WEBINAR WILL BEGIN AT 14:00

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SAFE SYSTEM PRINCIPLES

RICHARD OWEN & TANYA FOSDICK



WEBINAR SUPPORT

- Please use the Q&A Section to ask questions – We will answer as many as we can
- This is being recorded and will be available to review shortly
- The PDF slides are also available

EXERCISE – ARE YOU ALREADY APPLYING SAFE SYSTEM

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- Provide one example of where you think you have already used Safe System approach
- Provide one example of a scheme that you are aware of that only use traditional approaches

• Type your answers into the Q&A with the prefix [Example] E.g. [Example] 20mph zones – Safe Roads



TYPICAL SAFE SYSTEM COURSE OUTLINE

• Principles Of The Safe System

- Leadership
- Applying The Safe System: Safe Speeds
- Applying The Safe System: Safe Urban Roads
- Applying The Safe System: Safe Road Use
- Other Safe System Elements
- Bringing The Safe System Together
- Course Summary And Next Steps

PRINCIPLES OF THE SAFE SYSTEM – SYSTEMS APPROACH

- A system is a cohesive conglomeration of interrelated and interdependent parts that is either natural or man-made.
- Every system is delineated by its spatial and temporal boundaries, surrounded and influenced by its environment, described by its structure and purpose or nature and expressed in its functioning.
- In terms of its effects, a system can be more than the sum of its parts if it expresses synergy or emergent behaviour.
- Changing one part of the system usually affects other parts and the whole system, with predictable patterns of behaviour.

Wikipedia

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Wikipedia







- <u>http://www.oecd.org/publicati</u> <u>ons/zero-road-deaths-and-</u> <u>serious-injuries-</u> <u>9789282108055-en.htm</u>
- 'Safe System Bible'
- Preceded by the 2008 'Towards Zero' report





Zero Road Deaths and Serious Injuries

Leading a Paradigm Shift to a Safe System



Research Report



- <u>https://wriorg.s3.amazo</u> <u>naws.com/s3fs-</u> <u>public/sustainable-</u> <u>safe.pdf</u>
- Slightly more userfriendly version

SUSTAINABLE & SAFE

A Vision and Guidance for Zero Road Deaths



A safe system is a holistic approach to road safety, managed so the elements of the road transport system combine and interact to guide users to act safely and to prevent crashes – and when crashes occur, ensure that the impact forces do not exceed the limits that result in serious injury or death.

If one part of the system fails, the other components act to prevent serious harm occurring when a crash occurs by keeping the transfer of kinetic energy into the human below levels known to cause serious physical harm.

Zero Road Deaths and Serious Injuries

Leading a Paradigm Shift to a Safe System

- 1. People make mistakes that can lead to road crashes
- 2. The human body has a limited physical ability to tolerate crash forces before harm occurs
- 3. A shared responsibility exists amongst those who design, build, manage and use roads and vehicle and provide postcrash care to prevent crashes resulting in serious injury or death
- 4. All parts of the system must be strengthened to multiply their effects; and if one part fails, road users are still protected.

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VIDEO



- <u>https://www.youtu</u>
 <u>be.com/watch?v=</u>
 <u>mFcLUCtUAzc</u>
- Essential postcourse viewing





	Traditional Approach	Safe System
What is the problem?	Try to prevent all crashes	Prevent crashes from resulting in fatal and serious casualties
What is the appropriate goal?	Reduce the number of fatalities and serious injuries	Zero fatal and serious injuries
What are the major planning approaches?	Reactive to incidents, incremental approach to reduce the problem	Proactively target and treat risk; systematic approach to build a safe road system
What causes the problem?	Non-compliant road users	People make mistakes and are fragile / vulnerable in crashes. Varying quality and design of infrastructure and operating speeds provides inconsistent guidance to users about what is safe road behaviour
Who is ultimately responsible?	Individual road users	Shared responsibility by individuals with system designers
How does the system work?	Is composed of isolated interventions	Different elements of a Safe System combine to produce a summary effect greater than the sum of the individual treatments so that if one part of the system fails other parts provide protection

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SAFE SPEEDS – HUMAN TOLERANCE

- The Relationship between Speed and Car Driver Injury Severity, DfT 2009
- Information on fatally and seriously injured drivers from the Co-operative Crash Injury Study (CCIS) and slightly injured drivers from the On the Spot (OTS) study were combined.
- The number of fatal, serious and slightly injured drivers in this dataset were weighted using the police STATS19 database, and the risk of injury with respect to the change of velocity of the driver's car was calculated.



Source: Wramborg (2005).

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SAFE SPEEDS – HUMAN TOLERANCE

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source: Tingvall & Howarth, 1999

Types of road infrastructure and traffic	Safe Speed (mph)
Locations with possible conflicts between cars and pedestrians/cyclists	20
Junctions with possible car-to-car side impacts	30
Roads with possible car-to-car frontal impacts	45
Roads with no possibility of side impact or frontal impact	>62

DIFFICULTIES WITH SAFE SYSTEM

- 1. Zero is unachievable Let's just focus on making the worst roads better
- 2. The vast majority of collisions are due to human behaviour Let's just stop people doing 'bad things'
- 3. It's too expensive Build costs, reductions in traffic flows and increased journey times make it uneconomical to achieve zero
- 4. The public won't support or understand it



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