



Safe Systems

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What do we
mean by
Safe
Systems?

The Safe System approach **aims to eliminate fatal & serious injuries for all road users.**

It is a generic term for collection of similar
Concepts/Visions

- Vision Zero (Sweden)
- Towards Zero (Australia)
- Sustainable Safety (Netherlands)
- The Safe system (USA)



Brussels, 19.6.2019
SWD(2019) 283 final

COMMISSION STAFF WORKING DOCUMENT

EU Road Safety Policy Framework 2021-2030 - Next steps towards "Vision Zero"

... implement the
"Safe System"
at EU level.

Stockholm Declaration

of 19-20 February 2020 made
during the Third Global Ministerial
Conference on Road Safety



*"Declaration to deliver a 50%
reduction in deaths and injuries
over the next decade on our
way to Vision Zero by 2050"*

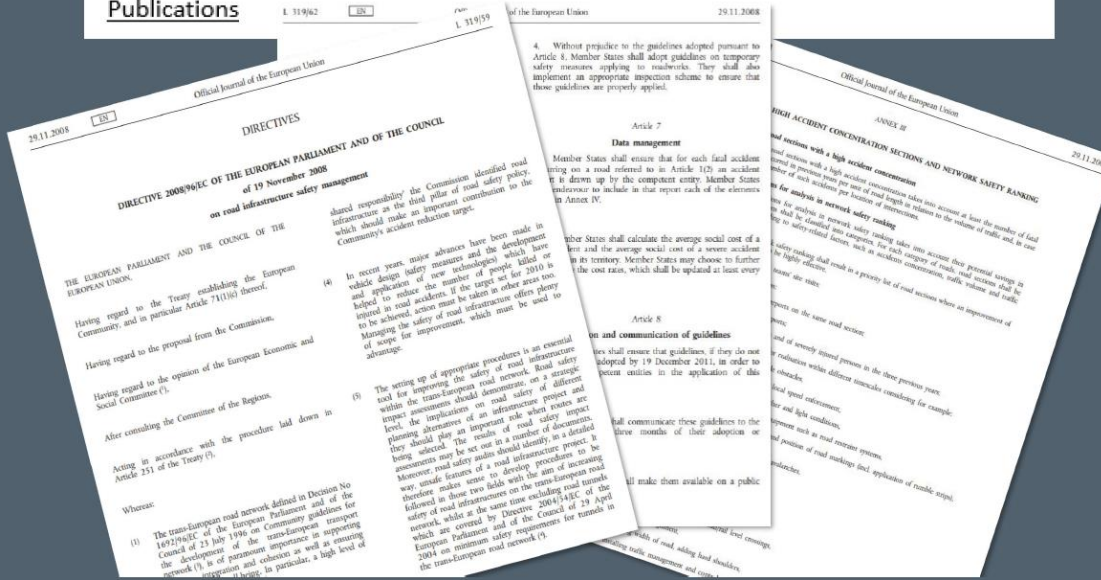
Background

- *This approach, derived from European best practice and now recommended globally by the World Health Organisation,*
- *It reframes road safety policy by focusing it on preventing deaths and serious injuries*
https://ec.europa.eu/transport/road_safety/sites/default/files/move-2019-01178-01-00-en-tra-00_3.pdf (EC, 2019) AIM:
- VISION ZERO via SAFE SYSTEMS

Irish Remit/Commitment to provide Safe Infrastructure

EU RISM DIRECTIVE 2008/96/EC

Transposed into SI 472 of 2011 – TII (NRA) Implementing Body
EU Directive on Road Infrastructure Safety Management (RISM) are met through [TII Publications](#)



New EU RISM 2019/1936 October 2019 – to become law by 2024.

- Zero Fatal Collisions 2050
- 50% Reduction of Serious Injuries 2030
- Extended to all State National Roads (TII already adopted)
- Major Focus on improving the safety of Vulnerable Road Users

Road Safety is a growth area Across EU motorised road safety there are steady improvements (but slowing)

Irish Context



Guiding this strategy is Vision Zero, Ireland's long-term goal of achieving zero road deaths or serious injuries by 2050.

The Road Safety Strategy 2021-2030 will be delivered in three phases. Phase 1 which runs from 2021 to 2024 is backed by a projected €3.8bn

VISION ZERO

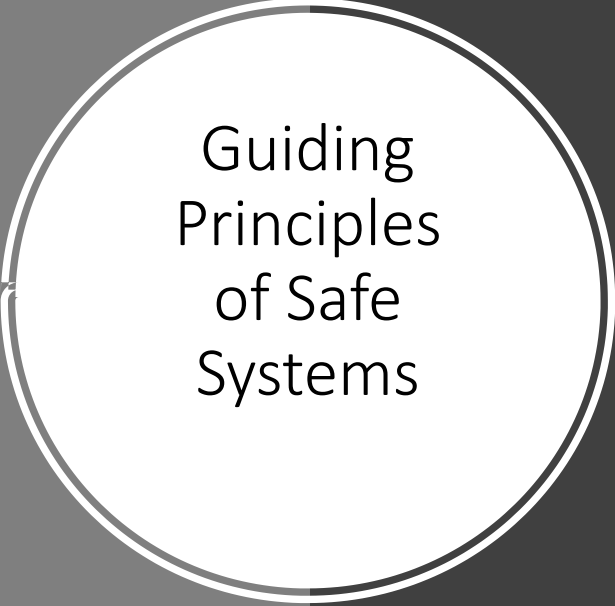
“Our Journey Towards Vision Zero”

Launched 14th December 2021 !

- Vision Zero
- Safe Systems



[Ireland's Government Road Safety Strategy 2021 - 2030 \(rsa.ie\)](https://www.rsa.ie)

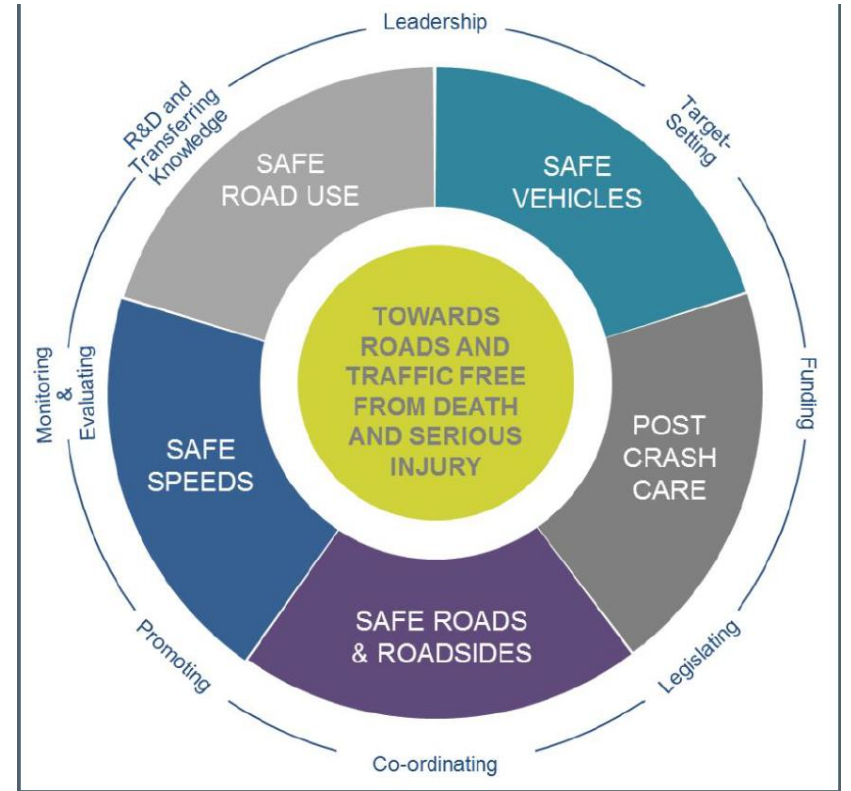
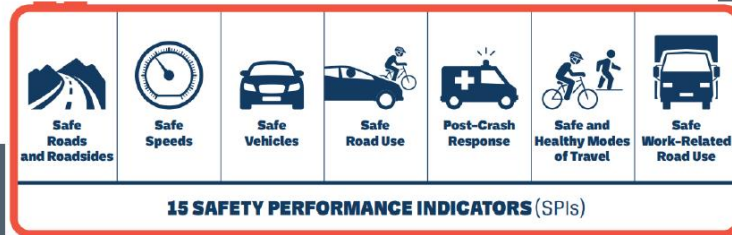


Guiding
Principles
of Safe
Systems

- 1 People make mistakes
- 2 Human physical frailty
- 3 Shared responsibility
- 4 All parts of the system must be strengthened

For the 2021-2030 strategy, seven Safe System priority intervention areas have been identified, and our aim for each of these is provided below:

- **Safe roads and roadsides**
To improve the protective quality of our roads and infrastructure.
- **Safe speeds**
To reduce speeds to safe, appropriate levels for the roads being used, and the road users using them.
- **Safe vehicles**
To enhance the safety features and roadworthiness of vehicles on our roads.
- **Safe road use**
To improve road user standards and behaviours in line with traffic legislation, supported by enforcement.
- **Post-crash response**
To improve the treatment and rehabilitation of collision casualties.
- **Safe and healthy modes of travel**
To promote and protect road users engaging in public or active transport.
- **Safe work-related road use**
To improve safety management of work-related journeys.



www.pacts.org.uk

- Pillars of Action or– Priority interventions
- Safer Roads and Safer Speeds

Safe Roads



Safe Roads and Roadsides

- Traditional (Why did it happen?) Versus Proactive (Why was the person so seriously injured in the collision?)
- Forgiving Roadsides/Infrastructures
- We already do this with High Collision Locations and Road Safety Inspections on National Roads

Removing and Relocating Obstacles.

- The Clear Zone concept.
- Arrester beds in lane diverge areas.
- Safe plantation.
- Roundabouts.

Modifying Roadside Elements.

- Breakaway devices.
- Ditch and slope treatments.
- Route-Based Curve Treatments
- Crashworthy masonry structures.
- Shoulder modifications.
- Modification of retaining walls and rock cuts.
- Safety barrier terminals.
- Safety barrier transitions.

https://www.tii.ie/tii-library/road-safety/Road%20Safety%20Research/T10_Forgiving_roadside.pdf

Shielding Obstacles.

- Rigid barriers.
- Semi-rigid barriers.
- Flexible barriers.
- Temporary safety barriers.
- Underriders.
- Kerb-barrier combinations.
- Impact attenuators.



NRA
An tÚdarás um Bóithre Náisiúnta
National Roads Authority

A Guidance Document
for the Implementation of the
CEDR Forgiving Roadside report



CEDR
Conférence Européenne
des Directeurs des Routes
Conference of European
Directors of Roads

Forgiving road sides design guide



November 2012

<https://www.tii.ie/tii-library/road-safety/Road%20Safety%20Research/Forgiving-Roadsides.pdf>



Active travel

- Forgiving Roadside treatments complementing VRU facilities
- Separation from traffic
- Widths of active travel facilities
- Shared spaces, buses, cyclists and pedestrians etc
- Conflict points and crossings

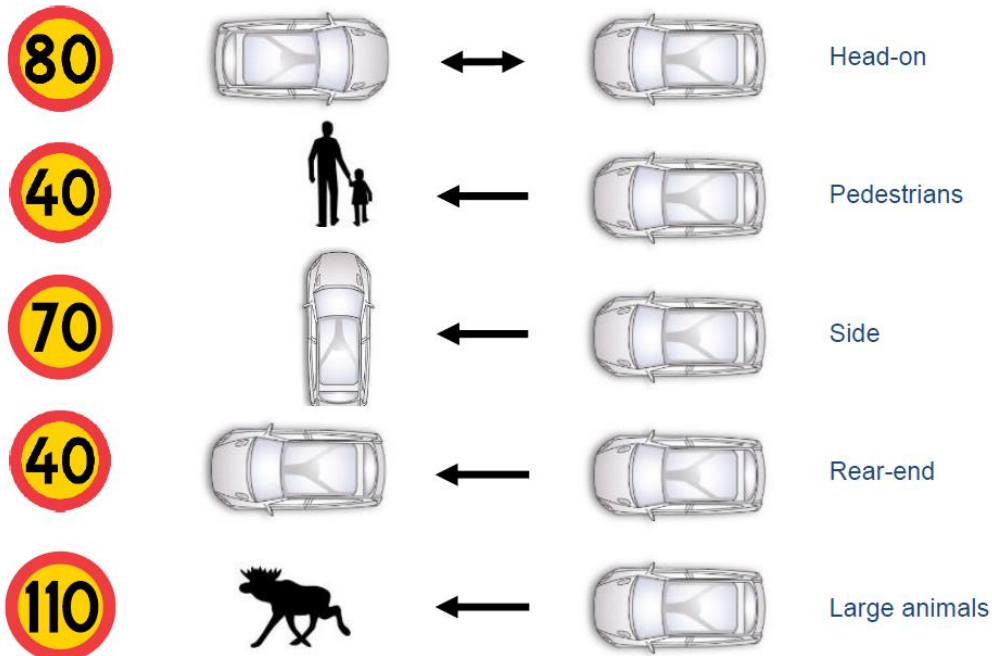




Safe
Speeds

Appropriate Speeds

Division of Responsibilities/ Boundary Conditions



Head-on crashes



Junction crashes



Run-off road crashes



Pedestrians and
cyclists in car crashes



Source: Jeanne-Breen-Towards-Zero-via-a-Safe-System-approach

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.

HEAD ON COLLISIONS (existing network)

- Fatal head on collision account for 30 to 40% of all fatal collisions on Irish roads
- **90%** are on rural sections

In 2016

- 27- Fatal head on Collisions
- 31 people died,
- 23 had Serious Injury
- 17 Minor Injury



Fatal Head on Collisions

Fatal head on collisions

National primary network distribution of collisions : Q3 2015 to Q2 2018

38

Fatal collisions reported for this distribution

20.5%

Per cent of the total fatal injury count



Fatal head on collisions

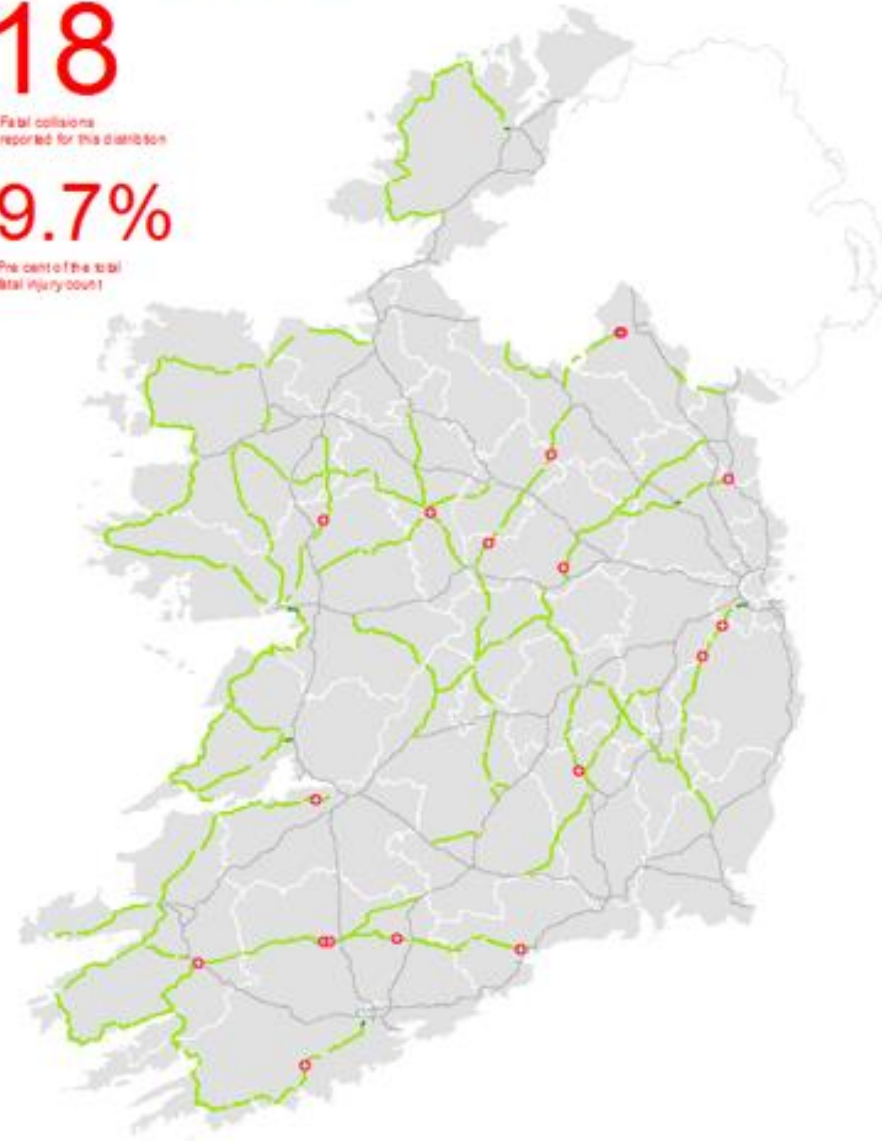
National secondary network distribution of collisions : Q3 2015 to Q2 2018

18

Fatal collisions reported for this distribution

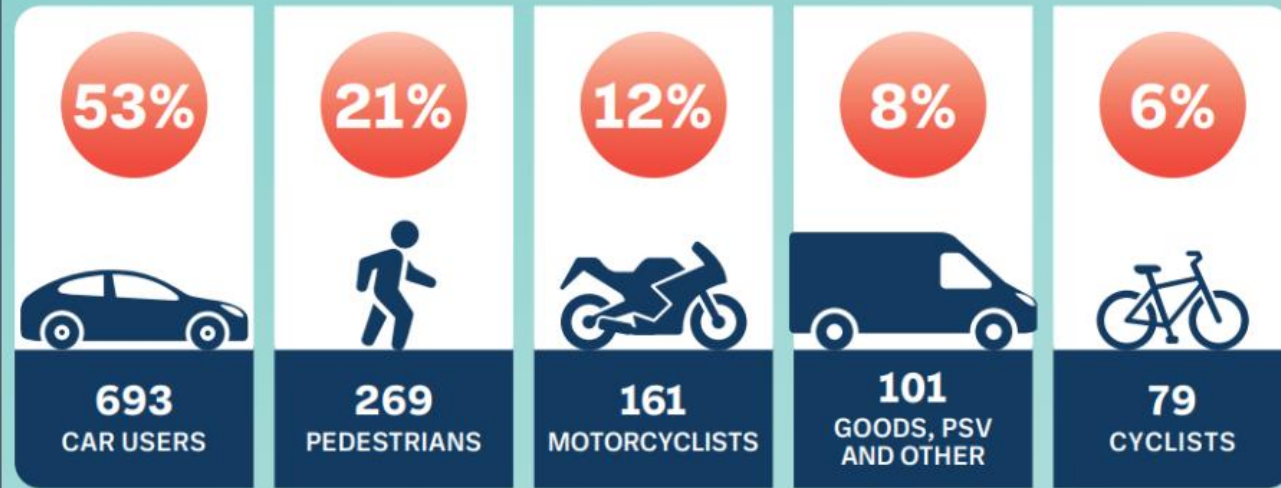
9.7%

Per cent of the total fatal injury count

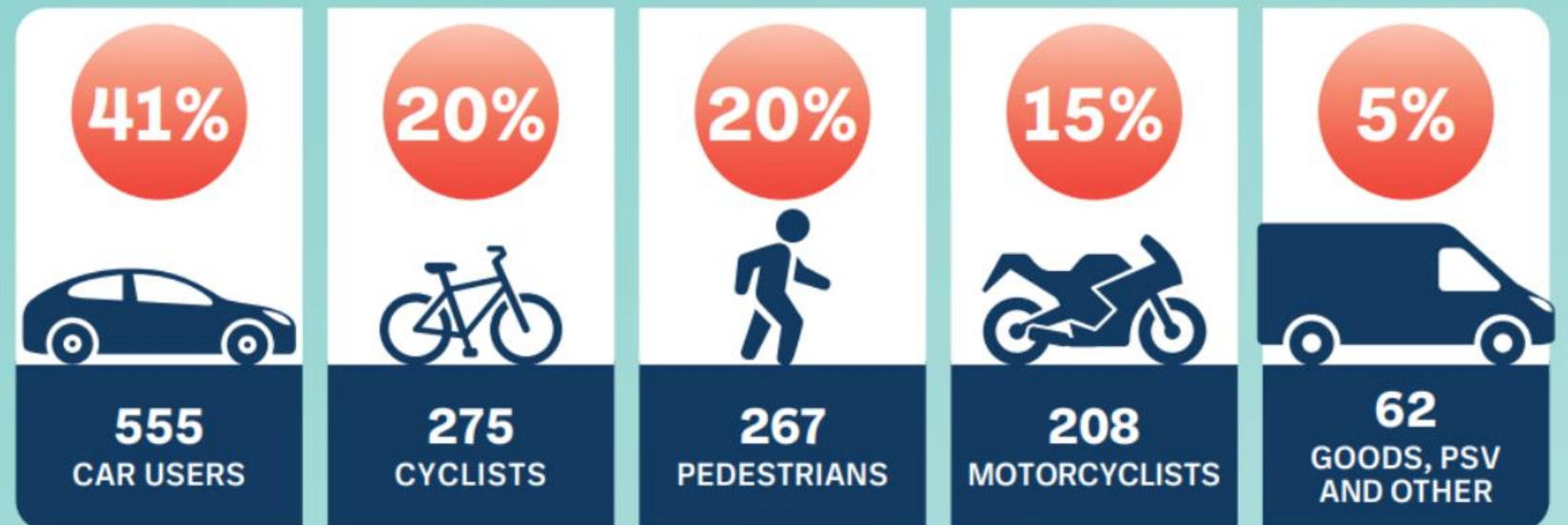


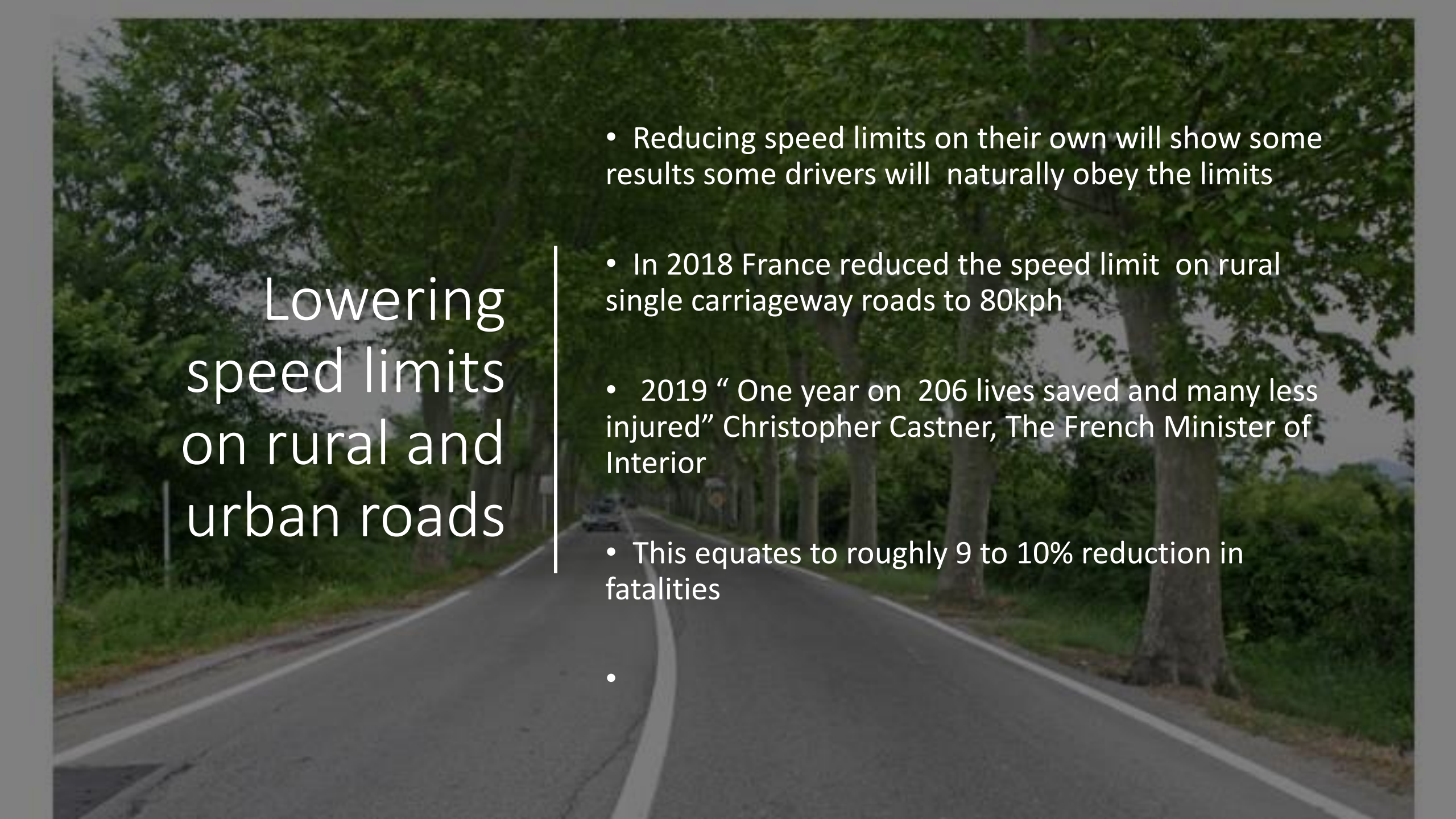
185 Fatal Collisions reported on national roads over 3 years

Between 2013 and 2020,
there were 1,303 fatalities



Serious injuries by road user in 2019





Lowering speed limits on rural and urban roads

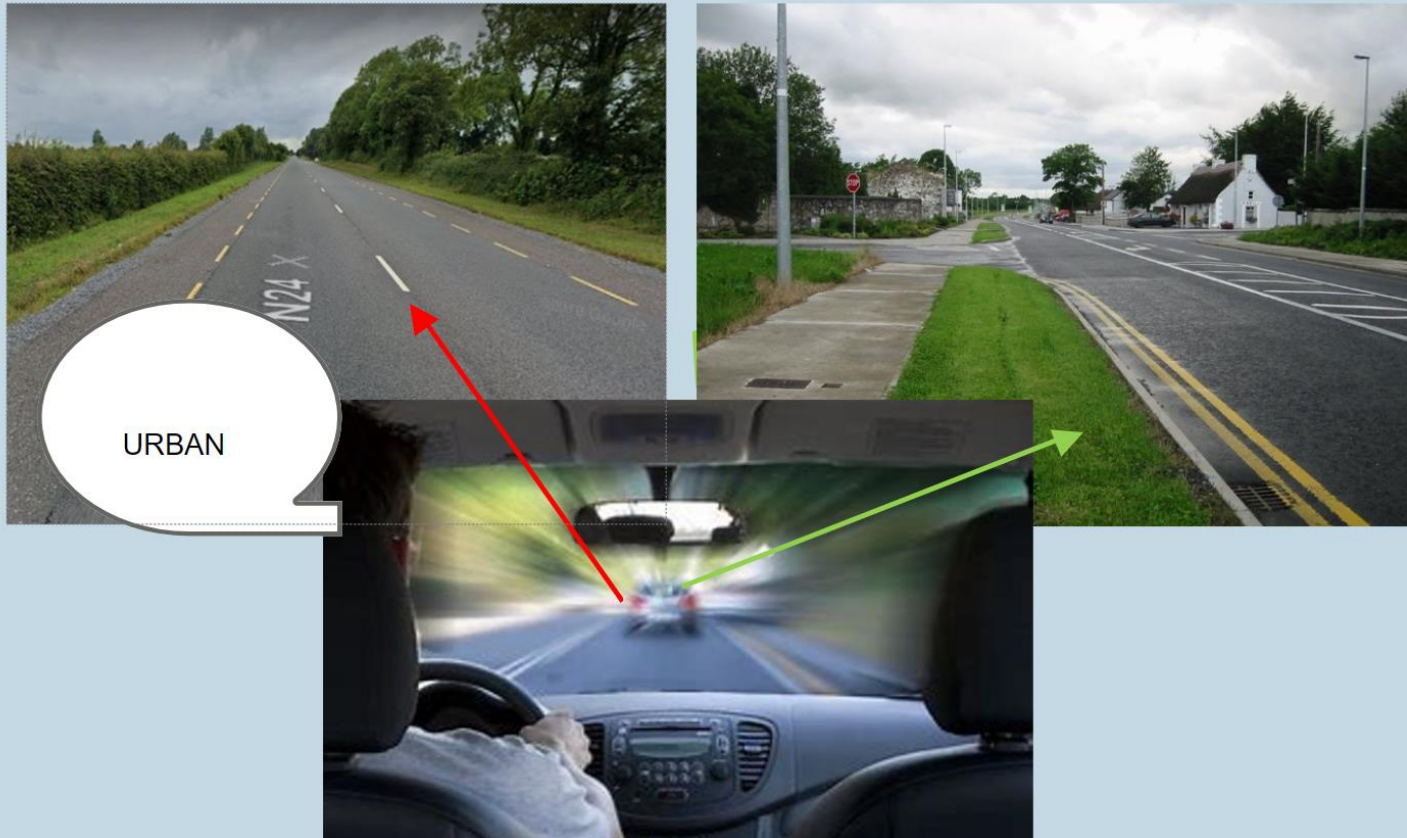
- Reducing speed limits on their own will show some results some drivers will naturally obey the limits
- In 2018 France reduced the speed limit on rural single carriageway roads to 80kph
- 2019 “ One year on 206 lives saved and many less injured” Christopher Castner, The French Minister of Interior
- This equates to roughly 9 to 10% reduction in fatalities

-

Measure to encourage speed reduction

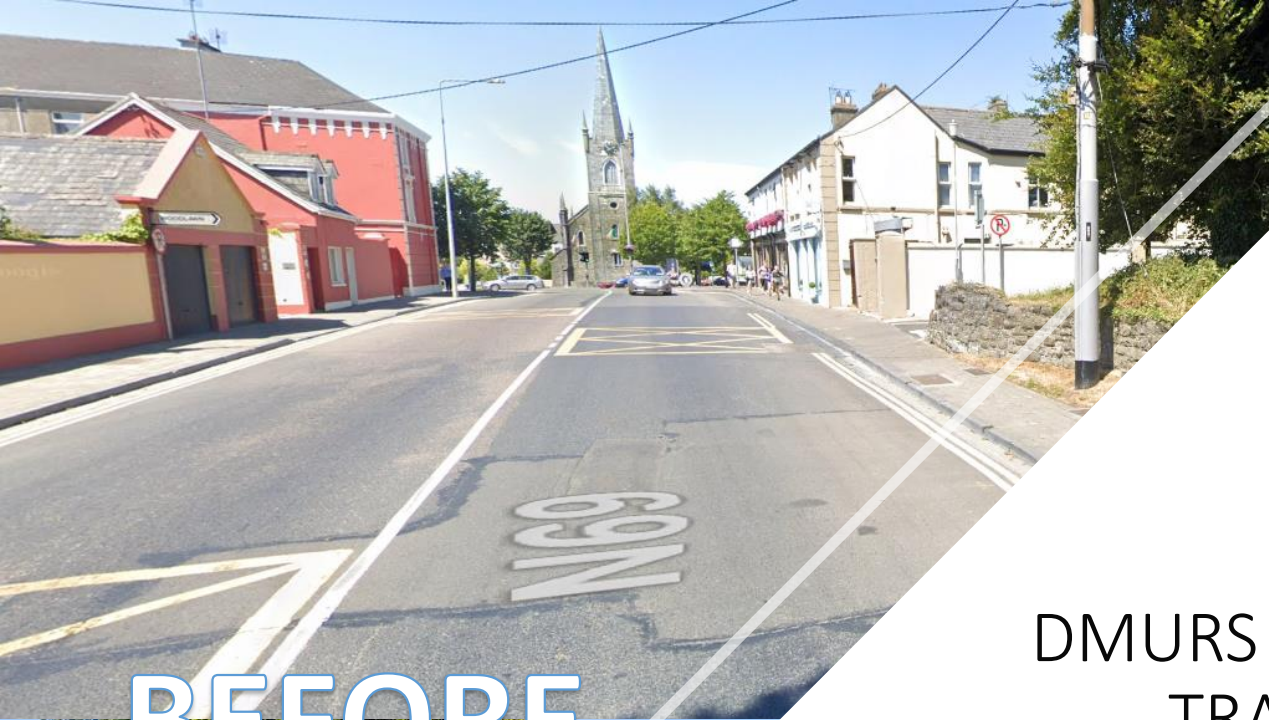
- DMURS treatments in 50 kph or less
- In urban areas space for VRU'S
- Traffic Calming at appropriate locations
- Transition zones on approach to villages
- Long term solutions re the provision of central barriers
- School periodic Speed limits
- VMS
- Average Speed Cameras

Environment complementing the Speed Limits

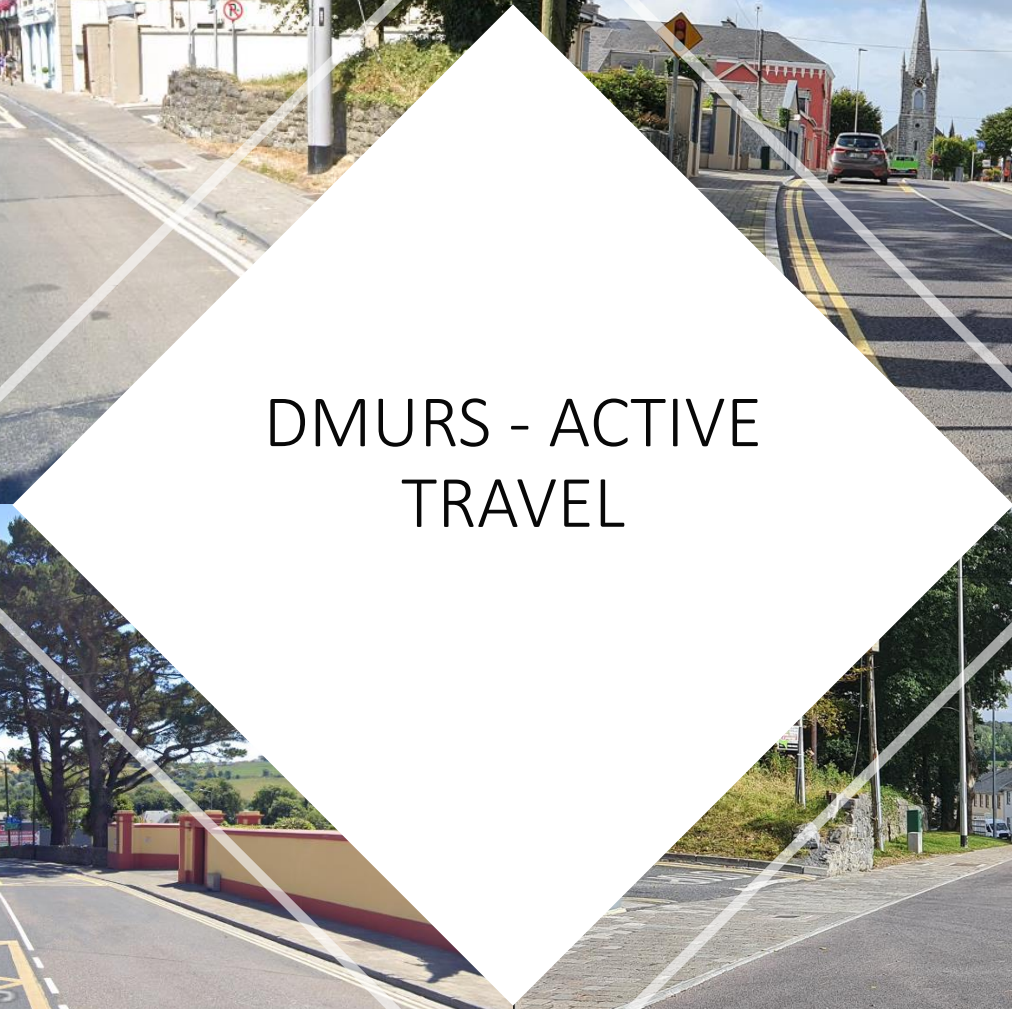


- **Driver behaviour.....
Driving too fast for the environment**

- Traffic Calming
- DMURS
- Transition zones for towns and Villages



BEFORE

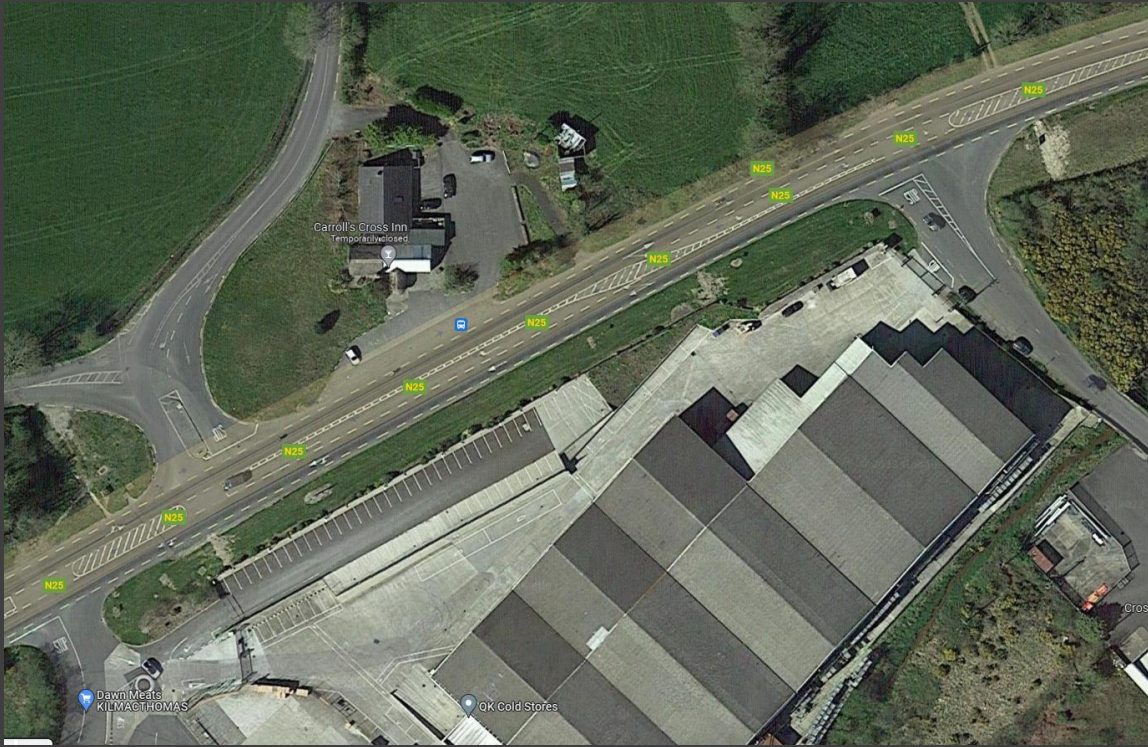


DMURS - ACTIVE TRAVEL



AFTER





Traffic Calming

GRANGEMOCKLER

Proposed Transition Zone and Traffic Calming

crossing/
key area



Rural Fringe

Trans Zone

Village
Core

Transition Zone

Rural Fringe

Vehicle Activated Signs

Treated Sites:

N05 Swinford

N17 Knock

5 sites

N59 Bellacorick

N60 Balla

N60 Bekan

Results: Avg. 85th %tile speed reduction 8%
(- 7.8 km per hr)
Range (- 1km per hr, - 14km per hr)

Before: Twice above average collision rate

After: No collisions reported at any of the sites after installation of the VAS signs.



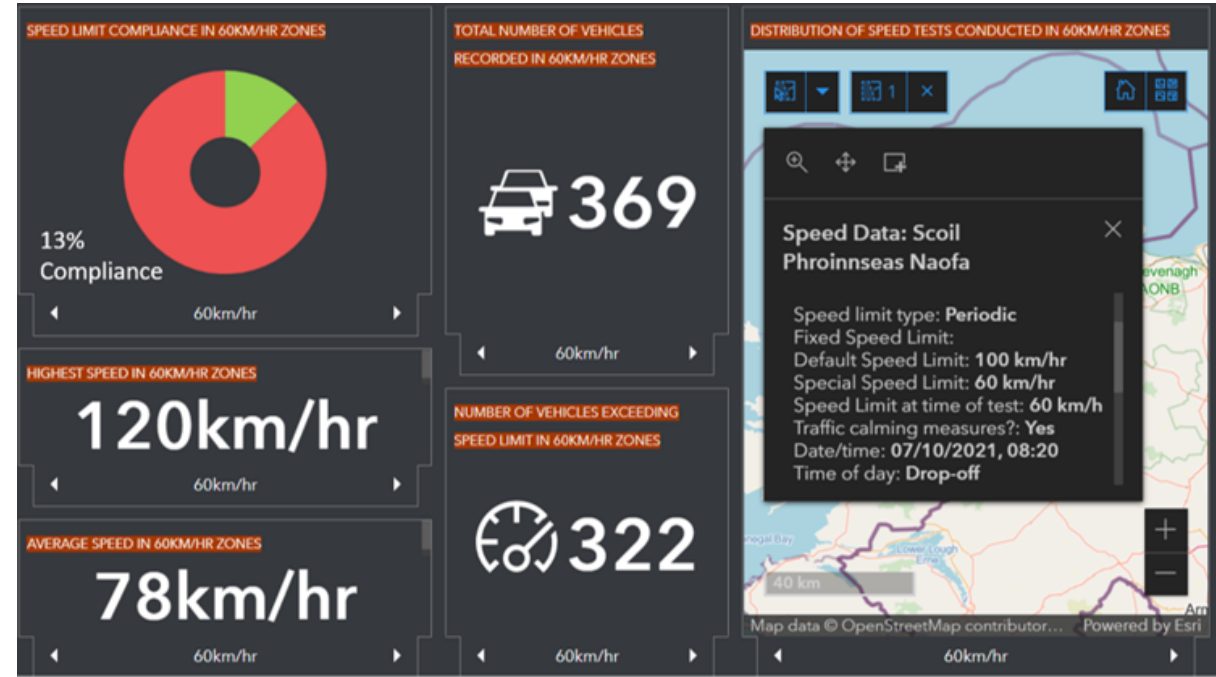
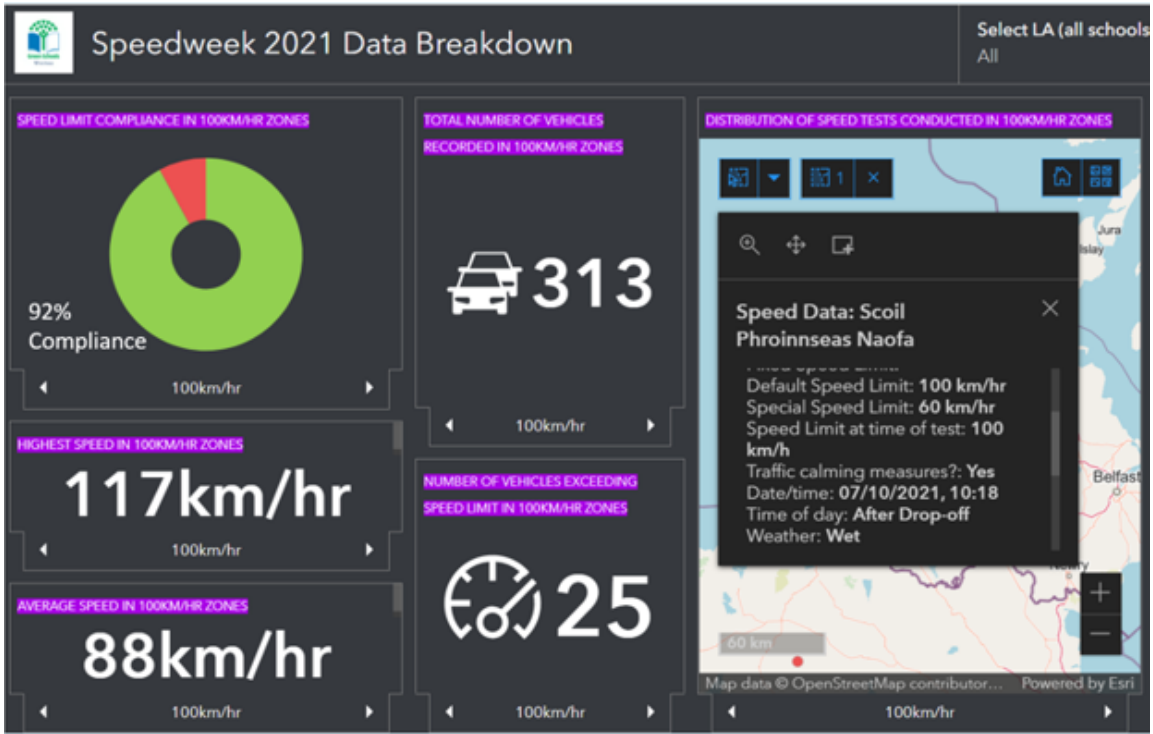


LOCATION

- The environment at the school

The school building itself is within the clear zone





Speeds at school at drop off and after



School Pick Up

Average Speed Cameras

Behaviour: Driving too fast for the conditions

Aim: Encourage drivers to reduce speeds in the tunnel.

Objective: Reduce frequency and severity of collisions in confined space

Treatment: Average Speed Cameras



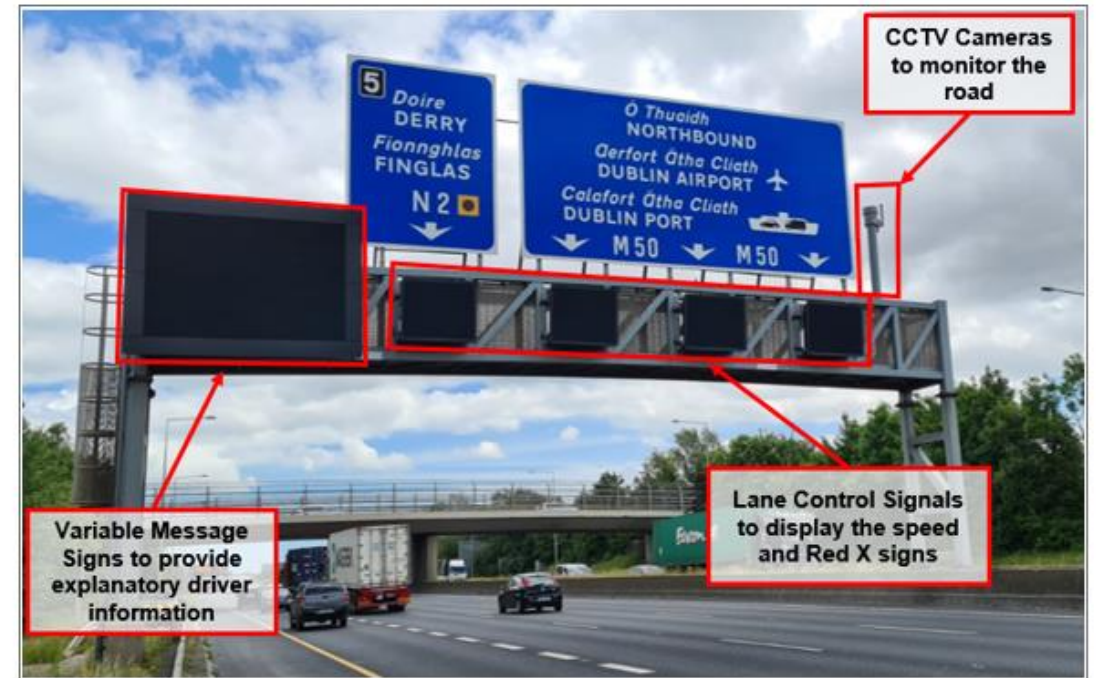
Average Daily Traffic: 21,695

Variable Speed Limits and Lane Control



Figure 1.1 Example of a Traffic monitoring camera on the M50

Control room operators in the Motorway Operations Control Centre located in the Dublin Tunnel Control Building on East Wall Road use these cameras to monitor the traffic conditions on the network and to assist them in dealing with incidents.



Safe Systems

