

Reported Road Casualties Great Britain: 2013 Annual Report

Focus on pedal cyclists



Department
for Transport

Key findings

The key findings from this article include:

- ▶ **Pedal cyclist deaths** have seen a long-term fall, but have fluctuated between roughly 100 and 120 over the last six years. Since records began in the 1920s, the highest annual figure seen for cyclist deaths was 1,536 in 1934. The lowest annual figure for pedal cyclist deaths was 104 in 2009, 93 per cent lower than the 1934 high.
- ▶ In 2013, **pedal cyclist deaths** decreased by 8 per cent to 109, compared to 118 in 2012.
- ▶ The number of pedal cyclists **seriously injured** also fell by 2 per cent to 3,143 in 2013 compared to 3,222 in 2012. This is the first decrease in reported seriously injured cyclist casualties since 2004.
- ▶ The total number of pedal cyclist **casualties** in road accidents in 2013 was 19,438, up 2 per cent from the 2012 total.
- ▶ Across all severities, **males** make up more than 80 per cent of pedal cyclist casualties. In 2013, of the 109 pedal cyclist fatalities, 20 per cent were **female** and 80 per cent were male.
- ▶ **Pedal cycle traffic** levels have also been on the rise with a 1 per cent increase between 2012 and 2013.

About this article

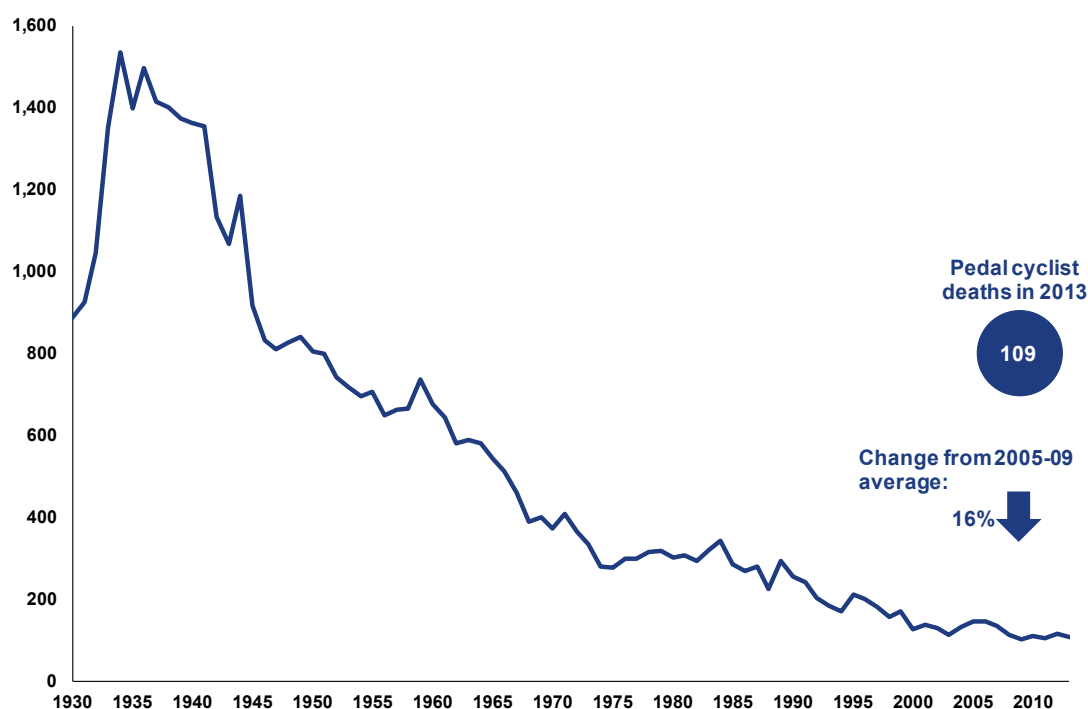
This article presents summary statistics on pedal cyclist casualties in road accidents, in Great Britain in 2013 compared with recent years. Figures are primarily derived from information about road accidents reported to the police.

The overall casualty picture for cyclists

Long term trends

- As a wider context, fatalities of **all road user types** have seen long-term reductions. From a peace-time high of around 8,000 per year in the mid-1960s, road deaths reached a record low of 1,713 in 2013, a fall of around 80 per cent.
- **Pedal cyclist deaths** have also seen a long-term fall, but have fluctuated between roughly 100 and 120 over the last six years. Since records began in the 1920s, the highest annual figure seen for cyclist deaths was 1,536 in 1934. The lowest annual figure for pedal cyclist deaths was 104 in 2009, 93 per cent lower than the 1934 high.
- Detailed recording of **non-fatal pedal cyclist casualties** began in 1979 and these have also seen a long-term fall. Today both slight and seriously injured pedal cyclist numbers are around a third lower than 30,594 non-fatal pedal cyclists' casualties in 1984, the highest recorded.
- Since recording began in 1949, the highest annual figure seen for **pedal cycle traffic** was in 1949, pedal cycle traffic accounted for 35 per cent of road traffic in Great Britain. Today pedal cycle traffic only accounts for 1 per cent of road traffic in Great Britain.

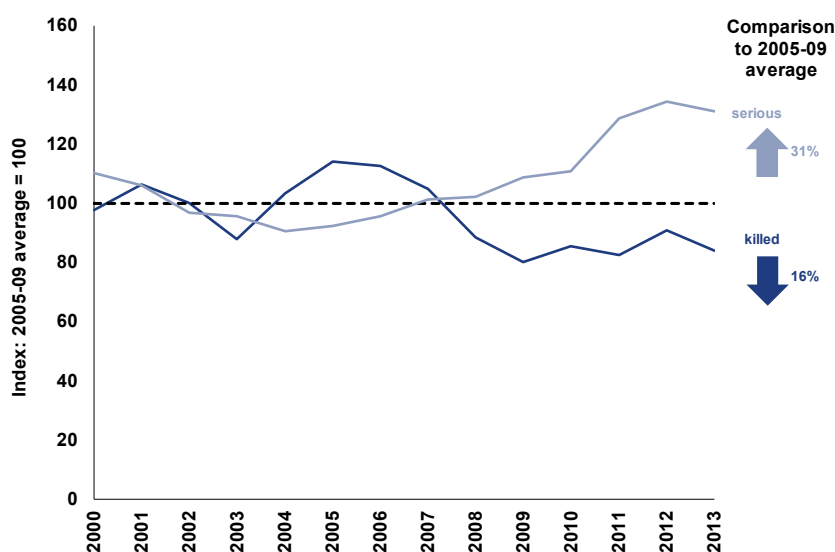
Chart 1: The number of pedal cyclist fatalities, GB: 1930 - 2013



Short term trends

- Pedal cyclists accounted for 11 per cent of all road **casualties** in 2013: 6 per cent of all road accident fatalities, 15 per cent of all serious injuries and 10 per cent of all slight injuries.
- **Pedal cycle traffic** has also been on a general increase. Road traffic estimates have shown a gradual increase in the distance cycled in Great Britain, with a 1 per cent rise between 2012 and 2013. This figure is 13 per cent higher than the 2005-09 average.
- The number of pedal cyclist **fatalities** decreased each year between 2005 and 2009, reaching a low of 104 deaths in 2009. Since then the number of annual deaths has fluctuated between roughly 100 and 120, however there is some evidence of a slight upward trend.
- In 2013, 109 pedal cyclists were **killed**, 9 fewer (an 8 per cent decrease) than in 2012. However, given the fluctuating nature of this figure it is not possible to tell whether this latest annual change is simply a one-off fluctuation or the start of a longer term downward trend.
- The number of **seriously injured** pedal cyclists also fell each year from 2000 to 2004, reaching a record low of 2,174 in 2004. Since then there has been an upward trend year on year up until 2012 when there were 3,222 seriously injured pedal cyclists, 48 per cent higher than the 2004 low.
- In 2013 the number of **seriously injured** pedal cyclists fell by 2 per cent compared to 3,143 in 2012, the first decrease in reported seriously injured cyclists since 2004, although as above, it is not possible to tell whether this is the start of a long term trend or single fluctuation.
- Despite the fall in 2013, the number of seriously injured pedal cyclists is still 31 per cent higher than the **2005 to 2009 average**.

Chart 2: The number of killed or seriously injured pedal cyclist casualties, GB: 2000 - 2013



Under-reporting of pedal cyclist casualties

The main source of data on road accidents is the **STATS19 data** which includes detailed information on personal injuries recorded by the police. However it is not a complete record of all injury accidents as a proportion of road accidents will never be reported to the police. Whilst the vast majority of road accident fatalities become known to the police, studies have shown that an appreciable proportion of **non-fatal injury accidents** are not reported and therefore not included in the data. These studies have shown that reporting rates for pedal cyclists tend to be lower than for other road users. Pedal cyclist non-fatal casualties are amongst the most likely to be under-reported in road accident data collected by the police, especially where the pedal cycle was the only vehicle in the accident. This means that the trends and explanations provided within this article are only based on a sub-set of actual accidents and casualties. This should be borne in mind when using, analysing and interpreting the data.

Hospital Episode Statistics (HES) data provides an alternative view of the number of pedal cyclist casualties. This dataset makes up a key source of information on the medical outcomes of casualties who have been injured enough to be admitted to hospital. In 2011 the number of pedal cyclist admissions in HES was more than three times the number of seriously injured casualties in accidents recorded by the police. This therefore gives an indication of the number of personal injury accidents involving pedal cyclists which will not be included in the analysis for this article.

Further information...

More information on hospital admissions data on road casualties in England can be found [here](#).

Pedal cyclist casualty rates

Trends in pedal cyclist casualties can be partly explained by changes in how much people cycle, which is why it is important to consider the **cyclist casualty rate**- the number of pedal cyclist casualties per mile cycled- as well as the number of casualties. To calculate this rate, an estimate of the total annual GB cycling distance is required.

Currently this estimate, along with the rates for other vehicle type occupants, is based on **traffic count data**. The Department's traffic count data is estimated through a combination of **manual observations and automatic traffic counters** (ATCs). More details about traffic estimates can be found [here](#). Table [RAS30013](#) includes casualty rates for different vehicle types, estimated using traffic count data for the distance.

Measuring pedal cycle traffic using traffic counts has some limitations. Traffic is counted on only a sample of 'B', 'C' and unclassified roads ('minor' roads), where the majority of cycling occurs.

Therefore, given cycling can vary considerably by local area, the road traffic estimated may not give a complete representation of cycling in Great Britain. In addition, traffic counts only capture cycling on the public highway or on paths directly adjacent to it and so do not include cycling on other routes such as canal paths.

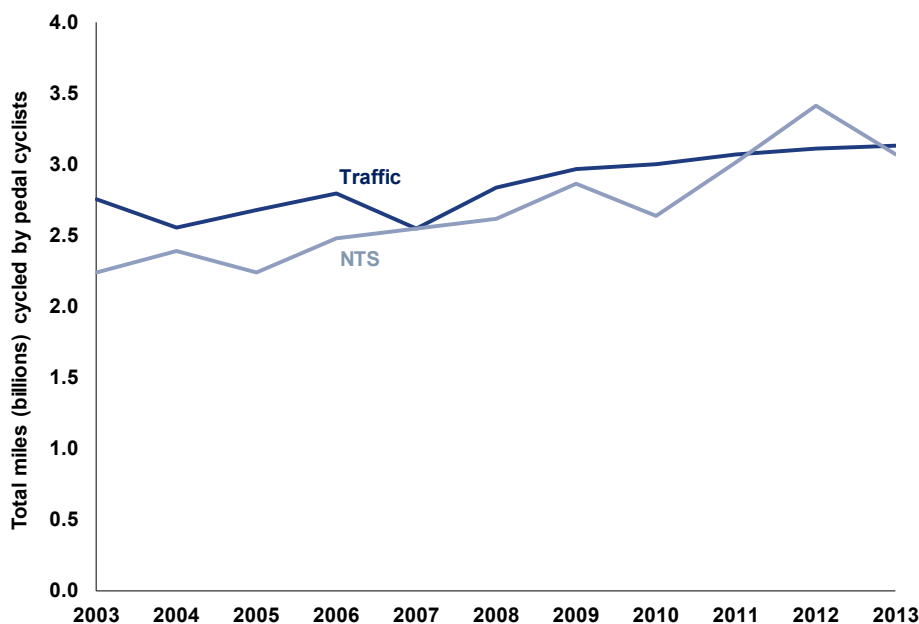
Further information...

The NTS table can be found [here](#).

An alternative to traffic counts is to use survey data from the **National Travel Survey (NTS)** a long standing DfT survey which records individuals' personal travel patterns in a one week diary, including cycling journeys. From the NTS it is possible to derive an annual estimate for the average distance cycled per person per year. Multiplying by GB population gives an estimate for the total distance cycled in GB.

The chart below compares the total distance cycled in GB, as derived from traffic counts with equivalent data from the NTS. The two sources will not present exactly the same picture because of differences in collection, coverage and measurement but a degree of coherence should be expected. Historically, the NTS gave a lower estimate than the traffic counts. In recent years, the two estimates began to converge and were similar in 2007 and 2013. Both the estimates however, suggest an increase in distance cycled in recent years: the traffic counts suggest 2013 was around 13 per cent higher than the 2005-09 average; the NTS suggests growth over this period is closer to 20 per cent.

Chart 3: The total distance cycled in GB: 2003-2013



Given the limitations in measuring cycling distance via traffic counts, we are carrying out work to assess the most appropriate dataset for estimating casualty rates.

The NTS is not without its limitations: for example, it does not capture travel for commercial purposes (e.g. cycle couriers). However, compared with motor vehicles, commercial travel is likely to comprise only a small share of total cycling. Another limitation is that the NTS is a sample survey and cycling is a relatively infrequent mode, so the estimates are subject to a lot of year-on-year fluctuation, as shown in chart 3.

Another limitation is that the NTS, which was previously a GB-wide survey, is now since 2013 England-only. However, a reasonable GB estimate of cycling distance can be derived by scaling up the England only miles per person per year measure by the GB-wide population.

Charts 4 and 5 below show the fatalities and KSIs per billion miles cycled in GB using the road traffic counts and NTS estimates. They show that the NTS-based casualty rates were historically higher than those for the traffic counts, but they have converged in recent years. As an example, the figures using the two different methods are given in table [RAS30013](#).

Chart 4: Pedal cyclist fatalities per billion miles cycled, GB: 2003-2013

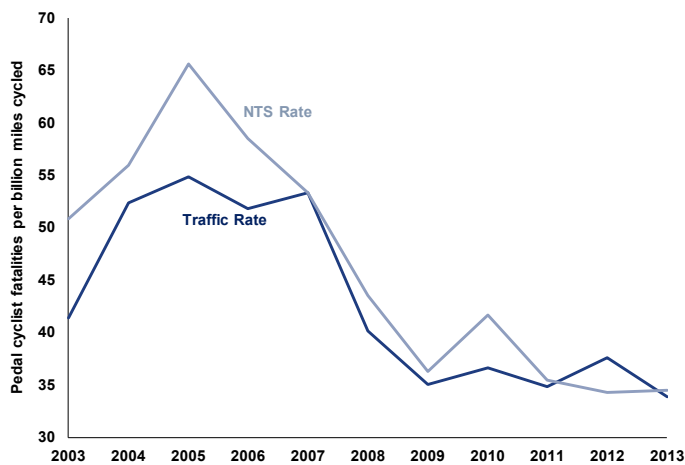
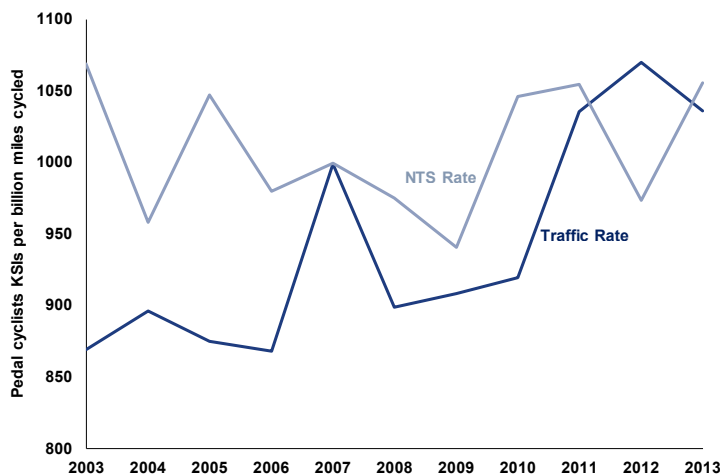


Chart 5: Pedal cyclist killed or seriously injured casualties per billion miles cycled, GB: 2003-2013



We welcome user feedback whether NTS data is more suitable than traffic count data for estimating cycling casualty rates. Similarly, we would invite users to provide suggestions for alternatives of how we could present cyclist casualty rates more accurately.

You can provide feedback via email to roadacc.stats@dft.gsi.gov.uk or phone 020 7944 6595.

Characteristics of pedal cyclist casualties

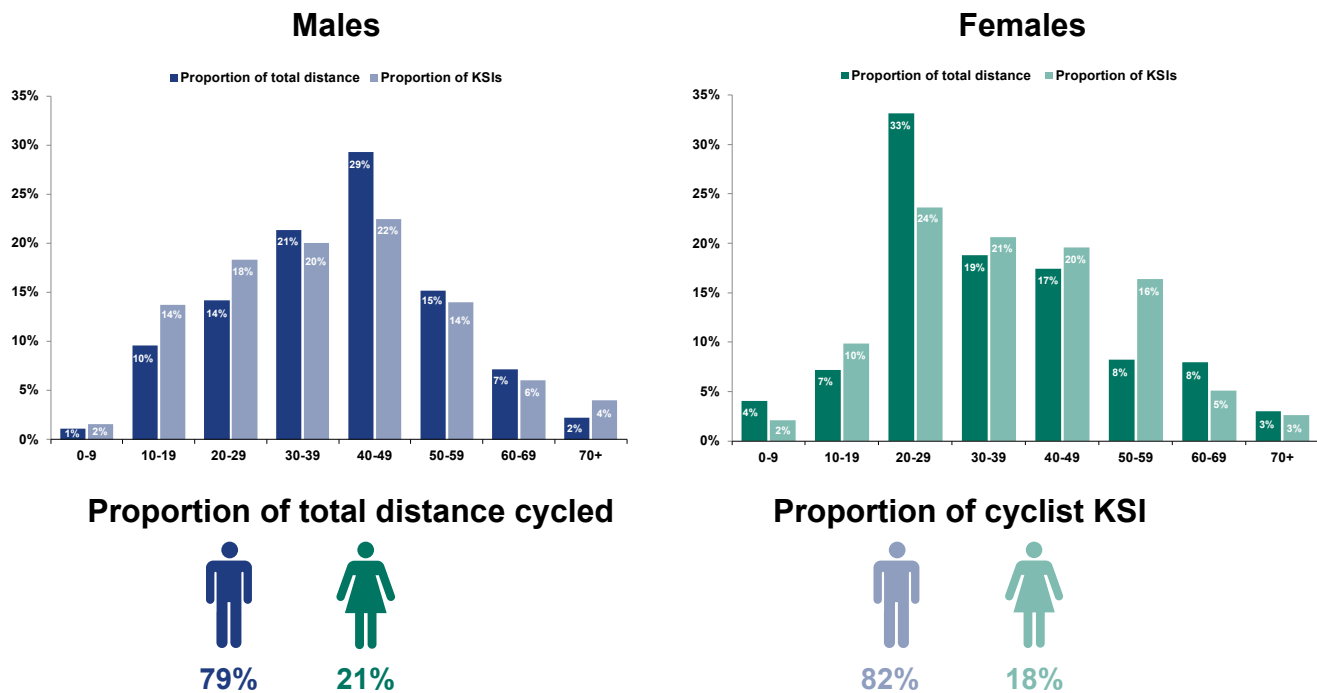
Across all severities, males make up more than 80 per cent of pedal cyclist casualties. In 2013, of the 109 pedal cyclist fatalities, 20 per cent were female and 80 per cent were male.

The difference largely reflects the difference in **cycling prevalence** between males and females. In 2013, on average cycling prevalence was three times higher amongst males than females (22 trips per male per year vs 7 trips per female or in distance terms, 80 miles vs 20 miles).

Chart 6 below shows a comparison of the proportion of the total cycling distance accounted for by males and females and the proportion of pedal cyclist killed or seriously injured casualties accounted for by male and female casualties broken down by age group. Whilst, the casualty distribution across ages roughly reflects the distribution of cycling prevalence, there are a number of key deviations.

- **Young male cyclists** in their teens and 20s are the most **over-represented** male age group as cycling KSI casualties. In 2013 they comprised around 30 per cent of male pedal cyclist KSIs, but only made up for 25 per cent of miles cycled.
- In comparison, **pedal cyclists in their 30s and 40s** are the **most prevalent age groups** for cycling, accounting for around 50 per cent of miles cycled by males in GB. However, this age group is the most under-represented male age group, comprising of around 40 per cent of all male pedal cyclist KSIs in 2013.
- The pattern for **females** is very different. The most **over-represented** age groups of female pedal cyclist KSI casualties are aged between 50 and 59. This group makes up around 8 per cent of miles cycled by females, yet account for 16 per cent of casualties.
- Around a third of miles cycled by **females** is covered by people in their **20s**. Relatively speaking, this is the group that are least likely to be killed or seriously injured, accounting for only a quarter of all female KSI casualties.

Chart 6: The proportion of total distance cycled and the proportion of killed or seriously injured casualties by gender and age group, GB: 2013



Who is involved?

Proportion of traffic in Great Britain for each of the main road user types and the proportion of pedal cyclists fatalities and non-fatal injuries which those vehicles were involved in, GB: 2009–2013



	HGVs	LGVs	Bus or Coach	Cars	Motorcycles
% of GB traffic	5	13	1	78	1
% of cycle deaths	23	8	5	58	2
% of cycle serious injuries	3	7	2	84	2
% of cycle slight injuries	2	6	2	88	1
% of cycle casualties	2	7	2	87	1

About this infographic...

This graphic only includes two vehicle accidents between a pedal cyclist and motor vehicle in which one or more pedal cyclists were killed or injured.

The **distribution of involvement in accidents** involving pedal cyclists does not directly reflect the **distribution of traffic**. For example, HGVs are disproportionately more likely to be involved in a pedal cyclist death: between 2009 and 2013 they were involved in around a quarter of deaths despite comprising only 5 per cent of traffic in GB. Similarly, buses account for 1 per cent of traffic but were involved in 5 per cent of pedal cyclist deaths.

In contrast, though, **HGVs and LGVs** are involved in considerably fewer accidents with pedal cyclists (2 per cent and 7 per cent respectively) which results in any severity of cyclist casualty than might have been expected, given the volume of traffic they make up (5 and 13 per cent respectively).

Cars show the inverse pattern. Car traffic accounts for 78 per cent of traffic on the road, but only 58 per cent of cyclist fatalities. They are, however, involved in 87 per cent of all two vehicle pedal cycle accidents, and are therefore considerably over-represented in such accidents.

This means that **car and pedal cycle accidents** occur less frequently than we might expect, if accidents were evenly spread throughout all motor vehicle types, yet when they do occur, they tend to be less serious than accidents involving larger vehicles. So although any road safety intervention that would reduce HGV and bus with pedal cycle accidents could save a considerable number of lives, it may not actually lead to a significant reduction in overall accidents.

Vehicle movement on the road



Vehicle movement can be used in explaining accidents that occur on the road. Apart from analysing casualty data at different junctions it is also useful to understanding the vehicle movement that contributed to the accident.

Pedal cyclists involved in two vehicle accidents with at least one motor vehicle were more likely to be at a **junction** and recorded as **'going ahead'** than any other vehicles involved in accidents. Junctions are particularly dangerous for vulnerable road users such as pedal cyclists because cyclists are harder to see, and the greater number of vehicle interactions and changes in vehicle movements make an accident more likely.

Most pedal cyclist killed or seriously injured casualties occur at **crossroads and t-staggered junctions** (a t-staggered junction is a place where several roads meet a main road at a slight distance apart).

Further information...

Picture which reads 'drivers look out for cyclists at junctions' was taken from the [THINK! Campaign page](#).



t-staggered junctions



crossroads

Between 2009 and 2013, 30 per cent of pedal cyclists killed or seriously injured at crossroads and t-staggered junctions happened as a result of the pedal cyclist 'going ahead' and the other motor vehicle involved **turning right or turning left** and 20 per cent were as a result of both the pedal cyclist and the other vehicle 'going ahead'.

Pedal cyclists also tend to be vulnerable at areas away from junctions and at roundabouts.

Between 2009 and 2013 approximately 80 per cent of pedal cyclists killed or seriously injured occurred at roundabouts and away from junctions as a result of both the pedal cyclist and the motor vehicle 'going ahead'. Pedal cyclists are also easily **affected by side winds when being overtaken**, in the last five years 13 per cent of pedal cyclist KSIs that occurred away from junctions were as a result of the pedal cyclist being overtaken by a motor vehicle.

In comparison to motor vehicles, pedal cyclists cannot move off very quickly, at **roundabouts** for example. Between 2009 and 2013, 15 per cent of pedal cyclist KSI casualties occurred as a result of the motor vehicle involved in the accident moving off as the pedal cyclist was going ahead at a roundabout.

It can be helpful to compare these findings with **motorcyclists**, another vulnerable road user group. Motorcyclists are also vulnerable at **t-staggered junctions** and areas away from junctions. Similar to pedal cyclists, motorcyclists are also difficult to see at junctions however unlike pedal cyclists, motorcyclists tend to move more quickly and are often killed or seriously injured when motor vehicles pull out at junctions.

Between 2009 and 2013, half of the motorcyclist KSI casualties that occurred away from junctions occurred when both the motorcyclist and the other vehicle were **going ahead at t-staggered junctions and cross roads**. Thirty per cent of motorcyclist KSIs at junctions were also a result of the other vehicle turning right whilst the motorcyclist was going ahead.

What type of road?

The difference in the **average speed and traffic levels on urban and rural roads** play an important part in estimating road user casualties in particular pedal cyclists on different types of roads.

Given that around 70 per cent of pedal cycle traffic is on **urban roads**, it is unsurprising that the majority of pedal cyclist casualties occur here (60 per cent of all pedal cyclist casualties in 2013) in comparison to rural roads. As well as the majority of cycling taking place on these types of roads, there are many more opportunities for cyclists to interact with other road users, making it more likely for accidents to occur.

In contrast, though, despite carrying only 30 per cent of cycle traffic, over half (58 per cent) of pedal cyclist fatalities in 2013 occurred on **rural roads**. Therefore accidents that occur on rural roads tend to be of a more serious nature than those on urban roads.

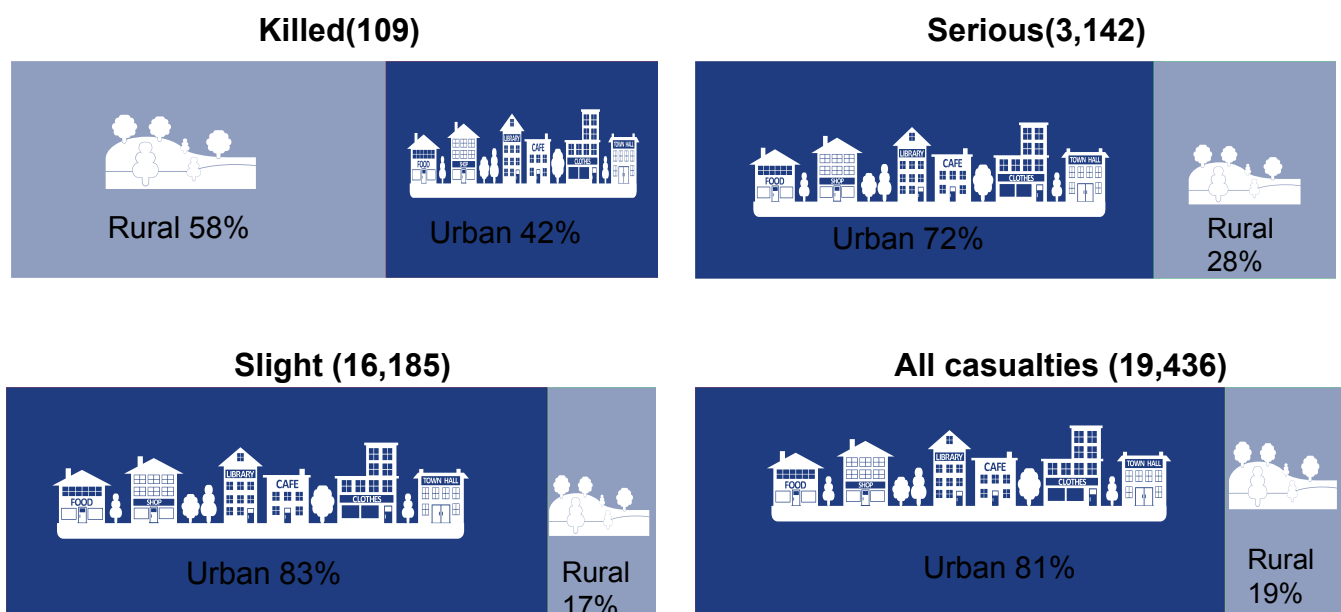
The obvious reason for this difference relates to **traffic speed**. Urban roads have a much lower average speed than rural roads and it is this speed that causes the worse outcomes for cyclists.

It is also notable that the **accident rate** for fatal casualties is higher on rural roads than urban roads (7.3 fatalities per billion vehicle miles compared to 2.6 on urban roads), despite the greater number of vehicle interactions on urban roads. However, **under-reporting of accidents** might explain some of this. Lower severity accidents are less likely to be reported to the police. Accidents at lower speeds on urban roads are less likely to result in serious injuries (or any injury at all). Therefore there may be many more unreported accidents involving pedal cyclists in built-up areas than rural areas. This, in turn, may give a misleading impression of the relative safety of cycling in urban and non-urban areas .

This differed however for **non-fatal pedal cyclist casualties** in which 72 per cent of pedal cyclists' serious injuries and 83 per cent of pedal cyclist slight injuries occurred on urban roads in 2013.

Again, **motorcyclists** can provide a useful comparison. Similarly the majority of motorcyclist casualties (65 per cent) also occur on **urban roads** and the majority of motorcyclist fatalities (70 per cent) occur on **rural roads**.

Chart 7: Pedal cyclist casualties by severity and road type, GB: 2013



Why do cycle accidents happen?

Since 2005 police forces in Great Britain have been recording **contributory factors** as part of the STATS19 collection system. Contributory factors provide an insight into **how and why accidents occur**. The factors are largely subjective as they reflect the opinion of the reporting officer, therefore they should be interpreted with caution. A maximum of six factors can be recorded for each accident.

The table below shows contributory factors in accidents involving at least one pedal cycle (with no pedestrian casualties).

Contributory factors in accidents¹ involving at least one pedal cyclist and other vehicles (with no pedestrian casualties), GB: 2013

Contributory Factor ³	Pedal cycle		Other Vehicles ²		All vehicles	
	Number	Percent	Number	Percent	Number	Percent
No CF recorded	6,523	50	3,404	27	9,961	39
Failed to look properly	3,046	23	6,291	50	9,375	37
Failed to judge other person's path or speed	1,369	10	2,066	17	3,447	13
Careless, reckless or in a hurry	1,038	8	1,560	13	2,605	10
Poor turn or manoeuvre	746	6	1,632	13	2,392	9
Cyclist entering road from pavement	880	7	23	0.2	905	4
Passing too close to cyclist, horse rider or pedestrian	54	0.4	1,203	10	1,278	5
Stationary or parked vehicle(s)	310	2	499	4	810	3
Loss of control	689	5	86	1	776	3
Disobeyed 'Give Way' or 'Stop' sign or markings	167	1	515	4	688	3
Total number of vehicles	13,078	100	12,476	100	25,663	100

1. Includes only accidents where a police officer attended the scene and in which a contributory factor was reported.

Factors not shown may also have been reported

2. Includes other vehicles types and cases where the vehicle type was not reported

3. Top 10 most frequently reported contributory factors for pedal cycles and other vehicles.

Pedal cyclists were more likely to have **no contributory factor** recorded in comparison to other vehicles – 50 per cent compared to only 27 per cent.

The most common contributory factor assigned to pedal cyclists and other vehicles was **'failed to look properly'**. This is commonly referred to as the 'looked but failed to see' problem in road safety literature. This may be particularly common where pedal cycles and motorcycles are concerned as they are smaller and easier for motorists to miss when looking around the road. It is also part of the motivation behind a number of THINK! campaigns. In 2013, 23 per cent of pedal cyclists involved in accidents 'failed to look properly' whereas half of other vehicles involved in accidents also failed to look properly.

The second most common contributory factor assigned to both pedal cyclists and other vehicles was **'failed to judge other person's path or speed'**. In 2013, 17 per cent of other vehicles involved in accidents failed to judge other person's path or speed, in comparison to only 10 per cent of pedal cyclists.

Summary

Although pedal cyclist deaths have decreased by 8 per cent from the previous year, it is not possible to tell whether this latest annual change is simply a one-off fluctuation or the long start of a long term down-ward trend. The number of seriously injured pedal cyclist casualties also fell by 2 per cent from the previous year, however, given that it is the first decrease since 2004, it is not possible to tell whether this is the start of a long term trend or single fluctuation.

Pedal cyclists have a higher rate of being killed in comparison to car occupants, however it is still far less risky than being a motorcyclist. The rate also appears to be the same for a pedestrian as it is for a cyclist. Although cycling is risky in comparison with driving, it is still a safe mode of transport. The table below shows the casualty rate per billion vehicle miles travelled by different road user types.

Relative risk of different forms of transport, Great Britain: 2013

Casualty rate per billion vehicle miles

	Killed	Killed or seriously injured
Car driver	2	24
Pedestrian	34	463
Pedal cyclist	34	1,036
Motorcycle rider	119	1,853

Detailed statistics...

See table [ras30070](#) for a comparison of the relative risk of different forms of transport.