Department for Transport

Reported Road Casualties in Great Britain: Main Results 2014

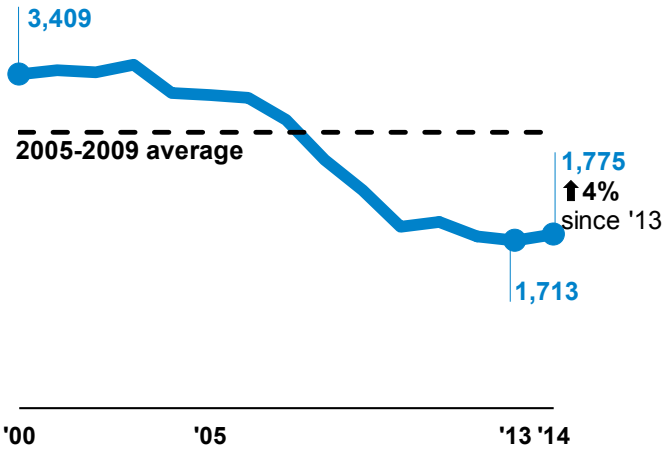
There were 1,775 reported road deaths in 2014, an increase of 4% compared with 2013.

The 1,775 road deaths in 2014 is the third lowest annual total on record after 2012 and 2013. There were 45 per cent fewer fatalities in 2014 than a decade earlier in 2005.

About this release

This publication provides the number of personal-injury road traffic accidents in Great Britain that were reported to the police for 2014. It also includes the number of people killed or injured in these accidents and which road user group they were in.

Fatalities in reported road accidents: GB, 2000-2014



- **Pedestrians** accounted for three quarters of the increase in fatalities between 2013 and 2014. Pedestrian fatalities increased by 12 per cent from 398 in 2013 to 446 in 2014.
- The number of people **seriously injured** in reported road traffic accidents increased by 5 per cent to 22,807 in 2014, compared with 2013.
- There was a total of 194,477 **casualties of all severities** in reported road traffic accidents during 2014, the first increase in overall casualties since 1997.
- A total of 146,322 **personal-injury road traffic accidents** were reported to the police in 2014. Of these accidents, 1,658 resulted in at least one fatality.
- **Vehicle traffic levels** increased by 2.4 per cent between 2013 and 2014.

In this publication

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Summary

The summary table below shows the number of reported road casualties in Great Britain in 2014 compared with previous years.

		Percentage change from:		
		Last year	Five years ago	2005-2009 average
	2014	*2013*	*2009*	
Killed	**1,775**	↑ 4%	↓ 20%	↓ 37%
Seriously injured	**22,807**	↑ 5%	↓ 8%	↓ 16%
KSI[1]	**24,582**	↑ 5%	↓ 9%	↓ 18%
Slightly injured	**169,895**	↑ 6%	↓ 13%	↓ 21%
All casualties	**194,477**	↑ 6%	↓ 12%	↓ 21%

1 Killed or seriously injured.

Definition

Casualty: A person killed or injured in an accident. Casualties are sub-divided into killed, seriously injured and slightly injured.

A full list of the definitions used in this release can be found here.

Introduction

This publication provides the number of personal-injury road traffic accidents in Great Britain that were reported to the police for 2014. It also includes the number of people killed or injured in these accidents and which road user group they were in.

The figures make up part of a long running series going back to 1926. The current set of definitions and detail of information goes back to 1979, providing a long period for comparison.

The information used to create the statistics are collected by **police forces**, either through officers attending the scene of accidents, or from members of the public reporting the accident in police stations after the incident.

There is **no obligation for people to report accidents** to the police. These figures, therefore, **do not represent the full range of all accidents or casualties** in Great Britain. Please see the section on strengths and weaknesses of the data for further details.

All accidents that were reported to the police and occurred on a public highway involving at least one motor vehicle, horse rider or pedal cyclist, and where at least one person was injured are included. Accidents that happened on private land (including private drives) or car parks are not included in the statistics.

Further Information

Information about the data collected, notes, definitions and guidance is available at www.gov.uk/government/collections/road-accidents-and-safety-statistics.

The raw data used to create the statistics (except for a few sensitive and personal variables) are available for reuse at data.gov.uk/dataset/road-accidents-safety-data.

Headline statistics

A total of **1,775 people were killed** in reported road traffic accidents in Great Britain in 2014. This is an increase of 62 fatalities (or 4 per cent) from 2013. It is the third lowest year on record after 2012 and 2013. There were 45 per cent fewer fatalities in 2014 than a decade earlier in 2005 and 37 per cent fewer than the 2005-09 average.

In 2014, there were **22,807 seriously injured casualties** in reported road traffic accidents. This represents a 5.3 per cent rise from 2013 but is lower than the 23,039 seriously injured in 2012.

There was a total of **194,477 casualties of all severities** in reported road traffic accidents during 2014. This is the second lowest level on record, though it is 5.9 per cent higher than in 2013. It is the first increase in overall casualties since 1997.

2005-2009 average

The 2005-2009 average is used as a comparison timeframe in both this publication and the accompanying statistical tables. This average is the baseline for the **Strategic Framework for Road Safety Outcomes**.

With the exception of 2010 to 2011, which was affected by severe weather, 2014 is the first rise in fatalities over the calendar year since 2003. It is also the first rise in seriously injured casualties since 1994.

A total of **146,322 personal-injury road traffic accidents** were reported to the police in 2014. Of these accidents, 1,658 resulted in at least one fatality. There were fewer reported accidents in both 2012 and 2013, but the 2014 level is lower than every other year on record except 1926 and 1927.

Casualties by road user type

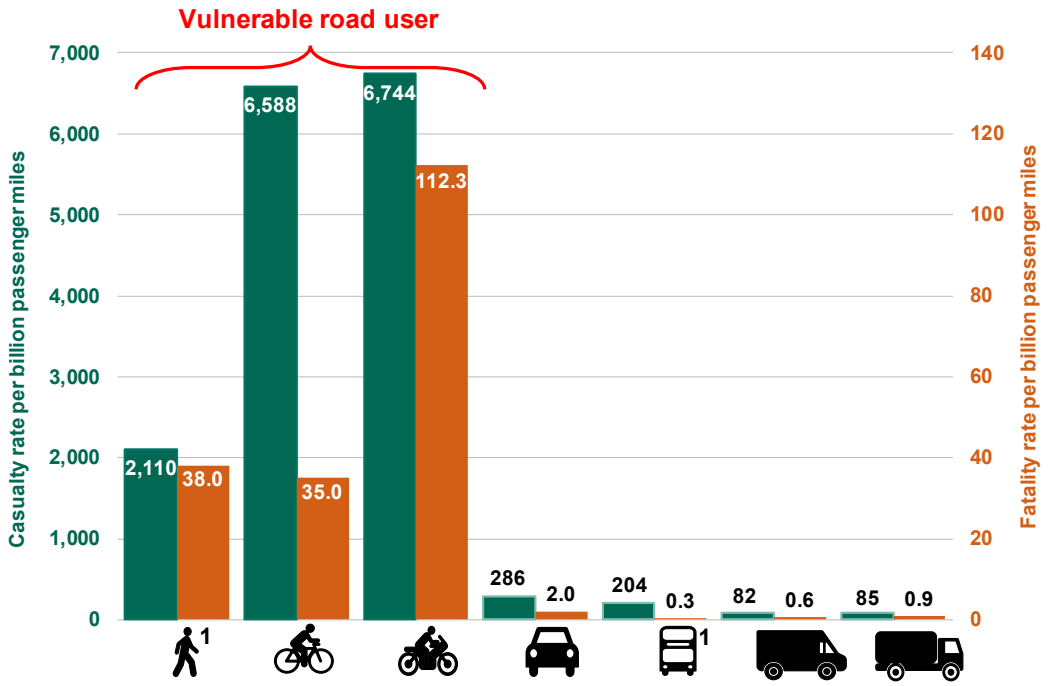
Historically and still currently, **car occupants** have made up the largest road user group in each casualty severity. This is because cars make up almost 80 per cent of all traffic driven in Great Britain. However, casualty numbers by road user group are not proportionate to the total distance that the user group travels. The **vulnerable user groups** (usually defined as pedestrians, pedal cyclists and motorcyclist) all account for disproportionately more casualties than would be expected, given the distance travelled, as shown in Chart 1.

Further information

Road traffic estimates in Great Britain: 2014

One of the more noticeable discrepancies is for **pedal cycles**. Although pedal cycles have a similar **fatality rate** as pedestrians, at around 35 to 38 deaths per billion miles travelled, there is a marked difference between the two groups for overall reported casualties. For **casualties of all severities**, pedal cyclists have a similar rate to motorcyclists, at over 6,500 casualties per billion passenger miles. The rate for pedestrians is 2,110 casualties per billion miles walked.

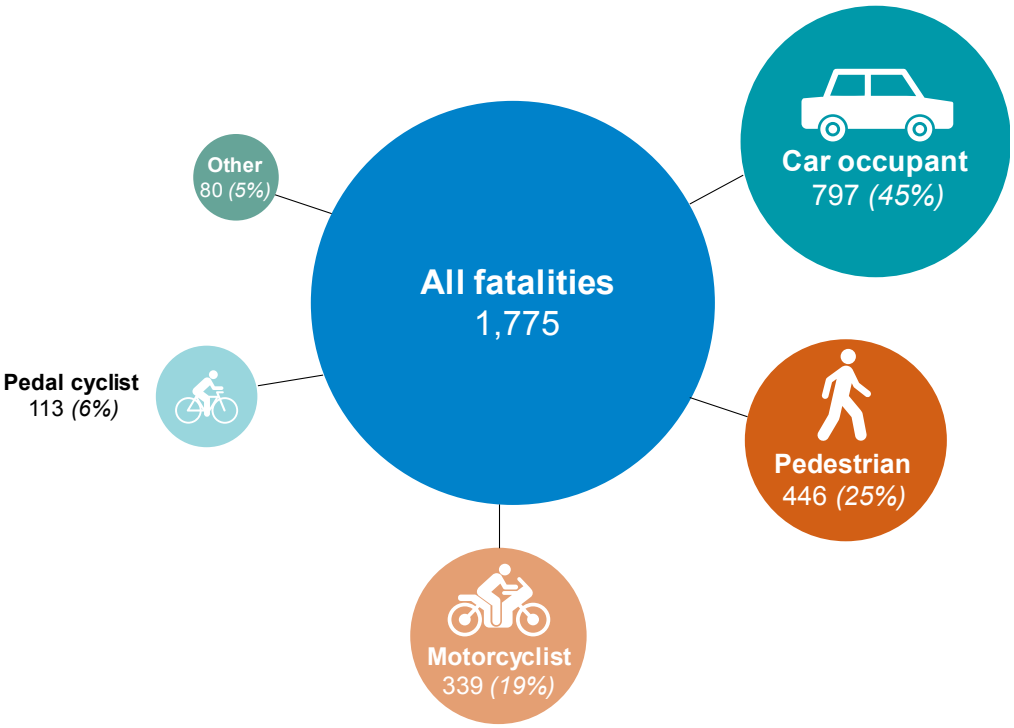
Chart 1: Casualty and fatality rates per billion passenger miles by road user type: GB, 2014



1. Pedestrian and bus passenger rates based on 2013 mileage figures scaled up for population growth.

In 2014, car occupants accounted for 45 per cent of road deaths, pedestrians 25 per cent, motorcyclists 19 per cent and pedal cyclists 6 per cent.

Chart 2: Fatalities in reported road accidents by road user type: GB, 2014



1. Other consists mainly of goods vehicle and bus and coach occupants.

Useful links

National Travel Survey, 2013: www.gov.uk/government/statistics/national-travel-survey-2013

Annual bus statistics: year ending March 2014: www.gov.uk/government/statistics/annual-bus-statistics-year-to-end-march-2014

Tables

- Reported road casualties by road user type and severity, Great Britain, table RAS30001.
- Reported casualties by road user type, age and severity, Great Britain, table RAS30002.
- All reported casualties by road user type, Great Britain, table RAS30004.
- Reported killed or seriously injured casualties, by road user type, Great Britain, table RAS30005.

Car occupants

2005-2009 average

Car occupant casualties compared with the 2005-2009 average:

Killed	43%
Serious	31%
KSI	32%
All casualties	28%

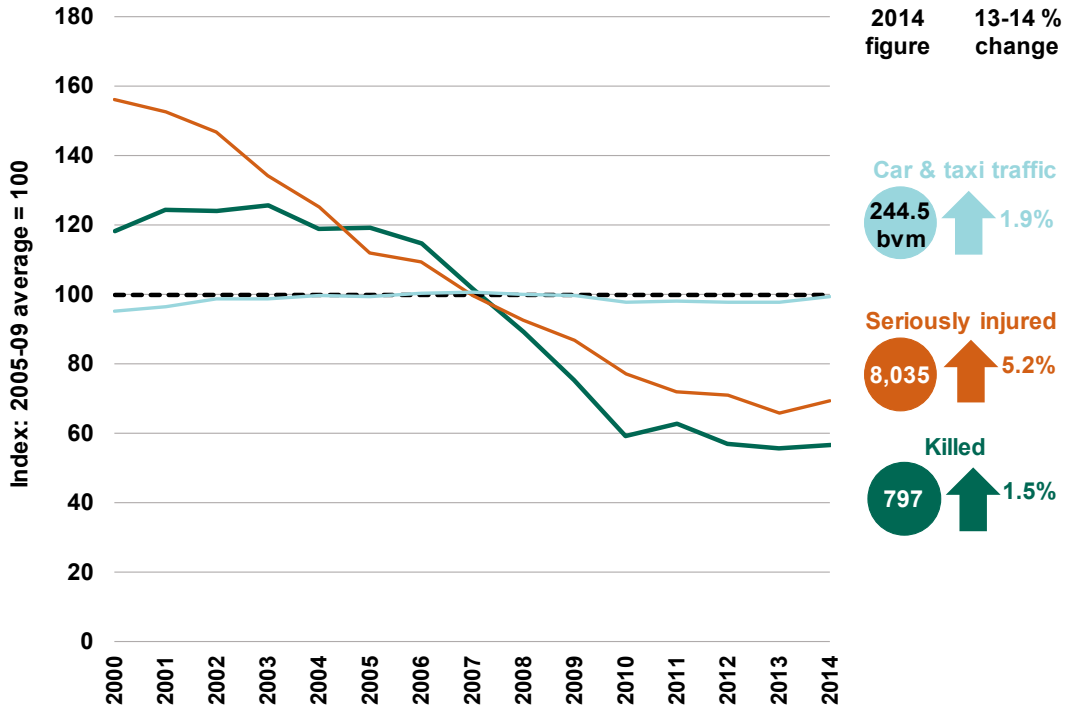
The number of **car occupants killed** rose by 1.5 per cent compared with 2013, reaching 797 deaths in 2014. It is **unlikely that this change of 12 deaths is statistically significant** and the increase is likely to have come about by chance. See the section on statistical significance for further explanation on this topic.

A total of 8,035 car occupants were **seriously injured** in reported road accidents. This represents an increase of 5.2 per cent from the 2013 level. An increase of this magnitude **is likely to be statistical significant**, suggesting that the change is as a result of genuine differences in safety and risk between 2013 and 2014. Nevertheless, 2014 still represents the second lowest year on record, at 2.4 per cent below the 2012 figure.

Overall car occupant casualties also increased by 5.2 per cent to 115,530 in 2014. As with seriously injured casualties, this is the second lowest year on record, and the change is large enough to probably be statistically significant.

Car and taxi traffic in Great Britain increased by 1.9 per cent from 2013 to 2014. Increases in car and taxi traffic can lead to an increase in accidents and casualties as there are more vehicles on the roads.

Chart 3: Number of killed and seriously injured car occupants compared with car and taxi traffic, GB: 2000-2014



1. 2014 figures are shown in the circles with the 2013-2014 percentage change represented by the arrows. bvm - billion vehicle miles.

Pedestrians

2005-2009 average

Pedestrian casualties compared with the 2005-2009 average:

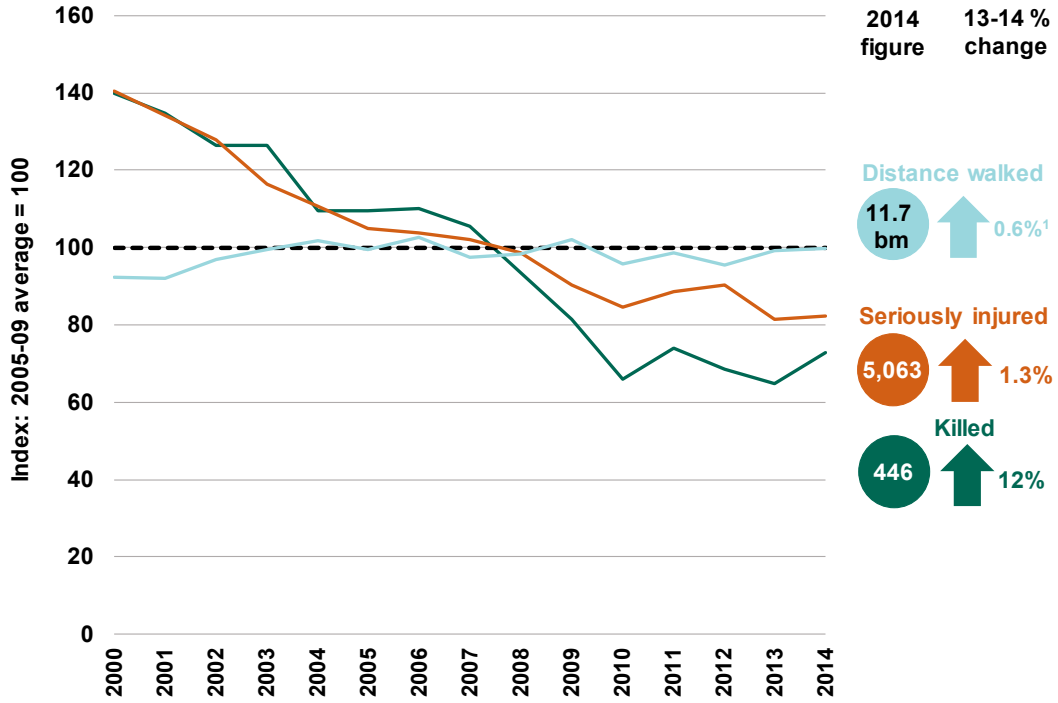
Killed	↓ 27%
Serious	↓ 18%
KSI	↓ 18%
All casualties	↓ 17%

There were 446 **pedestrian fatalities** in reported road traffic accidents in 2014. This is an increase of 12 per cent (or 48 fatalities) from the record low in 2013. Pedestrians alone accounted for three quarters of the increase in overall fatalities between the two years. The total for 2014 is the highest number of pedestrian deaths since 2011. Despite this, the increase between 2013 and 2014 is **unlikely to be statistically significant**.

In particular, almost all of the change in pedestrian fatalities between 2013 and 2014 was for **casualties aged 60 and over**. This group increased from 146 fatalities in 2013 to 191 in 2014. This increase does seem to be **statistically significant**, though it should be noted that it is only a little higher than the 183 pedestrians aged 60 or over killed in 2012 and 184 killed in 2011. Therefore it is possible that there were actually an unexpectedly low number of fatalities in this group in 2013.

The number of **seriously injured** pedestrians in 2014 is 1.3 per cent higher than in 2013. The total of 5,063 is still the second lowest year on record. Similarly the number of slightly injured casualties increased by 3.2 per cent to 19,239, which is exactly the same number as in 2012.

Chart 4: Number of killed and seriously injured pedestrians compared with the distance walked, GB: 2000-2014



1. Distance walked in 2014 estimated by using the 2013 National Travel Survey average distance multiplied by an estimated 2014 population. bm - billion miles.

2. 2014 figures are shown in the circles with the 2013-2014 percentage change represented by the arrows.

There has clearly been a **divergence** in how the number of **pedestrian fatalities** and number of **injured pedestrian casualties** have changed between the years. This suggests that the relatively large increase in pedestrian fatalities could be as a **result of chance**: either 2013 being lower than it might otherwise have been, or 2014 being higher. As will be discussed at a later point, any year with the same level of risk of death or injury will result in slightly different numbers of casualties. This is because the difference between an accident occurring or not occurring, or a casualty being killed rather than injured, can be very small. Small differences in vehicle speeds, angle of the collision, body position, vehicle loads, etc, could result in very different outcomes. With such fine margins, casualty figures, especially for groups containing small numbers, can change by relatively large amounts without the change being as a result of an underlying factor.

Pedal cyclists

The number of **pedal cyclist fatalities** has remained between 104 and 118 since 2008. In 2014 there were 113 deaths, up 4 deaths from the 2013 figures. This change is **not part of a meaningful trend and is not statistically significant**.

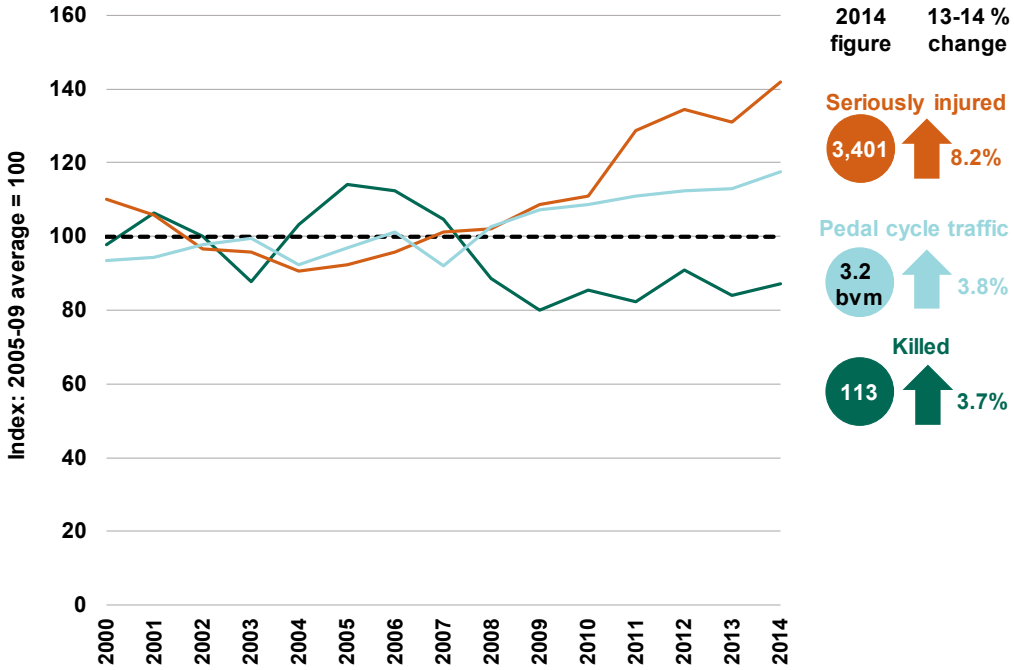
However, there was an 8.2 per cent rise in the number of **seriously injured** pedal cyclists to 3,401 in 2014. With the exception of 2012 to 2013, the number of seriously injured pedal cyclists has increased every year since the low of 2,174 in 2004. This **long term rise** indicates that there is an ever increasing problem with pedal cyclist casualties.

2005-2009 average

Pedal cyclist casualties compared with the 2005-2009 average:

Killed	13%
Serious	42%
KSI	39%
All casualties	29%

Chart 5: Number of killed and seriously injured pedal cyclists compared with pedal cycle traffic, GB: 2000-2014



Tables

• Pedal cycle traffic (vehicle miles/ kilometres) in Great Britain, annual from 1949, table TRA0401.

1. 2014 figures are shown in the circles with the 2013-2014 percentage change represented by the arrows. bvm - billion vehicle miles.

The **total number of reported pedal cyclist casualties** rose by 9.5 per cent to 21,287 in 2014. This is the highest number of pedal cyclist casualties since 1999 and a 31 per cent increase since the low of 2007. Pedal cyclists are the only road user group with casualty numbers of most severities above the 2005-09 average.

Some of the explanation behind the rising number of pedal cyclist casualties is in the volume of **cycle traffic**. On-road pedal cycle traffic rose by 3.8 per cent to 3.25 billion vehicle miles in 2014. This means that cycle traffic has risen by 27 per cent since 2007, not far short of the 31 per cent rise in casualties over that period. It is likely that the increase in cycling has resulted in more accidents as cyclist become more exposed to motor vehicle traffic.

Further Information

Statistics on the number of cyclists compared to vehicle miles presented here can be found in Local area walking and cycling in England: 2013 to 2014: here

Motorcycle users

There were a total of 339 **motorcycle users killed** in reported road accidents during 2014. Although this is a 2.4 per cent increase from 2013, it is only 8 more deaths and this change is very **unlikely to be statistically significant**. The number of motorcyclist deaths fell every year from almost 600 in 2006 to 328 in 2012 (Chart 6). Although there has now been two consecutive annual rises it is not yet clear whether the number of fatalities has stabilised around the 335 figure, or whether this is the start of a new upward trend.

2005-2009 average

Motorcycle user casualties compared with the 2005-2009 average:

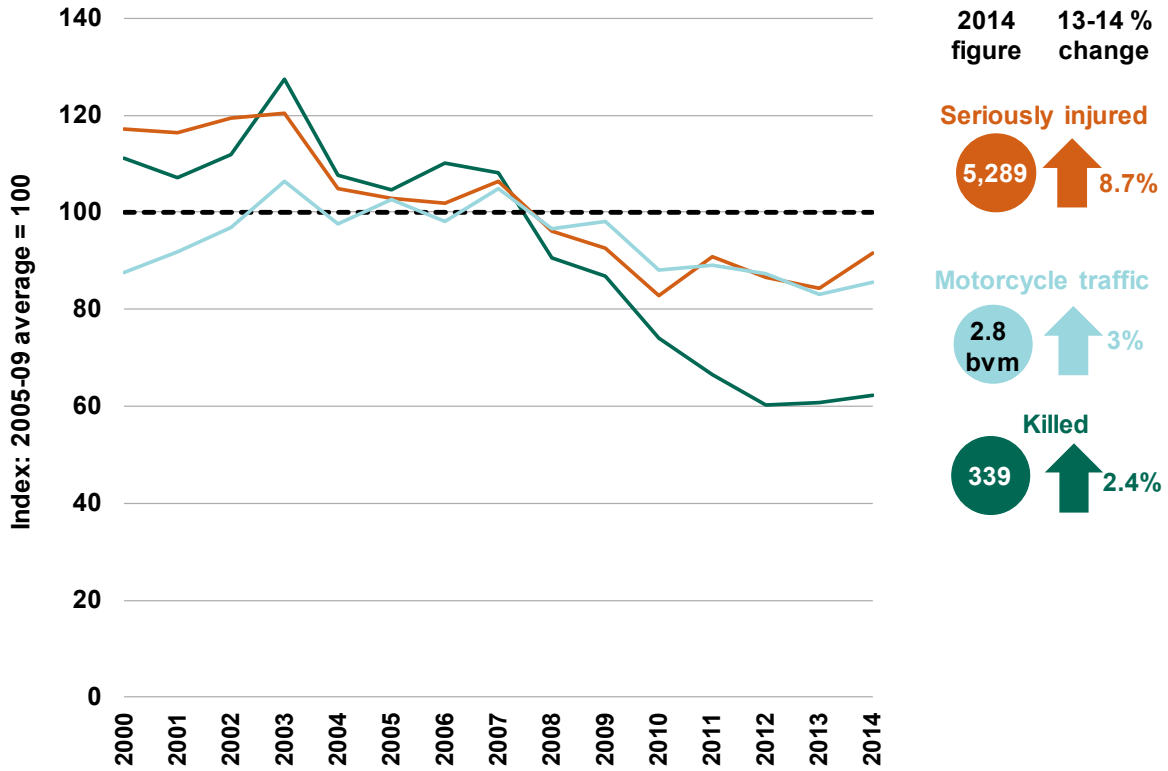
Killed	↓ 38%
Serious	↓ 8%
KSI	↓ 11%
All casualties	↓ 11%

In contrast with fatalities, there has been a clear step increase in the number of motorcycle users who were **seriously injured**. There were 5,289 seriously injured casualties in 2014, an increase of 8.7 per cent from 2013. The number of serious injuries is moving back towards the 2005-09 average and is at the highest level since 2009.

The number of **slightly injured** motorcycle casualties has also increased by 8.7 per cent in 2014. Overall, therefore, the total number of motorcycle casualties across all severities in 2014 was 20,366, which is the highest figure since 2009.

Motorcycle traffic increased by 3 per cent from 2013. This is 0.6 billion vehicle miles lower than in 2007. The increase in injured casualties has therefore outstripped the increase in traffic, indicating that it is not just an increase in exposure that is driving the upturn in casualties.

Chart 6: Number of killed and seriously injured motorcycle users compared with motorcycle traffic, GB: 2000-2014



1. 2014 figures are shown in the circles with the 2013-2014 percentage change represented by the arrows. bvm - billion vehicle miles.

Children (aged 15 or under)

There were 53 **child deaths** in 2014, 5 more than in 2013. Over the last five years the number of child fatalities has fluctuated between 48 and 61 (Chart 7), suggesting that the figure has fallen to a stable level and the changes are a function of natural variation rather than trends.

As has been the case historically, child fatalities occur mainly in the **pedestrian** (29 fatalities in 2014) and **car occupant** (18 fatalities) categories, with a smaller number of **pedal cyclists** (6 fatalities). This is because these are the forms of transport most commonly used by children. Relatively few children travel in heavy goods vehicles or light vans.

2005-2009 average

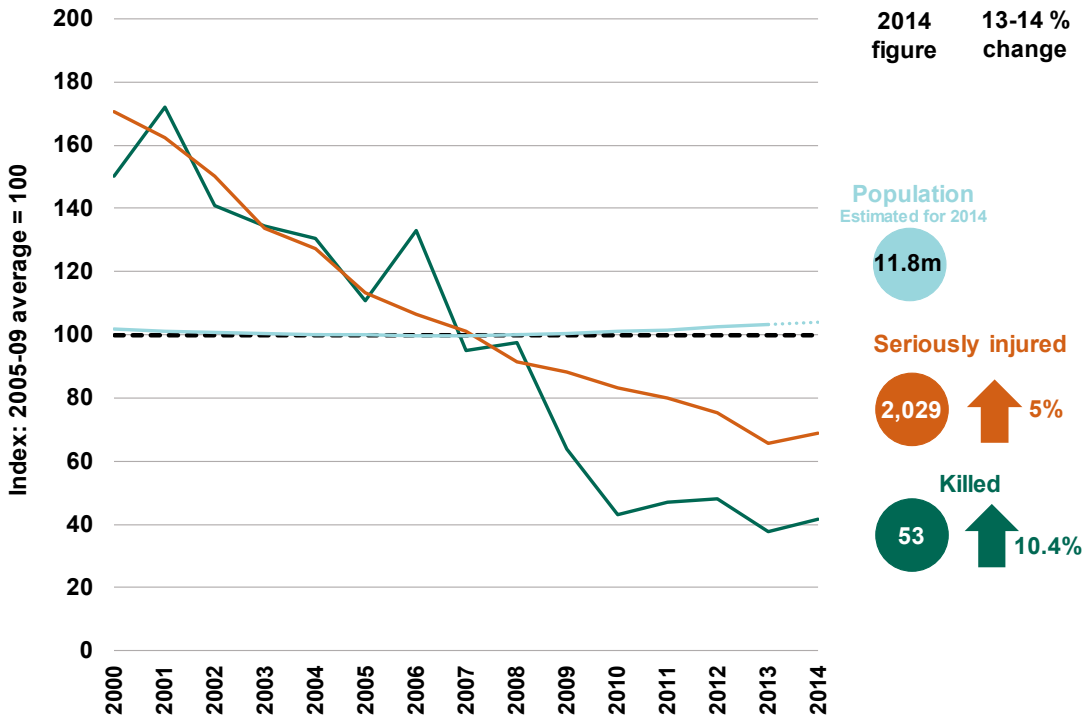
Child (aged 0-15) casualties compared with the 2005-2009 average:

Killed	58%
Serious	31%
KSI	32%
All casualties	30%

Despite increasing by 5 per cent, the number of children **seriously injured** in reported road traffic accidents is still at the second lowest ever, at 2,029 casualties. Similarly, overall children casualties of all severities increased by 6.2 per cent to 16,727, but 2014 is second only to 2013 for this total.

Even after the rises from 2013 to 2014, the number of children **killed or injured** in reported road traffic accidents is 30 per cent lower than the 2005-09 average, with deaths down by 58 per cent over the same period.

Chart 7: Number of killed and seriously injured children (aged 15 or under) compared with the child population, GB: 2000-2014



1. 2014 figures are shown in the circles with the 2013-2014 percentage change represented by the arrows.

Older casualties (aged 60 or over)

As noted in the section on pedestrians above, nearly three quarters of the increase in total fatalities across all user groups between 2013 and 2014 are of **older (aged 60 or over) pedestrians**.

Over all the user groups combined, the number of **older people killed** on the roads increased from 459 in 2013 to 535 in 2014, an increase of 16.6 per cent. This increase **is statistically significant** at the 95% confidence level. It is also the highest level of fatalities of people aged 60 or over since 2008.

2005-2009 average 60+

Older (aged 60 and over) casualties compared with the 2005-2009 average:

Killed	↓ 15%
Serious	↑ 10%
KSI	↑ 7%
All casualties	↓ 4%

As well as an increase of 45 older pedestrian fatalities, there were more older fatalities in every road user group other than bus occupants and goods vehicle occupants. The number of car occupant fatalities increased by 7.6 per cent (or 18 fatalities) and pedal cyclist fatalities increased by 7 people to 32 deaths.

There were also increases in the number of older people **seriously injured** in accidents. There were 4,026 seriously injured casualties aged 60 or over in 2014, up 11.1 per cent from the 2013 level. This is a higher figure than any year since 2003.

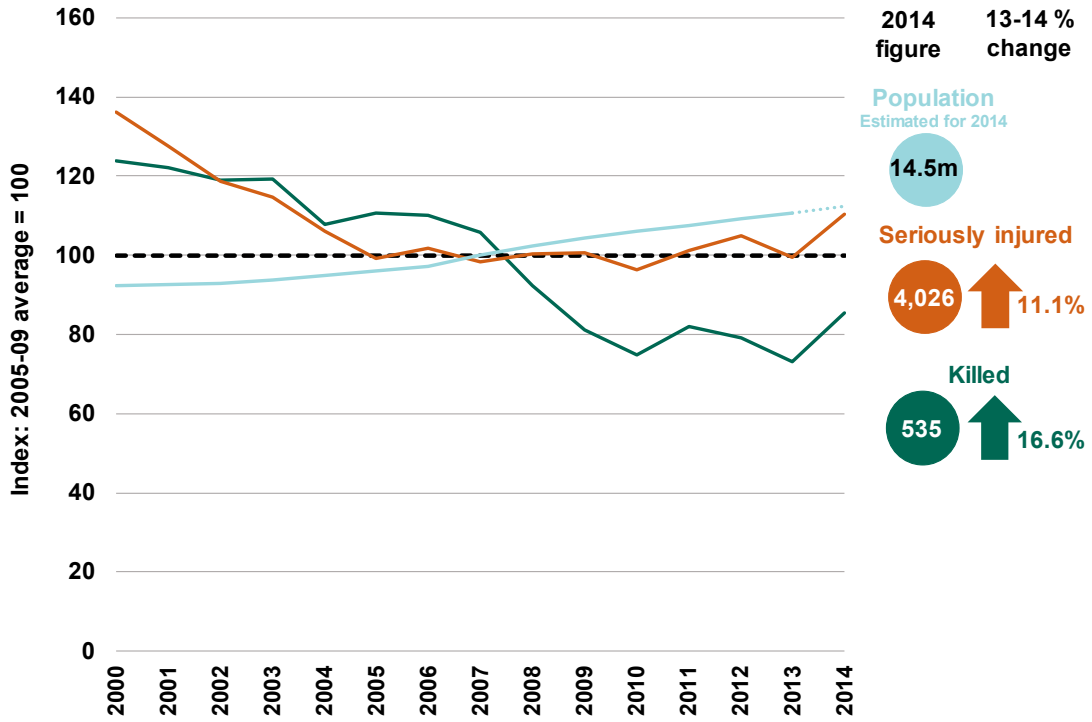
Likewise with fatalities, most of the increases in seriously injured casualties were of car occupants

(up 10.3 per cent), pedestrians (up 14.6 per cent) and pedal cyclists (up 19.9 per cent).

Although **overall casualties** aged 60 and over increased, this was by a lower amount of 8.1 per cent. The main reason for this smaller increase is that the largest severity group, **slightly injured casualties**, rose by 7.3 per cent to 19,983. With the exception of 2010 to 2011, which was affected by severe weather, this is the first time that casualties aged 60 or over have risen since 1997.

Casualties in this age group have had less improvements over recent years. Child and adult (aged between 16 and 59) fatalities have decreased by 58 per cent and 42 per cent respectively from the 2005-09 average. Fatalities of people aged 60 or over have only fallen by 15 per cent over the same period. The gap for serious injuries is even greater: falls of 31 per cent for children and 18 per cent for adults in comparison with an increase of 10 per cent for older people.

Chart 8: Number of killed and seriously injured older casualties (aged 60 or over) compared with the older population, GB: 2000-2014



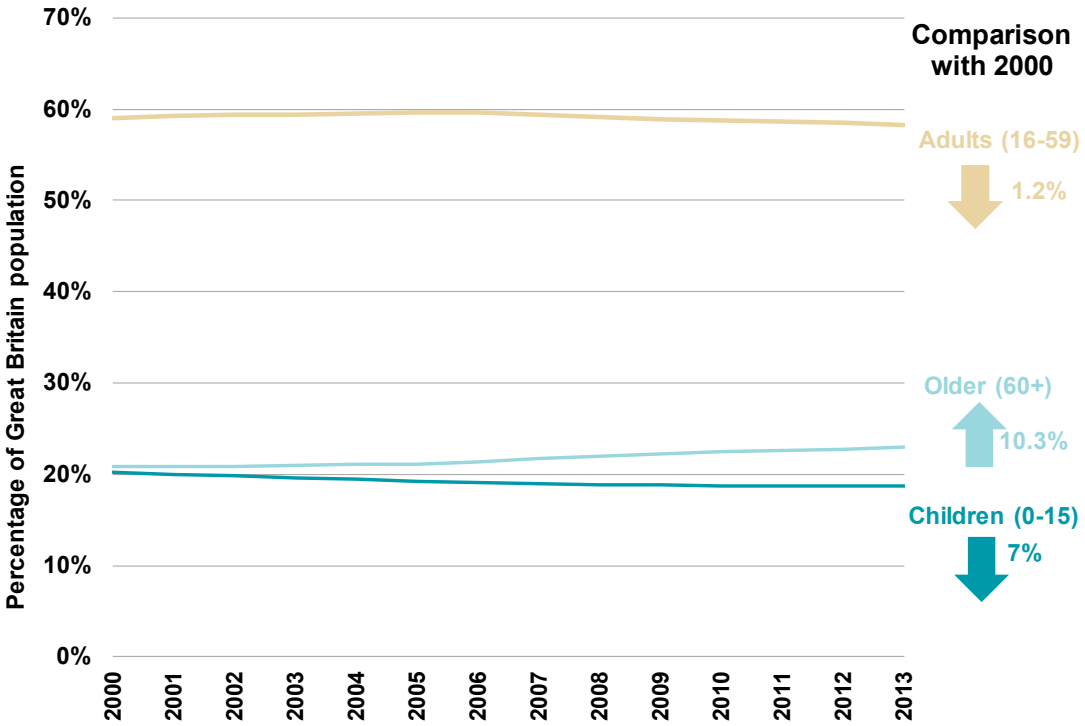
1. 2014 figures are shown in the circles with the 2013-2014 percentage change represented by the arrows.

There are two key explanations for this differentiation. First, the **proportion of the population** aged 60 or over has increased in recent years. In 2000, people aged 60 or over accounted for about 20.8 per cent of Great Britain's population. By 2013, this had risen to 23 per cent, just over a 10 per cent increase. Correspondingly, the proportion of the population made up by children has dropped from 20.2 per cent to 18.7 per cent over the same period (Chart 9). As the number of people in the older age group increases, we would expect to see an increase in the number of casualties from that age group, as long as everything else remains the same.

However, there is a further important factor that needs to be taken into account. As people get older they can become more infirm. This can lead to problems such as increased slips when walking,

poorer depth perception and an increase in mistakes in both cognitive and physical behaviour. These factors can make older people, especially those at higher ages, **more susceptible to having accidents**. Furthermore, age can bring **risks of more serious injuries**. So accidents that might only injure a younger person can result in more serious injuries or death for older people. Therefore, people aged 60 or over can be both more likely to have accidents and at a higher risk of death or serious injury if they are in accidents in comparison with younger age groups.

Chart 9: Population by age group: GB, 2000-2013



1. The arrows represent the percentage change in the proportion of the population that each group accounts for between 2000 and 2013.

Further Information

Annual Mid-year Population Estimates, 2013, available at www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/2013/stb---mid-2013-uk-population-estimates.

Casualties by road type

The number of people killed on **built-up roads** increased by 9.1 per cent to 783 fatalities in 2014. This ties in with the increase in pedestrian deaths as the majority of pedestrian fatalities and injuries happen on built-up roads. Pedestrian fatalities on built-up roads increased by 15.7 per cent whilst all other fatalities increased by 4.6 per cent.

The number of seriously and slightly injured casualties on built-up roads rose by 4.2 per cent and 7.2 per cent respectively.

The number of fatalities on **non built-up roads** remained almost the same between 2013 and 2014, increasing by 1 to 896 deaths. However, there were rises of 7.4 per cent in seriously injured

Definitions

Built-up roads: Accidents on "built-up roads" are those which occur on roads with speed limits (ignoring temporary limits) of 40 mph or less.

Non built-up roads refer to speed limits over 40 mph.

Motorway accidents are shown separately and are excluded from the totals for built-up and non built-up roads.

casualties and 2.4 per cent in slightly injured casualties.

There were 96 fatalities on **motorways** in 2014, 4 fewer than in 2013. This change is likely to be a reflection of natural variation in the figures. The number of seriously injured casualties on motorways rose for the second year, by 8.8 per cent to 718. There was a smaller rise of 5.3 per cent in the number of slightly injured casualties.

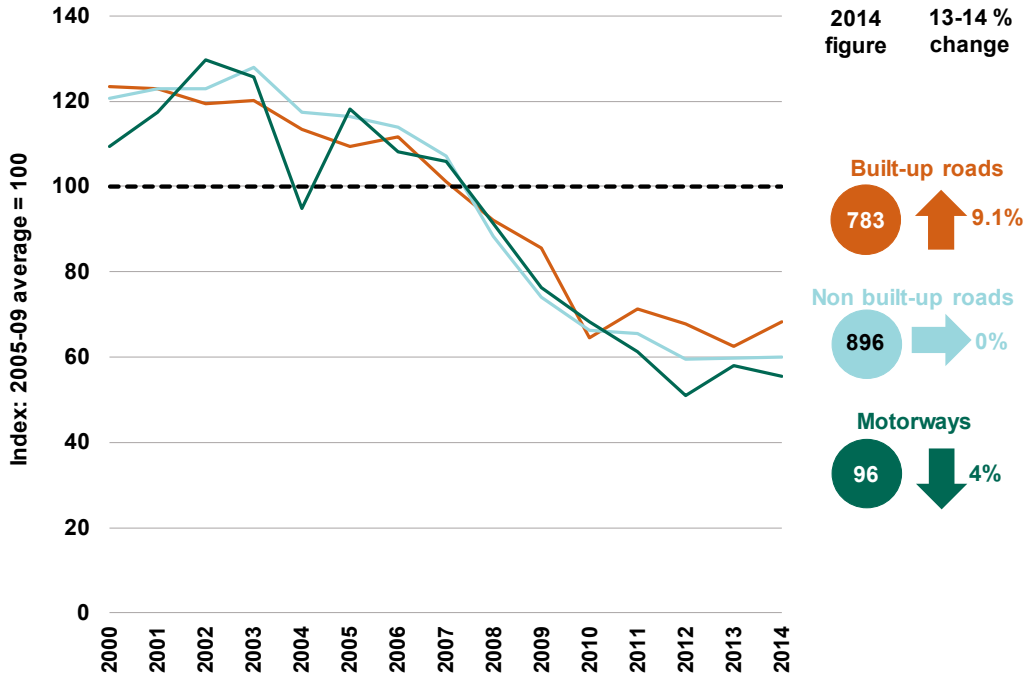
Traffic volumes on all road types increased in 2014. Motorway traffic rose by 1.6 per cent, rural 'A' roads by 2.0 per cent, urban 'A' roads by 1.7 per cent, other rural roads by 5.5 per cent and other urban roads by 2.3 per cent.

2005-2009 average

Casualties on **built-up roads** compared with the 2005-2009 average:

Killed	32%
Serious	13%
KSI	14%
All casualties	17%

Chart 10: Number of fatalities by road type, GB: 2000-2014



1. 2014 figures are shown in the circles with the 2013-2014 percentage change represented by the arrows.

2005-2009 average

Casualties on **non built-up** roads compared with the 2005-2009 average:

Killed	40%
Serious	22%
KSI	25%
All casualties	30%

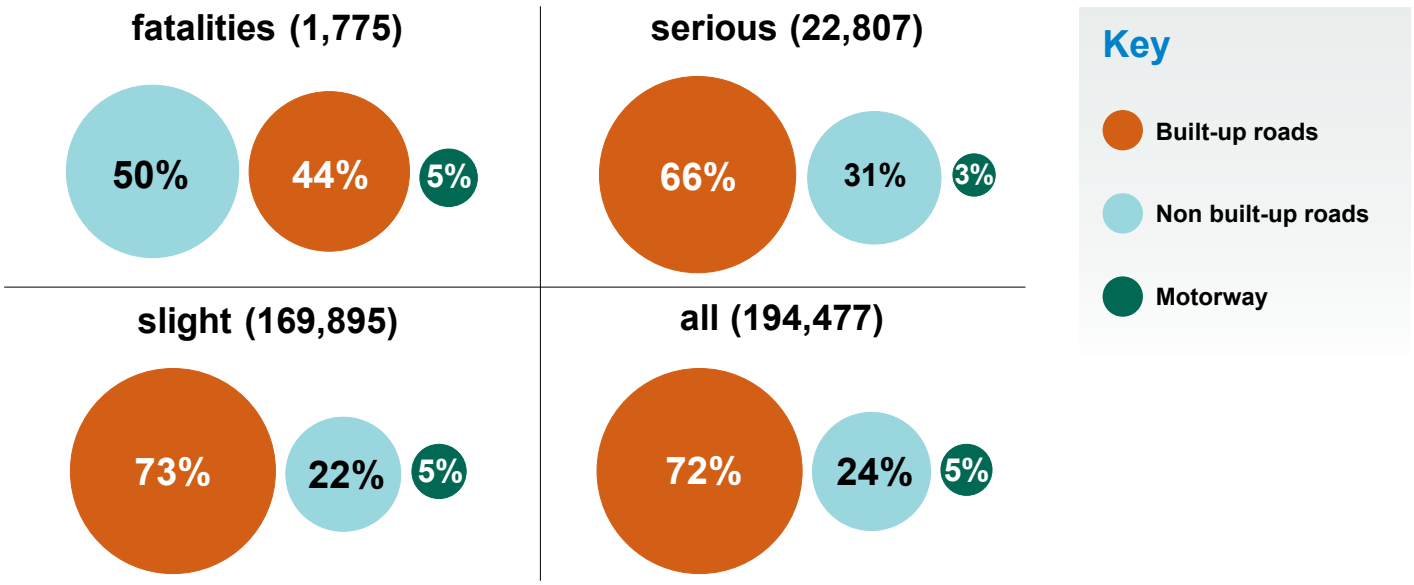
The majority of injured casualties occurred on built-up roads (72 per cent of total casualties in 2014). However, the majority of fatalities occurred on non built-up roads (just over a half). Although motorways carry around 21 per cent of traffic, they only account for 5.4 per cent of fatalities and 4.7 per cent of injured casualties.

2005-2009 average

Casualties on **motorways** compared with the 2005-2009 average:

Killed	44%
Serious	26%
KSI	29%
All casualties	26%

Chart 11: Casualties by severity and road type, GB: 2014



Tables

- Reported accidents by speed limit, road class and severity, Great Britain, table RAS10001.
- Reported casualties by speed limit, road class and severity, Great Britain, table RAS30006.

Background and explanation of casualty trends

There are a number of factors which are likely to have contributed to changes in the number of people killed or injured in reported road traffic accidents. There is evidence to suggest that **economic recessions** have accelerated decreases in road traffic deaths. The two periods of large falls in road deaths since 1979 (1990-94 and 2006-10) coincided with the 1990-92 and 2008-09 recessions. The 2015 Road Safety Annual Report from the International Transport Forum (ITF) highlights the relationship between economic conditions and casualty numbers. The ITF estimates that two-thirds of the reduction in fatalities in IRTAD (International Traffic Safety Data and Analysis Group) member countries between 2008 and 2010 were as a result of the deteriorating economic conditions in the countries. There is also evidence that the **average traffic speed** in free flow areas as well as the proportion of drivers **exceeding the speed limit** has decreased over the last decade. This might not only help drivers avoid accidents altogether, but also might reduce the severity and number of casualties when they do occur. **Technological and engineering improvements** to vehicles and highways will have played a similar role in both avoiding accidents and minimising their consequences. **Improved education and training** is likely to have produced better and safer drivers. Finally, **improvements in trauma care** (and in particular the creation of

major trauma centres in England) are likely to have helped improve outcomes once an accident has taken place.

Great Britain is **not the only country to have reported increases** in reported road fatalities during 2014. As highlighted in the ETSC (European Transport Safety Council) 2015 PIN report, although road fatalities in European Union decreased by 0.6 per cent between 2013 and 2014, this masks significant variations across Europe. Thirteen countries, including the UK, Sweden, Germany, France and Ireland recorded increases in road fatalities in 2014, and the Netherlands remained unchanged from 2013.

Useful links

ITF, 2015, Road Safety Annual Report 2015: Summary, available at www.internationaltransportforum.org/Irtadpublic/index.html

ETSC, 2015, Ranking EU progress on road safety, 9th road safety performance index report, available at etsc.eu/3asD4

The effect of weather on casualty numbers

As has been reported in recent publications, the **weather** has a significant influence on road casualties.

Periods of **bad weather** exert influence on casualty numbers in both directions. First poor conditions can limit visibility on the roads and make the road surface more slippery. At a simple level, this can make driving conditions more dangerous and if drivers fail to adapt their behaviour it can result in more accidents. To counter this, though, if drivers do respond positively to conditions, for instance, in heavy rain or when driving with the risk of snow and ice, they tend to slow down and take more care, thereby both reducing the risk of collision and mitigating the severity if and when accidents occur.

Weather impact on casualty numbers

good weather tends to increase casualties:

bad weather tends to decrease casualties:

Secondly, **poor weather** has a strong influence on exposure. In severe conditions, for instance during widespread heavy snowfall, as happened at both the start and end of 2010, people can postpone or cancel journeys, or switch to safer modes of transport (e.g. pedal and motorcyclists moving to other vehicle types, or road users switching to rail instead). In less severe, but still unpleasant weather, such as windy or wet conditions, some road users, especially **vulnerable road users** such as pedal and motorcyclists and pedestrians, tend to switch to safer enclosed modes, such as cars and buses.

Therefore, in very bad weather, there is always a balance between the road conditions creating higher risks and users reducing their exposure to traffic by either not travelling or undertaking modal shifts. Typically, though, **bad weather usually results in a reduction of accidents** as the reduction in exposure and driving speeds usually outweighs the increased inherent risk of poor road conditions.

Periods of unusually **good weather almost always have an effect of increasing casualties**. This

is because periods of good weather can often encourage extra trips, thereby increasing exposure. Some of these extra trips will be in relatively safer forms of transport, mainly cars. However, good weather has more significant influence on pedal and motorcyclists as these groups are particularly sensitive to the weather. Good conditions encourages more travel, especially in the spring and autumn months where pedal and motorcyclists will be more likely to decide on what form of transport they use depending on the prevailing conditions.

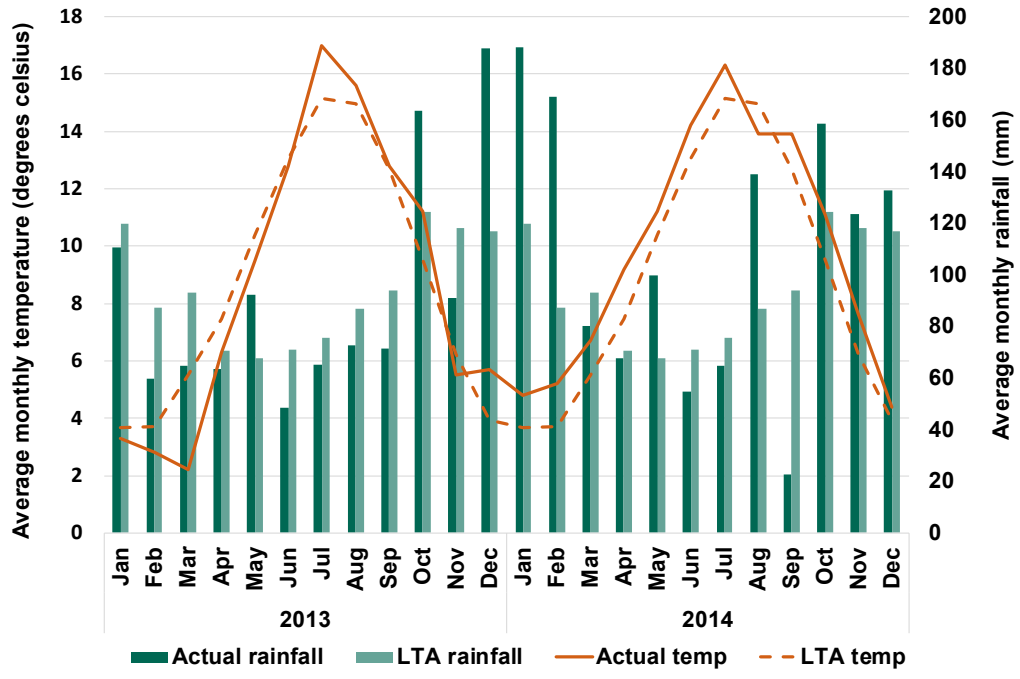
As has been outlined in recent statistical publications, some recent years and quarters have been **strongly influenced** by the weather. For instance, the widespread snowfall in 2010 had such a significant dampening effect on casualty numbers that there were increases across all severities in 2011. It is highly likely that the 2010 figures were strongly suppressed by the snow, and without it there would have been more casualties that year. Similarly, 2012 was the second wettest year on record. This, again, would have suppressed casualty numbers, especially in the vulnerable road user groups.

Although 2013 overall had fairly average temperatures and rainfall (0.1°C below and 35 mm below the respective **long term averages** - LTA - for 1981 to 2010 respectively), the first five months, and in particular February through to April, were colder than the LTA. July, August, October and December were all warmer than the LTA. The net result was Q1 and Q2 being 1.5°C and 0.8°C below average respectively and both Q3 and Q4 being 0.9°C above average. These differences probably **balanced out**, resulting in lower than expected casualties in the first half of the year and higher than expected in the second half.

Long term average (LTA)

The Met Office use 30 year averages for UK temperature and rainfall to assess changes in the latest temperature and rainfall data. Currently the 1981-2010 average is used for comparison: www.metoffice.gov.uk/climate/uk/summaries/2014/annual.

Chart 12: UK rainfall and temperature in 2013 and 2014 compared with the long term average



Weather data

Weather data is available from the Met Office here.

In contrast, **2014 was much warmer,** overall. With an average temperature of 9.9°C for the overall year, it was the warmest year on record at 1°C above the LTA. It was also one of the **wettest years** on record. With 175mm more rainfall than the LTA it was the fourth wettest year, behind 2000, 2012 and 1954.

With the exception of August, every month in 2014 was warmer than the LTA. This means that all four quarters were warmer than the LTA: with Q1 1.3°C above, Q2 1.2°C above, Q3 0.4°C above, and Q4 1.1°C above. The high rainfall levels, though, were confined to January, February, May, August and October. Every other month of the year was close to the LTA except September which was the driest September on record.

These weather patterns in 2014 might partly explain some of the increases in casualties. As discussed above, fine weather, especially during late spring, summer and early autumn, can result in **increased levels of pedal and motorcycling**. Traffic figures indicate that both of these activities increased during 2014 in comparison with 2013. As more people travel it is logical to expect that more accidents will occur. And whilst the months of heavy rainfall will have deterred some travel, most of the rainfall fell during the winter and later autumn months when fewer vulnerable road users would be on the roads in the first place. It is possible, therefore, than the extra rain during this period could have made travelling more hazardous for motor vehicles, thereby contributing to the increase.

There are some parallels to what the PIN report notes about Germany during 2014:

"One of the main reasons for the increase of casualties in road traffic in Germany in 2014 was the weather conditions: the winter was mild and the spring was dry and warm. This led to more people riding a motorcycle, walking and cycling and therefore, sadly, more of them being killed and injured in road collisions."

Further information

The Department is part of a small working group looking at the effect of weather on different statistical series. A guide to analysing the effect of weather and climate on official statistics has been produced. This includes a case study looking at the impact of temperature on the number of killed or seriously injured vulnerable road users:

gss.civilservice.gov.uk/wp-content/uploads/2015/04/Exploring-the-effect-of-weather-and-climate-on-official-statistics1.pdf

Useful link

ETSC, 2015, Ranking EU progress on road safety, 9th road safety performance index (PIN) report, page 10: etsc.eu/9th-annual-road-safety-performance-index-pin-report/

The Department has continued to do some statistical modelling work on the relationship between the weather and road casualties. We expect to report on the findings of this work in the Annual Report, due to be published in September 2015.

Traffic

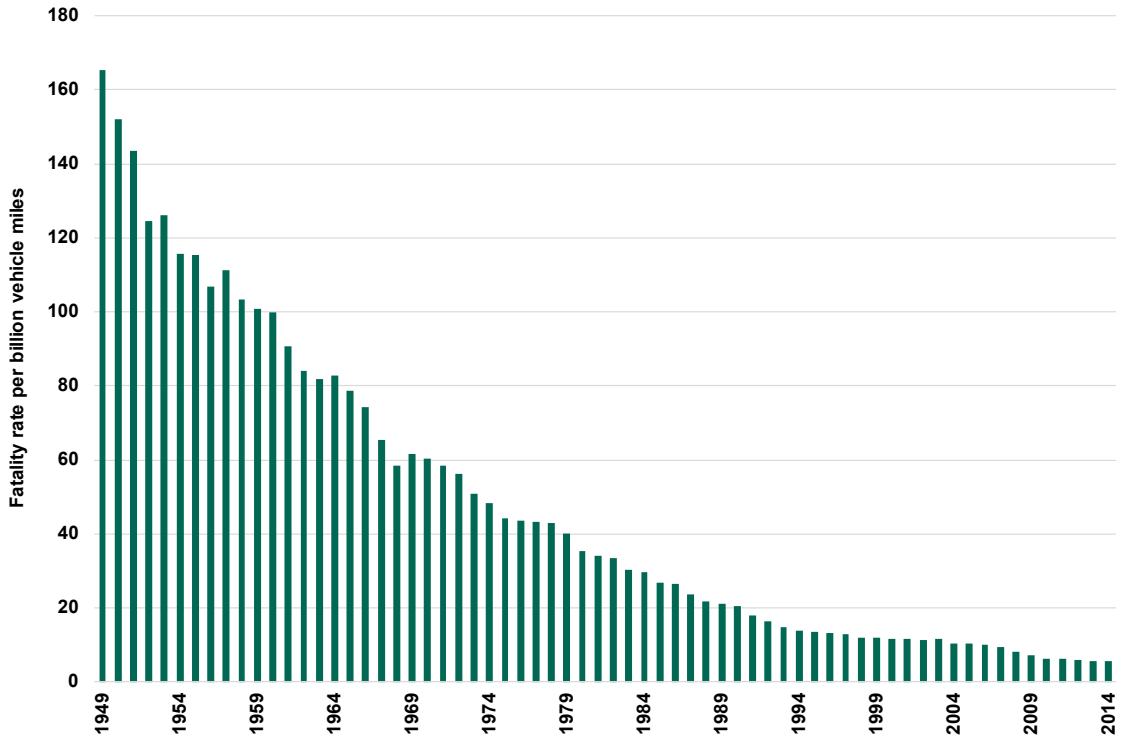
As already explained, the volume of **road traffic** is a key factor underlying the number of accidents and casualties. However, the **relationship is complex**.

At one level, increases in traffic volumes should lead to more accidents and casualties. This is because the greater the number of vehicles on the road network, then the greater the number of interactions of vehicles and pedestrians and the greater the likelihood of accidents occurring.

In practice this does not always happen. There have been 28 years where both the number of fatalities and traffic volumes have risen. In 22 of these years, traffic has grown faster than fatalities. There have also been 29 years where road traffic has risen yet fatalities have fallen.

The chart below shows how the **fatality rate per billion vehicle miles** (bvm) driven changed from 1949 to 2014. Aside from a few exceptional years, the fatality rate has fallen almost every year from a peak of 165 deaths per bvm in 1949 to the lowest level of 5.6 deaths per bvm in 2013 and 5.7 deaths per bvm in 2014.

Chart 13: Fatalities per billion vehicle miles: GB, 1949-2014



There are a large number of reasons why this pattern of falling fatality rates has occurred, including improvements in **education and training**, improvements in **vehicle technology / construction and highway engineering**, the introduction of **road safety policies**, such as speed limits, enforcement of legislation, behavioural change, and so on.

So it is clear that although road traffic must have an effect on accident numbers, it is **not a simple or direct relationship**. Nevertheless, over the short term in the absence of other changes it is likely that sudden changes in traffic levels, such as periods of economic change or periods of severe weather, is likely to be reflected in changes in the number of accidents to some degree.

Prior to the economic downturn and recession in 2007, traffic had risen in almost every year since records began. Since 1949, the number of fatalities each year has fallen by 0.4 per cent on average in each year traffic volumes have increased. Over the last 20 years fatalities have fallen by around 1.1 per cent per year on average in years of traffic growth. In contrast with this, years of traffic reductions have led to an average fatality reduction of 7.7 per cent since 1949 and over 10 per cent since 1994. It is clear, therefore, that **traffic volume reductions** (probably in combination with other factors, for instance drivers driving more slowly to conserve fuel and save money) results in **greater falls in fatalities** than other periods.

Traffic volumes in 2014 were 2.4 per cent higher than in 2013. This is the **largest growth in overall traffic** since 1996. It is therefore likely that at least some of the increase in fatalities and casualties relates to the return to an upward trend in motor vehicle traffic, which has probably been fuelled by the improving economy.

Road user groups with the largest change in casualties

However, weather conditions and traffic volumes are probably **not solely responsible** for the increase in casualties in 2014.

Table 1 shows the absolute change in the number of fatalities from 2013 to 2014 by **age group** and **road user group**. The total number of fatalities in 2014 was 62 deaths higher than in 2013. More than three-quarters (or 48 people) of these deaths were pedestrians with the next largest group being car occupants (12 deaths). Even more notably, though, is that casualties aged 60 and over increased by 76 deaths, 45 of whom were pedestrians. Whilst there was a small increase in child deaths, adult (aged between 18 and 59) fatalities actually fell between the years.

Table 1: Absolute change in the number of GB road fatalities from 2013 to 2014 by age group and road user group

	Pedestrians	Pedal cyclists	Car occupants	Motorcycle users	Other vehicle occupants	All road users
Children: 0-15 years	+3	0	+5	-2		+5
Young people: 0-17 years	+5	-3	+1	-3		-2
Adults: 18-59 years	-2	0	-7	+5		-12
60 and over	+45	+7	+18	+6		+76
All casualties	+48	+4	+12	+8	-10	+62

This indicates that **almost all of the increase in fatalities came from a single age group**, and, within that age group, mostly within just **one single road user group**.

In contrast, there is a very different pattern for casualties who were seriously injured, as shown in Table 2 (giving the absolute change and percentage change).

Table 2: Change in the number of GB seriously injured casualties from 2013 to 2014 by age group and road user group

Absolute change	Pedestrians	Pedal cyclists	Car occupants	Motorcycle users	Other vehicle occupants	All road users
Children: 0-15 years	+18	-3	+46	+12		+97
Young people: 0-17 years	-2	0	+47	-37		+37
Adults: 18-59 years	-80	+219	+189	+438		+751
60 and over	+160	+56	+169	+20		+403
All casualties	+65	+258	+394	+423	+10	+1150
Percentage change						
Children: 0-15 years	+1.4%	-1.1%	+16.8%	+52.2%		+5.0%
Young people: 0-17 years	-0.1%	+0.0%	+8.9%	-9.3%		+1.3%
Adults: 18-59 years	-3.4%	+9.0%	+3.5%	+10.7%		+5.0%
60 and over	+14.6%	+19.9%	+10.3%	+6.2%		+11.1%
All casualties	+1.3%	+8.2%	+5.2%	+8.7%	+1.0%	+5.3%

In absolute terms, the age group with the largest increase was for adults, with 751 additional casualties in 2014, of which the majority were motorcycle users (additional 438). However, this increase represents a 5 per cent change, considerably lower than the 11 per cent increase in the casualties aged 60 and over. So likewise with fatalities, a disproportionate amount of increase in casualties was in the older age group. And, similarly, pedestrian casualties make up a large proportion of the increase in that age group for serious injuries, too.

Seriously injured pedestrian casualties of all ages, though, have not changed much between 2013 and 2014, with only a 1.3 per cent increase. This is much lower than the equivalent group for the fatalities.

Fatalities by month

Up to the end of October 2014 the number of deaths were comparable with the total for the first ten months of 2013. November and December 2014, though, were the two worst months of the year. This is an unusual pattern as in typical years the peak time for fatalities is over the summer months, probably as a result of more pedal and motorcyclists being on the road. There were 369 fatalities in November and December 2014 combined, the highest for this time of year since 2008.

Of the 369 fatalities in the last two months of 2014, 139 were pedestrians, very close to the total of 169 car occupant deaths. Again, this is a difference from typical years. In most years the number of car occupant fatalities is the largest group in every month by a considerable margin. In 2014 the pedestrian fatality total is much closer to the car occupant total in this period.

There is a no clear reason for this pattern. The average temperature in November and December 2014 was higher than the long term average, although rainfall was also slightly above the long term average. It is possible that warmer weather than usual encouraged more pedestrians to travel, but this is by no means certain.

Statistical significance

For the first time the Department has carried out some analysis to assess for **statistically significant changes** in casualty and accident numbers. This should not be confused with the significance of accidents for casualties, other people involved in the incident, friends or families. Every casualty is a tragedy and any increase in the number of people killed or injured in road traffic accidents has clear *social* significance.

Definition

The **95% confidence level** is the standard against which statistics are typically tested. It means that in 100 years with the same risk of fatalities (or injury), 95 of those years will result in a number of fatalities (or injuries) between a given range. If the actual change falls outside of this range then we can be 95% confident that the change is as a result of a genuine trend rather than a product of chance.

The purpose of testing for statistical significance is to **separate out true trends** in the figures from changes that have come about **through chance**. A large combination of factors influence whether accidents happen at all and, when they do occur, how many people are affected and how serious the outcomes are. Very small differences can make the difference between a damage-only accident and one in which people are killed.

Due to this influence of chance, two years with the same risk of accidents will result in different number of fatalities and injuries. The Department has tested the change in number of fatalities, serious injuries and slight injuries between 2013 and 2014 to see which are statistically significant at the 95% confidence level.

Two tests have been carried out on the fatal accident and fatalities figures. The first is a test to see whether the **absolute change** between 2013 and 2014 is statistically significant. The findings are that the change between years is within the 95% confidence intervals, therefore the **increase is likely to have arisen from natural variation** between the years.

The second test is to compare the number of fatalities in 2014 with what we would have expected if and only if the fatality trend had continued in the same way as it did between 2000 and 2013. Rather than testing to see if the actual change between the two years is statistically significant or not, this tests to see if the **trend direction or pattern has undergone a statistically significant change**. The same test was applied to the total number of seriously and slightly injured casualties as well. The results of the second test are shown in Table 3.

Table 3: 2014 final GB road casualties compared with forecasts

	Fatalities	Seriously injured	Slightly injured	All casualties
2013 actual	1,713	21,657	160,300	183,670
2014 actual	*1,775*	*22,807*	*169,895*	*194,477*
2014 central forecast	1,665	21,374	151,661	174,700
2014 95% upper forcecast	1,984	24,029	163,773	189,786
2014 95% lower forecast	1,397	18,718	139,550	159,665
Statistically significant change?	**No**	**No**	**Yes**	**Yes**

Further Information

Further information on the methodology used to test for statistically significant changes can be found at: www.gov.uk/government/publications/road-accidents-and-safety-statistics-guidance

Changes from the forecast are statistically significant if they fall outside the 95% upper and lower forecast. The actual 2014 casualty numbers for **all severities were above the central forecast**. However, the actual number of **fatalities and seriously injured casualties did not exceed** the 95% upper forecast. Therefore we should conclude that the **2014 increases do not yet represent a statistically significant change** from the previous trend. Instead they should strictly be interpreted as changes that have come about through **random variation** in the casualty rates.

In contrast, though, the total number of **slightly injured casualties** was higher than 95% upper forecast. Therefore we can conclude that, for slightly injured casualties at least (and the overall total number of casualties, as the majority of them are slightly injured), **the increase does represent a statistically significant change** from the 2000 to 2013 trend.

Conclusions

Interpreting the 2014 casualty figures is **extremely challenging** and there are a number of **contradictory elements**.

Firstly, as indicated above, the change in neither fatalities nor seriously injured casualties is statistically significant. However, they have both increased and the final figures are not far off the 95% confidence interval. Furthermore, the number of slightly injured casualties has increased and by a statistically significant amount.

Although the number of fatalities, serious injuries and slight injuries are not truly independent, they still have some independent characteristics as it would not be unusual if one were to increase but the others decrease. When three independent measures move in the same direction, even if some of them do not change by a statistically significant amount, it can suggest that the changes have not entirely come about through random variation. This gives some indication that the upturn in figures could have been driven by real changes, despite them failing the statistical tests for change.

There is also evidence the other way, though. As has been discussed, the vast majority of the increase in the number of fatalities has been in casualties aged 60 or older and pedestrians. There are no obvious factors that would affect just people in this age group to such a significant degree. Although the proportion of the population aged 60 or older is increasing, this change is a gradual

one, rather than a sudden one. This, therefore, is likely to lead to a gradual increase in casualties rather than step changes. It would also affect the injured casualty numbers as well, rather than mainly the fatality figures. The absence of a mechanism for such a change would indicate, therefore, that these changes have come about through chance or one-off events.

The bin lorry crash in Glasgow on the 22nd December 2014 is an example of such an event. This accident resulted in six pedestrian fatalities, six further pedestrian casualties, and five further casualties in vehicles. Although, since 1979, there have been accidents which resulted in more pedestrian casualties, this specific accident had the highest number of pedestrian fatalities ever.

This is the only example of a single accident that resulted in a large number of pedestrian fatalities during the year, but there could have been other equally abnormal events. Such exceptional events can introduce large one-off changes in years that are not as a result of underlying factors.

The final conclusion, therefore, is that the complexity of what happened during 2014 makes it **impossible to be sure** whether the increases in fatalities and injuries in reported road traffic accidents reflect some underlying changes on Great Britain's roads, or whether they reflect natural variation in accidents around the country.

Strengths and weaknesses of the data

Comparisons of road accident reports with death registrations show that very **few, if any, road accident fatalities are not reported to the police**. However, it has long been known that a considerable proportion of **non-fatal casualties are not known** to the police, as hospital, survey and compensation claims data all indicate a higher number of casualties than police accident data would suggest.

The estimates of the **total number of road casualties** including non reported casualties in Great Britain for 2014 will be published in tables RAS54, scheduled for release in September 2015.

Survey data

Our current best estimate, derived primarily from National Travel Survey (NTS) data and produced in 2014, is that the total number of road casualties in Great Britain each year, including those not reported to police, is within the range 630 thousand to 800 thousand with a central estimate of 720 thousand.

The data used as the basis for these statistics are therefore not a complete record of all personal injury road accidents, and this should be borne in mind when using and analysing the figures. However, police data on road accidents, whilst not perfect, remain the most detailed, complete and reliable single source of information on road casualties covering the whole of Great Britain, in particular for monitoring trends over time.

Background information

The Department for Transport publish rolling annual totals for quarters 1, 2 and 3 of each year. The data released in the quarterly releases are provisional as the records used are incomplete at the time of publication. Some forces have no, or limited, data in some of the quarters, and some records change between the provisional publication and the database being finalised.

The results from each quarter changed slightly between the original release and table RAS30003. Overall, for the first three quarters of the year (provisional results for quarter 4 are not produced), there were 2 more deaths, 102 more seriously injured casualties (up by 0.6 per cent) and 854 more slightly injured casualties (up by 0.7 per cent) in the final data in comparison with the provisional results. These comparisons refer to the final figures for quarter 1 and quarter 2 data as revised with the release of quarter 3 estimates.

The Reported Road Casualties Great Britain Main Results web page provides further detail of the key findings presented in this statistical release. The tables are available at: www.gov.uk/government/ publications/reported-road-casualties-great-britain-main-results-2014.

Provisional quarterly reported road casualty statistics are published throughout the year. The next provisional estimates (for quarter 1 2015) are due to be published in August 2015. Quarterly statistical releases can be found at: www.gov.uk/government/organisations/department-for-transport/series/road-accidents-and-safety-statistics

National Statistics are produced to high professional standards as set out in the Code of Practice for Official Statistics. They undergo quality assurance reviews to ensure that they meet customer needs. The first assessment report (report number 4) and letter confirming that the statistics have been designated as National Statistics are available at: www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/index.html. The statistics were reassessed during 2013 and the report, number 258, was published at the link above on the 25th July 2013.

Details of Ministers and officials who receive pre-release access to these statistics up to 24 hours before release can be found here: www.gov.uk/government/publications/road-accident-and-safety-statistics-pre-release-access-list.

Further information

A full list of the definitions used in this publication can be found here: www.gov.uk/government/uploads/system/uploads/attachment_data/file/48822/reported-road-casualties-gb-notes-definitions.pdf.

Further information on Reported Road Casualties Great Britain, including information about the variables collected on the STATS19 form, historical publications and factsheets, can be found at: www.gov.uk/government/publications/road-accidents-and-safety-statistics-guidance.

Feedback

We welcome further feedback on any aspects of the Department's road safety statistics including content, timing, and format via email to roadacc.stats@dft.gsi.gov.uk

Next release

More detailed tables and analysis of the 2014 statistics, will be published in Reported Road Casualties Great Britain: Annual Report 2014 in September this year.