



National
Center
for
Rural
Road
Safety

Improving Rural Road Safety with the Safe System Approach



**A 6-part
Webinar
Series**

Part 1: Introducing the Safe System Approach and Traffic Safety Culture

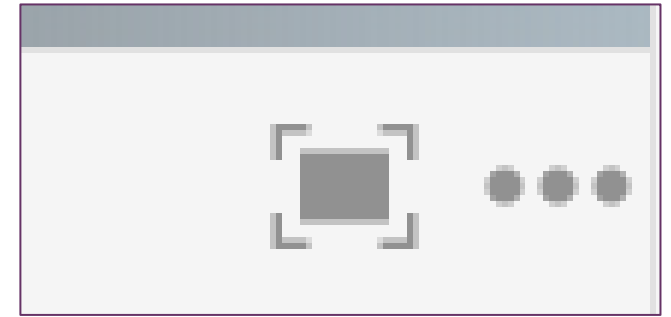
Presented by:

- Mark Doctor, Federal Highway Administration
- Nic Ward, Center for Health and Safety Culture at MSU Bozeman



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18SCEX280720	Primer on the Joint Use of the HSM and the HFG for February 13, 2018 - February 13, 2019	0.150	1.50
TOTAL:		0.300 CEU's	9.00 Hours





Today's Presenter



**Mark Doctor,
FHWA**



**Nic Ward,
CHSC**



Goals of this Webinar

Once you have completed this webinar, you will have:

an understanding of the Safe System Approach and Traffic Safety Culture and how they can be applied to rural areas.



Learning Outcomes

To achieve the webinar goal, you will learn to:

List the six principles and five elements of the Safe System Approach.

Describe how the Safe System Approach is different from traditional road safety approaches.

Describe how you and your agency can begin today to plan and implement Safe System concepts to improve safety on rural roads.

Understand the meaning of traffic safety culture.

Recognize the role of traffic safety culture in the safe system approach and Vision Zero.



Mark Doctor
FHWA



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List the six principles and five elements of the Safe System Approach.

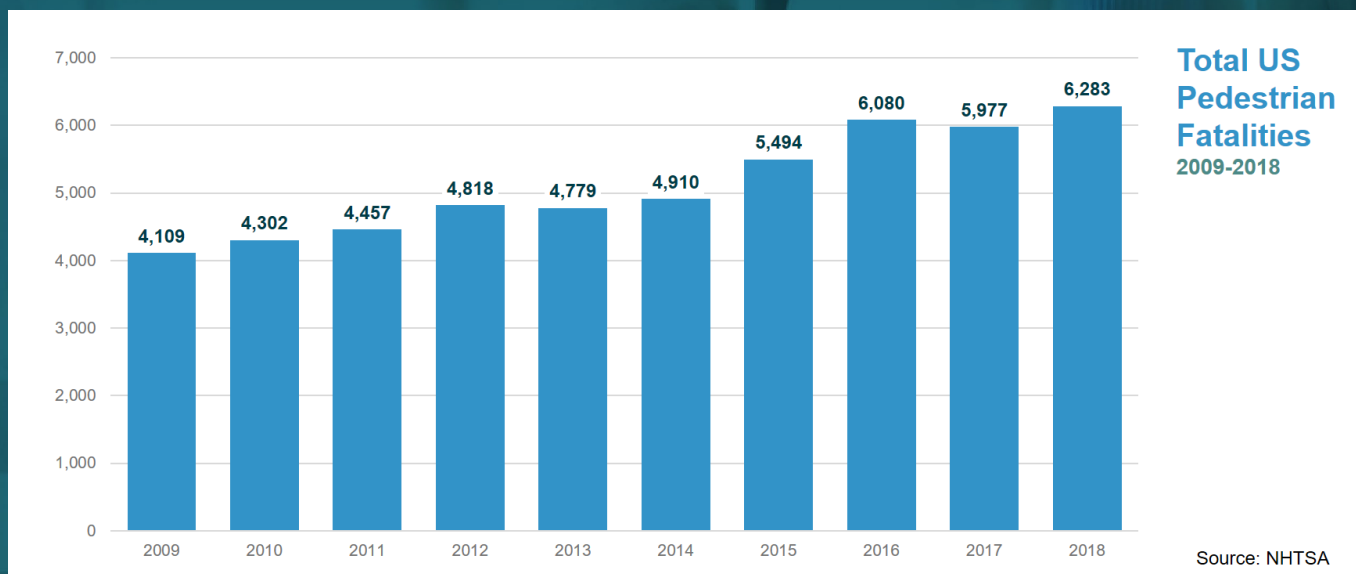
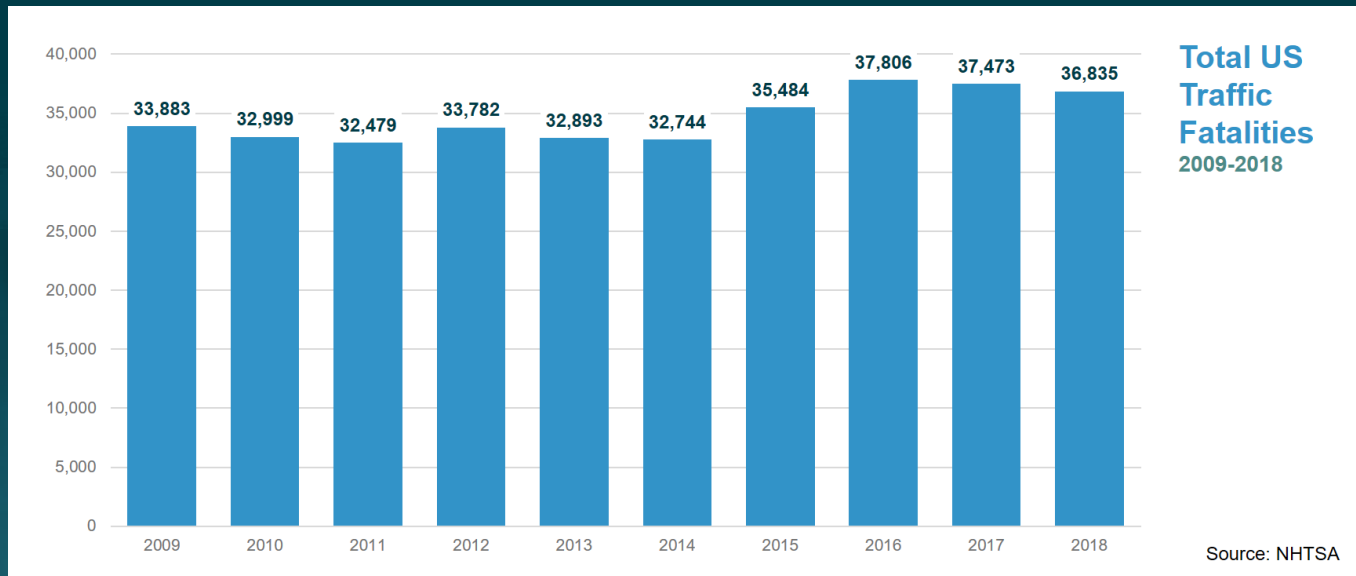
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Understand the meaning of traffic safety culture.

Recognize the role of traffic safety culture in the safe system approach and Vision Zero.

How does the US *reach zero deaths?*



Source: Fehr & Peers

SUCCESSFUL SAFE SYSTEM ADOPTERS



Sweden

Vision Zero

60-70%

Reduction in fatalities
1994-2015

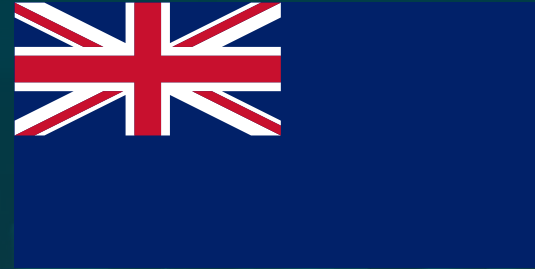


Netherlands

Sustainable Safety

50-60%

Reduction in fatalities
1994-2015



Australia

Safe System

50-60%

Reduction in fatalities
1994-2015



New Zealand

Safer Journeys

50-60%

Reduction in fatalities
1994-2015

Source: World Resources Institute

THE SAFE SYSTEM APPROACH



What is it?

Who is involved?

How is it different from traditional approaches to road safety?

When can my organization start implementing?

WHAT IS IT?



WHAT IS IT?

PARADIGM SHIFT



A different way of thinking about the road safety problem ...

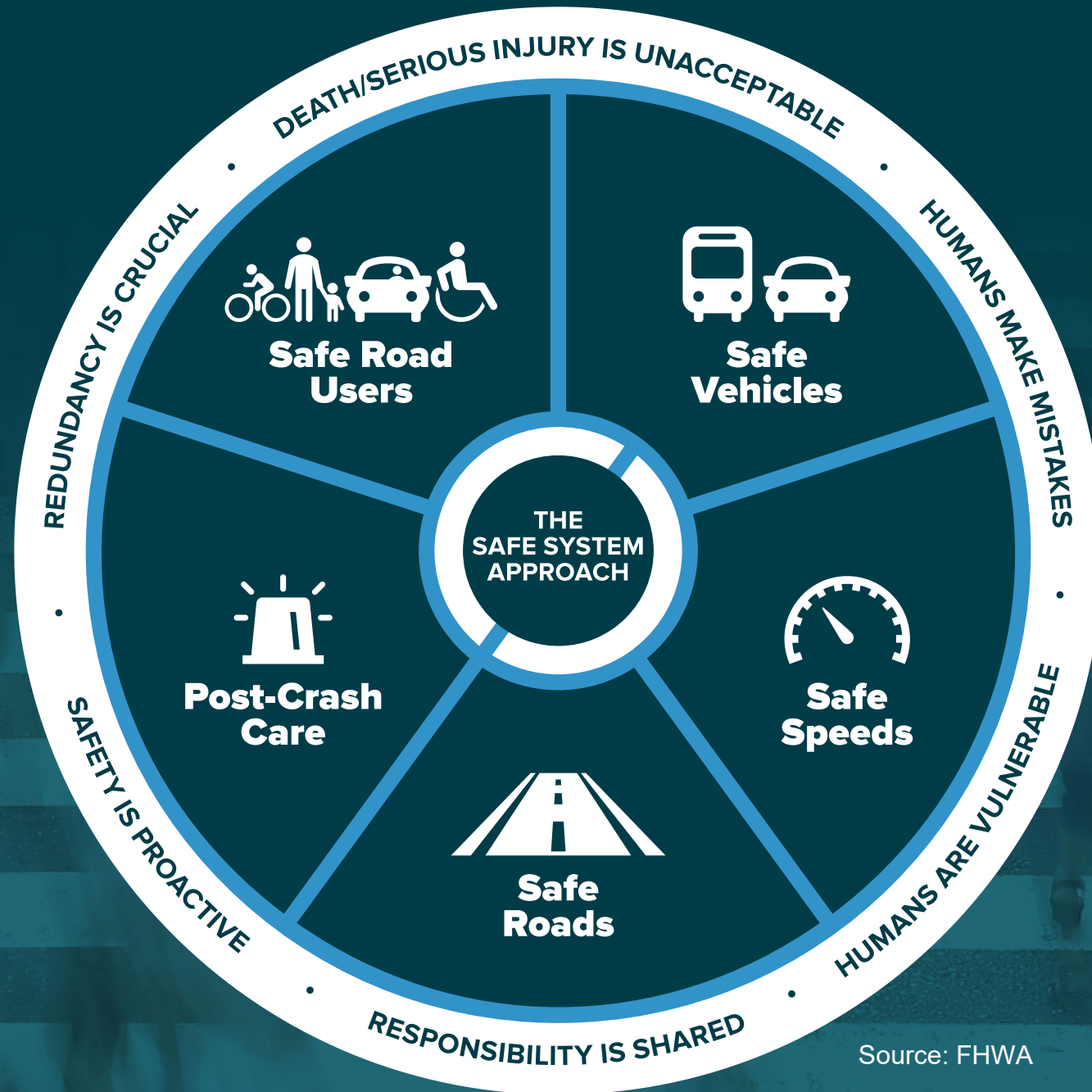


**Accommodating
human mistakes**



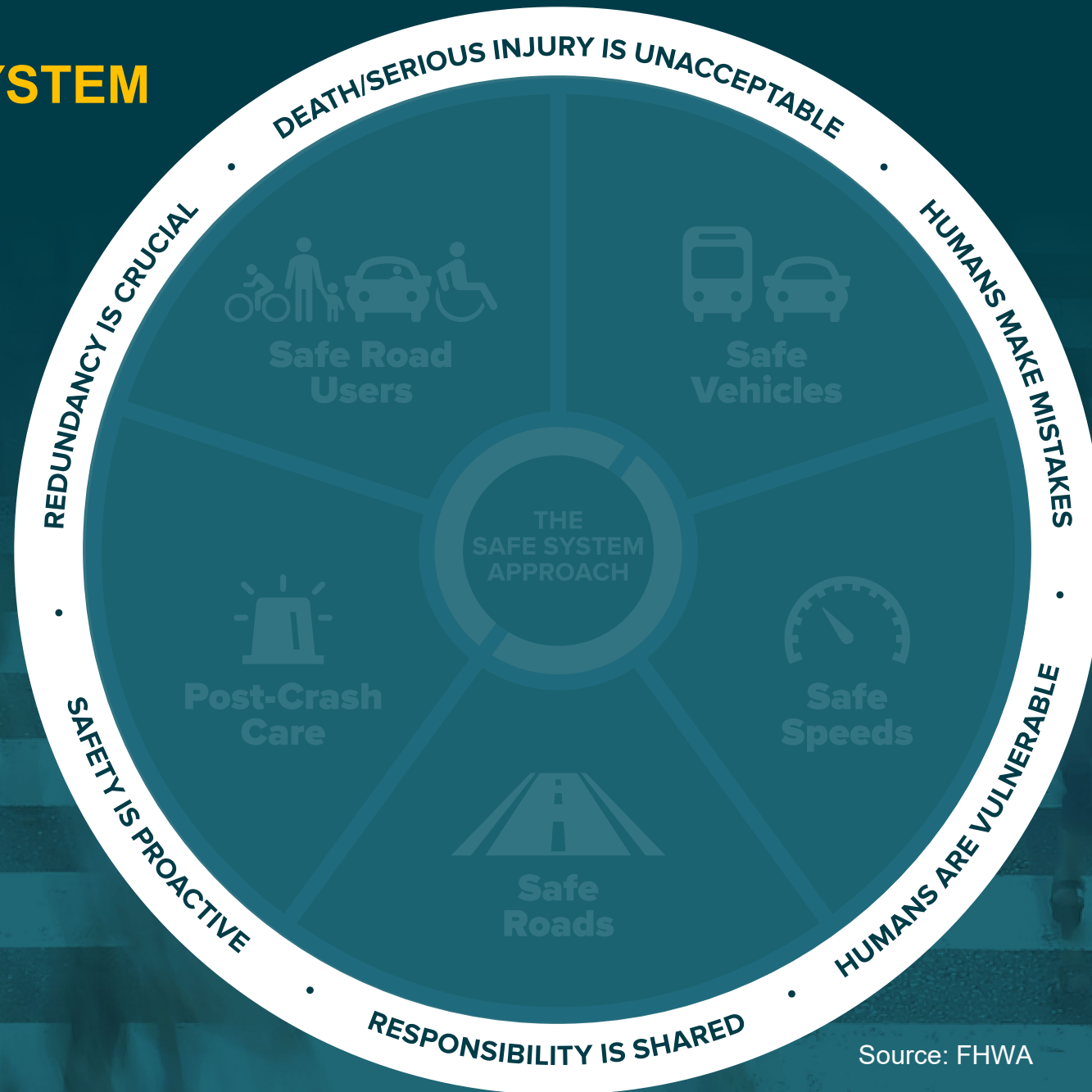
**Keeping impacts on the human
body at tolerable levels**

THE SAFE SYSTEM APPROACH



Source: FHWA

THE 6 SAFE SYSTEM PRINCIPLES



Death/serious injury is unacceptable



Humans make mistakes



Humans are vulnerable



Responsibility is shared



Safety is proactive



Redundancy is crucial

Source: FHWA

THE 6 SAFE SYSTEM PRINCIPLES



Death/serious injury is unacceptable



Humans make mistakes



Humans are vulnerable

DEATH/SERIOUS INJURY IS UNACCEPTABLE

REDUNDANCY IS CRUCIAL

SAFETY IS PROACTIVE

RESPONSIBILITY IS SHARED

HUMANS MAKE MISTAKES

HUMANS ARE VULNERABLE



Responsibility is shared



Safety is proactive



Redundancy is crucial

Source: FHWA

Focus on Fatalities and Serious Injuries



Transportation Performance Management

Focusing on Performance for Safe, Reliable Journeys

The Federal Highway Administration defines Transportation Performance Management (TPM) as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals.



Investment Decisions

Using goals, measures, and data to make better informed decisions about how to invest transportation funding.



Aimed at a Better Performing Transportation System

Setting targets, developing plans, reporting results, and being accountable for performance.



For Connected and Productive Communities

Focusing on the efficient delivery of goods and safe, reliable journeys to work, to school, to shopping, to community activities.

<https://www.fhwa.dot.gov/tpm/about/tpm.cfm>



Death/serious injury is unacceptable

Five Safety Measures

- Number of Fatalities
- Fatality Rate
- Number of Serious Injuries
- Rate of Serious Injuries
- Number of Non-Motorized Fatalities and Serious Injuries

What would you do?

If you had the opportunity to implement a feature that would reduce the number of fatalities and serious injuries by 50% at an intersection, but would double the total number of minor crashes ...

Number of minor crashes: UP 2X

Number of fatal and severe crashes: DOWN 50%

Would you do it?




Would you trade 540 PDO crashes for 1 Fatal Crash?

Table 4-7. Societal Crash Cost Assumptions

Severity	Comprehensive Crash Cost (2001 Dollars)
Fatal (K)	\$4,008,900
Injury Crashes (A/B/C)	\$82,600
PDO (O)	\$7,400

Source: *Crash Cost Estimates by Maximum Police-Reported Injury Severity within Selected Crash Geometries*, FHWA-HRT-05-051, October 2005

THE 6 SAFE SYSTEM PRINCIPLES



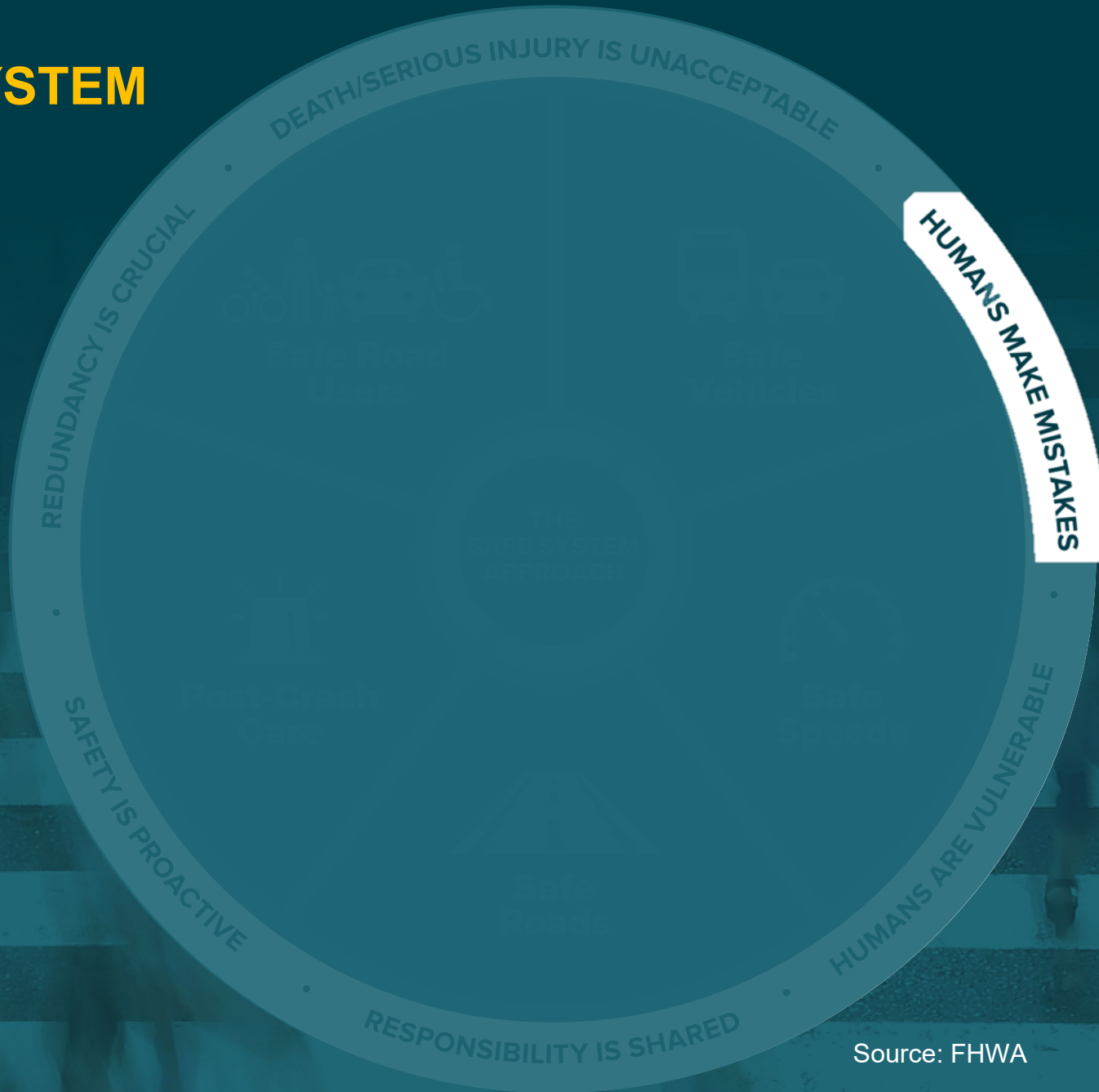
Death/serious injury is unacceptable



Humans make mistakes



Humans are vulnerable



Responsibility is shared



Safety is proactive



Redundancy is crucial

Source: FHWA

HUMAN CENTRIC DESIGN



Humans make mistakes

What is Human Factors?

The field of human factors applies what we know about the capabilities and perceptual limitations of people to better design the environments in which they function. It is an interdisciplinary area of research that focuses on a number of real-world applications, including product design, workplace safety, ergonomics, human-machine interfaces, and transportation. The goal is to maximize performance and safety by creating products, equipment, machines, and environments that complement human capabilities.



Source: FHWA

Diverging Diamond Interchange (DDI)



Source: FHWA

Restricted Crossover U-Turn (RCUT)



Source: FHWA

Cooperative Adaptive Cruise Control (CACC)



Source: FHWA

APPLYING HUMAN FACTORS

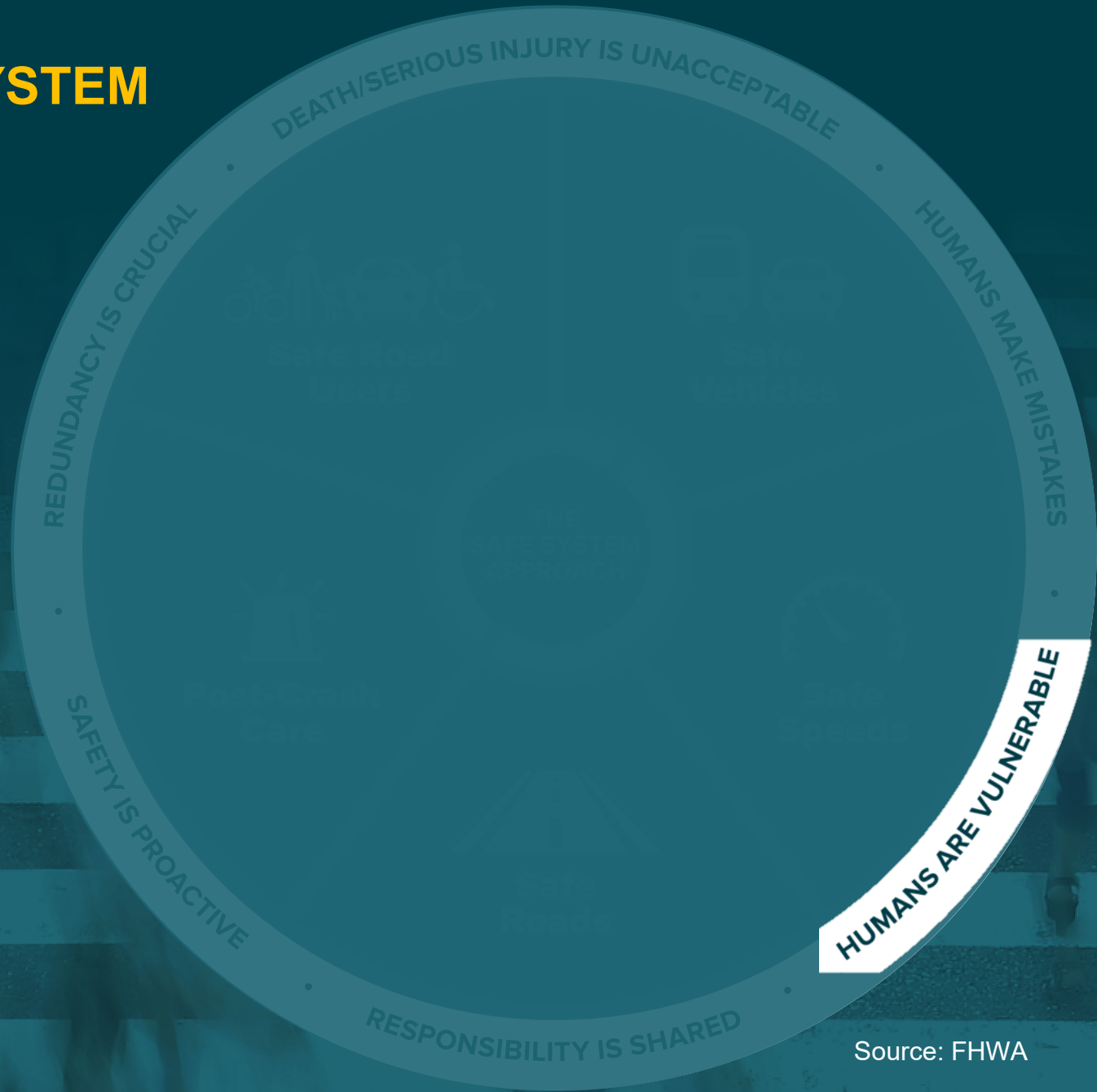
National Cooperative Highway Research Program (NCHRP) Report 600:
Human Factors Guidelines for Road Systems - 2nd Edition

“The Human Factors Guidelines for Road Systems is intended to provide human factors principles and findings to the highway designer and traffic engineer. It will allow the non-expert in human factors to more effectively bring consideration of the road user’s capabilities and limitations into the practice of design, operations, and safety.”



<http://www.trb.org/Main/Blurbs/167909.aspx>

THE 6 SAFE SYSTEM PRINCIPLES



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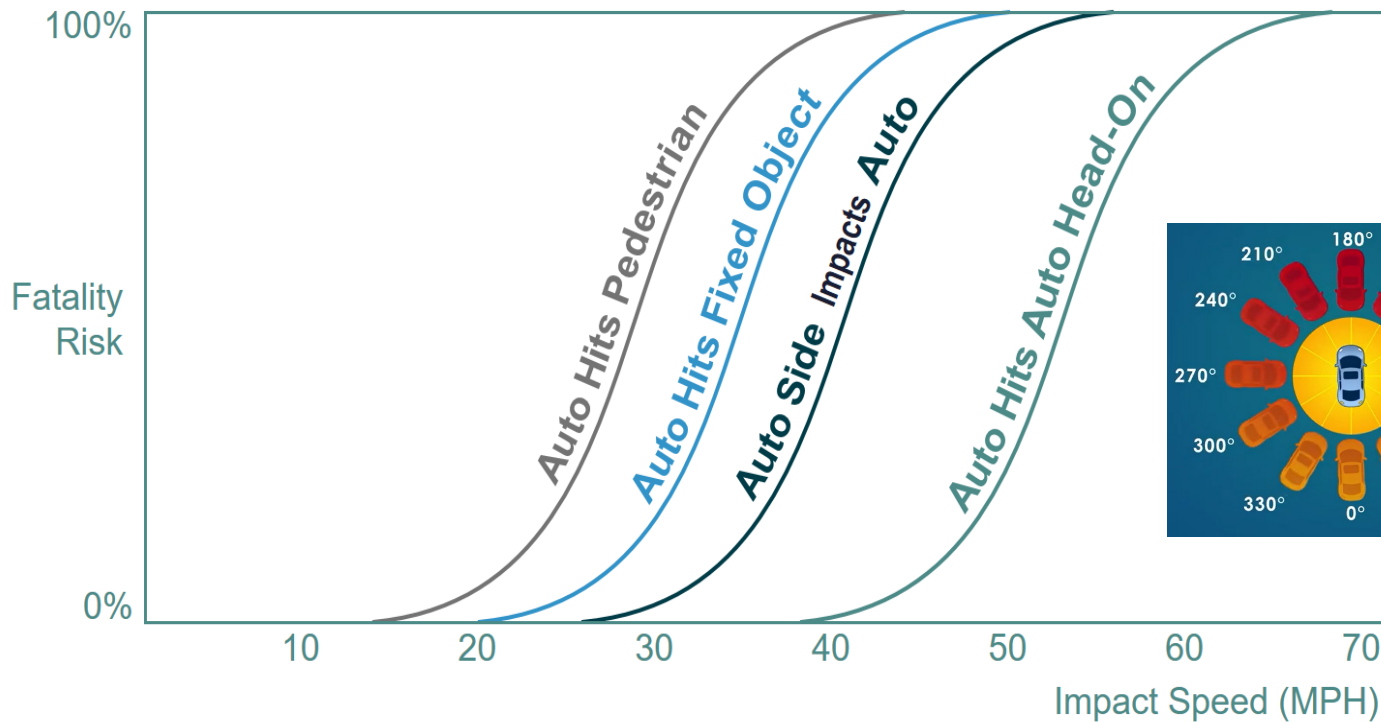
Redundancy is crucial

Source: FHWA

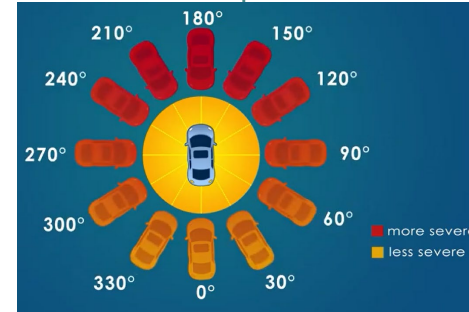
HUMANS ARE VULNERABLE



Humans are vulnerable



Designing safer roads is an exercise of managing kinetic energy



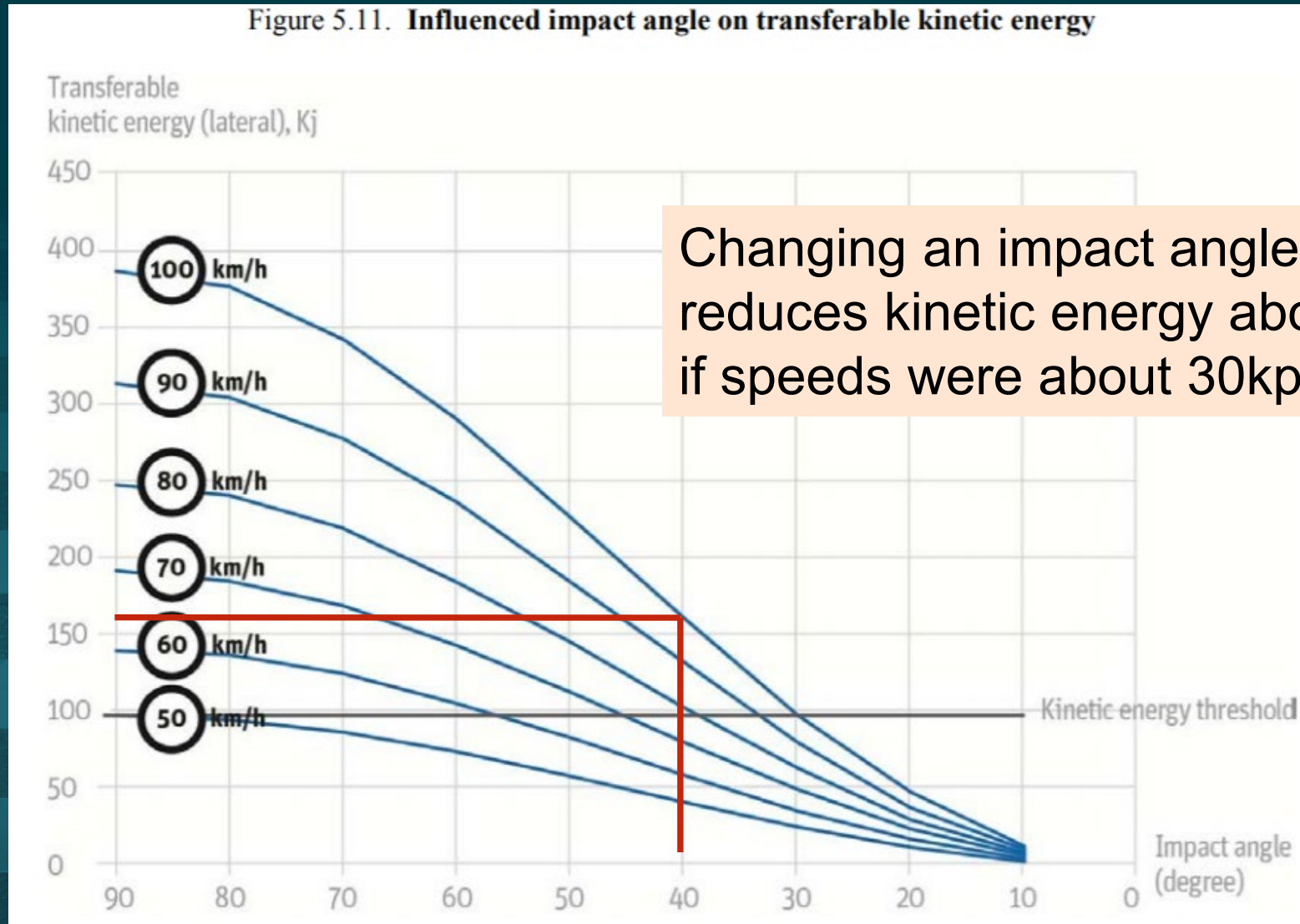
$$K = \frac{1}{2}mv^2$$

Velocity is a Vector

- Speed
- Direction (angle of impact)

Transferable Kinetic Energy (Lateral) vs Impact Angle and Travel Speed

Figure 5.11. Influenced impact angle on transferable kinetic energy



Changing an impact angle from 90° to 40° reduces kinetic energy about the same as if speeds were about 30kph (20 mph) less



Image derived from: <https://dublinohiousa.gov/roundabouts>

Example: Roundabouts vs Signalized Intersections

		
Lower Speeds		
Lower Impact Angles		
Fewer Conflict Points		

Is this why roundabouts are so effective at reducing severe crashes?

YES !!!



6-PART WEBINAR SERIES: Improving Rural Road Safety with the Safe System Approach

Part 1: Introducing the Safe System Approach and Traffic Safety Culture

Wednesday, June 30th 1:00-2:30 PM Eastern

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Did you know...

40% of crash fatality victims in rural areas were in vehicles that rolled over and more than 70% of these victims were not wearing seatbelts (NHTSA)

[View more Safety Facts »](#)

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[View more Safety Facts »](#)



Road User



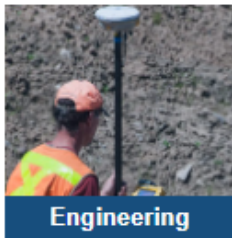
Road



Vehicle



Safety Culture



Engineering



Education

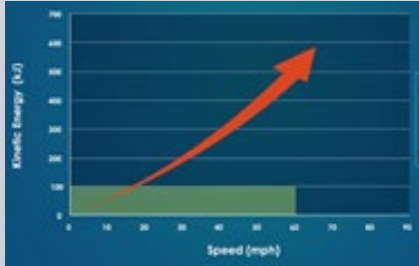


EMS



Enforcement

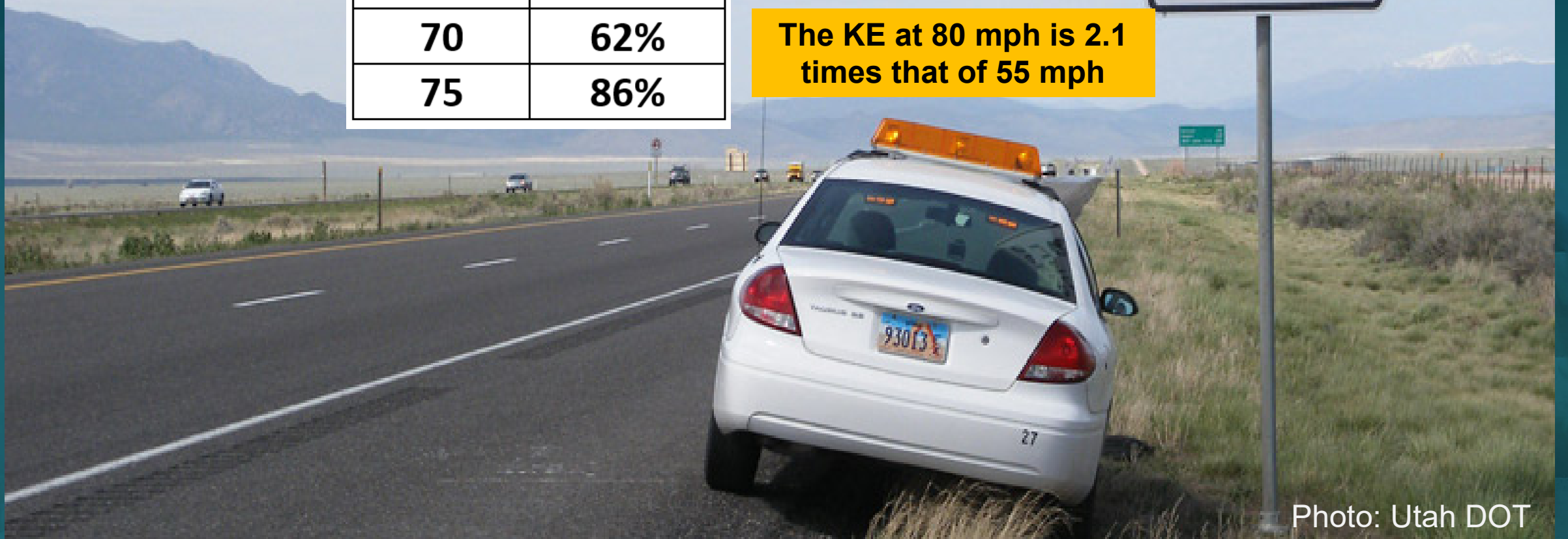
Is there a “maximum” Safe System Speed?



Kinetic Energy Increase
from a collision at 55 mph

60	19%
65	40%
70	62%
75	86%

The KE at 80 mph is 2.1
times that of 55 mph



Remember when ...?



Image Source: Pexels

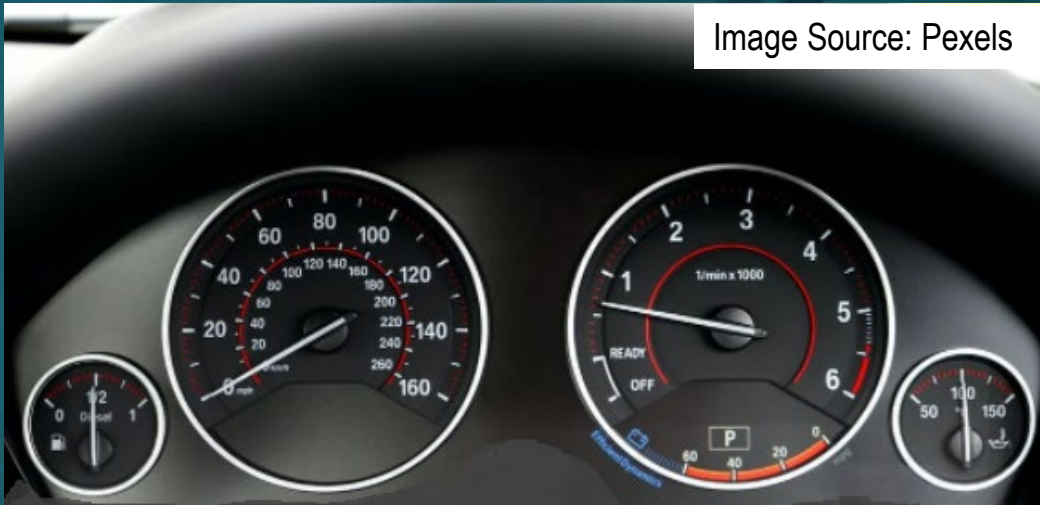


Image Source: Pexels

What if speedometers were calibrated based on kinetic energy?

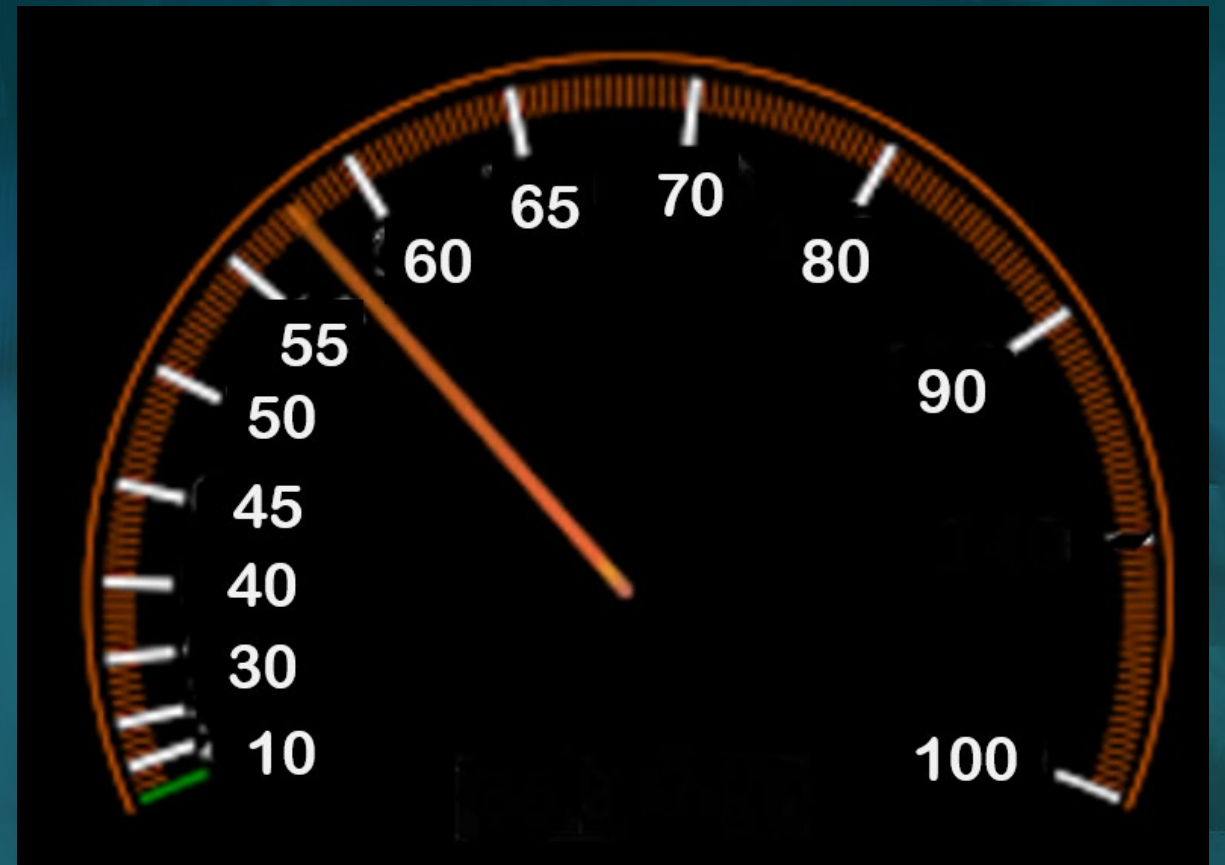




Image Created by Author (Not to Scale)


THE 6 SAFE SYSTEM PRINCIPLES



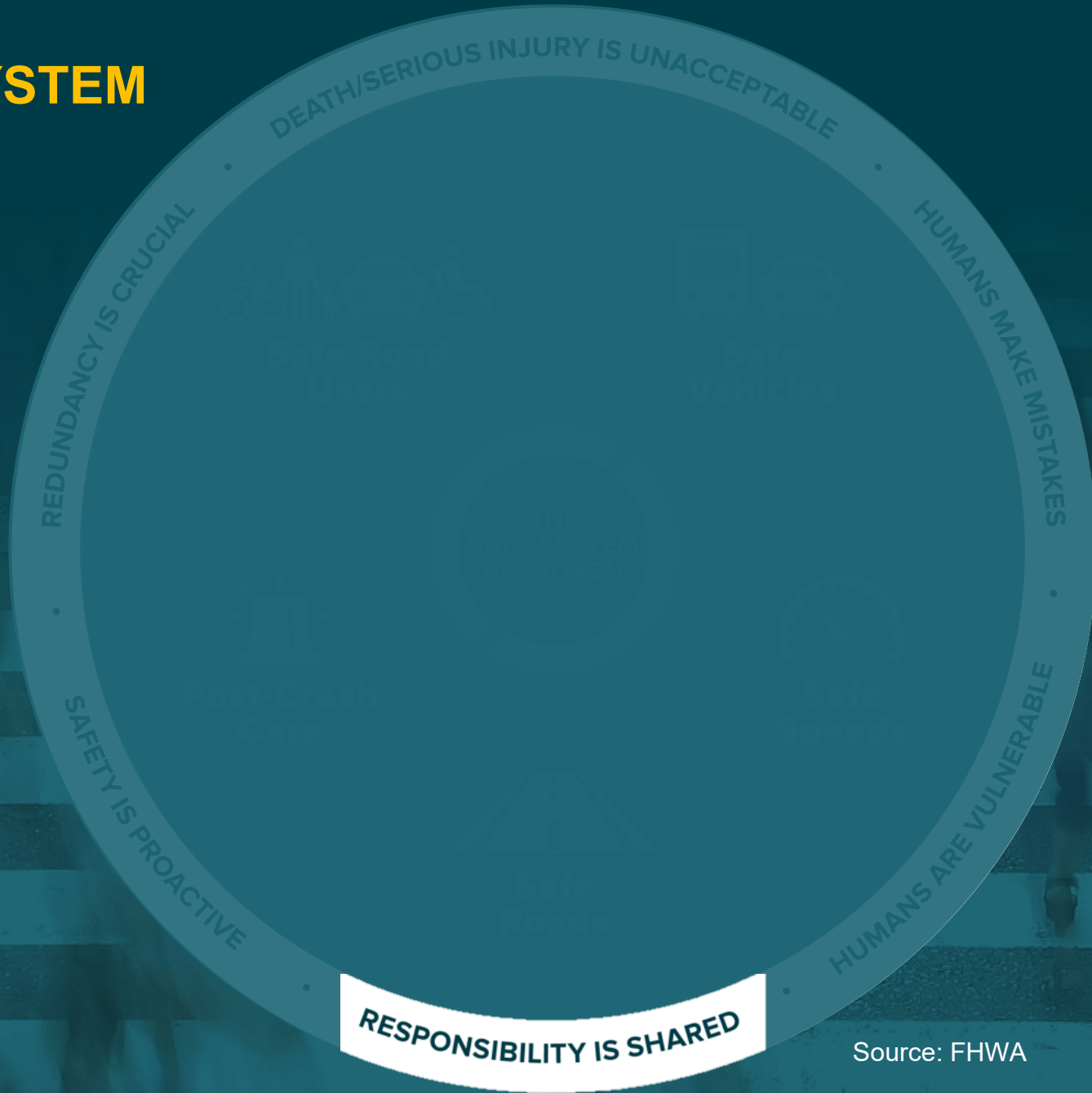
Death/serious injury is unacceptable



Humans make mistakes



Humans are vulnerable



Responsibility is shared



Safety is proactive



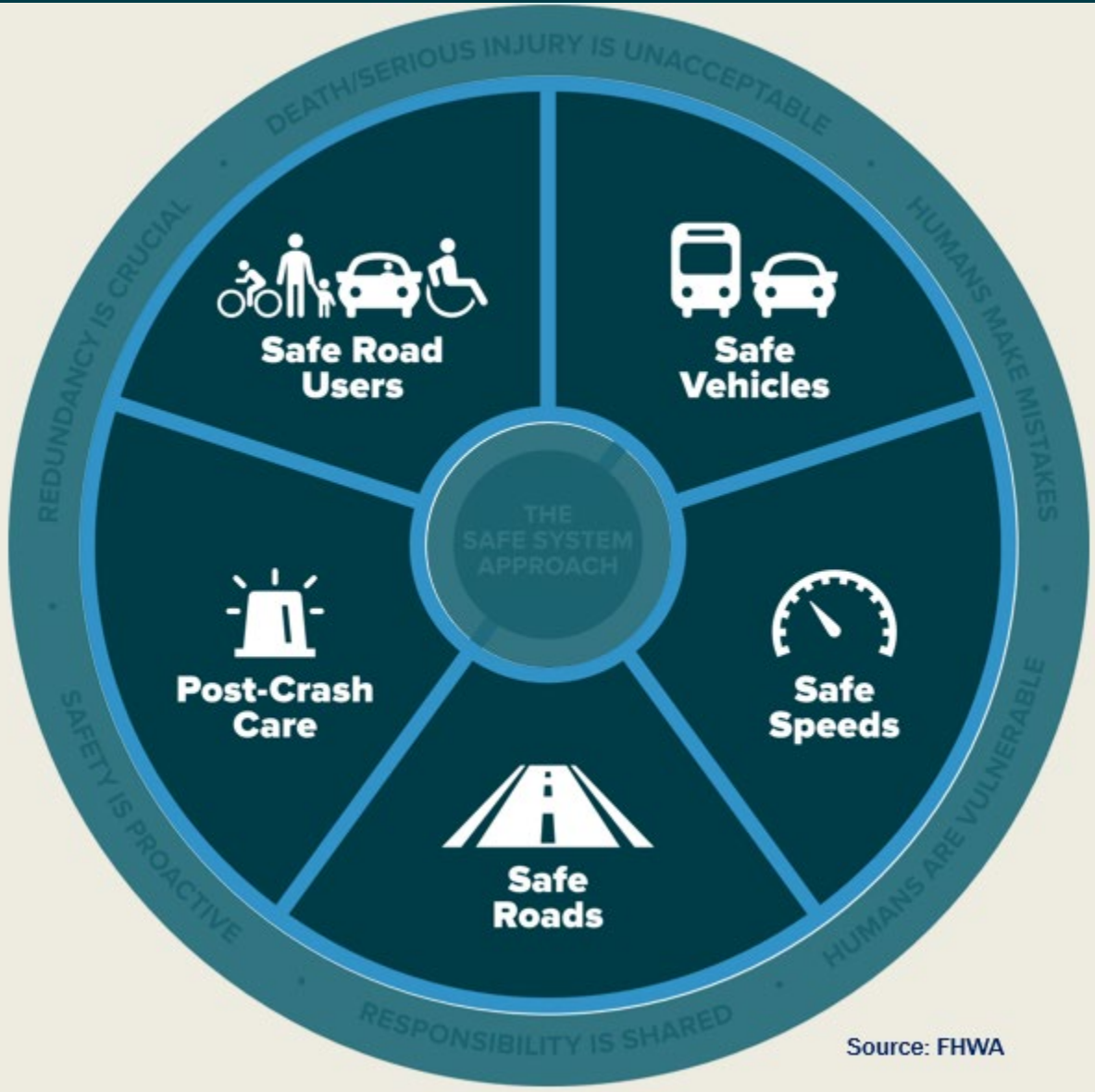
Redundancy is crucial

Source: FHWA

Five Safe System Elements



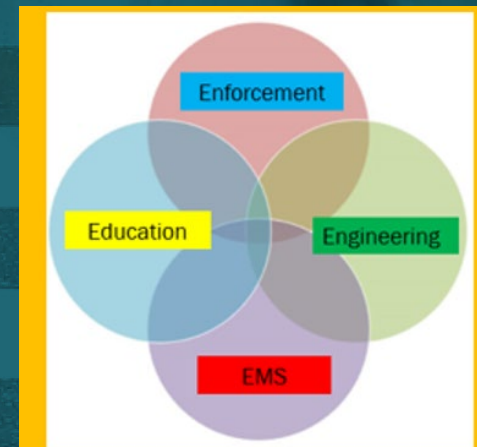
Responsibility is shared



Source: FHWA


Implementing the Safe System approach is a shared responsibility

It cannot be achieved by engineering alone




Source: FHWA Strategic Highway Safety Plans: A Champion's Guidebook to Saving Lives, Second Edition
<https://safety.fhwa.dot.gov/shsp/guidebook/ovrwn.cfm>


THE 6 SAFE SYSTEM PRINCIPLES



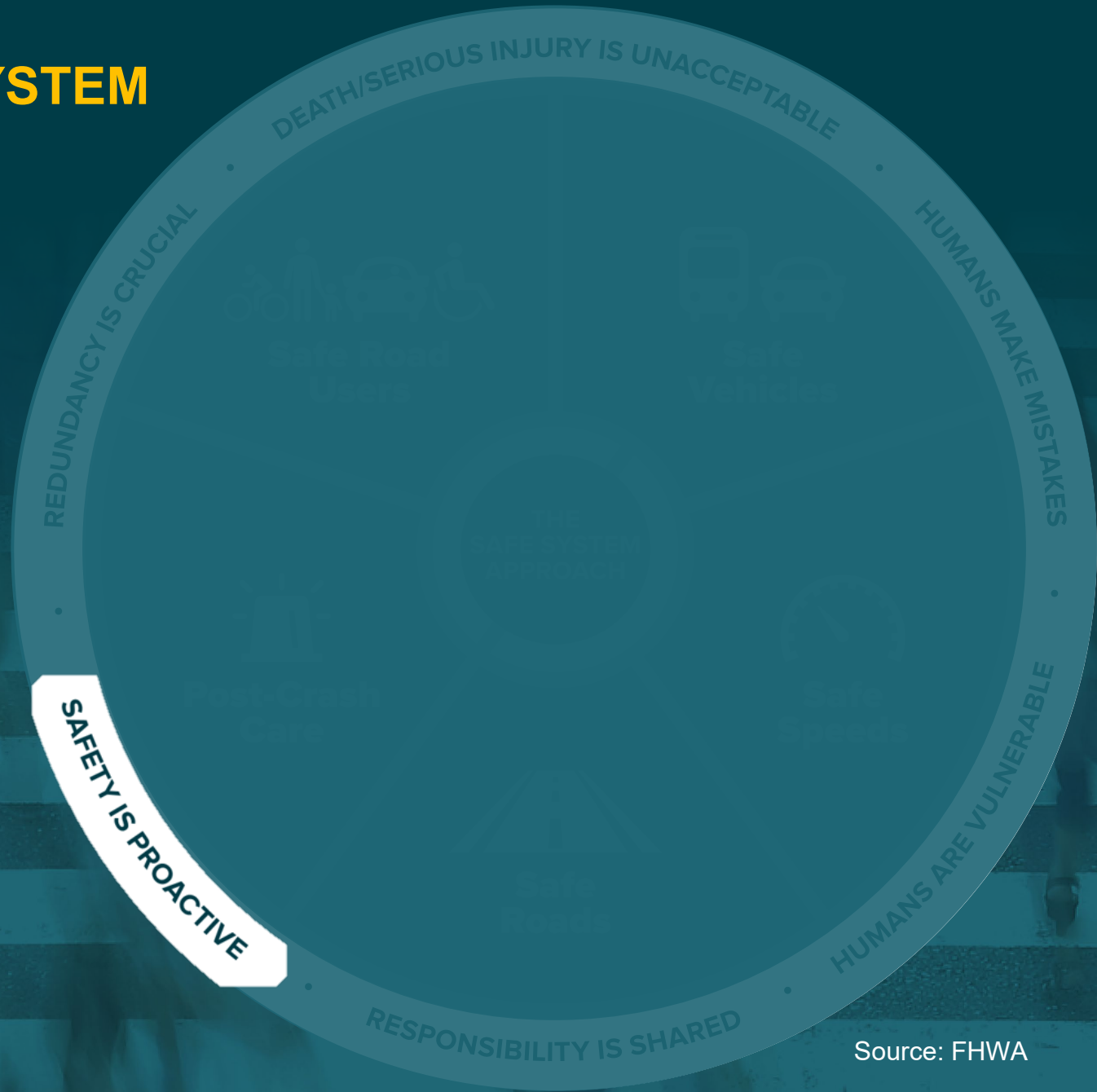
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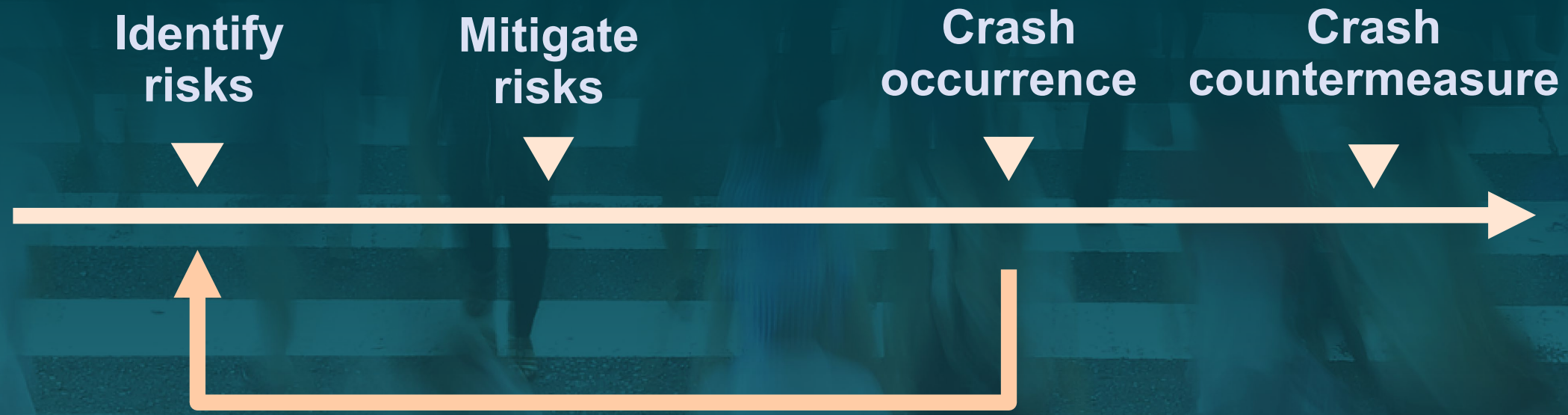


Safety is proactive



Redundancy is crucial

Source: FHWA



Systemic Approach - using data and roadway characteristics to identify patterns of risk and proactively implementing targeted safety measures at locations with those risk characteristics (irrespective of past collision history).

Systemic Approach



Safety is proactive

FHWA Home / Safety / The Systemic Approach to Safety

Office of Safety

A Systemic Approach to Safety - Using Risk to Drive Action

Home

About Systemic

Why Systemic

Training and Technical Assistance

Resources/Contact

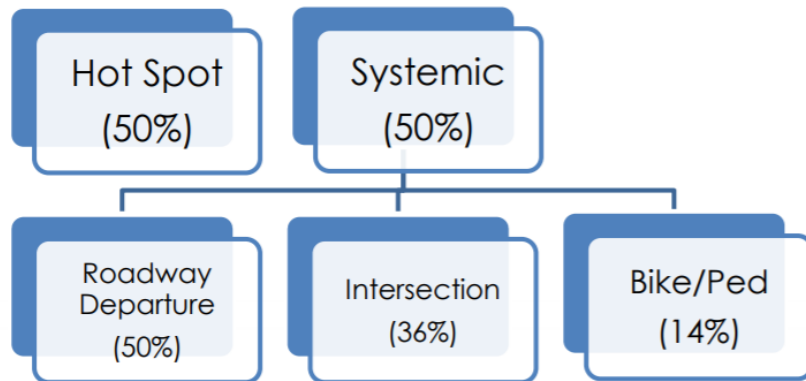


Figure 1 State X HSIP Funding Allocation (Example)

Source: HSIP Implementation Plan Guidance

https://safety.fhwa.dot.gov/legislationandpolicy/fast/docs/hsip_implementation_plan_guidanceFINAL.pdf


A systemic approach to safety involves widely implemented improvements based on high-risk roadway features correlated with specific severe crash types. The approach helps agencies broaden their traffic safety efforts at little extra cost. Find out how ([read more](#)).

[A Way to Manage Risk](#)


[Systemic In Practice](#)

<https://safety.fhwa.dot.gov/systemic/>


THE 6 SAFE SYSTEM PRINCIPLES



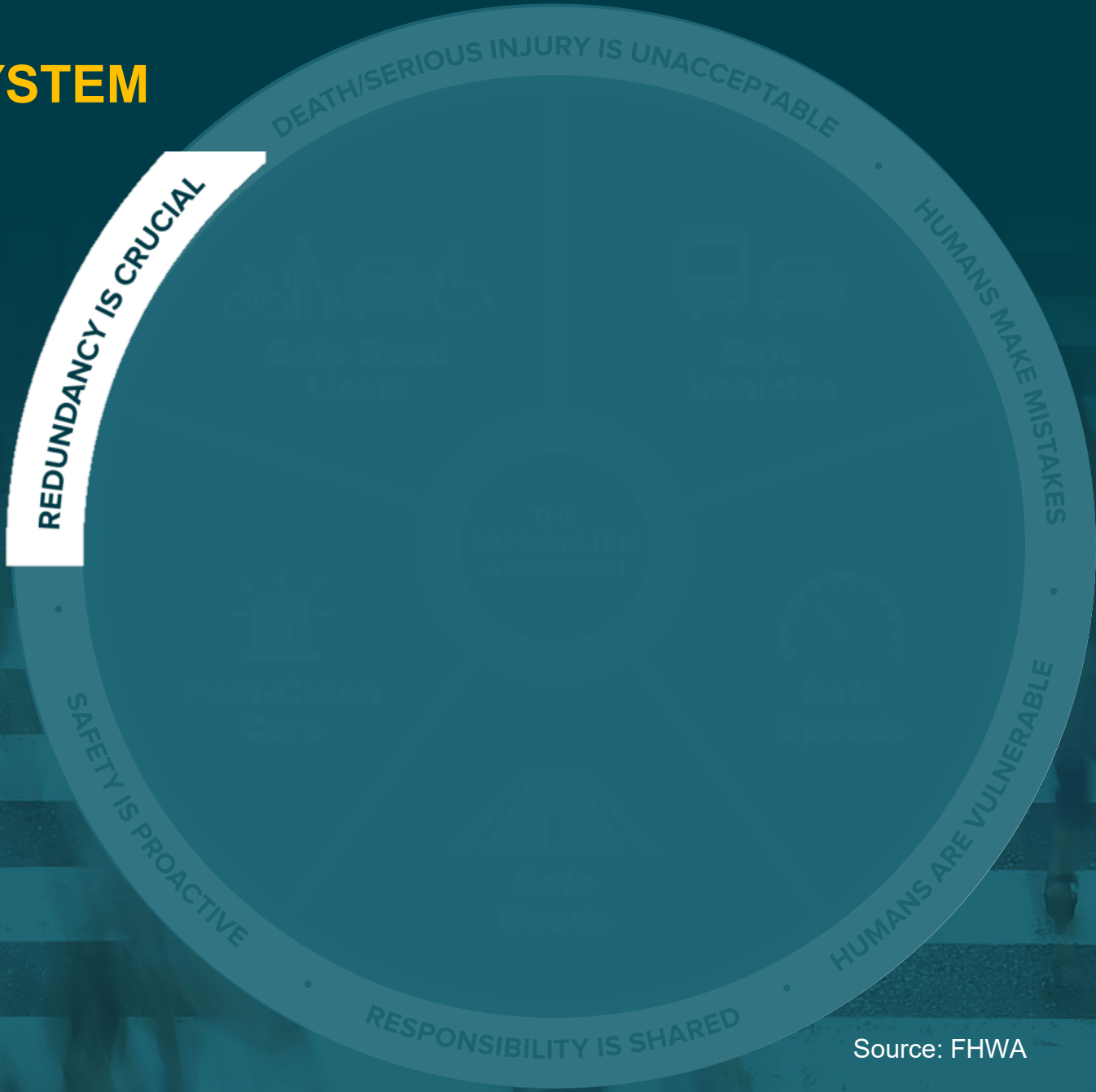
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Redundancy is crucial

Source: FHWA

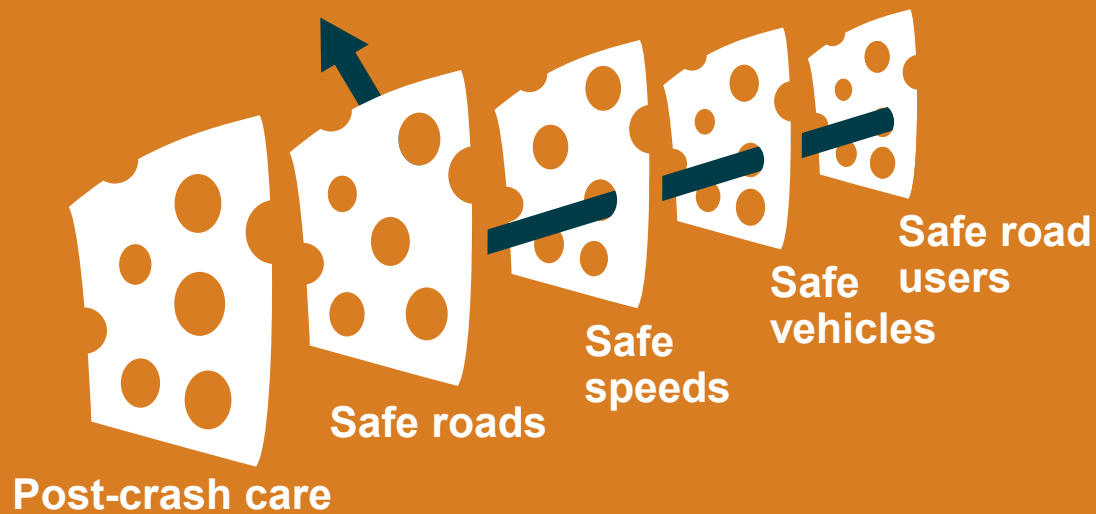
SAFE SYSTEM ELEMENTS CREATE REDUNDANCY



Redundancy
is crucial

The “Swiss Cheese Model” of redundancy creates layers of protection

Death and serious injuries only happen when all layers fail



Adapted from James Reason’s model for analyzing accident causation
<https://royalsocietypublishing.org/doi/10.1098/rstb.1990.0090>

Image Source: FHWA


THE 5 SAFE SYSTEM ELEMENTS



Source: FHWA

THE 5 SAFE SYSTEM ELEMENTS




Redundancy is crucial

Source: FHWA

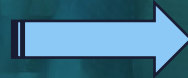
What's Different?



PARADIGM SHIFT



Reduce Crashes

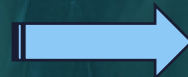


Eliminate Fatalities & Serious Injuries



Death/serious injury is unacceptable

Speed Management

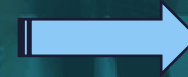


Kinetic Energy Management



Humans make mistakes

Safety "Four E's"

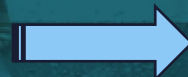


Five Safe System Elements



Humans are vulnerable

Apply Countermeasures at High Crash Locations

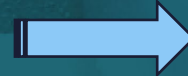


Proactively Apply Countermeasures in a "Systemic" Approach



Responsibility is shared

Examine crash records to identify causes or "deficiencies"

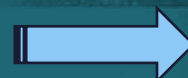


Strengthen all elements to reduce "system failures"



Safety is proactive

"Balance" Safety vs. Mobility



Only "Safe Mobility"



Redundancy is crucial

THE SAFE SYSTEM APPROACH

APPROACH

Zero is our goal. A Safe System is how we will get there.

Imagine a world where nobody has to die from vehicle crashes. The Safe System approach aims to eliminate fatal & serious injuries for all road users. It does so through a holistic view of the road system that first anticipates human mistakes and second keeps impact energy on the human body at tolerable levels. Safety is an ethical imperative of the designers and owners of the transportation system. Here's what you need to know to bring the Safe System approach to your community.



SAFE SYSTEM PRINCIPLES



Death/Serious Injury is Unacceptable

While no crashes are desirable, the Safe System approach prioritizes crashes that result in death and serious injuries, since no one should experience either when using the transportation system.



Responsibility is Shared

All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must ensure that crashes don't lead to fatal or serious injuries.



Humans Make Mistakes

People will inevitably make mistakes that can lead to crashes, but the transportation system can be designed and operated to accommodate human mistakes and injury tolerances and avoid death and serious injuries.



Safety is Proactive

Proactive tools should be used to identify and mitigate latent risks in the transportation system, rather than waiting for crashes to occur and reacting afterwards.



Humans Are Vulnerable

People have limits for tolerating crash forces before death and serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates human vulnerabilities.



Redundancy is Crucial

Reducing risks requires that all parts of the transportation system are strengthened, so that if one part fails, the other parts still protect people.



U.S. Department of Transportation
Federal Highway Administration



SAFE SYSTEM ELEMENTS

Making a commitment to zero deaths means addressing every aspect of crash risks through the five elements of a Safe System, shown below. These layers of protection and shared responsibility promote a holistic approach to safety across the entire transportation system. The key focus of the Safe System approach is to reduce death and serious injuries through design that accommodates human mistakes and injury tolerances.



Safe Road Users

The Safe System approach addresses the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes.



Safe Vehicles

Vehicles are designed and regulated to minimize the occurrence and severity of collisions using safety measures that incorporate the latest technology.



Safe Speeds

Humans are unlikely to survive high-speed crashes. Reducing speeds can accommodate human injury tolerances in three ways: reducing impact forces, providing additional time for drivers to stop, and improving visibility.



Safe Roads

Designing to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.



Post-Crash Care

When a person is injured in a collision, they rely on emergency first responders to quickly locate them, stabilize their injury, and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash site, traffic incident management, and other activities.

THE SAFE SYSTEM APPROACH VS. TRADITIONAL ROAD SAFETY PRACTICES

Traditional

- Prevent crashes
- Improve human behavior
- Control speeding
- Individuals are responsible
- React based on crash history

Safe System

- Prevent deaths and serious injuries
- Design for human mistakes/limitations
- Reduce system kinetic energy
- Share responsibility
- Proactively identify and address risks

Whereas traditional road safety strives to modify human behavior and prevent all crashes, the Safe System approach also refocuses transportation system design and operation on anticipating human mistakes and lessening impact forces to reduce crash severity and save lives.

WHERE ARE YOU ON THE SAFE SYSTEM JOURNEY?

Implementing the Safe System approach is our shared responsibility, and we all have a role. It requires shifting how we think about transportation safety and how we prioritize our transportation investments. Consider applying a Safe System lens to upcoming projects and plans in your community; put safety at the forefront and design to accommodate human mistakes and injury tolerances. Visit safety.fhwa.dot.gov/zerodeaths to learn more.



INTEGRATING THE
Safe System Approach
WITH THE
Highway Safety Improvement Program

AN INFORMATIONAL REPORT



Lessons Learned from
Development of
Vision Zero Action Plans



Cover of *Lessons Learned from Development of Vision Zero Action Plans*. (Source: FHWA)

Strategies to Coordinate Zero
Deaths Efforts for State and
Local Agencies



Cover of *Strategies to Coordinate Zero Deaths Efforts for State and Local Agencies*. (Source: FHWA)

<https://safety.fhwa.dot.gov/hsip/docs/fhwasa2018.pdf>

TECHBRIEF

A Safe System-Based Framework and Analytical Methodology for Assessing Intersections

FHWA Publication No.: FHWA-SA-21-013

FHWA Contact: Jeffrey Shaw, HSST, (202) 738-7793, jeffrey.shaw@dot.gov

This document is a technical summary of the Federal Highway Administration report "A Safe System-Based Framework and Analytical Methodology for Assessing Intersections" (FHWA-SA-21-008).

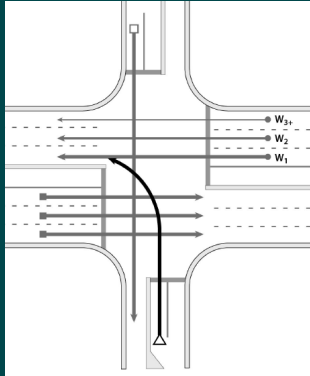
OBJECTIVE

In the United States, the Safe System approach represents a paradigm shift in how road safety is addressed. Foundational to the Safe System approach is that no person should be killed or seriously injured when using the road system, and that it is a shared responsibility by all parties involved to ensure this becomes reality. From a roadway infrastructure perspective, a Safe System approach involves managing the circumstances of crashes such that the kinetic energy imposed on the human body be kept at levels that are tolerable in terms of survivability and degree of harm. At an intersection, this challenge is characterized through managing speed and crash angles, as well as considering risk exposure and complexity. This project developed a Safe System for Intersections method that can be applied at a project level and be incorporated into an Intersection Control Evaluation alternatives screening process to provide another metric for safety.

INTRODUCTION

Countries with Vision Zero initiatives have identified key principles to guide their national approaches to road safety management— Safe System approaches that result in a Safe System. While Vision Zero describes the goal and Safe System describes the approach, both accept the premise that crashes will not be completely avoided, therefore managing the mechanical forces in those crashes becomes the priority. Johansson (2009) further elaborated this point, explaining that a Safe System approach is one where the basic design and operational parameter is to not exceed the "level of violence the human body can tolerate without being killed or seriously injured" in the event of a crash.

First step towards an objective analysis approach of intersection alternatives using Safe System concepts for practitioners in the U.S.



U.S. Department of Transportation
Federal Highway Administration

Office of Safety Technologies
1200 New Jersey Avenue, SE
Washington, DC 20590

<https://safety.fhwa.dot.gov/intersection/>

Source: FHWA

Simplify
User
Decisions

Reduce or
Eliminate
Severe
Conflicts

Reduce
Impact
Speeds

Manage
Collision
Angles

SAFE SYSTEM-BASED FRAMEWORK FOR ASSESSING INTERSECTIONS

- A technical basis by which practitioners can apply Safe System principles to inform intersection planning and design decisions.
- Focuses on alternative screening and potential inclusion within an Intersection Control Evaluation (ICE) process



Source: FHWA

NEW



PRIMER ON SAFE SYSTEM FOR PEDESTRIANS AND BICYCLISTS




U.S. Department of Transportation
Federal Highway Administration
FHWA-SA-21-065


Safe Roads for a Safer Future
Development in roadway safety centers close
<http://safety.fhwa.dot.gov>

THE FIVE ELEMENTS OF THE SAFE SYSTEM APPROACH



Safe Road Users

The Safe System approach addresses the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes.



Safe Vehicles

Vehicles are designed and regulated to minimize the occurrence and severity of collisions using safety measures that incorporate the latest technology.



Safe Speeds

Humans are unlikely to survive high-speed crashes. Reducing speeds can accommodate human injury tolerances in three ways: reducing impact forces, providing additional time for drivers to stop, and improving visibility.



Safe Roads

Designing to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.



Post-Crash Care

When a person is injured in a collision, they rely on emergency first responders to quickly locate them, stabilize their injury, and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash site, traffic incident management, and other activities.

What does this mean for pedestrians and bicyclists?



The Safe System approach considers the safety of all road users, but particularly those who are most at risk of fatal or serious injury in the event of a crash, such as bicyclists and pedestrians.

Vehicle technology has made crashes more survivable for passengers inside the vehicle. Those same advances have not yet benefited pedestrians and bicyclists to the same degree.

Pedestrians and bicyclists are particularly vulnerable to death or severe injury as vehicular speed increases.

Given their vulnerability to fatal and serious injuries, it is important to separate bicyclists and pedestrians in time and space from vehicles as they have a heavier mass and can travel at greater speeds.

Pedestrians and bicyclists are more likely to be killed or injured in a crash, so post-crash care is even more important to their survival.

Designing and operating the road system under the SSA strives to reduce the risk of error and manage crash energy within tolerable levels.



Avoiding crashes involves reducing the opportunity for error:



Separating users in space



Separating users in time



Increasing attentiveness and awareness

Managing crash kinetic energy involves:



Source: Fehr & Peers

Manage speed



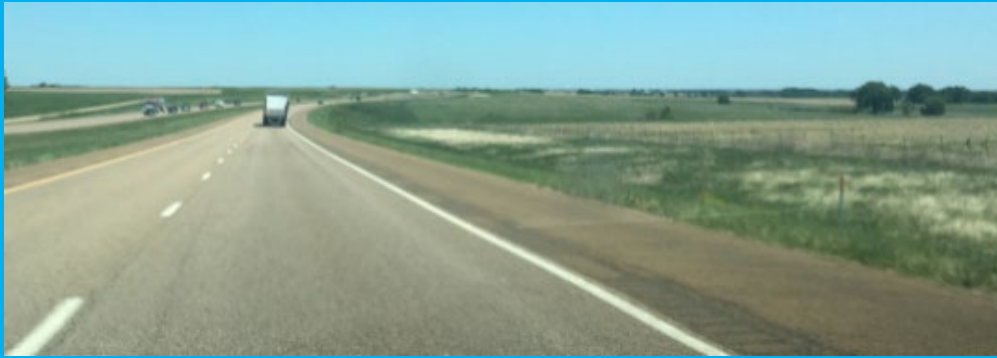
Source: City of Carmel, IN

Manage impact angles

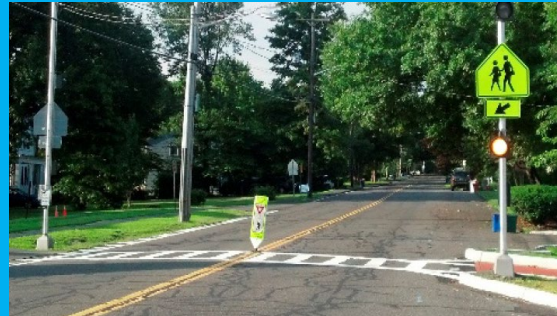


Source: Fehr & Peers

Manage impact energy distribution



Some roads are engineered to accommodate higher speeds ...



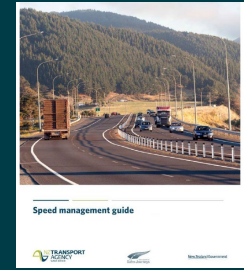
... and others not.

SAFE SPEEDS



The Safe System approach is not about universally reducing speeds. It's about matching speed appropriate to the road conditions that exist.

New Zealand Speed Management Guide



Self-Explaining

- Corridors where road users are already travelling at safe and appropriate speeds
- Enhances credibility of posted speed limits

Engineer Up

- Corridors where safety performance is poor and there is a strong case for investment to revise the roadway features to better align speeds with context

“Challenging Conversations”

- Corridors where safety performance is poor, travel speeds are above what is safe and appropriate and modifying the roadway features are not practical or able to be achieved soon

Speed Management



Safety



USLIMITS2

Facts and Statistics

Engineering Speed Limits

Traffic Calming ePrimer

Ongoing Research

Reference Materials

Related Web Site Links

Program Contact

Guan Xu
Guan.Xu@dot.gov
(202) 366-5892

Speed Management Safety

Speeding—traveling too fast for conditions or exceeding the posted speed limits—is a factor in 26 percent of all fatalities. In 2018, there were 36,560 fatalities on our Nation's roadways, of which 9,378 were speeding-related – down 3.5 percent from the previous year! Speeding is a safety concern on all roads. Although much of the public concern about speeding has been focused on high-speed Interstates, over 35 percent of speeding-related fatalities occur on lower speed collector and local roads.

Speeding is a complex issue involving engineering, driving behavior, education, and enforcement. That's why the U.S. DOT has set up a multimodal, multidisciplinary Speed Management Team to attack the problem. The DOT Team has a formal charter [[HTML](#), [PDF 78KB](#)] and a [work plan](#). FHWA is the lead agency accountable for the engineering actions.

- [USLIMITS2](#)
- [Facts & Statistics](#)
- [Engineering Speed Limits](#)
- [Traffic Calming ePrimer](#)
- [Ongoing Research](#)
- [Reference Materials](#)



Speed Management



Noteworthy Speed Management Practices



Topics Include:

- Strategic Speed Management Programs
- Self Enforcing Roadways
- Setting Credible Speed Limits
- Consistent Speed Limits for Vulnerable Road Users
- High Visibility Enforcement
- Successful Strategies for Adoption of Safety Cameras

Safe System Approach – What's Next?

“There is no single pathway for the adoption, establishment and implementation of a Safe System. Moving to a Safe System is a learning-by-doing process best described as a journey which presents opportunities, hazards and challenges along the way. The experiences of the pioneering countries show that each follows its own journey, shaped by the cultural, temporal, and local context, but guided by the underlying principles.”



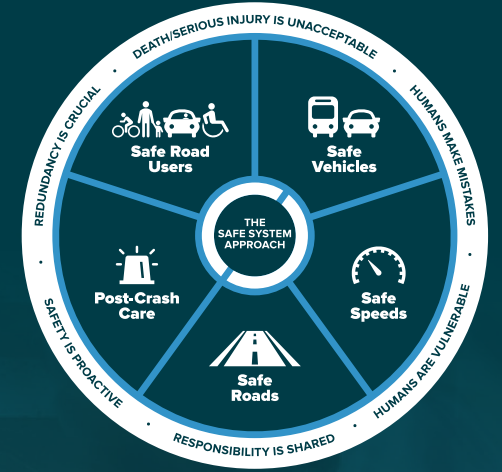
Source: Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift to a Safe System; OECD (2016)

<http://www.oecd.org/publications/zero-road-deaths-and-serious-injuries-9789282108055-en.htm>



SAFE SYSTEM APPROACH

Zero is our goal. A Safe System is how we get there.



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Senior Safety & Design Engineer / Team Leader
Federal Highway Administration Resource Center

Phone: (404) 895-6210

mark.doctor@dot.gov

FHWA Resources: https://safety.fhwa.dot.gov/zerodeaths/zero_deaths_vision.cfm

ITE Resources: <https://www.ite.org/technical-resources/topics/safe-systems/>

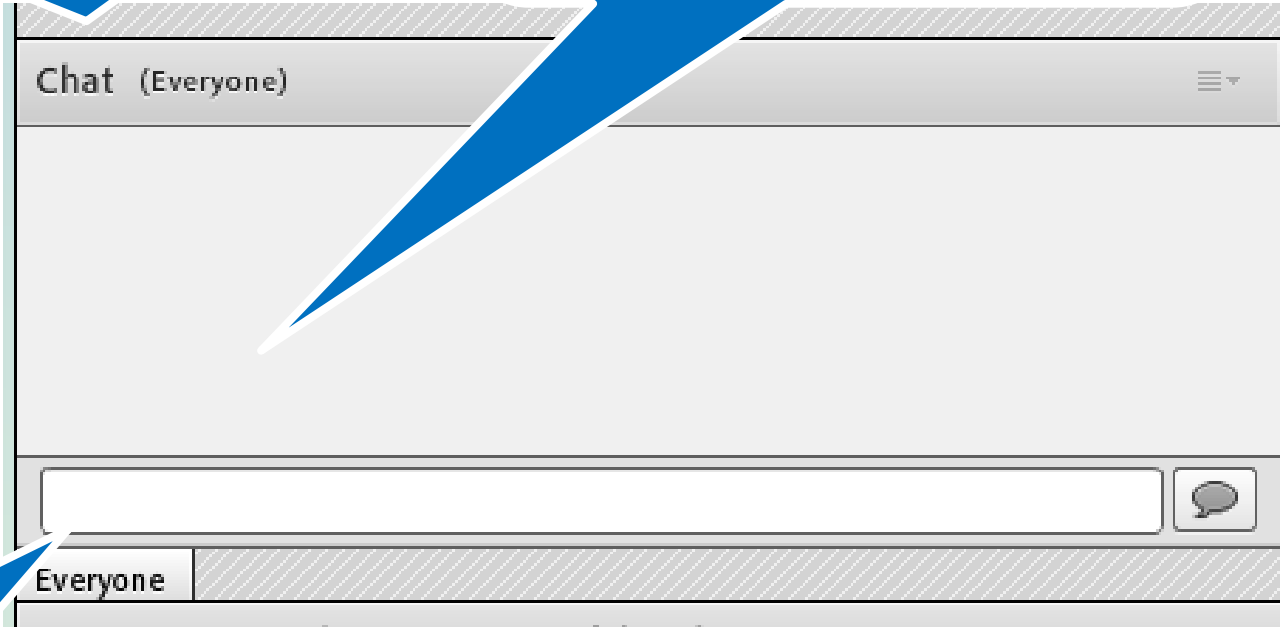


Directing Your Questions via the Chat Pod

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3. Answers will appear here unless addressed verbally

2. Type your question or comment here





Nic Ward
CHSC



National
Center
for
**Rural
Road
Safety**

List the six principles and five elements of the Safe System Approach.

Describe how the Safe System Approach is different from traditional road safety approaches.

Describe how you and your agency can begin today to plan and implement Safe System concepts to improve safety on rural roads.

Understand the meaning of traffic safety culture.

Recognize the role of traffic safety culture in the safe system approach and Vision Zero.

What are assumptions?

- Behavior happen in a context – the system.
- For example, speeding happens in the context of the speed limits, traffic laws, relationships with other drivers etc.
- An “assumption” is a statement (description) about the “system”.
- ... which is taken for granted as being true.
- ... and may influence behaviors.

“Assumption.” *Merriam-Webster.com Dictionary*, Merriam-Webster, <https://www.merriam-webster.com/dictionary/assumption>. Accessed 17 Jun. 2021.



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What are (some) Vision Zero assumptions?

1. No one should be killed or seriously injured while using the roadway transportation system.
2. Road users should not be killed or seriously injured as a result of making mistakes and violating the rules and regulations of the roadway transportation systems.
3. Designers of the roadway transportation system are ultimately responsible for the deaths and serious injuries occurring in this system.

How much do YOU agree or disagree?

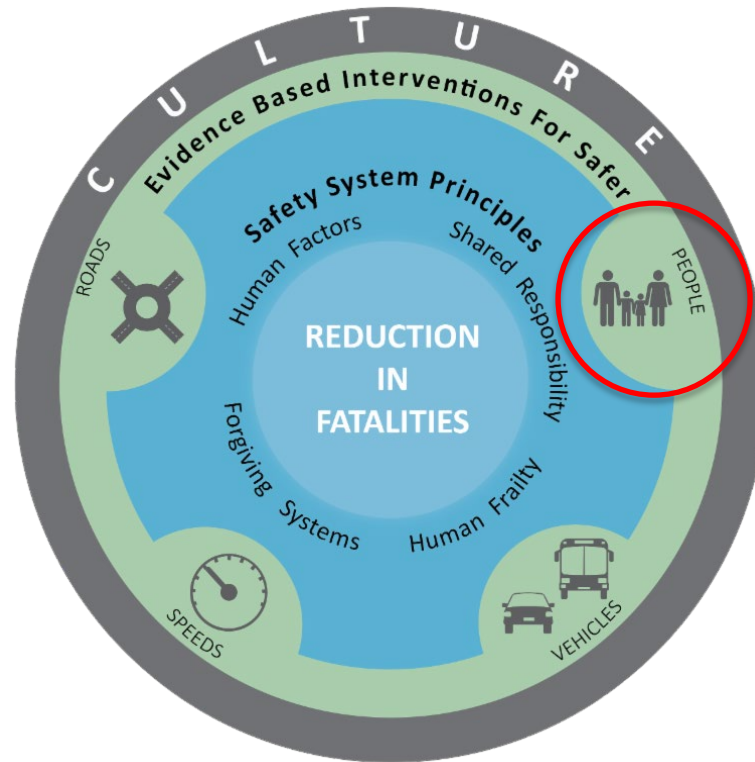


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Safe System Approach



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Crash Factors

Table 1. Driver-, Vehicle-, and Environment-Related Critical Reasons

Critical Reason Attributed to	Estimated	
	Number	Percentage* ± 95% conf. limits
Drivers	2,046,000	94% ±2.2%
Vehicles	44,000	2% ±0.7%
Environment	52,000	2% ±1.3%
Unknown Critical Reasons	47,000	2% ±1.4%
Total	2,189,000	100%

*Percentages are based on unrounded estimated frequencies
(Data Source: NMVCCS 2005–2007)

[Source](#): DOT HS 812 115

How will we shift our thinking about FAULT?

“Leadership is needed to address a significant barrier to Safe System implementation, the **entrenched assumption that crash injuries are exclusively the fault of the victim** or other road user and that road or vehicle designers can do little to compensate.”

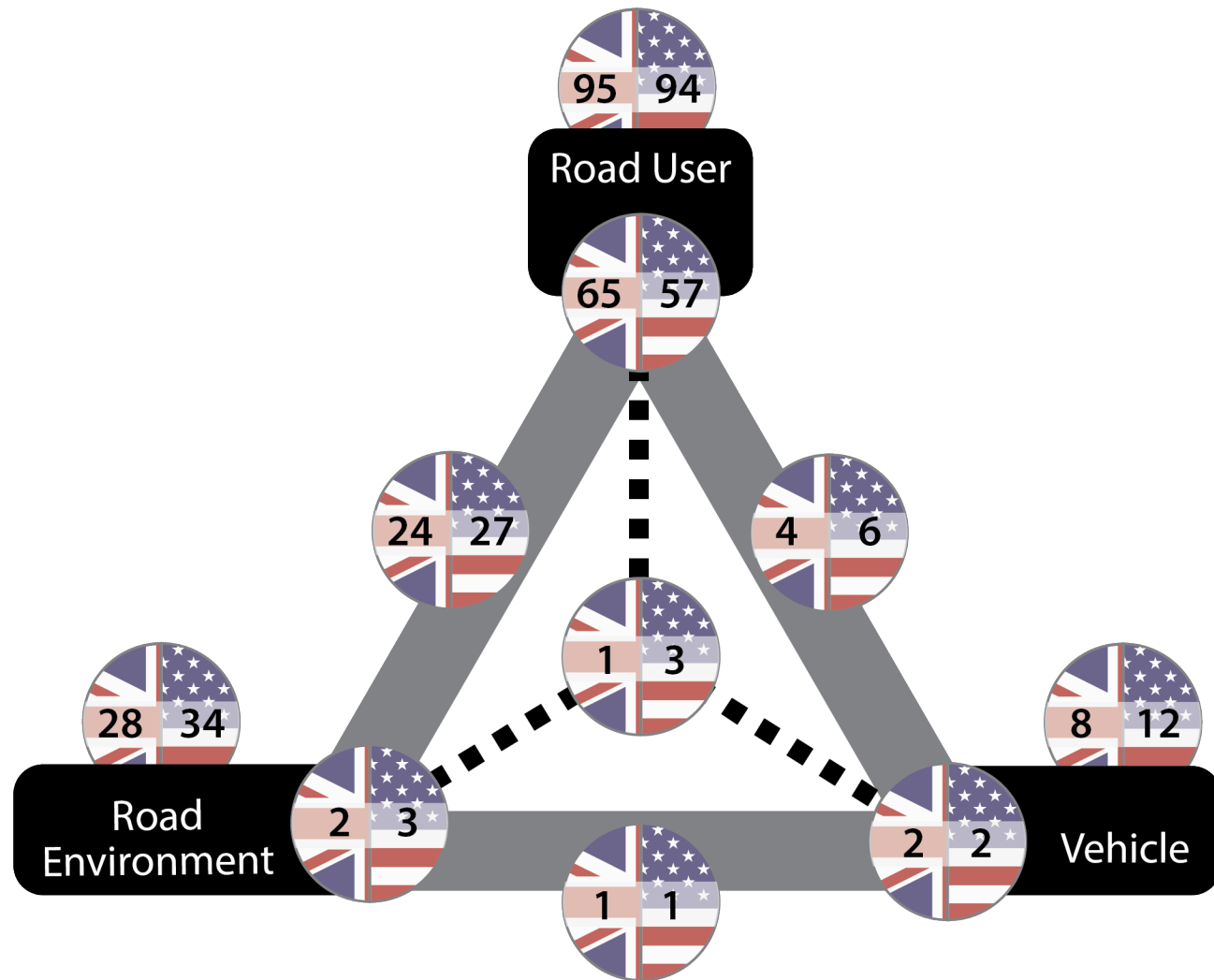
Recommendations of the Safe System Consortium, page 9



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What determines behavior?

Biology



Psychology



Physical Environment



Social Environment





Culture

Behavior

Culture is part of our self-identity



[source: unsplash.com]

Culture provides sense of belonging

Group Acceptance



Group Rejection



[source: verywellfamily.com]

Culture enables cooperation and survival

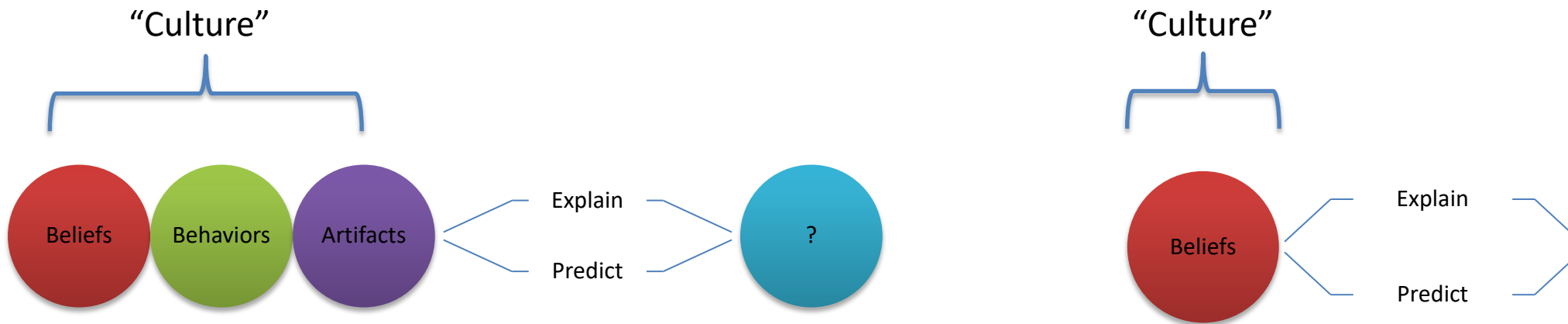


[source: historiaija.blogspot.com]

Defining “traffic safety culture”

“If behaviors are the target of change, ... then behaviors must be understood as something informed by BUT separate from culture”

- Myers et al., 2014, p. 27



Common Language:

Key concepts and standard terminology.

Vision Zero

Vision Zero represents the goal of eliminating all traffic fatalities and serious injuries. It is a moral declaration that "zero" is the only acceptable number of traffic fatalities and serious injuries in our society.

Safety System Approach

"The **safe system approach** to road safety is a holistic view which provides a framework to assess, guide and improve travel safety. At the core of this is the need for responsibility for reducing risk to be shared by road users and those [stakeholders] who design, maintain and operate all parts of the road transport system." RoadWise Program

Traffic Safety Culture

"Traffic safety culture encompasses the shared values, **assumptions**, and beliefs that influence road user behaviors and stakeholder actions." FHWA Compass

Shared Understanding:

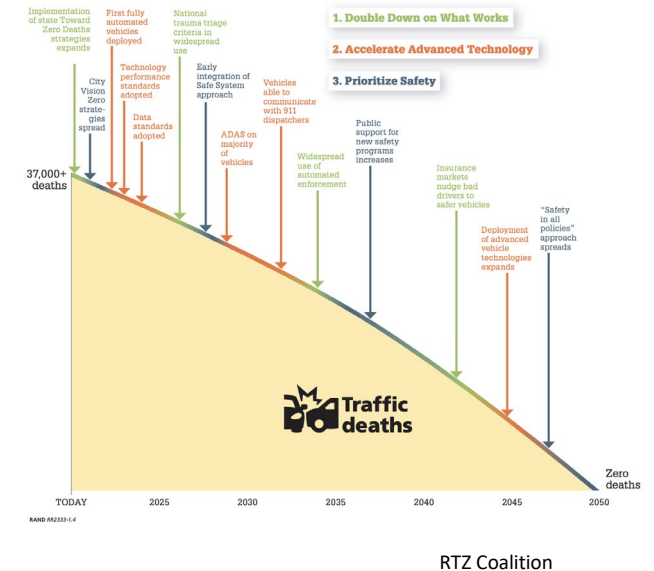
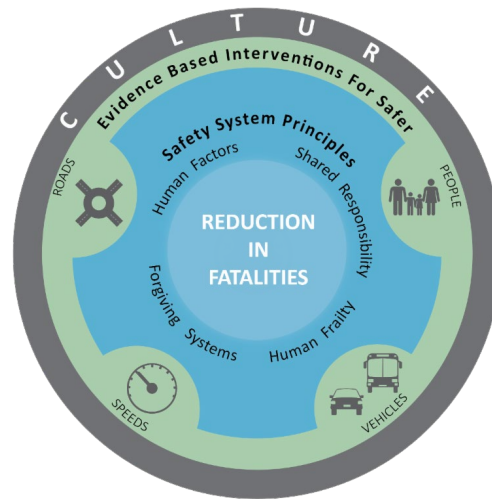
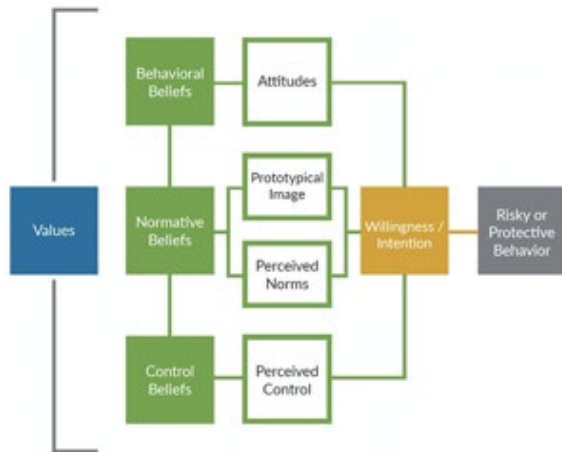
Understanding relationship amongst concepts.

Traffic Safety Culture is our foundation.

The Safe System Approach is our framework.

Vision Zero is our target.

“Creating a positive traffic safety culture (TSC) is integral to helping our nation move toward a vision of a highway system with no fatalities.” AASHTO



Rural Community Example



Utah Department of
Public Safety's Highway Safety Office

togetherforlifeutah.org

An advertisement for seat belt use. It features a close-up photograph of a person's hands clasped together in front of their chest. The person is wearing a green button-down shirt. The background is dark. Overlaid on the image are four white rectangular boxes with black text, arranged vertically. At the bottom of the advertisement, there is a logo for "TOGETHER FOR LIFE" and the website "www.togetherforlifeutah.org". Below the website, there is small text: "Center for Health and Safety Culture, (2011, 2016). Utah community survey of adults on seat belt use. Montana State University, (N= 1338, N = 1331)".

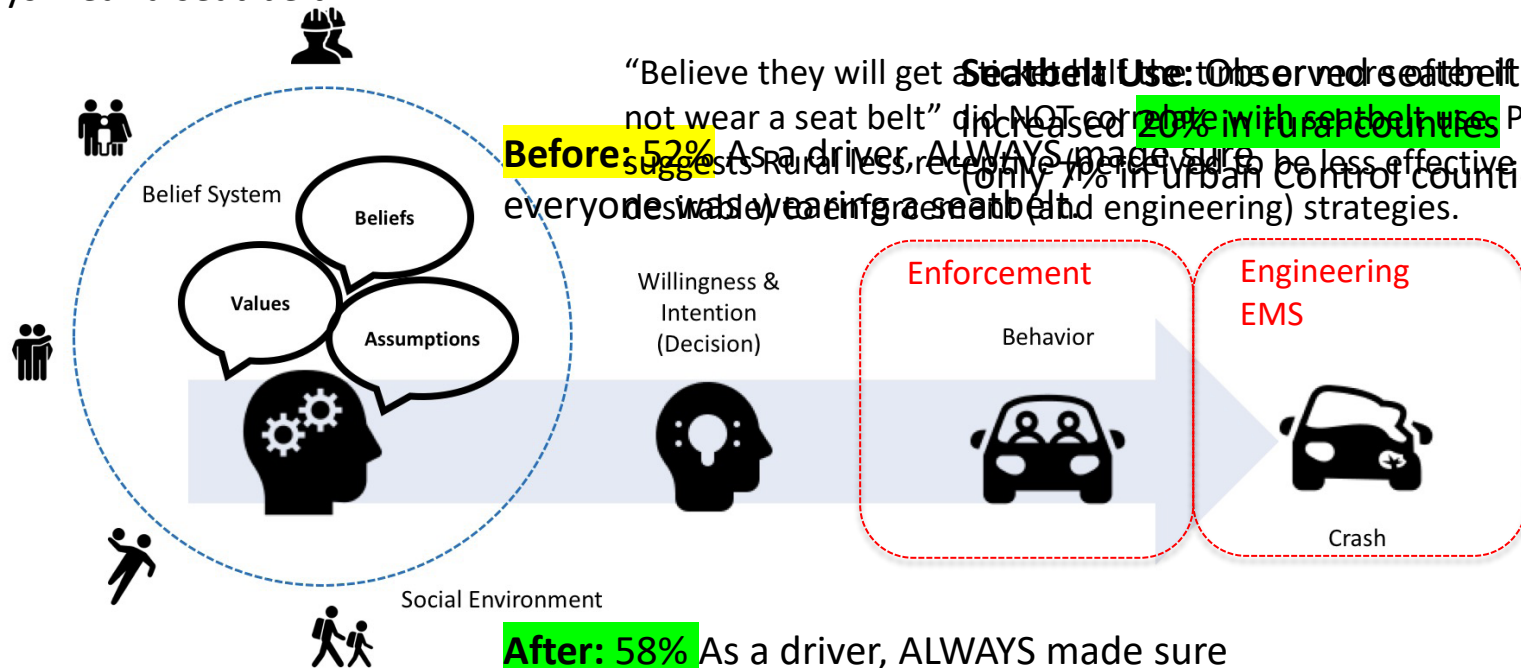
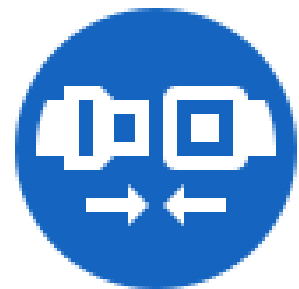
Most adults in our county
agree they want people
they care about to
always wear a seat belt.

TOGETHER FOR LIFE www.togetherforlifeutah.org

Center for Health and Safety Culture, (2011, 2016). Utah community survey of adults on seat belt use. Montana State University, (N= 1338, N = 1331)

To change behavior, it is necessary to change culture.

Before: 78% STRONGLY AGREE they want people they care about to always wear a seat belt.



Before: 52% As a driver, ALWAYS made sure everyone was wearing a seat belt. **Seat Belt Use: Observed seat belt use increased 20% in rural counties**

After: 86% STRONGLY AGREE they want people they care about to always wear a seat belt.

After: 58% As a driver, ALWAYS made sure everyone was wearing a seatbelt.

Stakeholder Example

- Start by examining own culture
 - Do we prioritize safety, really?
 - Do we encourage innovation?
 - Do we believe in Vision Zero?
 - Do we see the value in collaboration (Safe Systems)?
- Consider the logic of the strategies you use.
- Recognize the role of traffic safety culture.
- Take steps to measure and grow a “positive” traffic safety culture.



Thank you!

Contact Us

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2. Type your question or comment here





Learning Outcomes

To achieve the webinar goal, you will learn to:

List the six principles and five elements of the Safe System Approach.

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Describe how you and your agency can begin today to plan and implement Safe System concepts to improve safety on rural roads.

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Upcoming 2021 Webinars

- **Safe System for Rural Areas Webinar Series**
 - Part 2: Safe Road Users (July)
 - Part 3: Safe Vehicles (August)
 - Part 4: Safe Speeds (September)
 - Part 5: Safe Roads (October)
 - Part 6: Post-Crash Care (November)

Archived Webinars

[Access the webinar archives](#)





Rural Road Safety Awareness Week (RRSAW)

July 19-23, 2021 #RRSAW2021


Live, Work, & Explore
along the
Rural Road to Zero




<https://ruralsafetycenter.org/news-events/rural-road-safety-awareness-week/>

 **MONDAY, JULY 19**
Safe Road Users

 **TUESDAY, JULY 20**
Safe Vehicles

 **WEDNESDAY, JULY 21**
Safe Speeds

 **THURSDAY, JULY 22**
Safe Roads

 **FRIDAY, JULY 23**
Post-Crash Care





Contact Information

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