

# Vehicle Speed Compliance Statistics

(formerly Free Flow Vehicle Speeds Statistics)



Department  
for Transport

## Methodology, Notes and Definitions

This document provides the methodology for the free flow vehicle speeds tables published on the Department for Transport website at

<https://www.gov.uk/government/organisations/department-for-transport/series/speeds-statistics>, together with notes and definitions to accompany the data.

The Department for Transport publishes estimates of free flow vehicle speeds in Great Britain on an annual basis. They are published approximately six months after the end of the reference year. These estimates are designated as National Statistics, but the release may also include other statistics to provide additional context, not all of which are National Statistics.

### Contents

Vehicle Free Flow Speeds (SPE01)	p1
Contextual Statistics (SPE02)	p4

## Tables SPE0111 to SPE0114 (Vehicle Free Flow Speeds)

### Methodology

These statistics provide insight into the speeds at which drivers choose to travel and their compliance with speed limits, but should not be taken as estimates of actual average speed across the road network, which are available separately for both local authority managed 'A' roads and the Strategic Road Network are available online as part of a suite of new travel time measures from the Road Congestion and Reliability Statistics series at

<https://www.gov.uk/government/collections/road-congestion-and-reliability-statistics>. Note that this series also uses the term "free flow speed" but this is calculated in a different way (e.g. 'capped' at national speed limits) and using a different data source to the statistics presented in this release.

### Data collection

Free flow vehicle speeds are based on traffic speed data collected from a sample of Automatic Traffic Counters (ATCs) operated by DfT. ATC sites count traffic continuously as well as recording the speed at which the vehicles travel and the physical properties of passing vehicles, which are used to classify traffic.

A subset of ATC sites are selected for use in producing speed compliance statistics, the sample being chosen to exclude ATC locations where external factors might restrict driver behaviour (e.g.

junctions, hills, sharp bends and speed enforcement cameras), so that estimates of the speeds of individual vehicles in free flow conditions can be produced.

The number of sites was increased significantly in 2016 following a review of the available sites. As far as possible when sites are added they will be added to the estimates for previous years also. The numbers of ATC sites used to produce the 2016 statistics were as follows:

Data year	ATCs used	Total vehicles observed (millions)
2011	99	685
2012	99	702
2013	98	605
2014	105	567
2015	116	743
2016	116	725

Notes:

1. Counters on separate carriageways (e.g. on a motorway) are counted as separate sites.

The sample provides a general picture for Great Britain but cannot be used to determine average free flow speeds for regions, local authorities or specific roads.

The aggregated observations are used to produce estimates by four different road types:

Road Type	ATCs used (in 2016)	Number of locations (in 2016)
Motorways	43	25
National speed limit single carriageways	26	26
30 mph roads	29	29
20 mph roads	18	9

Where possible, statistics are published for the following vehicle types, as classified by the ATCs:

Cars	Rigid 2-axle heavy goods vehicles
Light commercial vehicles	Rigid 3 or more axle heavy goods vehicles
Buses and coaches (over 12m)	Articulated 3 or 4 axle heavy goods vehicles
Buses and coaches (under 12m)	Articulated 5 or more axle heavy goods vehicles

Speed limits differ by vehicle type and road type. The most typical applicable speed limits are used to determine if vehicles are exceeding the speed limit. For the purpose of these statistics, *rigid 2-axle HGVs* do not have a definitive national speed limit whilst all other observed HGVs are considered to have more than 7.5 tonnes maximum laden weight. More information can be found at <https://www.gov.uk/speed-limits>.

**Calculation of the estimates**

The raw speed data for each observed vehicle is checked for periods where the ATCs recorded information likely to be erroneous and such data are excluded from the calculations. In addition, we identify and remove periods of very low speeds on some faster roads, as these are indicative of congestion. These relate to recorded speeds of under 25 mph on motorways and under 11 mph on national speed limit single carriageways.

From this validated data, the average speed for each vehicle type is calculated by summing the speeds of each vehicle and dividing this by the number of vehicles observed. Similarly, the percentage of vehicles exceeding the speed limit is calculated from this data by summing the number of vehicles exceeding the speed limit and dividing this by the number of vehicles observed.

To calculate the number of cars exceeding the speed limit at each hour of the day we take the number of cars observed exceeding the speed limit in an hour, and then divide this by the total observed travelling in that hour.

**Definitions**

<i>Free flow speed</i>	Free flow speeds are observed in locations where external factors which might restrict driver behaviour (e.g. junctions, hills, sharp bends and speed enforcement cameras) are not present.
<i>Exceeding the speed limit</i>	Vehicles travelling at a speed higher than their applicable speed limit are defined as “exceeding the speed limit”.
<i>Headway</i>	The measurement of time between two vehicles.

**Types of vehicle:** The definitions for vehicle types included in the release are as follows:

<i>Cars</i>	Includes passenger vehicles with nine or fewer seats, three wheeled cars, four wheel-drive ‘sports utility vehicles’, taxis, car-derived vans and dual-purpose vehicles.
<i>Buses and coaches</i>	Includes all public service vehicles and works buses which have a gross weight greater than 3.5 tonnes. For the purposes of these statistics, these are further split into those estimated by the ATC to be over or under 12

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metres long.

<i>Light commercial vehicles (LCVs)</i>	Goods vehicles not exceeding 3.5 tonnes gross vehicle weight. Includes transit vans, ambulances, pickups and milk floats. Does not include car-derived vans and dual-purpose vehicles. This category has previously been referred to as Light Goods Vehicles or LGVs.
<i>Heavy goods vehicles (HGVs)</i>	Includes all goods vehicles more than 3.5 tonnes gross vehicle weight. When a HGV is travelling with one or more axles raised from the road (sleeping axles) then the vehicle is classified by the number of axles on the road, and not by the total number of axles.
<i>Rigid 2-axle HGVs</i>	Includes all non articulated HGVs with two axles. Includes tractors (without trailers), road rollers, box vans and similar large vans. A two axle motor tractive unit without trailer is also included.
<i>Rigid 3 or more axle HGVs</i>	Includes all non articulated HGVs with three or more axles irrespective of the position of the axles. Excludes two axle rigid vehicles towing a single axle caravan or trailer. Three axle motor tractive units without a trailer are also included. *
<i>Articulated 3-axle HGVs</i>	Includes all articulated HGVs with three axles. The tractor will have two axles and the trailer one. *
<i>Articulated 4-axle HGVs</i>	Includes all articulated vehicles with a total of four axles regardless of the position of the axles, i.e. two on tractor with two on the trailer, or three on the tractor with one on the trailer. *
<i>Articulated 5 or more axle HGVs</i>	This includes all articulated vehicles with a total of five or more axles regardless of the position of the axles. *

*\* For the purposes of assigning speed limits in these statistics, these vehicles are all assumed to have a gross vehicle weight over 7.5 tonnes.*

## Tables SPE0201 to SPE0203 (Contextual Statistics)

These previously published statistics provide a summary of speeding offences and reported accidents involving speeding. They are collected from:

- Home Office (HO)
- Ministry of Justice (MoJ)
- National Driver Offender Retraining Scheme (NDORS)
- Road accidents and safety statistics team at the Department for Transport (DfT)

## Definitions

<i>Fixed Penalty Notices (FPNs)</i>	Offered to motorists to avoid prosecution for various motoring offences (for example speeding, neglect of traffic directions and using a mobile phone while driving) by paying a prescribed financial penalty.
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<i>Speed awareness</i>	National Driver Offender Retraining Scheme (NDORS) is a set of schemes
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<i>course</i>	unique to the UK, where a motorist who has been caught committing a 'low level traffic offence', such as speeding, is given an opportunity to attend a course focusing on re-education designed to achieve greater compliance with the Road Traffic legislation, rather than receiving a Fixed Penalty Notice (FPN) or attending court and face possible conviction.
<i>Conviction Ratio</i>	The number of convictions as a proportion of the number of proceedings. These are calculated on a principle offence basis.
<i>Accident</i>	Involves personal injury occurring on the public highway (including footways) in which at least one road vehicle or a vehicle in collision with a pedestrian is involved and which becomes known to the police within 30 days of its occurrence. Damage-only accidents, with no human casualties or accidents on private roads or car parks are not included.
<i>Fatal accident</i>	An accident in which at least one person is killed.
<i>Serious accident</i>	One in which at least one person is seriously injured but no person (other than a confirmed suicide) is killed.
<i>Slight accident</i>	One in which at least one person is slightly injured but no person is killed or seriously injured.
<i>Contributory factor</i>	The number of convictions as a proportion of the number of proceedings. These are calculated on a principle offence basis.

For further assistance with these tables, please use the following resources:

- Reported accidents: <https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-annual-report-2015>
- Home Office: <https://www.gov.uk/government/publications/police-powers-and-procedures-in-england-and-wales-201112-user-guide>
- Ministry of Justice: <https://www.gov.uk/government/statistics/criminal-justice-system-statistics-quarterly-december-2016>
- Speed awareness courses: <https://ndors.org.uk/faqs/>

The 2016 release also quotes non-governmental data published by the RAC Foundation from an annual quota sample of around 1,700 responses obtained through an online survey.

For further information on free flow vehicle speeds, please email [roadtraff.stats@dft.gsi.gov.uk](mailto:roadtraff.stats@dft.gsi.gov.uk).

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