
Road Traffic Estimates



Notes and Definitions



This section provides notes and definitions for the road traffic tables published on the Department for Transport website at <http://www.dft.gov.uk/pgr/statistics/datatablespublications/roads/traffic/>

For further information on road traffic statistics, please email roadtraff.stats@dft.gsi.gov.uk.

Quarterly road traffic estimates

TRA2501 to TRA2508

Provisional quarterly traffic estimates are based on traffic data collected continuously from a national network of around 180 Automatic Traffic Counters (ATCs). In addition to counting traffic, the ATCs record some of the physical properties of passing vehicles which are used to classify traffic by type.

Quarterly estimates are provisional until they have been constrained by the final annual estimates each year.

A short methodology note outlining the process for calculating quarterly traffic estimates is available online at:

<http://www.dft.gov.uk/pgr/statistics/datatablespublications/roads/traffic/#technical>

These notes relate to the detailed statistics (tables and charts) on quarterly road traffic estimates that can be found on the Department for Transport web pages, tables [TRA2501 to TRA2508](#)

Annual road traffic estimates

Annual road traffic estimates are mainly based on around ten thousand manual counts, which are combined with Automatic Traffic Counters (ATC) data and road lengths to produce overall estimates.

Manual counts take place on major roads (motorways and 'A' roads) and minor roads ('B', 'C' and unclassified) where trained enumerators count vehicles of each of eleven types (pedal cycles, two-wheeled motor vehicles, cars and taxis, buses and coaches, light vans, and six separate categories of goods vehicle) for the 12 hours from 7am to 7pm.

Traffic data are also collected continuously from a national network of around 180 ATCs. In addition to counting traffic, the ATCs also record some of the physical properties of passing vehicles (which are used to classify traffic by type) and vehicle speeds. Data on the weights of passing vehicles have also been gathered from a small number of these sites.

The total activity of traffic on the road network in Great Britain is measured in vehicle miles/kilometres. Different procedures are used to calculate traffic estimates for major and minor roads:

Major road traffic: The Department produces estimates of annual average daily flow (AADF) for each link of the major road network. They are produced using 12-hour manual data counts from a large number of sites and traffic profiles derived from automatic counters at about 190 sites.

Traffic estimates are calculated for each link of the network by multiplying the AADF by the corresponding length of road factored up by the numbers of days in the year. Therefore, a major road link of length 2 miles with an AADF of 50,000 has a traffic figure of 100,000 vehicle miles ($2 \times 50,000$). This equates to 36.5 million vehicle miles a year. Because every major road link is counted, in principle, total traffic on major roads can be obtained by summing the traffic figures for every link.

Minor road traffic: In the base year, for each minor road class in each local authority, an AADF is estimated based on a sample of traffic counts, including those projected forward from counts done in earlier years. These AADFs are then multiplied by the total road length for the relevant minor road category to give an estimate of traffic for that road category. Traffic for the latest year is obtained by calculating changes in traffic flows from a sample of minor road manual counts.

Traffic volume: TRA0101 to TRA0204

Traffic estimates in vehicle miles and vehicle kilometres are presented by vehicle type, road class and region.

The forecasts in TRA9905 are taken from the modelling and analytical work undertaken by the National Transport Model that lay behind the Department's publication entitled 'Road Transport Forecasts for England 2009'. The forecasts show traffic growth in England, disaggregated by vehicle type. The figures in the table are based to 2003 = 100. Further details of the Department's National Transport Model, the forecasts paper and separate forecasts for each English region can be found on the DfT web site. Full details of the Plan and underlying assumptions are given in Transport 2010: The 10 Year Plan and Background Analysis.

<http://www.dft.gov.uk/pgr/economics/ntm/>

Traffic flow: TRA0301 to TRA0308

Tables TRA0301 to TRA0304 show annual average daily traffic flows (vehicles per day). Average daily flow estimates for individual sections of major road are available on the Department's website: www.dft.gov.uk/matrix

Tables TRA0305 to TRA0308 show distribution of traffic flows by month, day of the week and time of day. These data are collected by Automatic Traffic Counters and have been scaled to show the average flow across each time period.

In Chart TRA0307, which shows distribution of traffic flows by time of day and day of the week, a single midweek average is plotted for Tuesday to Thursday as the distributions of traffic flows on these days are almost identical.

Road traffic for local authorities: TRA8901 to TRA8906

Traffic volume estimates (vehicles miles/kilometres) are presented by road class at a regional and local authority level. Traffic flow estimates are also presented by road class at a regional level.

Estimates of road traffic at local authority level are less robust than the regional and national totals and are not classed as National Statistics.

Traffic by mode: TRA3101 to TRA3202

Vehicle weights: Vehicle weight is measured by automatic weight-in-motion (WIM) classifiers located at 19 motorway and 9 'A' road sites. WIM classifiers are able to distinguish vehicles by size and axle structure, as standard automatic traffic counters do, but they also record vehicle weight.

A conservative measure of the proportion of vehicles exceeding the legal maximum weight is the count of those that are 10 per cent or more above the legal maximum limit. This allows for any potential measurement error by the WIM classifier.

Table TRA3106, showing the percentage of HGVs exceeding this measure, is based on five motorway sites and one 'A' road site.

Headway: Table TRA3107 looks at headway (the measurement of time between two vehicles) between heavy goods vehicles (HGVs) and the vehicle immediately preceding it.

The Highway Code (rule 126) recommends larger vehicles allow a four second gap in normal dry driving conditions between themselves and the vehicle in front to allow enough time to pull up safely if the vehicle in front suddenly slows down or stops. The four seconds takes into account both the reaction time of the driver (thinking distance) and the braking distance of the vehicle.

There are safety implications of vehicles being within the two second period and larger vehicles will also require a greater distance to stop. Table TRA3107 shows the percentage of HGVs that are within a two second interval of the vehicle in front and are based on the same sites used in the WIM analysis, but are based on traffic in the left-hand lane only.

Foreign registered vehicles in traffic: Tables TRA3201 and TRA3202 show the proportion of vehicles in traffic which are registered outside the UK, by vehicle type, road type and region.

During June each year a roadside survey is carried out collecting information about vehicles travelling on the road. Vehicles with registration marks originating outside the United Kingdom have been identified and this information has been used to produce estimates of the rate of foreign registered vehicles on Britain's roads.

As the sample size is relatively small (there were 5,901 observations of foreign registered vehicles) these figures are not designated National Statistics and should be treated with caution. Particular attention should be paid to the confidence interval associated with each statistic and in some cases statistics have not been produced as the sample size is too small.

<p>These notes relate to the detailed statistics (tables and charts) on annual road traffic estimates that can be found on the Department for Transport web pages, tables TRA0101 to TRA3202 and TRA7901 to TRA8906</p>

Definitions

Measurements of traffic:

Annual Average Daily Flow (AADF): The average over a full year of the number of vehicles passing a point in the road network each day.

Vehicle mile/kilometre: One vehicle times one mile/km travelled (vehicle miles/km are calculated by multiplying the AADF by the corresponding length of road). For example, 1 vehicle travelling 1 mile a day for a year would be 365 vehicle miles. This is sometimes known as the volume of traffic.

Types of vehicle: The definitions for the vehicle types included in the traffic census are as follows:

All motor vehicles: All vehicles except pedal cycles.

Cars and taxis: Includes passenger vehicles with nine or fewer seats, three wheeled cars and four wheel-drive 'sports utility vehicles'. Cars towing caravans or trailers are counted as one vehicle.

Motorcycles etc: Includes motorcycles, scooters and mopeds and all motorcycle or scooter combinations.

Buses and coaches: Includes all public service vehicles and works buses which have a gross weight greater than 3.5 tonnes.

Light vans: Goods vehicles not exceeding 3.5 tonnes gross vehicle weight. Includes all car-based vans and those of the next largest carrying capacity such as transit vans. Also included are ambulances, pickups and milk floats.

Heavy goods vehicles (HGV): Includes all goods vehicles over 3.5 tonnes gross vehicle weight.

Rigid HGV with two axles: Includes all rigid heavy goods vehicles 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.

Rigid HGV with three axles: Includes all non articulated goods vehicles with three 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.

Rigid HGV with four or more axles: Includes all non articulated goods vehicles with four axles, regardless of the position of the axles. Excludes two or three axle rigid vehicles towing a caravan or trailer.

Articulated heavy goods vehicles: When a heavy goods vehicle 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. Articulated goods vehicles with three and four axles are merged into one category, as they are not differentiated during manual traffic counts.

Articulated HGV with three axles (or with trailer): Includes all articulated goods vehicles with three axles. The motor tractive unit will have two axles and the trailer one. Also included in this class are two axle rigid goods vehicles towing a single axle caravan or trailer.

Articulated HGV with four axles (or with trailer): Includes all articulated vehicles with a total of four axles regardless of the position of the axles, i.e. two on the tractive unit with two on the trailer, or three on the tractive unit with one on the trailer. Also includes two axle rigid goods vehicles towing two axle close coupled or drawbar trailers.

Articulated HGV with five axles (or with trailer): This includes all articulated vehicles with a total of five axles regardless of the position of the axles. Also includes rigid vehicles drawing close coupled or drawbar trailers where the total axle number equals five and articulated vehicles where the motor tractive unit has more than one trailer and the total axle number equals five.

Articulated HGV with six or more axles (or with trailer): This includes all articulated vehicles with a total of six or more axles regardless of the position of the axles. Also includes rigid vehicles drawing close coupled or drawbar trailers where the total axle number equals six or more and articulated vehicles where the motor tractive unit has more than one trailer and the total axle number equals six or more.

Pedal cycles: Includes all non motorised cycles.

Types of road: The road definitions included in the traffic census are as follows:

Major roads: Includes motorways and all class 'A' roads. These roads usually have high traffic flows and are often the main arteries to major destinations.

Motorways (built under the enabling legislation of the Special Roads Act 1949, now consolidated in the Highways Acts of 1959 and 1980): Includes major roads of regional and urban strategic importance, often used for long distance travel. They are usually three or more lanes in each direction and generally have the maximum speed limit of 70mph.

'A' Roads: These can be trunk or principal roads. They are often described as the 'main' roads and tend to have heavy traffic flows though not as high as motorways.

Trunk roads (designated by the Trunk roads Acts 1936 and 1946): Most motorways and many of the long distance rural 'A' roads are trunk roads. The responsibility for their maintenance lies with the Secretary of State and they are managed by the Highways Agency in England, the National Assembly of Wales in Wales and the Scottish Executive in Scotland (National Through Routes).

Non-trunk roads: These are roads for which local authorities are highway authorities. The Secretary of State, the Scottish Government, and the Welsh Assembly Government have power to classify non-trunk roads in agreement with the local highway authority. Non-trunk roads are therefore either classified or unclassified, the former being of two types, principal and non-principal. The classified principal roads are class 'A' roads, except for a few local authority motorways, and are of regional and urban strategic importance. The non-principal roads are those which distribute traffic to urban and regional localities. The non-principal classified roads are subdivided into 'B' and 'C' classes. Unclassified roads are those in the least important categories, i.e. local distributor and access roads.

Principal roads: These are major roads which are maintained by local authorities. They are mainly 'A' roads, though some local authorities do have responsibility for some motorways.

Minor Roads: These are 'B' and 'C' classified roads and unclassified roads (all of which are maintained by the local authorities), as referred to above. Class III (later 'C') roads were created in April 1946. 'B' roads in urban areas can have relatively high traffic flows, but are not regarded as being as significant as 'A' roads, though in some cases may have similarly high flows. They are useful distributor roads often between towns or villages. 'B' roads in rural areas often have markedly low traffic flows compared with their 'A' road counterparts. 'C' Roads are regarded as of lesser importance than either 'B' or 'A' roads, and generally have only one carriageway of two lanes and carry less traffic. They can have low traffic flows in rural areas. Unclassified roads include residential roads both in urban and rural situations and rural lanes, the latter again normally having very low traffic flows. Most unclassified roads will have only two lanes, and in rural areas may only have one lane with "passing bays" at intervals to allow for two-way traffic flow.

Urban roads: These are major and minor roads within an urban area with a population of 10,000 or more. The definition is based on the 2001 Communities and Local Government definition of Urban Settlements. The definition for 'urban settlement' is in Urban and rural area definitions: a user guide which can be found on the Communities and Local Government web site at <http://www.communities.gov.uk/publications/planningandbuilding/urbanrural> .

Rural roads: These are major and minor roads outside urban areas (these urban areas have a population of more than 10,000 people).

Private Roads: These are included in the major roads as these private roads (usually toll roads, tunnels or bridges) are accessible to the general public, whereas private minor roads, not usually being accessible to the general public, are not included.

These definitions relate to the detailed statistics (tables and charts) on road traffic and speeds that can be found on the Department for Transport web pages, <http://www.dft.gov.uk/pgr/statistics/datatablespublications/roads/traffic>