

Safe System: a national challenge

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- ▶ What do we need to do differently to implement it?
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Some headline national road safety results

- ! 1,460 reported road deaths and 23,529 serious injuries in 2020 (GB), some decreases against a flattened 10 year trend largely attributed to the pandemic.
- ! RTI is a continuing lead cause of death for school-age children and young adults.
- ! Value of KSI prevention in GB estimated at over £7 billion.
- ! National progress in KSI reduction since 2010 has been amongst the worst in Europe; the pre-pandemic UK death rate ranking was joint 4th in 2019.

Key system results which influence KSI

- ▶ the safety quality of roads and roadsides
- ▶ the safety quality of vehicles
- ▶ safe travel speeds and safe speed limits
- ▶ driving without impairment or distraction; helmet, restraint use
- ▶ the efficiency of emergency medical response

Some challenging demographic and mobility trends

- ! An increasingly ageing road user population - vulnerable to injury.
- ! Cycling and walking encouraged at last but with higher KSI risk than for protected users.
- ! Continuing popularity of powered two-wheelers – the highest KSI risk travel mode.
- ! Emerging driverless and connected vehicles – a long transition path to automation with safety impacts > 30 years.
- ! New risks from new forms of electro-mobility e.g. e-scooters



Challenging national policy context over last decade

- ! National target-setting in England ended, though continued in the devolved administrations and some other jurisdictions. Some ambitious goals and targets set for National Highways.
- ! Local authority budgets cut with notable reductions in human and financial resource, traffic policing levels reduced.
- ! Little central government appetite for new safety rules and speed management.
- ! Adoption of a Safe System approach in the 2015 BRSS and again in 2019, but no formal national start-up programme or capacity build to assist roll-out.

Safe System is recommended global best practice



World Health Organization



United Nations Road Safety Collaboration



- ▶ Conceived over 25 years ago.
- ▶ A synthesis of current knowledge about best practice road safety management.
- ▶ A work in progress in many countries, cities and other jurisdictions including the UK.
- ▶ Sweden and Norway – the global and European safety leaders also the most advanced in Safe System implementation.

What is Safe System ?

The generic term for Vision Zero, Towards Zero, Sustainable Safety approaches

Safe System is both a long-term aspirational goal and an intervention strategy working towards the eventual elimination of road crash death and serious injury, supported by interim targets based on KSIs and SPIs.

Safe System strategy involves the planning, design, operation and use of the road traffic system which takes better account of common human error and known limits to human tolerance.

Gradual upgrade of road traffic system through proactive treatments.

Death and serious injury not traded off against other objectives.

A long-term transformational approach – not business as usual - safe not safer transport

Why is the long-term zero goal necessary?

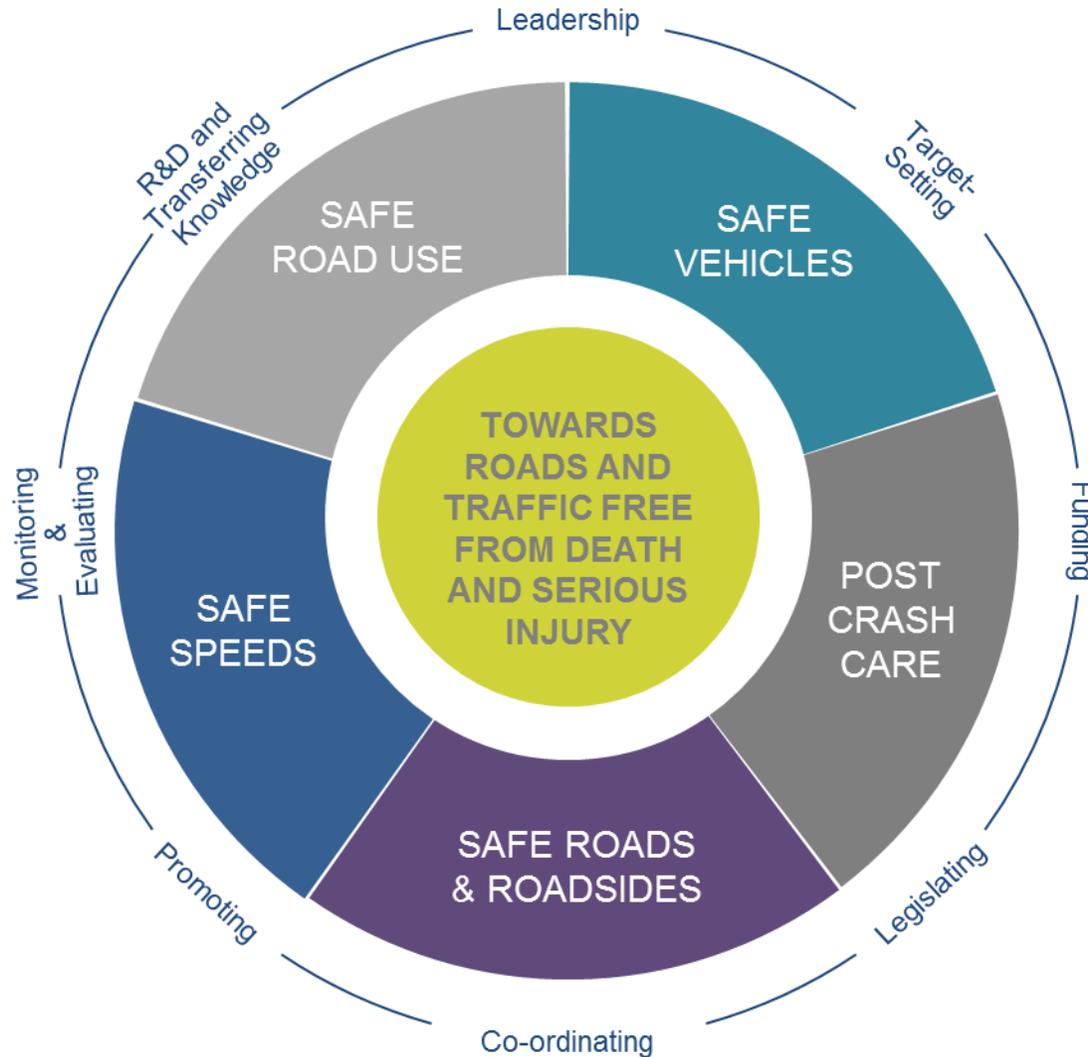
- ▶ Safe System isn't Safe System without a long-term goal!
- ▶ An unambiguous aspiration embracing the public health eradication principle, providing clear messaging for professionals and the community.
- ▶ Challenges complacency that the job is nearly done. Interim KSI targets are not seen as acceptable performance levels, but on a path towards zero.
- ▶ Emphasises that a transformational approach is needed which will not be achieved overnight - a long-term project.
- ▶ Influences intervention choice and investment decisions.
Some Safe System interventions require at least 20 years in CBA.

Possible? According to the WHO and ITF/OECD, virtually all road death and serious injury is preventable based on current knowledge.

Safe System principles

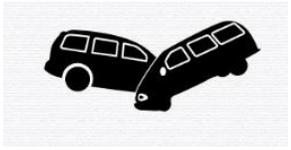
1. **People make mistakes** – no matter how well-trained and educated about responsible road use, people make common mistakes, many resulting from simple errors of perception or judgement by otherwise compliant users.
2. **The human body has limited physical ability to tolerate crashes before harm occurs** - a core system design consideration for roads that we travel on, speeds we travel at and vehicles we travel in.
3. **Shared responsibility amongst those who design, build, manage or use roads and vehicles and provide post-crash care** to prevent serious and fatal crash injury.
4. **All parts of the system must be strengthened in combination** to multiply their effects, and if one part fails, road users are still protected.

Safe System intervention pillars



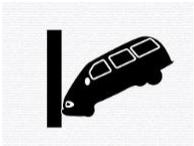
All elements have important linkages and speed is a central design parameter.

Addressing KSI human tolerance limits in system design



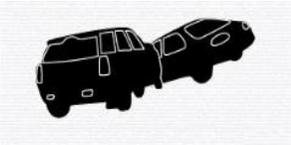
Head-on crashes

70 - 80 km/h



Single vehicle run offs

40 - 50 km/h



Junction crashes

50 km/h



Pedestrians and
cyclists in car crashes

30 km/h

- ▶ Legal speeds of many roads are higher than protection from roads, roadsides, vehicles.
- ▶ Legal speeds need take account of the level of network and vehicle protection.
- ▶ Higher protection allows higher speeds; lower protection requires lower speeds.

What's different ?

1. Safe System requires strong leadership and political will

- ▶ Visible leadership from government, professionals and employers.
- ▶ Setting ambitious goals and targets and 'measuring to manage' with focus on operational targets using validated evaluation tools.
- ▶ Tighter coordination for meaningful shared responsibility and aligning with other sectors such as health and environment to achieve co-benefits.
- ▶ Implementing key legislation & new solutions to address the Safe System task.
- ▶ Providing new and substantial increased ring-fenced funding.
- ▶ Funding Safe System R&D and knowledge transfer.

What's different ?

2. A robust, ambitious national safety performance framework

- ▶ Sharper focus on preventing or mitigating KSI outcomes - minor injuries are tolerated.
- ▶ Explicit statement of long-term zero harm goal supported by ambitious interim KSI targets.
- ▶ Measuring specific underlying operational conditions which influence KSI; setting systemwide SPIs and, at best, as in Norway and Sweden, setting SPI targets in support of KSI targets to drive multi-sectoral activity.

Ireland's road safety performance framework and SPIs

Vision Zero by 2050 goal; 50% KSI reduction targets to 2030; 15 ambitious, specific, KSI-related, systemwide SPIs to 2030

- 1 % of motor vehicle traffic volume with **median barriers** on roads with speed limits above 80 km/h to prevent the number of deaths and serious injuries in head-on collisions.
- 2 % of traffic volume travelled on roads with speed limits of 80 km/h or higher that have been assessed in accordance to **forgiving roadsides guidance** to prevent KSIs in run-off-the-road collisions.
- 3 % of high-risk KSI **rural and urban junctions** treated to operate within Safe System limits.
- 4 % of distance driven over roads with **a safety rating** above an agreed threshold (to be developed further in EU discussion).
- 5 % of vehicles travelling **within the speed limit** by road and vehicle type – Road and vehicle types to be specified.
- 6 % of traffic volume on urban, rural, motorways and the TEN-T network within **speed limits which are 'safe and credible'**.
- 7 Proportion of extra **cycle and pedestrian infrastructure** developed to make urban and interurban mobility healthy and sustainable.
- 8 % of new passenger cars equipped with **overridable intelligent speed assistance**.
- 9 % of new passenger cars with **a 5-star Euro NCAP rating**.
- 10 % of new passenger cars with **autonomous emergency braking** to prevent collisions with pedestrians and cyclists (pedestrian AEB).
- 11 % of motor vehicle occupants **using a seat belt** as a) drivers b) front seat passengers and c) as rear seat passengers.
- 12 % of correct use of **child restraints** by child occupants.
- 13 % of drivers not using a **handheld mobile device**.
- 14 % of riders of a) powered two wheelers and b) bicycles wearing a **protective helmet**.
- 15 % of drivers and riders of motorised vehicles **without alcohol; without other drugs which impair driving; and without fatigue**.

Our journey towards Vision Zero: Ireland's Government Road Safety Strategy, 2021-2030

https://www.rsa.ie/docs/default-source/default-document-library/government-_road_safety_strategy_2021_2030_13th_dec21_final.pdf?sfvrsn=cf289e63_3

What's different ?

3. Safe System in the planning, design, operation of road network

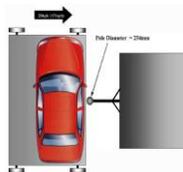
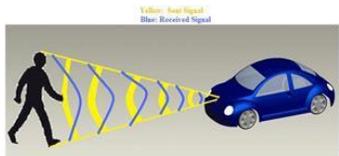
- ▶ Upgrading the national road/speed limit classification to meet Safe System principles better matching protection offered with speed limit– See Sweden, Norway, NL.
- ▶ Moving to proactive assessment of KSI risk in the network using the iRAP tool and proactive treatments. Innovating where standards are clearly deficient based on well-established safety principles.
- ▶ Presenting national guidance documents to place Safe System in the mainstream of planning, design, asset management - See Austroads, NZ, CROW NL.
- ▶ Substantially increasing ring-fenced funding for targeted Safe System intervention - See Sweden, Norway, NL, Victoria.
- ▶ Carrying out Safe System demonstration projects to build capacity
See Sweden, NZ, NL.

What's different ?

4. Increasing the safety quality of new vehicles in line with Safe System

Supporting correct in-vehicle use and protecting occupants and users outside the vehicle to avoid and mitigate KSI.

- ▶ Adopting and national fast-tracking of the EU GSR/PSR vehicle safety package - with greater benefits than from seat belts - through legislation, public procurement and safe travel policies. *See PACTS, 2022*
- ▶ Targeting and promoting improved take-up of Euro NCAP 5* in vehicle fleets to provide optimal protection and feeding sooner rather than later into the used car pool.
- ▶ Regulating the safe path to driverless vehicles and electromobility.

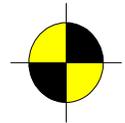
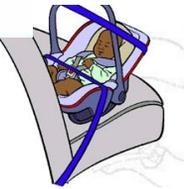


What's different?

5. Increasing levels of safe road use

Assist safe and alert road use by driving standards for novice drivers, safety legislation, combined police enforcement and publicity, in-vehicle driver assistance e.g. ISA, alcohol interlocks, seat belt reminders in rear too.

- ▶ Graduated driver licensing to manage KSI risk
- ▶ Compliance with safe speed limits
- ▶ Greater use of front and rear seat belts and child restraints
- ▶ Greater use of crash helmets
- ▶ Driving without alcohol, other drugs, fatigue or distraction



What's different?

6. Increasing efficient, effective post-crash care

Road traffic injury is a leading cause of major trauma. The aim of post-crash care is to reduce injury consequences should a crash injury occur and needs to be recognised as a key Safe System strategy. The following elements are critical to a Safe System approach needing continuous improvement.

- ▶ efficient emergency notification
- ▶ fast transport of qualified medical personnel
- ▶ correct diagnosis at the scene; stabilisation of patient
- ▶ prompt transport to point of treatment
- ▶ quality emergency room and trauma care
- ▶ rehabilitation services and victim support



Some recommended priority steps for DfT

- ▶ Establish a national Safe System Task Force of Safe System experts to advise on building capacity, Safe System implementation mechanisms and 'start up' programme.
- ▶ Prepare a robust, state of the art national road safety performance framework assisted by external experts.
- ▶ Review the road/speed classification system against Safe System principles.
- ▶ Review international and other country guidance on best practice Safe System implementation.

Some recommended priority steps for DfT

- ▶ Substantially increase and target investment initially on higher KSI risk sections of the network through a ring-fenced Safe System fund.
- ▶ Adopt the GSR vehicle safety package as a whole in national type approval which comes into force across the EU in July 2022.
- ▶ Prepare to introduce Graduated Driver Licensing; lower the BAC limit.
- ▶ Ensure that the next road safety strategy is a best practice Safe System strategy.

Endnote

- ▶ Death and serious injury in road crashes is not the inevitable price of mobility.
- ▶ Safe not partially safe is a highly ambitious goal with new challenges for all.
- ▶ Safe System is carried out to good effect in several countries and jurisdictions.
- ▶ However, while a start has been made in the UK, Safe System is still poorly understood and we are at least a decade behind the efforts of other countries.
- ▶ Government and professionals must now fully grasp Safe System and ensure that the new strategy allows us to address its challenge.

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