

## **Pedestrian safety and casualty reduction measures – an overview**

8<sup>th</sup> November 2018

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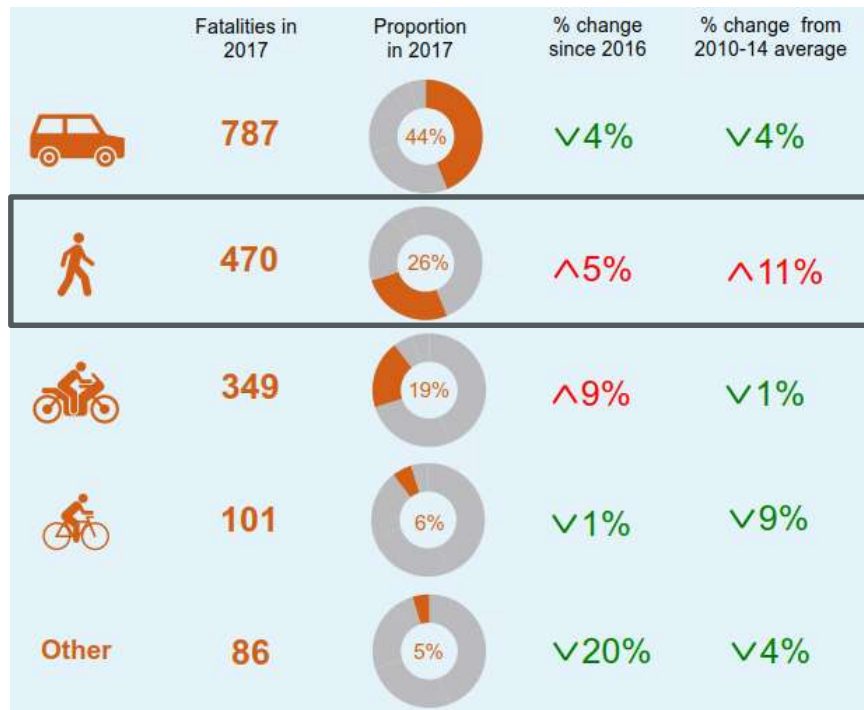
# Agenda for this presentation



1. Pedestrian casualties in Great Britain
2. Comparison of GB performance to other countries
3. Consequences of increased active travel
4. Identifying interventions to reduce pedestrian casualties
5. Future challenges in pedestrian safety

# Pedestrian casualties in Great Britain – 2017 results

- Over one quarter of fatalities were pedestrians.
- The number of pedestrian fatalities has increased since 2016 and from the 2010-14 average.
- In total there were 23,805 pedestrian casualties.
- 25% of these were children (aged 0-15 years).

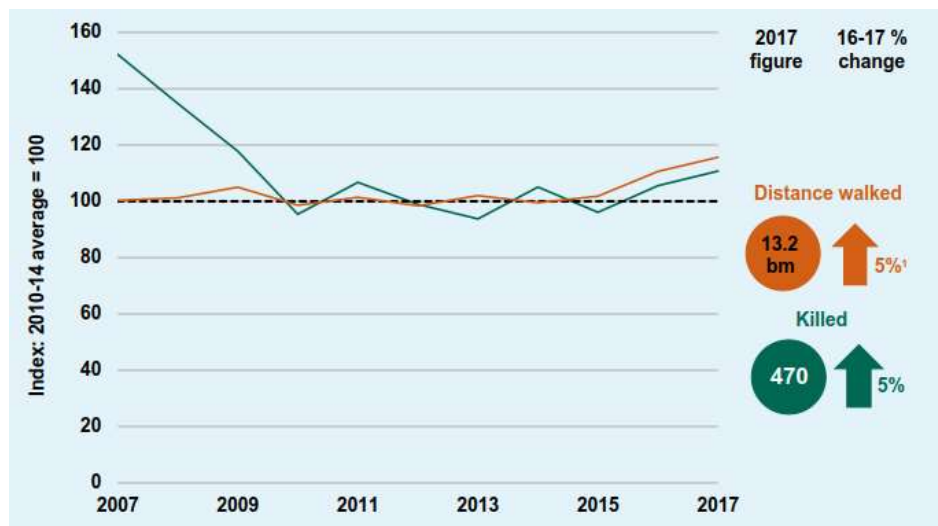


Reprinted from 'Reported road casualties in Great Britain: 2017 annual report' (DfT, 2018)

# Pedestrian casualties in Great Britain – exposure data

- It is important to consider trends in exposure alongside casualty figures.
- 5% increase is fatal pedestrians matched by 5% increase in distance walked.

## Number of killed pedestrians compared with the distance walked, Great Britain (2007-2017)



Reprinted from 'Reported road casualties in Great Britain: 2017 annual report' (DfT, 2018)

# Pedestrian casualties in Great Britain – causes

Top 3 contributory factors (CFs) in pedestrian collisions from Stats19:

- Pedestrian failed to look properly
- Pedestrian careless, reckless or in a hurry
- Driver failed to look properly

Also use in-depth studies to understand the causes of pedestrian collisions and possible mitigations.

From an analysis of police collision fatal files for London (TRL, 2012):

- Over one third of pedestrian fatalities aged between 16 and 59 were impaired by alcohol
- Nearly one fifth of pedestrians aged 60+ were incorrectly using a pedestrian crossing facility
- The most common CF for all vehicles was ‘failed to look properly’
  - For HGVs, ‘vision affected by blind spot’ was more common

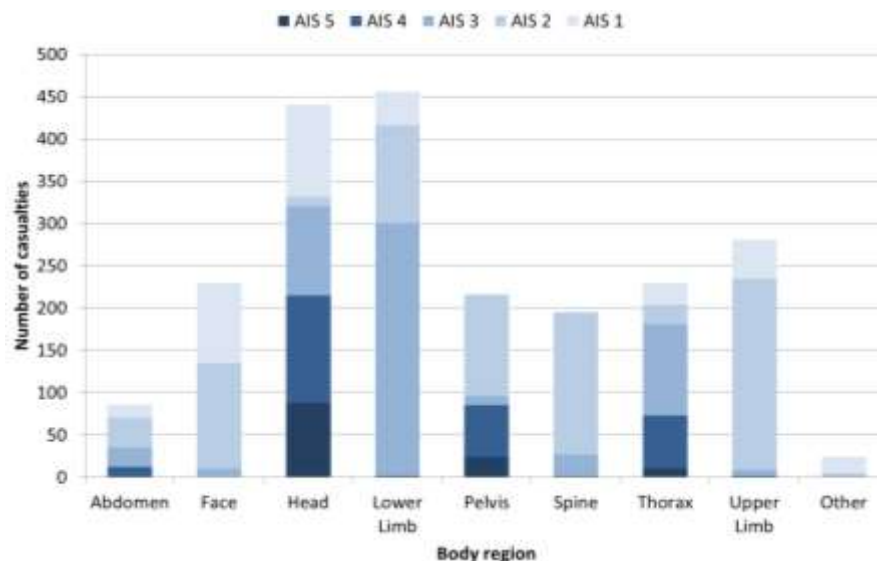
Other datasets can also be used to identify causes and supplement the collision data.

# Pedestrian casualties in Great Britain – injury types

Study linking Stats19 data to hospital data for vulnerable road users in London:

- Pedestrian injuries were most common to the head and lower limb.
- Injuries to the head, pelvis and thorax were typically more severe.

Number of pedestrian casualties injured at each body region and AIS level in collisions with the front of a car/taxi/minibus



Reprinted from 'Vulnerable Road Users in London: In-Depth Injury Study' (TRL, 2017)

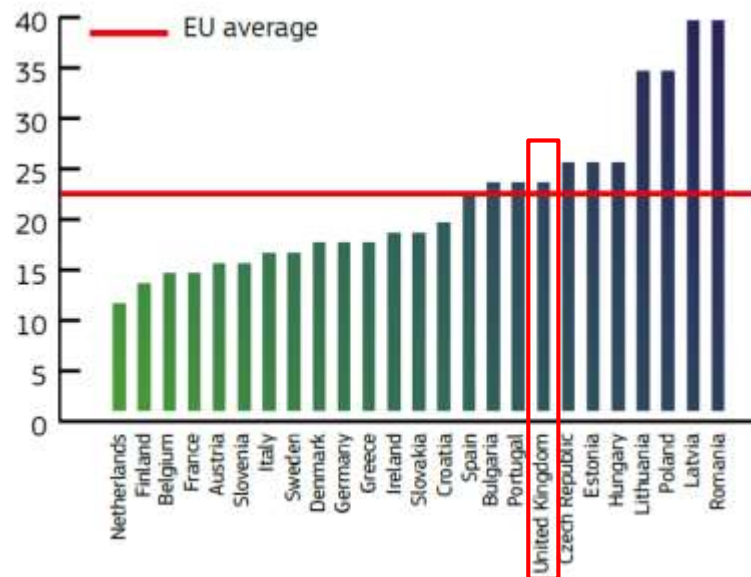
# Comparison of GB performance to other countries



Reprinted from 'Understanding the Strengths and Weaknesses of Britain's Road Safety Performance' (TRL, 2016)

Work for PACTS in 2016 showed that Britain has one of the lowest numbers of road deaths per head of population but that more can be done to improve safety, particularly for vulnerable road users.

## Pedestrians' share of all road deaths per country in 2013



Reprinted from 'Road Safety in the European Union' (The European Commission, 2015)

# Comparison of GB performance to other countries – pedestrians

## Road Users

Pedestrians, pedal cyclists and motorcyclists deaths per million people:



Reprinted from 'Understanding the Strengths and Weaknesses of Britain's Road Safety Performance' (TRL, 2016)

The UK had an average of 6.8 pedestrian deaths per million people in 2013, compared with 5.8 in Denmark, 5.1 in Sweden, 3.7 in Norway and 3.6 in the Netherlands (The European Transport Safety Council, 2015)

The UK's higher pedestrian fatality rate is not explained by higher levels of walking in Britain. In 2009 there were:

- 26 pedestrians killed per billion person-kilometres in Britain in 2009
- 17 pedestrians killed per billion person-kilometres in the Netherlands

(Santacreu, 2016)



# Comparison of GB performance to other countries - pedestrians

- The proportions of pedestrian deaths who are children and who are elderly are greater in the UK than on average across the EU.
- The UK's pedestrian protection standards on new cars are lower than across the EU as a whole, and below those of Norway, Sweden, Switzerland and the Netherlands.

## Vehicles

Proportion of new cars with Euro NCAP 5 star safety ratings:



The British Euro NCAP pedestrian protection scores are 19<sup>th</sup> of 28 European countries.

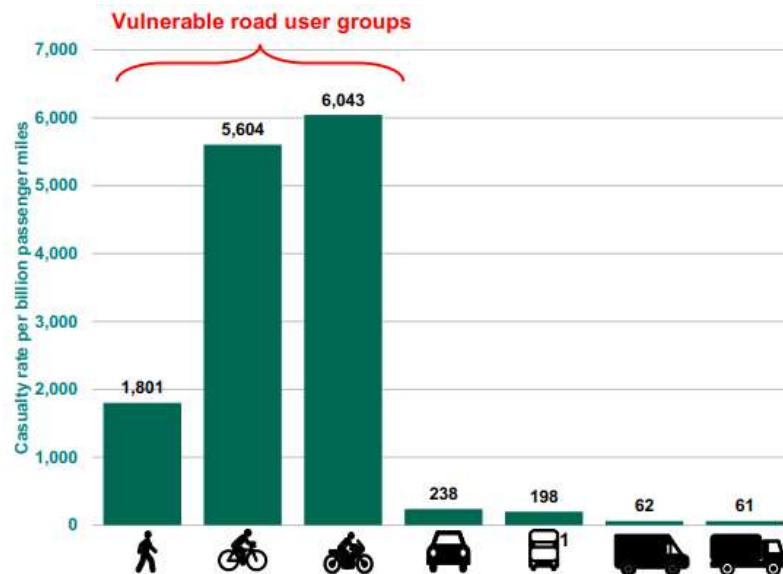


Reprinted from 'Understanding the Strengths and Weaknesses of Britain's Road Safety Performance' (TRL, 2016)

# Consequences of increased active travel

- Active travel is beneficial in terms of health outcomes, can reduce congestion and improve air quality.
- Substituting short car journeys with an active mode of transport has the potential to achieve these benefits.
- However, walking and cycling have a higher risk of road traffic injury than travelling by car.
- Hence shifting road users from the relative safety of a car to these modes would be expected to increase the number of casualties.

## Casualty rates per billion passenger miles by road user type: GB, 2017



Reprinted from 'Reported road casualties in Great Britain: 2017 annual report' (DfT, 2018)

# Consequences of increased active travel

TRL have recently carried out work to:

1. To estimate the number of short car trips that have the potential to be travelled by active travel methods (e.g. bicycle or on foot).
2. To estimate the number of casualties if some of the potential motorised journeys were switched to active travel methods.

## Step 1

There were 5,060 car trips recorded in the 2015 National Travel Survey (for England) which were less than 1km in length and identified as having potential for walking.

There were car 32,537 trips recorded in the NTS between 1 and 8 km which were identified as having potential to be cycled.

Some authorities have both active travel and road casualty targets. The results show that progressing towards both of these goals simultaneously may be challenging without additional road safety measures.

## Step 2

Number of casualties by mode in baseline and 50% uptake scenarios



Reprinted from 'Healthy mobility and road safety' (TRL, 2018)

# Identifying interventions to reduce pedestrian casualties

- Pedestrian Environment Review System (PERS) street audits to assess the quality of any pedestrian environment
- Studies of in-depth accident data to identify specific causes and scenarios in which pedestrians are at increased risk
- Utilise knowledge of what drives pedestrian behaviour
- Stakeholder engagement
- **Evaluation of interventions**



# Future challenges in pedestrian safety



## Older pedestrians

- More older casualties due to changes in population
- Injuries and collision causes will change
- Increase in single pedestrian accidents e.g. pedestrians falling over



## Complexity of use cases

- Children and young people
- Road workers
- Impaired road users
- Multi-modal journeys



## Autonomous vehicles

Will autonomous vehicles increase congestion as pedestrians take more risks (e.g. walking out in front of the vehicle as they know it will stop)?



## Questions?

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# References

- DfT (2018) Reported road casualties in Great Britain: 2017 annual report. Retrieved from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/744077/reported-road-casualties-annual-report-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/744077/reported-road-casualties-annual-report-2017.pdf)
- Santacreu (2016). Risk monitoring and benchmarking. Retrieved from A Road Safety GB Conference: <http://analysisconference.org.uk/conference/wp-content/uploads/2016/01/012-Alex-Santacreu.pptx>
- The European Commission (2015). Road Safety in the European Union. Retrieved from: [http://ec.europa.eu/transport/road\\_safety/pdf/vademecum\\_2015.pdf](http://ec.europa.eu/transport/road_safety/pdf/vademecum_2015.pdf)
- The European Transport Safety Council (2015). Making Walking and Cycling on Europe's Roads Safer. Retrieved from: [http://etsc.eu/wp-content/uploads/etsc\\_pin\\_flash\\_29\\_walking\\_cycling\\_safer.pdf](http://etsc.eu/wp-content/uploads/etsc_pin_flash_29_walking_cycling_safer.pdf)
- TRL (2012) Analysis of police collision files for pedestrian fatalities in London, 2006-10. Published Project Report PPR620
- TRL (2016) Understanding the Strengths and Weaknesses of Britain's Road Safety Performance. Published Project Report PPR796
- TRL (2018) Healthy mobility and road safety.