The Safe Systems Approach

The US perspective

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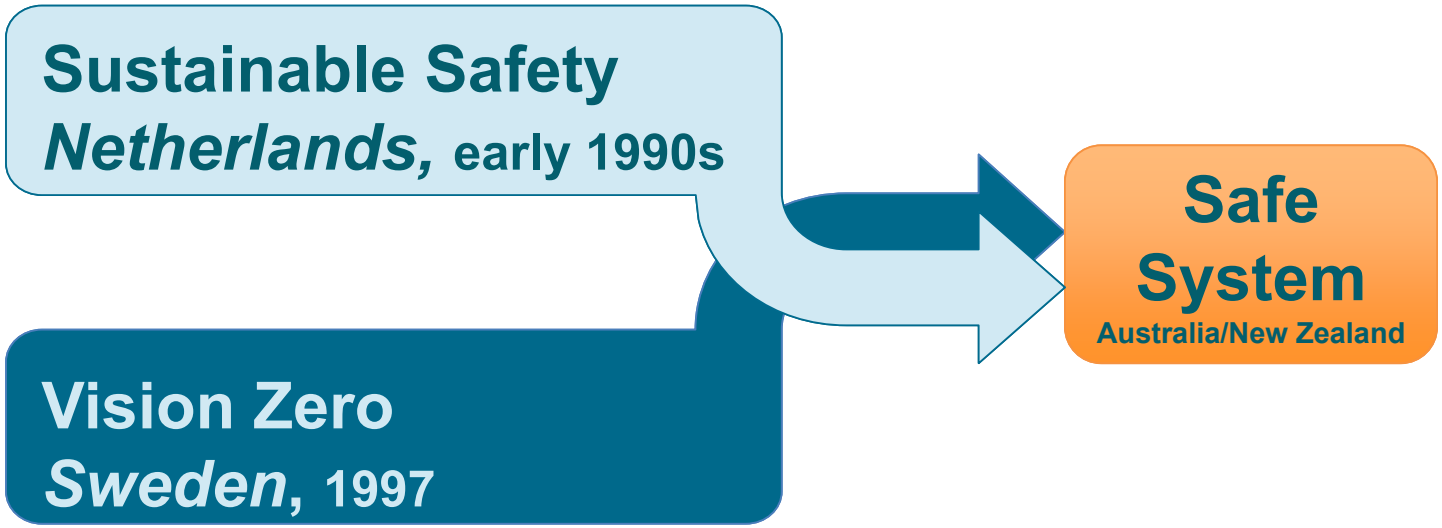
1

US journey starts with learning from others



WSDOT

2

Safe System Approach

Source: FHWA-SA-20-015

WSDOT 3

3

Program Focus Requires a Culture shift

Traditional		Safe System
Prevent all crashes	→	Prevent fatal and serious crashes
React to crashes	→	Proactive approach to crashes
Blame road users	→	Shared responsibility
Improve human behavior	→	Design and operate for human error
Control speeding	→	Reduce system kinetic energy

WSDOT

4

4

Safe system elements

Source: FHWA-SA-20-015

WSDOT 5

5

Importance of Design and Operational Policies

Safe Speeds

The importance of manuals in decision making, e.g.

- ✓ Context and modal priority
- ✓ Speed limit setting

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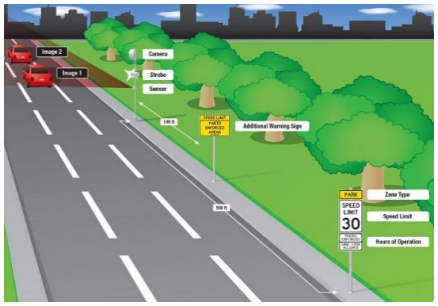
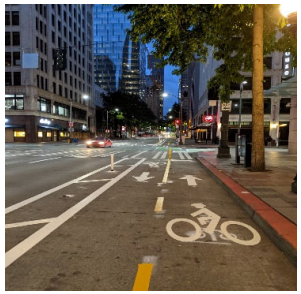
Source: WSDOT



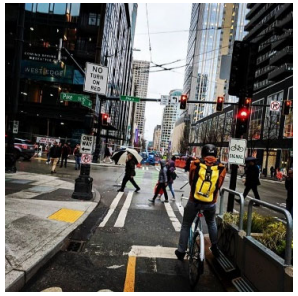
Source: Chicago.gov

Safer roads

Avoiding crashes involves:



Separating users in space



Separating users in time

Increasing attentiveness and awareness

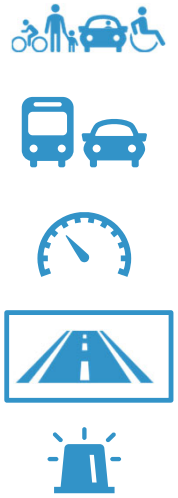
WSDOT

Source for all images: F

7

7

Safer roads



Managing crash kinetic energy:

Managing speed

Manage Mass difference

Manage crash angles

WSDOT 8

8

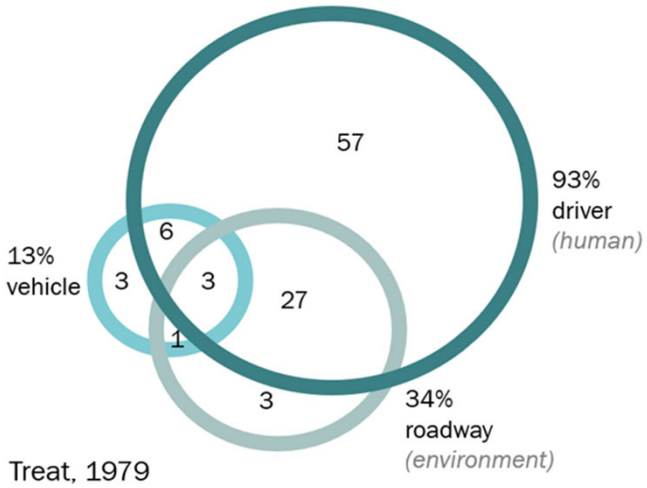
Safe system principles

WSDOT 9

9

Humans make mistakes

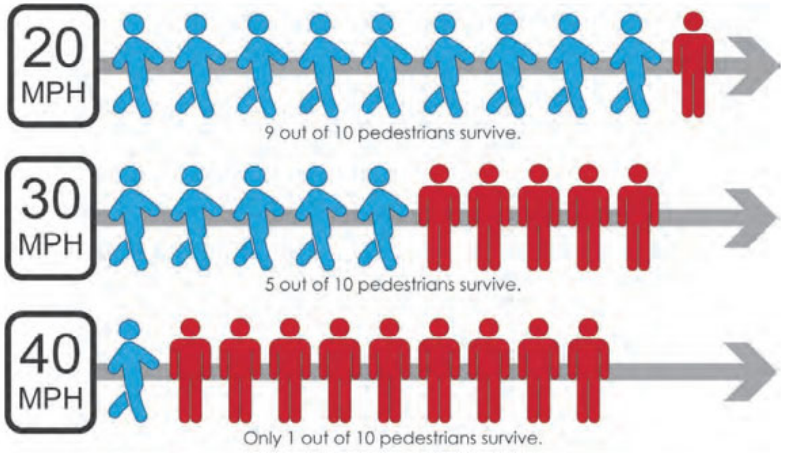
Blame



Shared responsibility

- Evolve from the perception that road user error or behavior was the cause of most crashes and nothing can be done. There are countermeasures that we can implement
  - ✓ The importance of recognizing we already design this way. Why does guardrail and barrier exist?
  - ✓ Human limitation, errors and behavior leading to run off road crashes
  - ✓ Should other road users be treated differently? NO!
  - ✓ All road users share the responsibility of safety

Limited human tolerance to crash forces



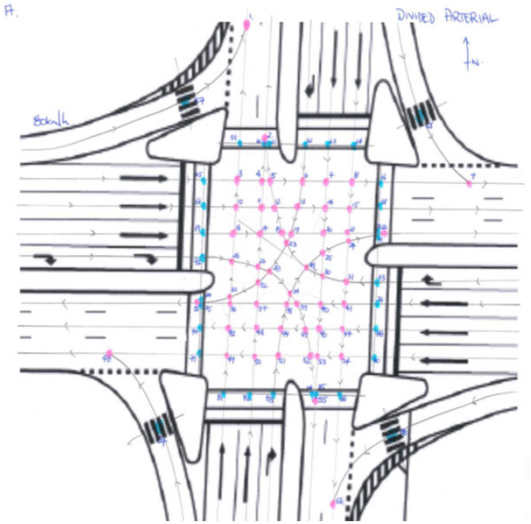
Source: Target Zero 2019

WSDOT 11

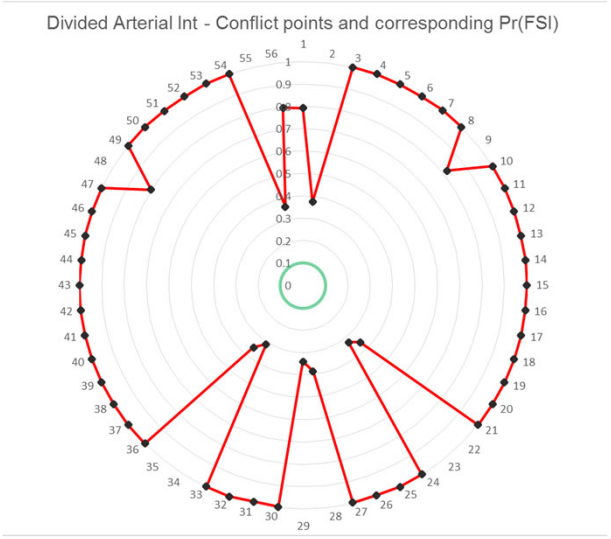
11

Reduce intersection energy

Divided arterial signals - 80 km/h x 60 km/h



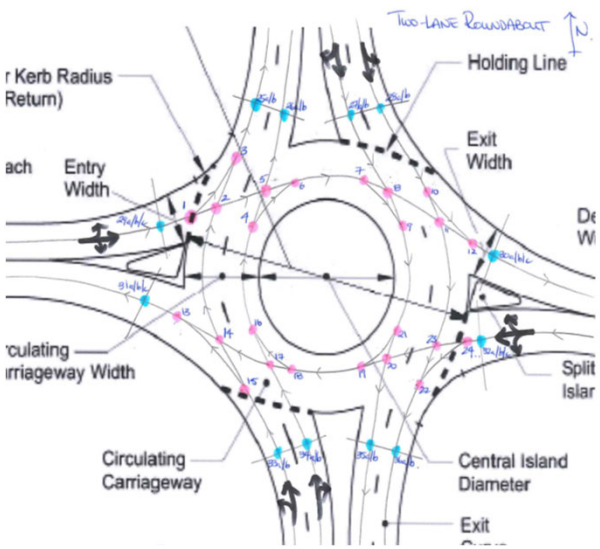
$K = \frac{1}{2} mv^2$

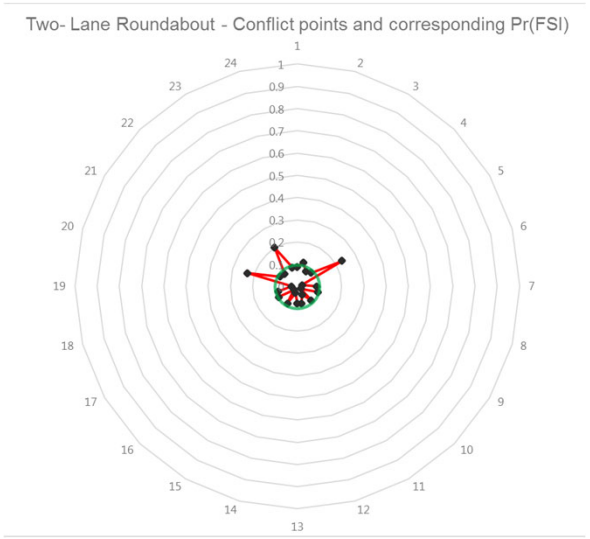


Source: Blair Turner

Reduce intersection energy

Divided arterial roundabout - 80 km/h x 60 km/h



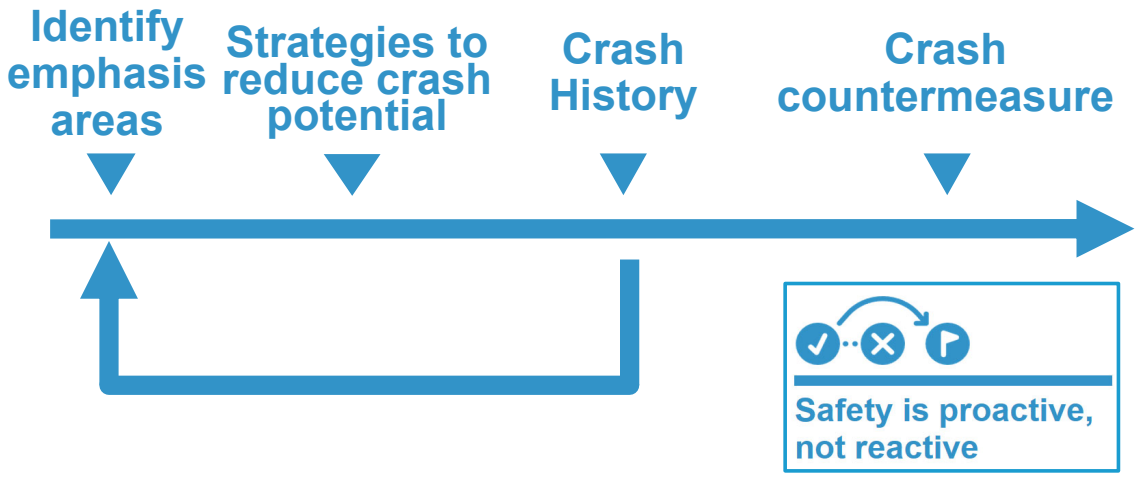


Source: Blair Turner

WSDOT 13

13

Proactive versus reactive



WSDOT 14

14

Summary

- Safe System Elements
- Safe System Principles
- This is a marathon (not a sprint) and we are all in.
- Our actions bring our families and friends home safely

Questions?

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WSDOT 16

16