



## 2018 Safe Systems Innovation Grant Recipients

The Road to Zero (RTZ) initiative was launched in October 2016, by the National Safety Council, Federal Highway Administration, Federal Motor Carrier Safety Administration and National Highway Traffic Safety Administration with the goal of eliminating roadway deaths within 30 years. In 2017, the Centers for Disease Control became a partner to RTZ that has 675+ coalition members. The U.S. Department of Transportation committed \$1 million a year for three years and additional \$500 thousand in year #2 to fund Safe System Innovation Grants, and NSC is distributing these grants.

To qualify, an organization needed to clearly explain how their innovative program will reduce roadway fatalities, set a timeframe for the reduction, outline how the program will be evaluated, detail how the organization intends to reach its target audience and list the funds requested.

Each application was reviewed and rated on the same criteria by four separate grant readers. The top 11 qualified applicants, totaling \$1.5 million were chosen for the second year of the Safe System Innovation Grants are listed below. In 2017, there were 7 grant winners.

### 2018 Grant Recipients

Organization Receiving Grant	Grant Name	Grant Amount
America Walks in partnership with UNC Highway Safety Research Center (UNC-HSRC)	Accelerating Adoption of Safer Systems for All Road Users	\$170,256
Bicycle Colorado	Bicycle-Friendly Driver and Confident Commuting Program	\$109,902
Center for Latino Progress – CPRF	Cooperative Community Crash Reduction, Hartford CT	\$174,038
City of Boston Mayor's Office of New Urban Mechanics	Boston's Safest Driver	\$106,244
Institute of Transportation Engineers in partnership with the Vision Zero Network	Moving from Conversation to Action: A Scalable Training Resource on Speed Management for Transportation Professionals and Community Stakeholders	\$181,937
Lorain County Public Health	Lorain Active Transportation Collaborative	\$69,976
National Complete Streets Coalition, Smart Growth America	Safe Street, Smart Cities Academy	\$185,732
NORC at the University of Chicago (National Opinion Research Center)	Underutilized Strategies in Traffic Safety	\$62,513
Texas A&M University Department of Industrial and Systems Engineering in collaboration with Houston Methodist Hospital	A systems approach to reduce drowsy driving among night-shift nurses	\$173,029
University of Alabama at Birmingham (UAB Youth Safety Lab) in collaboration with Safe Kids Worldwide	Improving Child Restraint Installation in Rural America through Interactive Virtual Presence	\$186,602
University of Michigan	Addressing Socioeconomic Disparities in Motor-Vehicle Fatalities	\$79,772
	<b>TOTAL:</b>	<b>\$ 1,500,000</b>



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### Grant Recipient Programs

#### **America Walks in partnership with University of North Carolina Highway Safety Research Center (UNC-HSRC) - Accelerating Adoption of Safer Systems for All Road Users**

[www.americawalks.org](http://www.americawalks.org)

America Walks and UNC-HSRC are joining forces to develop and deploy a safe systems oriented plan designed to accelerate actions at the local level aimed at improving pedestrian safety. The project will incorporate techniques that have been highly successful and used in other America Walks and UNC-HSRC efforts-- such as a series of online training discussions, a curriculum of established tools and resources, and contact with experts to answer questions and assist with local implementation.

The project team will select 12 communities to participate and the community representatives will:

- Participate in 12 weeks of training, mentorship, and peer support to analyze, prioritize, select solutions, and cultivate influence among necessary decision-makers for implementation;
- Develop community assessment tools and evaluation process;
- Develop learning modules and exercises, such as safe systems basics, collaboration and partnership; building support for safety; assessing safety and equity; safe systems and policy;
- Follow and evaluate community progress and document outcomes; and
- Share/showcase project findings;

In addition to this initial direct reach and engagement with the pilot communities, America Walks plans to utilize the plans and lessons from the pilot program to scale the lessons to the larger network of over 30,000 individuals and organizations nationwide. Through webinars, online discussions, and written reports, these case studies will provide lessons, resources, and inspiration to a larger audience to take on pedestrian action plans and a safer systems approach.

#### **Bicycle Colorado – Bicycle Friendly Driver and Confident Commuting Program**

[www.bicyclecolorado.org](http://www.bicyclecolorado.org)

Bicycle Colorado will provide education and certification for drivers and bicyclists that will help increase safe behaviors and reduce the number of crashes resulting in injuries and fatalities across Colorado with the following courses: Bicycle-Friendly Driver (BFD), Confident Commuting (CC), and Train-the-Trainer programs.

Bicyclists are a particularly vulnerable roadway user group and experienced 45,000 injuries and 818 fatalities in 2015 and 840 fatalities in 2016. The Governors Highway Safety Association (GHSA) reports that an average of 55 additional bicyclists have died each year since 2011. GHSA also reports that bicyclists have consistently accounted for at least two percent of all roadway fatalities. Colorado has been at or above this average for the last five years with the most recent percentage of bicyclist fatalities at 2.5%. Despite these statistics, there remains a lack of education for motorists around sharing the road with bicycles and navigating bicycle infrastructure.



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The BFD course is a one to two-hour, in-person, interactive class educating drivers on the best and safest ways to share the road with cyclists. Through discussions on crash data, infrastructure, laws, and etiquette, participants are reminded that we must prioritize safety. The course concludes with an exam, evaluation and distribution of a certificate and vehicle window sticker to passing participants. Evaluations of previous courses demonstrated that 50% of BFD course participants felt more confident about riding a bicycle after the program.

The CC course teaches existing and prospective bicycle commuters rules of the road. Bicyclists play an important role in the safety of our streets and should be equipped with knowledge about visibility, predictability, and having the skills to safely navigate streets alongside cars.

Train-the-Trainer sessions will be conducted in jurisdictions interested in developing a sustainable program and continuing education opportunities on their own.

**Center for Latino Progress - Cooperative Community Crash Reduction, Hartford,**  
**Connecticut**  
[www.ctprf.org](http://www.ctprf.org)

According to the 2017 Center for Latino Progress (CPRF) Vision Zero team, Hartford had the highest regional rate of crashes with injuries for cars, bicycles, and pedestrians. CPRF will use the 2017 data to engage four community organizations: CPRF, Blue Hills Civic Association (BHCA), Hartford Police Activities League, and the Hartford Explorers Post, through education and outreach and implement proven traffic calming and crosswalk safety improvements.

CPRF will add a Transport Hartford Youth Ambassador Corp who will take a training course in Hartford crash data that affects their neighborhoods and work with the Transport Hartford Coordinator to create a 30-minute presentation and interactive activity that they will share in Hartford's afterschool programs.

BHCA will incorporate the crash data training and research program to add a road safety team to their public safety engagement in Hartford Promise Zone youth programs through the establishment of a BHCA Street Team, with a minimum of eight participants in the fall of 2018 and spring of 2019. The street team will develop a service learning project based on research into effective road safety campaigns and Vision Zero policy advocacy.

The community education and engagement will be complemented by the addition of forty (40) centerline crosswalk signs. The sign locations will be selected in conjunction with community meetings and the partner action teams. Community members and youth interns will select locations based on a large-scale poster of the 5-year bicycle and pedestrian crash data points and their own experience.

The Police Activities League (PAL) works with children ages 7-15 and combines sports activities with positive police interactions. The PAL program will consist of a summer BIKELIFE, a model spring break program at BiCi Co., a project of CPRF to teach bicycle maintenance and safety. The program includes a required bicycle safety course and helmet fit and is taught by a certified League Cycling Instructor.

The Hartford Police Explorers work with youth ages 13-21 and function as an entry point and



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recruitment tool for those interested in law enforcement and public safety. The Explorers will implement a traffic safety, data gathering, and community education program starting with an understanding of the existing crash data in the city. The Explorers (age 16+) will form a Public Safety Street Team (PSST) that will record crosswalk observations before and after the installation of the centerline crosswalk signs to document the effectiveness in low-income neighborhoods at a high risk for incidents. The PSST will create and share a road safety flyer based on their review of Hartford's crash data and research.

The community-based efforts of the Road to Zero team in Hartford will be coordinated with state and regional efforts, education, and marketing by the Watch for Me CT program at the Connecticut Children's Medical Center Injury and Prevention Center. A partnership with the Watch for Me CT efforts will reach suburban commuters that drive into and out of the city daily for work and recreation.

The expected outcomes are:

- reduction of vulnerable user crashes in target corridors by 20%
- youth and young adult safety education and engagement
- an increased community awareness of road safety and risk issues and an understanding of policy
- traffic changes that have been proven to reduce injuries and fatalities
- engagement and education of future police and law enforcement professionals
- data collection and analysis on intersection behavior and before / after un-signalized crosswalk behavior
- centerline crosswalk yield signs improvement

### **City of Boston Mayor's Office of New Urban Mechanics - Boston's Safest Driver**

[www.visionzeroboston.org](http://www.visionzeroboston.org)

The Mayor's Office of New Urban Mechanics and the Boston Transportation Department will collaborate with Cambridge Mobile Telematics to bring a safe driving competition to some of the largest vehicle trip generators in the city of Boston through workplace challenges. In the initial pilot of Boston's Safest Driver, the City will collaborate with two of the city's largest Transportation Management Associations (TMAs) to incentivize adoption in both large and mid-size employers. Specifically, the campaign will be launched within 50 different employers in the City of Boston, reaching over 150,000 employees. The TMAs will be used to seed competitions both within companies and between different organizations. Additionally, they will reward participants for the volume of their trips that are taken by transit, walking, and bicycling to align with the City's mode-split goals.

Competition tracking will occur throughout the fall and winter of 2018-2019. Periodic incentive sprints and challenges will be delivered to employees to encourage sustained engagement for three-month periods (well beyond the 60-days often associated with forming a habit). Ultimately, the program operates both as a tool for self-reflection on driving behavior and as a means to expand communication about the City of Boston's Vision Zero initiative.

A hypothesis will be tested through this implementation of Boston's Safest Driver Workplace Challenges—whether the initial “gamified” and incentivized behaviors create a culture of safety awareness within a workplace. This will also help build community across the City through



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friendly competition, as there will be structured engagement opportunities and issued prizes among various categories.

While behavior change through self-reflection and gamification is the primary goal, the data generated through the telematics of the app will also be a benefit to the city. Through this anonymous and aggregated database, the city can begin to identify potential problem areas, such as places with patterns of harsh braking, and begin to analyze traffic signals, roadway geometry, and other contributing factors to that behavior.

This quantitative data, coupled with qualitative data on people's experiences with the app, will be used to fine-tune the best way to make use of this tool to educate and change behavior.

**Institute of Transportation Engineers in partnership with the Vision Zero Network -  
Moving from Conversation to Action: A Scalable Training Resource on Speed  
Management for Transportation Professionals and Community Stakeholders**

[www.ite.org](http://www.ite.org)

Recognizing speeding as a traffic safety problem, the fast-growing support of Vision Zero, and the high potential for the Safe Systems approach, the Institute of Transportation Engineers (ITE) and the Vision Zero Network (VZN) will collaborate to demonstrate leadership in helping communities across the nation develop and implement speed management strategies. ITE and VZN propose to help the growing number of local community members and influential professionals working on Vision Zero (in the realms of transportation, policymaking, enforcement, and public health) identify and implement speed management strategies to advance the Road to Zero goal of safe mobility.

The project is focused on the development of a comprehensive training experience for practitioners, centered on the topic of speed management. Elements of this training experience will be as follows:

- In-person speed management trainings
- An on-demand speed management resource hub
- A dedicated online discussion space through the ITE Community website

The project aims for the impact to:

- build greater awareness of the effectiveness of speed management measures;
- identify concerns and misperceptions that are slowing acceptance;
- use data, research, and documented experiences to help allay concerns and misperceptions;
- build a stronger constituency to advance these measures.

ITE and VZN will survey their respective memberships to assess the current level of understanding and attitudes towards various speed management practices. These surveys will not only help to drive and focus creation of the training content itself, but also will provide a snapshot of the current state of practice and the perspectives of various stakeholder groups, as well as set baselines to measure changes in attitudes and actions over the course of this project. ITE and VZN are intending to achieve increased communication with the broader Vision Zero Communities with this project, and will serve to further the timeliness of speed management conversations in various circles of professional practice at the national level.



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### **Lorain County Public Health - Lorain Active Transportation Collaborative** [www.loraincountyhealth.com](http://www.loraincountyhealth.com)

With a shrinking population, the character of transportation is changing in Lorain, a small city located in Ohio along Lake Erie. “Road diets” are transforming four lane streets into three lanes with bike routes; stoplights are disappearing due to lower traffic volumes, and new trails are connecting road users to different opportunities. Residents choose different modes of transportation to travel to work and school. The current bussing standards in Lorain only pick up students outside of the 2-mile radius around schools resulting in more students walking or biking to school. With 13 schools in the 24.14 square miles that make up the city, that leaves a majority of students traveling to school by foot or by bike.

In the past five years with the increase of vulnerable users on the roadways and changing landscape of the street network, according to Ohio Department of Transportation Traffic Information Mapping System data (2018), the City of Lorain saw 75 crashes that involved a bicycle and/or a pedestrian. Of those crashes, 19 were categorized as very serious and two deaths occurred.

The Toole Design Group was contracted to head a yearlong planning process that has resulted in a combined Safe Routes to School (SRTS)/Active Transportation (AT) Plan. The goal of this project is to establish a Lorain Active Transportation Collaborative (LATC) that exists to guide and fund active transportation projects in the city after the planning process. One of the major challenges in the City of Lorain is the lack of action after plans have been adopted, or trainings have occurred. This collaborative will be a systems approach to improving the health and safety of all roadway users, with a specific emphasis on vulnerable users such as bicyclists, pedestrians, and people with disabilities. Using the collective impact framework, the goal of the LATC is to create and propel a shared vision for health and safety that brings together diverse sectors of the City of Lorain, including schools, city government, county government, developers, non-profit providers, public housing, main street, health care/hospital systems, and parks and recreation. The LATC could grow to be a sustainable way to ensure continuity of activities in the city. As one of the project outputs, a model will be established that other communities across the country facing similar challenges can adopt to promote local changes in their respective transportation systems.

### **National Complete Streets Coalition - Safe Streets, Smart Cities Academy** [www.smarthgrowthamerica.org](http://www.smarthgrowthamerica.org)

According to the National Complete Streets Coalition, a program of Smart Growth America (SGA), biking and walking are on the rise across the United States, particularly in cities. Between 2006 and 2016, the proportion of people biking to work nationwide increased by approximately 25%, and cities are increasingly focused on promoting walkability and access to transit as a means to attract talent and investment. Local governments in the United States need the knowledge, tools, and strategies to address the rise in both active transportation and motor vehicle-related fatalities while harnessing the new technologies introduced to the transportation disciplines.

The National Complete Streets Coalition “Safe Streets, Smart Cities Academy,” will work with targeted jurisdictions to address these complex challenges and ultimately move communities toward zero deaths and to build off last year’s RTZ Safe System Innovation Grant with the



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success of the Safe Streets Academy. It retains the structure and elements that are working successfully while simultaneously revising the content and format based on lessons learned. It also introduces new content to push the envelope in traffic safety innovations.

This new Academy, like its predecessor, brings together three midsized to large cities from across the United States, selected through a competitive application process, for a series of three in-person workshops and six distance learning modules featuring exercises for the participants to develop and share skills in safer street design, community engagement including new modules and skills, including the impact of emerging mobility options on roadway design and curbside management. It also informs participants how to develop and implement Local Road Safety Plans, which are among the new proven safety countermeasures introduced by the Federal Highway Administration (FHWA) in 2017.

A consistent theme emerged throughout the Safe Streets Academy and through SGA's other technical assistance programs - the role that smart cities technologies will play in eliminating traffic fatalities. Innovations provide better tools to manage road systems so people walking, biking, riding public transit, and driving can safely share the street. At the same time, the advent of new mobility options ranging from bike share to ride hailing applications to autonomous vehicles has increased competition and potential conflict in the right of way and alongside limited curb space. This theme, while largely absent from the Safe Streets Academy's curriculum, has not been absent from the Academy's discussions and conversations.

The goal of the Safe Streets, Smart Cities Academy is three-fold:

1. To build capacity in the three recipient cities through direct technical assistance by equipping them with knowledge, tools, and strategies to prevent traffic deaths and injuries within their jurisdictions to change the culture and practices of their organizations to support these safety goals.
2. To foster innovation through demonstration projects that test out new approaches to improve safety through tactical urbanism, creative place making, and emerging technologies.
3. To disseminate these innovations and best practices to a broader audience through written case studies explaining the process and impact of these demonstration projects.

### **NORC at the University of Chicago (National Opinion Research Center) - Underutilized Strategies in Traffic Safety**

[www.norc.org](http://www.norc.org)

In the U.S. many traffic safety strategies are underutilized. These include, but are not limited to, sobriety checkpoints, automated enforcement, lowering the BAC limit for driving, primary restraint/helmet use laws, alcohol ignition interlocks, oral fluid screening for drugged driving, lowering speed limits, and replacing signalized intersections with roundabouts could substantially reduce traffic fatalities.

This project will accomplish the following tasks to understand which traffic safety strategies should be more utilized according to the American public:

1. Design and conduct a survey on traffic safety strategies that could save lives using AmeriSpeak®. Amerispeak is a once-a-month, multi-client survey representative of



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adults age 18 and older. Respondents are interviewed on-line and by phone from NORC's Amerispeak panel.

2. After the survey is conducted and analyzed, a press release will be written describing the results and discussing the implications using the AP-NORC Center. The AP-NORC Center pairs the research rigor of NORC at the University of Chicago with the journalistic independence and global media reach of the Associated Press. The AP-NORC Center for Public Affairs Research can gather, analyze, and disseminate data. They can inform public policy debates as they are taking place and help our citizens be educated on key issues. Coverage of AP-NORC studies reaches many people worldwide across multiple formats including texts, radio, and video coverage.
3. A scientific article on the results will be produced and submitted to a peer-reviewed journal.
4. Each State Highway Safety Office will be contacted with the results.
5. In discussions with the State Highway Safety Offices, it will be determined if the States would like to conduct individual State Surveys on these and other highway safety issues.

**Texas A&M University Department of Industrial and Systems Engineering in collaboration with Houston Methodist Hospital - A systems approach to reduce drowsy driving among night-shift nurses**  
[www.engineering.tamu.edu/industrial](http://www.engineering.tamu.edu/industrial)

Drowsy driving crashes claimed the lives of over 3,600 people and injured 160,000 people between 2011 and 2015. The goal of this project is to create and systematically evaluate a program for Drowsy Driving Reduction for shift-work Nurses (DD-RN). While the numbers fluctuate year-over-year, the fatalities and injuries caused by drowsiness are persistent. This persistence has driven several institutions to call for targeted approaches to reduce drowsy driving crashes from American Academy of Sleep Medicine (AASM) and National Highway Transportation Safety Administration (NHTSA), but one limitation of these recommendations is the focus on individual interventions and the general population rather than multifaceted interventions and high-risk populations. This focus may explain the persistence of drowsiness crashes despite the availability of countermeasures. Furthermore, it suggests a need for approaches that target high-risk populations and combine multiple interventions.

One of these key populations is the 15 million shift workers, who are 6 times more likely to be involved in a drowsiness-related crash than the general population according to the National Sleep Foundation (2009). Shift work nurses make up a significant and growing portion of this population, and as many as 65% of these nurses report regularly driving drowsy. The prevalence is so severe that it prompted the American Academy of Nursing (AAN) to release a position statement advocating for new educational tools that could inform nurses about the dangers of shift work and drowsy driving. When viewed alongside the recommendations from NHTSA and the AASM, this evidence indicates that nurses are in danger, and that a comprehensive program including education and technology may be the key to reducing such crashes to zero.

This proposed system will combine education, training, and drowsiness mitigation technology to reduce the frequency of drowsy driving and provide a means for intervening in the critical moments before a crash. In all cases, a user-centered design process will be employed to ensure that the interventions meet the needs and expectations of nurses. The educational and training components may reduce the frequency of drowsy driving in nurses by providing them



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strategies to ensure adequate sleep and recognize when they are at risk of a drowsy driving crash. The technology will fill in during emergencies and prevent crashes by audibly alerting nurses before they fall asleep behind the wheel. Together these components provide a robust system for drowsiness prevention that fills the needs identified by NHTSA, the AASM, and the AAN.

**University of Alabama at Birmingham (UAB Youth Safety Lab) in collaboration with Safe Kids Worldwide - Improving Child Restraint Installation in Rural America through Interactive Virtual Presence**  
[www.uab.edu/cas/safetylab](http://www.uab.edu/cas/safetylab)

Motor vehicle crashes kill an American child every 3 hours. Child restraint systems (“car seats”) reduce risk of serious injury and death to infants and young children roughly threefold, but are most effective when installed correctly. Unfortunately, a large portion of child restraints are installed incorrectly, and this problem disproportionately affects rural Americans.

UAB Youth Safety Lab will use of an interactive virtual presence technology to remotely assist parents to install child restraints properly into their vehicle. If effective, this technology could reach all Americans and supplement or replace car seat checks to reduce errors made in child restraint installations.

Interactive virtual presence refers to joint and simultaneous but remote exposure to the same 3D stimuli, ability to verbally and nonverbally communicate about that stimuli, and ability to interactively examine, illustrate, point to, and interact with the stimuli. It has been used effectively in the medical/surgical and industrial machinery maintenance fields and may be used as a tool to guide parents in proper child restraint installation. Ultimately, use of interactive virtual presence could change how government, industry, and non-profit agencies help parents install restraints.

The overall goal of this project is to demonstrate installation of child restraints can be effectively accomplished to rural populations using interactive virtual presence. The two specific aims are:

- Demonstrate technological and behavioral efficacy of providing instructions on child restraint installation remotely to rural populations.
- Identify accuracy of child restraint installation by parents using instructions provided by a remotely located certified technician via interactive virtual presence.

**University of Michigan Traffic Research Institute (UMTRI) - Addressing Socioeconomic Disparities in Motor-Vehicle Fatalities**  
[www.umtri.umich.edu](http://www.umtri.umich.edu)

The goal of this project is to review literature and analyze data to identify disparities in motor-vehicle fatalities related to socioeconomic factors and strategies to address the disparities. In current work, fatality risk curves have been developed that predict a 10% higher risk of fatality at crash severities of 50 km/hr for vehicles older than model year 2000 compared to newer vehicles. While new crash avoidance technologies can prevent crashes, it will take decades for most of the vehicle fleet to be equipped with such advanced features. As lower income occupants are most likely to own older vehicles, the disparity in crash protection between those using older and newer vehicles may continue to increase and disproportionately affect occupants



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with lower incomes. Several other factors have been identified as possibly contributing to different fatality rates by income level, rural/urban environment, and race/ethnicity. These include:

- Ability to pay for teen driver education
- Ability to purchase appropriate child restraint systems
- Different rates of belt use and motorcycle helmet use
- Rates of impaired driving

The objective is to identify the effect of these disparities on fatal motor-vehicle crashes, using literature review and analysis of key datasets related to US travel, crashes, and fatalities.

Successful completion of this project will involve finishing the following tasks:

- Literature review of other research identifying socioeconomic disparities in motor-vehicle crashes and strategies for addressing them.
- Analysis of the FARS dataset to identify variations in fatal crash characteristics associated with reported race/ethnicity, rural/urban environment, and household income (based on mean income levels of driver zip code linked from US Census).
- Analysis of the NASS-GES dataset to address how crashes differ with race/ethnicity and income level (rural, urban, suburban already complete).
- Analysis of the 2017 National Household Travel Survey to identify variation in travel patterns and vehicle types as a function of race/ethnicity, income level, and rural/urban.
- Update of the UTMOST online crash visualization tool to allow examination of countermeasures by race and income level (both fatalities and injuries).
- Simulations using UTMOST to identify how new technologies may differentially affect occupants of different race/ethnicities and income levels.
- Final technical report documenting all project tasks.