RSTF 2020

INTRODUCTION TO TRAFFIC SAFETY CULTURE

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Housekeeping

- Number of attendees
- Use full name
- Webinar recorded
- Using Q&A and Chat features
  - Use Q&A for questions
  - Use chat to relay technical issues and action items

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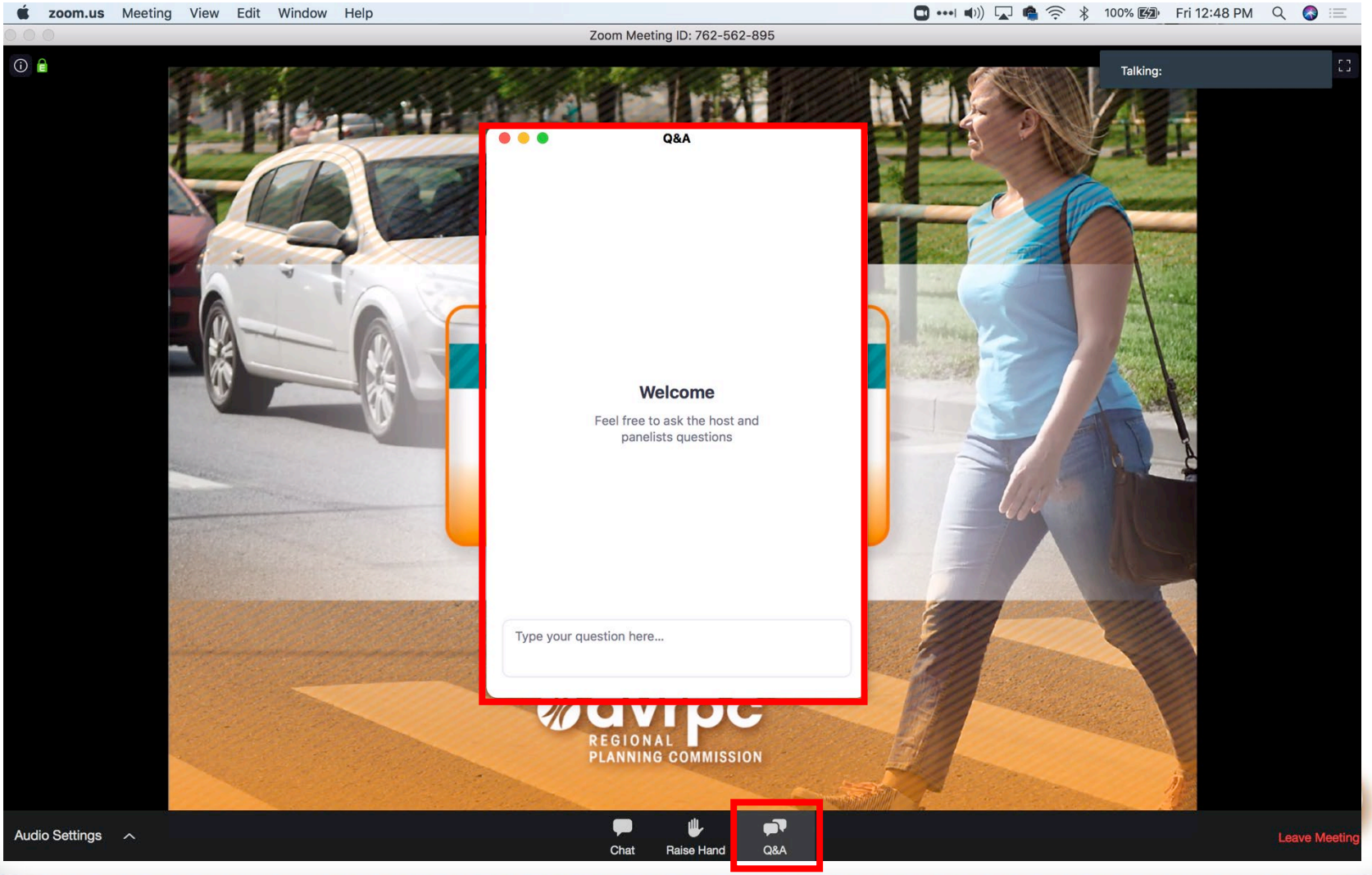
Audience Q&A


zoom.us Meeting View Edit Window Help
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Zoom Meeting ID: 762-562-895
Talking:
Q&A
Welcome
Feel free to ask the host and panelists questions
Type your question here...
REGIONAL PLANNING COMMISSION
Audio Settings
Chat
Raise Hand
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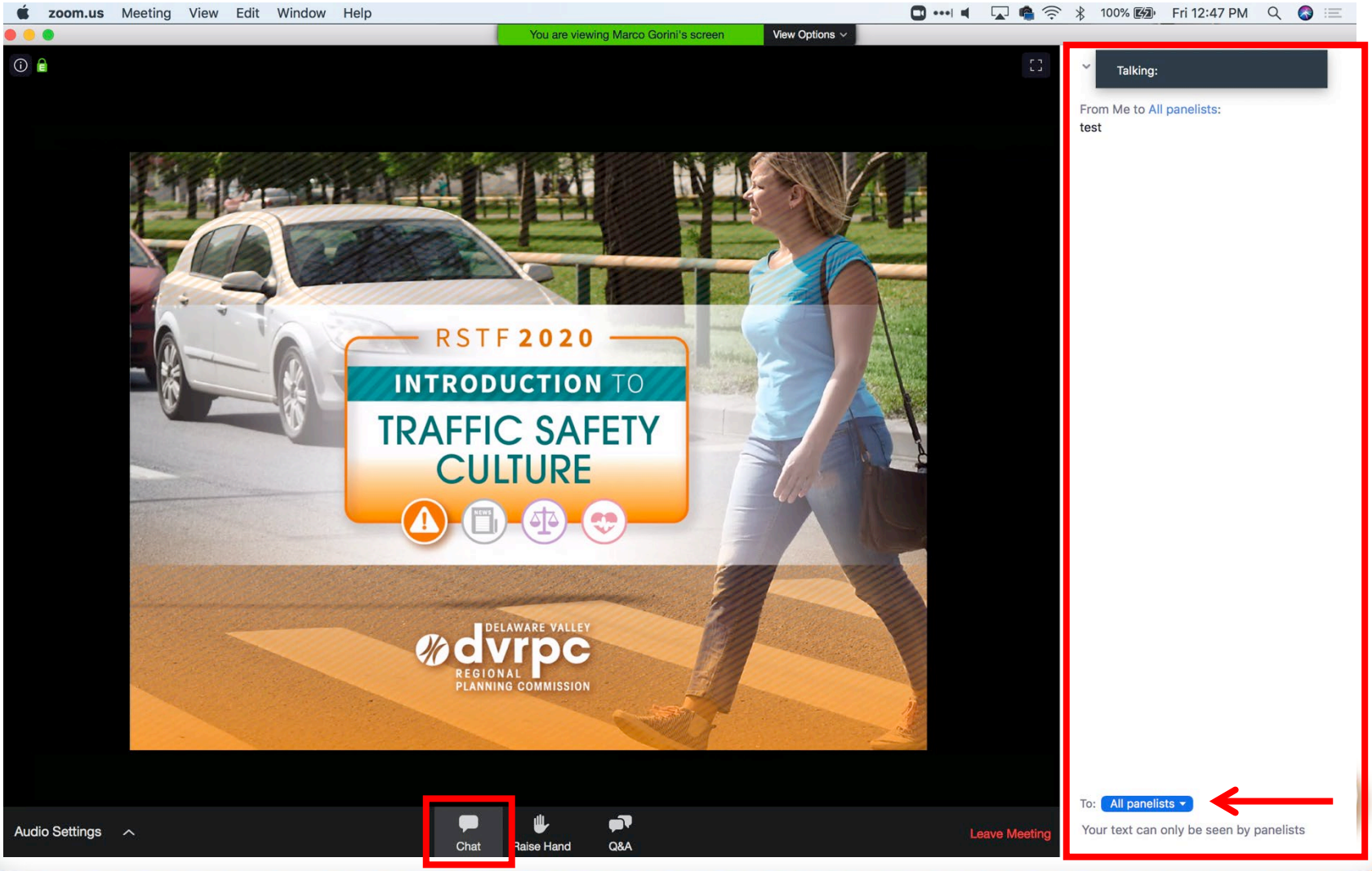
Technical Issues & Action Items



Opening Remarks

- **Barry Seymour**, Executive Director, Delaware Valley Regional Planning Commission

The Delaware Valley Regional Planning Commission is the federally designated Metropolitan Planning Organization for a diverse nine-county region in two states: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

DVRPC's vision for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural resources while creating healthy communities; and that fosters greater opportunities for all.

DVRPC's mission is to achieve this vision by convening the widest array of partners to inform and facilitate data-driven decision-making. We are engaged across the region, and strive to be leaders and innovators, exploring new ideas and creating best practices.

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REGIONAL SAFETY TASK FORCE

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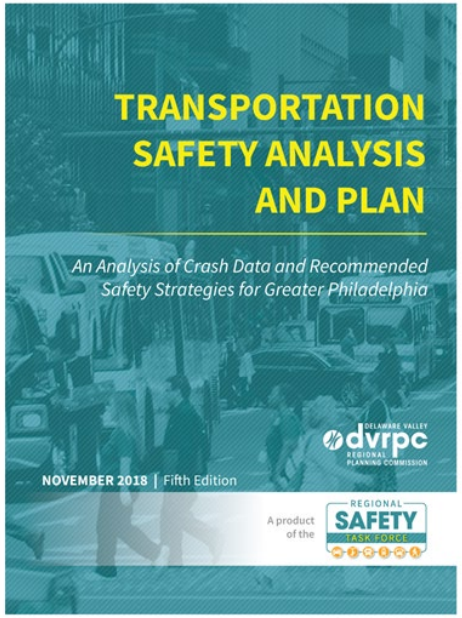
RSTF Goal:

To reduce roadway crashes and eliminate serious injuries and fatalities from crashes in the Delaware Valley



Share the conversation!

Use **#rstf** during today's meeting, and tag **@DVRPC**

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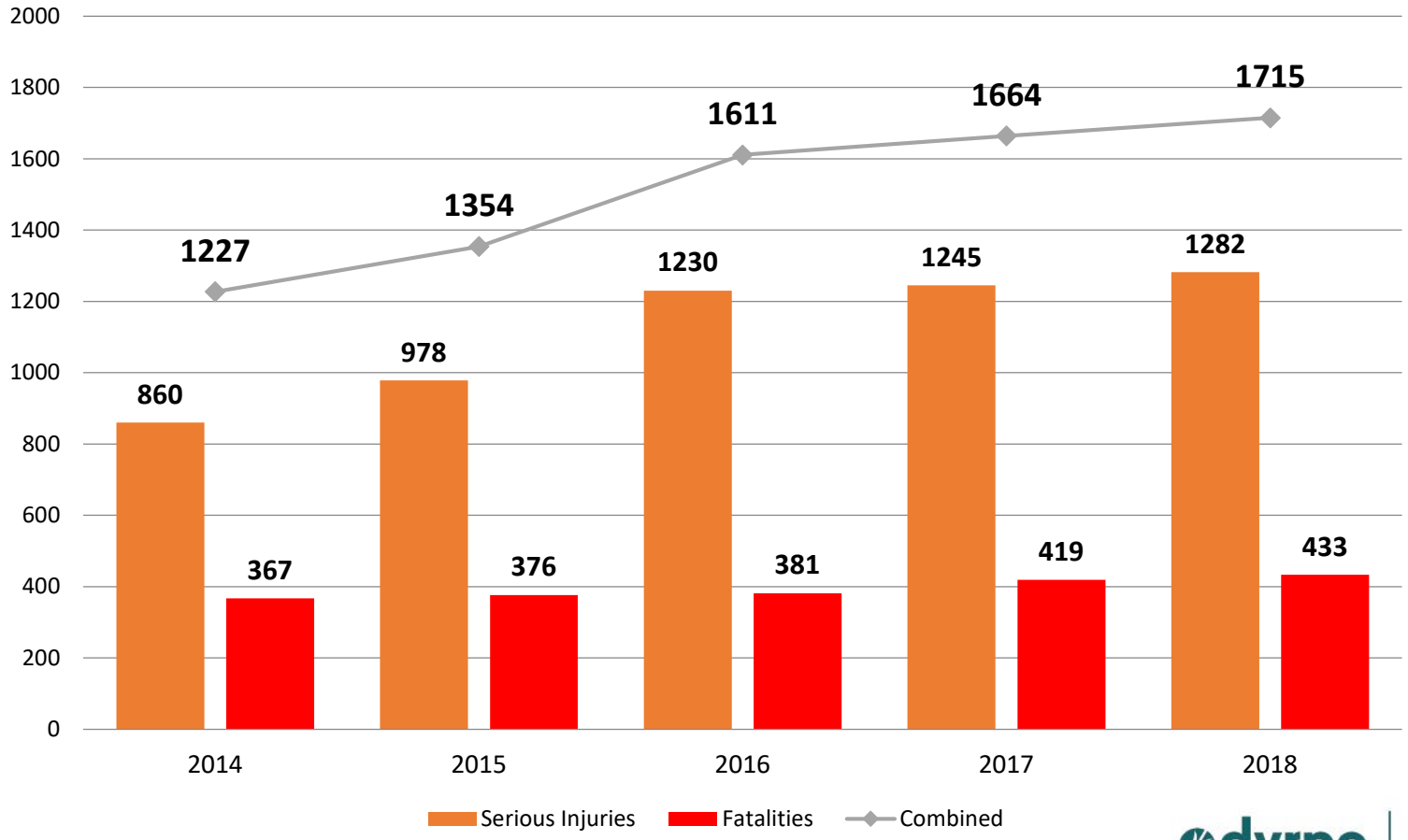
Total KSI – Regional Trend (by person), 2014-2018



RSTF 2020

FOCUS ON

TRAFFIC SAFETY CULTURE

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- Media
- Law
- Health

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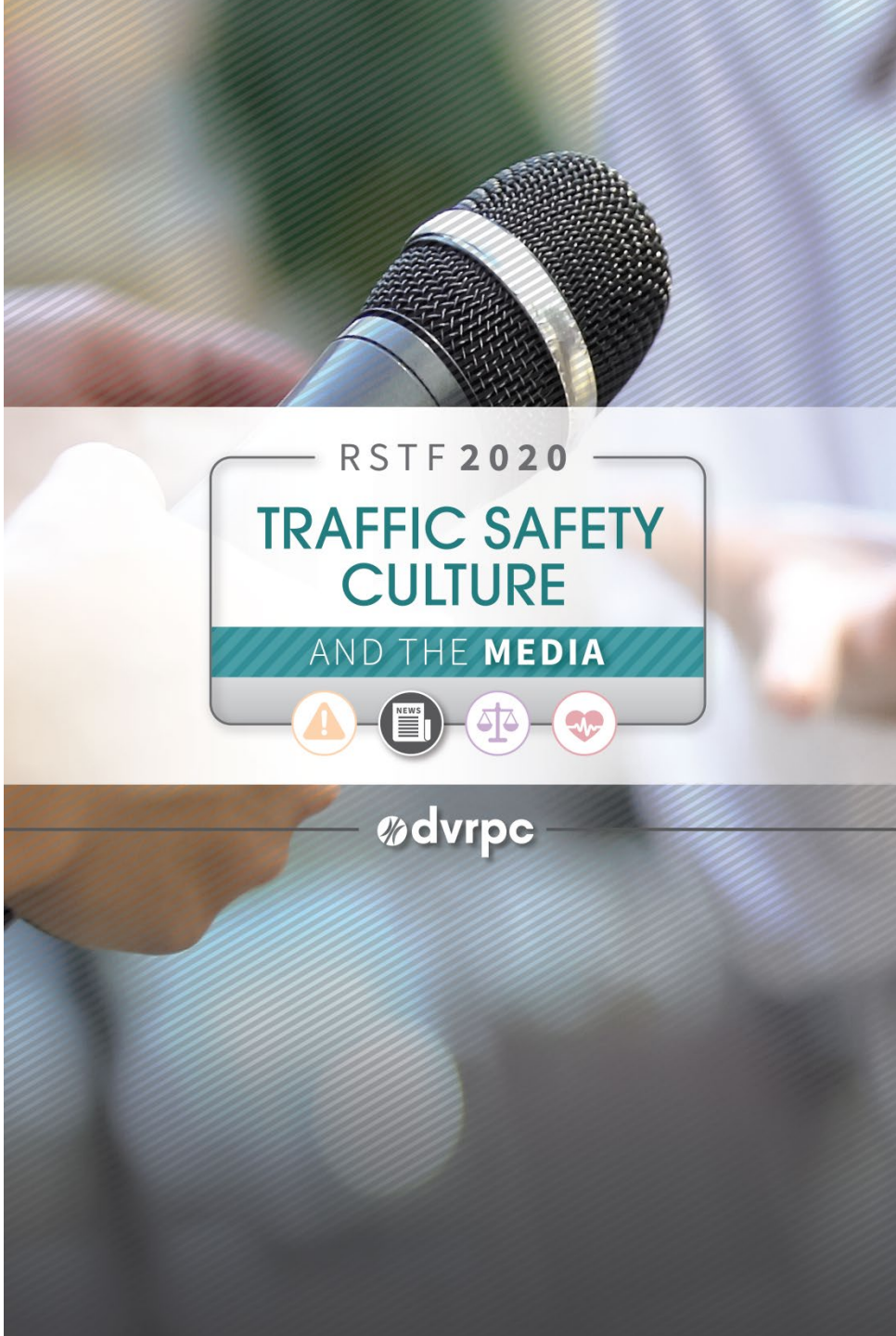
June 3, 2020

How does the way the media reports crashes influence societal attitudes toward traffic safety?

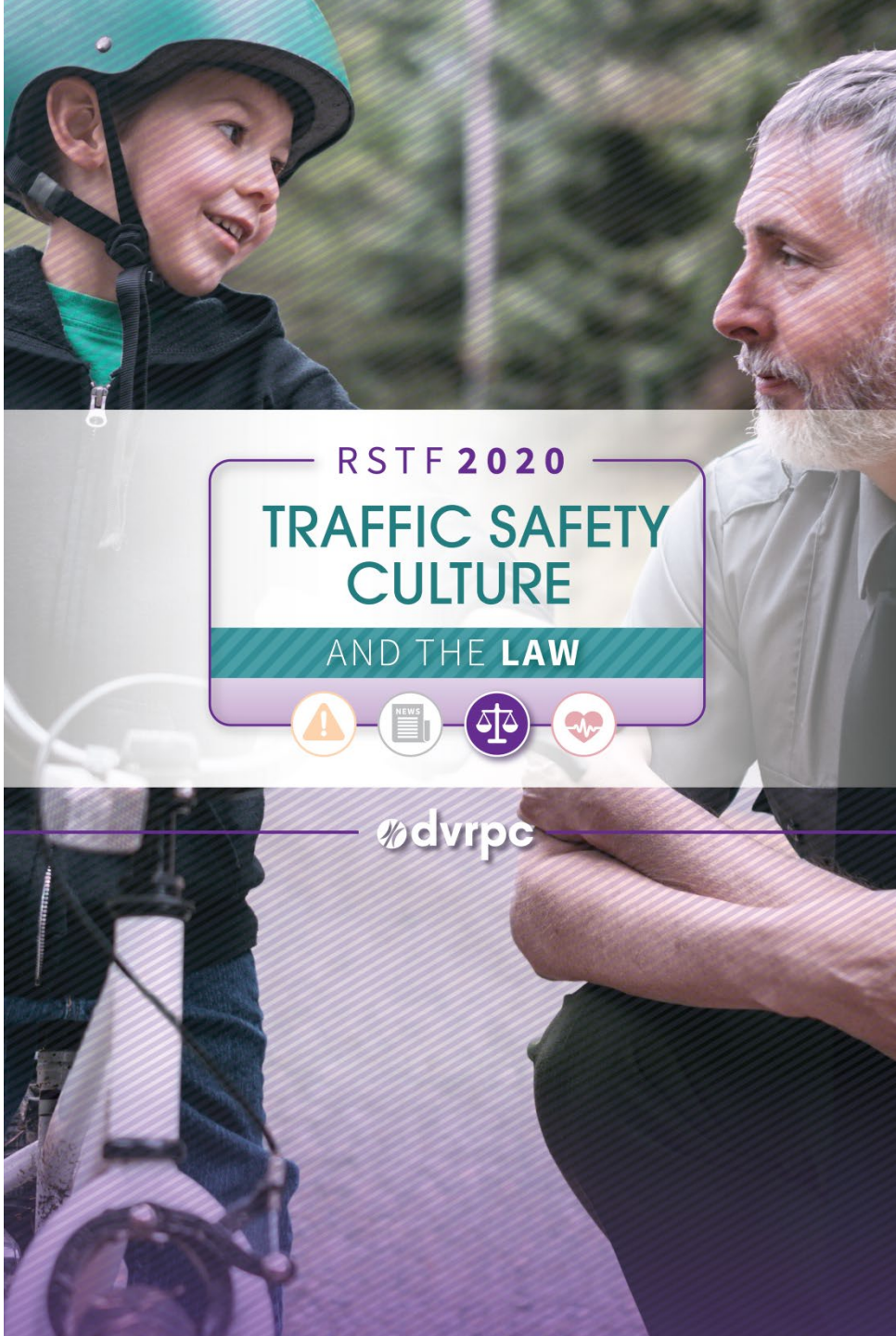
- What role can the media play in shifting the narrative around crashes and traffic safety?



September 16, 2020

How do laws and our justice system treat traffic safety?

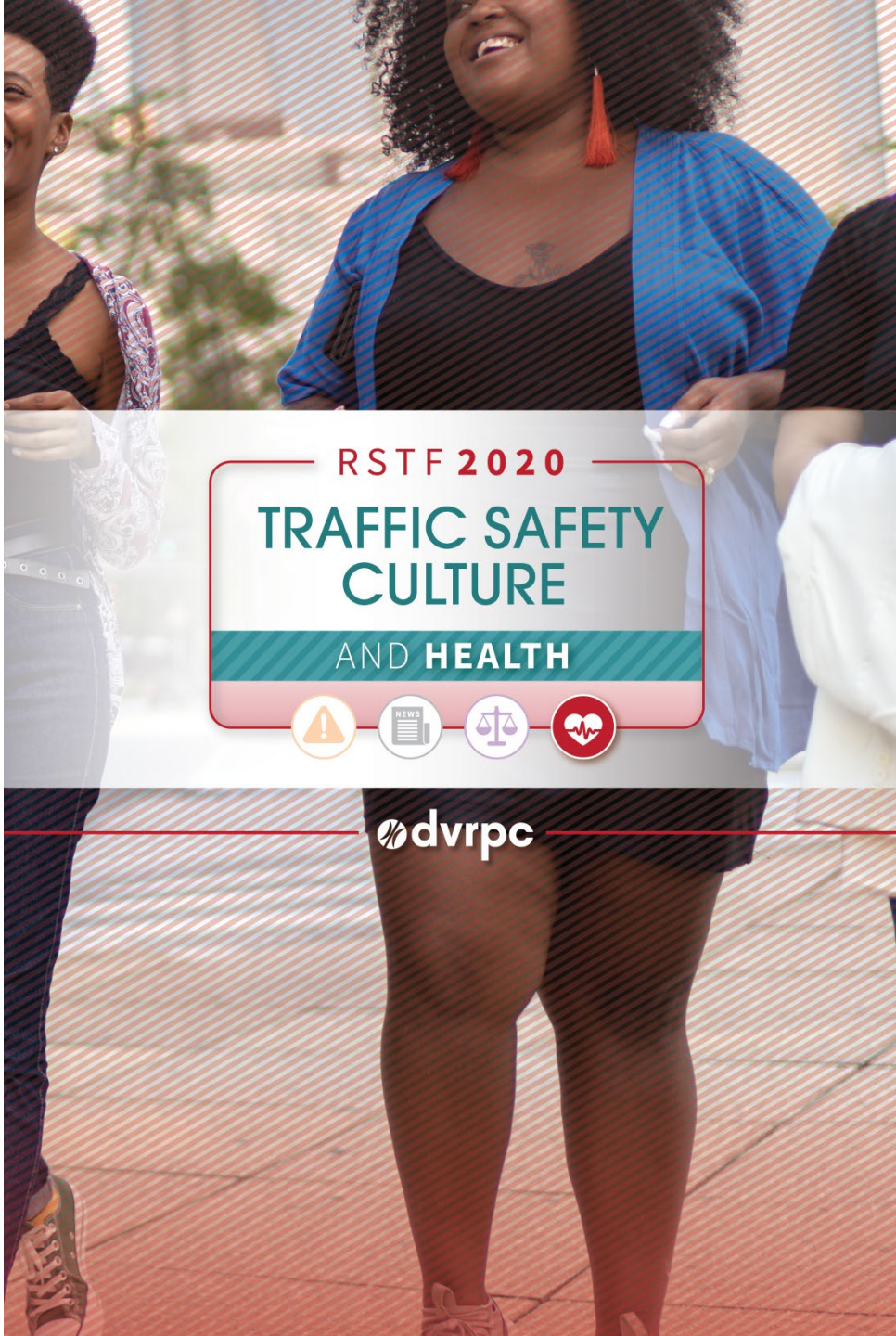
- How can the justice system better promote safety culture?



December 4, 2020

How is traffic safety viewed in the health sector?

- How can the health and transportation sectors learn from one another and collaborate to better promote safety culture?



Action Item Development

JUST STREETS – 09/28/18 Joint RSTF-HCTF Meeting			
Volunteer Action Items	***Lead Person/Agency***	***Timeframe to Report***	***Update***
1. Share findings of "Crashes and Communities of Concern" report with networks	Darion Porter – PHMC Andrea Trabelski – WRA David Saunders – PA Dept. of Health	*December 2018 meeting*	DVPRC is in the process of completing publication of the "Crashes and Communities of Concern" report at which point it will be shared with parties that wish to distribute to their networks.
2. Share toolkits and resources from Better Bike Share Partnership (BBSP).	Waffiyyah Murray – OTIS/BBSP	*December 2018 meeting*	The toolkit and resources are available at this link and highlight best practices in community engagement around transportation planning projects: https://nacto.org/wp-content/uploads/2018/09/NACTO_BBSP_2018_Strategies-for-Engaging-Community.pdf
3. Initiate conversation with PCPC about a central repository of community engagement contacts and outreach efforts.	Kim Jordan – Philadelphia Orchard Project	*December 2018 meeting*	Outreach efforts were initiated with the Citizen's Planning Institute and other planning-related departments at the City. There is interest in a tool of this nature and conversations are continuing.
4. Promote Vision Zero in local media in Mercer County	Jerry Foster – GMTMA	*December 2018 meeting*	U.S. 1, a local media organization in Princeton, NJ, ran an article on Vision Zero authored by RSTF member Jerry Foster: https://princetoninfo.com/vision-zero-a-comprehensive-re-thinking-of-road-safety/. Princeton's mayor has since publically announced interest in a Vision Zero policy for the municipality.

Submit an action item using the "Chat" tool and with the format ***"Strategy: [insert action item]"***

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Audience Poll

Submit an action item using the "Chat" tool and with the format ***"Strategy: [insert action item]"***

Featured Speakers

- **Nicholas Ward,** Director, Center for Health and Safety Culture, Montana State University
- **Wesley Kumfer,** Engineering Research Associate, UNC Highway Safety Research Center

*Submit an action item using the "Chat" tool and with the format **"Strategy: [insert action item]"***

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Traffic Safety Culture:

A primer for traffic safety practitioners

MONTANA
MDT
DEPARTMENT OF TRANSPORTATION

Vision

"A zero deaths vision requires a change—a shift in culture both within transportation agencies and other organizations as well as within communities. Everyone must accept that fatalities are unacceptable and preventable."

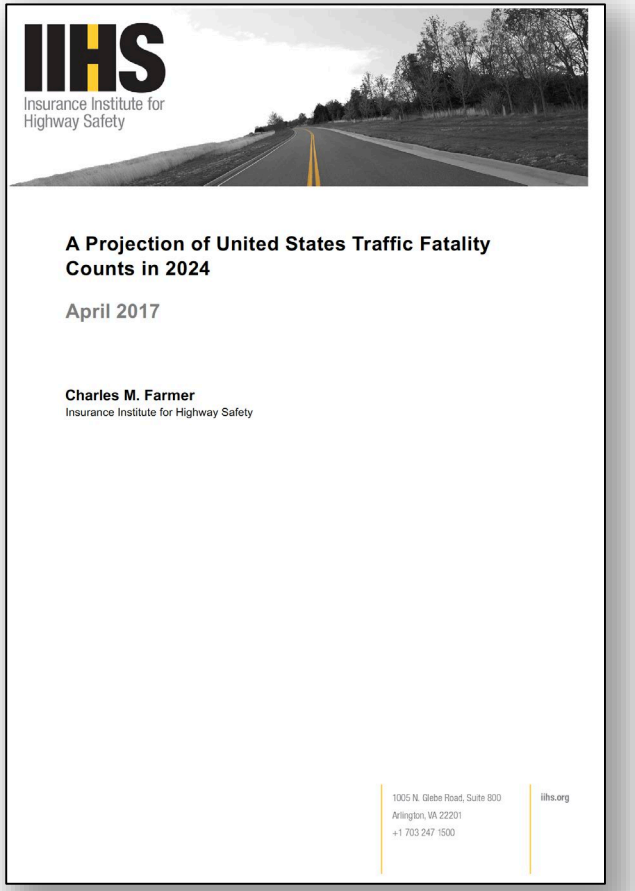
https://safety.fhwa.dot.gov/zerodeaths

Background

- Traffic safety is important to us all.
- We must set a target of zero traffic fatalities.
- We will not achieve a target of zero using only traditional strategies.
- We must also create a “Traffic Safety Culture” that encourages safe road user behavior and effective partnerships among stakeholders.

Traffic Safety

- The number of traffic fatalities **increased** from 2014 to 2016.
- Current predictions estimate **33,000 fatalities in 2045**.
- Greater reductions are needed to reach a target of **zero**.
- This will require exploration of new and **innovative** strategies.



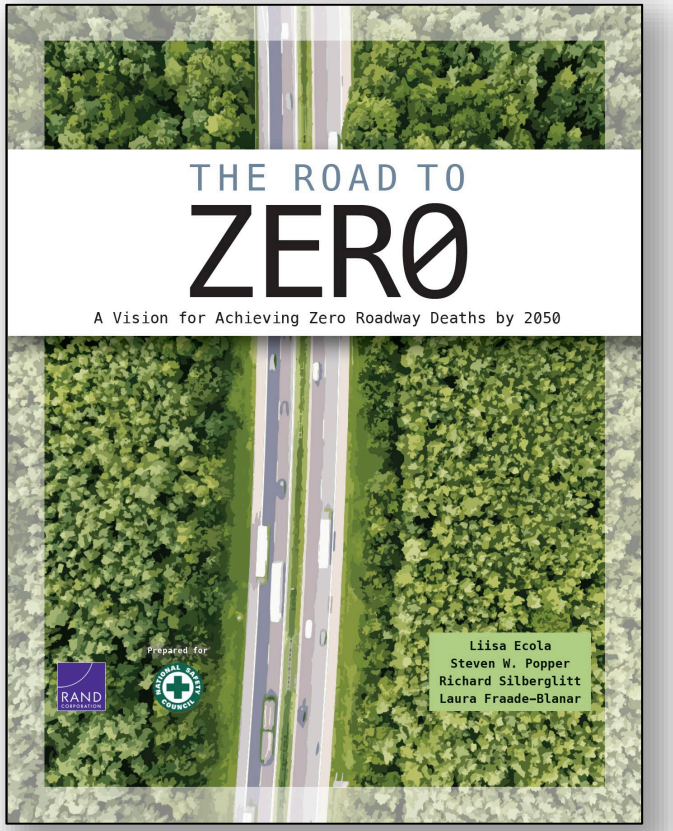
www.iihs.org/api/datastoredocument/bibliography/2137

Strategies

The Road to Zero Coalition has concluded that three interdependent strategies are needed to reach zero:

1) Double down on what works.
2) Accelerate advanced technology.
3) **Prioritize safety**.

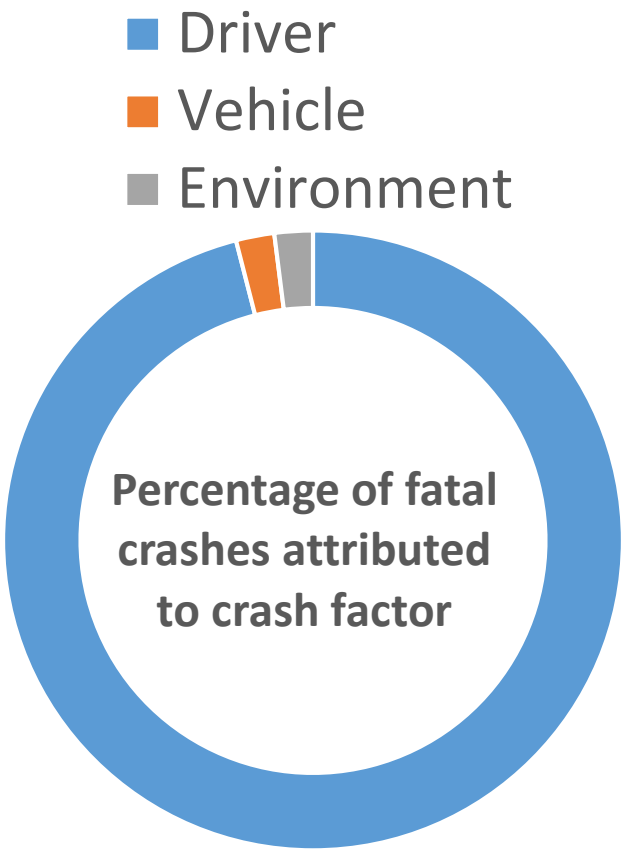
"A pervasive safety culture is an **essential ingredient** for reaching zero roadway deaths."



www.nsc.org/road-safety/get-involved/road-to-zero

Driver Behavior

- Driver behavior is the most frequent "**critical reason**" for fatal crashes.
- Driver behavior is often a **deliberate** choice.
- Driver behavior can be **changed** to support safer choices.



https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115

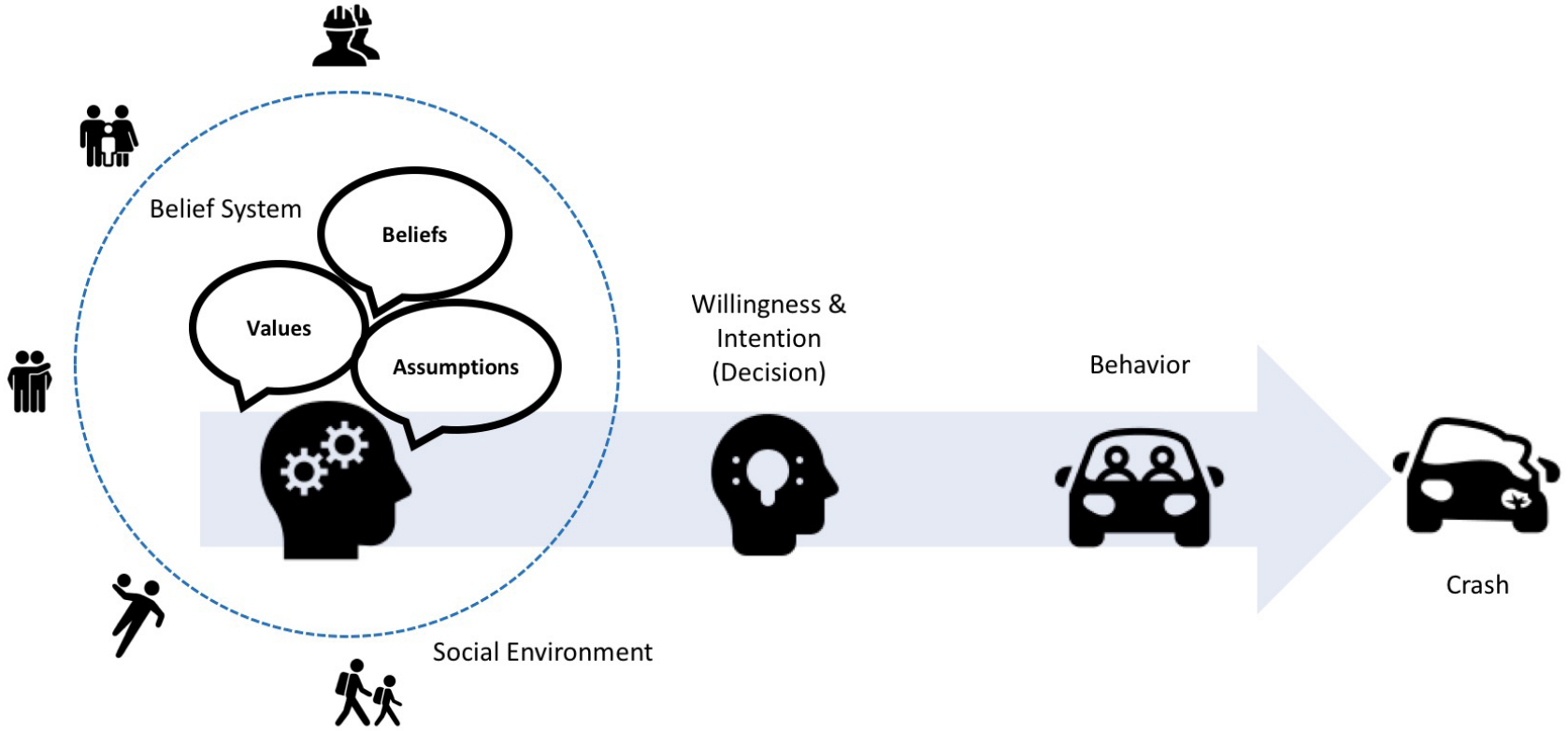
Beliefs

- Our minds form “beliefs” from our **experiences**.
- Beliefs determine our **understanding** of the world.
- Beliefs influence our **choices** about behavior.
- To change behavior, we must **change** beliefs.

Relationship

- Humans rely on **social** relationships.
- We identify with many **groups** in our social environment.
- To identify with a group, we share the belief system that defines the group "**culture**."

Traffic Safety Culture

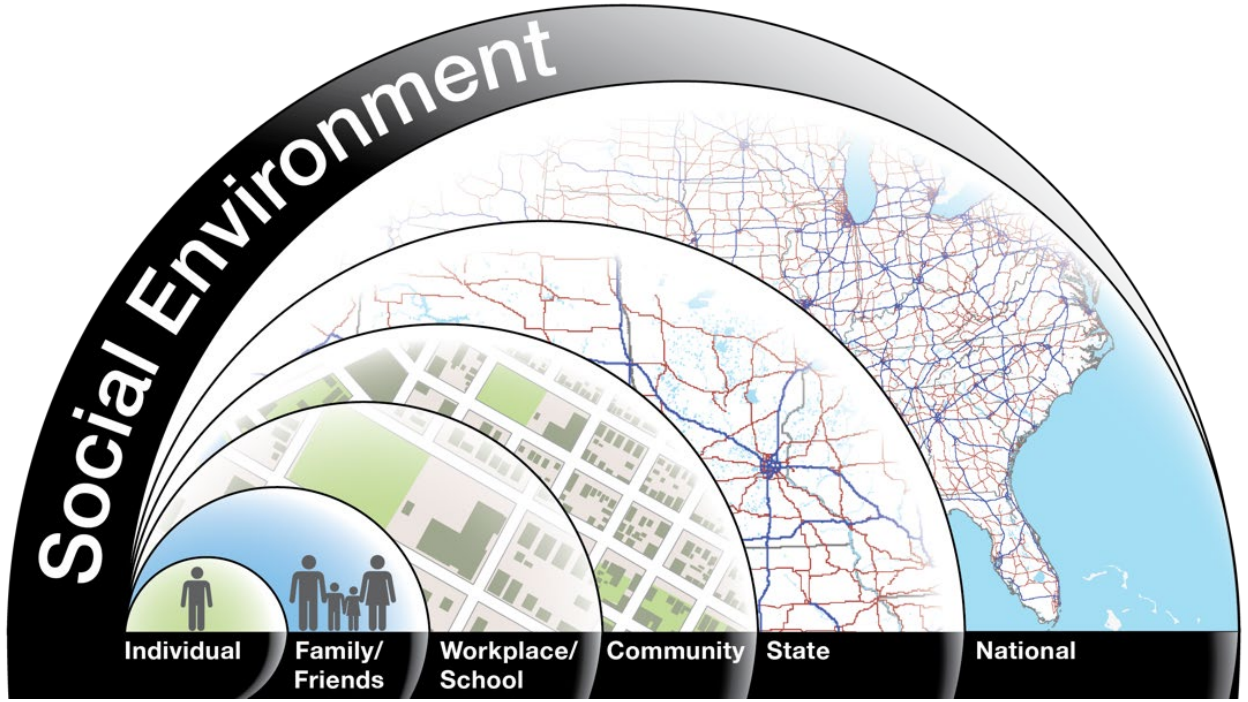


"Traffic Safety Culture" is the **shared belief system** of a group of people that influences road user behaviors and stakeholder actions that impact traffic safety.

Road Users

- Road users include all **participants** within the roadway system.
- Road user behaviors can either increase **crash risk** (risky) or reduce crash risk (protective).
- **Our goal** is to reduce road user risky behaviors and increase protective behaviors.

Stakeholders



- There are many traffic safety **stakeholders** within our social environment.
- Traffic Safety Culture also applies to **actions** taken by traffic safety stakeholders.
- These stakeholders can take actions **together** to change road users beliefs.

Stakeholder Actions

Traditional

- Create effective traffic laws.
- Allocate resources to traffic safety programs.
- Improving EMS response times.
- Engaging new partners in promoting traffic safety.

Non-Traditional

- Create family rules about always wearing a seat belt.
- Schools promoting best-practices in driver education.
- Workplaces developing training to achieve zero motor vehicle incidents.

Cultural “Lens”

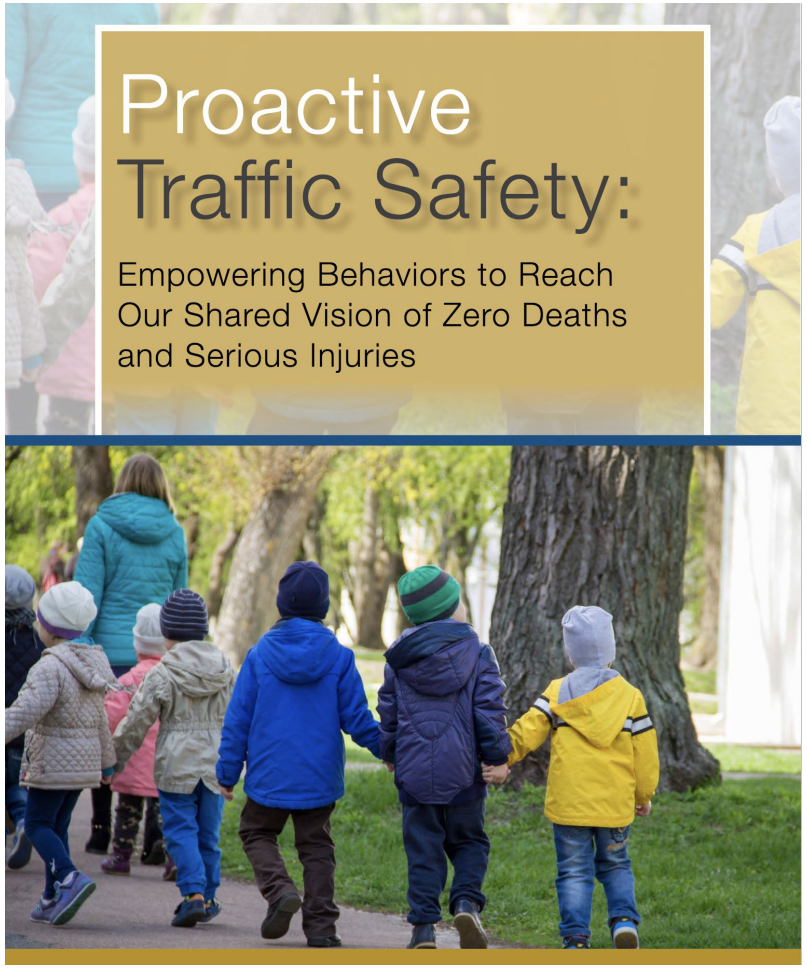
Approaching traffic safety through the lens of traffic safety culture is different than traditional approaches in a number of important ways, making us **more effective** in achieving our vision zero target:

A. Protective Behavior
B. Proactive Behavior
C. Effective Partnerships

A. Protective Behaviors

We recognize that traffic safety can be improved by growing beliefs that increase **protective behaviors**, rather than only focusing on beliefs to reduce risky behaviors.

B. Proactive Behavior



A positive traffic safety culture not only encourages road users to choose safe behaviors, it also encourages them to be **proactive** by encouraging other road users to behave safely.

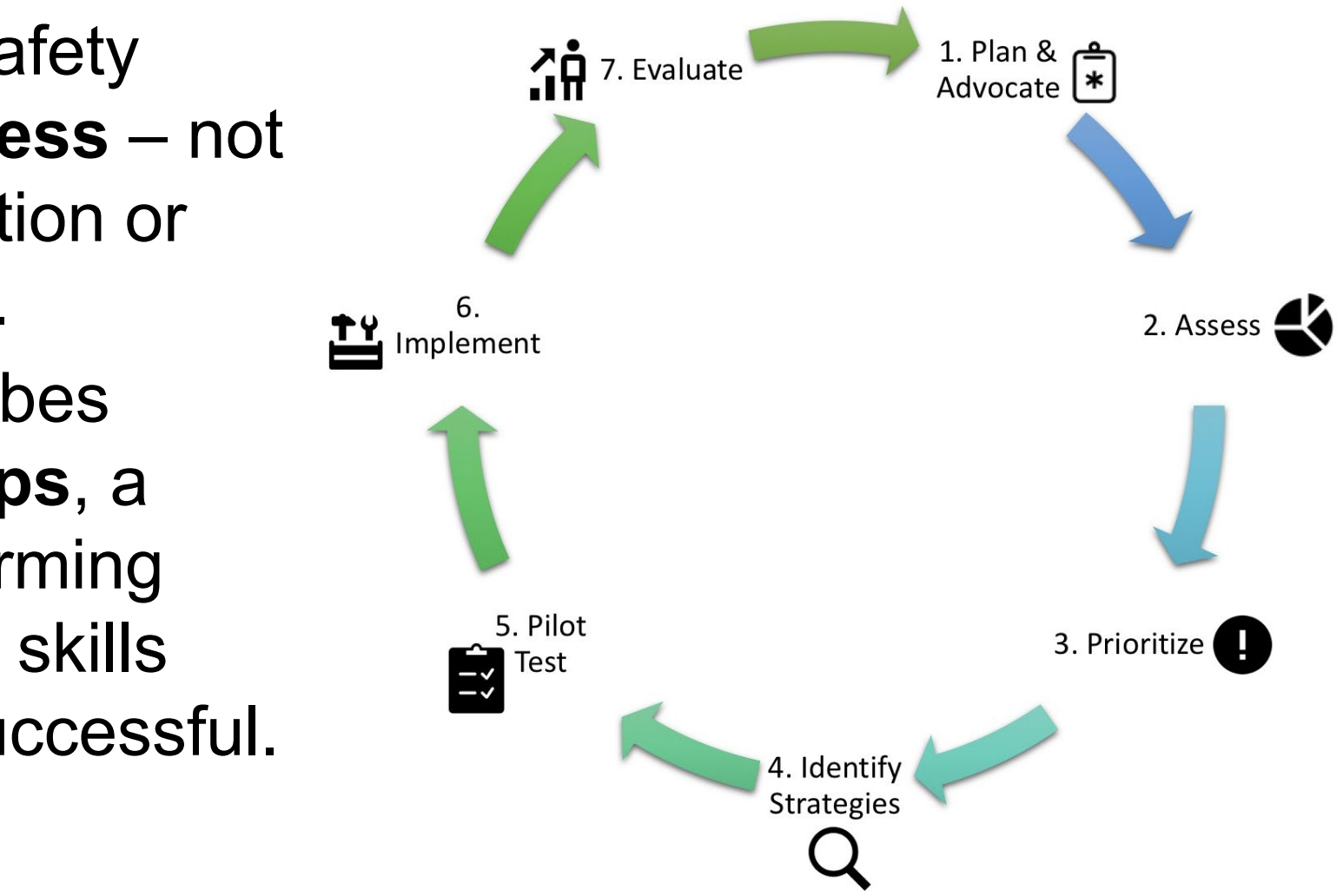
C. Effective Partnerships

A positive traffic safety culture also increases the capability of traffic safety stakeholders to form **effective partnerships**, resulting in the integration of strategies to form a safe system.

Stakeholder	**Example Action (Increase Seat Belt Use)**
Families	Establish family rules about always wearing a seat belt
Schools	Include seat belt education in health class; promote asking friends to wear a seat belt
Workplaces	Establish and train on workplace seat belt policies
Law Enforcement	Model seat belt use by always wearing a seat belt Consistently enforce seat belt laws (not just during campaigns) Advocate for seat belt use in the community

Process

- Growing traffic safety culture is a **process** – not a single intervention or countermeasure.
- A process describes **generalized steps**, a context for performing those steps, and skills required to be successful.



Next Steps

1. Creating a **shared understanding** about traffic safety culture.

Shared understanding comes from discussing questions that address important topics, challenge beliefs, and motivate learning.

✎ Here are some example questions.

Topic Importance

- How do traffic crashes and their consequences impact our community?
- What is our responsibility in reducing crashes?

Challenge Beliefs

- Are we being effective?
- What might be some new ways to positively influence road user behavior?

Motivate Learning

- How do you define traffic safety culture?
- How do you know you are accurately perceiving your community's traffic safety culture?

Next Steps

2. We must examine our **own culture** before trying to change the culture of others.

We will be neither effective nor authentic in our efforts to grow traffic safety culture in a community if our own agency's culture is not safe.

✎ Here are some example questions.

Internal Safety Procedures

- How is safety of employees a top priority with management?
- How do employees and management work together to ensure the safest possible working conditions?

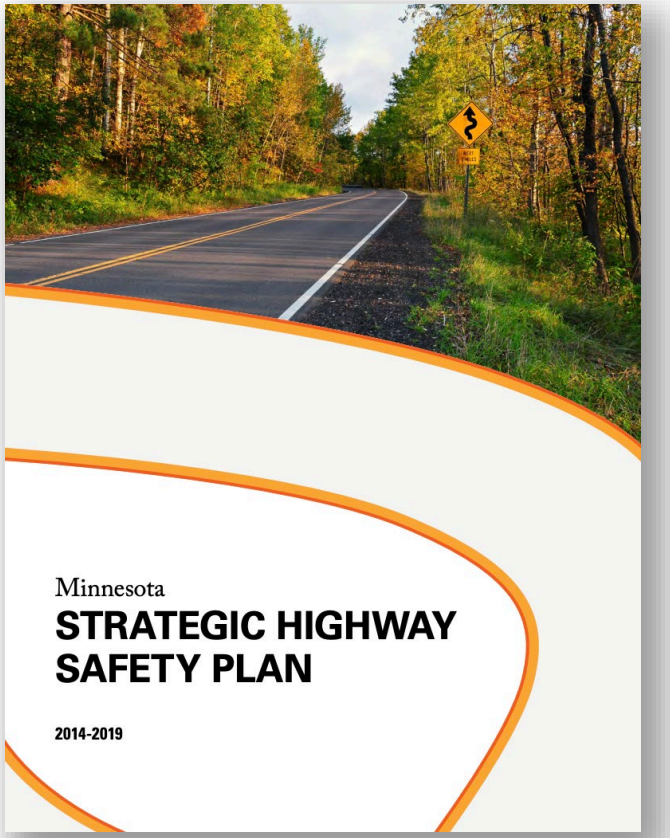
External Safety Programs

- Does everyone in our organization agree that no one should be killed or seriously injured while using our roadways?
- Does everyone in our organization recognizes that achieving the goal of zero traffic fatalities and serious injuries will require a change in Traffic Safety Culture?

Next Steps

3. Finding opportunities to formally adopt traffic safety culture as an approach to traffic safety goals.

For example, MnDOT included traffic safety culture at the core of their Strategic Highway Safety Plan. This motivates attention to traffic safety culture and justifies resources to develop strategies to change it.



http://www.dot.state.mn.us/trafficeng/safety/shsp/Minnesota_SHSP_2014.pdf

Find out more!

For more information, please access the Traffic Safety Culture Primer and its supporting tools:

https://www.mdt.mt.gov/research/projects/trafficsafety-primer.shtml

Developed by the **Center for Health and Safety Culture**

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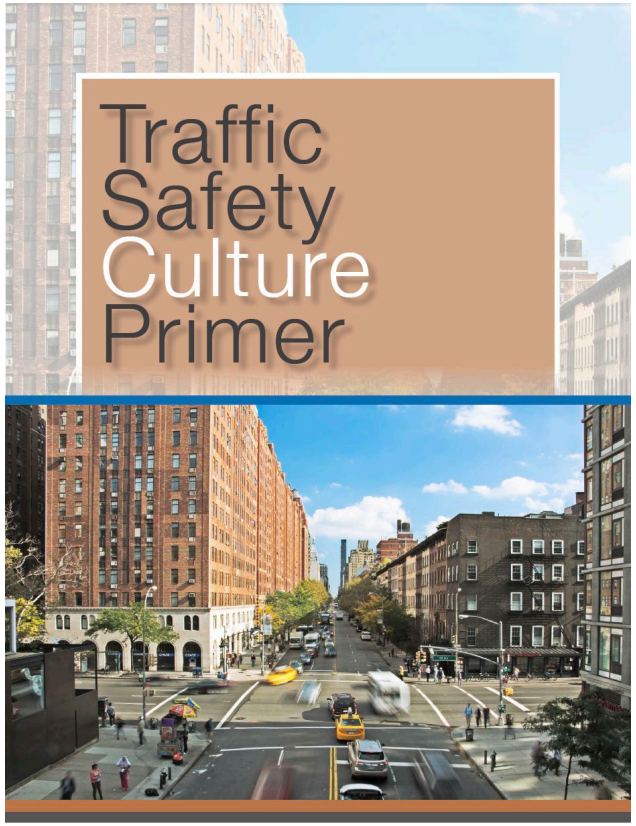
Western Transportation Institute

Center for Health & Safety Culture



Collaborative Sciences Center for ROAD SAFETY

www.roadsafety.unc.edu

Safe Systems: Putting Traffic Safety Culture into Practice

Wes Kumfer, Ph.D., RSP1

DVRPC RSTF 2020: Focus on Traffic Safety Culture

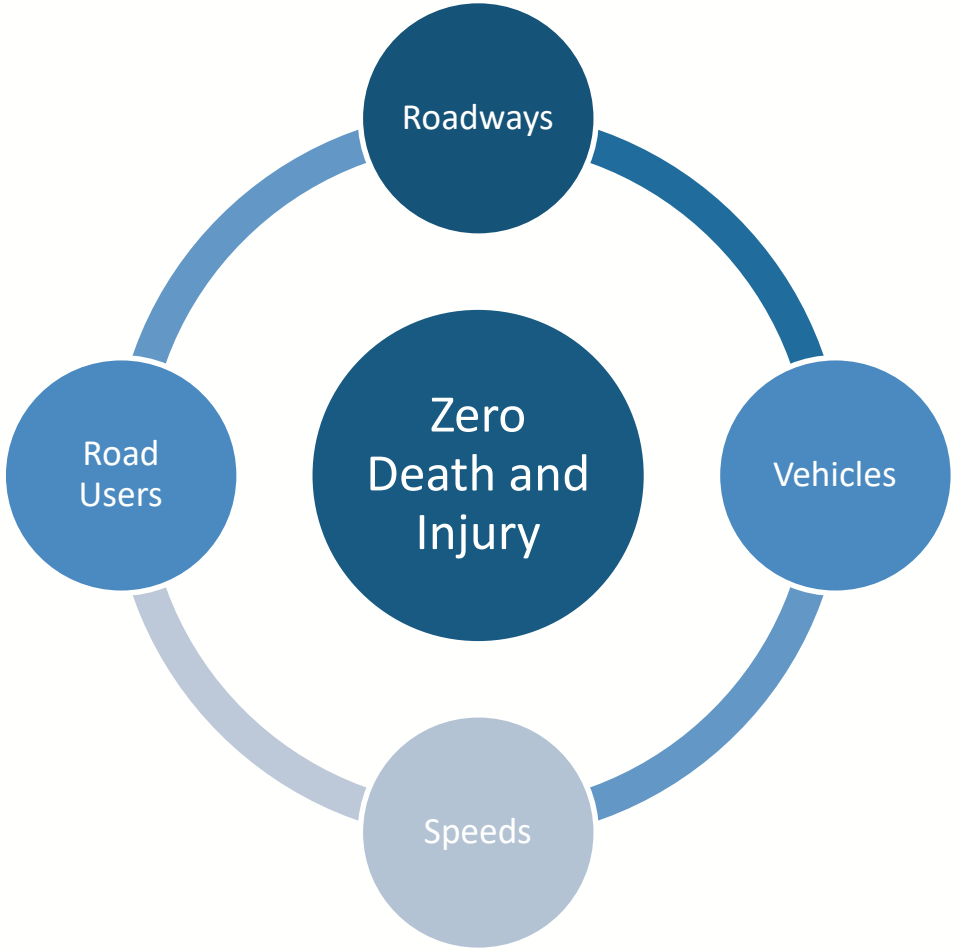
March 31, 2020

Introductory Questions

- Safe Systems may be key to achieving Vision Zero.
- However, Safe Systems may not be implemented without a supportive traffic safety culture.
- Road safety partners always have questions.
  - What is a Safe System?
  - Why do we need Safe Systems?
  - What are cultural barriers to Safe Systems implementation?
  - How is Safe Systems different from traditional approaches?
  - How do we implement Safe Systems?

Defining Safe Systems

- CSCRS distinguishes 4 key principles of Safe Systems.
  - Adapt the structure and function of the transportation system to the complexities of human behavior.
  - Manage the kinetic energy transferred among road users.
  - Treat road user safety as the foundation of all system interventions.
  - Foster the creation of a shared vision and coordinated action.



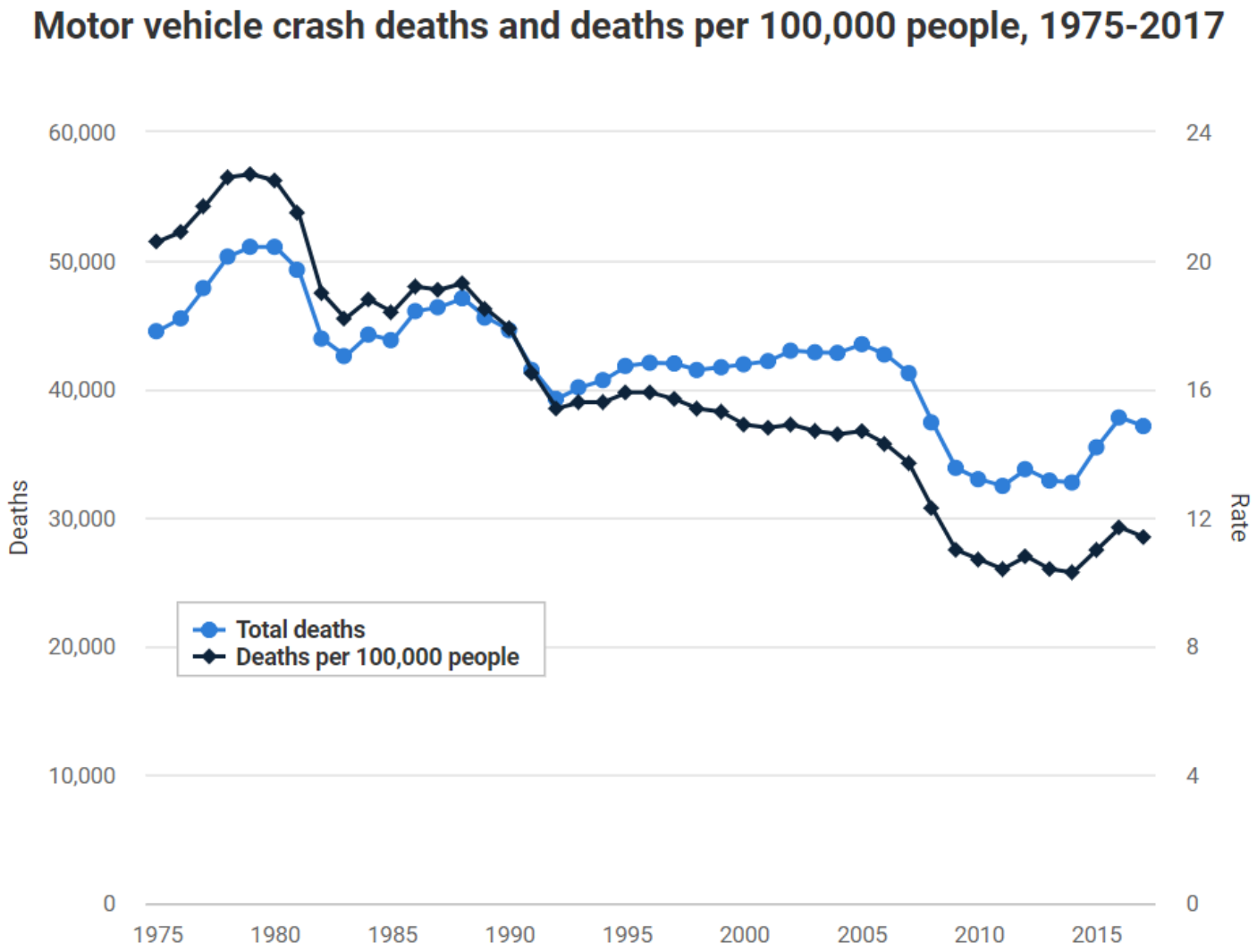
Source: Signor et al., 2018

Defining Safe Systems

- Road to Zero has distilled Safe Systems into 2 key principles:
  - 1. Anticipating Human Error – Safe Systems are designed to anticipate and accommodate errors by drivers and other road users.
    - *Example: Even a momentary distraction can prevent a driver from seeing vulnerable road users or vice-versa. Separating vulnerable road users, such as pedestrians and bicyclists, from traffic wherever possible reduces the likelihood that such predictable errors will lead to a deadly collision.*
  - 2. Accommodating Human Injury Tolerance – Safe Systems are designed to reduce or eliminate opportunities for crashes resulting in forces beyond human endurance.
    - *Example: Where pedestrians and vehicles need to occupy the same space – such as urban crosswalks – reducing vehicle speeds through the use of lower speed limits combined with road design changes can reduce the likelihood of fatal collisions with pedestrians or bicyclists.*

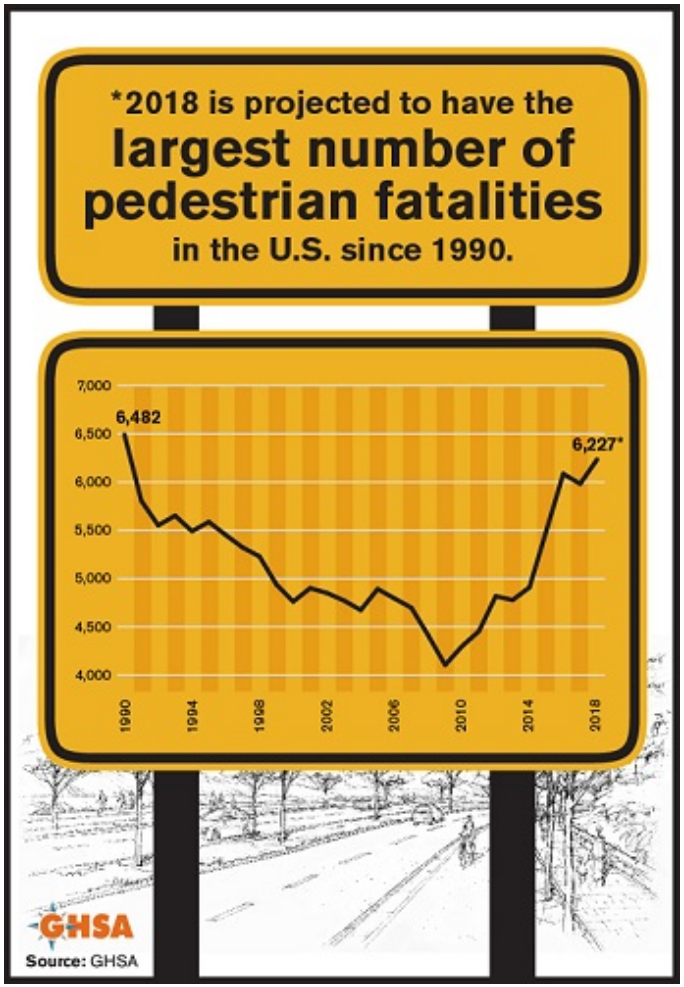
Source: ITE

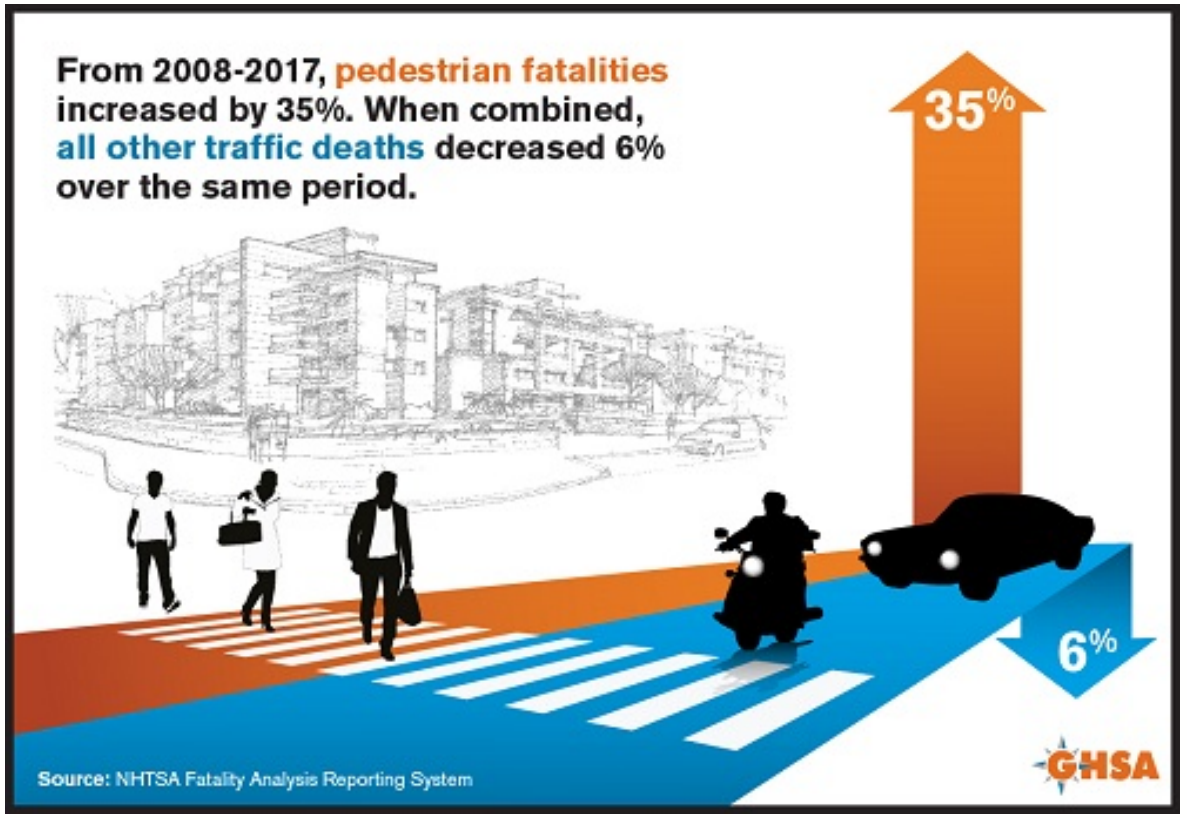
Our Motivation



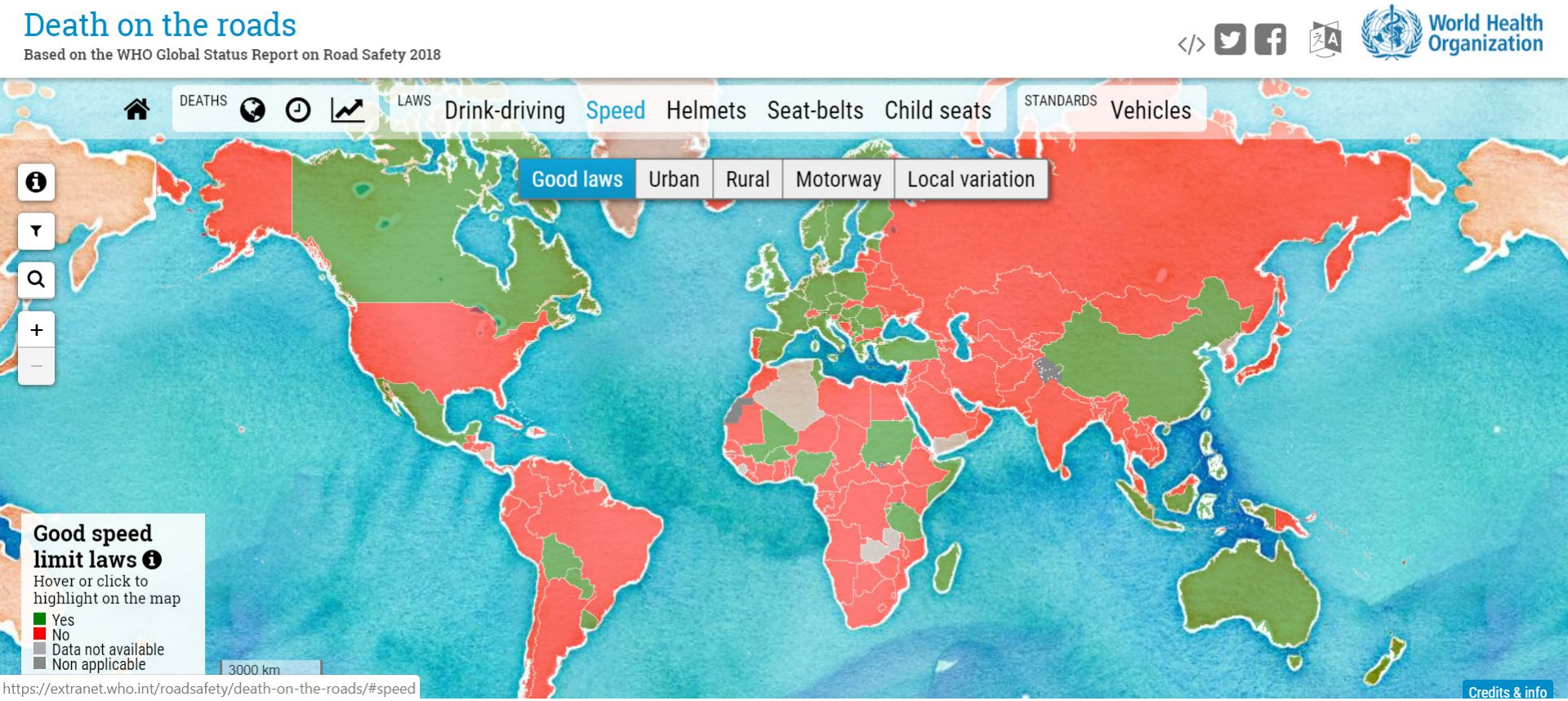
Source: IIHS

Our Motivation





Our Motivation



Source: WHO

Barriers to Safe Systems

- Many agencies already have practices that align with Safe Systems.
  - Speed management
  - Roundabout installation
  - Project prioritization
- However, many barriers to full implementation exist.
  - Funding mechanisms
  - Project prioritization
  - Industry feeds individualism
  - Media blames victims

All of these issues speak to a broader traffic safety culture that does not facilitate Safe Systems.

Barriers to Safe Systems

- Funding for safety improvements remains limited.
  - Organizational priorities do not always align with Safe Systems.

SAFETY: $8,820,423,000

INFRASTRUCTURE: $30,821,363,000

FEDERAL-AID HIGHWAYS	**8,820,423**	**30,821,363**	**5,334,025**	**1,031,785**	**46,007,**
Highway Safety Improvement Program	2,603,054	-	-	-	2,603,(
National Highway Performance Program	3,561,208	17,806,042	2,374,139	-	23,741,.
Surface Transportation Block Grant Program	1,781,450	8,907,247	1,187,633	-	11,876,.
Congestion Mitigation & Air Quality Improvement Program	489,843	734,765	734,765	489,843	2,449,.
National Highway Freight Program	66,928	870,060	401,566	-	1,338,.
Metropolitan Transportation Planning	87,590	192,699	70,072	-	350,.
Nationally Significant Freight and Highway Projects (INFRA)	47,500	617,500	285,000	-	950,(
Federal Lands and Tribal Transportation Programs	56,250	956,250	56,250	56,250	1,125,(
Research, Technology, and Education Program	67,200	134,400	184,800	33,600	420,(
Construction of Ferry Boats and Ferry Terminal Facilities	4,000	72,000	4,000	-	80,(
Disadvantaged Business Enterprise	-	10,000	-	-	10,(
Emergency Relief	5,000	90,000	5,000	-	100,(
Highway Use Tax Evasion Projects	400	400	800	2,400	4,(
On-the-Job Training	-	-	10,000	-	10,(
Territorial and Puerto Rico Highway Program	50,000	130,000	20,000	-	200,(
Transportation Infrastructure Finance and Innovation Act (TIFIA) Program	-	300,000	-	-	300,(
Administrative Expenses	-	-	-	449,692	449,(
TOTAL	**8,820,423**	**30,821,363**	**5,334,025**	**1,031,785**	**46,007,**

Source: FHWA

Barriers to Safe Systems

- Many jurisdictions still prioritize (motorized) mobility over safety.

Barriers to Safe Systems

- Many jurisdictions still prioritize (motorized) mobility over safety.

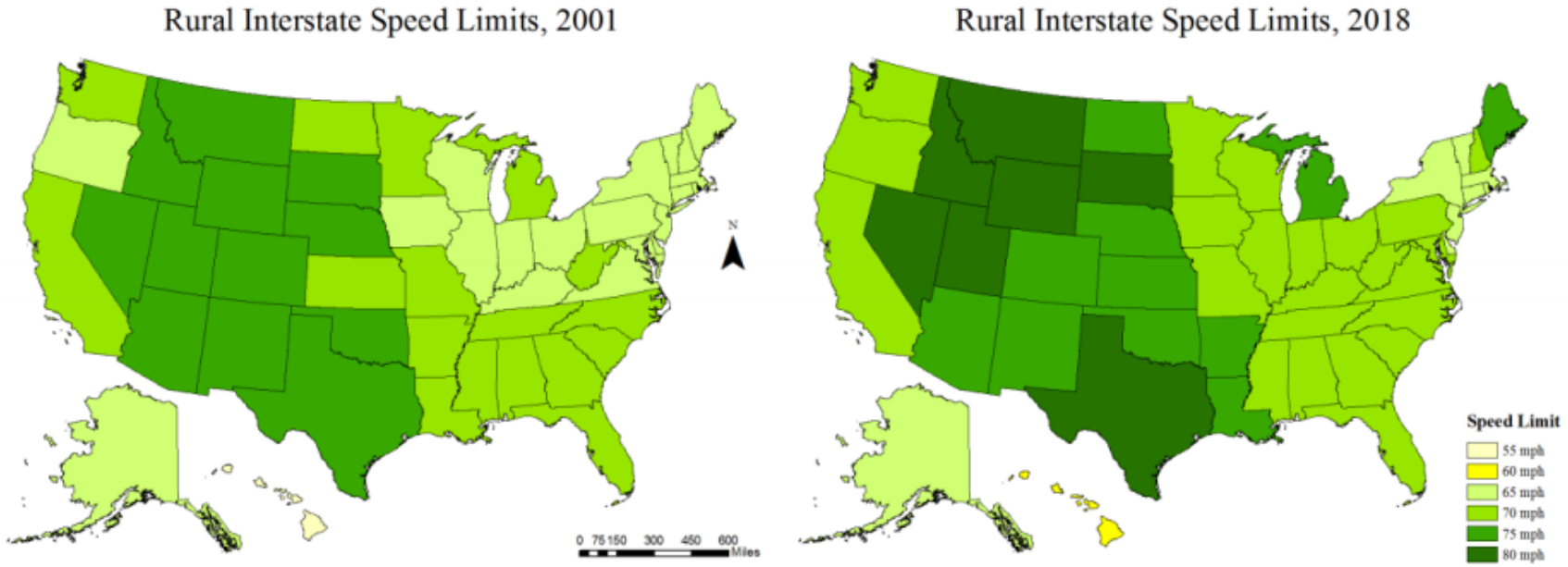
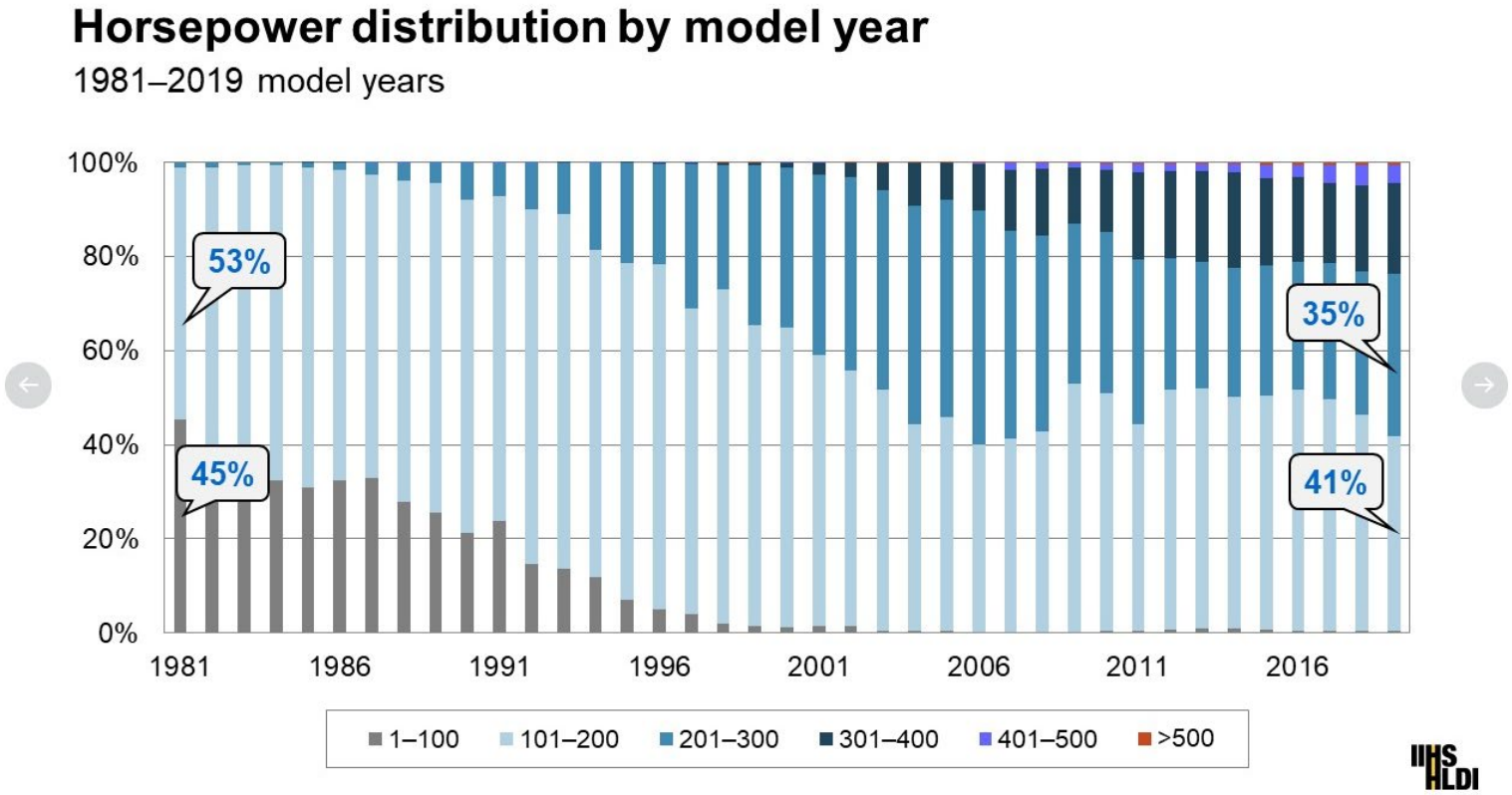


Figure 1. Maximum rural interstate speed limits in 2001 (left) and 2018 (right)

Source: intrans.iastate.edu/app/uploads/2019/11/Iowa_speed_limit_policy_impacts_eval_w_cvr.pdf

Barriers to Safe Systems

- Vehicles, driven by industry and manufactured demand, have only become larger and more powerful over time.
  - Faster, heavier vehicles create higher net kinetic energy on the roadway.



Barriers to Safe Systems

- The media frequently blames victims, perpetuating a narrative of safety individualism.

NEW YORK

Cyclist in critical condition after being struck by driver on busy Brooklyn street

By BRITTANY KRIEGSTEIN and CLAYTON GUSE
NEW YORK DAILY NEWS | OCT 30, 2019 | 4:52 PM

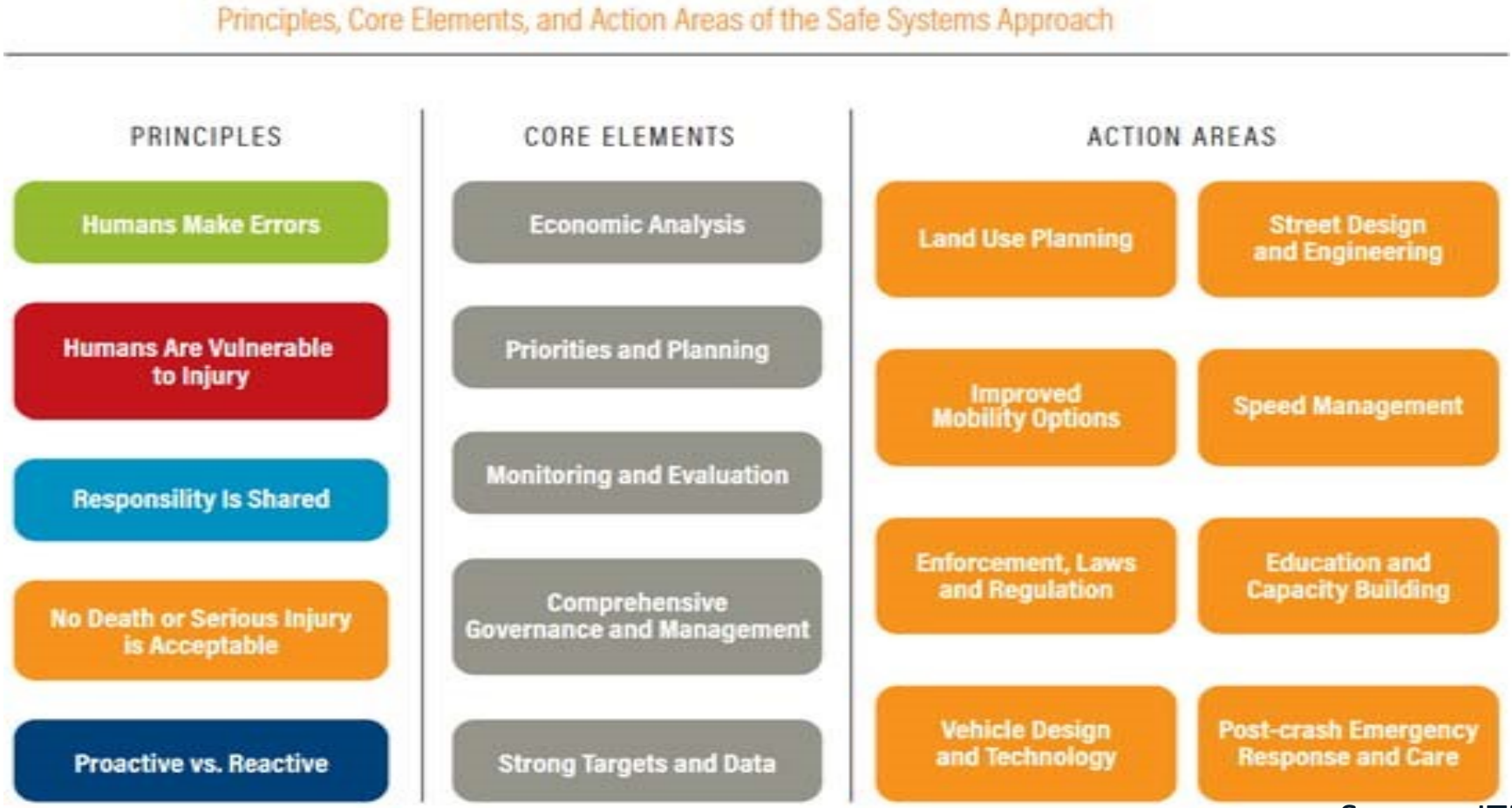
Witnesses said the man was not wearing a helmet when he was struck.

A New Approach

- Transportation safety management in the United States has followed a series of paradigms (Norton, 2015).
  - Safety First (1900s-20s): Drivers bear responsibility for the safety of others.
  - Control (1920s-60s): Expert control through the “3 Es”—Engineering, Education, and Enforcement.
  - Crashworthiness (1960s-80s): Cars redesigned for greater occupant protection.
  - Responsibility (1980s-today): Drivers responsible for their own safety and the safety of others.
  - Is Safe Systems the 5th paradigm?

A New Approach

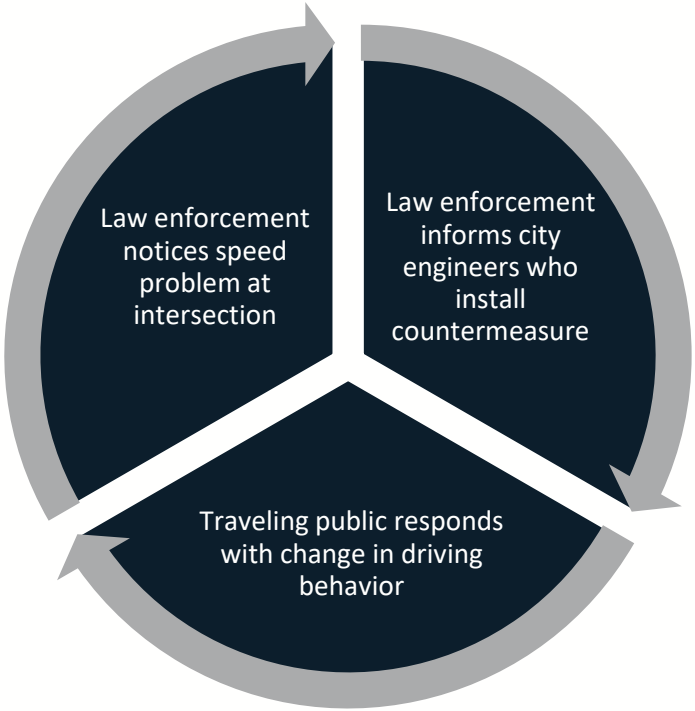
- Safe Systems is realized through organizations changing culture (both interior and exterior).



Source: ITE

A New Approach

- Safe Systems differs by:
  - Emphasizing management of latent risk over high-crash locations.
  - Considering kinetic energy, not design standards, the key consideration in roadway design.
  - Aligning functional classification with design and speed.
  - Leveraging feedback loops and shared funding streams to create change.



Source: ITE

A New Approach

- Safe Systems requires a move to systems thinking.

Traditional Approach

- Characterized by linear thinking
  - Design speed and speed limits
  - Intersection design and throughput
  - Crashes and hot spot treatment

Safe Systems

- Characterized by systems thinking
  - Self-explaining roads and access control
  - Intersection design and kinetic energy
  - Severe crashes and systemic treatments

Let’s focus on one topic for implementation: speed management.

Implementation – A Speed Management Example

- Principle 1: Adapt the structure and function of the transportation system to the complexities of human behavior.
  - Traffic safety culture application: Engineers and planners coordinate to better match land development with road design.
  - Example: Expanded Functional Classification System (NCHRP, 2018).
    - Overlay road user needs with development type.
    - Align speed and mobility needs.

Implementation – A Speed Management Example

- Principle 1: Adapt the structure and function of the transportation system to the complexities of human behavior.

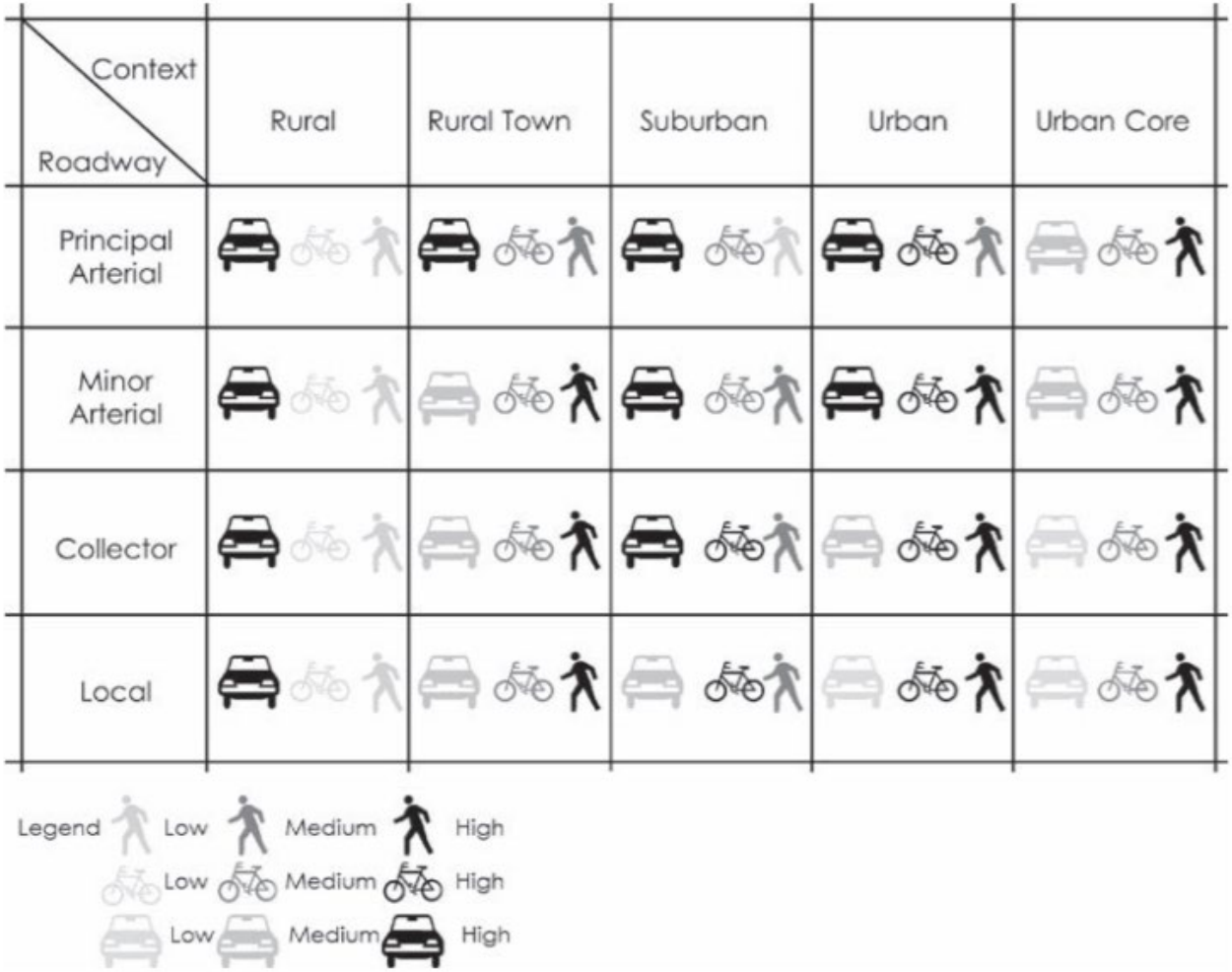


Figure 5. Typical user priorities in the Expanded FCS.

Implementation – A Speed Management Example

- Principle 2: Manage the kinetic energy transferred among road users.
  - Traffic safety culture application: Departments of transportation write in policies to implement new, speed-reducing striping, into all new rural maintenance projects.
  - Example: FHWA rural road speed management guide (FHWA-HRT-08-067).
    - Use road painting to signal to users to slow down as they enter populated areas.
    - Use speed tables to force drivers to slow down at intersections.

Implementation – A Speed Management Example

- Principle 2: Manage the kinetic energy transferred among road users.

Implementation – A Speed Management Example

- Principle 3: Treat road user safety as the foundation of all system interventions.
  - Traffic safety culture application: Stop using 85th percentile speed as the deciding factor for setting speed limits.
  - Example: Boston recently lowered citywide speed limits (Hu and Cicchino, 2019).
    - 30 mph to 25 mph
    - Change has a measured efficacy in speed reduction.

After Boston lowered the default speed limit to 25 mph, the estimated odds of a vehicle

exceeding 35 mph

fell 29.3%

exceeding 30 mph

fell 8.5%

exceeding 25 mph

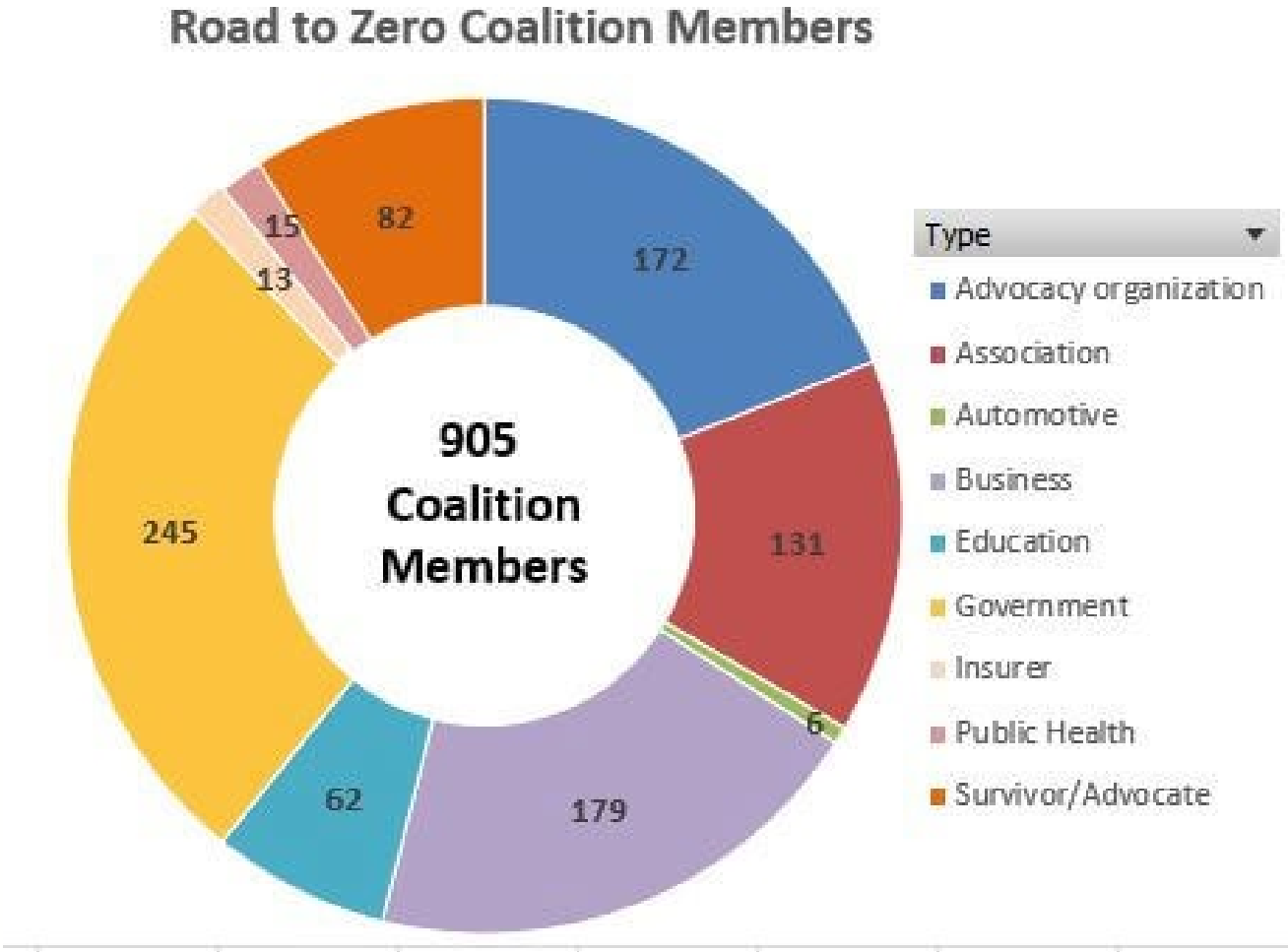
fell 2.9%

Implementation – A Speed Management Example

- Principle 4: Foster the creation of a shared vision and coordinated action.
  - Traffic safety culture application: Shared goal setting at a regional level (much like this meeting)!
  - Example: Road to Zero Coalition has 905 member organizations (NSC, 2019).
    - This includes Federal groups, professional organizations, advocacy groups, and State partners.
    - The group is currently developing a long-term framework for action, and many of these actions entail working with agencies to manage speed.
    - Messaging is becoming unified, allowing us to change the narrative around safety and mobility.

Implementation – A Speed Management Example

- Principle 4: Foster the creation of a shared vision and coordinated action.



Implementation

- So what would it look like to have agencies that actively work to produce Safe Systems?
- Five potential tools to implement Safe Systems here (Signor et al., 2018):
  - Re-assess speed limits throughout your region.
    - Consider safety and land development.
  - Explore changes to functional classification.
    - Align current practices with NCHRP Expanded Functional Classification and allocate project funding based on road user needs.
  - Explore innovative intersection designs.
    - Deploy roundabouts and study the efficacy of other Safe Systems designs.
  - Continue to enforce speed and yielding to create feedback loops.
    - We know programs like Watch for Me (used in other states) can be effective.
  - Work with communities to promote safety as the primary concern for roadways.
    - Use Vision Zero and other programs to build that shared vision.

Implementation

- So what would it look like to have agencies that actively work to produce Safe Systems?

Approach aims to maximize…	Example
Functional harmony/ predictability/ recognizability	Gateway treatments (i.e., curb extensions used to mark the transition to a slower speed road); self-explaining roads (i.e., roads in which the function and design of the roadway cues the driver to adopt certain behaviors and speeds); curve delineation; standardized functional classes for roadways
Forgiveness	Vehicle roll cages (i.e., a protective frame to prevent injury in a rollover crash); cable median barriers (i.e., a forgiving barrier designed to prevent a vehicle from leaving the roadway or crossing into another direction of traffic); standard maximum speeds at intersections
Restrictiveness	Rumble strips (i.e., raised strips of pavement that alert a driver to the edge of the road or a slower zone by altering the noise of a vehicle's tires); vehicle lane-keeping assistance; interlock devices (i.e., a device designed to prevent vehicle operation when the driver is impaired)
Simplicity	Limit turning maneuvers, number of lanes, and/or direction of travel; simplify in-vehicle control panels
Understanding of human performance	Traffic signals timed for slower walking speeds; lights timed for slower reaction times; graduated driver licensing (i.e., a licensing system designed to provide new drivers with supervised driving time to develop their skills in a low risk environment)
Separation (in time or in space)	Separated/protected bike lanes; exclusive left phase; right turn on red restriction; exclusive traffic lanes; pedestrian refuge islands (i.e., a small section of pavement that provides a place for pedestrians to stop before completing a road crossing)
Speed control (to manage kinetic energy transfer)	Traffic calming measures (e.g., speed bumps); lower design speed; automated speed enforcement

Source: Naumann et al., under review in Current Epid Reports

Where do we go from here?

Thank you!

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Panel

- **Ashwin Patel**, Senior Manager-Traffic Engineering & Safety Division, PennDOT District 6-0
- **Angela Dixon**, Director of Planning, Office of Transportation, Infrastructure, and Sustainability, City of Philadelphia
- **Matthew Lawson**, Principal Planner, Mercer County

- Moderator: **Patricia Ott**, Managing Member, MBO Engineering, LLC

*Submit an action item using the "Chat" tool and with the format **"Strategy: [insert action item]"***

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Conclusion

- Final Reminder: Action Items
- Evaluation survey
- Meeting summary
- Next meeting: June 3, 2020

Submit an action item using the "Chat" tool and with the format ***"Strategy: [insert action item]"***

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