

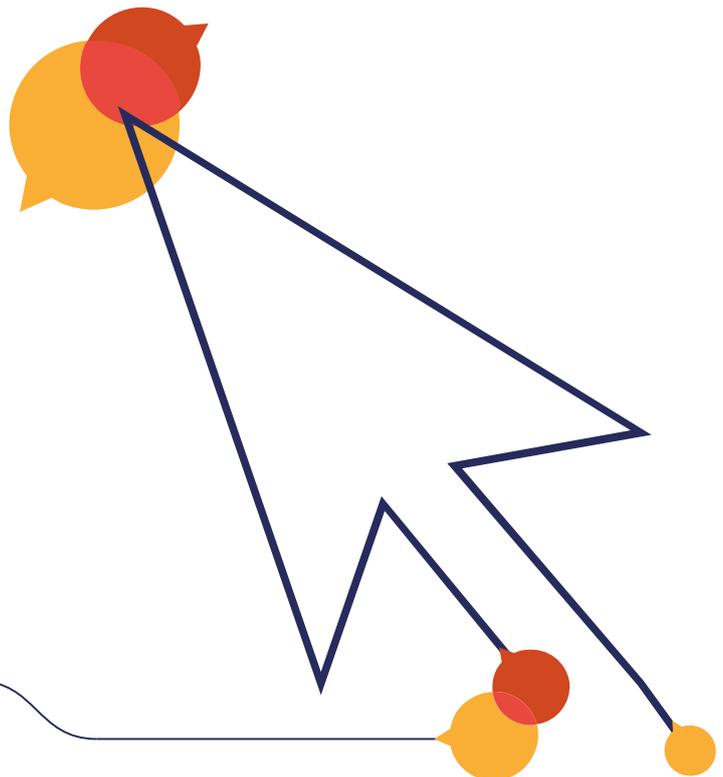


accidents don't have to happen

RoSPA Pedestrian Safety Policy Paper



Pedestrian Safety



Date: June 2023

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Executive Summary

Walking is an excellent way to get about and provides a wide range of health and environmental benefits. Unfortunately, it also carries a certain amount of risk, and so we need to ensure that more walking does not lead to more pedestrian casualties.

The key is to create a safe walking environment, improve driver, cyclist and pedestrian attitudes and behaviour towards each other, and to produce safer vehicles that reduce the risk to vulnerable road users such as pedestrians and cyclists.

The policy paper has two objectives:

1. To review and summarise information on the benefits and risks of walking in Great Britain.
2. To identify the best ways of meeting the challenge of increasing walking without also increasing pedestrian casualties. Based on current evidence we have identified key actions, which we would recommend be undertaken to achieve this. These can be found on page 38.

According to the National Travel Survey, on average, individuals made 235 walking trips in 2021 in England. This was 31 per cent of trips made, but just 5 per cent of distance travelled. Walking trips have an average length of 0.8 miles, with individuals spending about 85 minutes per week walking¹.

In Scotland, 21 per cent of those surveyed reported walking as their main mode of travel in 2021, which is a decrease from 2016, where 24 per cent stated that walking was their main mode of transport. Just over one in ten (12 per cent) of adults usually walked to work and half (52 per cent) of children usually walked to school as their main mode of transport, these levels remain the same as 2016².

In Wales, 51 per cent of adults walked at least once or twice a week (2021/22), which is a decrease of 9 per cent from 2019/2020³.

Benefits of walking

There are many benefits for individuals of regular walking, including:

- Reducing the risk of dying prematurely, especially from heart disease
- Reducing the risk of stroke
- Reducing the risk of developing high blood pressure
- Reducing the risk of developing colon and breast cancer

¹GOV.UK, Walking and cycling statistics, England, 2021, <https://www.gov.uk/government/statistics/walking-and-cycling-statistics-england-2021/walking-and-cycling-statistics-england-2021#:~:text=The%20average%20person%20in%20England,a%20week%20travelling%20by%20walking> - accessed June 2023

²Transport Scotland (2017), Walking and cycling, <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2017/7-walking-and-cycling/> - accessed June 2023

³Welsh Government, Active travel (walking and cycling): April 2021 to March 2022, <https://www.gov.wales/sites/default/files/pdf-versions/2022/10/3/1665563419/active-travel-walking-and-cycling-april-2021-march-2022.pdf#page7> - accessed June 2023



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- Helping to control weight
- Helping older adults to become stronger and maintain their mobility
- Promoting psychological wellbeing
- Saving money by cutting down on fuel, parking and public transport costs.

There are also a number of benefits at an environmental level, including:

- Easing congestion
- Reducing noise pollution, and
- cutting exhaust emissions

Risks of walking

In 2021, around 16,500 pedestrians were killed or injured in police reported road accidents in Great Britain, including over 5,000 who were killed or seriously injured⁴. Some groups are particularly vulnerable, such as children and young people from the most deprived backgrounds and older people.

Along with the risk of injury, air pollution affects pedestrians, contributing to 28,000-36,000 early deaths per year⁵. If more walking and cycling is achieved by reducing motorised road journeys it could reduce air pollution.

A safer walking environment

Busy urban roads, junctions and high-speed roads without adequate consideration of pedestrian facilities increase the likelihood that pedestrians will be injured or killed while walking alongside or crossing the road⁶. Two general approaches create a safer physical environment for pedestrians:

- Introducing a 'safe system' approach to road design that reduces the risk of crashes occurring, and the severity of any that do occur, making fatal injuries unlikely and;
- Reducing motor traffic volume

Reducing vehicle speeds

One of the most effective ways of improving pedestrian safety is reducing vehicle speeds. Even at a relatively low impact speeds, pedestrians receive more severe injuries than many other road user groups because their only protection is often their clothes. Speed determines the severity of injuries because at lower speeds, drivers have more time to react and avoid collisions⁷. Several engineering measures can reduce vehicle speed and prevent

⁴GOV.UK, Reported road casualties GB: pedestrian factsheet 2021, [https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20\(adjusted\)](https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20(adjusted)) - accessed June 2023

⁵GOV.UK (2022), Air pollution: applying All our Health, <https://www.gov.uk/government/publications/air-pollution-applying-all-our-health#:~:text=The%20annual%20mortality%20of%20human,and%2036%2C000%20deaths%20every%20year> - accessed June 2023

⁶ WHO (2011) cited in World Health Organisation (2013) 'Pedestrian Safety: A road safety manual for decision-makers and practitioners' http://apps.who.int/iris/bitstream/10665/79753/1/9789241505352_eng.pdf?ua=1 - accessed June 2023

⁷ European Transport Safety Council (1999) 'Safety of Pedestrians and Cyclists in Urban Areas' <http://archive.etsc.eu/documents/pedestrian.pdf> - accessed June 2023



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pedestrian collisions. Measures include 20mph zones, limits, and traffic calming measures such as speed humps and chicanes, and safe crossings.

Shared space

'Shared Space' schemes can also be introduced, in which the highway environment is re-designed to slow down traffic speed and give greater priority and safety to non-motorised users. It has considerable potential to provide a safer and more user-friendly environment, especially for pedestrians. However, following concerns raised by groups that represent people with impaired vision, the Department for Transport have recommended that local authorities pause the development of shared space schemes while they review and update guidance⁸.

Pedestrians with special needs

Road design also needs to take the needs of those with disabilities into account. It is estimated that 14.6 million people (22 per cent) had a disability in the UK in 2020/21. The number of disabled people increases with the age of the population with 9 per cent of children; 21 per cent of working age adults; 42 per cent of adults over state pension age and; 59 per cent of people over 80⁹. We need to ensure that our streets are fully inclusive and do not provide barriers for pedestrians with disabilities. Recommendations include:

- Tactile paving at the edges of steps and pavements and safe crossing places
- Well-maintained, firm, flat, even and wide footways making the roads easier to navigate and safer to use for those with disabilities
- Avoiding unnecessary street 'clutter'. Cluttered pavements can present obstacles and risk of injury for blind and partially sighted people¹⁰
- Ensure that there is enough time available for people to cross safely at crossings¹¹
- Tarmac surfaces, rather than paving stones, which reduce the risk of uneven surfaces and trips and falls, and makes the use of mobility scooters more comfortable and efficient¹²
- Dropped kerbs or continuous pavements, which allow easier access for wheelchair users
- Safe crossings with signaling that can be detected by those with sight or hearing loss and longer crossing periods for people with mobility impairments to safely cross the road¹³.

⁸ Department for Transport (2018) 'The Inclusive Transport Strategy: Achieving Equal Access for Disabled People'
URL: <https://www.gov.uk/government/publications/inclusive-transport-strategy> - accessed June 2023

⁹ UK Parliament (2022), UK disability statistics: Prevalence and life experiences, <https://commonslibrary.parliament.uk/research-briefings/cbp-9602/> - accessed June 2023

¹⁰ Living Streets, Inclusive design, <https://www.livingstreets.org.uk/policy-and-resources/our-policy/inclusive-design> - accessed June 2023

¹¹ Living Streets (2016) Overcoming barriers and identifying opportunities for everyday walking for disabled people
<https://www.livingstreets.org.uk/media/1794/overcoming-barriers-and-identifying-opportunities-for-everyday-walking-for-disabled-people.pdf#page20> - accessed June 2023

¹² PHE (2018) 'Healthy High Streets: Good place making in an urban setting'
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699295/26.01.18_Healthy_High_Streets_Full_Report_Final_version_3.pdf - accessed June 2023

¹³ Petridou et al (2003) cited in World Health Organisation (2013) 'Pedestrian Safety: A road safety manual for decision-makers and practitioners' http://apps.who.int/iris/bitstream/10665/79753/1/9789241505352_eng.pdf?ua=1 - accessed June 2023



Street lighting

Night-time travel is one of the greatest risk factors for pedestrians and affects people's perceptions of safety. Many pedestrian collisions occur in the first hour of darkness¹⁴. Pedestrians often avoid unfamiliar streets, deserted public spaces and dark underpasses if they believe they are at risk of harm or assault in these locations. This means that they may choose to take a route or cross a road in a location with higher traffic risk. Street lighting promotes a sense of safety in urban areas and so increases the quality of life by artificially extending the hours in which it is light so that activity can take place.

Vehicle technology

Developments in vehicle design and technology can improve pedestrian safety. Increasingly, vehicles are being designed to be safer for pedestrians by reducing the likelihood of collisions with them and reducing the severity of any collisions that do occur. Ultimately, this is likely to result in "driverless" cars, but in the meantime, cars will become more and more autonomous but still require a driver to be in control. These technologies are evolving rapidly as autonomous technology is developed and trialled. Some of the technology that is likely to offer protection to pedestrians include:

- Intelligent speed adaptation (ISA) to support drivers' compliance with the speed limit
- Autonomous emergency braking (AEB) that uses sensors to detect the risk of hitting a pedestrian and applies the vehicle's brakes to prevent it
- Vulnerable road user detection and alert systems
- Lane departure warning systems
- Safer bonnet design to reduce the likely severity of injuries to any pedestrian who is hit¹⁵.

Improving road user behaviour

Although infrastructure can improve the safety of all road users, most road crashes are at least partly caused by human error, which can range from simple mistakes and misjudgements to deliberately dangerous and illegal behaviour. Creating a safer pedestrian environment will also help to improve the behaviour of all road users, by making it easier for them to behave responsibly and safely.

Education (including training and publicity) and enforcement are also key approaches to improving road user behaviour, and to helping everyone share the road safely together. However, all road users, including pedestrians, cyclists and drivers, must also take responsibility for their own choices and behaviour.

¹⁴ WHO (2013) 'Pedestrian safety: a road safety manual for decision-makers and practitioners'
<http://www.who.int/roadsafety/projects/manuals/pedestrian/en/> - accessed June 2023

¹⁵ Alter, L. (2017) 'Tesla's sold in Europe have an "Active Hood" to protect pedestrians. American pedestrians? Look both ways.'
<https://www.treehugger.com/cars/teslas-sold-europe-have-active-hood-protect-pedestrians-american-pedestrians-look-both-ways.html> - accessed June 2023



Improving driver behaviour

Enforcement

Unfortunately, many drivers exceed the speed limit, or drive within the limit, but too fast for the conditions. In 2021, 51% of car drivers and 52% of light commercial vehicles were observed exceeding the 30mph speed limit¹⁶. Therefore, compliance with the speed limit needs to be improved through enforcement and education measures. National Speed Awareness Courses are offered to drivers caught exceeding the speed limit, in place of penalty points and a fine. The course aims to identify the benefits of complying with speed limits, understand the consequences of speeding, improve knowledge of speed limits and recognise personal responsibility for choice of speed.

Driver training

Once motorists have gained their full driving licence, few drivers take any further driver training, unless they are required to do so as part of a driver rectification scheme or their employer provides advanced training. There are many options available, ranging from quick and easy courses on specific issues or skills to longer courses leading to full advanced driving tests.

Improving pedestrian behaviour

The most common contributory factors attributed to pedestrians are 'failed to look properly', 'careless, reckless or in a hurry' and 'failed to judge vehicles path or speed'¹⁷. Other common factors are 'pedestrian crossing the road near a stationary or parked vehicle' (meaning another road user did not see them) or 'pedestrian impaired by alcohol'.

Pedestrian training

Pedestrian casualties increase as children grow older and become more independent as pedestrians. Road safety education and training for children at Key Stages 1 and 2 should be conducted in real-road environments, not solely in a classroom or playground and should cover modern-day scenarios, such as distraction by mobile phones while walking, and crossing between parked vehicles. Road safety should also be taught as a spiral programme across all key stages in a way that ensures that what has been learnt is revisited, reinforced, and extended in an age-appropriate way¹⁸.

Improving visibility

Pedestrians also need to be aware that other road users may not see them in low light conditions, particularly if they are wearing dark clothing. It is advised that pedestrians select light coloured clothing and add reflective material to backpacks, shoes and clothing to make themselves more visible to other road users.

¹⁶GOV.UK (2022), Vehicle speed compliance statistics for GB: 2021, <https://www.gov.uk/government/statistics/vehicle-speed-compliance-statistics-for-great-britain-2021/vehicle-speed-compliance-statistics-for-great-britain-2021> - accessed June 2023

¹⁷GOV.UK (2022), Reported road casualties GB: pedestrian factsheet 2021, <https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021/reported-road-casualties-great-britain-pedestrian-factsheet-2021> - accessed June 2023

¹⁸ PHE and RoSPA (2016) 'Road Injury Prevention: Resources to support schools to promote safe active travel'<https://www.rospace.com/rospaweb/docs/advice-services/road-safety/teachers/road-injury-prevention.pdf> - accessed June 2023



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Impairment

Pedestrians should also be aware of the impact alcohol can have on their safety. From 2016-2021, a pedestrian was killed or seriously injured when impaired by alcohol in 2,841 collisions¹⁷. Alcohol consumption, whether on the part of the vehicle driver or a vulnerable road user such as a pedestrian, increases the likelihood of a crash, the severity of injury and the odds of death.

Cyclists and Pedestrians

Although most cycling takes place in areas of high pedestrian activity, it is important to note that the majority of pedestrians who are killed or injured in reported collisions are hit by a motor vehicle rather than a cycle. A small number of cyclists sometimes cycle on the pavement even though it is illegal. Many cyclists report cycling on the pavement because they feel unsafe on the road, however this can become a barrier and can pose a risk to pedestrians – especially blind and partially sighted people¹⁹. This could be solved by more investment in cycling infrastructure, which could encourage fewer cyclists to ride on the pavement.

¹⁹ Living Streets, Walking and cycling, <https://www.livingstreets.org.uk/policy-and-resources/our-policy/walking-and-cycling2023> - accessed June 2023



Introduction

This policy paper has two main objectives:

1. To review and summarise information on the benefits and risks of walking in Great Britain
2. To identify the best ways of meeting the challenge of increasing walking without also increasing pedestrian casualties.

Although this policy paper focuses on walking, many of the principles discussed also apply to cycling. Both are important and valuable forms of physical activity and transport, which should be accorded equal priority in terms of public policy. Many of the health benefits gained from walking can also be gained from cycling, and many of the measures to improve pedestrian safety (for example, speed management) improve cycling safety. However, they are two very different modes, and mixing them together inappropriately can cause anxiety and even serious injury to both riders and pedestrians.

Policies and infrastructure to promote walking, and improve pedestrian safety, should not be made in isolation. Both pedestrians and cyclists are highly vulnerable to, and restricted by, motor traffic. It is important to aim to reduce the risk of collisions, to produce an environment that both pedestrians and cyclists feel safe using, and to improve driver behaviour.

The Government wants walking and cycling to be a normal part of everyday life and the natural choice for short journeys, with half of journeys in towns and cities walked or cycled by 2030. However, the sad reality is that in 2021, 361 pedestrians were killed on Great Britain's roads, making up 25 per cent of all road fatalities. Over 5,000 were seriously injured and just over 11,000 were slightly injured in reported road accidents. Between 2020 and 2021, pedestrian fatalities rose by 4 per cent while pedestrian traffic levels fell by 4 per cent²⁰.

RoSPA believes that the ambition to significantly increase the amount of walking will only be achieved if people feel safe when walking, otherwise the huge numbers of people who would walk if they felt they could do so, are unlikely to be persuaded that it is safe and convenient enough for them. The key to increasing walking is to create a safe on and off-road environment, improve road user attitudes and behaviour towards each other, and safer vehicles that reduce the risk of collisions occurring and the severity of those that do occur.

²⁰ GOV.UK (2022), Reported road casualties GB: pedestrian factsheet 2021, <https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021/reported-road-casualties-great-britain-pedestrian-factsheet-2021> - accessed June 2023



Levels of walking

England

According to the National Travel Survey, on average, individuals made 235 walking trips in 2021. This accounted for 31 per cent of trips made, but just 5 per cent of distance travelled²⁰. There has been an 11 per cent decrease in the number of walking trips made since 2002 and whilst the number of walking trips were similar to 2020, they remain below pre-pandemic levels.

In the year ending November 2020, the Active Lives Survey indicated that 67 per cent of adults in England made at least one walking trip a week (of at least 10 minutes)²¹. However, regular walking is not distributed equally across England. The Isles of Scilly (85 per cent) had the highest proportion of adults walking at least once a week followed by East Hampshire (83 per cent), Cambridge and Cheshire East (81 per cent) had the highest proportion of adults walking at least once a week. The City of London had the lowest prevalence of walking once a week (49 per cent, followed by Knowsley and Sandwell with 53 per cent. In total, 18 local authorities saw less than 60 per cent of their adult population walking less than once a week²¹.

There are a number of reasons that people choose to walk. The 2021 National Travel Survey indicated that the top five purposes for walking included 'just walking' (45 per cent), education, including escorting children to a place of education (18 per cent), shopping (15 per cent), and leisure (8%). Overall women (256 trips per person) made more walking trips than men (213 trips per person) and this is true for all age groups apart from those aged 17-20. Walking levels for men and women seem to be similar at all ages²².

In England, the number of children walking to school has declined considerably. In the 1970's around 70 per cent of children walked to school. However, by 2020, only just over half (52 per cent) of primary school children walked or cycled to school and around one-third (34 per cent) of secondary school children²¹.

Scotland²³

In Scotland, 37 per cent of people stated that walking was their main mode of transport in 2020. However, this figure is not comparable to previous data due to differences to how data is collected. Within that figure;

- 13 per cent of adults walked to work
- 48 per cent of children walked to school, however this varies from 58 per cent in the 4-11 age group to 38 per cent in the 12-18 age group
- 25 per cent of people walked for pleasure

²¹GOV.UK (2021), Walking and cycling statistics, England: 2020, <https://www.gov.uk/government/statistics/walking-and-cycling-statistics-england-2020#:~:text=Results%20from%20the%20Active%20Lives,at%20least%20once%20a%20week> - accessed June 2023

²²GOV.UK (2022), National travel survey 2021: Active travel, [https://www.gov.uk/government/statistics/national-travel-survey-2021/national-travel-survey-2021-active-travel#:~:text=The%20most%20common%20purpose%20for%20walking%20trips%20was%20other%20including,%25\)%20and%20leisure%20\(8%25\)](https://www.gov.uk/government/statistics/national-travel-survey-2021/national-travel-survey-2021-active-travel#:~:text=The%20most%20common%20purpose%20for%20walking%20trips%20was%20other%20including,%25)%20and%20leisure%20(8%25)) - accessed June 2023

²³ Transport Scotland (2020), Transport and travel in Scotland, <https://www.transport.gov.scot/media/50980/transport-and-travel-in-scotland-2020-results-from-the-scottish-household-survey-pdf-version.pdf> - accessed June 2023



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Wales²⁴

In Wales, 51 per cent of adults walked at least once a week in 2022, a decrease from 60% in 2020. There was no significant difference between men and women, but those with a long-term illness or disability were less likely to walk everyday. Of these adults:

- 18 per cent of people walked for more than 10 minutes per day
- 33 per cent stated that they walked between twice a week to a few times a week
- 7 per cent walked once or twice a month
- 42 per cent of people said that they walked less often or never.

The amount of walking varied by the area the individual lived in. Three quarters (64 per cent) of people living in urban areas walked for at least 10 minutes at least once a month, compared to just less than half (47 per cent) of those from rural areas. Travelling to the local shops, visiting friends and relatives and work were the main reasons that individuals in Wales chose to walk. Children walking to primary school is increasing in Wales, rising from 44 per cent in 2016 to 48 per cent in 2021/22. However, only 32% of secondary school pupils typically walked to school.

²⁴Welsh Government (2022), Active travel (walking and cycling): April 2021 to March 2022, <https://www.gov.wales/sites/default/files/pdf-versions/2022/10/3/1665563419/active-travel-walking-and-cycling-april-2021-march-2022.pdf#page7> - accessed June 2023



Benefits and risks of walking

Benefits

The Government and public health bodies encourage people to aim for 30 minutes of moderate physical activity at least five times a week, or at least 150 minutes per week. As walking is a low-cost activity and requires no special skills, it is one of the easiest ways to become physically active²⁵. Journeys of less than two miles can often be completed on foot, so walking can easily be built into an individual's routine.

There are many benefits for individuals of regular walking, including:

- Reducing the risk of dying prematurely, especially from heart disease
- Reducing the risk of stroke
- Reducing the risk of diabetes
- Reducing the risk of developing high blood pressure
- Helping to reduce blood pressure in those who have already been diagnosed with high blood pressure
- Reducing the risk of developing colon and breast cancer
- Helping to control weight
- Helping to build and maintain healthy bones, muscles and joints
- Helping older adults to become stronger and maintain their mobility
- Promoting psychological wellbeing
- Reducing feelings of depression and anxiety
- Saving money by cutting down on fuel, parking and public transport costs.

There are also several benefits at an environmental level, including:

- Easing congestion
- Reducing noise pollution
- And cutting exhaust emissions,

Finally, there are a number of benefits for employers, at a business and organisational level, including:

- Reducing organisational transport costs
- Reducing the need for car parking spaces
- Helping to meet criteria for accreditation schemes such as the [Healthy Working Lives Award](#)
- Increasing productivity through improved staff wellbeing:

Risks

In 2021, over 16,000 pedestrians were killed or injured in police reported road accidents, including over 5,000 who were killed or seriously injured.

²⁵PHE (2017), 10 minutes brisk walking east day in mid-life for health benefits and towards a viewing physical activity recommendations, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/639030/Health_benefits_of_10_mins_brisk_walking_evidence_summary.pdf - accessed June 2023



Table 1: Number of pedestrians killed or injured in reported road accidents, Great Britain, 2017-2021²⁶

	Killed	KSI	All severities
2017	470	6,636	23,805
2018	456	6,796	22,432
2019	470	6,528	21,770
2020	346	4,367	14,750
2021	361	5,032	16,654

These figures only include accidents reported to the police. It is important to note that there is no obligation for people to report all personal-injury accidents to the police (although there is an obligation in certain conditions, as outlined in the Road Traffic Act). These figures are, therefore, likely to underestimate the full range of pedestrian accidents and casualties in Great Britain.

Along with the risk of injury, there are concerns about the effects of air pollution on pedestrians. Air pollution contributes to around 28,000-36,000 early deaths per year²⁷, and active travel, such as walking and cycling, could increase the intake of air pollution, leading to negative health outcomes. However, if more walking and cycling is achieved by reducing motorised road journeys, it could reduce air pollution.

A 2016 study²⁸ examined the risk-benefit balance between active travel related activity and exposure to air pollution in various travel conditions. The authors explored the ‘tipping point’, at which individuals no longer gained any health benefits from participating in active travel. The authors also calculated the risk of reaching a ‘breaking point’, at which the risk of air pollution begins to outweigh the benefits of active travel. However, the study concluded that the benefits of active travel generally outweighed the risks, with an individual in an average urban area needing to walk for 16 hours a day before beginning to experience negative effects on their health, far more than the average individual would walk in a day.

Pedestrian casualties and casualty rates

In 2021, of the 16,000 pedestrian casualties, 4,301 were children aged 0-15 years. This means that a quarter of pedestrian casualties are children.

²⁶ GOV.UK (2022), Reported road casualties GB: pedestrian factsheet 2021, [https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20\(adjusted\)](https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20(adjusted)) - accessed June 2023

²⁷ GOV.UK, Air pollution: applying All Our Health, <https://www.gov.uk/government/publications/air-pollution-applying-all-our-health/air-pollution-applying-all-our-health#:~:text=to%2Dday%20practice,-,Why%20we%20focus%20on%20the%20health%20effects%20of%20air%20pollution,and%2036%2C000%20deaths%20every%20year> - accessed June 2023

²⁸ Tainio et al (2016) ‘Can air pollution negate the health benefits of cycling and walking?’ Preventative Medicine, 87: 233-236.



Table 2: Number of pedestrians killed or injured in reported road accidents, by age, Great Britain, 2021²⁹

	Child (0-15 years)	Young people (16-24 years)	Adult (25-59 years)	Adult (60+ years)
Killed	17	35	167	142
Serious	1,252	647	1,942	1,150
Slight	3,032	1,627	4,782	1,545
Total	4,301	2,309	6,890	2,837

The majority of pedestrians are injured in built up areas, with 88 per cent of all collisions involving pedestrians occurring on urban roads. The peak times for collisions involving pedestrians occur in commuting times during the week, between 7:30 and 8:59am and 3:00 and 4:59pm. At the weekend, the peak time for pedestrian casualties runs over a much longer period of the day, from around midday until about 19:00²⁸.

It is important to understand whether any increase in pedestrian casualties is due to more walking or walking becoming less safe. This is because more people choosing to walk could result in more pedestrian casualties, but a reduction in the casualty rate per billion vehicle miles travelled, means walking becomes safer. Once a critical level of walking is reached, a ‘safety in numbers’ effect could occur, whereby the accident rate decreases because infrastructure improvements have been adapted to the increasing numbers of pedestrians.

Drivers may also expect to see more pedestrians and adapt their driving accordingly³⁰. For example, although the amount of walking and cycling varies across Europe and North America, from 6% of all trips in the USA to 46% in The Netherlands, the per capita fatal injury rate is very similar in both countries. This shows that the number of pedestrian casualties does not necessarily vary linearly with the number of pedestrians³¹.

The Public Health Outcomes Framework³² sets an overarching vision of improving the nation’s health and wellbeing, with a focus on accelerating improved health outcomes in disadvantaged groups. Therefore, every local authority in England is required to produce a Joint Strategic Needs Assessment and a Wellbeing Strategy and Investment Plan to assess the current and future health needs of the local population and to inform and guide the planning of health, wellbeing and social care services within the local authority area. This should also include the promotion of active travel initiatives.

Links with poverty

Britain’s most deprived communities and people from ethnic minority backgrounds bear the brunt of traffic congestion and air pollution. Deprivation doubles the risk of becoming a pedestrian casualty, this increases to

²⁹ GOV.UK (2022), Reported road casualties GB, annual report: 2021, <https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-annual-report-2021> - accessed June 2023

³⁰ Bhatia, R. and Wier, M. (2011) “Safety in Numbers” re-examined: can we make valid or practical inferences from available evidence?, Accident Analysis and Prevention, 4(1):235-240.

³¹ Bundesanstalt für Straßenwesen cited in Jacobsen, P. L. (2003) ‘Safety in numbers: more walkers and bicyclists, safer walking and bicycling’, Injury Prevention, 9: 205-209.

³²PHE, Public Health Outcomes Framework 2019-2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/862264/At_a_glance_document2.pdf - accessed June 2023



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triple if a person is from an ethnic minority, living in a deprived area, when compared to a white person living in a non-deprived area. Chart 1 shows the annual pedestrian casualty rates per 100,000 of the population³³.

Chart 1: Annual pedestrian casualty rates per 100,000



(Source: [Agilysis](#))

Although the mortality rates of children and adolescents have steadily declined over time, accidental injuries are still one of the top three causes of death in this age group³⁴. Poverty influences many of the factors that cause road accidents. A study of road accident data has shown that there would be around 800 fewer serious or fatal injuries to child pedestrians annually, and 136 fewer serious or fatal injuries to child cyclists, if all children had a risk of injury as low as children did in the least deprived areas³⁵.

Older pedestrians

Around 61 per cent of pedestrian deaths in Great Britain are among people aged 60 years or over³¹. The risk of a collisions when crossing the road increases more rapidly with age from the early 60s, even more so from 70 years and substantially after about 79 years. Accidents are closely related to the times and places that older people most often walk, being more common during the day and within 1km of home. As with car occupants, the injuries caused to older pedestrians in collisions are more severe than for younger people³⁶.

Older people do not necessarily feel any more vulnerable than other pedestrians and their concerns about safety as a pedestrian tend to focus more on the experience of walking on the pavement than on crossing the road. While

³³ Living Streets (2021), Road Traffic and Injury Risk in Ethnic Minority Populations, <https://www.livingstreets.org.uk/media/6335/road-traffic-injury-risk-amongst-gb-black-and-ethnic-minority-populations.pdf> - accessed June 2023

³⁴ Royal College of Paediatrics and Child Health (2020), State of Child Health in the UK, <https://stateofchildhealth.rcpch.ac.uk/evidence/mortality/child-mortality/#page-section-3> - accessed June 2023

³⁵ Sissons Joshi M, Stevens C. 2014. The effectiveness of safety education at alerting children to daily risks. Available at: <https://www.rospa.com/rospaweb/docs/research/safety-education.pdf> - accessed June 2023

³⁶ Department for Transport. 2004. Older pedestrians: a critical review of the literature. Available from: <http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme1/olderpedestriansacriticalrev.Pdf> - accessed June 2023



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their attitude to crossing the road is probably more cautious than others, bad habits, such as “chancing it” by not using a crossing, have changed little since they were younger³⁷.

The key measure to address the risk for older pedestrians is to provide a safer environment that is designed for their needs, and that encourages walking, given the importance of physical activity for health and wellbeing, and associated environmental benefits.

A strategic approach to falls prevention among older people, has the potential to bring significant improvement for their health and wellbeing. As the prevalence of the fear of falling among older people can result in activity avoidance, loneliness and social isolation³⁸ – becoming a “trigger point at which people start to lose capacity”³⁹ - negatively impacting on their health and wellbeing⁴⁰. Falls accounted for 223,101 hospital admission in over 65s in 2021, with 146,934 being aged 80 or over⁴¹.

RoSPA is running a [Fall Fighter campaign](#), where you can learn about falls and how to prevent them.

Comparisons with other countries

Across Europe, 20 per cent of those killed on our roads were pedestrians in 2019⁴², this is slightly lower than the figure (23 per cent of all road deaths) for Great Britain. The share of pedestrian deaths was particularly high in Romania, Bulgaria, Latvia, Poland and Lithuania, which is at least two times higher than the EU average. The majority of pedestrian road deaths occurred in urban areas (72 per cent), this is lower than the 88 per cent that occur on urban roads in Great Britain. Pedestrian road fatalities also occur at similar times of day in the EU as in Great Britain, with morning and evening peaks in the working week and relatively few on weekend mornings.

Key statistics, Great Britain, 2016-2021⁴³

- Pedestrians are most likely to be in a collision with a car
- 30% of pedestrians are killed on rural roads, yet only make up 12% of the overall casualties, suggesting collisions on these roads are more serious
- More men than women are injured on the roads when traveling as a pedestrian. 58% of pedestrians who were killed or seriously injured (KSI) were men
- The most common contributory factors in collisions were where the pedestrian or driver failed to look properly.

³⁷ Transport for London. 2013. Older pedestrians and road safety: research debrief. Available at: <http://content.tfl.gov.uk/older-pedestrians-research-report.pdf> - accessed June 2023

³⁸ Royal Society for the Prevention of Accidents/Royal College of Emergency Medicine. 2017. Action to prevent falls. Available at: <https://www.rosipa.com/rospaweb/docs/advice-services/home-safety/falls-prevention-factsheet.pdf> - accessed June 2023

³⁹ Communities and Local Government Committee. 2018. Housing for older people. Available from: <https://publications.parliament.uk/pa/cm201719/cmselect/cmcomloc/370/37002.htm> - accessed June 2023

⁴⁰ Warwickshire County Council. 2017. Everyone in Warwickshire counts: valuing the vulnerable. Director of public health annual report 2017. Available at: <https://apps.warwickshire.gov.uk/api/documents/WCCC-630-1310> - accessed June 2023

⁴¹ GOV.UK, Public Health Profiles, <https://fingertips.phe.org.uk/search/falls> - accessed June 2023

⁴² European Commission (2021) European Road Safety Observatory, Fact and Figure – Pedestrians – 2021, https://road-safety.transport.ec.europa.eu/system/files/2022-03/FF_pedestrians_20220209.pdf - accessed June 2023

⁴³ GOV.UK (2022), Reported road casualties GB: pedestrian factsheet 2021, <https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021/reported-road-casualties-great-britain-pedestrian-factsheet-2021#sex-and-age-comparisons> - accessed June 2023



Public policy

DfT cycling and walking investment strategy⁴⁴

In 2017, the Department for Transport published the Cycling and Walking Investment Strategy (CWIS), with the aim of making cycling and walking the natural choice for shorter journeys, or as part of a longer journey, regardless of age, gender, fitness level or income. Individuals are encouraged to consider walking or cycling for a number of purposes, including travelling to a place of work or education, travelling to the bus or train station or for pleasure.

The strategy sought to increase walking activity (total number of walking stages per person per year) to 300 per year by 2025 (research suggests that, if achieved, there would be £279 million benefits in reduced air pollution per year¹) and increase the percentage of children aged 5-10 that usually walk to school from 49% in 2014 to 55% in 2025.

The Department for Transport aimed to meet these objectives by providing over £1 billion of government funding to local bodies to invest in cycling and walking over five years. Delivery will include cycling and walking programmes, local transport programmes, Government programmes, local body programmes and initiatives led by business and the third sector.

The Government also announced a second CWIS strategy⁴⁵ that set out the objective and financial resources for the period April 2021–March 2025, with the ambition to make walking and cycling the natural choice for shorter, or part of longer journeys by 2040. The objectives to achieve this vision were also revised to:

- increase the percentage of short journeys in towns and cities that are walked or cycled from 41 per cent in 2018 to 2019 to 46 per cent by 2025
- increase walking activity, where walking activity is measured as the total number of walking stages per person per year, to 365 stages per person per year by 2025
- double cycling, where cycling activity is measured as the estimated total number of cycling stages made each year, from 0.8 billion stages in 2013 to 1.6 billion stages by 2025
- increase the percentage of children aged 5 to 10 who usually walk to school from 49% in 2014 to 55% by 2025

RoSPA strongly supports the vision as outlined in the Investment Strategy.

In RoSPA's view, the ambition to significantly increase the amount of walking will only be achieved if people feel safe when walking, otherwise the huge numbers of people who would walk more if they felt they could do so, are unlikely to be persuaded that it is safe and convenient enough for them.

The key to increasing walking is to create a safer walking environment with safe and convenient crossing places, improve road user attitudes and behaviour towards each other, and safer vehicles that reduce the risk of collisions

⁴⁴ DfT 'Cycling and Walking Investment Strategy', Department for Transport, 2017
<https://www.gov.uk/government/publications/cycling-and-walking-investment-strategy> - accessed June 2023

⁴⁵ DfT (2023), The second cycling and walking investment strategy (CWIS2), <https://www.gov.uk/government/publications/the-second-cycling-and-walking-investment-strategy/the-second-cycling-and-walking-investment-strategy-cwis2#table1> - accessed June 2023



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occurring and the severity of those that do occur and reduced vehicle speeds in areas with high pedestrian movement.

Gear Change⁴⁶

In 2020 the Government announced a vision to make England a cycling and walking nation. It set out the Government's vision in four themes:

- Better streets for cycling and people
- Cycling and walking at the heart of decision making
- Empowering and encouraging local authorities
- Enabling people to cycle and protecting them when they do it.

Gear change has been funded with £2billion of new money. Funding was provided to local authorities through a new Active Travel Fund and Transport for London. The National Audit Office⁴⁷ produced a value for money report in 2023, it suggested that although the investment is having an impact the rate of change was not happening fast enough to achieve its objectives. Although it is recognised that active travel can deliver important benefits, local deliver is patchy and too little is known about what has been achieved. Active Travel England will become an increasingly important body to monitor the benefits of active travel outcomes.

Active Travel England⁴⁸

Active Travel England was established to enable the achievement of the objectives set out in the CWIS. It is an executive agency of the DfT with the overall objective to achieve a step-change in walking and cycling in England. It supports, promotes and funds dedicated walking and cycling initiatives.

Active Travel (Wales) Act 2013

In 2013, Wales introduced an Active Travel Act. The Active Travel (Wales) Act 2013 is Welsh law to make it easier for people to walk and cycle in Wales. The Act requires Welsh ministers to publish annual reports on the number of active travel journeys made in Wales. The Act also encourages securing new and improved active travel routes and facilities and to promote active travel such as walking and cycling. Further information can be found on the Welsh Government [website](#).

Let's Get Scotland Walking⁴⁹

The national walking strategy for Scotland was launched in 2014, with a vision for everyone to enjoy the benefits of walking as part of their journey or being outside. The framework outlines numerous improvements within a strategic context, whilst working with numerous partners.

⁴⁶ DfT (2020), Gear Change. A bold vision for cycling and walking, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904146/gear-change-a-bold-vision-for-cycling-and-walking.pdf - accessed June 2023

⁴⁷ National Audit Office (2023), Active Travel in England, <https://www.nao.org.uk/wp-content/uploads/2023/06/active-travel-in-england-summary.pdf> - accessed June 2023

⁴⁸ Active Travel England (2022) Framework Document, Active Travel England, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1099662/framework-document-active-travel-england.pdf - accessed June 2023

⁴⁹ Scottish Government (2019) Let's Get Scotland Walking. The national walking strategy action plan 2016-2026, <https://www.transport.gov.scot/media/47993/national-walking-strategy.pdf> - accessed June 2023



NHS Healthy New Towns⁵⁰

Healthy New Towns programme, supported by the NHS and UK Health Security Agency (UKHSA) (then Public Health England), worked with 10 demonstrator sites chosen in March 2016 to:

- Plan and design a healthier built environment
- Enable strong and connected communities
- Create ways of providing integrated health and care services

This meant that there needed to be collaboration with the Council, developers and NHS from the outset; encouraging people to think about how health and social care can be integrated into communities.

Public Health England Everybody Active, Everyday⁵¹

As physical inactivity now contributes to around one in six deaths in the UK, UK Health Security Agency (UKHSA) (then Public Health England) published an evidence-based framework in 2014 called 'Everybody Active, Everyday', highlighting that walking and cycling are often the easiest ways to build activity in everyday life and are good for both physical and mental health. Public Health England worked closely with a number of organisations, including RoSPA, to produce a range of design guides, evidence informed briefings and toolkits to support local authorities in their efforts to increase active travel.

National Planning Policy⁵²

National Planning policy sets an approach to enable and support healthy active lifestyles including sustainable forms of travel, such as cycling and walking. One of the core principles is that the planning system should make the most of public transport and sustainable transport, focussing on developing sustainable locations. The Community Infrastructure Levy allows local authorities in England and Wales to raise funds from building project developers to help provide vital infrastructure, based on the needs of the community. The Levy is used to fund a wide range of infrastructure, including parks, transport and leisure facilities. These developments should give priority to cyclist and pedestrian movements and high-quality public transport systems, create safe street layouts to avoid conflict between traffic and cyclists or pedestrians and build key facilities (primary schools and local shops) within walking distance of homes.

⁵⁰ NHS, Healthy New Towns, <https://www.england.nhs.uk/ourwork/innovation/healthy-new-towns/> - - accessed June 2023

⁵¹ PHE (2021) Everybody active, everyday:framework for physical activity, <https://www.gov.uk/government/publications/everybody-active-every-day-a-framework-to-embed-physical-activity-into-daily-life> - accessed June 2023

⁵²Ministry of Housing, Communities & Local Government (2021), National Planning Policy Framework, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf#page41 - accessed June 2023



A safer walking environment

Busy urban roads, junctions, and high-speed roads without adequate consideration of pedestrian facilities increase the likelihood that pedestrians will be injured or killed while walking alongside or crossing the road⁵³. Two general approaches create a safer physical environment for pedestrians:

- Introducing a 'safe system' approach to road design that reduces the risk of crashes occurring, and the severity of any that do occur, making fatal injuries unlikely
- Reducing motor traffic volume

The Safe System approach is advocated by the World Health Organisation and Vision Zero philosophy⁵⁴. It is based on the understanding that injury is caused by an exchange of energy in quantities higher than human tolerance to it. Preventing or minimising this exchange of energy, therefore, prevents injuries. The Safe System approach has been adopted in some other countries, such as The Netherlands, Sweden, and New Zealand, and components of the approach have been adopted in the Safe streets for London Action Plan,⁵⁵ The Scottish Government⁵⁶, and Highways England's strategy⁵⁷.

The Safe System recognises that people make mistakes, and designs roads and vehicles so that these mistakes are not likely to result in death or serious injury and proposes that roads, vehicles, and traffic speeds are modified to prevent exchanges of energy that are likely to cause fatal or serious injuries. This approach can be applied to all types of roads and all road users. In general, the Safe System philosophy identifies ways of separating traffic, in particular, separating vulnerable road users from motor vehicle traffic on high-speed roads. Where this cannot be achieved, roads should be designed to reduce traffic speed.

The Safe System is the vision that no one will be killed or seriously injured on our roads. Given that reaching these ambitious targets will require longer term planning, interim targets are set. For example, Scotland's Road Safety Framework includes a target to achieve a 50 per cent reduction in people killed or seriously injured by 2030, from a baseline of the 2005-09 average.

The International Safety Standard, "Road Traffic Safety Management Systems", (ISO 39001)⁵⁸ also advocates the adoption of a Safe System approach, stating that high levels of safety can be attained by achieving a good match between the function of the road, safe speed limits and their compliance and design and layout. Typical issues include separating oncoming traffic on high volume, high-speed roads to prevent head-on collisions and providing crash protective roadsides to address run-off road collisions.

⁵³ WHO (2011) cited in World Health Organisation (2013) 'Pedestrian Safety: A road safety manual for decision-makers and practitioners' http://apps.who.int/iris/bitstream/10665/79753/1/9789241505352_eng.pdf?ua=1 - accessed June 2023.

⁵⁴ OECD International Transport Forum (2008) 'Towards Zero: Ambitious Road safety Targets and the Safe System Approach'

⁵⁵ TfL, Safe Streets for London. The Road Safety Action Plan for London 2020, <https://content.tfl.gov.uk/safe-streets-for-london.pdf> - accessed June 2023

⁵⁶ Transport Scotland, Scotlands Road safety Framework to 2030, <https://www.transport.gov.scot/media/49893/scotlands-road-safety-framework-to-2030.pdf> - accessed June 2023

⁵⁷ National Highways, Putting safety first. Our story so far, <https://nationalhighways.co.uk/media/npvmcrjg/putting-safety-first.pdf> - accessed June 2023

⁵⁸ WHO (2013) 'Pedestrian safety: a road safety manual for decision-makers and practitioners' <http://www.who.int/roadsafety/projects/manuals/pedestrian/en/> - - accessed June 2023

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Studies have estimated the number of lives that could be saved by implementing a Safe System approach:

- A Swedish study⁵⁹ in 2004 judged that in 63 per cent of crashes analysed, the road or vehicle did not meet the safety standards of the Safe System approach, and concluded that these deaths could have been prevented by implementing a Safe System, even without addressing road user behaviour.
- An Australian study⁶⁰ in 2008 categorised 57 per cent of crashes as failure of the Safe System.

RoSPA recommends the further adoption of the Safe System approach throughout Great Britain and awaits the publication of Department for Transport's Road Safety Strategic Framework.

Design guidelines

The Department for Transport has published guidance documents to help local authorities design safe road infrastructure, including "Manual for Streets 2"⁶¹. RoSPA believes that a national design standard should be developed to ensure that all schemes are delivered to a set safety standard. Without this, there is a risk that schemes will be implemented which at best have no safety benefits and at worst create danger to some road user groups. Post-implementation monitoring should take place in all cases to allow for adjustments to mitigate unforeseen issues during the design stage.

Walking routes should be continuous, direct and join up residential areas, commercial areas and schools. Pedestrians need safe and well-designed footways and crossing facilities and walking routes that are:

- Direct – shortest, quickest route to minimise delay. Continually starting and stopping to cross the road is both frustrating and tiring.
- Safe – The route must be both statistically safe and feel safe
- Coherent – Joined up and easy to follow
- Attractive – Enhance the existing streetscape
- Comfortable – Clean, smooth surface in all weathers
- Adaptable - Allow future upgrades to accommodate an increase in use

Designing infrastructure for pedestrians should include a full understanding of the street or context in which it is located. [Living Streets](#), a pedestrian rights charity, recommends the following overarching principles for creating a safe and pleasant environment for walking and cycling:

1. Residents of a town or city should be encouraged to walk and bike as much as possible in connection with their daily activities

⁵⁹ Stigson et al. (2008) 'Use of fatal real-life crashes to analyse a safe road transport system model, including the road user, the vehicle, and the road', *Traffic Injury Prevention*, 9 :463-471.

⁶⁰ Wundersitz, L. and Baldock, M. (2012) 'The relative contribution of system failures and extreme behaviour in South Australian crashes: Preliminary findings', *Australasian Road Safety Research, Policing and Education Conference*

⁶¹ DfT (2007), *Manual for Streets*,

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1072722/Essex_Manual_for_Streets_Redacted.pdf - accessed June 2023



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2. Cycling and walking are entirely legitimate, desirable, every day, 'grown up' modes of transport, worthy of investment
3. Both pedestrians and cyclists are highly vulnerable to, and restricted by, motor traffic. Increasing cycle and walking mode share should be part of an integrated approach to decreasing car mode share
4. Walking and cycling are two very different modes: mixing them together inappropriately can cause fear, anxiety, insecurity and even serious injury
5. Improving cycle safety and convenience should not diminish pedestrian safety and convenience
6. Any change to the street environment must take into account the accessibility needs of all kinds of users
7. Where a satisfactory balance between road users cannot be achieved, a framework for identifying priority between them must apply. 'Capacity to cause' harm (health, climate change, noise, danger to others and air pollution) should underpin this decision-making
8. Context is key – standard design solutions must not be 'dropped in' without a full appreciation of the street's own unique context and many different functions. Local people must be consulted and existing use measured (for example, pedestrian flows).

Road Maintenance

Badly maintained footways can create a major tripping hazard for pedestrians. Although considerable funding is provided to local authorities, pothole patching is at best an inefficient, poor value and temporary solution. It is essential that highly used footways and cycle routes are maintained to a high standard and are regularly inspected. RoSPA believes that proper re-surfacing programmes of whole roads or stretches of roads are a more cost-effective approach than repairing individual potholes.

Speed

One of the most effective ways of improving pedestrian safety is reducing vehicle speed. This is because even at a relatively low impact speed, pedestrians receive more severe injuries than many other road user groups in collisions, because their only protection is often their clothes. Speed plays an important role in determining the severity of outcome in collisions because at lower speeds, drivers have more time to react to the unexpected and avoid collisions⁶². There are several engineering measures that can be implemented to reduce vehicle speed, therefore, preventing pedestrian collisions.

20mph schemes

Speed significantly increases injury severity in collisions, making serious or fatal injuries more likely. Research has shown that the risk of death for pedestrians struck by cars increases at higher impact speeds. The most recent modern estimates of the risk to pedestrians when struck by cars at different speeds as shown in Table 3 below, which shows a fatality risk of 1.5% at 20 mph versus 8% at 30 mph.

⁶² European Transport Safety Council (1999) 'Safety of Pedestrians and Cyclists in Urban Areas' <http://archive.etsc.eu/documents/pedestrian.pdf> - accessed June 2023



Table 3: Risk of pedestrian or cyclist death according to impact speed

Country and years of data analysed	Most likely estimated risk of death at 20mph	Most likely estimated risk of death at 30mph
Great Britain 1975-1979 ⁶³	5%	45%
Germany 1991-2003 ⁶⁴	4%	14%
Great Britain 2000-2007 ⁶⁵	~2%	~12%
South Korea 2003-2005 ⁶⁶	7%	37%
Germany 2003-2007 ⁶⁷	~1%	~8%

The objective of 20mph roads is to create conditions whereby drivers choose to drive at no more than 20mph thereby reducing the likelihood of collisions, and the severity of any that do occur. Drivers who travel at higher speeds have less time to identify and react to what is happening around them. It takes them longer to stop, and if they are involved in a collision, it is more severe, causing greater injury to any vehicle occupant, pedestrian or rider involved.

Extensive evidence indicates that speed significantly increases the likelihood of collisions, the chances of those collisions causing injury and the severity of those injuries, and that both 20mph zones and 20mph limits reduce the number and risk of these accidents and the casualties they cause.

The most recent DfT commissioned report into the evaluation of 20mph limits, published in November 2018, had several key findings⁶⁸:

- 20mph limits are supported by the majority of residents and drivers
- 20mph speed limits are more effective when they are supported by street design that indicates that a lower speed is appropriate
- There has been a small reduction (less than 1mph) in average (median) speed
- Vehicles traveling at higher speeds before the introduction of the 20mph limit have reduced their speed more than those already traveling at lower speeds
- There was a small but statistically significant increase in reported levels of cycling and walking.

The evaluation, known as the Atkins report, also noted that there was no evidence yet to conclude that there had been a significant change in collisions and casualties following the introduction of 20mph limits in residential areas. However, this may change as more data becomes available.

⁶³ Ashton, S. (1980) A Preliminary Assessment of Potential for Pedestrian Injury Reduction through Vehicle Design, SAE Technical Paper 801315.

⁶⁴ Hannawald, L. and Kauer, F. (2004) 'Equal Effectiveness Study on Pedestrian Protection', Technische Universität Dresden.

⁶⁵ Cuerden et al. (2007) 'Pedestrians and their survivability at different impact speeds', Proceedings of the 20th International Technical Conference on the Enhanced Safety of Vehicles, Paper No. 07-0440.

⁶⁶ Oh C et al. (2008) 'Assessing the safety benefits of an advanced vehicular technology for protecting pedestrians', Accident Analysis & Prevention, 40(3): 935-942.

⁶⁷ Rosén, E. and Sander, U. (2009) 'Pedestrian fatality risk as a function of car impact speed', Accident Analysis & Prevention, 41; 536-542.

⁶⁸ DfT (2018), 20mph research study - process and impact evaluation: headline report, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/757307/20mph-headline-report.pdf - accessed June 2023



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There are two distinct types of 20mph areas: 20mph Zones and 20mph Limits.

20mph limits are areas where the speed limit has been reduced to 20mph but there are no physical measures to reduce vehicle speeds within the area. Drivers are alerted to the speed limit with 20mph speed limit repeater signs.

20mph zones use traffic calming measures to reduce the adverse impact of motor vehicles on built up areas. The principle is that the traffic calming slows vehicles down to speeds below the limit, and the zone becomes 'self-enforcing'. Speed humps, chicanes, road narrowing, planting and other measures can be introduced to both physically and visually reinforce the nature of the road.

There are four main techniques to traffic calming programmes:

- **Vertical deflections** - these are seen as the most effective and reliable of the speed reduction methods, techniques include; road humps; speed table; cushion; rumble strips
- **Horizontal deflections** – generally classified as chicanes; can be used in isolation or combined with vertical deflections
- **Road narrowing** – the effectiveness of this measure in controlling speed can be increased if the carriageway width is reduced to a single lane, depending on the balance of the opposing traffic flows. The extra space created by road narrowing can be used to provide; widened footways; dedicated cycle lanes; formalised parking bays and bus lanes.
- **Central islands** - central islands have only a limited effect on reducing speeds unless combined with another measure such as a chicane. They do, however, provide useful pedestrian refuges.

For more information, read our [guide](#) to 20mph zones and limits.

Traffic calming

Other engineering measures can reduce speed, such as traffic calming. Traffic calming can contribute to population health, and reduce the number of collisions by around 15 per cent, increasing feelings of safety in the streets and reducing the numbers of casualties and deaths⁶⁹. Traffic calming in towns can benefit economic growth and local trade, and make people feel more relaxed, encouraging them to walk and to visit more shops⁷⁰. There are also environmental benefits, which in turn improve individuals' health, such as reducing noise and air pollution. A combination of traffic-calming measures provides the greatest benefit and should be implemented in various streets across an area, rather than in just a few isolated areas⁷¹.

⁶⁹ Bunn et al. (2003) cited in PHE (2018) 'Healthy High Streets: Good place making in an urban setting' https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699295/26.01.18_Healthy_High_Streets_Full_Report_Final_version_3.pdf - accessed June 2023

⁷⁰ DfT (2007) cited in PHE (2018) 'Healthy High Streets: Good place making in an urban setting' https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699295/26.01.18_Healthy_High_Streets_Full_Report_Final_version_3.pdf - accessed June 2023

⁷¹ WHO (2013) 'Pedestrian safety: a road safety manual for decision-makers and practitioners' <http://www.who.int/roadsafety/projects/manuals/pedestrian/en/> - accessed June 2023



Speed humps⁷²

Speed humps slow and discourage traffic. The standard round topped kerb-to-kerb speed reduce mean vehicle speeds by 11-16mph, 75mm high flat top and round-top bumps reduce speeds by an average of 10mph and speed cushions, although not as effective as speed humps, reduce speed by 2-7mph. Speed cushions can be more suitable than speed humps on bus routes.

RoSPA does not support the removal of speed humps where there is an identified need to manage vehicle speed. If speed humps are removed, they should be replaced by other measures that mean that the road is no less safe for pedestrians. A research study found that speed cushions produced less nitrogen oxide than speed humps⁷³.

Chicanes⁷⁴

Chicanes or pinch points (a build out of the kerb line to narrow the carriageway, usually on alternate sides of a single carriageway) can also be an effective measure to reduce vehicle speeds. One study found that they had the potential to reduce speeds and improve perceptions of safety for pedestrians, meaning that children were allowed to play outside, walk to school and cycle more⁷⁵.

Junctions⁷⁶

Junctions are associated with high rates of pedestrian collisions and injuries because they include a high number of pedestrian and vehicle conflict points. Uncontrolled junctions exacerbate this, as some vehicles may be approaching at a high-speeds. Signalised junctions (those with traffic lights) appear to be safer for pedestrians than uncontrolled junctions are; however, they can still be dangerous environments for pedestrians.

Safe crossings^{72, 76}

Pelican crossings

Pelican crossings are typically used on roads with high traffic volumes, high speeds, or high pedestrian volumes. The phasing of the lights and time allocated for pedestrians to cross the road is set by DfT guidelines based on the width of the road. Although it is safer to cross at a crossing, research has found that when pelican crossings were introduced, pedestrians were less cautious when crossing, did not always look for traffic before crossing the road and looked at traffic less while crossing the road.

⁷² TRL (2006) 'Factors influencing pedestrian safety: A literature Review'

<http://content.tfl.gov.uk/factors-influencing-pedestrian-safety-literature-review.pdf> - accessed June 2023

⁷³ The Independent (2017) 'Speed bumps could disappear from UK roads as part of Government plan to tackle air pollution'

URL: <https://www.independent.co.uk/news/uk/home-news/speed-bumps-disappear-uk-roads-air-pollution-government-plan-emissions-councils-remove-a7862811.html> - accessed June 2023

⁷⁴ TRL (2006) 'Factors influencing pedestrian safety: A literature Review'

<http://content.tfl.gov.uk/factors-influencing-pedestrian-safety-literature-review.pdf> - accessed June 2023

⁷⁵ Ross Silcock Limited (1999) cited in Scottish Executive (2003) 'Safely to School: A Study of Safer Routes to School in the Classroom'

http://www.dhc1.co.uk/content/School_Travel_Final_Report.pdf - accessed June 2023

⁷⁶ WHO (2013) 'Pedestrian safety: a road safety manual for decision-makers and practitioners'

<http://www.who.int/roadsafety/projects/manuals/pedestrian/en/> - accessed June 2023



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Puffin crossings

Puffin crossings detect pedestrians on the crossing and vary the amount of time the red light displays to stop vehicles accordingly. The 'red person'/'green person' indicator is located on the signal pole rather than on the far side of the road like a pelican to help those with visual impairments and to encourage pedestrians to watch the traffic and the signal simultaneously.

Toucan and Pegasus crossings

Toucan crossings allow pedestrians and cyclists to share a crossing, while Pegasus crossings include horse riders as well as pedestrians and cyclists. Both operate in the same way as a pelican or puffin crossing.

Zebra crossings

Zebra crossings give priority to pedestrians over vehicles without traffic controls. Some researchers argue that collision risk is higher at these crossings because they give pedestrians a sense of security without stopping traffic⁷⁷.

Countdown timers

Countdown timers indicate the amount of time pedestrians have left to cross the road. Research suggests that they can be useful, especially at wider crossings or where there are many elderly people and those with disabilities. However, it is important to have an 'all-red' phase for a few seconds to allow any pedestrians to complete their crossing and to discourage motorists from having a 'head-start'.

Although pedestrian crossings are often perceived as safe places to cross the road, this may not always be the case. Crossings give some protection to pedestrians, but some pedestrians disregard the crossing signals. The longer a pedestrian must wait for the 'green person' signal, the more likely they are to cross while the 'red person' is showing. Pedestrians are normally prepared to wait up to 30 seconds for the 'green person' to show, with those waiting over 40 seconds more tempted to cross on the 'red person'⁷⁸. Pedestrians will try to minimise the distance they have to walk and reduce their waiting times, often disregarding the Highway Code and taking risks. Being in a hurry and the desire to keep moving are often the reason that pedestrians disobey signals⁷⁸.

Pedestrian crossings can be enhanced in a number of ways⁷⁹:

- Skid resistant surface on approach to all crossings to enable drivers to stop more easily
- Moving the stop line at signalised crossings to enable drivers of larger vehicles to see pedestrians more easily
- Widening crossings so that pedestrians are less likely to walk off the crossing
- Reducing road widths at crossings so that pedestrians can travel a shorter distance to cross the road
- Re-locating crossings to align with pedestrian desire lines so they are more likely to make use of the crossing
- Adding refuges at crossings so that pedestrians have fewer lanes to cross at a time
- Adding dropped kerbs at crossings to assist those with physical impairments and tactile surfaces to help those with visual impairment
- Adding light-controlled pedestrian crossings, particularly on high-speed roads or those with a high level of

⁷⁷ Ekman and Elvik (1997) cited in TRL (2006) 'Factors influencing pedestrian safety: A literature Review' <http://content.tfl.gov.uk/factors-influencing-pedestrian-safety-literature-review.pdf> - accessed June 2023

⁷⁸ TRL (2014), A review of Pedestrian Walking Speed and time Needed to Cross the Road, <https://www.livingstreets.org.uk/media/1796/review-of-pedestrian-walking-speeds-report-v4b-280814-docx-2.pdf> - accessed June 2023

⁷⁹ School Crossing Patrol Survey, Road Safety Great Britain, 2018



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traffic flow. It is thought that signalised crossings halve the risks of pedestrians being involved in a collision rather than crossing without these facilities

- Installing guardrails can reduce conflict between pedestrians and other road users. This is a safety fence at the edge of the pavement, often installed where there is a risk of collision from pedestrians walking into the road. Despite this, there is some evidence that guardrails may not be effective at encouraging all pedestrians to cross at a designated pedestrian crossing. Zheng and Hall (2003) found that although there were safety benefits of installing guardrails at crossings, they could also encourage more risky behaviour by pedestrians more determined to cross, such as jumping over the railings. Therefore, they should only be installed when necessary. It is also important that they do not obstruct drivers' view of a pedestrian waiting to cross.
- Pedestrian crossings should be well illuminated at night to help drivers to see pedestrians.

School crossing patrols

Road Safety Great Britain's school crossing patrol service survey suggests that the provision of school crossing patrols has fallen in recent years. Research to establish the provision and benefits of school crossing patrols should be conducted.

Shared space

Local Transport Note 1/11⁸⁰ (currently withdrawn) defined shared space as '*A street or place designed to improve pedestrian movement and comfort by reducing the dominance of motor vehicles and enabling all users to share the space rather than follow the clearly defined rules implied by more conventional design*'.

However, it is made clear that there is no definitive 'shared space' design, meaning that schemes must be suited to local circumstances. One of the key decisions is how much separation there should be between road user groups, e.g. vehicles and pedestrians, and how this should be achieved. The Chartered Institution of Highways⁸¹ and Transportation (CIHT) define three types of shared space:

- **Pedestrian prioritised streets** – streets where pedestrians can move freely anywhere, and drivers should feel as though they are a guest. Currently, there is no formal priority for pedestrians in these areas. Street schemes of this type have generally adopted designs that do not appear to contain a well-defined carriageway so that other road users do not assume that pedestrians need a defined crossing or a driver's permission to cross the street. Such schemes have often used a level surface, sometimes with similar paving types and colours.
- **Informal streets** – streets where formal traffic control (e.g. signage and signals) are absent or reduced. There is a differentiation between the pavement and the carriageway, but this is typically less than in a conventional street. This aims to reduce vehicle speed by creating some uncertainty in driver's minds of whether they have the right of way. Due to the high volume of traffic, these streets still often include formal crossings (such as Pelican crossings) or courtesy crossings (which do not use signs and signals). Tactile paving is often used to indicate a courtesy crossing.
- **Enhanced streets** – where the public realm has been improved by introducing features such as seating, trees and public art and restrictions on pedestrian movement, such as guardrails, have been removed. This is the

⁸⁰ DfT (2011), Local Transport Note 1/11 (Withdrawn), https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/84/74/84746720-1693-4cb3-8f24-4bd854622173/nr-144.pdf accessed June 2023

⁸¹Chartered Institution of Highways and Transportation (2018) 'Creating better streets: Inclusive and accessible places' <http://www.ciht.org.uk/en/document-summary/index.cfm/docid/BF28B40D-9855-46D6-B8C19E22B64AA066> Date Accessed: 18/01/2018.



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limit of what can be considered as shared space, as conventional traffic controls remain.

A review of shared space schemes found that in pedestrian prioritised streets, pedestrian volumes were typically high and that more pedestrians in the street space resulted in reduced traffic speed, in many cases, to well below 20mph⁸². However, wayfinding can be a problem for some groups (such as young children, older people, non-locals and visually impaired people) in this type of street. Although shared space can remove barriers, such as kerbs and railings, that wheelchair and mobility scooter users find obstructive, other street users, especially those who are blind, partially sighted or have cognitive impairments, find the lack of demarcation between space for pedestrians and motorised vehicles difficult⁸³.

In many schemes, it was difficult to determine whether shared space was an inclusive environment for all road users. However, the review identified that some user groups, such as the visually impaired, had concerns about shared space environments. Despite this, pedestrian connectivity and movement had improved, with more space for walking and reduced delays crossing the street, as well as reduced congestion. Four of the 11 schemes also experienced reductions in the number of collisions and casualties. Six other schemes had been neutral in terms of safety and one scheme had insufficient data to compare collisions and casualties with the previous road layout. As over half of the schemes were neutral in terms of safety, this suggests that collisions and casualty numbers remain broadly unchanged or statistically insignificant⁸³.

RoSPA supports 'Shared Space' schemes, but it is important that they are carefully designed and the needs of all users are accommodated; it is not a matter of just taking away road signs and markings and kerb lines. Great care must be taken to ensure that people with vision impairment, who rely on a kerb edge to navigate, have a suitable alternative to the kerb that acts as a delineator to enable them to distinguish the section of the single surface used by vehicles. However, the Department for Transport have recommended that local authorities pause the development of shared space schemes while they review and update guidance. Local Transport Note 1/11: Shared Space has also been temporarily withdrawn⁸⁰.

Pedestrians with additional needs

Road design also needs to take the needs of those with disabilities into account, one fifth (22 per cent) of people in the UK have a disability⁸⁴ and so may be at more risk of being involved in a collision as a pedestrian than their non-disabled counterparts. A report conducted in 2017 found that disabled people are five times more likely to be injured as a pedestrian than non-disabled people⁸⁵.

⁸² MVA Consultancy (2009) cited in CIHT (2018) 'Creating better streets: inclusive and accessible spaces'
<http://www.ciht.org.uk/en/document-summary/index.cfm/docid/BF28B40D-9855-46D6-B8C19E22B64AA066> accessed June 2023

⁸³ PHE (2018) 'Healthy High Streets: Good place making in an urban setting'
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699295/26.01.18_Healthy_High_Streets_Full_Report_Final_version_3.pdf - accessed June 2023

⁸⁴ UK Parliament (2022), UK Disability statistics: Prevalence and life experiences, <https://commonslibrary.parliament.uk/research-briefings/cbp-9602/> - accessed June 2023

⁸⁵ Aldred, R (2018), Road injuries in the National Travel Survey. Underreporting and Inequalities in Injury Risk, https://westminsterresearch.westminster.ac.uk/download/131c6fd3314dc19383f95fa6a791562f9a0dd3d1a965abbd5058a91296822352/1888783/Road_Injuries_Report_April2018.pdf - accessed June 2023



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The risk for pedestrians with disabilities can include individualised factors such as walking speed and inappropriate crossing decisions⁸⁶. People with intellectual disabilities may be unable to make a good judgement about safety, such as when it is safe to cross the road. They may also behave in an unpredictable way⁸⁷.

Other factors can include:

- Wheelchair users could be disadvantaged if the kerb is not dropped or if accessible routes are not available
- People with sight and hearing impairment may be unable to anticipate other road users' actions. Children with undetected hearing problems could be at risk as the child and their carer do not recognise the need for extra caution.

Groups representing the visually impaired, both in the UK and internationally, have raised concerns that due to their low noise levels, electric vehicles may pose an increased accident risk to visually impaired pedestrians⁸⁸. However, European vehicle approval regulations mandated sound generators on new types of electric and electric hybrid vehicles from 2019. This regulation was passed to ensure that electric and hybrid-electric vehicles always produce a sufficient level of noise below 12mph and during reversing and the sound generator cannot be switched off by the driver. The European Commission has also agreed to undertake further research, including the role of safety systems. The outcome of this work will be used to determine how these systems can be used alongside sound generators in future⁸⁹.

Groups representing pedestrians with additional needs have also highlighted the dangers that pavement parking can pose. When vehicles are parked on pavements, those who are blind and partially sighted, with prams, wheelchair users or other road users may have to walk on the road rather than the pavement just to get by. A survey by Guide Dogs showed that 97 per cent of blind or partially sighted people had faced struggles navigating due to street clutter and 90 per cent of those had experienced trouble with a car parked on the pavement⁹⁰. The Department for Transport consulted on management pavement parking in 2020, but the outcome of this consultation is yet to be published.

Both the [DfT](#) and the [Scottish Government](#) have produced guidelines on inclusive mobility, these sit alongside the [Inclusive Transport Strategy](#). Examples of how the walking environment should be made safer for disabled pedestrians by:

- Introducing tactile paving at the edges of steps and pavements and safe crossing places
- Ensuring that paths are well-maintained, firm, flat and wide, making the roads easier to navigate and safer to use for those with disabilities and mobility impairments
- Avoiding unnecessary street 'clutter' such as advertising boards and bollards, particularly in the case of those

⁸⁶ Schwartz N, Buliung R, Daniel A, Rothman L. (2022), Disability and pedestrian road traffic injury: A scoping review, <https://pubmed.ncbi.nlm.nih.gov/36037674/> - accessed June 2023

⁸⁷ Xijiang et al (2005) cited in World Health Organisation (2013) 'Pedestrian Safety: A road safety manual for decision-makers and practitioners' http://apps.who.int/iris/bitstream/10665/79753/1/9789241505352_eng.pdf?ua=1 - accessed June 2023

⁸⁸ TRL (2011) 'Assessing the perceived safety risk from quiet electric and hybrid electric vehicles to vision-impaired pedestrians' URL: <https://www.gov.uk/government/publications/assessing-the-perceived-safety-risk-from-quiet-electric-and-hybrid-vehicles-to-vision-impaired-pedestrians> - accessed June 2023

⁸⁹ The Guardian (2018) 'New law to tackle electric cars' silent menace to pedestrians' URL: <https://www.theguardian.com/environment/2018/may/06/new-law-combats-silent-menace-electric-cars> - accessed June 2023

⁹⁰ Guide Dogs for the Blind (not dated) 'Pavement Parking Campaign' URL: <https://www.guidedogs.org.uk/how-you-can-help/campaigning/pavement-parking/> - accessed June 2023



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who are visually impaired⁹¹. Trees and bushes should also be maintained, as overhanging foliage can present a challenge

- Using tarmac, rather than paving stones, which reduces the risk of uneven surfaces and trips and falls, and makes the use of mobility scooters more comfortable and efficient⁹²
- Introducing dropped kerbs to allow easier access for wheelchair users
- Adding safer crossing points with signaling that can be detected by those with sight or hearing impairment and longer crossing periods for people with mobility impairments to safely cross the road⁹³
- Puffin crossings are particularly useful for disabled children and adults who may cross the road more slowly than others may as they extend the crossing phase until the pedestrian has crossed the road⁸⁹

Urban and rural areas

In urban areas, it is important to ensure that drivers' sightlines are clear so that they have a clear view of pedestrians waiting to cross or who have started to cross the road.

Rural roads can be particularly dangerous for pedestrians as they often lack pavements, street lighting and crossing facilities. Therefore, some of the road infrastructure measures mentioned above should be more widely implemented to reduce both urban and rural collisions involving pedestrians. It is also beneficial for pedestrians to plan a safe route to their destination, enabling them to avoid some of the common causes of collisions in these areas, such as roads with inadequate pavements or busy high-speed roads with poor crossing facilities.

Routes

Busy roads with no safe crossing facilities and roads lacking a safe pavement are just a couple of the issues that can make a route unsafe for pedestrians and place them at risk of injury. Ways in which the road environment can be made safer and provide better routes for pedestrians include:

- Traffic calming measures to reduce the speed and volume of vehicles such as speed humps and cushions
- Zebra, Puffin, Pelican, Toucan and Pegasus crossings
- Central refuges
- Improving cycle links that can lead to higher levels of active travel to school⁹⁴.

However, in some situations, despite measures being implemented to make roads safer, some pedestrians are unable to identify safe routes. Analysis of child pedestrian crashes suggests that certain road structures and locations occur repeatedly as the location of collisions involving pedestrians. Common examples include children

⁹¹ RNIB (2021) People with sight loss are finding it increasingly difficult to avoid accidents when walking around streets, <https://www.rnib.org.uk/news/people-with-sight-loss-are-finding-it-increasingly-difficult-to-avoid-accidents-when-walking-around-streets/> - accessed June 2023

URL: <https://www.rnib.org.uk/cluttered-streets-hazard-pedestrians-sight-loss> - accessed June 2023

⁹² PHE (2018) 'Healthy High Streets: Good place making in an urban setting' https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699295/26.01.18_Healthy_High_Streets_Full_Report_Final_version_3.pdf - accessed June 2023

⁹³ Petridou et al (2003) cited in World Health Organisation (2013) 'Pedestrian Safety: A road safety manual for decision-makers and practitioners' http://apps.who.int/iris/bitstream/10665/79753/1/9789241505352_eng.pdf?ua=1 - accessed June 2023

⁹⁴ Sustrans (2022), All children need a safe route to school, <https://www.sustrans.org.uk/our-blog/opinion/2022/september/all-children-need-a-safe-route-to-school> - accessed June 2023



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crossing the road when there are parked vehicles or roadside obstructions, hills, bends, hedges and other pieces of street furniture, which may obstruct the child's view and other road user's view of them when crossing⁹⁵. The study showed that younger children assumed that it was safe to cross the road if there were no cars visible, not recognising the danger that the brow of hills and bends pose. Children often thought the safest place to cross was directly across the road from their 'target location', as they were advised to go 'straight across the road', taking this advice literally and not recognising that it implied they should spend as little time on the road as possible. The study showed that educational interventions could improve 5-year-olds' abilities to plan safe routes. This highlighted that for some children, further pedestrian training is needed and measures such as guardrails should be used to guide children to the nearest safe crossing facility. School crossing patrols can also help children to make safer decisions when crossing the road.

Street lighting

Driving outside daylight hours is riskier. Only a quarter of travel by car drivers is between 7pm and 8am, yet this period accounts for 40 per cent of fatal and serious injuries to the same group⁹⁶. Night-time travel is one of the greatest risk factors for pedestrians. Many pedestrian collisions occur in the first hour of darkness⁹⁷. Lighting also affects people's perceptions of safety. Pedestrians often avoid unfamiliar streets, deserted public spaces and dark underpasses if they believe they are at risk of harm or assault in these locations. This means that they may choose to take a route or cross a road in a location with higher traffic risk. In both Mexico and South Africa, reasons for avoiding crossing facilities included a lack of lighting at night and a perceived threat of assault⁹⁸.

Street lighting promotes a sense of safety in urban areas and so increases the quality of life by artificially extending the hours in which it is light so that activity can take place.

A study⁹⁹ led by researchers from the London School of Hygiene and Tropical Medicine in 2015 analysed 14 years of data from 62 local authorities who had implemented light reducing measures. The study concluded that there was no evidence of an association between reduced street lighting and nighttime collisions. A further study undertaken by the same academic body looked at public perception surrounding street lighting and conclude that there was little evidence that the introduction of part night lighting had made significant differences to wellbeing other than residents' feeling of personal security¹⁰⁰.

⁹⁵ Thompson, J. A. (1997) 'Developing safe route planning strategies in young child pedestrians' *Journal of Applied Developmental Psychology*, 18 (2): 271-281.

⁹⁶ Ward et al. (2005) 'Night-time Accidents: A Scoping Study; Report to the AA Motoring Trust and Rees Jeffreys Road Fund' http://discovery.ucl.ac.uk/1428/1/Sandy_Nighttime_accidents_Full_Report.pdf - accessed June 2023

⁹⁷ WHO (2013) 'Pedestrian safety: a road safety manual for decision-makers and practitioners' <http://www.who.int/roadsafety/projects/manuals/pedestrian/en/> - accessed June 2023

⁹⁸ Hajar et al (2003) and Behrens and Jobanputra (2012) cited in World Health Organisation (2013) 'Pedestrian Safety: A road safety manual for decision-makers and practitioners' http://apps.who.int/iris/bitstream/10665/79753/1/9789241505352_eng.pdf?ua=1.

⁹⁹ Steinbach et al (2015) 'The Effect of Reduced Street Lighting on Road Casualties and Crime in England and Wales: A Controlled Interrupted Time Series Analysis', *Journal of Epidemiology & Community Health*, 2015:1-7.

¹⁰⁰ Green et al. (2015) 'Reduced Street Lighting at Night and Health: A Rapid Appraisal of Public Views in England and Wales', *Health Place*, 34:171-180.



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This however, countered an earlier 2006 study¹⁰¹ that found that the lack of lighting can increase the likelihood of a fatal injury.

Vehicle design and technology

Developments in vehicle design and technology can improve pedestrian safety. Traditionally, vehicle safety has tended to focus on improving the protection that a car can offer to an occupant, but increasingly, vehicles are being designed to be safer for pedestrians and other road user groups by reducing the likelihood of collisions with them and reducing the severity of any collisions that do occur.

Ultimately, this is likely to result in the introduction of “driverless” cars, but in the meantime, cars will become more and more autonomous but still require a driver to be in control. These technologies are evolving rapidly as autonomous technology is developed and trialled. Some of the technology that is likely to offer protection to pedestrians include:

- Intelligent speed adaptation (ISA) to support drivers' compliance with the speed limit.
- Autonomous emergency braking (AEB) that uses sensors to detect the risk of hitting a pedestrian and applies the vehicle's brakes to prevent it
- Vulnerable road user detection and alert systems
- Lane departure warning systems
- Safer bonnet design to reduce the likely severity of injuries to any pedestrian who is hit¹⁰².

European legislation, Pedestrian Protection Regulation 78/2009 and General Safety Regulation 2009/661 has been introduced to ensure that all cars offer some level of protection.

There will be a transitional period in which there will be mix of conventional cars, cars with increasingly sophisticated advanced driver assistance systems such as adaptive cruise control and autonomous vehicles. It is important that policy and regulations are designed to ensure that this type of technology works effectively and reliably and to facilitate their safe use. It is crucial that the development of autonomous vehicles, and the legislation governing them, takes account of pedestrian safety.

Specific and clear advice for drivers to help them understand that they will need to remain in full control of their vehicle when using these technologies will be needed.

Automated vehicle technology is developing rapidly and will profoundly change the way we drive, ultimately to the point where in fully automated vehicles the driver may be just a passenger. This technology offers enormous potential to reduce crashes and casualties, enable better use of road space, and improve mobility for people who are unable to drive conventional cars.

¹⁰¹ Plainis S, Murray IJ, Pallikaris IG. (2006), Inj. Prev. Road traffic casualties: understanding the night-time death toll, <https://pubmed.ncbi.nlm.nih.gov/16595429/> - accessed June 2023

¹⁰² Alter, L. (2017) 'Tesla's sold in Europe have an "Active Hood" to protect pedestrians. American pedestrians? Look both ways.' <https://www.treehugger.com/cars/teslas-sold-europe-have-active-hood-protect-pedestrians-american-pedestrians-look-both-ways.html> - accessed June 2023



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It is not yet clear when people will be able to purchase or use a truly driverless car, estimates suggest that driverless cars may be on UK roads by 2025¹⁰³. However, some forms of autonomous vehicles, such as cars that can be parked by remote control, are already for sale.

Cyclists and pedestrians

Although most cycling takes place in areas of high pedestrian activity, it is important to note that many pedestrians who are killed or injured in reported collisions are hit by a motor vehicle rather than a cyclist. In Great Britain, from 2016 to 2021, cyclists were involved in on average three pedestrian fatalities and 154 serious injuries per year, representing around 0.6 per cent of pedestrian fatalities and 2 per cent of serious injuries, whereas motor vehicles are involved in 58% of pedestrian fatalities and 74% of serious injuries¹⁰⁴.

One concern of pedestrians is cyclists who ride on the pavement. Pavement cycling is illegal unless it is on a shared cycle/pedestrian path or shared space. Pavement cycling can be a barrier to walking and is particularly intimidating to vulnerable pedestrians¹⁰⁵. When asked, many cyclists say they ride on pavements because of the danger posed by traffic on the road. However, some recognise that this is inconsiderate to pedestrians and would dismount in busy areas¹⁰⁶. This potential conflict between pedestrians and cyclists could be solved via more investment in cycling infrastructure, which could encourage less cyclists to ride on the pavement. Between 2012 and 2020 305 pedestrians were killed on pavements or verges, averaging 34 per year. The majority of these involve motor vehicles, with only two involving collisions with cyclists¹⁰⁷.

¹⁰³ GOV.UK (2022) Self-driving revolution to boost economy and improve road safety, <https://www.gov.uk/government/news/self-driving-revolution-to-boost-economy-and-improve-road-safety> - accessed June 2023

¹⁰⁴ GOV.UK, Reported road casualties GB: pedestrian factsheet 2021, <https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021/reported-road-casualties-great-britain-pedestrian-factsheet-2021> - accessed June 2023

¹⁰⁵ Living Streets (2013) 'Pavement cycling' www.livingstreets.org.uk/sites/default/files/content/library/Policy_briefings/Pavement%20cycling%20June%202013.pdf - accessed June 2023

¹⁰⁶ Pooley et al. (undated) 'Understanding Walking and Cycling: Summary of Key Findings and Recommendations' http://www.its.leeds.ac.uk/fileadmin/user_upload/UWCRReportSept2011.pdf - accessed June 2023

¹⁰⁷ We Are Cycling UK (2023), Cycling and pedestrians, <https://www.cyclinguk.org/briefing/cycling-and-pedestrians> - accessed June 2023



Improving road user behaviour

Although infrastructure can improve the safety of all road users, most road crashes are at least partly, caused by human error, which can range from simple mistakes and misjudgements to deliberately dangerous and illegal behaviour. Creating a safer pedestrian environment will also help to improve the behaviour of all road users, by making it easier for them to behave responsibly and safely.

Education (including training and publicity) and enforcement are key approaches to improving road user behaviour, and to helping everyone share the road safely together. However, all road users, including pedestrians, cyclists and drivers, must also take responsibility for their own choices and behaviour.

Improving driver behaviour

Enforcement

Speed limit compliance is generally lower on 30mph roads compared to motorways and national speed limit roads, with 51 per cent of car drivers exceeding the speed limit on 30mph roads. Compliance with speed limits is even lower on 20mph roads. In 2021, under free flow conditions, 87 per cent of car drivers exceeded the speed limit on such roads, with 19 per cent exceeding it by 10mph or more. It is important to note that this data is based on a sample of only 116 automatic traffic counters and may not represent the typical scenario for all 20mph roads¹⁰⁸. Therefore, compliance with the speed limit needs to be improved through enforcement and education measures, as well as through road design measures as discussed earlier.

National Speed Awareness Courses are often offered to drivers caught exceeding the speed limit, in place of three penalty points and a £100 fine. The course aims to identify the benefits of complying with speed limits, and helps motorists to understand the consequences of speeding, explore the advantages and disadvantages of speeding, improve knowledge of speed limits and skills in identifying different speed limit areas and to recognise personal responsibility for choice of speed.

A 2018 evaluation of the effects of the National Speed Awareness Course on re-offending rates found that participation in the course was more effective at reducing speed reoffending than a fine and penalty points over a period of three years. Between 12 per cent and 23 per cent of drivers who attended a National Speed Awareness Course were less likely to reoffend within six months of committing their first offence. This fell to 9-17 per cent within 12 months, 9-11 per cent within the first two-years, and 6-13 per cent within three years¹⁰⁹.

Driver training

Once they have gained their full driving licence, few drivers take any further driver training, unless they are required to do so as part of a court or police scheme or by their employer. There are many options available, ranging from quick and easy courses on specific issues or skills to longer courses leading to full advanced driving tests. However, one of the challenges is to raise awareness of the existence and benefits of refresher driver training. Most drivers

¹⁰⁸ DfT (2022), Vehicle speed compliance statistics for GB:2021, <https://www.gov.uk/government/statistics/vehicle-speed-compliance-statistics-for-great-britain-2021/vehicle-speed-compliance-statistics-for-great-britain-2021#vehicle-speeds-on-20mph-roads> - accessed June 2023

¹⁰⁹ DfT (2018) Impact Evaluation of the National Speed Awareness Course, <https://www.gov.uk/government/publications/national-speed-awareness-course-impact-evaluation> - accessed June 2023



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do not feel they need refresher training, never think about it, or are not aware of its benefits¹¹⁰. Few formal evaluations of post-test driver training have been conducted to determine their effectiveness, but studies have shown that advanced driver training can improve situational awareness more generally¹¹¹.

Improving pedestrian behaviour

The most common contributory factors attributed to pedestrians are 'failed to look properly', 'careless, reckless or in a hurry' and 'failed to judge other persons path or speed'¹¹². Other common factors are 'pedestrian crossing the road near a stationary or parked vehicle' (in some cases, meaning another road user did not see them) or 'using a pedestrian crossing facility incorrectly'.

There are also instances in which pedestrians are distracted by using a mobile phone or listening to music through earphones. A survey in 2014 found that as many as one in seven pedestrians admitted crossing the road without looking when their phone distracted them. 31 per cent also admitted that their mobile phone distracted them from looking for traffic on the roads¹¹³. Pedestrians distracted by phone conversations or other activities are more likely to take greater risks when crossing the road¹¹⁴. A study found that in a simulated pedestrian environment, those distracted by listening to music or texting were significantly more likely to be hit by a virtual vehicle whilst crossing the road than those who were undistracted. Those distracted by talking on the phone, texting or listening to music also looked away from the street than the undistracted group¹¹⁵.

Pedestrian training

Pedestrian casualties increase as children grow older and become more independent as pedestrians. Road safety education and training for children at Key Stages 1 and 2 should be conducted in real-road environments, not solely in a classroom or playground and should cover modern-day scenarios, such as distraction by mobile phones while walking, and crossing between parked vehicles.

Road safety officers sometimes support schools in delivering road safety education to pupils and other road safety organisations deliver road safety education to children and young adults. Living Streets also provide resources and support to help schools to deliver road safety education and 'Walk to School' assessments, which can identify risks in the local area and identify strategies to tackle them¹¹⁶.

¹¹⁰ Refresher Driver Training, RoSPA, 2005, www.rospa.com/rospaweb/docs/advice-services/road-safety/drivers/refresher-driver-training-report.pdf - accessed June 2023

¹¹¹ Does advanced driver training improve situational awareness? Walker, Stanton, Kazi, Salmon and Jenkins, Applied ergonomics, Volume 40, Issue 4, 2009

¹¹² DfT (2022), Reported road casualties GB:pedestrian factsheet 2021, [https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20\(adjusted\)](https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20(adjusted)) - accessed June 2023

¹¹³ Express (2014) 'A third of pedestrians too busy on their phones to look for traffic' <https://www.express.co.uk/news/uk/512070/Third-of-pedestrians-at-risk-due-to-mobile-phones> - accessed June 2023

¹¹⁴ Bungum et al (2005) cited in Schwebel et al. (2012) 'Distraction and pedestrian safety: How talking on the phone, texting and listening to music impact crossing the street'. Accident Analysis and Prevention, 45: 266-271.

¹¹⁵ Schwebel et al. (2012) 'Distraction and pedestrian safety: How talking on the phone, texting and listening to music impact crossing the street'. Accident Analysis and Prevention, 45: 266-271.

¹¹⁶ Living Streets (2018) 'Living Streets' <https://www.livingstreets.org.uk/> - accessed June 2023



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Training should be a combination of practical exercises and classroom learning, which can include models, theory and discussion. Road safety should also be taught as a spiral programme across all key stages in a way that ensures that what has been learnt is revisited, reinforced and extended in an age-appropriate way¹¹⁷.

For children aged under five, it may be more appropriate to use role-play and teach children about road safety on the premises, rather than taking them out and teaching them at the roadside. This could include using the playground and marking out roads and kerbs for children to practice on¹¹⁸. They should be given the opportunity to learn about:

- The difference between the footpath and the road
- How to walk with a grown-up who they know and hold hands near a road
- Be introduced to 'Stop, Look, Listen and Think'
- Be introduced to safer crossing places.

For children aged five to six, training should include encouraging the child to begin to make decisions about the safest place to cross the road while supervised. At this stage, as with younger children, training should include one supervisor to two children to ensure that each child has an adult's hand to hold. Training at this stage should allow children to learn about:

- How pedestrians walk on the pavement and vehicles travel on the road
- How to walk with a grown-up who they know and hold hands when walking near the road
- Safer crossing places and how to use them
- The Stop, Look, Listen and Think sequence
- How to walk safely.

When children reach the age of seven, up to the age of 11, they should be beginning to practice the green cross code, as they should have already learned about this in school. For this age group, there should be a supervisor to every six children, with no less than two supervisors present at any one time. As some of the older children are likely to be beginning to make independent journeys, training should focus on making safe choices when travelling, regardless of influences such as peer pressure.¹³² Children should have the chance to learn about:

- The Green Cross Code and how to put it into practice, recognising safe crossing places on the road
- Road signs and pedestrian crossings
- The Highway Code and rules of the road
- Planning a safe journey to high school.

To support public health priorities, such as reducing obesity and air pollution, it is important that road safety initiatives promote active travel choices like walking. With the peak times in the number of child pedestrians killed

¹¹⁷ PHE and RoSPA (2016) 'Road Injury Prevention: Resources to support schools to promote safe active travel' <https://www.rospa.com/rospaweb/docs/advice-services/road-safety/teachers/road-injury-prevention.pdf> - accessed June 2023

¹¹⁸ Brake (not dated) 'Pedestrian and Cycle Training' <https://www.brake.org.uk/get-involved/take-action/mybrake/knowledge-centre/teaching-road-safety-a-guide-for-educators/pedestrian-and-cycle-training> - accessed June 2023



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or seriously injured being the traditional “school-run” periods of 8-9am and 3-4pm, schemes that seek to teach road safety skills and reduce car journeys have the potential to make a particularly useful contribution¹¹⁹.

Pedestrian training could be seen as the beginning of a lifelong cycle of road safety training that also encompasses cycle training, pre-driver education, the learning-to-drive process and “refresher” or further driver training throughout life.

It is important to highlight opportunities where accident prevention could make a positive contribution to other aspects of health improvement, or vice versa. Schemes such as [Transport for London STARS](#), [Modeshift STARS](#), and Transport for London’s [Young Travel Ambassadors scheme](#), encourage walking and cycling, and encourage families to make journeys by foot, bicycle or scooter. Since 2013, three quarters of participants have agreed or strongly agreed that they have become more aware of their safety on the roads.

Personal, Social, Health and Economic (PSHE) education

School based education can help young pedestrians to acquire the knowledge needed to keep themselves safe while walking. Road safety is not specifically part of the national curriculum, but is often taught in Personal, Social, Health and Economic education (PSHE). Pedestrian skills training programmes have been shown to improve children’s skills, such as timing and finding safe places to cross, if they are specifically targeted (at particular road safety skills)¹²⁰.

The contribution of PSHE education to students’ health, safety and wellbeing should be reinforced by a strong statutory curriculum¹²¹. Children and young people need age-appropriate opportunities to develop the capability to keep themselves and others safe, being able to recognise hazards, assess the risks and benefits of an activity and manage the risks to themselves and others.

Improving the safety of child cyclists and child pedestrians can encourage greater participation in these activities, contributing to the health benefits of an active lifestyle and fewer vehicles on the road¹²². There are also links between accidental injury and other public health issues associated with risky behaviours, such as alcohol or drug use, which should be explored¹²³.

A “learning about safety by experiencing risk” (LASER) approach to safety education is to be encouraged, giving children the opportunity to develop their skills through practical activities. Visits to permanent practical safety

¹¹⁹ PH, RoSPA, CAPT, (2018) Reducing unintentional injuries on the roads among children and young people under 25 years, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/695781/Reducing_unintentional_injuries_on_the_road_among_children_and_young_people_.pdf - accessed June 2023

¹²⁰ Towner et al (2005) ‘Updating the evidence. A systematic review of what works in preventing childhood intentional injuries: Part 2’, Injury Prevention, 249-253.

¹²¹ Delivering Accident Prevention at local level in the new public health system, Public Health England and RoSPA, 2013. <https://www.rospa.com/rospaweb/docs/advice-services/public-health/delivering-accident-prevention-context.pdf> - accessed June 2023

¹²² Public Health England. 2016. Road injury prevention: resources to support schools to promote safe active travel. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/505277/25_Feb16FINAL_DOCUMENT.pdf - accessed June 2023

¹²³ Royal Society for the Prevention of Accidents/Child Accident Prevention Trust/London Fire Brigade/Chief Fire Officers Association. 2016. Use of e-cigarettes (vaping) in the home: advice for parents. Available at: <https://www.rospa.com/rospaweb/docs/advice-services/home-safety/vaping-in-the-home-advice-for-parents.pdf> - accessed June 2023



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education centres or participation in interactive safety schemes, can increase children's awareness of key risks. For example, research into the impact of children's visits to such schemes found that children who had experienced safety education improved their recognition of a variety of risk hazards¹²⁴.

While some subjects include teaching about the specific hazards and risks involved in a particular activity (for example, science, PE, art and design), a statutory PSHE requirement to engage children in developing more general hazard perception and risk management skills ("risk literacy") would ensure that the health and wellbeing needs of pupils are given appropriate status alongside their academic needs. It would also open up opportunities for teacher training programmes to cover this topic.

RoSPA welcomes the publication of the [Think! Road Safety Education resources](#) for parents, teachers and schools, many of which are designed to support pedestrian education and training.

Improving visibility

Pedestrians also need to be aware that other road users may not see them in low light conditions, particularly if they are wearing dark clothing. It is advised that pedestrians select light coloured clothing and add reflective material to backpacks, shoes, and clothing to make themselves more visible to other road users¹²⁵. The Highway Code states that pedestrians and cyclists should wear or carry materials to improve their visibility to drivers at night and in poor light conditions.

Impairment

Pedestrians should also be aware of the impact alcohol can have on their safety. From 2016-2021, a pedestrian was killed or seriously injured when impaired by alcohol or drugs in 3,338 collisions¹²⁶. Alcohol consumption, whether on the part of the vehicle driver or a vulnerable road user such as a pedestrian increases the likelihood of a crash, the severity of injury and the odds of death¹²⁷. Alcohol impairs a pedestrian's judgement and cognitive function as they navigate the road environment, meaning their perceptual, cognitive, and physical skills can be affected to the extent that they are unable to cross the road safely in complex urban environments. They are much more likely to engage in risky behaviours including crossing against a signal or not using designated crossing facilities¹²⁸.

¹²⁴ Sissons Joshi M, Stevens C. (2014) The effectiveness of safety education at alerting children to daily risks, <https://www.rospa.com/rospaweb/docs/research/safety-education.pdf> - accessed June 2023

¹²⁵ WHO (2013) 'Pedestrian safety: a road safety manual for decision-makers and practitioners' <http://www.who.int/roadsafety/projects/manuals/pedestrian/en/> - accessed June 2023

¹²⁶ DfT (2022), Reported road casualties GB: pedestrian factsheet 2021, [https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20\(adjusted\)](https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-pedestrian-factsheet-2021#:~:text=In%202021%2C%20361%20pedestrians%20were,11%2C261%20slightly%20injured%20(adjusted)) - accessed June 2023

¹²⁷ Peden et al. (2004) cited in Dultz, L. A. and Frangos, S. G. (2012) 'The impact of alcohol in pedestrian trauma', Trauma, 0(0):1-12.

¹²⁸ Dultz et al (2011) cited in Dultz, L. A. and Frangos, S. G. (2012) 'The impact of alcohol in pedestrian trauma', Trauma, 0(0):1-12.



Conclusions

Walking has tangible health and societal benefits, and there are very strong reasons for enabling more people to walk more often and more safely.

In Great Britain, the level of walking is decreasing, but pedestrian casualties have fluctuated, rising in some years and reducing in others, with no clear trend apparent. Therefore, we all face a crucial challenge, which is to create safer walking conditions so that more people are encouraged to walk and so that more walking does not lead to more pedestrian casualties.

Improving the safety of walking will reduce the number of pedestrian casualties and encourage and enable more people to walk more often. It will help people who want to walk but are deterred from doing so because they think it is not safe enough and help to prevent the increase in walking resulting in an increase in pedestrian casualties. This, in turn, will increase the health and environmental benefits of walking for those people who walk and for society as a whole.

RoSPA strongly supports measures that encourage healthy and sustainable travel and believes that the key to increasing walking (and so gaining all the health and environmental benefits that result from walking) is to create a safe environment and to produce safer vehicles that reduce the risk to pedestrians. Pedestrian safety measures should also include training, education and enforcement programmes that work together with the engineering measures to provide an environment that maximises protection for all vulnerable road users.

RoSPA calls for the implementation of the Safe System approach, which involves designing roads and vehicles to minimise the risk of crashes occurring, and ensuring that when they do occur, they are unlikely to result in death or serious injury.



Recommendations

Based on the evidence in this paper, RoSPA recommends a number of measures to improve pedestrian safety:

- A further adoption of the Safe System approach throughout Great Britain
- A national design standard for roads should be developed to ensure that all schemes are delivered to a set safety standard
- Rather than repairing individual potholes, a more cost-effective solution could be to re-surface the whole stretch of road
- Where average speeds are below 24mph, 20mph limits can be introduced. However, the layout of the road must give the clear impression that a 20mph speed or below is most appropriate. Where 20mph limits are introduced, they should be supported with education and publicity to ensure driver compliance.
- Walking routes should be adapted to be made continuous, direct and join up residential areas, commercial areas and schools
- Research to establish the provision and benefits of school crossing patrols should be conducted.
- The contribution of PSHE education to students' health, safety and wellbeing should be reinforced by a strong statutory curriculum. Children and young people need age-appropriate opportunities to develop the capability to keep themselves and others safe, being able to recognise hazards, assess the risks and benefits of an activity and manage the risks to themselves and others. A 'learning about safety by experiencing risk' approach to safety education is to be encouraged, giving children the opportunity to develop their skills through practical activities.



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