
Lu, J., Grembek, O., & Hansen, M. (2022). Learning the representation of surrogate safety measures to identify traffic conflict. <i>Accident Analysis &amp; Prevention</i> , 174, 106755. <a href="https://doi.org/10.1016/j.aap.2022.106755">https://doi.org/10.1016/j.aap.2022.106755</a> .
Mahdinia, I., Khattak, A. J., & Haque, A. M. (2022). How effective are pedestrian crash prevention systems in improving pedestrian safety? Harnessing large-scale experimental data. <i>Accident Analysis &amp; Prevention</i> , 171, 106669.
Mahdinia, I., Mohammadnazar, A., & Khattak, A. J. (2022). Understanding the role of faster emergency medical service response in the survival time of pedestrians. <i>Accident Analysis &amp; Prevention</i> , 177, 106829.
Naumann, R. B., Sabounchi, N. S., Kuhlberg, J., Singichetti, B., Marshall, S. W., & Hassmiller Lich, K. (2022). Simulating congestion pricing policy impacts on pedestrian safety using a system dynamics approach. <i>Accident Analysis &amp; Prevention</i> , 171, 106662.
Patwary, A. L., & Khattak, A. J. (2022). Interaction between information and communication technologies and travel behavior: Using behavioral data to explore correlates of the COVID-19 pandemic. <i>Transportation Research Record</i> . <a href="https://doi.org/10.1177/03611981221116626">https://doi.org/10.1177/03611981221116626</a>
Shah, N. R., & Cherry, C. R. (2022) The chance of getting struck by a car on an e-scooter is twice as high at night. <i>Findings</i> . <a href="https://doi.org/10.32866/001c.36195">https://doi.org/10.32866/001c.36195</a> .
Singichetti, B., Dodd, A., Conklin, J. L., Hassmiller Lich, K., Sabounchi, N. S., & Naumann, R. B. (2022). Trends and insights from transportation congestion pricing policy: A bibliometric analysis. <i>International Journal of Environmental Research and Public Health</i> , 19, 7189.
Taylor, N., & Harmon, K. (2022). Racial/ethnicity differences in crash and hospital outcomes using linked North Carolina motor vehicle crash and trauma registry data. <i>Injury Prevention</i> , 28, A57.
Wang, J., Parajuli, S., Cherry, C. R., McDonald, N. C., & Lyons, T. (2022). Vulnerable road user safety and freight vehicles: A case study in North Carolina and Tennessee. <i>Transportation Research Interdisciplinary Perspectives</i> , 15, 100650. <a href="https://doi.org/10.1016/j.trip.2022.100650">https://doi.org/10.1016/j.trip.2022.100650</a>

### 3.2 Policy Papers

- None during this reporting period.

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

- The new website [micromodes.org](https://micromodes.org) launched in August 2022. It is designed to improve the tracking of fatalities involving micromobility devices, starting with e-scooter fatalities.
- The new [CSCRS Vision Zero Map](#) provides access to almost 70 Vision Zero plans by state, with a complete listing of plans available in our library. (It complements CSCRS's multiple other Vision Zero resources.)
- Other CSCRS resources were updated with new data and information during this period:
  - [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” 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. Other recent technologies or techniques are documented in the final reports published by each completed project and highlighted in a “Research Brief” that is posted next to the final report on the CSCRS website.

### 3.5 Inventions, patent applications, and/or licenses

UTK submitted an invention disclosure to the UT Research Foundation on using scooter sensors to identify safety hazards.

### 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 staff engaged with high-profile and local media outlets. Key examples:

- Laura Sandt, UNC HSRC, was interviewed for the May 19, 2022, article [“It’s an especially dangerous time to be a pedestrian in America”](#) for Popular Science.
- Seth LaJeunesse, UNC HSRC, was interviewed for the Jun. 14, 2022, piece [“Traffic Safety Ads Are Better at Making Puns Than Saving Lives”](#) for Slate.
- Offer Grembek, UCB, was interviewed for the following stories:
  - Jul. 5, 2022, [“The Roads of the Future”](#) for Via Magazine.
  - Aug. 19, 2022, [“Unsafe speeds and reckless driving: Deadly Windsor Hills wreck ‘is the tip of the iceberg’”](#) in the Los Angeles Times.
- Eric Dumbaugh, FAU, was featured in the following stories:
  - Jun. 15, 2022, [“The high cost of speed”](#) for the blog An Outside Chance.
  - Jul. 25, 2022, [“The deadliest road in America”](#) for Vox.
  - Aug. 1, 2022, [“VDOT is introducing variable speed limits, but will congestion care?”](#) for Virginia Mercury.

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:

- In May 2022, Rep. David Price, Chairman of the House Transportation, Housing and Urban Development Appropriations Subcommittee, visited the UNC HSRC offices in Chapel Hill, NC, to learn about CSCRS’s latest research and activities.
- On Jul. 27, 2022, CSCRS researcher Elyse Keefe, UNC IPRC, and Advisory Board member Linda Bailey, District Department of Transportation, presented testimony on the crash fatality epidemic to the Congressional Caucus on Global Road Safety. The testimony was coordinated through the Association for Safe International Road Travel.
- As mentioned, FAU researchers are starting work on a project sponsored by the Florida Department of Transportation to integrate the fundings from [R31](#) into state planning and design practice.

- As mentioned earlier, Offer Grembek, UCB, provided expert testimony for AB 1909, the Bicycle Omnibus Bill, at the California Senate Committee on Transportation hearing.
- CSCRS researchers were also invited to speak on a panel for a congressional briefing for the Road Safety Caucus alongside the National Transportation Safety Board and other national stakeholders.

### 4.3 Increases in the body of knowledge

The approach we have taken over the last six year is to apply public health principles and systems science to equip transportation professionals and communities with more effective tools to solve safety challenges. This multidisciplinary work advances Safe System concepts—such as accounting for human vulnerabilities and human behavior to proactively limit the chance of fatal injury—through research, education, workforce development, and technology transfer. As our new [video](#), [report](#), and [executive summary](#) demonstrate, CSCRS has made great strides in foundational research that furthers the Safe System approach. There’s still a lot of work to do, but developments like the inclusion of Safe System principles in state and national policies show we’re headed in the right direction.

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

Developments in this area are documented in the Final Reports published by each completed project and highlighted in a “Research Brief” that is posted next to the Final Report on the CSCRS website.

### 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. A key example from this performance period was participation in the North Carolina Science Festival, which helped us reach hundreds of new families to inspire thinking about a future with safer roads.

### 4.6 Adoption of new technologies, techniques, or practices

As we have previously reported, we continue to see a deepening of Safe Systems and systems thinking principles, literature, and tools that emerged from CSCRS being integrated broadly into policies and practices observed at national, state, and local levels. Key examples from this reporting period are working on the NC Strategic Highway Safety Plan, as well as using systems tools to coordinate with a statewide NC task force to support increased adoption of the Safe System approach.

## 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

CSCRS has devoted much time and energy to envisioning what it means to have a safe transportation system. We have explored fundamental aspects of transportation safety and equity that sometimes get overlooked. What do we really mean when we talk about road safety? Safety from what and for whom? How do we measure it and how do we know when we’ve gotten there? Effectiveness of the system is intrinsically linked to the communities served and making sure no one is left out of the system.



In a related way, we have done much research on those the system is currently not really designed for, i.e., those who travel outside of vehicles. In addition to research on safety for bicyclists and pedestrians, CSCRS has delved into safety for motorcyclists, transit, ridesharing, and emerging mobility modes. The ideal is exemplified by the concept of Complete Streets, defined by USDOT as “streets designed and operated to enable safe use and support mobility for all users.” Until all modes of travel are safe, we will never realize a Safe System, so that is why CSCRS focuses so much on these areas.

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

Each year CSCRS finds new ways to aid the adoption of road safety practices. Recent examples focus on Vision Zero:

- In Jul. 2022, CSCRS [sent out a listing of its Vision Zero resources](#) to assist communities applying for USDOT's Safe Streets and Roads for All (SS4A) Grant Program. Resources included the map of Vision Zero plans, the Vision Zero Plan Guide, and briefs covering key information.
- The CSCRS Vision Zero plan library and briefs are now listed on the USDOT [FHWA website as a resource](#).
- The Vision Zero resources were highlighted in the toolkit for Change Lab Solutions in the report [“Vision Zero Implementation Toolkit,”](#) published in 2022.

## 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 appointments that recognize our expertise and provide opportunities to influence scientific discourse. New appointments this reporting period, as well as other recognitions of our work, include:

- Laura Sandt, UNC HSRC, 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, UNC HSRC, was involved in the following endeavors:
  - Editorial board of the Journal of Safety Research.
  - Member of the Council of State and Territorial Epidemiologists' E-scooter Exploratory Indicator Subgroup.
- Nancy Lefler, UNC HSRC, was appointed to be co-chair of the NC Traffic Records Coordinating Committee.
- Tab Combs, UNC DCRP, served on the Urban Mobility and Transportation Domain of the 100 Questions Initiative.
- As mentioned, David Ragland and other staff at UCB SafeTREC participated in multiple meetings of the California SHSP.
- Eric Dumbaugh, FAU, was involved in the following organizations:
  - Associate Editor, Journal of the American Planning Association.
  - Member of ITE's Transportation Safety Council and Vision Zero Standing Committee.

- Panel Member, Transportation Research Board of the National Academies of Science, NCHRP 17-118: Understanding the Impacts of Operational Changes on Safety Performance.
- Wes Kumfer, UNC HSRC, served as the Transport Safety Section Editor for the article collection [“Vision Zero: The safe system approach and traffic safety culture”](#) for the journal *Frontiers in Future Transportation*.
- In Sep. 2022, Praveen Vayalamkuzhi, was honored by the National Safety Council as a [Rising Star of Safety for 2022](#).
- Offer Grembek, UCB, served as a member of the following organizations:
  - Steering Committee, California SHSP.
  - Bay Area Vision Zero Working Group.
  - Metropolitan Transportation Commission (MTC).
  - Road to Zero Safe System Implementation Working Group.
  - ITE.
  - TRB Standing Committee on Transportation Safety Management Systems.
  - NCHRP Project Panel on Speed Management Solutions and Strategies to Improve Pedestrian and Bicyclist Safety on Arterial Roadways.
  - NCHRP Project Panel on Institutionalizing Safe Systems and Safety Culture in the Transportation Planning Process.
- UCB’s David Ragland, Offer Grembek, Katherine Chen, Lisa Peterson, and Julia Griswold participated in sub working groups as part of the CalSTA IJJA Transportation Implementation effort and to assist in developing a statewide implementation action plan. Topics for subgroups staff members are participating in include safety, tribal government, equity, active transportation.
  - David Ragland also served on the Advisory Group for CMOD (California Medical Outcomes Data) and the Traffic Records Coordinating Committee.
- 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 activities also include:
  - Participating in Tennessee Pedestrian Task Force meeting to provide input on the State of Tennessee Pedestrian and Bicyclist Safety Program Technical Assessment.
  - Matching projects that involve working with the Tennessee Department of Transportation (TDOT) on implementing Highway Safety Manual procedures in Tennessee.
  - Working with TDOT on connected and automated vehicle technologies; the project also involves working collaboratively with faculty from UTK Mechanical Engineering Department, Electrical Engineering Department at University of Tennessee, Chattanooga.
  - Serving as a member of TRB’s Standing Committee on User Information Systems and the Standing Committee on Traveler Behavior and Values.
  - Serving as editor-in-chief of the *Journal of Intelligent Transportation Systems* and associate editor of the *International Journal of Sustainable Transportation*.
  - Serving as special adviser to the *Journal of Transportation Safety & Security* & Advisory Board Member of *Analytic Methods in Accident Research*.
  - Serving on the advisory board of TEMA, the Centre for Mechanical Technology and Automation at University of Aveiro in Portugal.
- Chris Cherry, UTK, has chaired or is a member of the following committees:
  - UN Environment Program Electric Powered Two Wheeler Task Force.

- Light Electric Vehicle Education and Research Institute.
- City of Knoxville Vision Zero Working Group.
- SAE's Powered Micromobility Committee.
- Bird's Global Safety Advisory Board.
- TRB's Emerging Vehicles for Low Speed Transportation joint subcommittee, Micromobility joint subcommittee, and Developing Country Committee.
- Subhadeep Chakraborty, UTK, served as a member of IEEE.

## 5.4 Impact on transportation workforce development

CSCRS's continues to find new audiences with workforce development activities. Attendance at the Research to Practice Bytes seminars, has been growing steadily throughout the year, and each session has attendees from dozens of states. The Road Safety 101 program provides new opportunities to teach about the Safe System approach to cities on request.

## 6. Changes/Problems

### 6.1 Changes in approach and reasons for change

As the effects of the COVID-19 pandemic continue to wane, some version of "normalcy" has returned. More and more live conferences have returned and staff changes have decreased.

### 6.2 Actual or anticipated problems or delays

Again, the effects of the pandemic have lessened. Still, we are adapting to new protocols, taking advantage of hybrid options for events whenever possible. Projects are still overcoming earlier delays compounded over multiple months of the pandemic; we had given necessary extensions to multiple projects.

### 6.3 Changes that have a significant impact on expenditure

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](#).