

# Speed: Know your limits



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Britain has one of the best road safety records in the world, which is something to be proud of. The table below gives a few examples of how many people are being killed every year on roads where many of us take our holidays (2003 data):

Country	Road deaths per 100,000 population
United Kingdom	6
Greece	19.3*
Italy	11.7
Portugal	16.1
Spain	13.2
Germany	8.3
France	12.9
*2000 data	

This is an impressive record, but we want to improve on it, and there is still work to be done to further reduce the number of unnecessary injuries and fatalities on our roads. That is why it is necessary to continue to work on persuading and educating motorists to be more aware of their driving habits and their speed in particular. Whether we are motorists, cyclists, pedestrians or horse riders, all of us benefit from safer driving.

## So why worry about speed?

The Department for Transport annually monitors traffic speeds at around 180 sites throughout Great Britain. The total number of vehicle records processed to produce the 2003 statistics was about 677 million.

These measurements showed that in 2003:

- 58% of cars, 54% of motorcycles and 53% of HGVs exceeded the 30 mph limit
- 27% of cars and 36% of motorcycles exceeded the 40 mph limit
- 57% of cars and 59% of motorcycles exceeded the 70 mph speed limit on motorways

It is clear therefore that many of us speed at least some of the time.

If you add to this the fact that if a pedestrian is **hit** at:

- 20mph there is about a 1 in 40 (2.5 %) chance of being killed **or** 97% chance of survival
- 30mph there is about a 1 in 5 (20%) chance of being killed **or** 80% chance of survival
- at 35mph there is a 50/50 chance of being killed
- at 40mph there is about a 9 in 10 (90%) chance of being killed or 10% chance of survival,

(Source Ashton and Mackay 1979)

And that if it is estimated that for each 1mph reduction in average speed, accident frequency is reduced by 5%;

Then it is clear there is a need to worry about speed because the consequences of driving too fast are so severe.

## Is speed as dangerous as bad driving?

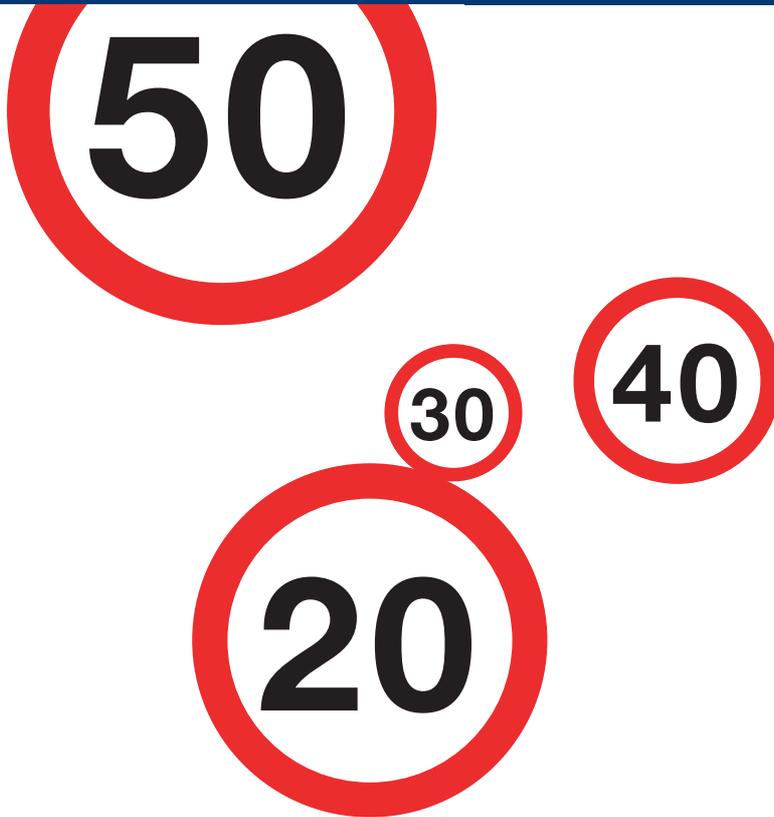
Driving too fast **is** bad driving. In 2003 there were still over 3,000 people being killed (that's nearly 10 people every day) and 33,000 being seriously injured in collisions on Britain's roads.

Unfortunately speed contributes to those collisions, deaths and injuries. There exists no precise figure for the contribution speed makes to causing the collisions, but analysis of casualty statistics in Great Britain has shown excessive speed to be a contributory factor in 12% of all injury collisions, 18% where there is a serious injury and 28% of all collisions which result in a fatality.

It is therefore clear that where there are serious or fatal injuries resulting from collisions, excessive speed is more likely to be a contributory factor.

There are those who claim that speed is not a significant factor in causing road accidents, but that view is difficult to sustain from either research or experience. All reliable research into accident causation shows that the factors determining both excessive and inappropriate speed amount to about 30% of contributory factors in road accidents.

To an extent it suits us all to assume that the effects of speed are exaggerated. Individuals will need to take one conscious decision at any given time to, say, buckle up a seat belt or not drink before driving.



What speed it is safe to drive at is a continuous decision making process and to that extent is a more difficult judgement to make.

Drivers rightly consider poor lane discipline, failure to signal, driving too close and other errors to be poor driving.

There is some reluctance to accept that driving too fast is also poor driving, but it is and there is a need to alter that thinking.

## What is speeding?

### **Excessive Speed**

This is straightforward; it is exceeding the posted speed limit. To do so is a criminal offence and, if detected, is likely to result in a fine and penalty points on your licence. In the majority of cases this will be a fixed penalty resulting in a standard fine and licence endorsement, but in more serious cases may result in being taken to court.

It is intuitive to believe that, the faster you go, the greater is the risk of being involved in a collision; and this is borne out by the facts. Research (TRL 1998 and 1999) has shown that if an individual drives at more than 10-15% above the average speed of the traffic around them, they are much more likely to be involved in a collision.

### **Inappropriate Speed**

This is someone driving within the speed limit but too fast for the road and traffic conditions. It is about judgement, and is extremely important.

Urban roads will be subject most often to a 30mph speed limit. These will be high streets with shoppers looking to cross the road at various points, parked vehicles around which pedestrians might suddenly appear, delivery vans, cyclists and buses where people might risk crossing the road where perhaps they should not. They might also be in the vicinity of schools, hospitals and where the elderly may be present. These roads require drivers to take account of all these various factors and drive at appropriate speeds.



Driving at inappropriate speed is also a real problem on rural roads. Despite only around 10% of drivers exceeding the speed limit on rural roads, over 60% of all car occupant deaths (drivers and passengers) occur on them. This is because, although the national speed limit applies on the vast majority of rural roads, it is actually difficult to drive at anywhere close to the speed limit, but it is still very possible to drive too fast for the conditions.

These include approaching a bend or junction too fast, not negotiating narrow roads properly and overtaking where it is inappropriate to do so.

Inappropriate speed is also a factor where poor weather conditions prevail and when driving at night.

It is a commonly held belief that, since roads have far less traffic at night, it is safe to drive at higher speeds.

However, it is a fact that the average risk of an accident per kilometre travelled between 7.00pm and 7.00am is double that for that between 7.00am and 7.00pm.

## What are speed limits?

### **A brief history of speed limits**

Between 1865 and 1896 locomotives on the highway had to be preceded by a pedestrian carrying a red flag and were subject to a speed limit of 2mph in cities, towns and villages and 4mph elsewhere.

The maximum speed limit was then increased to 14mph and again, in 1903, to 20mph.

In 1930 speed limits for cars and motorcycles were abolished.

In 1934 a general 30mph speed limit was imposed on roads in built up areas (effectively roads with street lighting) which remains to this day.

Other roads had no speed limits at all. It was not until 1965 that a national upper limit of 70mph was introduced for all roads, including motorways.

Since 1977 the speed limit for cars and motorcycles on dual carriageways has been 70mph, with a 60mph speed limit on single carriageways.

In 1999 local authorities were given the powers to introduce a 20mph speed limit without requiring the consent of the Secretary of State.

## Vehicle Speed Limits

Different vehicles have different maximum speed limits on certain types of road. It is for the driver to ensure that they know the speed limit for their vehicle at all times. The speed limit table featured overleaf explains the different speed limits that apply to different vehicles. This can also be found in the Highway Code.

## Know your Speed Limits

	Built up area (street lit)	Single Carriageways	Dual Carriageways	Motorways
type of vehicle	mph	mph	mph	mph
cars & motorcycles (including car derived vans up to 2 tonnes maximum laden weight)	30	60	70	70
cars towing caravans or trailers (including car derived vans and motorcycles)	30	50	60	60
buses and coaches (not exceeding 12 metres in overall length)	30	50	60	70
goods vehicles (not exceeding 7.5 tonnes maximum laden weight)	30	50	60	70* *60 if articulated or towing a trailer
goods vehicles (exceeding 7.5 tonnes maximum laden weight)	30	40	50	60

## Who has responsibility for speed limits?

A central body called the Highways Agency sets speed limits on the motorway and trunk road network. The Government provides advice to traffic authorities (County, District and Borough Councils, but not Parish Councils) on the setting of local speed limits. It is for those authorities to decide what is the most appropriate speed limit for their roads based upon local considerations and circumstances. This would usually reflect factors such as accident history, traffic flows, road traffic mix, levels of adjacent development and road geometry. They can set speed limits from 20mph to 70mph inclusive.

## Speed Limits at Roadworks

Speed limits are often lowered at roadworks. There are valid reasons for doing this. The safety of those dedicated to repairing our road network is paramount and therefore vehicle speeds will need to be lowered where workmen are likely to be present. In addition, the carriageway will be narrowed to allow work to progress. Such narrowing will inevitably mean it is appropriate to reduce vehicle speeds. Lower speed limits will help to achieve this.

## Dual Carriageways

There is sometimes some confusion as to what a dual carriageway is, especially for those vehicles restricted to speed limits below that for cars, such as HGVs and Coaches. In short, a dual carriageway is a road that is separated by a central reservation. A central reservation is anything other than a pedestrian refuge that separates vehicles going in one direction from vehicles going in the other direction. It should be noted that although it is more usual to have two or more lanes in each direction, the number of lanes is not specified, i.e. it is the presence of a central reservation rather than the number of lanes that determines whether or not a road is a dual carriageway.

## Different Speed Limits and how to recognise them

### **20mph Speed Limit**

The 20mph speed limit is predominately used in urban areas. Commonly you will see them in town centres, high streets, residential roads and in the vicinity of schools. The aim of this limit is to reduce vehicle speeds that allows for the presence of vulnerable road users; cyclists, children and the elderly. More often than not a 20mph speed limit will come in the form of a 'zone'. A zone will contain traffic calming features, usually road humps that force drivers to reduce their speed to around 20mph. Research on the effectiveness of these zones has shown that casualties can fall by up to 70% where they have been introduced.

### **30mph Speed Limit**

The 30mph speed limit is predominately used in urban areas (and more recently in many villages) and usually is indicated by the presence of a system of streetlights. The presence of street lights is the way we recognise this speed limit and it is the reason why you do not see, apart from where the limit starts, 30mph speed limit signs. Some believe this to be an odd way of indicating a speed limit, but really it is simple. If there are streetlights and no signs to the contrary a 30mph speed limit is in force.

There are a number of unlit roads where a 30 mph speed limit applies. In these circumstances the traffic authority must place 30 mph repeater signs.



### **40mph and 50mph**

These two speed limits were introduced in the 1970s and are predominately used in non-built up areas or in built up areas where a higher speed is both safe and appropriate. In addition to signing the beginning of the speed limit, traffic authorities must also place speed limit repeater signs at regular intervals along the length of road being enforced. The driver should therefore be in no doubt of what the speed limit is for the road being driven on.

### **The National Speed Limit**

The national speed limit is indicated by a round sign showing a white background with a diagonal black stripe across it. For the majority of vehicles it means 60mph on single carriageway roads and 70mph on dual carriageway roads (as detailed above, some vehicles are restricted to lower speed limits). This speed limit works on the same principle as the 30mph speed limit in that it is not signed apart from where the speed limit starts. It is predominately used along the rural road network. Again, recognising it is simple. Where there are no streetlights and no signs to the contrary, the national speed limit is in force. The speed limit on a motorway is 70mph unless otherwise indicated.

## But do speed limits make sense?

Most people believe in the need for there to be speed limits; but who decides? The system may not be perfect but it is not arbitrary. Detailed guidance on setting speed limits is provided to all traffic authorities. Their Highway Engineers and Road Safety Officers using their knowledge and experience will apply the guidance. They will also consult the police who have the task of enforcing speed limits. This ensures the limits are set appropriately.

## Compliance with Speed Limits

In an ideal world all drivers would obey all speed limits at all times. Unfortunately we do not live in an ideal world and for any number of reasons drivers do from time to time fail to stick to the posted limit.

Over the years a number of measures have been developed to help drivers stay within the speed limit in force. These measures have the effect of changing the nature or appearance of the road to encourage drivers that a slower speed is appropriate. Local authorities have all the necessary powers to introduce any measure they deem appropriate, but obviously which one would depend on the nature of the problem.

Road humps are the most commonly used and most effective measure, reducing speeds by up to 10mph.

They are most effective on urban roads, around schools and in residential areas. They are not usually appropriate for rural areas. Other measures include build outs or chicanes that narrow the road thereby encouraging lower speeds, or road markings that have the visual effect of narrowing the carriageway.

Where there is a need to warn drivers to reduce speed when approaching a hazard, vehicle activated signs have proved to be very effective. These are signs that remain blank until a vehicle approaching at a certain speed triggers a message to be displayed electronically. These signs can be very effective on rural roads where the national speed limit applies but drivers need to slow down considerably to take account of a crossroad, a sharp bend or other hazard.

## Enforcement

Ideally, all drivers obey the speed limit in force. And where compliance is an issue, some form of intervention measure, such as traffic calming or road realignment would be introduced that persuades drivers to adhere to the posted limit.

However, there are roads where there is a history of accidents but where conventional traffic calming or other forms of persuasion are unsuitable or have proved ineffective. On these roads there may be no alternative but to provide an increased level of enforcement.

The most common form of enforcement is safety cameras. The purpose of cameras is to deter speeding at sites where speed related accidents have occurred, not to catch drivers speeding.

The police are responsible for enforcing the speed limit and may use any Home Office approved equipment. Apart from traditional fixed speed camera housings, the three most common ways to enforce speed limits are:

- a) in-car speed measuring systems operated by a police officer, which measure the average speed of a suspected speeding vehicle over a given distance.
- b) handheld speed measuring equipment where a police officer measures the speed of passing vehicles with a 'radar gun'. That officer will work in tandem with a colleague, positioned further along the road concerned, who will be responsible for stopping any offending vehicle and informing the driver of his speed; and

- c) portable speed detection devices which are trained across a road by a supervising officer to measure the speed of any vehicle going through the 'line of sight' of the device. A second 'stopping' officer can pull over a speeding vehicle if so requested by the officer monitoring the device. These devices may also have photographic recording ability, allowing the police to send notifications and requirements to the registered vehicle keeper.

## Changing Attitudes

There are various reasons why people speed.

Some are simply excited by driving fast. They can be easily affected by motoring magazines and programmes that highlight the top performance levels of some vehicles.

Motorists in general simply regard the breaking of speed limits – at least in a minor way – as not a very serious matter. Those caught speeding are considered to be 'unlucky'. But the consequences of driving too fast can be very serious. Being involved in a collision can result in death or serious injury.

Successive governments have set targets to reduce road accident casualties and it is clear that, increasingly, these cannot be achieved without reducing the number of people killed or injured as a result of speed. Long term publicity campaigns are aimed at making drivers and riders aware of the dangers of excessive and inappropriate speed and the substantial safety benefits that can be gained by even small reductions in speed.

## In brief: facts and figures

Because the dangers are so severe, a number of measures have been developed to persuade drivers to slow down. These measures are not always popular but nevertheless they do work.

### 20mph Zones and Limits

#### 20mph Zones

- Average speeds within zones reduce by 9mph and accident frequency reduces by 60%
- Overall reduction in child accidents = up to 67%
- Overall reduction in cycle accidents = up to 27%
- Traffic flow within zones reduced by up to 27%

(Source TRL Report 215 - "Review of Traffic Calming Schemes in 20mph zones")

#### 20mph Limits

- Speed limit signing without supporting traffic calming measures reduction of an average of 1mph.

(Source TRL Report 363 - "Urban Speed Management Methods")

#### Road Humps

- Road humps in their various forms achieved the biggest mean speed reduction (based on a mean speed before traffic calming of 30mph)
- 100mm high raised junctions (Commonly known as speed tables, these are large flat topped humps that straddle the entire junction.) achieved biggest reduction of up to 12mph and subsequent likely accident reduction of 60%.

- 75mm high flat-top road humps and 80mm high round-top humps achieved a 10mph speed reduction and a likely accident reduction of 50%. (Department recommends 75mm road humps as achieving best speed reduction with least negative impacts).

(Source TRL Report 482 "The Impacts of traffic calming measures on vehicle exhaust emissions")

#### Vehicle Activated Signs

Vehicle activated signs are predominately used in rural areas. They are an electronic sign that flashes a message to the driver if a predetermined speed has been triggered. Research has shown them to be very effective at reducing speed and collisions at hazards such as sharp bends and junctions with poor visibility.

They are also sometimes used to remind the driver of the speed limit in force. Their effectiveness can be broken down as follows:

- Mean speed reductions at speed limit roundel signs of between 3-9mph
- Mean speed reductions of up to 7mph at junction and bend warning signs
- Mean speed reductions of up to 4mph on safety camera repeater signs
- Overall one-third reduction in accidents at trial sites (Norfolk sites)

(Source TRL Report 548 - "Vehicle Activated Signs - a large scale evaluation")

#### Cameras

##### Effects on casualties at camera sites:

- A 40% reduction in the number of people killed or seriously injured (KSI)

- 870 fewer KSIs per year, including over 100 fewer deaths
- a 33% fall in injury accidents – 4,030 fewer per year
- 35% reduction in pedestrians killed or seriously injured

##### Effect on speed

- average speeds at all new sites fall by around 7% or 2.4mph;
- average speed at urban sites fall by around 8%
- the number of vehicles speeding at new camera sites drop by 71%

##### Other findings

- 79% of people asked support the use of cameras to reduce casualties
- the benefit to society through casualties saves about £221 million per year

(Source: The National Safety Camera Programme Three-year evaluation Report - June 2004)

For further information on Speed and other road safety issues you can visit the THINK! campaign website at: [www.thinkroadsafety.gov.uk](http://www.thinkroadsafety.gov.uk) or for information covering the Department of Transport as a whole visit [www.dft.gov.uk](http://www.dft.gov.uk)



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