



Introduction

The Department produces in year provisional estimates of the number of reported road accidents and casualties. These are based on the most complete picture of the data available at the time of publication, as provided by police forces for the period. Estimation is necessary as data might not be complete for all police forces and months during the period considered.

The estimation method involves three steps:

1. The completeness of data for each police force and each month in the period is assessed to detect those considered incomplete
2. Estimates are compiled for incomplete data based on the average growth observed where data is complete
3. A scaling factor is applied to all forces (regardless of whether they were considered complete or not) to account for the small proportion of accidents that will be reported later in the year

Assessing completeness

The number of accidents for each month and police force is assessed by comparing against the previous year to determine incompleteness. This process involves determining whether less than 50% of the data is provided compared to the previous year. This process also takes into consideration small numbers in the latest year and the previous year and where there are less than 80 accidents for a police force in a given month even though there is 50% less data in the latest year, this is not considered incomplete.

Estimating growth for incomplete data

A growth rate is calculated and applied to police forces that are deemed missing or incomplete in the latest year. A separate growth rate is calculated for the number of accidents, casualties and child casualties, for each month and road user / road type. It is calculated by taking the sum of complete police forces data in the latest year, excluding the data that has been deemed missing or incomplete, as a proportion of the same police forces' data in the previous year. The growth rate is calculated from the equivalent month of the previous year to eliminate the effects of seasonal fluctuations in road accidents. Each missing police force month is estimated by multiplying the data from the same police force from the same month from the previous year by the appropriate growth rate. Data (actual or estimated) are now available for all police force months.

Growth rate =
$$\frac{\text{sum of police forces with complete data in the latest year}}{\text{sum of same police forces in the previous year in equivalent month and accident or casualty category.}}$$

Scaling for later reporting

A scaling factor is applied to all police force months (regardless of whether they were considered complete at the start of the process or have been estimated). The scaling factor compensates for the few accidents, which are reported later. Even if the vast majority of data have been submitted, there are likely to be a few accidents that do not find their way into the system for several months. The scaling factor is calculated by monitoring the levels of under-reporting of accidents for the same month from previous years and taking the proportion as at after the publication of the final validated annual data. A separate scaling factor is required for each month.

Provisional estimates

These statistics are provisional estimates as we do not hold all records for the period, and incomplete or missing data is imputed for completeness. Once all records are fully validated, these are published separately in the annual results. As a result, these in year provisional estimates are rounded to the nearest 10 to reflect some uncertainty. A data extract for these in year estimates are made available alongside the statistical release, here: <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safetydata>.