



Department for Transport

# Reported road casualties in Great Britain: quarterly provisional estimates year ending March 2016

There were 1,780 road deaths in the year ending March 2016, unchanged from the year ending March 2015.

## About this release

This publication provides the number of personal-injury road traffic accidents in Great Britain that were reported to the police for the year ending March 2016. It also includes the number of people killed or injured in these accidents and which road user group they were in.

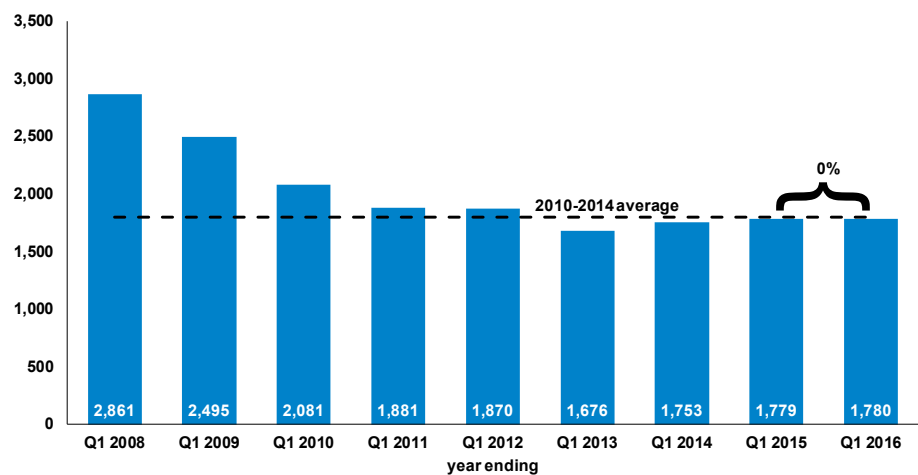
## Uncertainty

The figures in this publication are estimates and are subject to revision in future releases. See the [uncertainty section](#).

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Road deaths: GB, rolling years ending March, 2008-2016



- A total of 24,610 people were **killed or seriously injured** (KSI casualties) in the year ending March 2016, up by 2 per cent from the previous year.
- There were 187,050 **casualties of all severities** in the year ending March 2016, down by 2 per cent from the previous year.
- **Motor traffic levels** rose by 1.8 per cent compared with the year ending March 2015.
- The overall **casualty rate per vehicle mile** decreased by 4 per cent over the same period.

**What we can conclude:** There has been a statistically significant decrease in the number of people slightly injured (but not killed or seriously injured) in road traffic accidents between the years ending March 2015 and 2016. This indicates that there are a number of factors that have combined together to improve some aspects of safety on Britain's roads. However, it is not definitive evidence of a continued improvement in road safety.

**What we cannot conclude:** Although the number of people killed or seriously injured in road traffic accidents has increased between years, this change is small enough that it can be explained by the natural variation in over time. Therefore there is not yet enough evidence to say that the number of KSIs is changing between years.

# Overall results

## Rolling year ending March 2016

- In the year ending March 2016, there were 1,780 reported **road fatalities**, unchanged from 1,779 in the previous year.
- Killed or seriously injured casualties (KSIs)** increased by 2 per cent to 24,610, but this increase is **not statistically significant**. There is evidence of a slight upward trend in KSIs in years ending March. The change in KSIs between the years ending March 2013 and 2016 is statistically significant at the 99% confidence level (see chart 1). However, the year ending March 2013 was affected by the particularly low casualty numbers in the first quarter of 2013 which were likely to have been caused by the colder than average temperatures in this quarter. As a result, the trend in KSI casualties should be interpreted as having been practically flat since the year ending March 2013.
- The **total number of casualties** decreased by 2 per cent to 187,050 (see chart 1). This change is **statistically significant** at the 99% confidence level. This suggests that the decrease has been caused by more than randomness or natural variation, and is likely to relate to improvements in road safety.
- Motor vehicle traffic** increased by 1.8 per cent over the same period.

**Table RAS45001: Reported road casualties by severity, GB: year ending March 2016**

ALL CASUALTIES	Number/percentage change compared with previous 12 months				
	Apr-14 to Mar-15	Apr-15 to Mar-16 (P)	Percentage change	Statistical significance of change	Traffic <sup>1</sup> percentage change
Killed	1,779	1,780	0%	ns	↔1.8%
KSI <sup>2</sup>	24,183	24,610	↗2%	ns	↔1.8%
Slightly injured	167,546	162,440	↘3%	***	↔1.8%
<b>All casualties</b>	191,729	187,050	↘2%	***	↔1.8%

P Provisional estimates

<sup>1</sup> Motor traffic (excludes pedal cycles)

<sup>2</sup> Killed or seriously injured

ns Not significant

\*\*\* significant at 99% level

## Definition

**Casualty:** A person killed or injured in an accident. Casualties are subdivided into killed, seriously injured and slightly injured.

**Rolling year:** a period of 12 months that begins and ends on a set day. In this publication the rolling year ending March 2016 represents the 12 months beginning on the 1st April 2015 and ending on the 31st March 2016.

A full list of the definitions used in this release can be found [here](#).

## 2010-2014 average

The 2010-14 average is used as a comparison time frame in both this publication and the accompanying statistical tables. This average has been updated from the 2005-09 average used recently to reflect the latest trends.

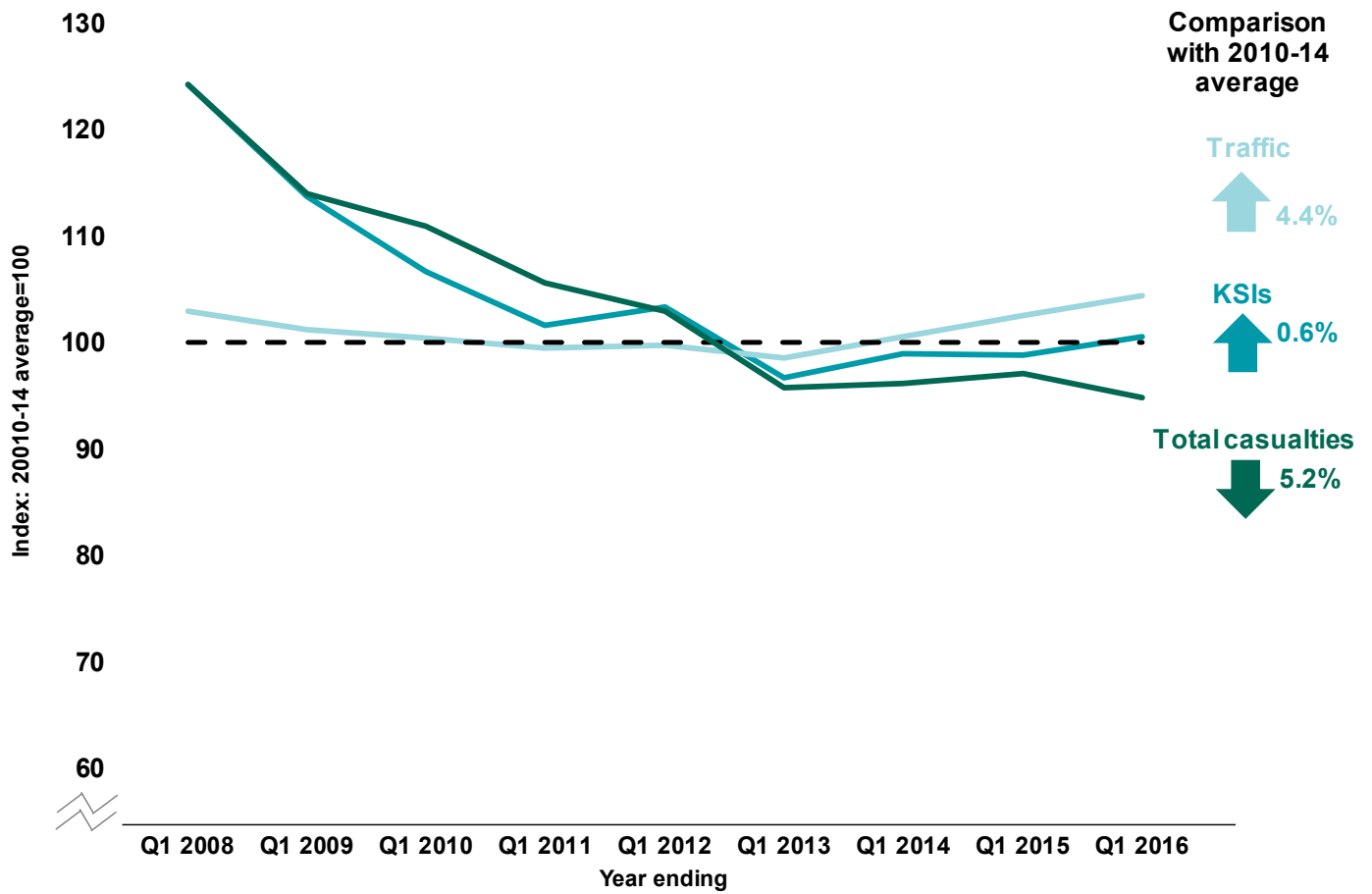
## Statistical significance

The number of casualties can fluctuate from year to year and there is interest in knowing the extent to which these fluctuations represent an indication of a real underlying trend as opposed to random year-to-year variation.

A **statistically significant** change is one we can be sure is large enough that it can be considered as an indication of a real underlying trend.

A change that is **not statistically significant** is one that is likely to have come about by chance and therefore represents random year-to-year variation.

**Chart 1: Killed or seriously injured, total casualties and traffic compared with the 2010-14 average, GB, years ending March 2008 to 2016**



**Figures for January to March 2016**

- Between January and March 2016, 430 people were **killed** in reported road accidents, a 13 per cent increase from 380 in the same quarter of 2015.
- **KSI casualties** increased by 14 per cent to 5,890 and the total number of slightly injured casualties by 0.3 per cent to 38,100 in the first quarter of 2016.
- **Casualties of all severities** increased by 2 per cent to 43,990 in comparison with the same quarter in 2015.
- The **increases in KSIs and total casualties are both statistically significant** at the 99% confidence level.
- **Motor traffic levels** increased by 2.3 per cent over the same period.

**Tables**

- Reported road casualties by severity (estimates): Great Britain, rolling annual totals, quarterly, table [RAS45001](#).
- Road traffic (vehicle miles) by vehicle type in Great Britain, quarterly from 1993, table [TRA2501](#).
- Reported road casualties by severity (estimates): Great Britain, quarterly and annual, table [RAS45003](#).

**Table RAS45002: Reported road casualties by severity: GB, Jan - Mar 2016**

ALL CASUALTIES	Number/percentage change compared with same quarter last year				
	Q1 2015	Q1 2016 (P)	Percentage change	Statistical significance of change	Traffic <sup>1</sup> percentage change
Killed KSI <sup>2</sup>	380	430	↑13%	ns	↑2.3%
Slightly injured	5,145	5,890	↑14%	***	↑2.3%
<b>All casualties</b>	38,000	38,100	0%	ns	↑2.3%
	43,145	43,990	↑2%	***	↑2.3%

P Provisional estimates  
 1 Motor traffic (excludes pedal cycles)  
 2 Killed or seriously injured  
 ns Not significant  
 \*\*\* significant at 99% level

\*Quarterly casualty figures are prone to fluctuation as they are strongly affected by external factors such as the weather. Therefore the changes in quarterly casualty figures in this release should be interpreted with caution.

### Casualty rates

- In the year ending March 2016, fatalities were unchanged and traffic levels rose by 1.8 per cent. As a result, the **fatality rate per billion vehicle miles** decreased by 2 per cent.
- Total casualties decreased by around 2 per cent. When combined with the rising traffic volume the **overall casualty rate** per billion vehicle miles decreased by 4 per cent in the year ending March 2016.
- In comparison with the first quarter of 2015, fatalities increased by 13 per cent, KSIs by 14 per cent and overall casualties increased by 2 per cent in the period January to March 2016. Over the same period, traffic levels increased by 2.3 per cent. As a result, the **fatality rate** per billion vehicle miles increased by 11 per cent. The **overall casualty rate** fell by 0.3 per cent over the same period.

## Road user type

### Rolling year ending March 2016

- There was a decrease in **KSI casualties** for pedal cyclists and motorcyclists in the year ending March 2016, but an increase in pedestrian and car occupant KSIs.
- Pedal cyclist KSIs** fell by 3 per cent to 3,390 and **motorcyclist KSIs** by 1 per cent to 5,510 in the year ending March 2016.
- Pedestrian KSIs** increased by 2 per cent to 5,490 and **car occupant KSIs** by 5 per cent to 9,100 in the year ending March 2016.
- Child (aged 0-15) KSI casualties** increased by 5 per cent to 2,050 in

2010-2014 average







**Car occupant** casualties in the year ending March 2016 compared with the 2010-2014 average:

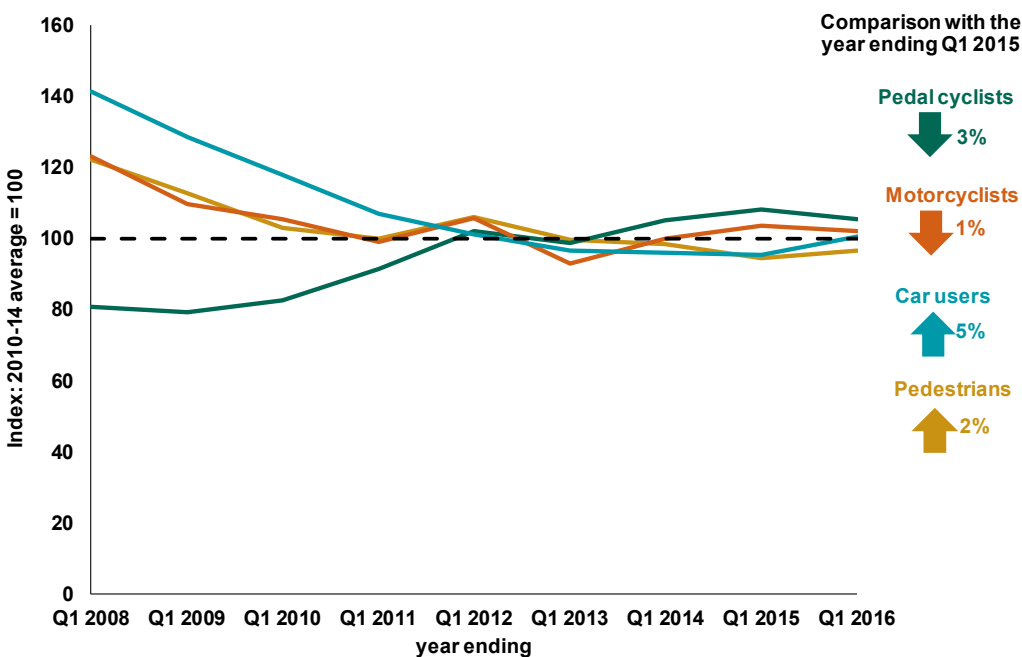
KSI ↑ 1%  
 All casualties ↑ 7%

the year ending March 2016 and child pedestrian KSIs increased by 3 per cent. Child casualties of all severities increased by 0.3 per cent compared with the previous year to 16,350.

**Table RAS45006: KSI casualties by road user type: GB, year ending March 2016**

ROAD USER TYPE	Number/Percentage change compared with previous 12 months		
	Apr-14 to Mar-15	Apr-15 to Mar-16 (P)	Percentage change
 Car	8,637	9,100	↑5%
 Motorcyclist	5,577	5,510	↓1%
 Pedal cyclist	3,479	3,390	↓3%
 Pedestrian	5,366	5,490	↑2%
All	24,183	24,610	↑2%

**Chart 2: Reported killed or seriously injured casualties by road user type, GB: rolling years ending Q1, 2008-2016**





**Figures for January to March 2016**

- **KSI casualties increased for all road user groups** in the first quarter of 2016 compared with the same quarter of 2015.

**2010-2014 average**





**Pedestrian** casualties in the year ending March 2016 compared to the 2010-2014 average:

KSI  3%  
All casualties  4%

**2010-2014 average**





**Motorcycle user** casualties in the year ending March 2016 compared to the 2010-2014 average:

KSI  2%  
All casualties  3%

**2010-2014 average**





**Pedal cyclist** casualties in the year ending March 2016 compared to the 2010-2014 average:

KSI  5%  
All casualties  2%

**2010-2014 average**







**Child (aged 0-15)** casualties in the year ending March 2016 compared to the 2010-2014 average:

KSI  9%  
All casualties  8%

- The greatest increase was for **car occupant KSIs**, which increased by 23 per cent in comparison with the same quarter of the previous year.
- **Child KSIs** increased by 25 per cent to 450 and child casualties of all severities increased by 7 per cent in the first quarter of 2016. Child pedestrian KSIs increased by 19 per cent to 300.

**Table RAS45007: KSI casualties by road user type: GB, January to March 2016**

ROAD USER TYPE	Number/Percentage change compared with same quarter last year		
	Q1 2015	Q1 2016 (P)	Percentage change
 Car occupant	1,968	2,430	↑23%
 Motorcycle	940	1,050	↑12%
 Cyclist	641	690	↑8%
 Pedestrian	1,320	1,460	↑11%
All	5,145	5,890	↑14%

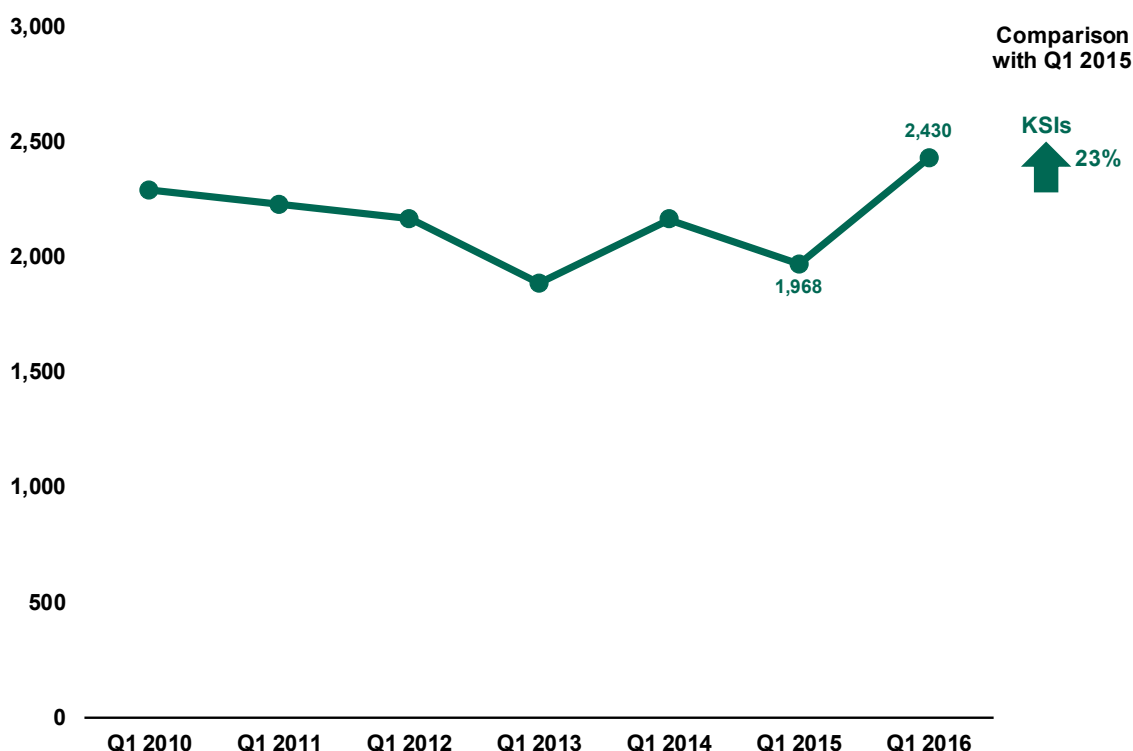
## Tables

- Reported road casualties by severity and road user type (estimates): Great Britain, rolling annual totals, updated quarterly, table [RAS45006](#).

- Reported road casualties by severity and road user type (estimates): Great Britain, latest available quarter, table [RAS45007](#).

- Quarterly casualty figures are prone to fluctuation as they are strongly affected by external factors such as the weather. Therefore the changes in quarterly casualty figures in this release should be interpreted with caution. As an example, chart 3 shows the variability in car user KSIs for January to March each year. The casualty numbers have fluctuated between approximately 1,900 and 2,400 over 2010 to 2016 with no clear trend.

**Chart 3: Car user KSI casualties in Q1, 2010-2016**



# Road type

## Rolling year ending March 2016

- Fatal accidents on **major roads (motorways and A roads)** increased by 3 per cent in the year ending March 2016. Fatal accidents on **minor roads (B, C and unclassified roads)** fell by 2 per cent over the same period.
- The total number of fatal or serious accidents on **major roads** was virtually unchanged in the year ending March 2016, but fatal or serious accidents on **minor roads** increased by 2 per cent between the year ending March 2015 and 2016.
- On roads with a speed limit over 40 mph (**non-built-up roads**) fatal accidents increased by 4 per cent, and fatal or serious accidents increased by 1 per cent in the 12 months to March 2016. There was a 4 per cent decrease in fatal accidents on roads with a speed limit of up to and including 40 mph (**built-up roads**) with a 1 per cent increase in fatal or serious accidents over the same period.

## 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.

**Major roads:** includes motorways and A roads.

## Figures for January to March 2016

- Fatal or serious accidents on **major roads** and **minor roads** increased by 10 and 17 per cent respectively in the first quarter of 2016.
- Total accidents on **major roads** decreased by 2 per cent in comparison with the first quarter of 2015. However, the total number of accidents on **minor roads** increased by 5 per cent.
- Fatal accidents on **non-built-up** and **built-up roads** increased by 16 per cent and 9 per cent respectively in the first quarter of 2016. Fatal or serious accidents on non-built-up and built-up roads increased by 16 and 12 per cent respectively compared with the same quarter of 2015.

## Tables

- Reported road accidents, by road type (estimates): Great Britain, rolling annual totals, updated quarterly, table [RAS45009](#).

- Reported road accidents by road type (estimates): Great Britain, latest available quarter, table [RAS45010](#).

# Background to trends

## Uncertainty in the provisional estimates

The provisional statistics are based on data supplied by police forces with some **imputation** to account for **months that are either missing entirely or for which more data are expected** later

in the year. There are forces that have not provided data for the whole period January to March 2016: four forces have not provided data for March 2016 and three forces have not provided any data for the whole quarter. In particular, no data for March was received from the Metropolitan police and only partial data were available for Greater Manchester. These forces account for a large share of road casualties (see [ras30007](#)). Although it is not unusual for some forces to be missing, the relative size of these two forces means that there is considerable uncertainty associated with these estimates and it is possible that there could be large changes when these figures are revised in future publications.

An **imputation method** is used to estimate the missing data. For example, we were supplied with records for 373 fatalities in GB in the first quarter of 2016. We have then imputed 55 additional fatalities to fill in gaps in force data for the quarter. This gives an estimated 428 fatalities for the first quarter of 2016 which is rounded to 430 fatalities. The uncertainty in the figures comes from the imputed figures: forces may well have outcomes that differ from what the model estimates. The more data missing the greater the uncertainty (particularly when data is missing from larger forces).

## Weather

The first three months of 2015 were all very close to the long term average (LTA) temperature. Precipitation was close to the LTA in February and March 2015. However, January 2015 was nearly 30 per cent wetter than the LTA. The temperatures for the first three months of 2016 were also fairly close to the LTA with each month within 1 °C (see chart 4). January and February 2016 were wetter than average with January 2016 the fourth wettest on record. However, the weather-adjusted casualty figures for these quarters were not significantly different from the actual figures. It is therefore likely that **the increases in fatalities, KSIs and total casualties in the first quarter of 2016 compared to the same quarter of 2015 would have occurred even if conditions in both quarters had been closer to the average.**

**2014 was the warmest year on record** with the temperature in all of the last nine months of the year above the LTA, except August. Largely due to the warmer temperatures in these months the weather-adjusted figure for road deaths in the year ending March 2015 is 1,754 compared with the 1,779 actually observed.

## Statistical model

The Department has developed a statistical model to produce weather-adjusted road casualty figures. The weather-adjusted casualty figures should be interpreted as the number of road casualties we would have expected in a given year or quarter had the temperature and precipitation in each month been at the long term average. Further information can be found at:

[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/463100/weather-on-road-casualties.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/463100/weather-on-road-casualties.pdf)

[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/463049/rrcgb2014-03.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/463049/rrcgb2014-03.pdf)

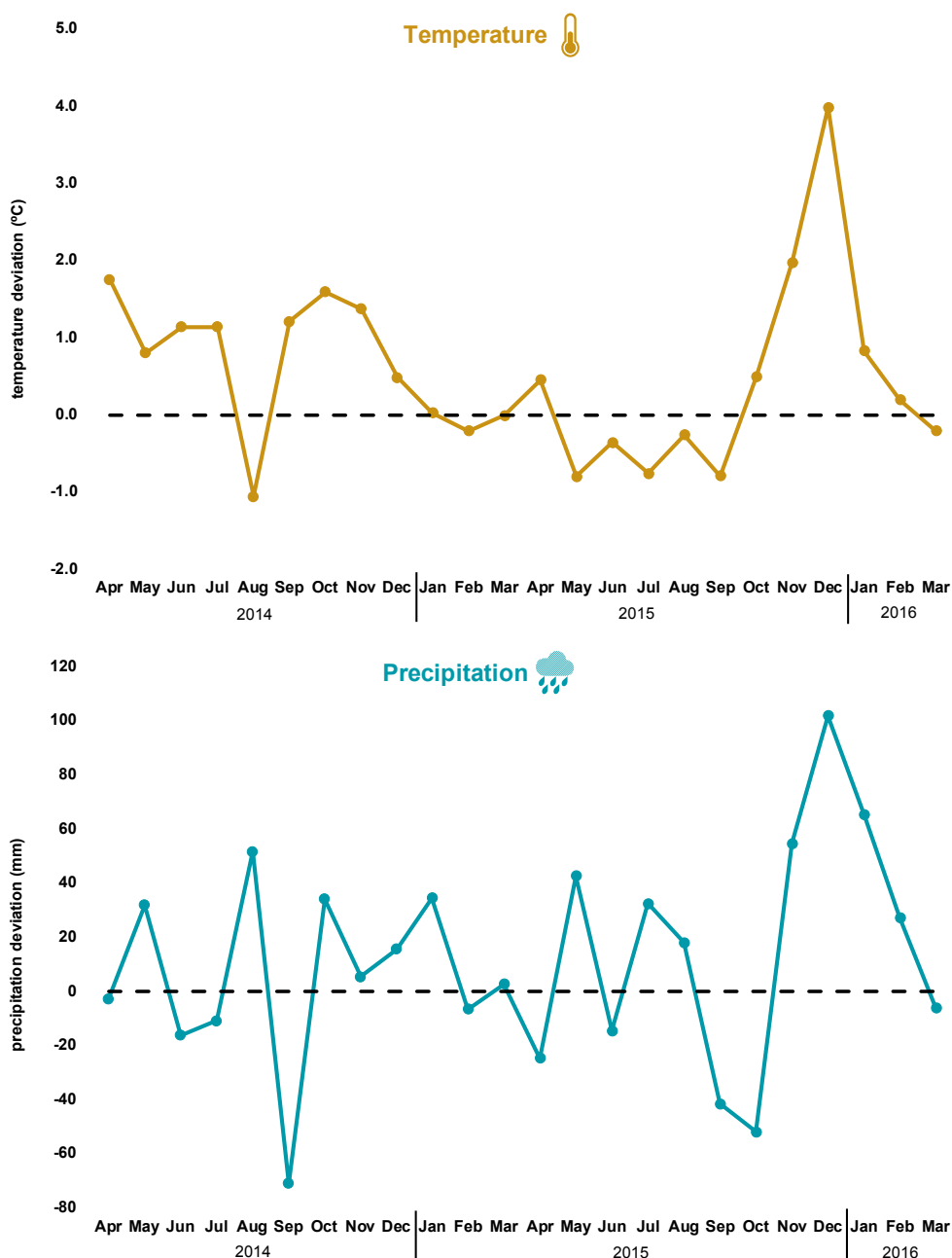
## Long term average (LTA)

The Met Office use 30 year averages for UK temperature and precipitation to assess changes in the latest temperature and precipitation data. Currently the 1981-2010 average is used for comparison: [www.metoffice.gov.uk/climate/uk/summaries/2015/annual](http://www.metoffice.gov.uk/climate/uk/summaries/2015/annual).



As discussed in the [main results 2015](#) publication (pages 19-21), **most months in 2015 were fairly close to the long term average temperature** with November and December the main exceptions. December and November 2015 also stood out in terms of precipitation with both months having considerably more precipitation than the LTA. The largest weather adjustment was seen for **December 2015** and if true, this would give a weather-adjusted fatality figure of approximately 1,755 for the year ending March 2016 (compared with 1,780 actually observed), very close to the weather-adjusted figure for the year ending March 2015. However, the statistical model cannot take account of the flooding and road closures that occurred in December so it is impossible to say what the outcome would have been had the weather in December 2015 been closer to the long term average.

**Chart 4: UK temperature and precipitation deviations from the long-run monthly average: April 2014 to March 2016**



**Weather data** ☁️

Weather data is available from the Met Office [here](#).

**Tables**

- Reported weather-adjusted road casualties by road user type, Great Britain, annual from 1991, table [RAS30080](#).

## CRASH

There is some evidence that some police forces are recording more accidents with a serious severity and fewer with a slight severity when using the **CRASH system**. The early indications are that there has been around a 2 percentage point move from slightly injured casualties to seriously injured casualties.

This movement will not have had a significant effect on the overall figures yet. Only half of the English police forces are currently using CRASH (and these forces only account for around 40 per cent of casualties in England) and most of the forces adopted the system between January and May 2016. Therefore only around 10 per cent of all casualties in the year ending March 2016 will have been recorded on CRASH. As a result, whilst the change in the split between serious and slight may have influenced the increase in seriously injury casualties reported here, it cannot have accounted for much of the rise.

The Department is carrying out some research into why casualties being recorded on CRASH are more likely to be recorded as having serious injuries than slight injuries. The findings of this research will be reported with or before the publication of the final 2016 figures. It is likely, though, that the change has come about either through better recording of the injury type (in which case the new data are more accurate), or incorrect recording of whether slightly injured casualties were admitted to hospital (in which case the increase in serious injuries is incorrect).

## Conclusions

Although there has been an increase in KSIs and a fall in slightly injured and total casualties in the year ending March 2016, **these changes should be interpreted with caution**. Firstly, as discussed above, the increase in KSIs in the year ending March 2016 is not statistically significant. Therefore we cannot be sure that there has been a real change in KSIs. Instead this increase is likely to have come about by chance. However, the decreases in slightly injured and total casualties are statistically significant so we can be sure that there has been a real improvement for these severities. As discussed in the section on uncertainty, there are a number of police forces with missing data for January to March 2016 which creates **considerable uncertainty in these estimates**. Once the missing data from these forces become available later in the year it is possible that there could be large revisions to the January to March 2016 figures.

In addition, given that this publication only provides data for the first quarter of 2016 **it is too early to draw any conclusions about the trend for 2016**. We will have more idea of the trend for 2016 when quarter 2 and quarter 3 road casualty estimates for 2016 are published in November 2016 and February 2017 respectively. These publications will also include revised casualty estimates for January to March 2016.

## Definition

**CRASH:** Collision Recording and Sharing system. This is a new centralised system used by some police forces to record road traffic collisions.

## Strengths and weaknesses of the data

- The quarterly figures are based on estimates. No single quarter's figures should be taken in isolation as an indication of long-term trend, as there are seasonal fluctuations particularly in the smaller categories of road user. The 2016 Q1 results are based on complete (January to March 2016) figures provided by 36 police authorities with partial data for seven authorities. Adjustments are made to take account of missing data. [Table RAS45011](#) provides a list of which police authorities are included in these figures. As described above, there is considerable uncertainty in the adjustments.
- Comparison of road accident reports with death registrations shows 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 suggested by police accident data.
- 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 kept in mind when using and analysing the figures. However, police data on road accidents (STATS19), 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.
- Following requests from users, we have started to include casualty rates in the quarterly release i.e. casualty rates per mile. They are based on provisional casualty and traffic estimates and are subject to revision at the end of the year.
- Provisional traffic estimates do not include pedal cycling estimates. We have attempted to adjust for this in the figures by adding in approximately 1% extra vehicle miles. This ratio is based on the relationship between all motor vehicle traffic and pedal cycle traffic for 2013 to 2015.
- Estimates are based on information reported to the Department for Transport 17 weeks after the end of the first quarter 2016. Figures are based on information available on 25 July 2016.

### Tables

- Reported road casualties by police force area, rolling annual totals, updated quarterly, table [RAS45011](#).

### 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/462818/reported-road-casualties-gb-notes-definitions.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/462818/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](http://www.gov.uk/government/publications/road-accidents-and-safety-statistics-guidance).

## Background notes

- The Reported Road Casualties Great Britain Quarterly Provisional Estimates web page provides further detail of the key findings presented in this statistical release. The tables are available at: [www.gov.uk/government/statistics/reported-road-casualties-in-great-britain-provisional-estimates-jan-to-mar-2016](http://www.gov.uk/government/statistics/reported-road-casualties-in-great-britain-provisional-estimates-jan-to-mar-2016)
- A note on methodology can be found at: [www.gov.uk/government/publications/road-accidents-and-safety-statistics-guidance](http://www.gov.uk/government/publications/road-accidents-and-safety-statistics-guidance)
- 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](http://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](http://www.gov.uk/government/publications/road-accident-and-safety-statistics-pre-release-access-list)
- The latest annual road safety publication, Reported road casualties Great Britain: main results 2015, is available at: [www.gov.uk/government/statistics/reported-road-casualties-in-great-britain-main-results-2015](http://www.gov.uk/government/statistics/reported-road-casualties-in-great-britain-main-results-2015). More detailed analysis of the 2015 figures will be published in the 2015 annual report, due in September 2016.

### Next release

The next release of reported road casualty statistics, will be the 2015 annual report. This will be published in September 2016.