

# VEHICLE SPEEDS IN GREAT BRITAIN

1998

DEPARTMENT OF THE ENVIRONMENT, TRANSPORT AND THE REGIONS  
STATISTICS BULLETIN (99)17

**The Department of the Environment, Transport and the Regions  
TSR5 Branch  
Zone 1/28  
Great Minster House  
76 Marsham Street  
LONDON SW1P 4DR**

**Telephone: 0171 890 6395  
Fax: 0171 676 2166  
Email: [roadacc\\_stats@detr.gov.uk](mailto:roadacc_stats@detr.gov.uk)**

Enquiries about the contents of this bulletin should be made to the Department at the above address.

July 1999



## **CONTENTS**

### **Summary of key points from analysis of 1998 speed survey**

Chart 1: Speeding on non-urban roads

Chart 2: Speeding on urban roads

### **Introduction: Automatic speed data**

#### **Section 1: Non-urban speed data**

Vehicle speeds by road type and vehicle type

Table 1: Vehicle speeds on non-urban roads by road type and vehicle type: 1998

Average car speeds by time of day

Weekday and weekend comparisons

Table 2: Average car speeds by time of day: 1998

Table 3: Weekday and weekend comparisons: 1998

Comparisons with earlier speed surveys

Table 4: Non-urban speed surveys: 1991 - 1998

#### **Section 2: Urban speed data**

Vehicle speeds by speed limit and vehicle type

Average car speeds by time of day

Table 5: Vehicle speeds on urban roads by speed limit and vehicle type: 1998

Table 6: Average car speeds by time of day: 1998

Table 7: Weekday and weekend comparisons: 1998

Weekday and weekend comparisons

Average speeds on urban roads by time of year

Comparisons with earlier speed surveys

Chart 3: Average speeds on 30 mph roads: 1994 - 1998

Chart 4: Average speeds on 40 mph roads: 1994 - 1998

Table 8: Urban speed surveys: 1994 - 1998

#### **Annex A: UK maximum speed limits on non built up roads**

#### **Annex B: Non-urban motorcycle data: 1998**

#### **Annex C: Average vehicle speeds and their standard errors: 1998**

## **SUMMARY OF KEY POINTS FROM ANALYSIS OF 1998 SPEED SURVEY**

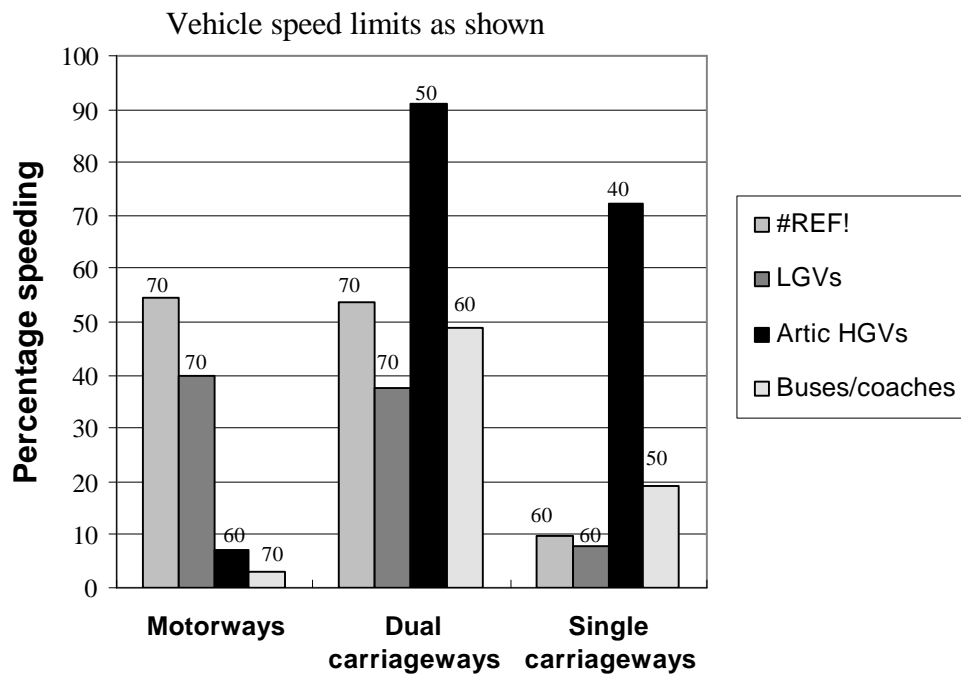
### **NON-URBAN ROADS - 1998 ESTIMATES (Chart 1 and Section 1: Table 1)**

- Cars were the vehicles most likely to be speeding on motorways with 55 per cent of those surveyed exceeding 70 mph and 19 per cent travelling in excess of 80 mph.
- Only 3 per cent of buses and coaches and 7 per cent of articulated heavy goods vehicles (HGVs) exceeded their speed limits on motorways.
- On dual carriageways 91 per cent of articulated HGVs surveyed exceeded their 50 mph limit and 6 per cent exceeded 60 mph. More than half of the cars on dual carriageways were also found to be speeding.
- On single carriageways levels of speeding were generally considerably lower except for HGVs, with 72 per cent of articulated HGVs exceeding their 40 mph limit and around a quarter of them travelling above 50 mph.

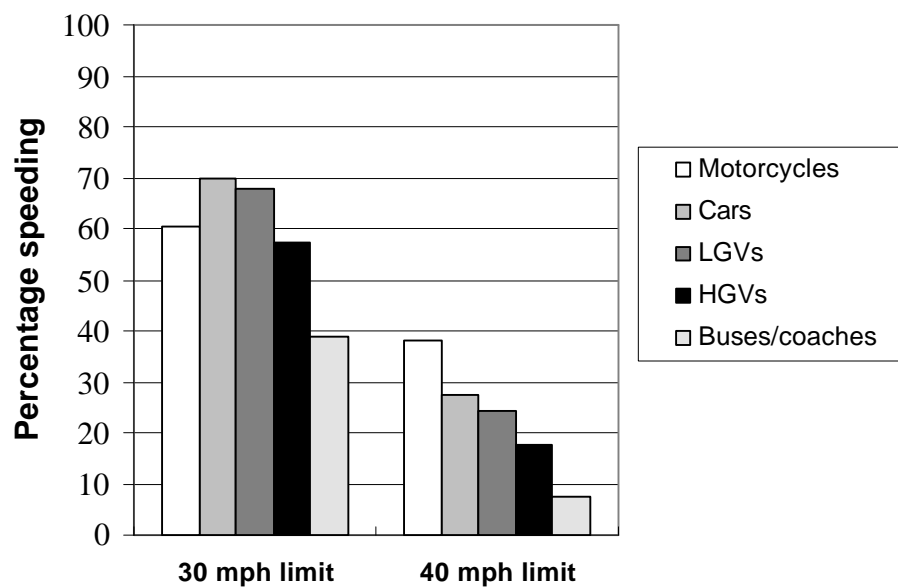
### **URBAN ROADS - 1998 ESTIMATES (Chart 2 and Section 2: Table 5)**

- On roads with a 30 mph speed limit cars and light goods vehicles (LGVs) were most likely to be speeding with 69 per cent of cars surveyed exceeding the speed limit and a third travelling faster than 35 mph.
- Motorcycles were the vehicles most likely to be speeding on 40 mph roads, with 35 per cent exceeding the speed limit and 19 per cent doing so by more than 5 mph. 63 per cent of motorcycles on 30 mph roads were also exceeding the speed limit.
- Of the HGVs surveyed, 56 per cent exceeded the speed limit on 30 mph roads and on 40 mph roads 14 per cent were found to be speeding.
- The proportion of vehicles speeding on 40 mph roads was less than the proportion speeding on 30 mph roads for all types of vehicle. Average speeds were only 3-4 mph higher for all types of vehicles

## Chart 1: Speeding on non-urban roads



## Chart 2: Speeding on urban roads



## INTRODUCTION: AUTOMATIC SPEED DATA

The Department of the Environment, Transport and the Regions is responsible for setting speed limits on motorways and trunk roads. Local authorities have the power to impose or vary speed limits on principal roads and on all other local roads. In order to monitor the compliance of drivers with these speed limits the Department collects speed data from traffic counting sites around Great Britain.

The Department captures these data on a regular basis as a by-product of the core traffic census. This is a continuous survey of traffic at around 130 sites throughout Great Britain, mainly used to estimate changes in the level of traffic. Before 1991 speed data were collected in ad hoc surveys using video cameras.

The automatic traffic counters operate most efficiently in uncongested conditions and whenever possible are not placed near junctions, hills or sharp bends. In principle they provide estimates of the speeds at which drivers choose to travel when their behaviour is not constrained by congestion or other road conditions. In practice congested traffic conditions at any site, due for example to dense traffic flow or a road accident, may have an influence upon the estimates and, in consequence, distort the speed distributions for specific types of vehicle. The extent to which drivers' speeding behaviour at these sites reflects behaviour in unconstrained conditions nationally is not certain, and the results should be treated with care. Users are advised to draw broad conclusions rather than specific results from these data.

This bulletin contains speed data collected from sites on both urban and non-urban roads. The non-urban results in the bulletin are from 26 motorway sites, 4 dual carriageway non built-up sites and 24 single carriageway non built-up sites during 1998. For the urban roads, data were collected from 30 sites with a 30 mph speed limit and 8 sites with a 40 mph limit. The number of vehicle speeds measured daily at the sites varies widely from a few hundred at the smallest site to many thousands at the motorway sites. Data are collected on a rotating cycle, the cycle being designed to avoid sampling bias which may be caused by time and day effects.

The counting equipment relies on an inductive loop and axle sensors to detect vehicle length, chassis height and the number and position of axles. The equipment is capable of classifying 21 different vehicle types. However, the equipment cannot distinguish between vehicles with the same electronic 'footprint' such as cars and car-based vans (which have an identical chassis to that of a car). In such cases vehicles are classified to the group which the equipment recognises rather than that which would be used in a manual count - in the example above the car-based vans would be classified as cars. The data on non-urban speeds are collected continuously and stored in 8 pre-set speed bands for 14 groups of vehicles. These have been used for the non-urban speed study in Section 1. The urban speeds in Section 2 are derived from a special survey in which the urban sites were monitored for 15 minute periods in a pre-determined cycle and the speeds of individual vehicles were collected.

The types of vehicle analysed in the non-urban survey are motorcycles, cars, cars towing, LGVs, buses/coaches, rigid 2 axle HGVs, rigid 3 or 4 axle HGVs, articulated HGVs, all 4 axle HGVs and all 5 or more axle HGVs. There are two important points concerning these categories. Firstly, the categories of goods vehicle are not mutually exclusive and therefore in the non-urban survey some vehicles are counted twice. For example, a 4 axle articulated lorry would appear in both the results for all articulated lorries and the results for all 4 axle heavy goods vehicles. In the urban speed survey such vehicles *have* been uniquely allocated to a single category and the 4 or more axle HGVs are not recorded a second time

in the articulated HGV category. Secondly, the automatic counters identify rigid 2 axle lorries but cannot distinguish between vehicles weighing less than 7.5 tonnes gross and those weighing more. The weight of this type of vehicle determines its speed limit on non built-up roads. Consequently, it is impossible to tell how many rigid 2 axle HGVs are speeding. The speed limits for different types of vehicle on different classes of non-built up road are shown in Annex A.

It was discovered in 1996 that the recording of motorcycle speeds by counters at non-urban sites was distorted . As a result there was the potential for bias in the estimates of motorcycle speeds at these sites and they have been excluded from the analysis in previous years. Software to correct the discrepancy has been tested and implementation began at the end of 1997. Some data is available for non-urban motorcycle speeds for a limited number of sites in the 1998 vehicle speed survey. Data was collected for one dual-carriageway and two single-carriageway sites and statistics relating to these roads have been omitted from this publication as they may not be representative of these road classes as a whole. Data for seven motorway sites was obtained. This was collected for the whole year at three sites and for the last seven or eight months of the year at the others. Details are shown in Annex B, but the results should be regarded with caution until a more complete survey is available from 1999. Motorcycle speeds collected at the urban sites are not affected by the same problem and are included in Section 2.

The accuracy of the average speeds presented in this bulletin depend on the number of sites surveyed and the number of vehicles observed at each site. The higher these numbers the more accurate any estimates of average speed will be. Annex C shows the estimates of average speed for each vehicle type together with their standard errors. Sections 1 & 2 contain discussion of the differences between average vehicle speeds over time. The statistical reasoning behind the variability underlying the estimates of average speed has been presented in previous editions of this bulletin.

The sample sizes shown in previous editions of this survey have been revised to eliminate double counting of observations. Analysis has shown that this revision has negligible effect on the average speeds, speed distributions and standard errors shown in previous bulletins. Further detail of the change is given on page 10.

## **SECTION 1: NON-URBAN SPEED DATA**

### **Vehicle speeds by road type and vehicle type (Table 1)**

#### **Motorways**

1. Motorway speeding at the 26 sites surveyed was widespread, At the 26 sites surveyed 55 per cent of cars exceeded the 70 mph limit and 19 per cent exceeded 80 mph. The speed distribution for Light Goods Vehicles (LGVs) generally indicates lower speeds than for cars. 40 per cent of LGVs exceeded 70 mph and 9 per cent exceeded 80 mph.
2. Only 7 per cent of articulated HGVs and 11 per cent of rigid 3/4 axle HGVs exceeded their 60 mph limit. There was little difference between average speeds of the four classes of HGV for which a speed limit could be determined. Only 3 per cent of buses and coaches exceeded 70 mph. Less than half a per cent of all these types of vehicle exceeded the limit by more than 10 mph.
3. The percentage of HGVs, buses and coaches speeding has dropped in recent years as shown in Table 4.
4. Since August 1992 speed limiters have been fitted to all new goods vehicles of over 7.5 tonnes gross weight and since 1994 these have been set to 56 mph. Since 1992 most coaches have been fitted with speed limiters set to 70 mph and the lower limit of 65 mph was imposed for new vehicles from 1994. It is not known whether the residual levels of speeding by buses, coaches and HGVs are due to the combined tolerances of speed limiters and automatic speed detectors, or to vehicles which remain on the roads without limiters (or with devices that are not operating correctly).

#### **Dual carriageways**

In general the speed distributions at the four sites on dual carriageways were similar to those on motorways for all vehicle types. Average speeds were only slightly lower. However, since HGVs, buses and coaches have lower speed limits on non-motorway dual-carriageways their levels of speeding were much higher. The percentage of HGVs speeding on dual carriageways was seven to thirteen times higher than on motorways, with between 79 and 93 per cent exceeding their 50 mph limit since their speed limit is 10 mph lower on dual carriageways. Between 5 and 7 per cent were speeding above 60 mph. For buses and coaches the average speed on dual carriageways was only 1 mph lower than on motorways and hence the percentage speeding was around seventeen times higher, with around half exceeding their 60 mph limit.

A slightly higher proportion of cars, 54 per cent, exceeded the 70 mph limit and 14 per cent exceeded 80 mph, which was the highest level of speeding over 10 mph in excess of the speed limit for any vehicle type on dual carriageways. 38 per cent of LGVs exceeded their 70 mph limit.

#### **Single carriageways**

It is particularly difficult to draw conclusions from sites on these roads due to their greater variation in surface and design quality. Average speeds were lower at the 24 sites and speeding less frequent on these roads than on dual carriageways. However, the proportion of HGVs, in particular the largest goods vehicles, exceeding their speed limit of 40 mph by more than 10 mph was higher. The incidence of speeding by HGVs ranged from 60 to 76 per cent and 17 to 30 per cent of HGVs were exceeding 50 mph.



**Table 1 Vehicle speeds on non-urban roads by road type and vehicle type: 1998**

(a) Motorways <sup>1</sup>					miles per hour/percent/number of vehicles				
	Cars	Cars towing	Light goods <sup>4</sup>	Buses/coaches	Heavy goods vehicles <sup>5</sup>				
					Rigid		Articulated <sup>7</sup>	Rigid/articulated	
					2 axle <sup>6</sup>	3/4 axle		4 axles	5+ axles
Under 50 mph	5	18	6	6	9	14	8	10	8
50-60 mph	13	51	19	30	52	75	84	84	84
60-65 mph	11	16	15	42	15	7	5	4	6
65-70 mph	17	10	20	19	13	4	2	2	2
70-75 mph	24	4	23	2	8	0	0	0	0
75-80 mph	12	1	9	0	2	0	0	0	0
80-90 mph	17	0	8	0	2	0	0	0	0
90 mph and over	2	0	1	0	0	0	0	0	0
Average speed	69	57	66	60	59	54	55	54	55
Speed limit	70	60	70	70	n/a	60	60	60	60
Percent over limit	55	31	40	3	n/a	11	7	6	8
More than 10 mph over limit	19	5	9	0	n/a	1	0	0	0
Number observed (thousands)	52,972	372	4,229	303	3,272	531	5,170	1,696	3,869

(b) Dual carriageways <sup>2</sup>									
Under 30 mph	0	0	0	0	0	0	0	0	0
30-40 mph	0	2	0	1	1	2	1	1	1
40-50 mph	3	15	5	10	12	18	8	13	6
50-60 mph	14	47	22	40	53	74	85	79	86
60-65 mph	12	17	15	32	13	4	5	4	5
65-70 mph	17	12	19	14	10	1	1	1	1
70-80 mph	40	7	31	2	8	0	0	1	1
80 mph and over	14	0	7	1	1	0	0	0	0
Average speed	70	57	66	59	58	53	55	54	55
Speed limit	70	60	70	60	n/a	50	50	50	50
Percent over limit	54	36	38	49	n/a	79	91	86	93
More than 10 mph over limit	14	7	7	3	n/a	5	6	7	7
Number observed (thousands)	6,381	48	490	30	356	65	497	164	379

(c) Single carriageways <sup>3</sup>									
Under 20 mph	1	2	1	2	1	2	1	1	1
20-30 mph	3	5	4	6	5	7	4	5	3
30-40 mph	24	25	26	37	28	31	23	30	20
40-50 mph	37	45	37	37	40	43	46	44	46
50-60 mph	25	21	24	17	23	17	25	19	28
60-65 mph	5	2	5	2	2	0	1	1	2
65-70 mph	3	1	3	0	1	0	0	0	0
70 mph and over	2	0	1	0	0	0	0	0	0
Average speed	46	44	46	42	44	42	45	43	46
Speed limit	60	50	60	50	n/a	40	40	40	40
Percent over limit	10	23	8	19	n/a	60	72	63	76
More than 10 mph over limit	2	2	1	2	n/a	17	26	20	30
Number observed (thousands)	7,776	78	609	47	427	85	344	148	237

1 Average vehicle speeds from 26 motorway sites.

2 Average vehicle speeds from 4 dual carriageway sites

3 Average traffic speeds from 24 single carriageway sites

4 Goods vehicles under 3.5 tonnes gross weight

5 Goods vehicles over 3.5 tonnes gross weight

6 Speed limit depends on loading which cannot be determined

7 Includes 4 and 5+ axle types

2. Only 10 per cent of the cars surveyed exceeded their 60 mph limit compared to 54 per cent exceeding the 70 mph limit on dual carriageways.

#### **Average car speeds by time of day (Table 2)**

1. On motorways the average car speed varied by time of day between 65 mph and 72 mph. The lowest speeds, occurring during the morning and evening peaks, may be attributed to denser and slower moving traffic.

2. For dual carriageways the range in average speeds was from 68 mph to 70 mph with no evidence of lower average speeds during the peaks.

3. On single carriageways the range in average speeds was from 45 mph to 51 mph and the highest speeds occurred at night.

4. Although some congestion may have occurred during the survey periods, the evidence in Table 2 indicates that this is unlikely to have dramatically affected the overall results because of the relatively small variation in average speeds between peak and off-peak periods.

#### **Weekday and weekend comparisons (Table 3)**

1. The number of observations at weekends is small for some vehicle classes on dual carriageways because there is less traffic, so care should be taken in drawing anything but the broadest conclusions from these data.

2. There is evidence that speeds increase slightly at the weekend when traffic flows are lower and the proportion of heavy vehicles is much smaller. The proportion of vehicles speeding also generally shows an increase at weekends. For cars and LGVs this was most marked on motorways.

**Table 2 Average car speeds by time of day: 1998**

Time of day	miles per hour		
	Motorways	Dual carriageway	Single carriageway
0000-0400	71	68	51
0400-0600	72	69	51
0600-0700	69	70	50
0700-0800	65	70	46
0800-0900	66	70	46
0900-1000	69	70	46
1000-1100	70	70	46
1100-1600	71	70	46
1600-1700	68	69	46
1700-1800	66	69	45
1800-1900	68	70	46
1900-2200	72	70	48
2200-2400	72	68	49
0000-2400	69	70	46

**Table 3 Weekday and weekend comparisons: 1998**

Vehicle type	Road type	miles per hour/percent			
		Weekday		Weekend	
		Average speed	Percent speeding	Average speed	Percent speeding
Cars	Motorway	69	53	71	59
	Dual carriageway	70	54	70	53
	Single carriageway	46	10	47	10
LGVs	Motorway	66	39	68	45
	Dual carriageway	66	37	67	40
	Single carriageway	46	8	47	9
Buses/coaches	Motorway	60	3	61	3
	Dual carriageway	59	47	59	54
	Single carriageway	42	18	44	23
Rigid 3/4 axle	Motorway	54	10	55	19
	Dual carriageway	53	79	54	80
	Single carriageway	42	60	42	62
Articulated	Motorway	55	7	55	9
	Dual carriageway	55	91	55	90
	Single carriageway	45	72	45	75

#### **Comparisons with earlier speed surveys (Table 4)**

1. Early surveys of vehicle speeds in free flow conditions using video cameras were carried out in 1975, 1976, 1977, 1983 and 1987. The results from the 1983 and 1987 surveys are shown in earlier editions of this bulletin.
2. The sample sizes shown in Table 4 are revised from those in previous editions of this bulletin. A proportion of observations were found to be double counted because they were included in more than one time band. Therefore the method of analysis has been changed to eliminate the double counting. The change was found to have negligible effect on the average speeds, speed distributions and standard errors for this and previous years data.
3. Annex C shows the standard errors of the average speeds for each vehicle type and road class. Using these estimates of standard error together with those from previous years it is possible to perform a significance test on the changes in average speed between two periods.
4. Table 4 shows that the level of speeding by cars on motorways has remained broadly the same. Speeding by buses and coaches and the larger HGVs on motorways has reduced and the average speed of buses and coaches has decreased significantly since 1995. Possible reasons for these changes are discussed at the start of Section 1.
5. In contrast there has been an increase in speeding on dual-carriageways for all three vehicle types, although the change in average speeds is not statistically significant.
6. Speeding at single-carriageway sites remains largely unchanged, although the percentage of buses and coaches recorded as speeding has fluctuated from year to year.
7. Changes in average vehicle speeds between 1997 and 1998 were not statistically significant at the 95 per cent level for any types of vehicle on any of the three classes of non-urban road.

**Table 4 Non-urban speed surveys: 1994 - 1998**

		number/ miles per hour/ per cent				
		1994	1995	1996	1997	1998
Motorways	Sites	25	25	25	26	26
	Observations (thousands)	47,155	59,961	60,831	65,444	72,414
	Average car speed	68	70	70	70	69
	Percent exceeding limit	47	55	57	54	55
	Average artic speed	56	56	55	55	55
	Percent exceeding limit	25	23	11	8	7
	Average bus/coach speed	62	62	61	61	60
	Percent exceeding limit	15	11	3	3	3
Dual carriageways	Sites	4	5	5	5	4
	Observations (thousands)	5,644	9,122	9,397	7,840	8,409
	Average car speed	67	68	69	70	70
	Percent exceeding limit	40	47	49	53	54
	Average artic speed	54	55	55	55	55
	Percent exceeding limit	78	89	89	91	91
	Average bus/coach speed	56	57	59	59	59
	Percent exceeding limit	39	44	50	53	49
Single carriageways	Sites	24	24	23	24	24
	Observations (thousands)	10,733	10,576	10,463	9,756	9,751
	Average car speed	47	47	47	46	46
	Percent exceeding limit	10	10	10	9	10
	Average artic speed	45	45	45	44	45
	Percent exceeding limit	72	73	72	70	72
	Average bus/coach speed	43	43	44	42	42
	Percent exceeding limit	20	21	22	16	19

1 Comparisons are indicative only, see commentary.

## **SECTION 2: URBAN SPEED DATA**

### **Vehicle speeds by speed limit and vehicle type (Table 5)**

#### **30 mph roads**

1. Speeding on 30 mph limit roads was common among drivers of all types of vehicle at the 30 sites surveyed. The worst offenders were drivers of cars and LGVs, of which 69 per cent and 67 per cent respectively exceeded the speed limit. Around a third were travelling at more than 5 mph above the limit.
2. 63 per cent of the motorcycles surveyed were speeding and 40 per cent were travelling above 35 mph, a higher level of violation by more than 5 mph than for any other vehicle type on these roads.
3. Well over half of the heavy goods vehicles observed were speeding. However, only about one fifth of HGVs exceeded the limit by 5 mph.
4. Although the speed distribution for buses and coaches indicates lower speeds than for other vehicles 41 per cent of buses and coaches still exceeded the speed limit and 13 per cent did so by more than 5 mph.

#### **40 mph roads**

1. Average speeds on 40 mph limit roads were slightly higher for all vehicle types although speeding was far less common than on 30 mph roads. Motorcyclists were the worst offenders at the 8 sites surveyed with 35 travelling in excess of the speed limit and 19 per cent doing so by more than 5 mph. Around a quarter of the cars travelled in excess of the speed limit, with 8 per cent travelling at over 45 mph.
2. 16 per cent of 2 axle HGVs were speeding and speeding by larger HGVs ranged from 7 per cent to 13 per cent. Only around 5 per cent of goods vehicles were found to be speeding by more than 5 mph.

### **Average car speeds by time of day (Table 6)**

1. Vehicle speeds on urban roads were collected between 6 am and midnight. Some sites may have been affected by congestion during part of the day. In general, car speeds and the percentage speeding were slightly lower during the morning and evening peak periods when the traffic flow was heaviest, and highest in early morning or late evening when traffic was lightest. The hour of the survey period with the worst speeding was from 6 am to 7 am, when 87 per cent of cars on 30 mph roads and 47 per cent on 40 mph roads were speeding.
2. Average speeds and the percentage speeding showed more variation by time of day than at the non-urban sites as shown in Table 2. The pattern of this variation on 30 mph and 40 mph roads was similar.

**Table 5: Vehicle speeds on urban roads by speed limit and vehicle type: 1998**

(a) 30 mph speed limit roads <sup>1</sup>						miles per hour/ per cent/ number of vehicles				
	Motorcycles <sup>3</sup>	Cars	Cars towing	Light goods <sup>4</sup>	Buses/coaches	Heavy goods vehicles <sup>5</sup>				
						Rigid	Articulated	Rigid/articulated		
						2 axle	3 axle	3 axle	4 axles	5+ axles
Under 20 mph	14	5	7	6	9	8	8	12	9	7
20 - 30 mph	23	26	34	27	50	34	38	41	36	46
30 - 35 mph	23	35	38	36	27	36	37	33	37	33
35 - 40 mph	21	24	17	23	11	16	14	13	16	11
40 - 45 mph	10	7	3	7	2	4	2	1	2	1
45 - 50 mph	5	2	1	1	0	1	0	0	0	0
50 mph and over	4	0	0	0	0	1	0	0	0	0
Average speed	32	32	30	32	28	31	30	29	30	29
Percent over 30 mph	63	69	59	67	41	57	54	47	55	46
Percent over 35 mph	40	33	21	31	13	21	17	14	19	13
Number observed (thousands)	8	1,980	7	124	18	59	4	2	9	8

(b) 40 mph speed limit roads <sup>2</sup>						miles per hour/ percent/ number of vehicles				
	Motorcycles <sup>3</sup>	Cars	Cars towing	Light goods <sup>4</sup>	Buses/coaches	Heavy goods vehicles <sup>5</sup>				
						Rigid	Articulated	Rigid/articulated		
						2 axle	3 axle	3 axle	4 axles	5+ axles
Under 20 mph	10	3	4	4	5	4	5	9	7	6
20 - 30 mph	16	11	16	15	35	19	19	24	22	22
30 - 35 mph	16	25	29	27	32	29	30	31	32	32
35 - 40 mph	23	34	34	33	21	31	34	28	30	31
40 - 45 mph	16	18	15	16	6	12	11	6	8	7
45 - 50 mph	9	6	3	5	1	3	2	1	1	1
50 - 60 mph	7	2	0	1	0	1	0	0	0	0
60 mph and over	2	0	0	0	0	1	0	0	0	0
Average speed	36	36	35	35	31	34	34	32	33	33
Percent over 40 mph	35	26	18	22	7	16	13	7	10	9
Percent over 45 mph	19	8	3	6	1	5	2	1	2	1
Number observed (thousands)	5	803	3	61	6	30	3	1	5	5

1 Speed measurements taken from 30 sites.

2 Speed measurements taken from 8 sites.

3 Motorcycles includes mopeds and other types of powered two wheeled vehicles.

4 Goods vehicles up to 3.5 tonnes gross weight.

5 Goods vehicles over 3.5 tonnes gross weight.

**Table 6: Average car speeds by time of day: 1998**

miles per hour/ percent				
Time of day	30 mph limit		40 mph limit	
	Average speed	Percent speeding	Average speed	Percent speeding
0600-0700	36	87	40	47
0700-0800	33	74	38	33
0800-0900	31	60	34	21
0900-1000	32	69	36	23
1000-1100	32	69	36	24
1100-1200	32	68	36	22
1200-1300	32	68	36	24
1300-1400	32	70	36	24
1400-1500	32	69	36	23
1500-1600	32	65	36	23
1600-1700	32	65	35	24
1700-1800	31	62	35	25
1800-1900	33	70	37	29
1900-2000	33	72	37	30
2000-2100	34	75	38	32
2100-2200	34	75	38	33
2200-2300	34	77	38	33
2300-2400	35	79	39	36
0600-2400	33	72	37	28

**Table 7: Weekday and weekend comparisons: 1998**

miles per hour/ percent					
Vehicle type	Speed limit	Weekday		Weekend	
		Average speed	Percent speeding	Average speed	Percent speeding
Cars	30mph	32	67	33	74
	40mph	36	25	37	30
LGVs	30mph	32	66	33	72
	40mph	35	21	37	28
Motorcycle	30mph	32	60	34	70
	40mph	35	32	39	42
Rigid 2 axle	30mph	30	57	32	63
	40mph	34	16	36	23



### **Weekday and weekend comparisons (Table 7)**

1. Average speeds were slightly higher at the weekend and speeding was more commonplace confirming the evidence from non-urban speed data that less dense weekend traffic slightly increases average speed and speeding. However, only motorcycles on 40 mph roads were observed to have an average speed at weekends which was more than 2 mph higher than the average weekday speed .

### **Average speeds on urban roads by time of year (Charts 3 and 4)**

1. Due to the small number of sites surveyed and the small changes seen throughout the year none of the differences in quarterly average speeds observed in 1998 were significant. However, Chart 3 illustrates that motorcycle speeds on 30 mph roads are, generally, higher in the summer and lower in winter, probably because motorcycles are the vehicles most affected by adverse weather conditions and possibly because of seasonal differences in motorcycle usage. There is some evidence, as shown in Chart 4, that this may also occur on 40 mph roads, although the changes are also not statistically significant and the number of sites surveyed is lower.

2. Average speeds for most other vehicle types showed little variation throughout the year. For example, average car speeds remained between 32 and 33 mph on 30 mph roads throughout 1998 and between 35 and 37 mph on 40 mph roads. Charts 3 and 4 show the average quarterly speeds for cars, generally the fastest vehicles on urban roads and for buses and coaches, generally the slowest vehicles on urban roads.

3. None of the quarterly average speeds in 1998 differed significantly from the average speeds in the corresponding quarter of 1997.

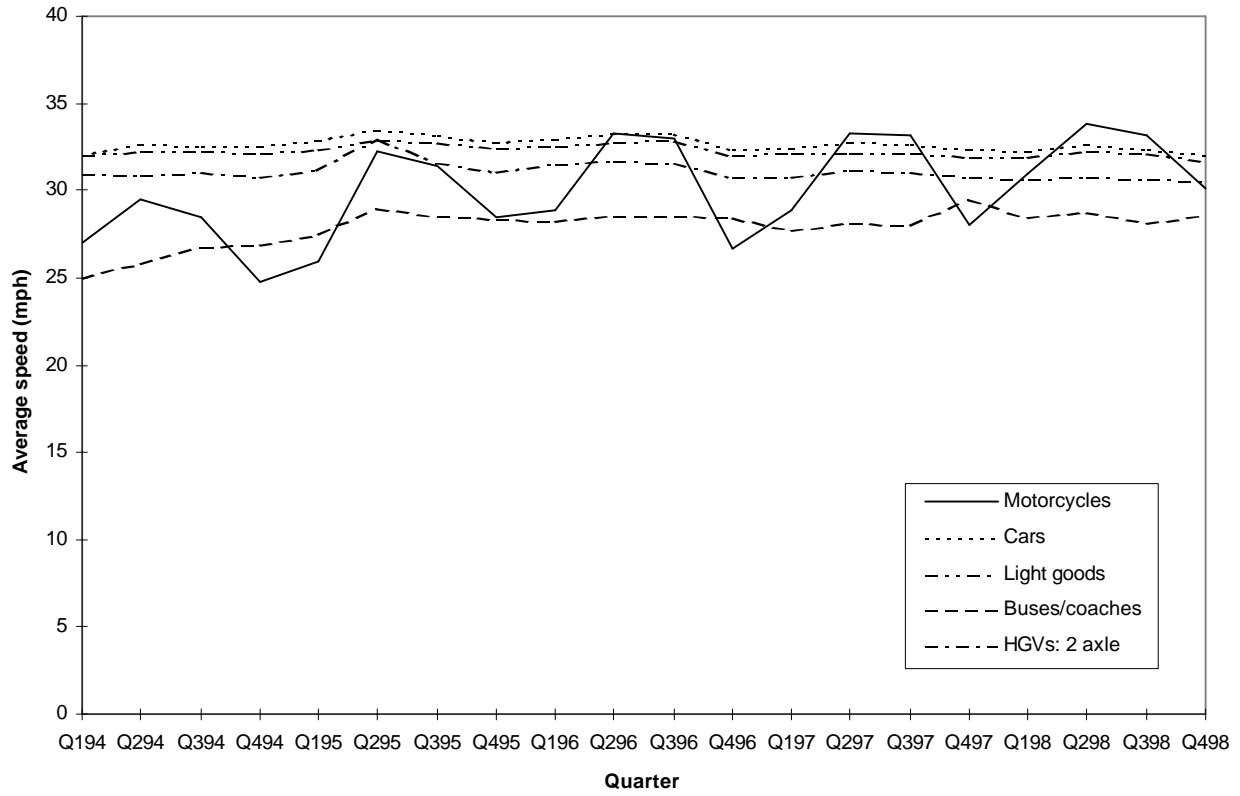
### **Comparisons with earlier speed surveys (Table 8)**

1. The first urban speed survey was carried out in 1994 and has been operating continuously since then. Detailed results are shown in earlier editions of this bulletin. Although the survey method has not changed and the selection of sites has remained fairly constant the comparisons should be treated as indicative only.

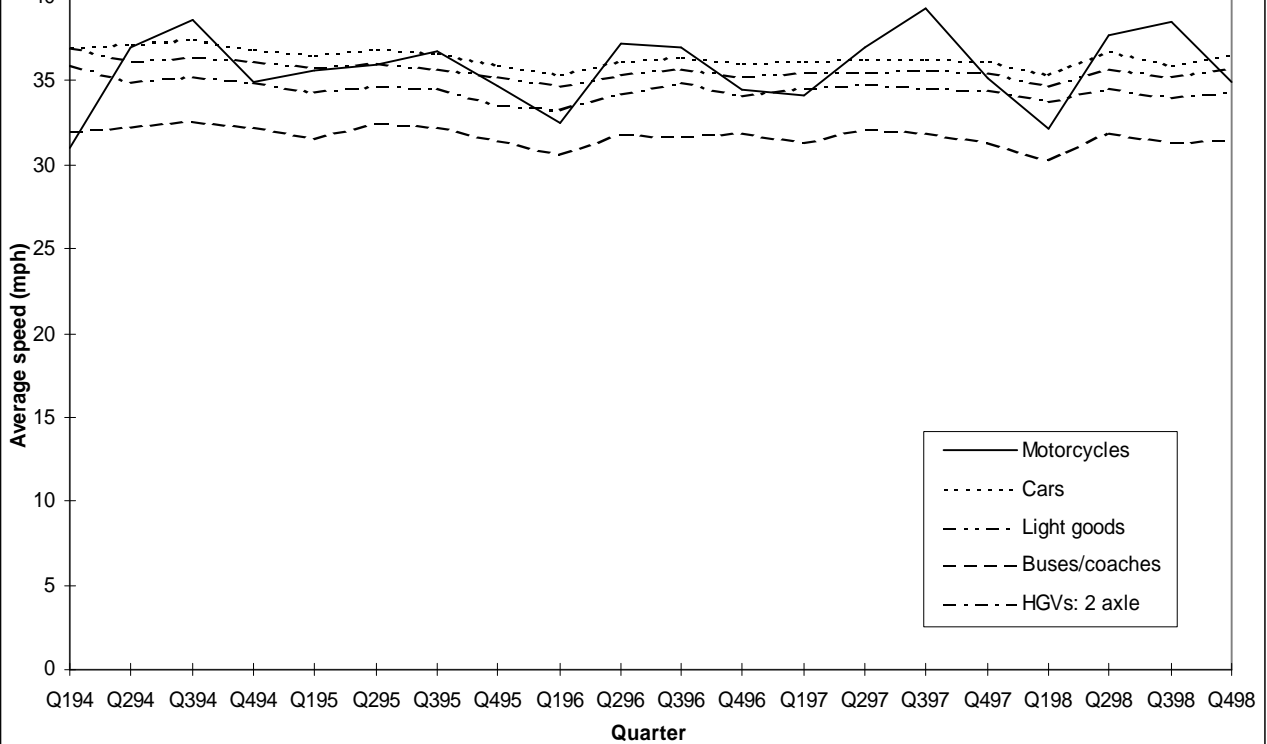
2. The standard errors of the average speeds for each vehicle type and road class in 1998 are shown in Annex C. Using these estimates of standard error together with those from 1997 there was found to be no significant change in average vehicle speeds between the two years for any vehicle type.

3. Table 8 shows that average car speeds on urban roads have remained at similar levels over the past five years. Speeding by motorcycles has increased on 30 mph limit roads has increased during this period although the change in average motorcycle speeds is not statistically significant at the 95% level.

**Chart 3: Average speed trends for selected vehicle types on 30 mph roads**



**Chart 4: Average speed trends for selected vehicle types on 40 mph roads**



**Table 8 Urban speed surveys: 1994 - 1998**

		number/ miles per hour/ per cent				
		1994	1995	1996	1997	1998
30 mph limit	Sites	32	31	30	30	30
	Observations (thousands)	2,745	2,793	2,047	2,109	2,218
	Average motorcycle speed	28	30	31	32	32
	Percent exceeding limit	46	52	56	60	63
	Average car speed	33	33	33	33	32
	Percent exceeding limit	69	72	72	70	69
	Rigid 2-axle HGV speed	31	32	31	31	31
	Percent exceeding limit	56	61	61	58	57
	Average bus/coach speed	26	28	28	28	28
	Percent exceeding limit	25	38	39	39	41
40 mph limit	Sites	8	8	8	8	8
	Observations (thousands)	1,408	1,425	1,068	1,121	921
	Average motorcycle speed	36	36	35	37	36
	Percent exceeding limit	37	36	34	38	35
	Average car speed	37	37	36	36	36
	Percent exceeding limit	31	28	25	27	26
	Rigid 2-axle HGV speed	35	34	34	35	34
	Percent exceeding limit	22	18	16	19	16
	Average bus/coach speed	32	32	31	32	31
	Percent exceeding limit	9	8	6	7	7

1 Comparisons are indicative only, see commentary.

## Annex A: UK Maximum speed limits on non built up roads

		miles per hour		
Vehicle type		Motorway	Dual carriageway	Single carriageway
Cars /motorcycles <sup>1</sup>		70	70	60
Cars towing	1 trailer	60	60	50
	2 or more trailers	40	20	20
Buses /coaches	< 12 metres	70	60	50
	> 12 metres	60	60	50
Goods vehicle	< 7.5 tonnes <sup>2</sup>	70	60	50
	artic < 7.5 tonnes	60	60	50
	> 7.5 tonnes <sup>3</sup>	60	50	40
Goods vehicle towing 2 or more trailers		40	20	20

1 Not more than 3.5 tonnes. Includes car-derived vans.

2 Maximum laden weight. Not an artic, trailer puller or car-derived van.

3 Maximum laden weight of cab and trailer

## Annex B: Non-urban motorcycle speed data: 1998

<u>miles per hour/percent/number of vehicles</u>	
<u>Motorways<sup>1</sup></u>	<u>Motorcycles</u>
Under 50 mph	4
50-60 mph	11
60-65 mph	9
65-70 mph	14
70-75 mph	24
75-80 mph	15
80-90 mph	23
90 mph and over	0
Average speed	71
Speed limit	70
Percent over limit	62
More than 10 mph over limit	23
Number observed (thousands)	18

1. Data was collected for 7 motorway sites in 1998; 3 were surveyed throughout the year and 4 were surveyed for the last 7 or 8 months of the year. The results should be regarded with caution until a more complete survey is available from 1999. Data for one dual-carriageway site and two single-carriageway sites were also collected but are not shown here as they may not be representative of these road classes as a whole.

## Annex C: Average vehicle speeds and their standard errors: 1998

miles per hour											
		Motorcycles <sup>1</sup>	Cars	Cars towing	Light goods <sup>2</sup>	Buses/coaches	Heavy goods vehicles <sup>3</sup>				
							Rigid		Rigid/articulated		
							2 axle	3/4 axle <sup>4</sup>	Articulated <sup>5</sup>	4 axles	5+ axles
Non-urban sites											
Motorways <sup>6</sup>	Average speed		69.4	56.5	66.1	60.1	58.8	54.2	54.6	54.3	54.7
	Standard error		1.0	0.4	0.8	0.6	0.7	0.5	0.4	0.3	0.4
Dual carriageways <sup>7</sup>	Average speed		69.9	57.4	66.1	58.7	57.7	53.2	54.7	54.3	55.1
	Standard error		2.5	2.0	2.7	2.0	1.8	1.5	1.9	1.7	1.8
Single carriageway <sup>8</sup>	Average speed		46.5	43.8	45.8	42.1	44.1	42.0	44.6	42.8	45.6
	Standard error		1.8	1.1	1.7	1.7	1.4	1.3	1.6	1.4	1.7
Urban sites											
30mph <sup>9</sup>	Average speed	32.3	32.3	30.5	32.0	28.5	30.7	29.8	28.6	29.8	29.0
	Standard error	1.6	0.8	1.2	0.8	1.2	1.0	1.1	1.1	1.1	2.3
40mph <sup>10</sup>	Average speed	36.2	36.2	34.6	35.3	31.2	34.2	33.8	31.5	32.6	32.6
	Standard error	2.4	1.4	1.3	1.3	1.2	1.3	1.4	1.6	1.6	1.5

1 Motorcycles includes mopeds and other types of powered two wheeled vehicles

2 Goods vehicles up to 3.5 tonnes gross weight

3 Goods vehicles over 3.5 tonnes gross weight

4 Does not include 4 axle types on urban roads

5 Includes 4 and 5+ axle types

6 Average traffic speeds from 26 motorway sites

7 Average traffic speeds from 4 dual carriageway sites

8 Average traffic speeds from 24 single carriageway sites

9 Average traffic speeds from 30 30mph sites

10 Average traffic speeds from 8 40mph sites