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BICYCLE USE AND ATTITUDES TO THE HELMET WEARING LAW

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BICYCLE USE AND ATTITUDES TO THE HELMET WEARING LAW

MAY 1994

Prepared by:
Bruce Heathcote & Gavin Maisey
Research and Statistics Unit
Western Australian Police Department
2 Adelaide Tce Perth 6000

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Abstract:

A telephone survey of 254 households (Perth metropolitan 150, country 104) was undertaken to determine current bicycle use, changes in bicycle use, helmet wearing patterns and attitudes to the helmet wearing law. The survey was conducted on the last weekend in November 1993 to enable comparison with results from previous surveys in November 1991 and 1992, and the ABS Supplementary Survey "Bicycle Usage and Safety" in October 1989 (reported in 1990). Information was gathered for a total of 677 persons.

Data from the survey was weighted to match the Western Australian population. In November 1993 it was reported that approximately one half (51%) of the Western Australian population cycled in the preceding twelve months. This is similar to 1989, where 48% of the Western Australian population cycled. The frequency for persons cycling weekly, monthly and yearly in 1993 was similar to 1989.

The "Mandatory helmet wearing law" was responsible for a small decrease in the frequency of cycling; some respondents indicated they had stopped cycling (3.6 - 5.0%). Other respondents indicated they had increased their cycling.

Over two thirds of the sample, based on gender and location of residence, were reported to have worn a helmet on the last cycling trip. Children under the age of 14 years had the highest reported wearing rates, with respondents aged 45 - 54 years, and youths aged 15 - 24 years, having the lowest reported wearing rates.

Over 60% of adults surveyed unconditionally supported the current helmet wearing law. Support for a helmet wearing law, with conditions, was higher at 73% for Perth metropolitan residents and 79% for country residents.

Key Words (ARRB):

Attitude, Bicycle, Helmet, Legislation, Road Safety, Road User Behaviour, Travel Behaviour.

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EXECUTIVE SUMMARY

A telephone survey of bicycle use and attitudes to the mandatory helmet wearing law was conducted in November 1993. This survey was undertaken by Reark Research Pty Ltd on behalf of the Traffic Board of Western Australia. The aim of the survey was to provide information on bicycle use, community attitudes and behaviour following the introduction of the bicyclist helmet wearing law in Western Australia.

The study had four specific objectives:

1. Investigate the current cycling patterns of the Western Australian population.

It is estimated that 720,000 people cycled in the twelve months to November 1993 (51% of persons over 4 years old). The proportion of cyclists who ride weekly (55%), quarterly (23%) and yearly (23%) was found to be similar in 1993 to those in 1989. For Perth metropolitan residents, 58% of males and 51% of females cycled. For country residents, 55% of males and 53% of females cycled. The survey found that a similar proportion of respondents cycle in the Perth area (54.1%) and the country areas (53.6%).

Using the categories for *Usual cycling destinations*, it was estimated that 39% of Perth metropolitan residents and 43% of county residents cycle for leisure. Cycling is also a form of transport for 38% of Perth metropolitan residents and 45% of country residents.

2. Investigate any changes in these patterns that reportedly occurred due to the helmet wearing law.

In Western Australia it was estimated that less than 5% of respondents, who used to cycle, stopped because of the helmet wearing law (subject to sampling variation when applied to the total population). In addition, the law was stated as the reason for 8% of current Perth metropolitan cyclists and 3% of current country cyclists reducing their cycling. Twenty five per cent of adult country residents and 28% of adult Perth residents reported they would cycle more if not legally required to wear a helmet. Conversely, 31% of both Perth metropolitan, and country bicyclists reported they had increased their cycling during the last two years.

3. To determine the effect of the helmet wearing law on the reported helmet wearing rates.

On the basis of respondents' reports of household cycling habits, 69% of Perth metropolitan and 75% of country cyclists wore a helmet on their last cycling trip. This included: 66% of males and 71% of females for Perth metropolitan cyclists; and 71% of males and 80% of females for country cyclists. The highest reported helmet wearing rates were for 10-14 year olds (96%) and 5-9 year olds (86%), with lower rates reported for 20-24 year olds (60%) and 15 -19 year olds (61%).

4. To determine the adult support for the helmet wearing law.

Sixty per cent of Perth metropolitan adult respondents and 62% of country adults were in favour of the existing law without conditions. Three options were available to respondents for reporting their level of support for the helmet wearing law: "*Definitely Support*" (61%), "*Conditional Support*" (24%), "*Definitely not Support*" (15%). Respondents who initially identified the "*Conditional Support*" option then decided between "*Definitely Support*" and "*Definitely not Support*" the law. Based on these options, 73% of Perth metropolitan residents and 79% of country residents supported the current law.

Summary

The helmet wearing law has been associated with a reported small decrease in cycling activity, and an increase in helmet use by cyclists. The increase in community support since the introduction of the legislation points to growing acceptance of the current law.

It is recommended that an annual telephone survey on bicycle use be conducted in November of each year. This would provide regular and timely information on cycling frequency, cycling destinations, and helmet wearing rates and thus assist in improving the management of cycling in Western Australia.

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1. INTRODUCTION

1.1 BACKGROUND

Since 1986 the Research and Statistics Unit of the WA Police Department have been conducting annual observational surveys of the helmet wearing rates of bicyclists. In 1993 the survey was restructured to enable comparisons of the number of people cycling. This was to assess the impact of the helmet wearing law (introduced in WA on 1 January 1992, with penalties and enforcement of a \$25.00 fine from 1 July 1992) on cycling participation rates.

The Traffic Board of Western Australia requested at their January 1993 meeting that further research be undertaken concerning bicycle use and attitudes to the helmet wearing law. This would provide information that is comparable to previous community surveys conducted in November 1991 and November 1992. Following an observational survey of bicycle and helmet use in February - March 1993, Heathcote (1993) also recommended the need for further research into cycling trends, and attitudes towards the helmet wearing law. This report is a result of a subsequent telephone survey of 254 Western Australian households, conducted on behalf of the Traffic Board of Western Australia, in November 1993.

1.2 AIM

The aim was to provide information on bicycle use and attitudes in relation to the mandatory helmet wearing law.

1.2.1 Specific Objectives

- (i) Investigate the current cycling patterns of the Western Australian population.
- (ii) Determine any changes in these patterns that reportedly occurred because of the law and investigate why they occurred.
- (iii) To determine the effect of the law on the reported helmet wearing rates.
- (iv) To determine the attitudes of adults towards the mandatory helmet wearing law.

2. METHODOLOGY

2.1 SURVEY INSTRUMENT

A telephone survey was conducted in November 1993 of a random selection of 150 metropolitan households and 104 country households. Reark Research, a commercial market research group, was commissioned to conduct the telephone interviews and provide basic cross-tabulations. The survey was split into two parts to gather attitudinal information from adults, and cycling information on a cross section of ages including children. Part one of the survey included questions on the cycling habits of all members of the household. Part two investigated attitudinal information for the adult (18 years and over) who answered the telephone (see Appendix 1).

Questions in this survey were modelled on those in previous surveys to allow comparisons with:

- Australian Bureau of Statistics: Western Australian Office, (1990), Bicycle usage and Safety: Western Australia Catalogue No. 9215.5
(Part A, Questions 1,3 & 4 of the 1993 Survey),
- Reark Research, (1991), Attitude Survey of the New Bicycle Helmet Law Perth, WA: Health Department of Western Australia (Part B, Question 2),
- Reark Research, (1992), Summary Report: Drink Driving Campaign, Christmas Safe Driving Campaign (pre-test), and Bicycle Law. Perth, WA: Traffic Board of Western Australia.
(Part A, Questions 3 & 5; Part B, Questions 3 & 4 of the 1993 Survey).

Additional questions (Part A, Questions 6 & 7; Part B, Questions 5 & 6) provided information concerning changing cycling patterns and attitudes to the law.

The order of questions in the telephone survey was designed to limit possible bias (e.g. associated with leading the respondent). As the helmet wearing law is topical in the media, questions specifically on the law were asked at the end of the survey. This minimised the effect of preconceptions about the law influencing answers on bicycle use.

2.2 SURVEY SAMPLE

For each household, the adult person (18 years & over) who knew most about cycling patterns provided information about each resident (over 5 years old) and their cycling habits (see Appendix 1). The same person then reported their level of support for the helmet wearing law.

A stratified sampling process was used that required a quota of at least 40% males answering the telephone. This reduced a foreseen potential bias of more female than male respondents being surveyed and matched the gender profile of the 1992 attitudinal survey. The 254 households surveyed provided information on a total sample of 677 persons.

Location of Residence

The Perth metropolitan (hereinafter referred to as Perth) sample represents residents of local government areas defined as the Perth Statistical Division by the Australian Bureau of Statistics (ABS). The country sample consists of all other urban, rural and remote areas in Western Australia.

2.3 BICYCLISTS DEFINED

For the purpose of this study bicyclists are defined as those who have indicated they cycle, no matter how often. This differs from the Australian Bureau of Statistics definition that defines a bicyclist as someone who cycles at least once per year. The ABS definition was considered too restrictive as the small number of bicyclists who cycle less than once a year are subject to the helmet wearing law. Wherever the results are compared with those of the ABS Supplementary Survey 1990, the ABS definition was followed.

2.4 WEIGHTING

The population ratio of Perth residents to country residents is 728 to 272 (Personal communication, Australian Bureau of Statistics, 1991 Census). The 1993 survey had a Perth to country ratio of 399 to 278. To allow comparisons of the 1993 survey data with data collected by the ABS Supplementary Survey 1990, the Perth and country data was weighted. Perth data from the 1993 survey was multiplied by a constant of 1.236 and country data by 0.662 to provide a ratio for the sample that is comparable to the ABS survey and the normal population.

2.5 ANALYSIS OF RESULTS

Descriptive analysis of the results utilised percentages and raw figures in a table format. Where the sample size of any sub-group fell below ten, results were aggregated with full tables placed in appendices.

Where appropriate, inferential statistical analysis was applied using the Chi Square test to determine if differences between sub-groups were due to sampling variation or represented a "significant" difference (where the probability of the difference due to sampling variation was less than 1 in 20). Statistically significant results were reported with Chi Square values, degrees of freedom, and level of probability.

Due to the low numbers involved when analysing persons who reportedly stopped cycling because of the helmet wearing law, confidence intervals were calculated based on a Poisson distribution (conducted by Data Analysis Pty Ltd). This determined a range for where the population mean would lie between for persons who had stopped cycling based on the raw figures from this survey (Probability of less than 1 in 20 for results being due to sampling variation).

2.6 LIMITATIONS

The study had some limitations:

- (i) The two previous telephone surveys (Reark, 1991 & 1992) did not each include the same questions regarding attitudes to the helmet wearing law; therefore limiting comparison of some results in the 1993 survey to either the 1991 or 1992 survey but not both.
- (ii) The 1993 survey included a wider sample than for 1991. The 1992 and 1993 Reark surveys used comparable sample sizes for the metropolitan and country regions (150 Perth metropolitan & 105 country for 1992). The 1991 survey used 300 persons in the Perth region only.
- (iii) The sample size was small. Where required, categories were grouped to ensure a statistically reliable sample size for analysis of each variable. In particular, the estimates for persons that have stopped cycling due to the helmet wearing law have relatively broad confidence limits.

- (iv) Questions were asked to allow comparison of current cycling patterns with those of two years ago, before the change in law, or publicity concerning helmet wearing for bicyclists. There was a potential for error with this type of questioning as it relied on a person's long term memory, however, it was considered the only available option due to the limited information available on cycling patterns immediately prior to, and after, the introduction of the helmet wearing law.
- (v) The accuracy of the information supplied by the respondent answering the telephone was dependant on that persons knowledge of the cycling habits of each person in the household; what is reported may vary from practice.
- (vi) The survey did not directly question whether a person had given up cycling due to the helmet wearing law. The method used to determine the number of bicyclists who may have stopped cycling due to the helmet wearing law is based on the assumption that those who have indicated that they don't currently cycle, and have reduced their cycling in the last two years, would be the people who have stopped cycling. Without further supporting data this method can only provide an estimate; results must be used with caution.
- (vii) The survey accesses a broader base of people than previous observational helmet wearing surveys have reported on in Western Australia. The observational survey conducted in February 1993 by Heathcote (1993) was not able to provide information to determine the helmet wearing rates of persons cycling at locations or times other than those surveyed. The helmet wearing rates for this self reported study and previous observational surveys are therefore not directly comparable.
- (viii) This survey used a telephone interview technique, compared to the face to face interviews used by the Australian Bureau of Statistics in their supplementary surveys. This difference in methodology may have produced different results for the same questions.

3. RESULTS AND DISCUSSION

3.1 CURRENT CYCLING PATTERNS

3.1.1 Frequency of Cycling

The frequency of persons cycling in terms of days per week, monthly, quarterly, yearly, or less than yearly is investigated by gender and location of residence. Where appropriate, comparisons are made to similar categories from the Australian Bureau of Statistics Supplementary Survey (1990).

Tables 1 and 2 show the proportion of bicyclists in Perth and country areas according to gender. It was found that over one half of males and females surveyed cycle in both regions. For Perth, 54.1% of respondents cycled, comprising 57.8% of males and 50.5% of females surveyed. For country residents, 53.6% of all respondents reported that they cycle, comprising 54.5% of males and 52.6% of females surveyed.

Table 1. Current Bicyclists and Non-Bicyclists in Perth.

	PERTH					
	Male		Female		Total	
	N	%	N	%	N	%
Bicyclists	115	57.8	101	50.5	216	54.1
Non-bicyclists	84	42.2	99	49.5	183	45.9
Total	199	100.0	200	100.0	399	100.0

Table 2. Current Bicyclists and Non-Bicyclists in Country Areas.

	COUNTRY					
	Male		Female		Total	
	N	%	N	%	N	%
Bicyclists	78	54.5	71	52.6	149	53.6
Non-bicyclists	65	45.5	64	47.4	129	46.4
Total	143	100.0	135	100.0	278	100.0

Tables 3 and 4 show the frequency of cycling for Perth and country areas according to gender. For Perth residents, 25.6% of the sample cycle weekly, 7.0% at least monthly, and 18.0% at least yearly (see Appendix 2 for complete frequency distribution). For country residents, 33.4% of the sample cycle weekly, 5.4% at least monthly, and 12.2% of the sample cycled at least yearly (see Appendix 2).

Table 3. Perth Cycling Frequency by Gender.

	PERTH					
	Male		Female		Total	
	N	%	N	%	N	%
At least Weekly *	54	27.1	48	24.0	102	25.6
At least monthly	13	6.5	15	7.5	28	7.0
At least annually **	38	19.1	34	17.0	72	18.0
Less than annually	10	5.0	4	2.0	14	3.5
Never	84	42.2	99	49.5	183	45.9
Total***	199	99.9	200	100.0	399	100.0

* Includes people who indicated they cycle from *7 days per week* to *1 day per week*.

** Includes people who indicated they cycle *At least quarterly* and *Yearly*.

*** Total percent values will vary due to rounding error.

Comparison with the Australian Bureau of Statistics Survey (1990) is possible by defining bicyclists as those who cycle at least once per year and weighting the results from Tables 3 and 4 for the Perth - country population ratio (Table 5). This process provided an estimate that 50.8% of Western Australians were bicyclists in November 1993, with 48.0% being defined as cyclists in October 1989. The difference between the two results were found to be not Statistically significant.

Table 4. Cycling Frequency for Country Areas by Gender.

	COUNTRY					
	Male		Female		Total	
	N	%	N	%	N	%
At least weekly *	54	37.8	39	28.8	93	33.5
At least monthly	9	6.3	6	4.4	15	5.4
At least annually **	11	7.7	23	17.1	34	12.2
Less than annually	4	2.8	3	2.2	7	2.5
Never	65	45.5	64	47.4	129	46.4
Total ***	143	100.1	135	99.9	278	100.0

* Cumulative: 7 days per week to 1 day per week.

** Cumulative: At least every 3 mths and Yearly.

*** Total percent values will vary due to rounding error.

Table 5. Frequency of Bicycle Use - 1989 & 1993.

Frequency	1989 Survey	1993 Survey
	%	%
At least Weekly	55.5	54.6
At least every 3 mths	23.1	22.8
At least once per Year	21.5	22.6
Total **	100.1	100.0

* 1993 figures weighted to match 1989 data.

** Total percent values will vary due to rounding error.

Very similar cycling frequencies found for 1989 and 1993, with those that cycle *At least weekly* at 54.6%, *At least quarterly* at 22.8%, and *At least yearly* at 22.6% in 1993 (Table 5).

3.1.2 Age Profile of Bicyclists and Non-Bicyclists

Results from Table 6 and Figure 1 indicate a steady decline in the proportion of bicyclists to non-bicyclists as age increases. This finding was consistent for both the Perth and country regions.

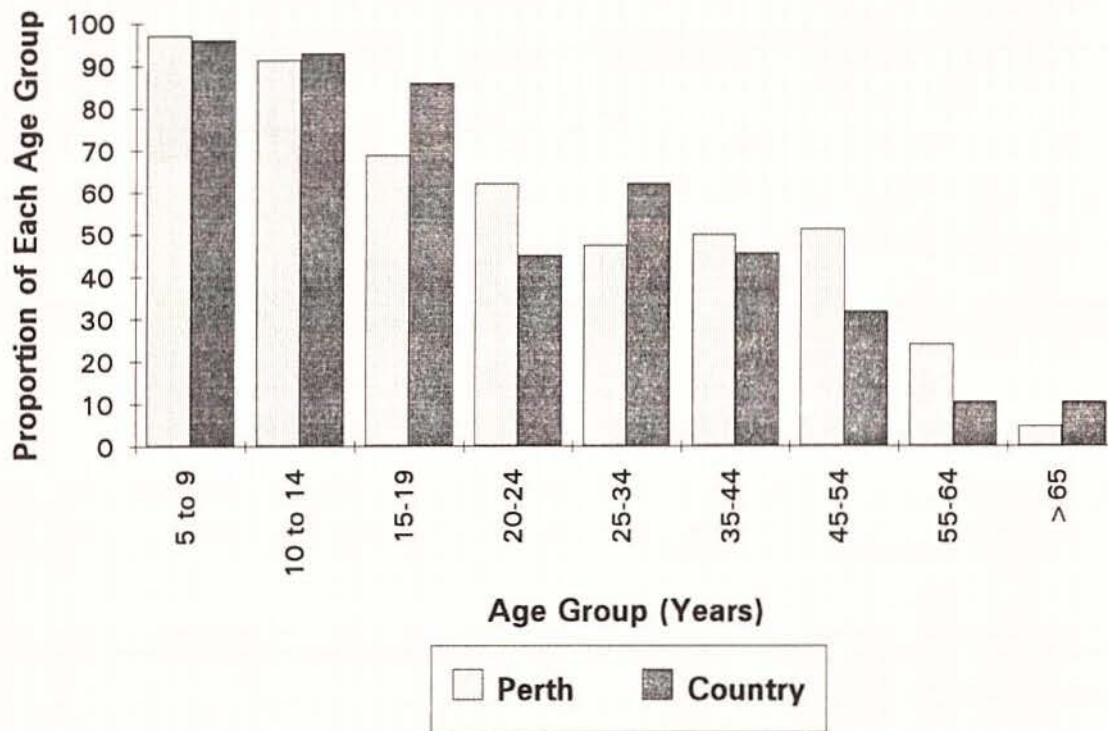
Table 6. Bicyclists or Non-Bicyclists by Age Groups

Age in Years	METRO			COUNTRY		
	N	% Non-bicyclist	% Bicyclist	N	% Non-bicyclist	% Bicyclist
5-9	35	2.9	97.1	25	4.0	96.0
10-14	23	8.7	91.3	28	7.1	92.9
15-19	48	31.2	68.8	21	14.3	85.7
20-24	45	37.8	62.2	20	55.0	45.0
25-34	57	52.6	47.4	45	37.8	62.2
35-44	78	50.0	50.0	57	54.4	45.6
45-54	63	58.7	51.3	44	68.2	31.8
55-64	29	75.9	24.1	19	89.5	10.5
>65	21	95.2	4.8	19	89.5	10.5
Total	399			278		

3.1.3 Usual Destination for Cyclists

The *Usual Riding Destination* of bicyclists was explored using destinations described in the Australian Bureau of Statistics Supplementary Survey (1990). To enable reliable interpretation of the data, groups have been categorised in *Cycling for leisure* and *Cycling for transport*, as determined by their stated "Usual cycling destinations".

Figure 1. Bicyclists in Each Age Group



The results shown in Table 7 were investigated by the percentage of respondents who cycle in each sub-group of *gender* and *location of residence* (Tables 1 & 2). For Perth respondents, 39.1% cycled for leisure, including 40.2% of males and 38.0% of females (69.5% of male and 75.3% of female bicyclists). For country respondents, 43.0% cycled for leisure. This included 42.0% of males and 44.1% of females surveyed (77.0% of male and 83.8% of female bicyclists).

For Perth, 37.8% of respondents cycled as a means of transport. This included 48.4% of males and 27.6% of females surveyed (83.8% of male and 54.6% of female bicyclists). For country respondents, 44.5% cycle as a means of transport including 50.1% of males and 38.7% of females (91.9% of male and 73.5% of female bicyclists).

Table 7. Bicyclist Destinations by Place of Residence and Gender *.

	PERTH				COUNTRY			
	Males		Females		Males		Females	
	N	%	N	%	N	%	N	%
Cycling for leisure	73	69.5	73	75.3	57	77.0	57	83.8
Cycling for transport	88	83.8	53	54.6	68	91.9	50	73.5

* Bicyclists defined as persons who cycle at least once per year for comparison with the 1990 ABS Survey. See Appendix 3 for complete frequencies of *Usual destinations*

The results in Table 8 show that over half of those surveyed indicated *Just riding around* (63.2%) as their usual cycling destination. The next most cited cycling destinations were *To shops, banks, etc.* (17.5%), *To a venue for sport/recreation* (17.4%), and *Visiting friends and relatives* (16.3%).

Table 8. Usual Destinations for WA Bicyclists in 1993 *.

Usual Destinations	REARK 1993 %
Just riding around	63.2
To shops, banks, etc.	17.5
To a venue for sport/recreation.	17.4
Visiting friends and Relatives	16.3
To school	12.4
To work	8.3
On own property	7.2
Organised cycling	2.0
To university/TAFE etc.	1.3
Connect with other transport	0.4
Other	2.0
Total **	148.0

* See Appendix 3 for details of Usual cycling destination by gender and location of residence.

** Greater than 100% due to multiple responses.

*** See Appendix 4 for ABS findings of the same destinations.

Over one half of bicyclists (63.2%) reported *Just riding around* as their usual cycling destination. This study did not attempt to make comparisons with the 1990 ABS survey results for usual cycling destinations. The variation in methods used to collect data may effect the reliability of any comparisons made. This particularly applies to multiple response answers where different data collection methods may result in varying numbers of responses for each question.

3.1.4 Summary

The proportion of the population that cycled annually in November 1993 is similar to the ABS survey conducted in October 1989 at 50.8% of the sample (48.0% in 1989). The proportions of people who cycled weekly, monthly and yearly was similar for 1993 and 1989. The most commonly reported cycling destination was *Just riding around*.

3.2 CYCLING CHANGES DUE TO THE HELMET LAW

3.2.1 Cycling Changes in the Last Two Years

Survey responses were analysed according to:

- If they had cycled less,
- About the same,
- Cycled more in the last two years.

Fewer Perth residents reduced their cycling in the last two years compared to Country residents. For Perth, 30.2% of males and 23.0% of the females surveyed reported they have cycled less in the last two years. For country areas, 18.2% of males and 20.0% of females surveyed reported they have cycled less than two years ago.

Table 9. Changes in Frequency in Cycling by Gender and Location of Residence.

	PERTH				COUNTRY			
	Male		Female		Male		Female	
	N	%	N	%	N	%	N	%
Less Often	60	30.2	46	23.0	26	18.2	27	20.0
About the same	103	51.8	124	62.0	93	65.0	86	63.7
More	36	18.1	30	15.0	24	16.8	22	16.3
Total	199	100.1	200	100.0	143	100.0	135	100.0

To investigate the effect of the helmet wearing law on persons reported as bicyclists, responses for those bicyclists who indicated they have cycled less were investigated and compared to those for non-bicyclists. Non-bicyclists who indicated they have cycled less are categorised as those that have stopped cycling (Table 10.).

The results in Table 10 show that Perth respondents reported the main reasons for reducing their cycling as: *Mandatory helmet wearing law* (22.7%), *Got a car or drive instead* (21.0%) and *Changes in personal preferences and interests* (10.9%).

Country residents reported the main reasons for cycling less as: *Changes in personal preferences and interests* (30.5%), *Mandatory helmet wearing law* (19.6%), and *Got a car or drive instead* (10.7%) (Table 11.).

Table 10. Reasons for Perth Respondents Who Reported Less Cycling in the Last Two Years.

Reasons reported for cycling less	Bicyclists		Non-Bicyclists		Total	
	N	%	N	%	N	%
Helmet wearing law	18	22.2	9	23.7	27	22.7
Got a car/drive instead	13	16.1	12	31.6	25	21.0
Changes in pers. interest	8	9.8	5	13.1	13	10.9
Other*	42	51.8	12	31.4	54	45.4
Total **	81	99.9	38	99.8	119***	100.0

* "Other" responses are detailed in Appendix 5

** Total percent values will vary due to rounding error.

*** Twelve Perth respondents gave two reasons and one respondent gave three reasons for cycling less.

Table 11. Reasons for Country Respondents Who Reported Cycling Less in the Last Two Years.

Reasons reported for cycling less	Bicyclists		Non-Bicyclists		Total	
	N	%	N	%	N	%
Helmet wearing law	4	9.3	7	53.9	11	19.6
Got a car/drive instead	5	11.6	1	7.7	6	10.7
Changes in pers. interests	17	39.5	0	0.0	17	30.5
Other*	17	39.5	5	38.5	17	39.3
Total **	43	99.9	13	100.1	56***	100.1

* "Other" responses are detailed in Appendix 5

** Total percent values will vary due to rounding error.

*** Three country respondents gave two reasons for cycling less

3.2.2 People Who Stopped Cycling Due to the Helmet Wearing Law

From the respondents answering the survey, it was estimated that 3.6 - 5.0% of Western Australian bicyclists (weighted figures) stopped cycling because of the helmet wearing law. This estimate was determined by the ratio of current non-bicyclists (who indicated they had cycled less in the last two years), to the estimated number of bicyclists two years ago (Table 12).

As the number of people who have started cycling in the last two years is not known, An estimated range is shown to allow for those who have indicated they have increased their cycling in the last two years. It is not known what proportion of these respondents actually started cycling in the last two years thus the range shown provides for, a zero increase in the number of cyclists through to every person who increased their cycling, being a new cyclist (Perth = 0 to 66, Country = 0 to 46). From the respondents surveyed it was estimated that between 3.5 - 4.8% of Perth residents and 4.3 - 6.0% of country residents, who used to cycle, stopped (reportedly) because of the helmet wearing law (Table 12).

The low raw figures for non-bicyclists dictate these estimates will have high variability, i.e. another survey following the same procedure may produce a different result. Because of these low figures, a Poisson distribution was applied (by Data Analysis Pty Ltd) to identify the confidence interval for those that have stopped cycling.

For Perth, there is a 95% chance that the mean of the population for those that have stopped cycling due to the helmet wearing law could fall between 4 and 16 persons (1.7% - 8.6%).

For the country regions, there is a 95% chance that the mean of the population for those that have stopped cycling due to the helmet wearing law could fall between 3 and 14 persons (1.8% - 11.7%).

Table 12. Estimate of Persons Who Have Stopped Cycling Reportedly Due to the Introduction of the Helmet Wearing Law.

	PERTH			COUNTRY		
	Cyclists	Non-Cyclists*	Total-Perth	Cyclist	Non-Cyclists*	Total-Country
Number who reduced cycling due to the law	18	9	27	4	7	11
Estimated range of bicyclist numbers two years ago**	188 - 254			116 - 162		
Estimated proportion of persons who stopped cycling due to the helmet law	3.5 - 4.8%			4.3 - 6.0%		
Estimated proportion (weighted) of persons in WA who have stopped cycling due to the helmet law	Range = 3.6 - 5.0%					

* Non-bicyclists are those that have indicated they never cycle as at November 1993.

** The number of non-bicyclists who indicated they have reduced their cycling in the last two years (Perth = 38, country = 13), are added to the number of current bicyclists (Table 1, Perth = 216, Country = 149). The estimated range of bicyclists who may have started cycling in the last two years has been deducted.

3.2.3 Persons Cycling Less Due to the Helmet Wearing law

The persons who indicated they cycle less due to the law were categorised by: bicyclists and non-bicyclists, and place of residence (Table 13). For Perth, 8.3% of bicyclists reportedly reduced their cycling because of the helmet wearing law (not including those that may have stopped cycling).

The small sample size for the country area requires caution when undertaking the same analysis. For country residents, it is tentatively suggested that 2.7% of current bicyclists reduced their cycling due to the law (not including those that may have stopped cycling).

Table 13. Bicyclists Who Reported They Have Reduced Their Cycling Due to the Helmet Wearing Law.

	PERTH			COUNTRY		
	Cyclists	Non-Cyclists*	Total	Cyclists	Non-Cyclists*	Total
(A) No. who reduced cycling due to the law	18	9	27	4	7	11
(B) Total No. who reduced their cycling	81	38	119	43	13*	56
% of (A)/(B)	22.2	23.7	22.7	9.3	53.9	19.6
Number of current bicyclists	216			149		
Estimated % of current bicyclists who reduced their cycling due to the law **	8.3%			2.7%		

* Non-bicyclists are those that have indicated they never cycle as at November 1993.

** These estimates do not include those respondents that are estimated to have stopped cycling.

3.2.4 Proportion of People Who May Ride More Often if not Required to Wear a Helmet

To further assess the impact of the law, the adults answering the survey were asked if they would cycle more if not legally required to wear a helmet. Respondents were categorised by gender, location of residence (Table 14) and age (Table 15).

Of the 254 adults surveyed who provided information for each household, 28.0% of adults from Perth and 25.0% of adults from the country indicated

they would cycle more if they were not legally required to wear a helmet (Table 14).

Table 14. Reported Effect of the Law on Behaviour by Gender and Location.

	PERTH			COUNTRY		
	Male	Female	Total	Male	Female	Total
Ride more often if not required to wear a helmet						
Yes	21	21	42	15	11	26
No	49	59	108	30	48	78
Total	70	80	150	45	59	104
Yes-%	30.0	26.3	28.0	33.3	18.6	25.0

Analysed by age, the 18-19 year old age group reported the highest "yes" response, although the sample size was small (N = 13) and this result should be treated with caution. The second largest "yes" response was from persons in the 25-34 years age group (N = 56) at 35.7% (Table 15).

Table 15. Effect of the Law on Behaviour by Age.

	AGE IN YEARS						
	18-19	20-24	25-34	35-44	45-54	55-64	>65
N *	13	19	56	66	51	23	26
Would ride more often if not legally required to wear a helmet							
Yes (%)	53.8	26.3	35.7	27.3	25.5	13.0	7.7
No (%)	46.2	73.7	64.3	72.7	74.5	87.0	92.3

* These figures combine the Perth and country samples without applying a weighting factor and do not reflect the age profile of the population.

3.2.5 Main Roads Bicycle Counters

Survey results from the Main Roads bicycle counters on the Causeway and Narrows Bridge have provided information on the number of cyclists who use these bridges since October 1991. Their results indicate a decrease in cycling for these two sites of approximately 25% between October - December 1991 and October - December 1992. Initially, these results may appear to contradict those found in the 1993 telephone survey. However, the apparent variance between the two surveys is subject to the following conditions.

- The Main Roads survey only indicates bicyclist figures for those sites and may not be representative of trends for all bicyclists.
- Changes in the demographics of people who have access to these sites cannot be adequately accounted for.
- Other variables, including bicycle hire vendors near the causeway and their business practices cannot be adequately accounted for.
- The reasons why there is a decrease for bicyclists on the Narrows and Causeway is not known. The 1993 telephone survey found that approximately one quarter of persons who reduced their cycling did so because of the helmet wearing law. Extrapolated to the results from the Main Roads bicyclist counters this indicates that one quarter of the 25% decrease observed may be due to the law (approximately 6%). The results therefore may not be contrary to the 1993 telephone survey.

3.2.6 Summary and Discussion

It is estimated from the survey conducted in November 1993, that the number of bicyclists has fallen by approximately 3.6 - 5.0% (weighted) due to the helmet wearing law (subject to sampling variation). In addition, the helmet wearing law was reported as being responsible for 8.3% of current Perth bicyclists and 2.7% of the current country bicyclists reducing their cycling.

Of the adults who provided information for each household surveyed (n = 254), 28.0% of adults from the Perth sample, and 25.0% of adults from the country sample, reported they would cycle more if they were not legally required to wear a helmet.

3.3 EFFECT OF THE HELMET LAW ON WEARING RATES

For the 365 persons reported to be bicyclists, respondents were asked whether they wore a helmet on their last cycling trip. The results were analysed according to gender, location of residence, age and usual cycling destination.

3.3.1 Gender and Location

The results in Table 16 show that for Perth bicyclists, 66.1% of males and 71.3% of females were reported to have worn a helmet on their last cycling trip. For country bicyclists, 70.5% of males and 80.3% of females were reported to have worn a helmet on their last cycling trip.

Table 16. Helmet Wearing by Gender and Location of Residence.

Helmet Worn on Last Trip	PERTH			COUNTRY		
	Male	Female	Total	Male	Female	Total
Yes, N	76	72	148	55	57	112
Yes, %	66.1	71.3	68.5	70.5	80.3	75.2
Total N	115	101	216	78	71	149

3.3.2 Helmet Wearing by Usual Destination

As the results in Table 17 show, high wearing rates were reported for *Riding to school* (100%), *Visiting friends and relatives* (83.6%), and *Just riding around* (76.5%). Lower wearing rates were reported for riding *To shops, banks, etc.* (70.3%), *To work* (66.7%), *To sporting venues* (64.4%), and *On own property* (55.6%).

Table 17. Helmet Wearing by Usual Cycling Destination.

	Usual Cycling Destination										
	Around	Visit	Work	Sch	Uni	Shop	Ven	Tpt	Org	Own	Oth
N *	221	55	30	46	4**	64	59	3**	6**	27	6**
Helmet worn on last Trip											
<i>(Figures expressed in %)</i>											
Yes	76.5	83.6	66.7	100	100	70.3	64.4	33.3	100	55.6	33.3
No	23.5	16.4	33.3	0.0	0.0	29.7	35.6	66.7	0.0	44.4	66.7

* Combined Perth and country figures, not weighted.

** Sample size too small to provide reliable information.

Legend for Table 17.

Around	Just riding around
Shop	To shops, banks, etc.
Ven	To a venue for sport/rec.
Visit	Visiting friends & relatives
Sch	To school
Work	To work
Own	On own property
Org	Organised cycling
Uni	To University/TAFE etc.
Tpt	Connect with other transport
Oth	Other

3.3.3 Helmet Wearing by Age

Categorised by age groups (Table 18), high wearing rates were reported for the 5-9 year age group (86.2%) and the 10-14 year age group (95.7%). Lower wearing rates were reported for the following age groups:

45 - 54 years (55.0%)

15 - 19 years (60.8%)

20 - 24 years (59.5%)

25 - 34 years (63.6%)

Table 18. Helmet Wearing by Age for Entire Sample.

	AGE IN YEARS								
	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	>65
N *	58	47	51	37	55	65	40	9**	3**
Helmet worn on last trip									
Yes, %	86.2	95.7	60.8	59.5	63.6	72.3	55.0	55.6	100
No, %	13.8	4.3	39.2	40.5	36.4	27.7	45.0	44.4	0.0

* These figures combine the Perth and country samples without applying a weighting factor.

** Sample size too small to provide reliable information.

3.3.4 Summary

The reported helmet wearing rate was 68.5% for Perth respondents and 75.2% for country respondents. This variation was not statistically significant. Analysed according to "Usual destination", the highest reported helmet wearing rate was for the journey *To school* (100.0%). The lowest reported wearing rate was for *On own property* (55.6%).

Analysed according to age groups, children aged 10 - 14 years reported the highest helmet wearing rate (95.7%), compared to the 45 - 54 years age group who reported the lowest wearing rate (55.0%).

3.4 SUPPORT FOR THE HELMET WEARING LAW

To be comparable to the previous attitudinal surveys undertaken (Reark, 1991 & 1992), the adult who represented their household was asked two questions about their support for the law. The first (Part Two, Question A) asked:

"Do you support the helmet wearing law for cyclists?"

1. Yes, definitely,
2. Maybe/conditional, or
3. No, definitely.

The second question (Part Two, Question B) asked respondents:

"If you could only have a yes or no response to the previous question which would you choose?"

1. Yes, or
2. No.

3.4.1 Support for the law compared to 1992

For Perth (Table 19), 60.0% of respondents indicated they *Definitely support* the helmet wearing (50.7% in 1992). For 1993, respondents who offered *Conditional support* for the law represented 25.3% of adult responses (30.7% in 1992) with those that indicated *Definitely not support* the law represented by 14.7% of responses (18.7% in 1992). The difference between 1992 and 1993 results was not statistically significant.

Table 19. Support for the Helmet Wearing Law of Perth Respondents for 1992 and 1993.

	1992		1993		Difference % Points
	N	%	N	%	
Yes, Definitely	76	50.7	90	60.0	+9.3
Maybe/conditional	46	30.7	38	25.3	-5.4
No, Definitely	28	18.7	22	14.7	-4.0
Total *	150	100.1	150	100.0	

* Total percent values will vary due to rounding error.

For country residents there was a statistically significant increase in support for the helmet wearing law ($\chi^2=6.07$, $df=2$, $p<0.05$). The results in Table 20 show an increase in the category *Definitely support* from 44.8% (Nov. 1992) to 61.5% in November 1993, an increase of 16.7 percentage points. There was a reported decrease in the categories *Conditional support* (7.4 percentage points) and *Definitely not support* (9.4 percentage points).

Table 20. Support for the Helmet Wearing Law of Country Respondents for 1992 and 1993.

	1992		1993		Difference % Points
	N	%	N	%	
Yes, Definite	47	44.8	64	61.5	+ 16.7
Conditional Support	31	29.5	23	22.1	-7.4
No, Definite	27	25.7	17	16.3	-9.4
Total *	105	100.0	104	99.9	

* Total percent values will vary due to rounding error.

3.4.2 Support for the law compared to 1991

Persons who indicated *Conditional support* for the law were asked to decide between *Definitely support* and *Definitely not support* the law (see Table 22). For those who initially offered *Conditional support*, significantly more country residents than Perth residents chose to support the law ($\chi^2=4.01$, $df=1$, $p<0.05$).

Table 21. Support for the law for those who indicated *Conditional support*.

	PERTH		COUNTRY	
	N	% *	N	% *
YES	20	13.3	18	17.3
NO	18	12.0	5	4.8

* Proportion of the total adult sample

When the results from Table 20 are added to those of Table 21, 73.3% of the Perth sample and 78.8% of the country sample supported the law when provided with only a yes or no option. The Perth results were not statistically significantly different from those found in November 1991 (78.0% support).

3.4.3 Support for the Current Law categorised by Age

The results in Table 22 show unconditional support for the law is greatest for the 35-44 (66.7%), over 65 (65.4%) and 25-34 (60.7%) age groups. The lowest level of unconditional support was in the 18-19 (53.8%) and 45-54 (54.9%) age groups.

Table 22. Level of Support for the Law by Age Groups.

	Age in Years						
	18-19	20-24	25-34	35-44	45-54	55-64	>65
N *	13	19	56	66	51	23	26
Yes, Definite (%)	53.8	57.9	60.7	66.7	54.9	56.5	65.4
Conditional (%)	23.1	21.1	21.4	24.2	23.5	34.8	23.1
No, Definite (%)	23.1	21.1	17.9	9.1	21.6	8.7	11.5
Total %	100.0	100.1	100.0	100.0	100.0	100.0	100.0

* These figures combine the Perth and country samples without applying a weighting factor and do not reflect the age profile of the population.

3.4.4 Support for the Current Law Categorised by Level of Cycling

Analysis was undertaken to determine the level of support for the current law by bicyclists. The level of support by bicyclists was found to be 57.5% (n=77) for *Yes, Definitely support*, 26.5% (n=36) for *Maybe/Conditional support*, and 13.3% (n=21) for *No, Definitely not support* the current law.

When bicyclists who indicated *Maybe/Conditional support* were asked to decide between *Yes, Definitely support* and *No, Definitely not support* the current law, 75.4% (n=101) indicated *Yes, Definitely support* and 24.6% (n=33) indicated *No, Definitely not support*.

3.4.5 Summary

Support for the helmet wearing law has increased in the country areas since November 1992. The reported rates of *Unconditional Support* for the law were 60.0% for Perth respondents and 61.5% for country respondents.

When respondents who chose the *Conditional Support* option decided between *Definitely Support* and *Definitely not Support*, 73.3% of Perth residents and 78.8% of country residents supported the current law.

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TBHW9402.DOC

Appendix 1.

Ref: CP1083/DQ

**CYCLING SURVEY
INTRODUCTION**

Introduction

Good (.....) my name is (.....) from Reark Research. We are currently conducting a short survey on behalf of the Traffic Board in relation to general cycling habits. Could I please speak to the person aged over 18 years who knows the most about the cycling patterns of each resident in your household. **(Re-introduce if necessary)**

Firstly could you please tell me how many people aged over 5 years live in your household?

For ease of reference could I please have their first names, starting with yourself?

- 1. 6.
- 2. 7.
- 3. 8.
- 4. 9.
- 5. 10

This survey is divided into two short parts. The first part relates to the cycling habits of each member of your household including yourself while the second part deals with your own attitudes.

We will begin part one with yourself...

(Go to part one)

(Complete part one for each resident over 5 years of age recording their name and number at the top of each page)

a - c:\cp1083\cp1083.qst

Reark Research Pty Ltd A.C.N. 006 793 906
 317 Rokeby RoadPerth
 Subiaco WA 6008

Ref: CP1083-DQ

November 1993

Phone:(09)388 2334

I.D. | | | |

**CYCLING SURVEY
PART ONE**

Household Members

Name: _____

Number: _____

A. What is your / their age?	B. What is your / their gender?	C. How often do you/they cycle?	D. What are your/their usual cycling destinations? (Circle one or more)
5 - 9 years1	Male.....	Seven days / week.....1	Just riding around 1
10 - 14 years2	Female.....	Five to six days / week.....2	Visiting friends or relations 2
15 - 19 years3		Three to four days / week.....3	To work 3
20 - 24 years4		Two days / week4	To school 4
25 - 34 years5		One day / week5	To university / TAFE etc. 5
35 - 44 years6		At least monthly6	To shops, banks etc. 6
45 - 54 years7		At least once every 3 months7	To a venue for sport or recreation 7
55 - 64 years8		At least annually.....8	Connect with other forms of transport 8
Over 65 years9		Less than annually9	Organised cycling 9
		Never (Go to F).....10	On own property 10
			Other (Please specify) _____ _____

E. Did you/they wear a helmet on your/their Last trip?	F. In the last two years have you/they cycled....	G. Why do you/they cycle less? (Circle one or more)
Yes.....1	Less often (Continue)1	Economic reasons (Couldn't afford it)..... 1
No.....2	About the same (Go to next resident) ..2	Changes in personal preferences and interests2
	More often (Go to next resident)3	Changed location.....3
		Compulsory helmet wearing.....4
		Road traffic levels.....5
		Had a cycling accident6
		No longer have a bicycle.....7
		No longer cycle to Uni/Work8
		Laziness9
		Lack of cycleways 10
		Don't know/not sure 11
		Other (Please specify) 12

**CYCLING SURVEY
PART TWO**

(Complete for the first respondent only)

- A. Do you support the helmet wearing law for cyclists?
- Yes, definitely (**Go to E**) 1
- Maybe / conditional (**Continue**)..... 2
- No, definitely (**Go to C**) 3
-
- B. If you could only have a yes or no response to the previous question which would you choose?
- Yes 1
- No..... 2
-
- C. Would you support the law if it only applied to children?
- Yes 1
- No..... 2
-
- D. Do you agree with the wearing of bicycle helmets in principal, but feel that it shouldn't be law?
- Yes 1
- No..... 2
-
- E. Would you ride more often if you were not legally required to wear a helmet?
- Yes 1
- No..... 2

(Staple All Completed Parts Together)

THANK RESPONDENT AND CLOSE INTERVIEW ACCORDINGLY

TELEPHONE NUMBER: _____

INTERVIEWER'S NAME: _____

INTERVIEWER'S NUMBER: |__| |__| |__| |__| |__|

DATE OF INTERVIEW: _____ / _____ / _____

"I certify this is a correct record of the interview which has been completed in accordance with my interviewing guidelines and conducted according to the ICC/ESOMAR International Code of Marketing and Social Research Practice.

Signed:

Appendix 2.

Summary of Cycling Frequency by Gender and Location of Residence.

Cycling Frequency	PERTH				COUNTRY				Total
	Male	Female	Total		Male	Female	Total		
	%	%	N	%	%	%	N	%	
7 days per week	10.6	6.0	33	8.3	19.6	13.3	46	16.5	79
5-6 days per week	0.5	1.0	3	0.8	3.5	3.7	10	3.6	13
3-4 days per week	6.0	4.0	20	5.0	4.9	5.2	14	5.0	34
2 days per week	3.0	5.0	16	4.0	6.3	2.2	12	4.3	28
1 day per week	7.0	8.0	30	7.5	3.5	4.4	11	4.0	41
At least monthly	6.5	7.5	28	7.0	6.3	4.4	15	5.8	43
At least every 3 mths	6.0	4.5	21	5.3	2.1	6.7	12	4.3	33
Yearly	13.1	12.5	51	12.8	5.6	10.4	22	7.9	73
Less than annually	5.0	2.0	14	3.5	2.8	2.2	7	2.5	21
Never	42.2	49.5	183	45.9	45.5	47.4	129	46.4	312
Total Number	199	200	399		143	135	278		677
At least weekly	27.1	24.0	102	25.6	37.8	28.8	93	33.4	195
At least monthly	33.6	31.5	130	32.6	44.1	33.2	108	39.2	238
At least annually	52.7	48.5	202	50.7	51.8	50.3	142	51.4	344

Appendix 3.

Usual Cycling Destination by Gender and Location of Residence

Usual Cycling Destination	PERTH				COUNTRY			
	Male	Female	Total		Male	Female	Total	
	%	%	N	%	%	%	N	%
Just riding around	59.0	63.9	124	61.4	63.5	73.5	97	68.3
On own property	4.8	7.2	12	5.9	12.2	8.8	15	10.6
Organised cycling	2.9	2.1	5	2.5	1.4	0.0	1	0.7
Other	2.9	2.1	5	2.5	0.0	1.5	1	0.7
Cycling for leisure	69.5	75.3	146	72.3	77.0	83.8	114	80.3
To a venue for sport/rec.	21.9	13.4	36	17.8	14.9	17.6	23	16.2
Visiting friends & relatives	22.9	10.3	34	16.8	17.6	11.8	21	14.8
To shops, banks, etc.	16.2	14.4	31	15.3	24.3	22.1	33	23.2
To school	11.4	9.3	21	10.4	16.2	19.1	25	17.6
To work	10.5	4.1	15	7.4	17.6	2.9	15	10.6
To university/TAFE etc.	1.0	2.1	3	1.5	1.4	0.0	1	0.7
Connect with other tpt	0	1.0	1	0.5	0.0	0.0	0	0.0
Cycling for transport	83.8	54.6	141	69.8	91.9	73.5	118	83.1
Total Bicyclist Destinations*	161	126	287	142.1	125	107	232	163.4
Total Bicyclists**	105	97	202		74	68	142	344

* The totals exceeds the total number of bicyclists due to multiple responses.

** Defined as persons who cycle at least once per year for comparison with the 1990 ABS Survey.

Appendix 4.

Table 8. Usual Destinations for Bicyclists in WA - 1989 & 1993 *.

Usual Destinations	ABS 1989 %	REARK 1993 %
Just riding around	62.5	63.2
To shops, banks, etc.	38.9	17.5
To a venue for sport/recreation.	21.3	17.4
Visiting friends and Relatives	38.9	16.3
To school	23.8	12.4
To work	9.7	8.3
On own property	20.9	7.2
Organised cycling	1.9	2.0
To university/TAFE etc.	1.6	1.3
Connect with other transport	2.6	0.4
Other	1.1	2.0
Total **	223.2	148.0

* See Appendix 3 for details of Usual cycling destination by gender and location of residence.

** Greater than 100% due to multiple responses.

Comparisons between the 1989 and 1993 surveys would not be valid due to differences in survey techniques.

Appendix 5.

Reasons for Cycling Less by location of Residence and if Respondents are Bicyclists or Non-Bicyclists.

Reasons for Cycling Less	PERTH			COUNTRY		
	N	% Cyclists	% Non-Cyclists	N	% Cyclists	% Non-Cyclists
Helmet wearing law	27	22.2	23.7	11	9.3	53.9
Changes in personal preferences & interests	13	9.8	13.1	17	39.5	0.0
Got a car or drive instead	25	16.1	31.6	6	11.6	7.7
No longer have a bicycle	11	9.9	7.9	2	4.7	0.0
No time	10	7.4	10.5	2	2.3	7.7
Changed location	3	3.7	0.0	3	2.3	15.4
Work commitments	1	1.2	0.0	4	9.3	0.0
Laziness	3	3.7	0.0	2	2.3	7.7
Too old	2	1.2	2.6	2	4.7	0.0
No longer cycle to University/Work	3	2.5	2.6	1	2.3	0.0
Road traffic levels	2	1.2	2.6	0	0.0	0.0
Lack of Cycle way	3	3.7	0.0	0	0.0	0.0
Other	12	13.6	2.6	5	9.3	7.7
Don't know	4	3.7	2.6	1	2.3	0.0
Total *		99.9	99.8		99.9	100.1
N	119	81	38	56	43	13

* Total percent values will vary due to rounding error.