Cycling and road safety: Overview

THIS BRIEFING COVERS:
Risks and benefits of cycling; tackling deterrents; cycle training; targets and indicators; cycle safety awareness campaigns.

HEADLINE MESSAGES
- Cycling is essentially a safe activity, causing little risk either to cyclists themselves or to other road users. Moreover, there is good evidence that cyclists gain from ‘safety in numbers’, with cycling becoming safer as cycle use increases.
- However, fear of road traffic is a major deterrent, despite the health, environmental and other benefits of cycling.
- Actual cycle safety in the UK lags behind many of our continental neighbours, because of poorly designed roads and junctions, traffic volumes and speeds, irresponsible driving, and a legal system that fails to respond adequately to road danger.
- National and local government should therefore aim for more as well as safer cycling. These two aims can and should go hand-in-hand.

KEY FACTS
- The life years gained due to the health and fitness benefits of cycling in Britain outweigh the life-years lost through injuries by a factor of around 20:1;
- From 2011-2015, one cyclist was killed on Britain’s roads for every 29 million miles travelled by cycle. This equates to well over 1,000 times around the world;
- You are about as unlikely to be killed in a mile of cycling as in a mile of walking.
- According to academic research, doubling cycle use would result in only a 25-30% increase in cycle fatalities - a 35-40% reduction in risk per cyclist.
- In 2014, around 64% people in Britain agreed that “it is too dangerous for me to cycle on the road”. Non-cyclists were significantly more worried than cyclists (70% compared with 51%), while women and older people also entertained higher levels of concern.
- Overall, the UK has a good road safety record - but for cycle safety in particular, it is one of the poorer performing countries in Europe.
- By and large, the number of seriously injured cyclists has been going up since 2004. However, although 2015 saw a 5% drop from 2014 (3,239 down from 3,401), it is still the second highest year since 1997. Moreover, the KSI (killed or seriously injured) rate per billion miles for cyclists has grown significantly over the last 10 years.
Cycling UK VIEW

- Road safety strategies, nationally and locally, should recognise that:
  - Cycling is a safe activity, posing little risk either to cyclists themselves or to other road users;
  - The health benefits of cycling far outweigh the risks involved;
  - Combined with good provision, cycling gets safer the more cyclists there are: the ‘safety in numbers’ effect;
  - The aim of cycle safety policies and initiatives should be to encourage more as well as safer cycling, in order to maximise its health, environmental and other benefits, and to improve overall safety for all road users.
- Encouraging more as well as safer cycling involves tackling factors that deter cycle use. These include high traffic volumes and speeds; irresponsible driver behaviour; the unfriendly design of many roads and junctions; and lorries.
- The provision of cycle training to the national standard can also help people to cycle more, to ride more safely, and to feel safer and more confident while doing so. It can also help parents feel more confident about allowing their children to cycle.
- Increases in cyclist casualties may still mean cycle safety is improving if cycle use is increasing more steeply than cyclist casualties. Therefore, targets and indicators for the effectiveness of road safety strategies should adopt ‘rate-based’ measures for improvements in cycle safety, e.g. cycle casualties (or fatal and serious injuries) per million miles cycled, or per million trips. Simple casualty reduction targets should be avoided.
- ‘Perception-based’ indicators, which show whether public perceptions of cycle safety in a given area are getting better, can be used alongside ‘rate-based’ indicators, or as an interim substitute for the latter if necessary.
- Care should be taken to avoid cycle safety awareness campaigns that ‘dangerise’ cycling. These deter people from cycling or allowing their children to cycle, and are counter-productive because they erode the ‘safety in numbers’ effect, as well as undermining the wider health and other benefits.

BACKGROUND INFORMATION

1. Road safety strategies and cycling: key elements

Despite the UK’s good overall record on road safety in terms of deaths per billion vehicle-km and per million inhabitants when compared with other EU countries, the European Transport Safety Council (ETSC) has identified the UK as one of the least improved countries in terms of absolute fatality numbers.\(^1\) As far as cyclist fatalities are concerned, ETSC reports that the UK is also lagging behind, saying that from 2003-2013, out of 26 EU countries it studied: “progress was slowest in the United Kingdom, Slovenia, Austria, Romania and Norway.”\(^2\)
With regard to UK cyclist fatalities, in statistical terms little has changed over the last nine years. The 100 cyclists killed in 2015 was the lowest number on record, but similar to the figures for each year since 2008.³

On the other hand, by and large the number of seriously injured cyclists has been going up since 2004. Although 2015 saw a 5% drop from 2014 (3,239 down from 3,401), it is still the second highest year since 1997. Moreover, the KSI (killed or seriously injured) rate per billion miles for cyclists has grown significantly over the last 10 years.⁴

a. Risk to other road users
Compared to motor vehicles, cyclists put others at negligible risk. Cycling is not responsible for emissions that lead to and exacerbate respiratory disease, and cyclists cause very few injuries to other road users. In Great Britain:

- From 2011 to 2015, the vast majority - 98% - of pedestrian KSI collisions in an urban area (i.e. where pedestrians are most likely to be) involved a motor vehicle.⁵
- In 2015, out of the 14,964 collisions involving a car and cycle (all areas), no car occupant died. Forty-four cyclists were killed, however.⁶

For more on the low risks presented by cyclists, see: www.cyclinguk.org/campaigning/views-and-briefings/cyclists-behaviour-and-law

b. Risks v health benefits of cycling
Some people are concerned that the effect of promoting cycling puts people in danger because they believe that cycling is a high-risk pursuit. However:

- **Cycling isn’t a particularly high-risk activity. From 2011-15:**
  - One cyclist was killed on Britain’s roads for every 29 million miles travelled by cycle.⁷ This equates to well over 1,000 times around the world;
  - There were around 9.5 million cycle trips for every cyclist death;⁸
  - The general risk of injury of any severity whilst cycling was just 0.05 per 1,000 hours of cycling.⁹
  - Generally speaking, you are about as unlikely to be killed in a mile of cycling as in a mile of walking (although in both 2014 and 2015, pedestrians fared rather worse).¹⁰

- **The benefits of cycling far outweigh the risks:**
A good deal of research has been carried out on cycling and health and all of it confirms that the activity is much more likely to be beneficial than harmful. Mayer Hillman’s estimate from 1992, perhaps the most frequently quoted figure, suggested that the life years gained due to the health and fitness benefits of cycling in Britain outweighed the life-years lost through injuries by a factor of around 20:1.¹¹

More recent studies which have, like Hillman’s, omitted the effects of pollution, suggest that the health benefits outweigh the injury risks by between 13:1 and 415:1. Researchers who have accounted for pollution suggest that cyclists are probably less exposed than drivers and, in any case, the health benefits of cycling significantly outweigh the pollution disbenefit.

For more on cycling and health, and on air pollution, see our briefings at: www.cyclinguk.org/campaigning/views-and-briefings/
c. The ‘safety in numbers’ effect
A growing body of evidence suggests that cyclists gain from ‘safety in numbers’ i.e. as cycle use increases, the risk per km cycled goes down.12

The causal mechanism for this has not been established, but it is likely that drivers grow more ‘cycle aware’ when there are more cyclists on the road. It may also be that increased cycle use means that a greater proportion of the driving population are also cycle users, with a better understanding of how to drive with respect for cyclists’ safety – a phenomenon established by research.13 The ‘safety in numbers’ effect is even stronger where conditions for cycling have improved, and/or traffic speeds reduced – London, York and Leicester, for example, have increased cycle use and reduced casualties in absolute terms.

For more on ‘safety in numbers’, see: www.cyclinguk.org/safetyinnumbers

2. Tackling the deterrents

Cycling UK view: Encouraging more as well as safer cycling involves tackling factors that deter cycle use. These include high traffic volumes and speeds; irresponsible driver behaviour; the unfriendly design of many roads and junctions; and lorries.

a. High traffic volumes and speeds
High volumes of motor traffic, coupled with drivers going too fast, is a major barrier to promoting cycling on roads. This can be tackled by introducing properly enforced lower speed limits, especially 20 mph for residential and community streets. This contributes to a safer and more attractive environment for everyone, including cyclists.

b. Irresponsible driver behaviour
Educating drivers about the needs of cyclists, and penalising bad driving offences effectively would help create a safer and more attractive environment for cycling and walking. In particular, the drink/drive limit should be lowered and hands-free mobile phones banned.

Also, stronger and better resourced traffic police, well designed incident reporting systems and the commitment to investigate all collisions thoroughly, particularly those involving non-motorised users, would help address substandard driving. The Health and Safety Executive and other enforcement agencies with road safety responsibilities should prioritise these more highly and be adequately resourced to do so.

For more on common driving offences, see: www.cyclinguk.org/campaigning/views-and-briefings/common-driving-offences
For more on traffic policing, see: www.cyclinguk.org/campaigning/views-and-briefings/traffic-police-and-other-enforcement-agencies
c. Unfriendly road design
Cycling levels are suppressed by poor road and junction layouts that cater primarily for motor traffic and ignore cyclists’ needs. These problems are all too frequently compounded by badly thought out cycle ‘facilities’. Cycling UK therefore believes that the DfT needs to produce consistent nationally defined standards on high-quality cycle-friendly planning and design, based on exemplary guidance already produced e.g. Transport for London’s Cycling Design Standards14 and the Welsh Government’s standards drawn up in conjunction with the Active Travel (Wales) Act.15 Both of these publications offer useful guidance that planners and engineers should be encouraged to follow in the meantime.

For more on cycle-friendly design and planning, see: www.cyclinguk.org/campaigning/views-and-briefings/cycle-friendly-design-and-planning-overview

d. Lorries
On average each year from 2011-15, heavy goods vehicles (HGVs)16 accounted for just 3.6% of non-motorway motor traffic mileage on British roads, yet were involved in around 18% of cyclists’ fatalities. In London, in 2014, HGVs accounted for 4% of all traffic, but 55% of all cyclists’ deaths, and 12% of pedestrian fatalities.17

Cyclists’ collisions with HGVs are far more likely to prove fatal than those involving cars: the cyclist is killed in about a fifth of serious injury cyclist/HGV collisions; this figure is around 2% for cyclists/cars. Equally, HGVs are involved in only about 1.5% of slight injuries to cyclists, but 18% of cyclists’ fatalities.

Ways to tackle the problem include: maintaining and enforcing safe driving and vehicle standards; training and information for both cyclists and goods vehicle drivers; cycle-friendly vehicles; and road layout, routing and distribution strategies that minimise conflict.

For more on lorries, see: www.cyclinguk.org/campaigning/views-and-briefings/goods-vehicles

3. Cycle training

Cycling UK view: The provision of cycle training to the national standard can also help people to cycle more, to ride more safely, and to feel safer and more confident while doing so. It can also help parents feel more confident about allowing their children to cycle.

Unlike its predecessor ‘Cycle Proficiency’, the national standard cycle training progresses through three levels. Often carried out under ‘Bikeability’ branding, it starts by teaching basic control skills (typically learnt in the playground), then progresses until learners have the confidence and ability to handle busy traffic and major junctions. It is therefore important to offer cycle training not just for children but also for teenagers as they gain independence and start making longer journeys. It is equally beneficial for adults wishing to rediscover cycling. www.bikeability.org.uk
4. Targets and indicators

**Cycling UK view:**

- Increases in cyclist casualties may still mean cycle safety is improving if cycle use is increasing more steeply than cyclist casualties. Therefore targets and indicators for the effectiveness of road safety strategies should adopt ‘rate-based’ measures for improvements in cycle safety, e.g. cycle casualties (or fatal and serious injuries) per million km cycled, or per million trips. Simple casualty reduction targets should be avoided.
- ‘Perception-based’ indicators, which show whether public perceptions of cycle safety in a given area are getting better, can be used alongside ‘rate-based’ indicators, or as an interim substitute for the latter if necessary.

**a. Rate-based targets/indicators**

In the past, road safety professionals largely focused on reducing casualties in absolute terms, i.e. a drop in the numbers of people being killed or injured on the roads. This made some of them reluctant to encourage cycling on the basis that it could add to the casualty toll and make injury reduction targets difficult to achieve. However, national policy is rightly to encourage more as well as safer cycling, so it is important to adopt targets and indicators that do not make professionals unwilling to increase cycle use – or, worse, that actually give them an incentive to discourage it.

The solution is to adopt ‘rate-based’ targets and indicators. They are a better means of judging whether road safety policies are succeeding because they reflect whether a road user’s exposure to risk has increased or decreased. For instance, a target to halve the risk of serious and fatal cyclist and pedestrian casualties per 100,000 km travelled is preferable to an aim simply to reduce casualty numbers in absolute terms.

Although the Government’s Strategic Framework for Road Safety (2011) does not set targets (see ‘Policy Background’ below), its progress is monitored against indicators, some of which are rate-based. These include the “Rate of pedal cyclist deaths per billion vehicle miles.”

Rate-based targets, however, are problematic to monitor at the local level because it is difficult to obtain reliable local data on cycle use. Hence there is still a risk of simple casualty targets being adopted at the local level. Cycling UK therefore urges that pedestrians and cyclists should be excluded from the overall casualty targets, particularly for local target-setting.

**b. Perception-based targets/indicators**

Another good measure of success is whether the public thinks that cycle safety is improving in a given locality. Fortunately, this is something that the 2011 Strategic Framework for Road Safety also embraced. Perception-based indicators can serve as a useful complement to rate-based indicators, as they focus local authorities’ attention on tackling the fears that deter people from walking and cycling, rather than on pursuing the sort of scary ‘road safety education’ campaigns that put people, especially children and their parents, off cycling (see below).

Another advantage is that perception-based indicators are easily monitored at the local level, as data can be collected through existing public perception surveys (e.g. on public transport travel). Local authorities, who do not have the ability to monitor cycle use at the local level, can still establish perception-based indicators whilst developing the capacity to adopt rate-based indicators.
5. Cycle safety awareness campaigns

**Cycling UK view:** Care should be taken to avoid cycle safety awareness campaigns that ‘dangerise’ cycling. These deter people from cycling or allowing their children to cycle and are counter-productive because they erode the ‘safety in numbers’ effect, as well as undermining the wider health and other benefits.

While it is important to ensure that motorists and cyclists are properly informed about how to travel safely, both for their own and other road users’ sake, making cycling look dangerous not only misrepresents the activity (see 1b), but may also adversely impact on cycle safety. As mentioned, there is good evidence that the more cycling there is, the safer cycling becomes. Conversely, campaigns that deter cycle use may undermine the ‘safety in numbers’ benefits for those who remain (1c).

For more on awareness campaigns, see [www.cyclinguk.org/campaigning/views-and-briefings/cycle-awareness-campaigns-for-drivers](http://www.cyclinguk.org/campaigning/views-and-briefings/cycle-awareness-campaigns-for-drivers)

**POLICY BACKGROUND**

**Strategic Framework for Road Safety (May 2011)**

National action on road safety is outlined in the Government’s road safety strategies, published at intervals. The latest is the Strategic Framework for Road Safety, based on the consultation draft A Safer Way. This covers the whole of Great Britain, although there are different approaches to road safety in Wales, Scotland, and England.⁹ Key points for the whole of Great Britain are:

- **No targets** - despite strong calls from everyone involved in road safety.
- **Indicators:** Instead, the Government now measures not only the numbers of people killed or seriously injured (KSI) for different transport modes, but also the KSI rates per billion miles travelled. It also uses an indicator for public perceptions of the safety of walking and cycling (see section 4 above).
- **Speed limits/street design:** The Strategy promised a framework to help councils take account of all the relevant factors when setting local speed limits - including health, environmental and the community severance effects of higher speed roads, as well as economic factors. However, it fell a long way short of encouraging local authorities to regard 20 mph as the norm for most urban streets. Moreover, there is very little on encouraging authorities to adopt safer, more pedestrian-and-cyclist friendly street designs.
- **FPNs for careless driving:** One of the Strategy's headline proposals was to allow police officers to hand out fixed penalty notices (FPNs) for ‘careless’ driving offences, whilst encouraging the courts to make stronger use of their powers to confiscate and crush vehicles owned by those who persist in driving recklessly. The stated aim was to ‘nudge’ the generally law-abiding but occasionally careless driver into improving their behaviour, while freeing up the courts and police to devote their scarce resources to tackling the really serious offenders. FPNs for ‘careless driving’ were introduced in 2013.
- **Traffic policing:** The Strategy failed to promise any increased resource for road traffic policing. Funding decisions, it decided, should be taken locally in response to local priorities and with accountability to local communities. However, it is hard to see how local communities can take those decisions sensibly when the funds are lacking in the first place.
- **Lorries:** The Strategy made a commitment to reducing the risks of lorry drivers failing to see pedestrians and cyclists.
FOOTNOTES AND REFERENCES


6 DfT, Reported Road Casualties Great Britain: 2015. Sep 2016. Table RAS40004. (Link above).

7 Calculation based on billion vehicle miles travelled by pedal cycle per year, (= 3.2bn averaged over 5 years, 2011-15), and number of cyclist fatalities per year (= 109 averaged over the same period). Figures from the DfT (road traffic stats, Table TRA0401; and road accidents and safety stats, Table RAS30001).

8 Calculation based on: GB population estimates (www.ons.gov.uk); average number of trips person per year (DfT National Travel Survey, Table NTS0409 = 16.4 https://www.gov.uk/government/collections/national-travel-survey-statistics); average number of cyclist fatalities per year = 109 (DfT GB Reported Road Casualties annual report, Table RAS30001 (link above)).

9 Calculation based on: average time spent cycling per person per year = 6 hours (DfT National Travel Survey, Table NTS0310, link above). GB population estimates (www.ons.gov.uk); average number of reported cyclist injuries per year = 19,575 reported injuries (all severities) to cyclists per year (DfT GB Reported Road Casualties annual report, Table RAS30001 (link above)).

10 DfT, Reported Road Casualties Great Britain 2015. Sept 2016. Table RAS30070. In 2014 and 2015, 39 and 35 pedestrians were killed per billion miles walked, respectively. The figures for cyclists were 35 (2014) and 31 (2015). www.gov.uk/government/collections/road-accidents-and-safety-statistics


13 TRL found that: “Whether a respondent cycled or not, not surprisingly, had an important effect on responses and attitudes. Those who were cyclists were in the favourable position of being able to see things from both the cyclist’s and the driver’s point of view [...] those drivers who cycled did have greater insight than other drivers did in some aspects. For example, they, not surprisingly, tended to know more about cycling facilities and how they operated. When looking at the scenarios, they could rely more on personal experience and talk about how they had reacted in real life. They could identify with such issues, as they knew that they were more commonplace than other non-cycling drivers thought (such as being ‘cut-up’ by a motor vehicle).” Reid, S et al, TRL. Drivers’ Perceptions of Cyclists. 2003. www.trl.co.uk (search for title in ‘reports and publications’).

14 See https://consultations.tfl.gov.uk/cycling/draft-london-cycling-design-standards

15 See http://gov.wales/topics/transport/walking/cycling/activetravelact/implementation/?lang=en

16 In reported road casualty statistics, HGVs are defined by the Department for Transport as: “Goods vehicles over 3.5 tonnes maximum permissible gross vehicle weight”.

