

# Creating Safer Systems and Healthier Communities: A Resource Hub

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January 14, 2021

# Managing kinetic energy in NC

– Delineator systems in Greenville



Photo credit: Aaron Hines, City of Greenville



Photo credit: Pat Gruner, Daily Reflector



# Managing kinetic energy in NC

– Protected bike lanes and road diets in Charlotte



Photo credit: Ely Portillo

Hamorton Place - Before Conversion



Hamorton Place After Conversion



Image source: City of Charlotte

# Managing kinetic energy in NC

– UDO update and BRT in Raleigh



Ordinance No. (2021) 291 TC 454 (TC-3-21)  
Adopted: 10/5/2021

Page 3  
Effective: 11/19/2021

B. Avenue 2-Lane, Divided



Width	
A Right-of-way width —With center turn lane —With median	76'-81' 80'
B Back-of-curb to back-of-curb —With center turn lane —With median	48'-38' 52'
Streetscape	
C Utility placement, easement	5'
DC Maintenance strip (min)	2'-1'
ED Sidewalk (min)	6'
FE Planting area (min)	6'
F Bike Lane (min)	5'
G Buffer (min; planted, paved, or paver)	3.5'
Travelway	
G Bike lane	7'
H Travel lane	11'
I Center median or turn lane —Striped turn lane —Median	11' 15'

Image source: City of Raleigh

# Resource Hub website



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## Creating Safer Systems and Healthier Communities: Resource Hub

Transportation practice informs research, and research informs practice. Part of the work of the Collaborative Science Center for Road Safety (CSCRS) is to share and develop a stronger understanding of Safe Systems principles and systems science in order to showcase how these principles can be applied in a variety of real-world scenarios and integrated into injury prevention programs such as Vision Zero. This webpage is intended to serve as a hub for research-to-practice innovation. The list of resources shown here is by no means exhaustive, and CSCRS welcomes suggestions at [info@roadsafety.unc.edu](mailto:info@roadsafety.unc.edu) for other resources to add.

### Tools and Applications for Strengthening Safety Systems

#### For those just getting started

##### **Partnership Identification and Assessment Tool for road safety coalition exploration and development**

This resource, adapted from the Center for Health and Healthcare in Schools, provides a template for reflecting on current and potential agencies, organizations, or local groups within a community that should be considered as individuals' form or strengthen road safety-related coalitions. This tool provides prompts to help individuals and coalitions think through the best methods and timing for engaging a wide variety of partners. We recommend starting with identifying six to eight partners to engage or re-engage.

##### **Community Readiness Assessment Guide for Vision Zero work**

This manual, adapted from the Tri-Ethnic Center for Prevention Research, will provide a guide



# Tools and Applications: The Community Readiness Assessment

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## HOW TO CONDUCT A COMMUNITY READINESS ASSESSMENT

Conducting a Community Readiness Assessment is the key to determining your community's readiness by dimension (key factors influencing your community's preparedness) and by overall stage (Figure 1).

1. Identify and clearly define your issue.
2. Identify and clearly define your community.
3. Prepare your interview questions.
4. Choose your key respondents.
5. Conduct and transcribe your interviews
6. Score the interviews across the dimensions
7. Take action on readiness-appropriate Vision Zero strategies

### Step 1: Identify and clearly define your issue.

Readiness assessments are issue-specific. This manual is written with the issue of eliminating road and traffic deaths and serious injuries in mind. Focus on this issue will not only provide you with valuable insight into your community's perspective on road safety and a Vision Zero approach, but will also provide information on related issues such as transit, community health, and access to alternative transportation.

#### A note on terms:

Community members may or may not be aware of

branded initiatives like Vision Zero. Allow respondents to describe what efforts they are familiar with in their own concrete terms (e.g., red light cameras). At the conclusion of the interview, you can offer to share more about the Vision Zero project in your community. You might want to practice describing it to someone outside your field, such as a friend. Here is one possible definition:

**Vision Zero** is based on the belief that people have the right to move through their communities without the risk of death or serious injury. It's an approach that accounts for the fact that humans make mistakes, transferring more of the responsibility of safety onto road designers and policy makers than has been done in the past. Vision Zero strategies include designing roads and transportation systems in a way that prevents human error from resulting in death or serious injury. Strategies include systems level change and collaboration between diverse stakeholders, using data to inform interventions, prioritizing equity and community involvement, managing speed, and promoting alternative transportation

**"The problem"** you want to find out about in interviews refers to deaths and serious injuries on roads. However, there are many other social costs of

road deaths and disabling injury you can emphasize. This includes, for example, the estimated 5 people per individual directly affected in some substantive way by the death/injury, PTSD among crash survivors and witnesses of severe crashes. Thus, you can make it clear that "the problem" includes proximal death and injury, intermediate financial and emotional damage to families/close friends, as well as more distal mental health impacts of severe crash events.

### Step 2: Identify and clearly define your community.

Identify the community whose readiness you are assessing. Many Vision Zero initiatives are specific to a defined geographical area, such as a town, city, region or transportation network. However, Vision Zero readiness can also be assessed for a smaller subset of a community including:

- Geographic community – a city, a county, an area enclosed by certain boundaries, etc.
- Subgroup of a geographical community defined by ethnicity, age, etc.
- Occupation group such as law enforcement, engineers, medical/emergency professionals, etc.
- Organizations or departments of organizations (e.g., a university, a school district).

# Tools and Applications: Voices of Vision Zero across the U.S.

The image displays two overlapping YouTube video player windows. The foreground window shows a video with a blue background and white text that reads: "How have you integrated Vision Zero into your work?". The video player interface includes a search bar, a play button, a progress bar showing 0:00 / 5:45, and various control icons. The background window shows a man with a beard speaking, with a "VISION ZERO" logo in the top right corner. The logo features a stylized city skyline and the text "VISION ZERO" with a car icon and a pedestrian icon, and the tagline "Help Austin reach zero traffic deaths".

# Tools and Applications: Guide to Developing a Vision Zero Plan

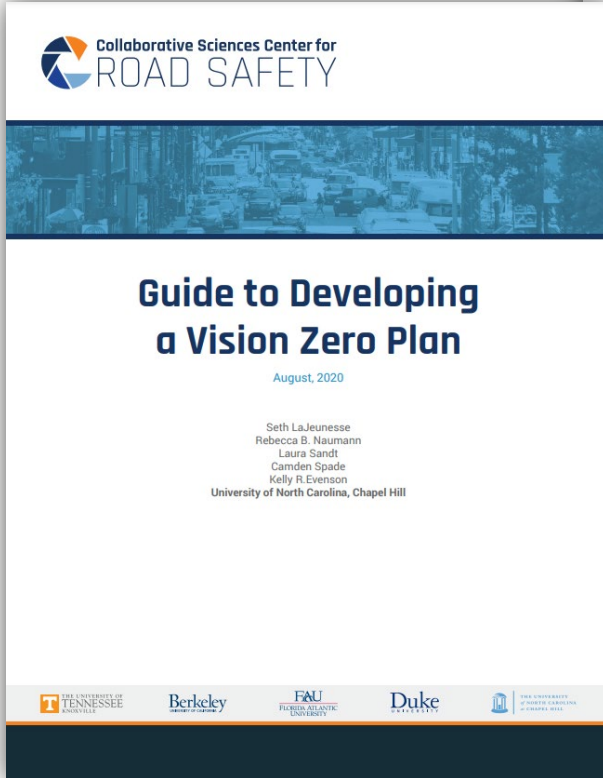


Table 3.1. Examples of how Vision Zero Plans framed their goals

Examples of Goal Themes	Example Plans (page number, reference)
Accountability, leadership	Cambridge (page 41-42) (15) Richmond (page 19) (18)
Advocacy	Montgomery County (page 28-31) (19)
Culture of safety	Alexandria (page 54-57) (20) Hillsborough County (page 54) (21)
Dangerous behaviors	Eugene (page 35-36) (22) Washington D.C. (page 47-56) (23)
Data	Los Angeles (page 38) (7) Philadelphia (page 29-32) (24)
Emergency response and services	Greensboro (page 47-48) (25) Montgomery County (page 26-27) (19)
Encouragement	Fort Lauderdale (page 37-38) (26) Miami-Dade County (page 41) (27)
Engagement with the public	Hillsborough County (page 52) (21) New York City (page 33-37) (28)
Equity	Cambridge (page 36-40) (15) Chicago (page 23) (29)
Evaluation	Austin (page 29-32) (17) San Jose (page 18, 26) (30)
Fleet management	Philadelphia (page 36-39) (24)
Impairment	Portland (page 23) (31) Tempe (page 21-23) (32)
Improve large and for-hire vehicle safety	Cambridge (page 32-35) (15)
Partnerships, external	Cambridge (page 47-48) (15) San Jose (page 25, 27) (30)
Partnerships, internal	Alexandria (page 46-48) (20) Denver (page 14-15) (33)
Policy, law	Cambridge (page 41-42) (15) Charlotte (page 36) (13)
Practices	Jersey City (page 45-47) (8) New York City (page 32) (28)

Examples of Goal Themes	Example Plans (page number, reference)
Promotion of Vision Zero	Hillsborough County (page 46) (21) Sacramento (page 46-47) (34)
Safe streets	Fremont (page 18) (35) San Francisco (page 11) (36)
Safer drivers and people	Chicago (page 23) (29) Tempe (page 21-23) (32)
Safer vehicle technology	Chicago (page 23) (29) San Jose (page 23, 27) (30)
Speed	Denver (page 18-19) (33) Portland (page 24) (31)
Street design	Boston (page 16-17) (37) Monterey (page 17-18) (38)

## Prioritizing Goals

Using an organized and collaborative process, the Vision Zero task force should prioritize community concerns toward creating a community-driven Vision Zero Plan. Both quantitative and qualitative information should be discussed. Through group discussion, multi-voting, a prioritization matrix, or other decision-making techniques (see [this link](#) for more information), the task force can build consensus around transportation-related concerns and develop justified reasons for each selection. The prioritized community concerns will be the central focus of the Vision Zero Plan.

### Prioritization criteria may include:

- magnitude of the problem
- severity of the problem
- need among vulnerable populations
- availability of community resources
- importance of each concern to the community

## Writing and Connecting Goals, Objectives, Agency Actions, and Performance Measures

The goals, objectives, agency actions, and performance measures are informed by Safe Systems principles and a community's vision for the transportation system as one designed for and protective of all road users. To ensure that the community develops a set of goals that provides

a pathway to realize zero serious and fatal traffic injuries, we now define and provide examples of these terms.

**Goals** offer the desired end states or outcomes of the community's transportation system. That is, goals describe what a city's transportation future will look and feel like once the city has fully implemented its Vision Zero initiative.

### Example goal:



Motor vehicles travel at safe speeds along all roadways in our city's network.

**Objectives** provide the standards to determine the extent to which each of the Vision Zero goals is achieved. Objectives should be **SMART**:

- **Specific** – Details on the approach that will be used to achieve the objective;
- **Measurable** – Can evaluate and track progress toward achieving the objective using quantitative data;
- **Agreed-Upon** – Consensus among planners, operators, and other key stakeholders;
- **Realistic** – Address what can be reasonably accomplished, given resource constraints and internal cultural and political factors; and
- **Time-bound** – Establish a specific timeframe for achieving the objective.



# Tools and Applications: Media Framing Guide





## Shaping the narrative around traffic injury:

### A media framing guide for transportation and public health professionals

November 2020

Seth LaJeunesse  
 Stephen Heiny  
 Wes Kumfer  
 Nancy Pullen-Seufert  
 Luke Morin  
 Sydney Nicolla  
 Teresa Tadlett  
 Lucinda Austin  
 University of North Carolina, Chapel Hill



## Who tends to tell the story?

Who is behind media framing of traffic crashes? In our recent examination of 1,156 broadcast TV news articles covering traffic crashes, journalists most often quoted a law enforcement officer or agency (18.4% of all articles), followed by crash witnesses (11.9%) and crash-involved parties (6.1%). Media coverage centered around a law enforcement perspective tended to involve identifying crash-involved parties, detailing circumstances that led to the crash, assigning "fault", and documenting any legal consequences crash-involved parties face. Previous studies have found similar trends in media framing of traffic injury, suggesting that such "villainizing" coverage might contribute to the perceived inevitability of crashes by signaling that bad driving behavior is unavoidable (Smith and Martin, 2007; Classen, Eby, Molnar, Dobbs, and Winter, 2011).

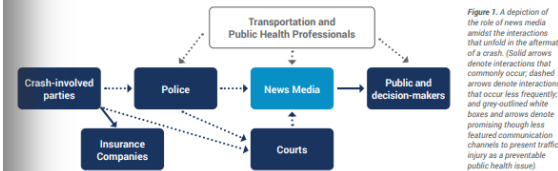
## Professionals and stakeholders who can and should get involved

The inevitability of traffic injury is a common public misconception. Though the World Health Organization considers traffic deaths a "preventable health epidemic" (World Health Organization, 2009), the episodic nature of most traffic injury framing neglects the broader social and environmental contexts in which crashes occur (Ralph, Iacobucci, Thigpen, & Goddard, 2019). In our review of 1,156 TV news articles covering traffic crashes, we found that journalists often omitted important crash details such as roadway characteristics (e.g., what is the posted speed limit?, how many lanes does the road have?) or consumer trends that favor larger, higher horsepower vehicles (Insurance Institute for Highway Safety, 2016).

As mentioned, law enforcement, bystanders and witnesses, and crash-involved parties were quoted most often in coverage of traffic crashes. On the other hand, transportation planners and engineers, roadway safety advocates, and public health professionals were quoted in only 1.1, 0.4, and 0.1 percent of the 1,156 covered crash events, respectively.

To help shape public perception of traffic injury as a preventable public health issue, journalists, professionals who work in injury prevention and design of roadways, and community advocates should work together to speak to common traffic injury themes beyond assigning blame and putting all of the responsibility to be safe on individual road users.

Figure 1 displays the current and potential flow of information related to a crash, organized according to levels of knowledge about traffic collisions. As shown in Figure 1, members of the public, including decision makers, receive news of traffic crashes from their local news media. Journalists, in turn, receive content for stories about crash events from local police or the court system. Those involved in crashes sometimes engage with police officers and the court system, but nearly always connect with insurance companies. The top tier represents the professional groups that are rarely included in traffic crash narratives, but have influence on the safety of roadways, the prevention of injury, and can speak to how communities are affected by road trauma. In the next section, we will focus on how these professionals' voices and more contextual frames can lead to better understanding of traffic injury, its causes, and possible solutions.



Shaping the narrative around traffic injury: A media framing guide for transportation and public health professionals

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# CSCRS Research on Vision Zero and Safe Systems

## Safe Systems: Guiding Principles and International Applications

This is a two-part study that provides a comprehensive examination of the theoretical and practical applications of Safe Systems.

The first part examines the current literature on Safe Systems, as well as emerging knowledge in the related domains of organizational systems safety, traffic psychology, and behavioral economics.

A key finding of this effort was the need for a better understanding of the nature of crash causation, one that focused not only on the immediate pre-crash behaviors of road users involved in a crash event, but also on the underlying "latent conditions" that may trigger, or prevent these behaviors.

Latent conditions are the underlying geometric and environmental design conditions that establish the transportation context in which operational decisions are made, and are influenced not only by a roadway's design, but also the upstream planning and policy decisions that influence the design and configuration of the transportation system.


This section details the policy and development process that may establish latent crash conditions, and presents a model process for the project planning and design process that can be applied to eliminate them.


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**LEARN MORE**  
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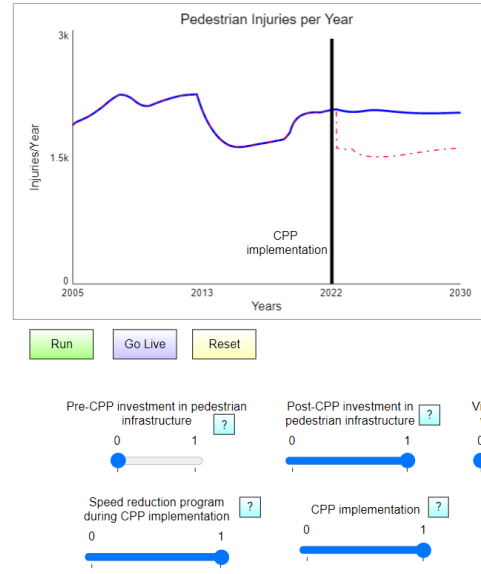
The second section of the report examines the policies and practices of the four countries that have the most well-established Safe Systems programs: Sweden, the Netherlands, Australia, and New Zealand. Specifically sought was an understanding of processes by which these programs were developed and implemented, as well as information on the success of their implementation.

Collectively, the findings from this report provide the most comprehensive examination of Safe Systems applications to date, identifying the current global state-of-the-practice, as well as presenting important future directions for reducing traffic-related deaths and injuries through a Safe Systems approach.





This project was supported by the Collaborative Sciences Center for Road Safety, [www.roadsafety.unc.edu](http://www.roadsafety.unc.edu), a U.S. Department of Transportation National University Transportation Center promoting safety.




**Policy Simulator Overview**

The baseline run (blue line) demonstrates the trend in pedestrian injuries in the Manhattan central business district, assuming congestion pricing policy (CPP) implementation in 2022. The switches below the figure allow the user to layer on policies or remove CPP implementation entirely to explore relative impacts on pedestrian injury trends through 2030. The red line will demonstrate the new trend, under user-specified policies.

Using the "Run" button simulates potential policy impacts under different scenarios, and the "Go Live" button places the simulation in a "live" interacting mode, demonstrating instant updates to the trend line. The "Reset" button resets inputs to the base/default run of CPP implementation alone.



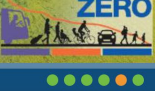
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## The Safe System Approach




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Hosted by NTSB Board Member Jennifer Homendy

**NTSB** **MWL**

### The Safe System Approach


Early estimates from the National Highway Traffic Safety Administration (NHTSA) crash fatality data for 2020 show that approximately 28,680 people died in motor vehicle crashes, a startling increase from 2019. Additionally, the estimated fatality rate is the highest since 2010. Furthermore, the estimated fatality rate is the highest since 2010. Additionally, the estimated fatality rate is the highest since 2010. Furthermore, the estimated fatality rate is the highest since 2010.



U.S. Department of Transportation  
Federal Highway Administration

## Safety

Zero Deaths – Saving Lives through a Safety Culture and a Safe System



Reaching zero deaths requires the implementation of a Safe System approach, which was founded on the principles that humans make mistakes and that human bodies have limited ability to tolerate crash impacts. In a Safe System, those mistakes should never lead to death. Applying the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the risk of a mistake low, and when a mistake leads to a crash, the impact on the human body doesn't result in a fatality or serious injury. Road design and management should encourage safe speeds and manipulate appropriate crash angles to reduce injury severity.

There are six principles that form the basis of the Safe System approach: deaths and serious injuries are unacceptable and preventable; human error is inevitable; humans are vulnerable; responsibility is shared; safety is proactive; and all aspects of safety through the following five Safe System elements: protection for road users; safe road users; safe vehicles; safe roads; and safe speeds.



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# Thank you!

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