

# Implementing the Safe System

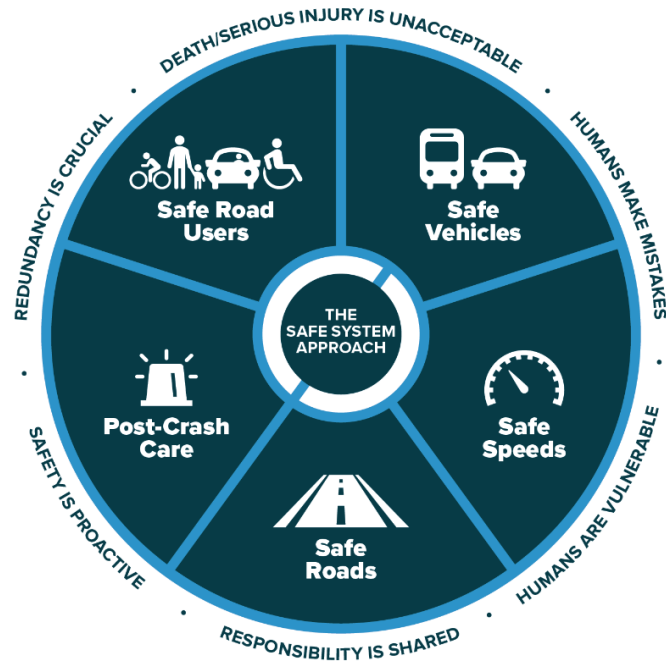
## Reducing crashes for all road users

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Joint Transportation Committee Meeting  
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Roger Millar, Secretary of Transportation

Amy Scarton, Deputy Secretary of Transportation

# Safe System Approach



Source: FHWA-SA-20-015

# WSDOT Implementation



To provide separation:

- Adopted a Sustainable Safety Policy in 2013, Practical Solutions in 2015
- To incorporate context classification and modal priority into design and operational decision making
- Allowed for reducing lane width for greater separation between walking, biking and rolling
- Lane marking, signing and channelization

Source: City of Seattle

# WSDOT Implementation

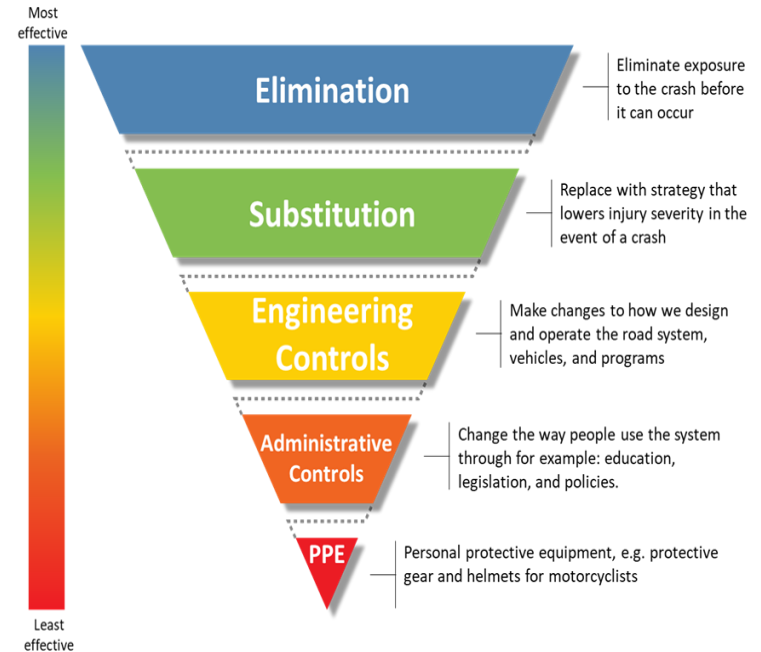


## To reduce kinetic energy:

- Roundabouts to reduce speeds at entry/exit with angles that reduce injuries.
- Road designs and operations to accommodate target speeds for the context and modes
- Applications of self explaining and enforcing roadways (Traffic calming, e.g., chicanes)

# WSDOT Implementation

- Design and operate to encourage safe road user actions (Self explaining/enforcing)
- Complete Streets, with Integrated multimodal design, using the Safe System (Just passed State and Federal Legislation)
- Policy development for integrated multimodal systems and update of Sustainable Safety (now: Safe System)
- Properly evaluate, analyze and diagnosis road safety approaches: completed traffic barrier inventory, mobile lidar data collection in Summer 2022, level of traffic stress
- Initiating sidewalk, ADA, crosswalk data collection



## Hierarchy of Controls for Traffic Safety

adapted from Hierarchy of Controls: National Institute of Occupational Safety (2017)

# WA State Injury Minimization Speed Management Policy and Guidelines Workgroup

- Use target speed
- Use category-based target speed based on traffic mix
- Use target speed within 5 mph of operating speed
- When greater than 5 mph use iterative speed management to bring speeds down until target achieved

A Driver's Peripheral Vision at 20–25 mph



A Driver's Peripheral Vision at 40+ mph



# Safe system principles



**Death/Serious Injury  
is Unacceptable**



**Humans  
Make Mistakes**



**Humans Are  
Vulnerable**



**Responsibility  
is Shared**



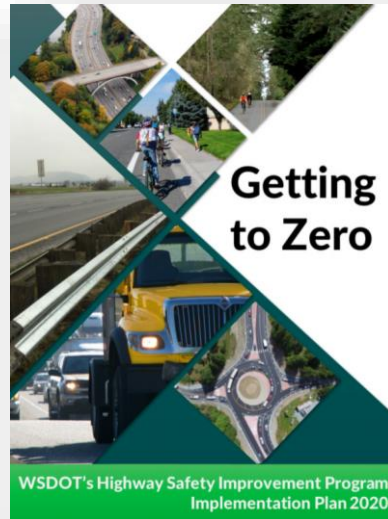
**Safety is  
Proactive**



**Redundancy  
is Crucial**

# Death and Serious Injuries are unacceptable

**TARGET**  
**ZERO**

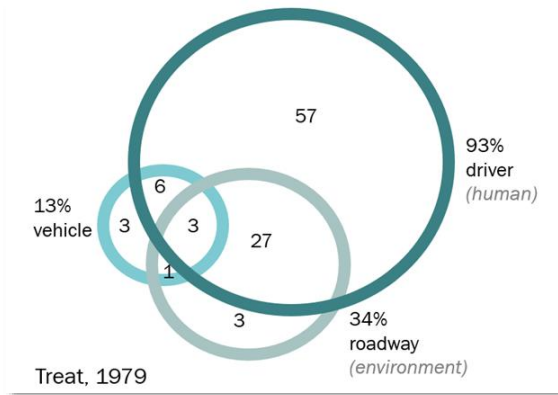


Focus on fatalities and serious injuries in how we identify potential projects and countermeasures to reduce crashes.



# Humans make mistakes

## Blame



Evolve from the perception that road user error or behavior was the cause of most crashes and nothing can be done.

## Shared responsibility

Recognize in planning and engineering that there are countermeasures that we can implement.

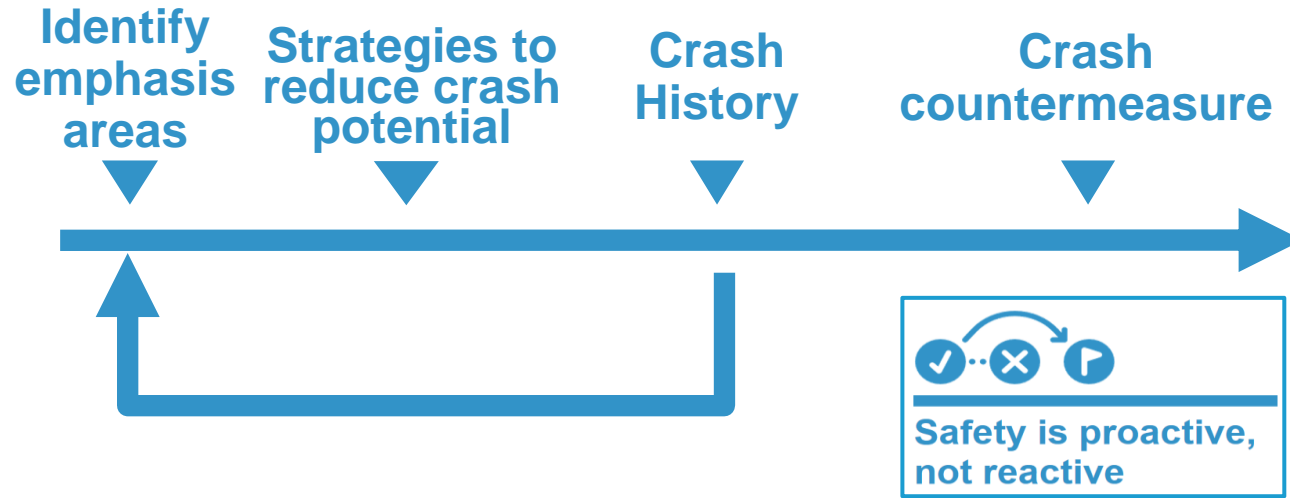
- WSDOT roadside safety hardware that reduces crash severity even when there might be error or poor behaviors.
- Separation in space and time provides the opportunity to correct.

# Limited human tolerance to crash forces

- Develop roadside systems to reduce impact forces
- Treat all road users equitably, create equity by design and operation
- Design and operate to reduce forces and consider how a safe system index might be used in decision making



# Proactive versus reactive

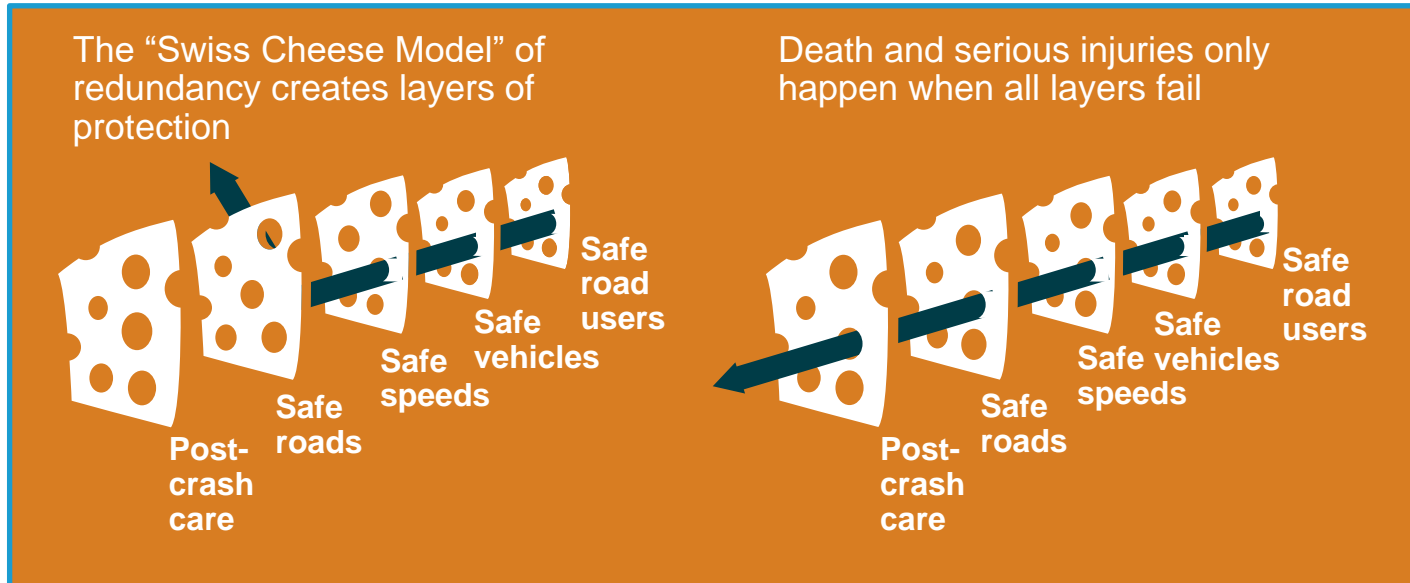


## WSDOT Systemic Safety

- Reduce crash potential before the crashes occur
- Focus on crash types and potential contributing factors (e.g., rural lane departure crashes)
- 70% allocated towards proactive safety approaches

# REDUNDANCY IS CRITICAL

SHARED RESPONSIBILITY  
STRENGTHEN ALL PARTS



Source: FHWA

# Questions

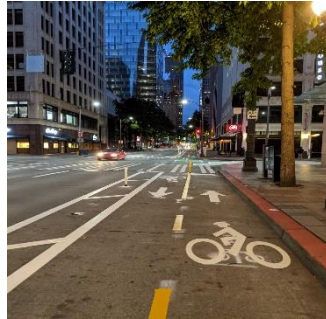
For additional information on  
Implementing the Safe System,  
please contact:

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# Safer roads



Avoiding crashes involves:



Separating users in space



Separating users in time



Increasing attentiveness and awareness

Source: City of Seattle

# Safer roads



## Managing crash kinetic energy:



Managing speed



Manage Mass difference



Manage crash angles

# Safe Speeds

Roads designs and operations to accommodate appropriate speeds for the context and modes – target speeds

Injury minimization by reducing kinetic energy

Automated speed enforcement



Source: WSDOT



Source: Chicago.gov