TRANSPORT RESEARCH LABORATORY

Cycle helmet wearing in 1996

Prepared for Road Safety Division, Department of the Environment, Transport and the Regions*

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Executive Summary

A cycle helmet wearing rate study was undertaken by TRL in the autumn of 1994. Twenty-seven thousand cyclists were observed at 79 sites all over Great Britain. Sixteen per cent of these cyclists were wearing a helmet.

The 1994 study was not intended to produce a nationally representative wearing rate, but was meant to be a baseline study so that the trends in helmet wearing could be monitored. This report describes a repeat survey conducted in the autumn of 1996.

The survey was kept as close as possible to the 1994 survey. The Local Authorities conducted the surveys on TRL's behalf. They were asked to survey at the same time and on the same day of the same week of the year as they had done in 1994. The survey teams were asked to collect the following information on each passing cyclist:

- sex
- whether wearing a helmet
- type of bicycle ridden (racing/touring, mountain/BMX, traditional town or 'other')
- age (child, under 16 or adult, 16 or over)
- if more than one cyclist riding together, number in the group.

Cycle helmet wearing increased significantly from 16.0% in 1994 to 17.6% in the 1996 survey. Excluding the London data (because cyclist age was not reliably recorded there), the survey observed more adults wearing helmets (17.0%) than children (14.4%).

Helmet wearing levels varied according to the type of bicycle ridden: those on racing bikes were the most likely to wear one, and those on traditional town bikes, the least.

To examine cyclists' helmet wearing patterns more fully, the interaction between helmet wearing and age and sex of the cyclist, type of bike, time of day and the weather was analysed. The age of cyclist did not appear by itself as a significant factor in this analysis. The indicated reason for the children's lower wearing rate is that they have a different distribution of types of bicycles and riding patterns. This implies that if children rode in the same conditions as adults (ie. at the same times of the day, in the same weather conditions and on the same types of bicycles), they would not be statistically any less likely to wear a helmet than adults.

Cycling patterns and helmet wearing were different at the London sites than at other sites. There were proportionately far fewer female cyclists and nearly all the cyclists were adults. Fewer cyclists were observed travelling in groups. The helmet wearing rate at the three London sites was almost 2 in every 5 cyclists.

Recreational cycle routes had different patterns from the other sites. Three quarters of cyclists were riding in a group and there was a greater proportion of child riders. The helmet wearing rate was higher than the average observed at other sites: one in four cyclists wore one.

When the wearing rate data were compared with journey to work data from the 1991 Census, it became apparent that in places (typically large cities) where cycling accounted for a small proportion of the journeys to work, helmet wearing was generally high. Conversely, in places where cycling to work was more commonplace, helmet wearing rates were lower. Furthermore, at sites where the number of cyclists observed had increased since the 1994 survey, the helmet wearing rate had typically decreased, and vice versa.

To assess the effects of Local Authority campaigns and initiatives held since September 1994 to promote helmet wearing, a survey of Local Authorities gathered information on:

- staff and budget dedicated to the campaign
- groups of people targeted
- types of media used
- special promotional events organised
- press coverage of events and/or campaign in general.

Thirty-two of the 40 participating Local Authorities provided information on initiatives since 1994 to promote cycle helmets. Helmet promotion in many of the Local Authorities took the form of information given to children either during visits to schools by Road Safety Officers or during child cyclist training courses. Eleven Local Authorities had however held a helmet campaign when their activities were focused solely on the promotion of helmets. In these authorities the increase in helmet wearing between 1994 and 1996 was 4%, compared with an increase of less than 1% in the other areas. However, this difference could also be linked to a change in the numbers of cyclists observed: in those areas where a campaign had been held and the numbers of cyclists had increased, a fall of 5% in helmet wearing was observed between 1994 and 1996.

The National Cycling Strategy, launched in July 1996, aims to double the number of trips by bicycle by the end of the year 2002 and quadruple them by the end of 2012 (Department of Transport, 1996a). Local Authorities have a key role to play in achieving these targets, by providing local schemes such as cycle routes and secure parking, as well as raising public awareness of the benefits of cycling. It would appear from the survey figures that those Local Authorities which successfully promote the use of bicycles also need to convince these "new cyclists" of the benefits of cycle helmets.

1 Introduction and background

A cycle helmet wearing rate study was undertaken by TRL in the autumn of 1994 (Taylor and Halliday, 1996). Twenty-seven thousand cyclists were observed at 79 sites all over Great Britain. Sixteen per cent of these cyclists were wearing a helmet.

The 1994 study was intended to be a baseline study so that wearing rates over time could be monitored. It was not meant to produce a nationally representative wearing rate, as the survey sites focus on busy, non-residential sites in urban areas. This could imply that certain groups of cyclists, such as children, are under-represented in the survey. However, it is valid to make comparisons with the 1994 survey in order to measure the change with time.

This report describes a repeat survey conducted in the autumn of 1996. It is divided into the following main sections:

- *Section 2* Methodology
- *Section 3* Results
- *Section 4* Discussion and summary of findings.

2 Methodology

2.1 Observational surveys

The survey design was kept as close to the 1994 survey as possible, using the sites shown in Figure 1. The relevant Local Authorities (listed in Appendix A) were asked to conduct the surveys on TRL's behalf. They were also asked if any of the sites in their area had changed since 1994 in a way that could affect cyclists (eg. construction of a new cycle lane) and whether the changes were likely to effect the number of cyclists and, if so, how. If necessary, the changes were discussed with the relevant Local Authority and the choice of survey site reviewed.

A new cycle route had been installed near to site 52 in Warwick (see Figure 1) since the 1994 survey, which meant that most cyclists would bypass the original survey site. The site was therefore moved along the road slightly, so that cyclists using the new cycle route would be included (see section 3.2.4). All other sites were kept in the same positions as in the 1994 survey.

The Local Authorities were asked to conduct the surveys at the same time and on the same day of the same week of the year as they had in 1994. However, it was decided to complete all the surveys before the end of British Summer Time (Sunday 27 October 1996) and so any surveys which had been conducted during November 1994 were brought forward into October.

The Local Authorities were sent a supply of data collection forms (see Appendix B) and instructions for completing them (see Appendix C).

The survey teams were asked to collect the following information on each passing cyclist:

- sex
- whether wearing a helmet
- type of bicycle ridden (racing/touring, mountain/BMX, traditional town or 'other')
- age (child, under 16 or adult, 16 or over)
- if more than one cyclist riding together, number in the group.

The type of bicycle ridden was not previously noted for the 1994 survey and so changes of bicycle type cannot be determined.

2.2 Survey of local authorities

To assess the effects of Local Authority campaigns and initiatives held since September 1994 to promote helmet wearing, a questionnaire (shown in Appendix D) was designed in consultation with the Department of the Environment, Transport and the Regions (DETR) Customer. The aim of the survey was to gather information on topics such as:

- staff and budget dedicated to any campaigns
- groups of people targeted
- types of media used
- special promotional events organised
- press coverage of events and/or campaign in general.

It was intended that these data would then be compared with any observed changes in wearing rates and used to identify any methods of promotion and publicity that seemed to cause statistically significant increases in helmet wearing.

The questionnaire was piloted in three Local Authorities which were not otherwise involved in this experiment and revised into its final form. A questionnaire was mailed to each participating Local Authority in October 1996, after the observational surveys had been completed. Reminders were sent in December to those who had not responded.

3 Results of the observational surveys

During the 1996 survey, 27,783 cyclists were surveyed, 17.6% of whom were wearing cycle helmets. The large sample size means that one can be 99% certain that this figure is correct to the nearest half percent.

The sample from the 1996 survey comprised 89.6% adults and 6.3% children; 71.3% were males and 28.7% females. Almost two thirds of the total were adult males.

In order to test how representative the sample was of the cycling population as a whole, cycling statistics from the National Travel Survey and population statistics were analysed (see Table 1). From this it is found that on average, children make more journeys (or part journeys) per year by bike than adults but cycle fewer miles. It should be remembered that children playing on bikes or "riding around" are not included in the Department of Transport figures, and so number of trips and mileage estimates for children are likely to be low.

The TRL survey recorded the age and sex of 26,662 cyclists. Using annual cycle mileage and population proportions (see Table 1) as indicators of expected frequencies, the expected number of child cyclists in the sample would be 4,576. Similarly 17,530 adult males and 4,516 adult females would be expected. This shows that

KEY

1	Derby
2	Colchester
3	Chelmsford
4-7	Bedford
8	Newark
9-10	Nottingham
11-12	Stockport
13-14	Trafford, Manchester
15	Bournemouth
16-17	Boston
18	Beverley
19	Hull
20	Scunthorpe
21	Grimsby
22	Leicester
23	Loughborough
24-31	Glasgow
32	Cardiff
33	Coventry
34-36	London
37	Norwich
38.1	Crewe
38.2-38.3	Warrington
39	Swindon
40	Barrow-in-Furness
41-42	Bristol/Bath Cycle Track
43	Bristol
44	Stafford
45	Wolverhampton
46	Newcastle
47-48	Doncaster
49	Aberdeen
50	Northampton
51	Edinburgh
52	Warwick
53	Rugby
54	Darlington
55-56	Liverpool
57, 59-60	Oxford
58	Ridgeway, Oxford
61	Lowestoft
62	Ipswich
63	Portsmouth
64	Reading
65-66	York
67-69	Cambridge
70-71	Peterborough
72	Gloucester
73	Cheltenham
74-75	Stockton

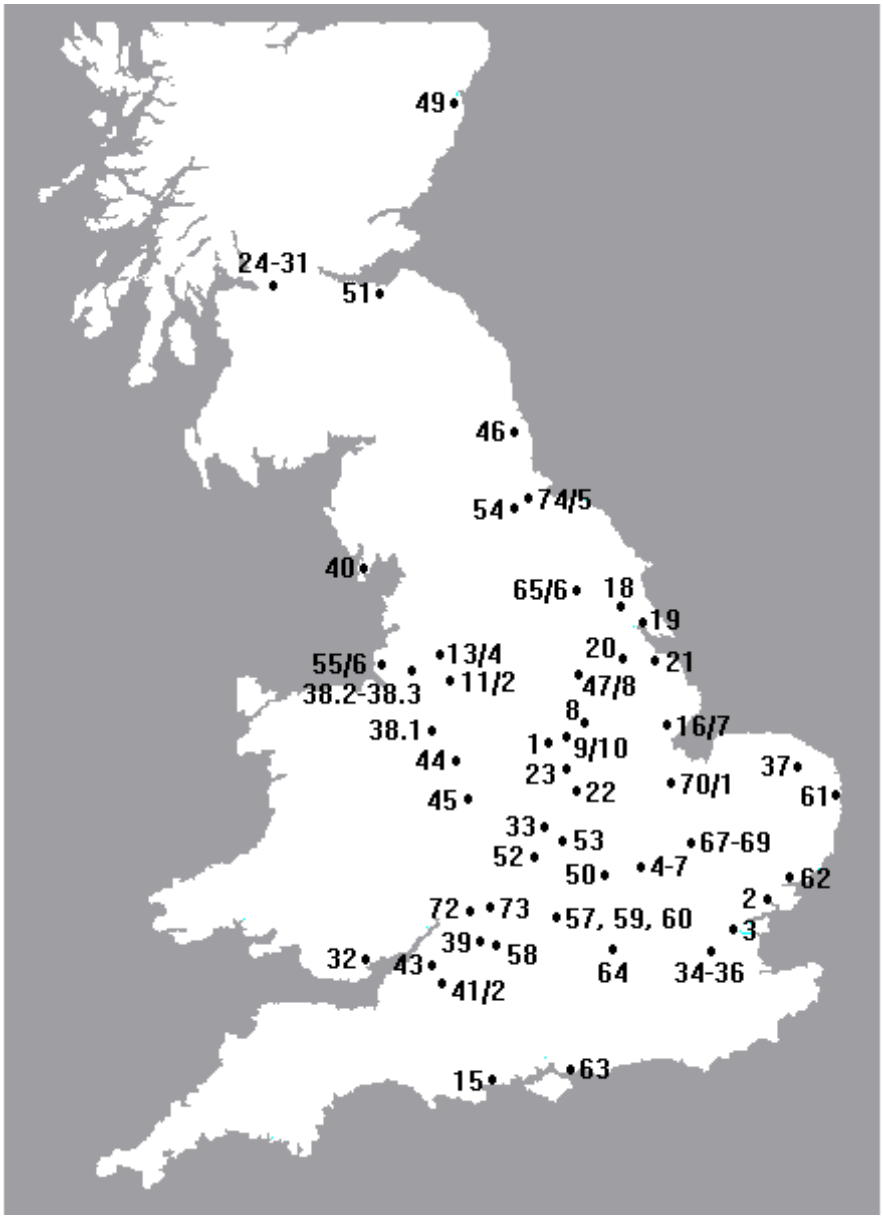

Figure 1 Cycle helmet survey sites

Table 1 Cycling and population levels by age/sex

	mean cycle mileage per year[1]	*mean number of cycle journey stages*[1]	*% population in age/sex group*[2]
All adults	39	18	79.92%
Adult males	65	25	39.05%
Adult females	16	11	40.87%
Children (under 16)	33	23	20.08%

children are under-represented in the observed sample (1,741), adult females are over-represented (7,331) and adult males are almost exactly as would be expected (17,550).

As explained in section 1, in order to maximise the sample size obtained for this study, sites with high bicycle flows were selected (usually major, built-up roads). However, further published figures (Department of Transport, 1996b) record that 81% of pedal cycle traffic is found on minor roads, 14% on major built-up roads and 5% on major non built-up roads. As anticipated at the outset (and confirmed by these figures), the sample of cyclists is not representative of the cyclist population as a whole. The difference between the sample and the national population should be borne in mind when considering the results of this survey. However, the validity of the measured trends (ie. comparisons between the 1994 and 1996 surveys) is not affected by these differences.

Throughout this section there are tables showing differences between the 1994 and 1996 surveys. Significant differences between the two surveys are indicated by asterisks, as follows:

NS	not significant at the 5% level
*	significance of at least 5%
**	significance of at least 1%
***	significance of at least 0.1%.

In the main body of text, significance levels are quoted as a *p* value. ie. a *p* value of 0.05 or less means that the result is significant at at least the 5% level. Some data were left missing by the survey teams and so the sample sizes vary slightly in the analysis which follows. Where appropriate, the valid sample sizes are given.

3.1 Simple effects

Table 2 shows how helmet wearing rates varied with sex and age group in 1994 and 1996. The 1994 helmet wearing rate survey found that 16%, or about 1 in 6, cyclists wore cycle helmets. The increase to 17.6% in 1996 was found to be highly significant *($p < 0.001$)*.

3.1.1 Age of cyclist

When the proportions of children and adults wearing helmets were compared, it was found that significantly more adults (17.0%) than children (14.4%) wore helmets *($p=0.005$)*. The proportion of adults wearing helmets increased from 15.9% in 1994 to 17.0% in 1996. Helmet wearing rates amongst children fell from 17.6% to 14.4%.

3.1.2 Sex of cyclist

There was apparently no significant difference between the male and female wearing rates in 1996 *($p=0.062$)* (The analysis in section 3.2 suggests that there *are* significant differences between the sexes, but that in the simple comparison the differences are masked by changes in other variables.) The percentage of males who wore helmets increased markedly from 1994 to 1996 (see Table 2). The proportion of females wearing helmets did not change significantly.

3.1.3 Type of bicycle

For the 1996 survey the bicycles observed were classified as mountain bike, traditional town bike, racing/touring bike and 'others'. Table 3 shows that mountain bikes and traditional town bikes were the most common types, amounting together to 3 out of every 4 bicycles observed.

Helmet wearing varied according to the type of bike ridden *($p<0.01$)*: just under one quarter of racing bike riders wore one, compared with 18% of Mountain bikers and 14% of Traditional town bikers.

3.1.4 Time of day

The survey teams monitored cyclists continuously, marking quarter hour periods. Morning surveys began at 0700 hours and continued until 1259 hours. Afternoon surveys commenced at 1300 hours and finished at 1859 hours. Figure 2 shows mean flows throughout the day for

Table 2 Changes in wearing rates from 1994 to 1996

	Wearing rates (sample sizes in brackets) *1994*	*1996*	*Difference*	*Significance of difference*
All cyclists	16.0% (27,417)	17.6% (27,783)	+1.6%	***
Males	15.5% (19,660)	17.4% (19,793)	+1.9%	***
Females	17.2% (7,757)	18.3% (7,973)	+1.1%	NS
Missing	n/a	16.7% (6)	n/a	n/a
Children	17.6% (1,425)	14.4% (1,741)	-3.2%	*
Adults	15.9% (25,992)	17.0% (24,879)	+1.1%	**
Missing	n/a	37.2% (1,152)†	n/a	n/a

† 1,138 of these cyclists, for whom age was not recorded, were at London sites (see section 3.2.2)

Table 3 Helmet wearing by bike type (1996) **

Bike type *n*	*% riding bike* *(27,772)*	*Wearing rate*
Mountain	38.9%	18.0%
Traditional	37.0%	13.6%
Racing	18.2%	23.3%
Other	4.3%	16.4%
Missing†	1.6%	38.7%
Total	100.0%	17.6%

† 366 of these 444 cases were from Hyde Park, London (see section 3.2.2)

the 1994 and 1996 surveys and indicates that cycle flows in both years were greatest during the morning peak. Minor peaks were present at lunchtime and late afternoon.

To some extent, the envelope of the helmet wearing by time graph (Figure 3) matches that of the mean cyclist flow per site by time graph (Figure 2), implying that helmet wearing is greatest when cyclist flows are high. During the 1996 survey, helmet wearing peaked at 28% between 0815 and 0829 hours. In the evening, between 1745 and 1844 hours, the wearing rate again rose to over 20%.

When the day was divided into 'peak' and 'off-peak'

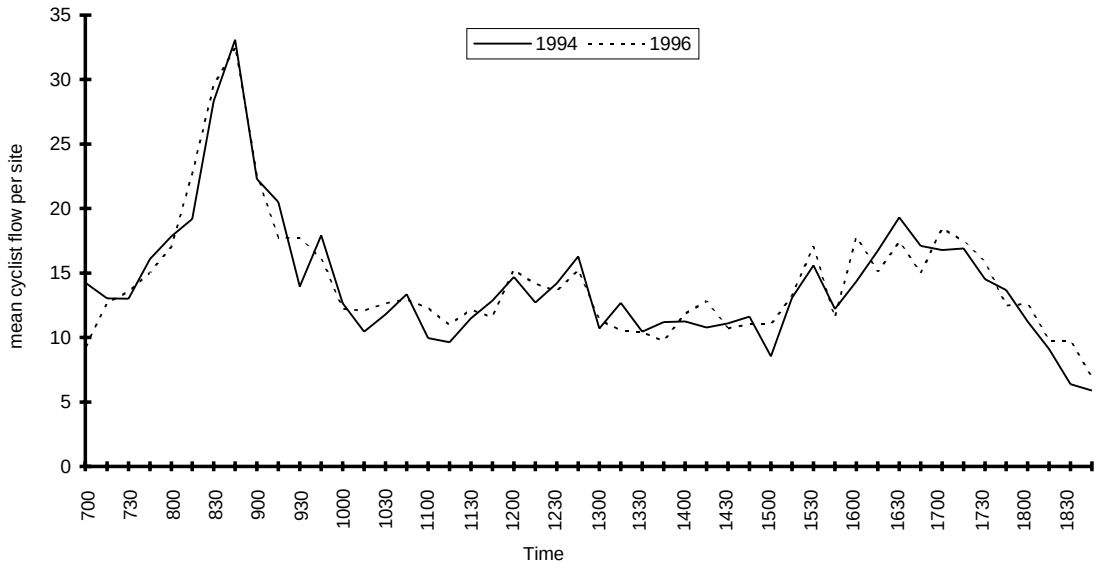

Figure 2 Mean cyclist flows per site by time of day

Figure 3 Helmet wearing throughout the day

Table 4 Helmet wearing during peak and off-peak times ***

Period	*Helmet wearing rates (sample sizes in brackets)* *1994*	*1996*	*Difference*	*Significance of the difference between 1994 and 1996*
Peak	19.4% (15,902)	20.9% (15,974)	+1.5%	***
Off-peak	11.3% (11,497)	13.2% (11,798)	+1.9%	***

periods, the difference in helmet wearing rates was quite marked. ('Peak' times were defined as 0700 to 0959 hours and 1600 to 1859 hours.) In the 1996 survey, the proportion of cyclists wearing helmets during peak hours was 20.9%, or about one in five (see Table 4). During off-peak hours, helmet wearing rates were found to be 13.2%, or about one in eight cyclists *(p < 0.001)*.

The increases in helmet wearing between 1994 and 1996 were significant during peak and off-peak periods, as shown in Table 4.

3.1.5 Weather

Of the 474 hours of surveys carried out in 1996, 43 hours at 15 sites were affected by rain. At these sites, 29.2% of cyclists were observed wearing a cycle helmet when it was raining, compared with 14.8% when it was dry *(p<0.0001)*. No such 'weather' effect was found during the 1994 survey *(p=0.540)*: a wearing rate of 12.5% was found when it was raining, compared with 13.1% at the same sites during dry hours (see Table 5).

As shown in Table 5, helmet wearing in the rain more than doubled between the 1994 and 1996 surveys.

At the sites where no rain fell, helmet wearing increased slightly, although statistically significantly, from 16.6% in 1994 to 17.3% in 1996.

3.1.6 London

It was found in the 1994 survey that significantly more cyclists at the sites in Central London wore helmets than at the sites outside London. This finding was echoed in the 1996 survey: almost 2 in 5 London cyclists wore a helmet, compared with 1 in 6 outside London (see Table 6). Furthermore, significantly greater proportions of cyclists observed in London were adults and males. Significantly fewer cyclists in London were in groups than elsewhere, which may indicate a lower level of leisure cycling.

Overall, the wearing rates in London were not found to have changed significantly between 1994 and 1996 (see Table 7). However, when the three sites were analysed individually, helmet wearing had *increased* at Waterloo Bridge and at Hyde Park and *decreased* on Westminster Bridge. The 1996 sample also comprised of significantly more adults and males than in 1994. The proportion cycling in groups fell over the period.

3.1.7 Recreational routes

Cyclists were surveyed on a Sunday afternoon on the Ridgeway cycle track in Oxfordshire and the Bath to Bristol cycle route. In the 1996 survey about one quarter of those cycling on these routes wore cycle helmets, compared to 17.5% of cyclists at non-recreational sites *(p<0.001)*.

Compared to non-recreational sites, where 6% of cyclists were recorded in groups, over three quarters of those cycling on recreational routes were in groups. A significantly greater proportion of cyclists on these routes were children (23%) than on the other routes (6%).

The helmet wearing rates of the cyclists observed on recreational routes did not change significantly between 1994 and 1996 (see Table 8). The proportion of cyclists using the routes who were adults and males did not change significantly either. However, the proportion who were cycling in a group increased significantly by 31.5% to 75.8% in 1996.

3.1.8 Types of road and cyclist provision

Helmet wearing was found to be associated with road type, as shown in Table 9.

When the data were simplified into 'sites with cyclist provision' and 'sites without cyclist provision', helmet wearing was found to be more prevalent where no

Table 6 Comparison of London sites with all other sites (1996)

n	*London (1,978)*	*Outside London (25,805)*	*Significance of difference between London and other sites*
% wearing helmets	39.2%	16.0%	***
% of cyclists who were			
adults	99.8%	93.3%	***
males	80.2%	70.6%	***
in groups	3.4%	7.7%	***

Table 7 Comparison of 1994 and 1996 London data

(Sample size)	*London 1994 (1,986)*	*London 1996 (1,978)*	*Difference*	*Significance of the difference*
% wearing helmets	38.1%	39.2%	+1.1%	NS
Waterloo Bridge	38.1%	41.3%	+2.5%	**
Hyde Park	37.4%	41.3%	+3.9%	**
Westminster Bridge	38.6%	33.8%	-4.8%	**
% of cyclists who were				
adults	99.2%	99.8%	+0.6%	**
males	77.2%	80.2%	+3.0%	**
in groups	6.7%	3.4%	-3.3%	**

Table 5 Helmet wearing in dry and wet weather

	Helmet wearing rates (sample sizes in brackets) *1994*	*1996*	*Difference*	*Significance of the difference between 1994 and 1996*
Sites where rain fell:				
during rainy hours	12.5% (2,133)	29.2% (1,118)	+16.7%	***
during dry hours	13.1% (2,246)	14.8% (1,563)	+1.7%	NS
Sites with no rain	16.6% (23,038)	17.3% (25,004)	+0.7%	*

Table 8 Comparison of Recreational Route data from 1994 and 1996

n	*Recreational route 1994 (618)*	*Recreational route 1996 (550)*	*Difference between 1994 and 1996*	*Significance of the difference*
% wearing helmets	28.0%	24.9%	-3.1%	NS
% of cyclists who were				
adults	77.8%	77.3%	-0.5%	NS
males	68.2%	67.3%	-0.9%	NS
in groups	44.3%	75.8%	+31.5%	**

Table 9 Helmet wearing by route type *

Type of road	*Wearing rate*	*(Sample size)*
A road	18.6%	(8,126)
B road	11.3%	(213)
Minor	19.6%	(7,145)
Cycle track next to A road	16.8%	(2,004)
Cycle lane on an A road	12.5%	(2,224)
Cycle track next to B road	0.6%	(650)
Cycle lane on a minor road	10.7%	(1,084)
Cycle track off road	18.8%	(5,776)
Recreational	24.9%	(550)

provision has been made for cyclists: 19.0% versus 15.9% *(p<0.001)*.

This analysis should however be taken with caution, as it ignores the fact that cyclists' journeys are likely to include many different road types, in addition to the one on which they were surveyed. Helmet wearing behaviour, if it is in fact dependent upon the type of road, may be determined by factors specific to other parts of the route.

3.2 Interactive effects

The simple analysis in the previous section indicates statistically significant effects of age, type of bike, time of day, weather and location (ie. London, non-London or recreational route) on cycle helmet wearing, but the analysis has not explored whether these effects are the consequence of the explanatory variable acting on its own, or whether the effects actually arise as a result of interaction between variables. For example, is helmet wearing a function of time of day or does the variation arise because the proportion of adult male cyclists varies with the time of day?

In order to examine this, a statistical technique called *logistic regression* was used. This method estimates the parameters of an equation to predict the level of a bivariate variable (eg. wearing or not wearing a helmet) from the values of a set of independent variables (eg. age, sex, type of bicycle).

The significant *interaction* terms revealed by this analysis represent the inter-relationships between the independent variables.

Three models were constructed:

1 Outside London

2 London

3 Recreational routes.

3.2.1 Outside London

Logistic regression was used to examine the relationship between helmet wearing and AGE, type of BIKE, SEX, TIME of day (peak periods versus off-peak periods) and WEATHER (dry versus raining). Table 10 shows the significant terms in the model.

Table 10 Significant terms in the non-London model

Interaction	*Significance*
Bike by sex	***
Bike by time	*
Age by bike	**
Sex by weather	**
Time by weather	***
Bike by weather	**
Age by weather	*
Bike	***
Sex	***
Weatther	***

The simple comparison of helmet wearing by sex, reported in section 3.1.2, showed no statistically significant difference in helmet wearing between the sexes. However, when the other factors - age of cyclist, type of bike, weather, time of day - are taken into account, sex has a significant effect *(p<0.001)*. For the same bike type and weather conditions females are 1.6 times more likely to wear a helmet than males.

Conversely, the simple comparison pointed to age as a significant variable (see section 3.1.1), but it does not appear in the model as a first order term. The observed variation in children's and adult's helmet wearing habits is explained by the two second order interactions, AGE by BIKE and AGE by WEATHER. These interactions show that children on mountain bikes, racing bikes or traditional town bikes, and also children in dry weather, are less likely to wear a helmet than adults. Children riding bikes of type 'other' and children riding in the rain are more likely than adults to wear a helmet.

Table 11 shows how helmet wearing deviates from the expected value for all the explanatory variables and their significant interactions. Helmet wearing is *most* likely for female children riding a bike of type 'other' in the rain during off-peak hours, and for females (children and adults) riding a racer or mountain bike, travelling off-peak in the rain (see bold text in Table 11). Those *least* likely to be wearing a helmet are children (male and female) riding a mountain bike or traditional town bike during off-peak hours when the weather is dry, and adult males, riding a bike of type 'other' in dry weather, during either peak or off-peak times (see shaded cells in Table 11).

Table 11 Results of non-London analysis (deviation from the expected wearing rates)

				Bike			
Age	*Weather*	*Time*	*Sex*	*racer*	*moun-tain*	*trad town*	*other*
Children	dry	peak	male	0.74	0.57	0.46	0.62
			female	0.75	0.67	0.31	1.31
		off-peak	male	0.49	0.30	0.30	0.41
			female	0.50	0.35	0.21	0.87
	rainy	peak	male	1.74	1.57	0.47	1.08
			female	3.31	3.48	0.60	4.31
		off-peak	male	2.94	2.09	0.78	1.83
			female	**5.60**	**4.64**	1.00	**7.30**
Adult	dry	peak	male	1.16	0.91	0.85	0.34
			female	1.18	1.07	0.57	0.72
		off-peak	male	0.78	0.48	0.56	0.23
			female	0.79	0.57	0.38	0.48
	rainy	peak	male	1.72	1.57	0.54	0.37
			female	3.27	3.48	0.69	1.48
		off-peak	male	2.91	2.09	0.90	0.63
			female	**5.55**	**4.64**	1.16	2.51

3.2.2 In London

The analysis for London cyclists only included SEX, TIME of day and type of BIKE, as AGE was not consistently recorded and rain did not fall during any of the London surveys.

The London helmet wearing data were explained by the three first order terms BIKE, SEX and TIME (see Table 12), with no contribution from higher order terms. This shows that those riding racing bikes or bikes of type 'other', females and those cycling in peak hours were the most likely to wear a helmet in London. The results of this analysis are reasonably consistent with the results of the analysis of data outside London, given the absence of the London age and weather data.

Table 12 Results of the London analysis

Variable	*Deviation from Value*	*the expected wearing rate*	*Significance of the term*
Bike	racer	1.09	
	mountain bike	0.98	
	traditional town	0.64	
	other	1.46	**
Sex	male	0.76	
	female	1.31	***
Time	peak	1.49	
	off-peak	0.67	***

3.2.3 Recreational routes

The significant interactions of this model are shown in Table 13. In this model, sex did not have a significant effect on helmet wearing rates.

Table 14 shows that those cyclists *most* likely to wear a helmet on recreational routes are children, riding in the rain during peak hours, on a racing, mountain or traditional town bike (indicated by the bold text in Table 14). The *least* likely to wear a helmet are adults riding a traditional town bike in dry weather during peak hours, and adults riding a racing, mountain or traditional town bike in dry weather during off-peak hours (see shaded cells in Table 14). The pattern of helmet wearing on these routes is quite different from the pattern at the non-recreational sites.

Table 13 Significant terms in the recreational route model

Interaction	*Significance*
Bike by time	*
Age by time	*
Age by bike	**
Time	*
Age	*
Weather	*

Table 14 Results of the recreational route analysis (deviations from the expected wearing rates)

			Bike			
Age	*Weather*	*Time*	*racer*	*mountain*	*trad town*	*other*
Children	dry	peak	5.86	5.82	6.53	0.46
		off-peak	0.23	0.51	1.81	0.47
	rainy	peak	**9.56**	**9.50**	**10.66**	0.75
		off-peak	0.38	0.83	2.95	0.77
Adult	dry	peak	1.22	0.57	0.16	0.61
		off-peak	0.22	0.23	0.20	2.85
	rainy	peak	1.99	0.92	0.26	0.99
		off-peak	0.37	0.37	0.33	4.65

3.2.4 Helmet wearing in relation to levels of cycling

The analysis of the London data (section 3.1.6) revealed high levels of helmet wearing compared to other areas. The 1991 Census (Office of Population Censuses and Surveys, 1993) recorded that the level of cycling to work in London was low in comparison with the rest of Great Britain.

In order to investigate whether there was any connection between helmet wearing and local levels of cycling, the 1996 helmet wearing data for each place surveyed were compared with the proportions cycling to work, recorded by the 1991 Census. The comparison is shown in Figure 4 and shows a negative regression *($p<0.01$)*. This means that in those areas where cycling to work accounts for a high proportion of all journeys to work, helmet wearing levels tend to be low, and are high in areas where the proportions cycling to work are low.

This suggests that, if in the future cycling levels increase the helmet wearing levels may decrease. In order to test this, the changes in helmet wearing rates between 1994 and 1996 were compared with the changes in the number of cyclists observed (Figure 5).

The regression line *($p=0.049$)* on Figure 5 shows that, as expected, where cyclist counts dropped, wearing rates increased and where the number of cyclists increased, helmet wearing rates fell. The 'outlying' points are marked

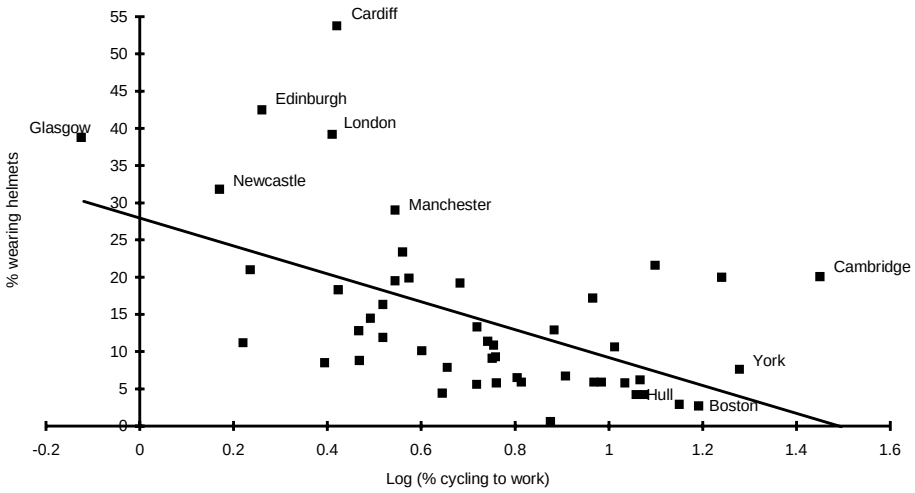

Figure 4 The relationship between helmet wearing and levels of cycling (1996 data)

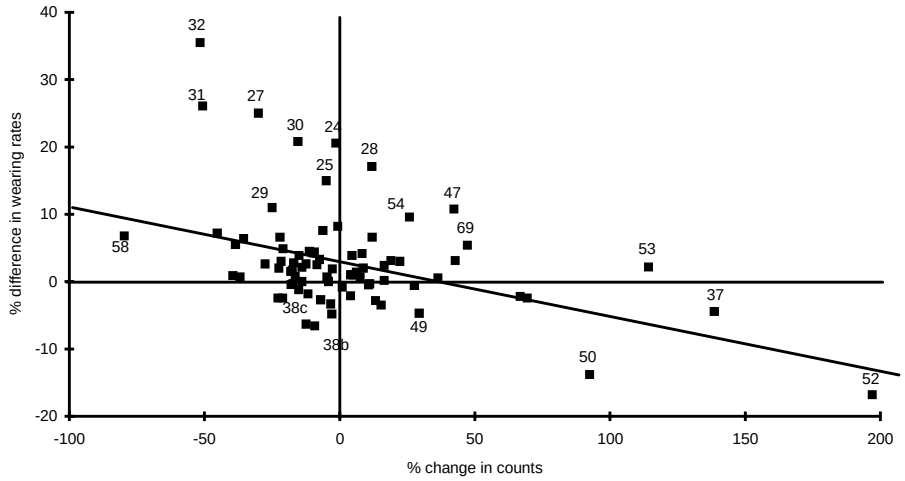

Figure 5 Difference in helmet wearing rates against change in cyclist count at each site

on Figure 5 with the site number (refer to Figure 1). The position of site 52, as described in section 2.1, was altered slightly from its 1994 position, as the result of a new cycle route in the vicinity. The cyclist count increased by 197% at this site and helmet wearing decreased from 28% in 1994 to 11% in 1996. Conversely, at site 32 in Cardiff the number of cyclists dropped by 52% and helmet wearing rose from 18% to 54%.

4 Results of the Local Authority survey

All the participating authorities were asked for information about helmet wearing campaigns in their area. Completed questionnaires were received from 32 of the 40 Local Authorities. This section of the report will discuss only those sites and areas for which a completed questionnaire was returned. Hence, the helmet wearing rates and cycle counts may differ slightly from those discussed in section 3.

In the following tables, the sample sizes *(n values)* shown are the number of Local Authorities in each category. The number of Local Authorities and cycle counts may vary throughout the analyses, due to missing questionnaire data. (Eleven of the Local Authorities had recently undergone major changes as a result of becoming unitary authorities, as shown in Appendix A, and were therefore unable to complete the questionnaire fully.) A summary of counts and wearing rates at the survey sites in all 40 Local Authorities for the 1994 and 1996 surveys is given in Appendix E. (Because of the small number of sites in each authority, these data are only an indication of wearing rates within each Local Authority area.)

4.1 Helmet wearing rates

Of the 32 Local Authorities which completed the questionnaire, 29 had attempted to promote the use of cycle helmets since September 1994. The changes in wearing rates between 1994 and 1996 were examined by whether such attempts had been made, as shown in Table 15.

Table 15 Helmet wearing and cycle counts by whether helmets have been promoted

Have made attempts to promote since 1994?		*helmet wearing rate*			*total cycle counts*		
		1994	*1996*	*difference*	*1994*	*1996*	*change*
yes	*(n = 29)*	14.7 %	16.9 %	+2.2 %	20,946	20,943	-0.01 %
no	*(n = 3)*	28.8 %	30.1 %	+1.3 %	3,302	3,254	-1.5%

There was no significant difference in either the helmet wearing rates *(p=0.061)* or the number of cyclists observed *(p=0.5852)* between the two groups. Clearly, the three authorities which did not try to promote helmets have far higher overall wearing rates *(p<<0.001)*. In these three authorities, all of which covered large cities, fewer child cyclists (2.1%) were observed than in the other authority areas (4.7%) *(p<0.001)*.

Eleven Local Authorities reported that they had held short cycle helmet campaigns, when activities were focused solely on the promotion of helmets. The changes in wearing rates between 1994 and 1996 in these regions were compared with those who had not held such a campaign (Table 16). A significantly greater increase in helmet wearing was found among those who had held a short, focused campaign than those who had not *(p<0.001)*. However, the overall *numbers* of cyclists observed in areas which had held such a campaign fell significantly by 2.8%, versus a 4.9% increase in the other areas *(p<0.001)*.

In order to analyse further the interaction between changes in helmet wearing rates and changes in the numbers of cyclists, each Local Authority was ranked according to the change in the number of cyclists (1996 count minus 1994 count). The Local Authorities were then grouped according to the value of this change. This variable was called COUNTCHG and had three values, as shown. The number of Local Authorities *(n)* in each category is shown in brackets:

1 “Decrease” a *decrease* of between 36 and 350, mean = -130 *(n = 10)*;

2 “No change” a change of between -35 and +40 cyclists, mean = +8 *(n = 9)*;

3 “Increase” an *increase* of between 40 and 628, mean = +168 *(n = 10)*.

Hierarchical loglinear modelling (hilog) was then applied to a 2 × 2 × 2 × 3 contingency table, representing YEAR (ie. 1994 or 1996) by HELMET (wearing or not wearing) by CAMPAIGN (yes or no) by COUNTCHG. The results from the hilog analysis are shown below in Table 17. The campaign variable has an effect on helmet wearing rates, but only as an interaction with other variables.

Table 17 Results from the Hilog analysis

Interaction	*Significance*
YEAR by HELMET by CAMPAIGN by COUNTCHG	***
YEAR by HELMET by CAMPAIGN	*
YEAR by HELMET by COUNTCHG	***

The analysis showed that the largest increase in wearing rates was in areas where a campaign had been held and the numbers of cyclists had decreased, as shown in Table 18. In campaign areas where the number of cyclists had increased, there was a decrease in wearing rates. Whilst being statistically significant, the differences were not so marked in the non-campaign areas.

Table 18 Changes in helmet wearing rates by whether campaign held and change in cycle count

Change in cycle count	*Cycle helmet wearing rates*					
	Campaign held			*No campaign held*		
	1994	*1996*	*difference*	*1994*	*1996*	*difference*
Decrease	19.6%	36.1%	+16.5%	10.5%	12.7%	+2.2%
No change	16.0%	17.7%	+1.7%	23.1%	23.0%	-0.1%
Increase	19.2%	14.5%	-4.7%	14.5%	14.7%	+0.2%
Total‡	17.0%	21.1%	+4.1%	13.9%	14.7%	+0.8%

‡ Overall wearing rates, excluding the effect of the change in cycle count (see Table 16).

Although very little formal evaluation of the campaigns had been performed, when asked how much their campaigns had affected public awareness in their region, 13 said “greatly” or “very greatly” and 14 either “slightly” or “very little”. As shown in Table 19, the wearing rate among those authorities who thought that the effect of their campaigns was large increased by 0.7% compared with 3.7% in the areas who thought the effect of their campaigns was small *(p<0.001)*. However, there was a 10% increase in the *number* of cyclists observed in the “high effect” areas, compared with an 8*% decrease* in the “low effect” areas *(p<<0.001)*. The changes in wearing rates are as likely to be associated with the change in the number of cyclists as with the quality of the campaigns.

Table 16 Helmet wearing and cycle counts by whether campaign held

Held short, focused campaign between 1994 and 1996?		*helmet wearing rate ****			*total cycle counts ****		
		1994	*1996*	*difference*	*1994*	*1996*	*change*
yes	*(n = 11)*	17.0 %	21.1 %	+4.1 %	7,356	7,153	-2.8 %
no	*(n = 18)*	13.9 %	14.7 %	+0.8 %	13,140	13,790	+4.9 %

Table 19 Wearing rates and cycle counts by perceived effect of the campaign

perceived effect of the campaign		*helmet wearing rate ****			*total cycle counts ****		
		1994	*1996*	*difference*	*1994*	*1996*	*change*
very great/great	*(n = 13)*	14.7 %	15.4 %	+0.7 %	10,036	11,020	+9.8 %
slight/very little	*(n = 14)*	15.9 %	19.6 %	+3.7 %	9,236	8,506	-7.9 %

4.2 Adult wearing rates

Overall, campaigns focused more on children than on adults: 27 authorities reported that their campaign had targeted children and only 10 reported targeting adults. Analysis was performed to see whether those authorities which had specifically targeted adults had affected the wearing rates of adults more than those who had concentrated only on children. Table 20 shows that those Local Authorities which did not target adults achieved an increase of 3.3% in adult wearing rates, compared with 1.9% in the areas where adults were targeted *(p=0.0066)*. There was no significant difference between the two groups in the change in the number of cyclists observed *(p=0.3009)*.

However, the areas which targeted adults have a significantly higher overall adult wearing rate: 17.8% versus 13.3% *(p<<0.001)*.

Twenty-one of the campaigns had received coverage in local newspapers and 17 on local radio. Analysis was done to see if local radio and newspaper coverage of campaigns or events affected adult wearing rates or the numbers of cyclists observed. Level of radio coverage was not found to affect either. As shown in Table 21, the level of local newspaper coverage was associated with an increase in the number of cyclists observed *(p<0.001)*, but no significant change in the helmet wearing rate was found *(p=0.4691)*.

4.3 Child wearing rates

This section considers only the 27 Local Authorities which targeted children. It attempts to find if this targeting combined with other initiatives affected helmet-wearing in children. It should be borne in mind that overall children's helmet wearing rates fell from 17.6% to 14.4% between 1994 and 1996. Therefore any "positive" findings from this analysis were likely to show a smaller *decrease* in helmet wearing, rather than an actual *increase*. Between the two surveys, the numbers of child cyclists observed rose by 22%, from 1,425 to 1,741.

The analysis shown in section 3.4.1 to discover whether short, focused campaigns were effective was repeated to examine their effects on children's wearing rates. Areas which had held such campaigns did not experience a change in child helmet wearing rates significantly different to those which had not *(p=0.8354)*. Nor was there any significant difference between the two groups in the change in numbers of child cyclists observed *(p=0.0837)*.

Of the 27 authorities which had targeted children, eight had specifically included helmet promotion as part of Child Safety Week (CSW) 1996 activities, 16 had not done so and the remaining three had not participated in CSW. CSW activities did not appear to affect the child wearing rates *(p=0.3773)* or the child cyclist counts *(p=0.1556)*. The data were examined to see whether the combined effects of either holding a short helmet campaign or promoting helmets during Child Safety Week 1996 affected wearing rates. Again this showed no effect on helmet wearing rates *(p=0.5169)* or on the numbers of child cyclists *(p=0.0886)*.

Analysis to determine the effect of using of videos to promote child helmet wearing was conducted. The results are shown below in Table 22.

An 11.7% decrease in child helmet wearing was observed in the areas which had used promotional videos, compared with only a 0.7% decrease in the other areas *(p=0.0325)*. However, those areas which had used videos had a higher child wearing rate overall (23.5%) than those which had not (11.6%) *(p<0.001)*. There was no significant difference in the change in numbers of cyclists observed *(p=0.1254)*.

As shown in Table 23, there was a significantly greater increase in the number of child cyclists in the areas which

Table 20 Adult wearing rates and cycle counts by targeting of adults

targeted adults?		*adult helmet wearing rate ***			*total adult cycle counts NS*		
		1994	*1996*	*difference*	*1994*	*1996*	*change*
yes	*(n = 10)*	16.8 %	18.7 %	+1.9 %	11,682	11,756	+0.6 %
no	*(n = 18)*	11.6 %	14.9 %	+3.3 %	7,683	7,567	-1.5 %

Table 21 Adult wearing rates and cycle counts by level of newspaper coverage

level of newspaper coverage		*adult helmet wearing rate NS*			*total adult cycle counts ****		
		1994	*1996*	*difference*	*1994*	*1996*	*change*
high/medium	*(n = 13)*	14.6 %	16.9 %	+2.3 %	11,141	11,464	+2.9 %
low/none	*(n = 12)*	15.7 %	18.7 %	+ 3.0 %	6,842	6,308	-7.8 %

Table 22 Child wearing rates and cycle counts by the use of promotional videos

used videos?		*child helmet wearing rate **			*total child cycle counts NS*		
		1994	*1996*	*difference*	*1994*	*1996*	*change*
yes	*(n = 13)*	29.8 %	18.1 %	-11.7 %	487	562	+15.4 %
no	*(n = 14)*	12.0 %	11.3 %	-0.7 %	383	382	-0.2 %

Table 23 Child wearing rates and cycle counts by perceived effect of the campaign

perceived effect of the campaign		*child helmet wearing rate NS*			*total child cycle counts ****		
		1994	*1996*	*difference*	*1994*	*1996*	*change*
very great/great	*(n = 12)*	17.3 %	13.5 %	-3.8 %	248	379	+52.8 %
slight/very little	*(n = 14)*	24.6 %	16.6 %	-8.0 %	593	541	+8.8%

considered the effect of their campaigns to be large than in other areas *(p<0.001)*. There was no significant effect on helmet wearing *(p=0.4748)*.

No other method of publicity covered in the survey was found to significantly affect children's helmet wearing rates or the number of child cyclists observed.

4.4 Summary of other initiatives

Twenty-eight of the 29 authorities which had made attempts to promote helmets reported that helmet wearing was actively promoted during school visits and eight said that it was promoted during visits to colleges. All 29 reported that helmet wearing was promoted as part of child cyclist training.

Resources dedicated specifically to helmet promotion were low: only three authorities reported having either a budget or staff time allocated specifically for this purpose. The changes in helmet wearing rates in these three authorities were not significantly different from the changes in the other areas, among children or adults. The numbers of child cyclists fell by a third in these three areas compared with a rise of 29% in the other areas *(p<0.001)*.

The Department of Transport-produced *Cycle safe* materials were used by 25 of the Local Authorities. Almost half had videos available to them to use for their campaign and more than a third had distributed discount vouchers for helmets.

Five Local Authorities had received sponsorship for their campaigns. This was usually in the form of helmets donated by cycle shops as prizes for competitions. Twenty-six Local Authorities reported that they had collaborated with other agencies for their campaigns, as follows:

- 20 with the Local Health Authority
- 17 with the Police
- 15 with the Local Education Authority
- 8 with Cycling Groups
- 4 with the Ambulance Service.

Other collaborators included the Cambridge University Students Union and Trading Standards.

4.5 Further campaigns

Of the 29 Local Authorities which had already made attempts to promote helmets, only two reported that they would "definitely" hold further helmet campaigns in the future. A further 13 said they would "if staff/finances allow". One Local Authority said they would not hold a further campaign, and the remainder was undecided.

The three Local Authorities which had not made attempts to promote helmets all stated either that they did not feel promoting helmets was a priority or that other issues take precedence. One authority also said that lack of staff time and resources were reasons why they had not held a campaign to date.

Two of the three were unsure about whether they would hold such a campaign in the future. The third Local Authority wrote:

> *We do not "promote" cycle helmets in the sense that you mean. We take [a] neutral position on the use of helmets. If people wish to know about helmets, we will inform them of what to buy, the protective value (honestly), the issue of risk compensation by helmeted cyclists, discomfort and improper fitting. (Most helmets are very difficult to fit properly). Our main concern is that people should cycle. If a helmet will give them the confidence to do so we will encourage them to wear one.*

(Aside: this Local Authority was found to have had a significantly larger increase in the number of child cyclists than the average of all the other Local Authorities. The change in the number of adult cyclists was not statistically different from the average change in all the other areas, nor were the child or adult helmet wearing rates.)

5 Summary and conclusions

Cycle helmet wearing increased significantly from 16.0% in 1994 to 17.6% in the 1996 survey. Adults were more frequently observed wearing helmets (17.0%) than children (14.4%)[3].

Helmet wearing levels varied according to the type of bicycle ridden: those on racing bikes were the most likely to wear one, and those on traditional town bikes, the least.

Cycle flows were greatest in the morning and evening peak hours. A minor peak was also found at lunchtime. To some extent helmet wearing also peaked at these times, indicating the helmet wearing rates are high when the levels of traffic are high. In the morning peak hours, a maximum of 28% was observed and the evening rush hours also saw helmet wearing rise to over 20%. Overall a wearing rate of 21% was observed during peak hours compared with 13% during off-peak times.

The weather affected helmet wearing rates: almost 30% of cyclists wore helmets when it was raining, compared with 17% when the weather was dry. This increased helmet wearing may be caused by a perception by cyclists that wet roads are more hazardous or some may choose to wear a helmet to keep their head dry.

To examine cyclists' helmet wearing patterns more fully, the interaction between helmet wearing and age and sex of the cyclist, type of bike, time of day and the weather was analysed. By itself, the age of cyclist did not appear as a significant effect in this analysis: the underlying reason why children have an apparently lower wearing rate was that they have a different distribution of types of bicycles and riding patterns than adults. This implies that when children ride in the same conditions as adults (ie. at the same times of the day, in the same weather conditions and on the same types of bicycles), they are no less likely to wear a helmet than adults.

The helmet wearing rate in London was higher than the average outside London: almost 2 in 5 cyclists were observed to be wearing one. In London, there were proportionately far fewer female cyclists and child cyclists than elsewhere.

The patterns of cycling on recreational cycle routes were different from the other sites. Three quarters of cyclists were riding in a group and there was a greater proportion of child cyclists. The helmet wearing rate was higher than at other sites observed: one in four cyclists wore one. The helmet wearing rate of cyclists on recreational routes did not change between 1994 and 1996. There was a 12% increase in the number of cyclists observed on recreational routes, compared with a 1% rise at the other sites. On non-recreational routes, there was a slight increase in the proportion of cyclists riding in groups which could indicate a higher level of leisure cycling generally.

When the wearing rate data were compared with journey to work data from the 1991 Census (Office of Population Censuses and Surveys, 1993), it became apparent that in places, typically large cities, where cycling accounted for a small proportion of the journeys to work, helmet wearing was generally high. Conversely, in places where cycling to work was more commonplace, helmet wearing rates were lower. When changes in helmet wearing rates since the 1994 survey were compared with the changes in the number of cyclists observed, it became clear that where the number of cyclists had increased, the proportion of cyclists wearing helmets had decreased, and vice versa. If this trend should continue, and levels of cycling rise, it is possible that the overall proportion of cyclists wearing helmets will decrease with time.

Thirty-two of the 40 participating Local Authorities provided information on initiatives since 1994 to promote cycle helmets. Three of these 32 Local Authorities had not made attempts to promote helmets. This decision may have been based upon the fact that helmet wearing was already very high in these areas (29% in 1994 versus 15% in the other areas) or that children represent a small proportion of cyclists, compared to the other regions.

Helmet promotion in many of the Local Authorities took the form of information given to children either during visits to schools by Road Safety Officers or during child cyclist training courses. Eleven Local Authorities had however held a helmet campaign when their activities were focused solely on the promotion of helmets. In these Local Authority areas, a larger increase in helmet wearing was found than in the areas which had not held such a campaign. However, this increase was found to be strongly linked to a *decrease* in the numbers of cyclists observed: in those areas where a campaign had been held and the numbers of cyclists had increased, helmet wearing fell.

Children's wearing rates were found to be unaffected by short, focused helmet campaigns or by events held as part of Child Safety Week 1996.

The National Cycling Strategy, launched in July 1996, aims to double the number of trips by bicycle by the end of the year 2002 and quadruple them by the end of 2012 (Department of Transport, 1996a). Local Authorities have a key role to play in achieving these targets, by providing local schemes such as cycle routes and secure parking, as well as raising public awareness of the benefits of cycling. It appears from the survey figures that if helmet wearing levels are to rise, these "new cyclists" must be convinced of the benefits of cycle helmets.

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Appendix A - Participating local authorities

NB. The site numbers from Figure 1 are given in brackets. Former names of Local Authorities (prior to reorganisation) are also given for reference.

Aberdeen City Council (49)	(ex-Grampian Regional Council)
Bristol City Council (43)	(ex-Avon County Council)
Bath and North East Somerset Council (41 - 42)	(ex-Avon County Council)
Bedfordshire County Council (4 - 7)	
Berkshire County Council / Babtie Group (64)	
Cambridgeshire County Council (67a/b, 68 - 71)	
Cardiff City Council (32)	(ex-South Glamorgan Council)
Cheshire County Council (38a - 38c)	
Coventry City Council (33)	
Cumbria County Council (40)	
Derbyshire County Council (1)	
Doncaster Metropolitan Borough Council (47 - 48)	
Dorset County Council (15)	
Durham County Council (54)	
East Riding of York Council (18)	(ex-Humberside County Council)
Edinburgh City Council (51)	(ex-Lothian Regional Council)
Essex County Council / WS Atkins Transportation (2, 3a, 3b)	
Glasgow City Council (24 - 31)	(ex-Strathclyde Regional Council)
Gloucestershire County Council (72 - 73)	
Kingston-upon-Hull City Council (19)	(ex-Humberside County Council)
Leicestershire County Council (22 - 23)	
Lincoln City Council (16 - 17)	
Liverpool City Council (55 - 56)	
London Borough of Westminster (34 - 36)	
Manchester City Council (11 - 14)	
Newcastle Upon Tyne City Council (46)	
Norfolk County Council (37)	
Northamptonshire County Council (50)	
North Lincolnshire Council (20)	(ex-Humberside County Council)
North East Lincolnshire (21)	(ex-Humberside County Council)
Nottinghamshire County Council (8 - 10)	
Oxfordshire County Council (57 - 60)	
Portsmouth City Council (63)	
Staffordshire County Council (44)	
Stockton-on-Tees Borough Council (74, 75)	(ex-Cleveland County Council)
Suffolk County Council (61 - 62)	

Appendix B - Data collection form

1996 Cyclist Survey
Header sheet

Observer's Name _____

Date _____

Day of week _____

Survey start time _____

Survey end time _____

SITE DETAILS

Street name
and direction surveyed (if applicable) _____

SITE DESCRIPTION *Please tick all those that apply.*

Residential	
Shopping	
Industrial/Office	
School	
Recreational (eg. Parks)	
Cycle Route	
Other (please specify)	

_____

WEATHER DETAILS *Please code weather for each hour of survey.*

HOUR	WEATHER (Dry=1, Raining=2)
1	
2	
3	
4	
5	
6	

1996 Cyclist Survey

Data collection form

Sheet Start time .....

	Sex (M/F)	**Helmet?** (Y/N)	**Type of bicycle** (R/M/T/O) R=racing/touring M=mountain/BMX T=traditional town O=other	**Age** (C/A) Child=0-15 Adult=16+	**Group** M=mixed ages S=similar ages	Enclose each group in **brackets{ }**
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Appendix C - Instructions to survey teams

Warwickshire County Council (52 - 53)
Wiltshire County Council (39)
Wolverhampton Metropolitan Borough Council (45)
York City Council (65 - 66)

1996 Cyclist survey

Instructions for survey

1. You will need only one *Header sheet* per site surveyed. On this we ask that you complete a few details about the survey and the site.

2. You will need at least one *Data collection form* per 15 minutes of survey (more if you observe more than 25 cyclists in any one 15 minute period).

   We ask that you start a new form every 15 minutes and record the time at the top of each form.

3. The data to be recorded for each cyclist are:

* sex	**M** or **F**
* helmet?	**Y** (yes) or **N** (no)
* Type of bicycle	**R** (racing/touring), **M** (mountain/BMX), **T** (traditional town), **O** (other)
* Age	**C** (Child under 16) or **A** (Adult 16 or over)
* Group (if applicable)	**M** (mixed ages) or **S** (similar ages)
	{ } enclose the group in brackets

4. The definitions for Type of bicycle are:

Racing/touring	- dropped handlebars;
Mountain/BMX	- thick tyres, straight handlebars;
Traditional town	- straight handlebars, mudguards, thin tyres (including ‘shoppers’);
Other	- includes tandems, small-wheel adult bikes, folding bikes and ‘hybrids’.

5. An example form is attached. The details recorded on this sheet are explained below:
   The sheet is for the period 1315 to 1329 hours.

   Numbers 1 and 2 - an adult female, riding a shopper bike, with a male child, riding a mountain bike. Both are wearing helmets.

   Number 3 - an adult male, riding a mountain bike, not wearing a helmet, riding alone.

1996 Cyclist Survey

Data collection form - EXAMPLE

Sheet Start time ..... 1315 .....

	Sex (M/F)	**Helmet?** (Y/N)	**Type of bicycle** (R/M/T/O) R=racing/touring M=mountain/BMX T=traditional town O=other	**Age** (C/A) Child=0-15 Adult=16+	**Group** M=mixed ages S=similar ages	Enclose each group in **brackets{ }**
1	F	Y	T	A	M	
2	M	Y	M	C	M	
3	M	N	M	A		
4	M	Y	M	C	S	
5	M	Y	M	C	S	
6	M	N	M	C	S	
7	M	N	O	C	S	
8	F	N	R	A		
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Numbers 4 to 7 - four male children, two of whom have helmets and mountain bikes, two without helmets, one of whom has a mountain bike and the other a small wheeled bike

Number 8 - an adult female, riding a racer, without a helmet.

Transport Research Laboratory

Cycle helmet promotion survey

SECTION A - GENERAL INFORMATION

Q1. Your name

Q2. Your position or job title

Q3. Name of your authority

Q4. What is the approximate population in the area covered by your authority? (thousands)

Q5. Has your Local Authority made attempts since September 1994 to encourage and promote the wearing of cycle helmets?

Yes [ ] *(go to Q6)*
No [ ] *(go to Q33)*

SECTION B - CYCLE HELMET PROMOTION SINCE SEPTEMBER 1994

Please note that sections B, C and D refer only to campaigns held since September 1994.

Q6. Are cycle helmets actively promoted in your area during visits to the following? *(Please tick one box on each line.)*

	Yes	**No**
infant schools	[ ]	[ ]
primary/middle schools	[ ]	[ ]
secondary schools	[ ]	[ ]
colleges	[ ]	[ ]

Q7. Is the use of cycle helmets promoted as part of child cyclist training? *(Please tick one box.)*

yes	[ ]
no	[ ]
don't know	[ ]
not applicable	[ ]

Q8. Did your 1996 Child Safety Week activities specifically include the promotion of cycle helmets?

yes [ ]
no [ ]
don't know [ ]
not applicable [ ]

Q9. Have you organised any short cycle helmet campaigns, when your activities were focused solely on the promotion of helmets, since September 1994?

yes [ ] *(go to Q10)*
no [ ] *(go to Q11)*

Q10. *If yes:*

a) When was the last one? *(Please write date in the box.)*

b) How long did it last? weeks

c) What did you do during this campaign?

SECTION C - YOUR CAMPAIGN

Q11. Have you had a budget or staff time allocated specifically to the promotion of cycle helmets since September 1994?

Yes [ ] *(go to Q12)*
No [ ] *(go to Q13)*

Q12. *If yes:*

a. What was your total available budget for promoting cycle helmets during the period September 1994 to September 1996?

£

b. How many staff days would you estimate have been dedicated to cycle helmet promotion in the past two years? days

Q13. Which of the following other resources were available to you to help with your campaign(s)?
NB. The *Cycle Safe* materials are produced by the Department of Transport and distributed periodically to local road safety offices for use in their area.

Resource	**Tick if used**	**Number used**	**Please use this space for comments, if you wish.**
Cycle Safe posters			
* other posters			
Cycle Safe leaflets			
* other leaflets			
Cycle Safe stickers			
* other stickers			
* badges			
* balloons			
videos			
free helmets			
discount vouchers for helmets			
* casualty statistics and information			
* other *(please say what)*			

* If possible, we would be very grateful for copies of any of these materials. Please let us know whether you would like them returned to you.

Q14. Which particular group(s) of people did you target? *(Tick all those that apply.)*

children under 11 [ ]
secondary school children (11+) [ ]
adults [ ]
other target group *(Please specify)* [ ]

Q15. Which particular area(s) did you target? *(Tick all those that apply.)*

city centres [ ]
town centres [ ]
sub-urban areas [ ]
villages/rural areas [ ]
other *(Please specify)* [ ]

Q16. Which, if any, of the following methods of publicity did you use during your campaign(s)?
(Please tick all those that apply.)

poster campaign [ ]
displays in public places [ ]
stands at local fairs [ ]
talks/presentations at schools [ ]

talks/presentations at colleges [ ]
talks/presentations to youth clubs/scouts/guides, etc. [ ]
other *(please specify)* [ ]

Q17. *If "poster campaign" ticked at Q16:*
Where did you display your posters? *(Please tick all those that apply.)*

nurseries/playgroups [ ]
primary schools [ ]
secondary schools [ ]
colleges and/or universities [ ]
youth clubs, etc. [ ]
leisure centres [ ]
clinics and/or health centres [ ]
doctor's surgeries and/or hospitals [ ]
libraries [ ]
Cycle shops [ ]
Other shops [ ]
Other public buildings (eg. town hall, council offices, DSS offices) [ ]
Other (please specify) [ ]

Q18. During any of your campaign(s) did you provide a contact telephone number which people could ring if they required further information?

Yes [ ] (go to Q19)
No [ ] *(go to Q20)*

Q19. If yes: Approximately how many people called this number? people

SECTION D - SPONSORSHIP AND WORKING IN COLLABORATION

Q20. Did you receive private sponsorship for one or more of your campaign activities?

Yes [ ] *(go to Q21)*
No [ ] (go to Q24)

Q21. *If yes:*
What were the name(s) of the companies who sponsored your activities? *(Please write in the box.)*

Q22. How did they sponsor the activities? ie. what resources did they provide? If possible, please state an approximate value of any donations. (eg. prizes) *(Please write in the box.)*

Q23. Do you think that these companies would provide further sponsorship for any future campaigns?

Yes, all of them [ ]
Yes, some of them [ ]
No [ ]
Don't know [ ]

Q24. Did you collaborate with any other agencies during any of your activities?

Yes [ ] (go to Q25)
No [ ] (go to Q27)

Q25. *If yes:* With whom did you collaborate? *(Please tick all those that apply.)*

Police [ ]
Ambulance Service [ ]
Local Health Authority [ ]
Local Education Authority [ ]
Cycling groups [ ]
Other *please specify)* [ ]

Q26. Do you think that you may collaborate with these agencies for future campaign activities?

Yes, all of them [ ]
Yes, some of them [ ]
No [ ]
Don't know [ ]

Q27. Please indicate in the table below the level of media coverage that you consider your campaign(s) attracted. *Please write the name of the publication or television/radio station, where indicated, and tick either 'high', 'medium', 'low' or 'none' for level of coverage for each media type.*

	Please write name(s) of publications, stations, etc.	**Please tick one**			
		High	**Medium**	**Low**	**None**
Local newspapers					
National newspapers					
Local radio					
National radio					
Local television					
National television					

Journals or magazines

Other *(please specify)*

Q28. Which promotional event do you consider had the greatest impact on your campaign(s), and why? *(Please describe below.)*

Q29. Do you plan to continue your campaign, or hold further campaigns, in the future? *(Tick one.)*

Yes, definitely [ ]
Yes, if staff/finances are available [ ]
Maybe [ ]
Don't yet know [ ]
No, staff/finances unavailable [ ]
No, for another reason *(Please say why below.)* [ ]

SECTION E - EVALUATION OF YOUR ACTIVITIES

Q30. Has any attempt been made to evaluate the effectiveness of your campaign(s)?

Yes [ ] (go to Q31)
No [ ] *(go to Q32)*

Q31. *If yes:* Please describe briefly the results. If you have any reports or articles, describing your evaluation, we would be very grateful if you would enclose copies.

Q32. Overall, would you say that your campaign(s) have raised public awareness (in your region) of the benefits of cycle helmets ... *(Please tick one.)*

very greatly [ ]
greatly [ ]
slightly [ ]
very little [ ]
not at all [ ]

End of questionnaire

Please return this questionnaire to TRL, using the prepaid sticker enclosed.
Please don't forget to include any sample promotional items and reports on evaluation that you can spare and indicate whether you would like them returned.

We would also be very pleased to receive any other comments which you feel have not been adequately covered in this questionnaire

Thank you very much for your help.

Only for those who responded 'No' to Q5:

SECTION F - FUTURE CAMPAIGNS

Q33. What has prevented you from holding a campaign to promote the wearing of cycle helmets? *(Please tick all those that apply.)*

lack of staff time [ ]
lack of resources [ ]
don't feel it's a priority [ ]
other issues take precedence [ ]
don't know [ ]
other reason *(please write in below)* [ ]

Q34. Do you plan to hold such a campaign in the future? *(Please tick one.)*

Yes, definitely [ ]
Yes, if staff/finances are available [ ]
Maybe [ ]
Don't yet know [ ]
No, staff/finances unavailable [ ]
No, for another reason *(Please say why below.)* [ ]

End of questionnaire

Please return this questionnaire to TRL, using the prepaid sticker enclosed.
We would be very pleased to receive any further comments which you feel have not been adequately covered in this questionnaire.

Thank you very much for your help.

Appendix E - Changes in wearing rates by local authority

	1994 survey						1996 survey					
	Adults		Children		Total		Adults		Children		Total	
Local Authority name	*count*	*helmet*	*count*	*helmet*	*count*	*helmet*	*count*	*helmet*	*count*	*helmet*	*count*	*helmet*
Aberdeen	136	26%	0	N/A	136	26%	175	21%	1	0%	176	21%
Bath and North East Somerset	426	15%	128	59%	554	25%	413	20%	124	37%	537	24%
Bedfordshire	549	5%	38	11%	587	6%	670	6%	36	8%	706	6%
Berkshire	401	18%	27	41%	428	19%	292	20%	88	36%	380	23%
Bristol	187	18%	7	14%	194	18%	154	19%	5	40%	159	19%
Cambridge	6116	17%	78	28%	6194	17%	6322	18%	198	24%	6520	18%
Cardiff	323	18%	0	N/A	323	18%	132	52%	24	63%	156	54%
Cheshire	258	8%	15	0%	273	8%	339	4%	37	3%	376	4%
Coventry	191	19%	12	17%	203	19%	153	16%	7	29%	160	16%
Cumbria	506	5%	33	12%	539	5%	302	6%	38	5%	340	6%
Derbyshire	420	9%	26	0%	446	8%	438	10%	26	0%	464	9%
Doncaster	125	14%	0	N/A	125	14%	124	20%	6	0%	130	19%
Dorset	716	7%	9	22%	725	7%	747	7%	15	33%	762	8%
Durham	31	3%	0	N/A	31	3%	36	14%	3	0%	39	13%
East Riding of York	50	10%	38	8%	88	9%	115	4%	34	15%	149	7%
Edinburgh	411	36%	1	100%	412	36%	304	43%	3	67%	321	42%
Essex	574	6%	15	20%	589	6%	603	7%	25	0%	628	7%
Glasgow	1524	22%	60	17%	1584	21%	1185	40%	49	20%	1234	39%
Gloucester	692	8%	56	4%	748	7%	529	8%	49	4%	578	7%
Greater Manchester	341	21%	15	20%	356	21%	258	23%	29	14%	287	22%
Kingston-Upon-Hull	700	2%	34	12%	734	2%	760	3%	30	0%	790	3%
Leicestershire	922	12%	29	7%	951	12%	1018	16%	24	17%	1041	16%
Lincolnshire	149	0%	224	0%	373	0%	133	2%	165	3%	298	3%
Liverpool	153	10%	0	N/A	153	10%	136	13%	16	0%	152	11%
Newcastle	207	23%	4	100%	211	24%	193	31%	5	60%	198	32%
Norfolk	323	13%	58	28%	381	15%	854	10%	55	22%	1009	10%
North East Lincolnshire	235	7%	64	19%	299	10%	276	7%	69	0%	345	6%
North Lincolnshire	269	3%	26	4%	295	3%	380	7%	41	2%	421	6%
Northampton	53	23%	0	N/A	53	23%	101	9%	1	0%	102	9%
Nottingham	1352	9%	36	3%	1388	9%	1437	9%	101	3%	1538	8%
Oxford	3123	21%	57	40%	3180	21%	3130	23%	26	35%	3156	24%
Portsmouth	326	16%	2	50%	238	16%	268	18%	6	0%	277	17%
Staffordshire	207	6%	7	14%	214	6%	129	11%	9	0%	138	12%
Stockton	68	9%	22	0%	90	7%	57	9%	14	7%	71	10%
Suffolk	602	9%	110	19%	712	10%	484	8%	92	6%	576	8%
Warwickshire	60	18%	68	21%	128	20%	178	12%	150	12%	328	12%
Westminster	1970	38%	16	25%	1986	38%	835	42%	2	50%	1978	39%
Wiltshire	260	5%	71	3%	331	4%	219	7%	56	4%	275	7%
Wolverhampton	162	7%	9	0%	171	7%	116	14%	19	0%	135	12%
York	874	5%	30	3%	904	5%	892	7%	63	11%	955	8%

NB. These figures are for interest only and are not intended to represent overall wearing rates within each Local Authority area, as they are based only on a small number of sites.

Notes

[1] Department of Transport (1995). NB. A *journey* consists of one or more *stages.* In this context, a new stage is defined when there is a change in the form of transport. ie. a stage is not necessarily a whole journey. (The figures for children were not available split by sex.)

[2] Office of Population Censuses and Surveys (1995).

[3] In addition, there were 1,152 cyclists for whom ages were not recorded. Over 37% of these cyclists were wearing helmets, and were nearly all at London sites.

Abstract

This report covers a nationwide observational survey of cyclists, conducted in the autumn of 1996, to assess changes in bicycle helmet wearing rates since 1994. It also looks at differences in wearing rates according to the age and sex of the rider and type of bicycle ridden. The effects of the weather, cycling in a group and Local Authority helmet promotion initiatives are also examined for effects on helmet wearing.

Related publications

TRL272 *National hospital study of road accident casualties* by H F Simpson. (in preparation)

TRL266 *Attitudes to cycling: a qualitative study and conceptual framework* by D G Davies, M E Halliday, M Mayes and R L Pocock. 1997 £20 (code E)

TRL154 *Attitudes to cycle helmets - a qualitative study* by M E Halliday (TRL Ltd) and C White, H Finch and K Ward. 1996 £30 (code H)

TRL156 *Cycle helmet wearing in Great Britain* by S B Taylor and M E Halliday. 1996 £20 (code E)

CT83 *Safety helmets (cycle/motorcycle) (1991-1994)* (Current Topics in Transport, abstracts of worldwide literature) £15