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Survey of Characteristics of Seat Belt Non-Wearers

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#### Abstract

Observations of seat belt usage and interviews of seat belt non-wearers were conducted in fourteen rural towns in New South Wales, Victoria and the Northern Territory.

In general, the study concludes that seat belt wearing rates have increased significantly in recent years. In addition, a number of characteristics of seat belt non-wearers have been drawn from the interview data with regard to socio-economic characteristics, type and length of trip, attitudes to seat belt laws and random breath testing.

#### Keywords

Seat belt, occupant, non-wearer, restraint, usage, compliance, survey, statistics, country, provincial, Australia, interview, attitudes, road safety, behaviour, laws.

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(3)

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# ARUP

## Survey of Characteristics of Seat Belt Non-Wearers

Prepared for the

## Federal Office of Road Safety

by

**Arup Transportation Planning** 

April 1991

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#### EXECUTIVE SUMMARY

Arup Transportation Planning was appointed by the Federal Office of Road Safety to undertake the Survey of Characteristics of Seat Belt Non-Wearers, an observation and interview survey of seat belt usage in fourteen rural towns throughout New South Wales, Victoria and the Northern Territory.

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Observation of seat belt usage and interviews of non-wearers were conducted at service stations and other locations during August and September 1990. A total of 22,285 vehicles were observed over all sites producing a total of 34,317 usable occupant observations. A sampling rate of approximately 84% of vehicles entering sites was achieved.

Major findings of the study can be summarised as follows

Overall, approximately 94% were observed to be wearing seat belts in rural Victoria, New South Wales and the Northern Territory. Wearing rates varied between 86.2% in Junee and 98.4% in Wagga Wagga

Wearing rates in Victoria were higher than in New South Wales and the Northern Territory

Wearing rates were significantly higher in the larger towns

Wearing rates in the driver and front left passenger seating positions were the highest. Belt use in centre seating positions were lower than in side positions

Occupants of seats fitted with inertia reel belts wore them at a higher rate that those with static belts. Wearing rates of child restraints in general were higher than average.

Wearing rates in cars and station wagons were higher than in vans, utilities or panel vans

Some differences in wearing rates were observed over the day with wearing rates lower in the morning shift than both afternoon shifts

Little variation occurred in wearing rates by day of week, although rates were slightly but significantly higher on weekends than on weekdays

Significant variation in wearing rates were observed with age. Higher than average wearing rates were observed amongst very young children. Rates were lowest amongst 5 to 7 year olds, but rose progressively with age group for older occupants

Wearing rates of females were slightly higher than those of males

In wet conditions, wearing rates were found to be higher than in fine conditions.

Major findings of the characteristics of seat belt non-wearers are:

Most seat belt non-wearers in the rural towns surveyed said they were travelling relatively short distances on the day of the survey

Most non-wearers were on work related or local/everyday type trips

#### Most non-wearers were found to be locals

The major proportion of non-wearers claimed either to have forgotten, couldn't be bothered to wear a seat belt or that they were only travelling a short distance. However, most non-wearers said they favoured compulsory seat belt usage

In response to why they thought approximately 50% of fatal accidents occurred in rural areas, non-wearers said that speed, poor roads and unfamiliarity with the conditions were the major reasons

A large majority of non-wearers agreed with random breath testing

Most non-wearers had held their licence for more than ten years

Tradespersons, labourers and those involved in home duties were the most common occupations of non-wearers

Approximately 12% of non-wearers had completed some post secondary study and 32% had completed secondary school

Information collected about non-wearer personal annual incomes showed that most had an income below \$30,000, but this proportion was less than the overall proportion of the Census population in the same income range.

The results of the observations component of this study indicate that when compared to the Federal Office of Road Safety surveys in 1988;

overall seat belt wearing rates have increased markedly over the two years. Results from the Vic Roads 1989 Rural Town Restraint Use Survey show that this increase has been steady in rural Victorian towns

large increases were observed in Avoca, Shepparton, Ouyen, Alice Springs and Darwin

the differences in wearing rates between states has decreased

significant increases in wearing rates were observed by seating position particularly in the rear seats

the disparity between the wearing rates of females and males has reduced.

#### 1.0 INTRODUCTION

Arup Transportation Planning (ATP) was appointed by the Federal Office of Road Safety (FORS) in June 1990 to undertake the Survey of Characteristics of Seat Belt Non-Wearers.

Vehicle occupant observations of restraint use and interviews of seat belt non-wearers were conducted at fourteen rural towns in Victoria, New South Wales and the Northern Territory. This report details the survey methodology used and the results of the analysis of the data collected.

The observation component of the study was similar to the 1988 FORS occupant restraint usage survey in terms of both its coverage and methodology. On this basis the seat belt wearing rate trend over recent years has also been examined. Details of this comparison analysis are also provided in this report.

#### 2.0 BACKGROUND

The use of occupant restraints is generally regarded as a successful means of improving road safety. Requirements that seat belts be fitted and worn in passenger vehicles have existed throughout Australia for some time. However, the effectiveness of this measure depends on the extent to which occupant restraints are used and the standard of adjustment with which they are worn.

Surveys to ascertain the rates of usage of occupant restraints have been conducted over many years. In recent years, the Federal Office of Road Safety (FORS) has commissioned a programme of surveys of occupant restraint use that has been undertaken in a number of phases. Pederson and Mahon (1983) developed a survey method to obtain data on seat belt wearing. This involved a combination of observation of seat belt wearing and interviews with car drivers. The method was applied in the Canberra - Yass area. Ove Arup & Partners (1986) further developed the method in surveys conducted in six rural areas of Victoria, South Australia and Western Australia.

Following refinement of the survey methodology, large scale surveys of restraint usage were undertaken in two stages. The first stage involved observation and interview surveys of seat belt wearing in the capital city, a provincial town and a country town in each of Queensland, South Australia and Western Australia. The results of these surveys were reported in Cameron McNamara (1987). The second stage involved investigation of seat belt wearing rates in rural towns throughout Victoria, New South Wales and the Northern Territory. These results are reported in Ove Arup & Partners (1988).

The survey reported in this document was undertaken at the same towns as the second stage of the large scale surveys noted above. However, the survey method differed from that adopted in the earlier survey in that car occupants encountered who were not wearing a seat belt were interviewed about their socio-economic characteristics, type and length of trip, attitudes to seat belt laws and random breath testing. Such information is vital in designing public education campaigns which target particular groups of the population.

#### 3.0 SURVEY METHODOLOGY

#### 3.1 Survey Specification

This survey involved both observations of all occupants of seat belt wearing and interview of seat belt non-wearers.

FORS specified the towns, times and sites to be covered during the survey. The survey programme can be summarised as follows:

#### . Survey towns

Fourteen towns in Victoria, New South Wales and the Northern Territory were selected by FORS. All of these towns were surveyed previously in the FORS Stage 2 surveys in 1988. Towns nominated by FORS and included in the survey are shown in Figure 3.1.

Survey sites

In each town, surveys were conducted at a number of sites. The consultant selected the survey sites within each town and sites were used where vehicles could be observed entering and the drivers and/or passengers interviewed if required. The following sites were chosen for the surveys based on their suitability rather than a desire to achieve quotas for particular site types:

- Service Stations (within and on the periphery of towns)
- Shopping Centres, Supermarkets, Department Stores
- Car Parks
- Fast Food Outlets
- Bottle Shops
- Hospitals Other sites

A list of survey sites and maps showing site locations for each town are included in Appendix A.

Note that these differed from those sites used in the FORS Stage 2 surveys because of the need to interview some vehicle occupants. The sites used in the Stage 2 surveys included drive-by sites (i.e. intersections) as only observation of vehicle occupants was required.

#### Survey duration

FORS required that surveys be conducted between 7 am and 7 pm over a continuous seven day period. The surveys were to be conducted regardless of weather conditions.

#### Division of survey effort

Each day of the survey was divided into three four hour shifts and each shift comprised three 80 minute periods to be spent at three different sites. Hence a total of nine different sites were scheduled to be covered in each town per day.

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Survey Sites Figure 3.1

#### Sample selection

Only passenger cars, passenger car derivatives and vans with no more than 9 seats were included in the survey, i.e.

- Passenger cars: sedans (cars) and station wagons
- Passenger car derivatives: utilities and panel vans
- Vans: small commercial vehicles and mini-buses with no more than three rows of seats.

Where there was more than one entrance to a particular survey location, both entrances were surveyed if possible. If not, the major entrance only was used.

#### 3.2 Survey Design

A set sampling frame was used at each town and is included in Appendix B. Where there were less than ten suitable sites available in a particular town, a revised sampling frame was used which followed a similar pattern.

Survey staff were recruited through the Commonwealth Employment Service and where available, staff from previous restraint use surveys undertaken by the consultant were employed again on these surveys. This source of survey staff had previously been used and found to be acceptable (Ove Arup & Partners, 1986 and 1988; Cameron McNamara, 1987); no difficulties were encountered in this project. Indeed, Commonwealth Employment Service staff provided valuable assistance throughout the project. A team of between two and four staff was recruited at each town and a town supervisor appointed from these. After the initial briefing and training by the consultant, the town supervisors were responsible for the day to day management of the survey in their town. The consultant's supervisors all performed creditably.

The survey forms used are shown in Appendix C. The observation form provided for up to six vehicle observations per page and the interview form provided for one interview per page. No problems were encountered in their use after initial briefing and training.

The surveys were conducted within a five week period during August and September 1990. The actual survey dates are shown in Table 3.1.

#### TABLE 3.1: SURVEY TOWNS AND DATES OF SURVEYS

#### Dates of Survey

Alice Springs	10 August - 16 August
Ararat	24 August - 6 September
Avoca	24 August - 30 August
Cobram	6 September - 12 September
Darwin	15 August - 4 September
Junee	5 September - 11 September
Kyogle	22 August - 28 August
Lismore	24 August - 30 August
Mildura	29 August - 4 September
Moree	6 September - 12 September
Ouyen	30 August - 5 September
Shepparton	5 September - 11 September
Wagga Wagga	5 September - 11 September
Walcha	4 September - 10 September
All Towns	10 August - 12 September

With the exception of Ararat and Darwin, all surveys were completed within the programmed seven day period. At Ararat two days were repeated at the same time on the corresponding days a week later and at Darwin, one shift programmed for the second week was undertaken in the third week. No surveys were conducted on public holidays or during school holidays.

#### 3.3 Sampling Issues

The survey methods adopted were designed to ensure that, as far as possible, a representative sample of vehicles in the surveyed traffic streams was observed. Although no evidence exists of sample selection bias, it is possible that high occupancy vehicles were undersampled or that information was collected less reliably about all occupants of such vehicles.

It is not possible to show with absolute confidence that the sample has complete integrity or is unbiased to any extent. However, detailed checking of data was undertaken to highlight any obvious errors and incorrect coding. Reference to 1986 census data also shows that proportions of sub groups identified in this survey are similar to those in the census. This would indicate that the presence of bias towards particular subgroups is unlikely, however, it is important to note that the overall proportions of these sub groups may be different in rural areas from the overall census data.

As a result of differing town sizes and the fact that surveys were undertaken during both quiet and busy periods, differing sampling rates occurred throughout the survey and different overall sample sizes were collected at each town and during some shifts.

Apart from potential sources of bias of the kinds identified above, acceptance of the data set as being representative of seat belt wearing in rural towns depends on a number of assumptions:

- . that the sites selected are representative of the range of conditions that occur in rural towns
- . that the sites chosen in each town are representative of conditions in that town
- . that the occupants of the vehicles selected were representative of all vehicles occupants at the locations surveyed.

Although the means by which these assumptions could be tested lies outside the scope of this project, it is considered that the large samples observed are likely to make the results representative of seat belt wearing behaviour in rural towns in Victoria, New South Wales and the Northern Territory.

#### 3.4 **Practical Issues**

Several practical issues should be noted concerning the collected data:

. the last hour or so of these surveys were conducted in twilight conditions. Survey staff indicated in debriefing that they felt the seat belt wearing information collected at these times was less reliable than at other times

some sites closed at weekends, in the early morning or in the evening and could not be surveyed as scheduled. In such cases where the survey programme could not be completed as scheduled, the survey for that shift was continued at the next scheduled or previous site nominated on the sampling frame

survey staff indicated that visibility and the reliability of seat belt wearing information collected was reduced by various factors, including heavy rain, foggy conditions and by tinted windows in vehicles

survey staff also indicated that at some sites not all vehicles slowed sufficiently to allow fully reliable information to be gathered

during periods of heavy rain, people were more reluctant to be interviewed and hence the sample of interviews in heavy rain was lower.

It should be noted, however, that the proportion of data which may be affected by these issues is relatively small. On this basis, it is considered most unlikely that the survey results would be changed to a significant extent by these factors.

#### 4.0 ANALYSIS

#### 4.1 Sample Overview

A total of 22,285 vehicles were observed over all survey sites with information for a total of 34,859 occupants observed. Of these occupants, 542 observations (1.6%) have been excluded from the analysis because survey staff either were unsure if seat belts were in use or an invalid response was recorded. This yields a total of 34,317 usable occupant observations.

In the interview surveys, 1,164 occupants not wearing seat belts consented to be interviewed. This compares with a total of 2,133 occupants observed to be not wearing seat belts. This represents an overall interview rate of 54.6% of observed non wearers.

The distribution of interviews and observations across all towns surveyed is tabulated below.

#### TABLE 4.1: OBSERVATIONS AND INTERVIEWS BY TOWN

Town	Observations		Inter	Interviews	
	Sample	%	Sample	%	
Alice Springs	2141	6.1	96	8.2	
Ararat	2566	7.4	31	2.7	
Avoca	649	1.9	54	4.6	
Cobram	1972	5.7	102	8.8	
Darwin	9003	25.8	265	22.8	
Junee	2572	7.4	55	4.7	
Kyogle	952	2.7	98	8.4	
Lismore	1657	4.8	69	5.9	
Mildura	2214	6.4	39	3.4	
Moree	1678	4.8	75	6.4	
Ouyen	952	2.7	64	5.5	
Shepparton	3497	10.0	68	5.8	
Wagga Wagga	3865	11.1	38	3.3	
Walcha	1141	3.3	110	9.5	
All Towns	34859	100.0	1164	100.0	

The variation between observation and interview proportions for some towns is most likely due to:

- differences in wearing rates
- variation in business and type of sites
- human factors in the conduct of interviews
- different interview response rates.

Counts of vehicles entering each survey site were also undertaken to estimate sampling rates. Note that it was not possible to record details for all vehicles entering sites due to the conduct of interviews (observations were ceased during interviews), multiple entry points and some sites being too busy to observe every vehicle. A total of 26,607 vehicles were counted entering all sites, representing an overall vehicle observation sampling rate of 83.8%. A total of 1,164 interviews represents an overall interview rate of 4.4% of vehicles entering (or 5.2% of vehicles observed). The number of vehicle observations at each town and the corresponding sampling rates are shown in Table 4.2.

#### Interviews Observations Town Number Vehicles Rate Number of Vehicles Rate **Respondents Entering** of Vehicles Entering % % Alice Springs 1333 1707 78.1 96 1707 5.6 1820 93.6 31 1820 1.7 Ararat 1703 99.1 426 430 54 430 12.6 Avoca 98.2 7.5 Cobram 1335 1360 102 1360 Darwin 5872 7718 76.1 265 7718 3.4 Junee 1681 1910 88.0 55 1910 2.9 Kyogle 566 584 96.9 98 584 16.8 1122 96.8 69 1122 6.1 Lismore 1086 Mildura 1674 81.6 39 1674 2.3 1366 6.6 92.6 75 Moree 1053 1137 1137 621 625 99.4 64 625 10.2 Ouven 2630 82.4 68 2630 2.6 Shepparton 2167 74.5 1.2 Wagga Wagga 2310 3101 38 3101 Walcha 766 802 95.5 110 802 13.7 26620 **B3 7** 1164 26620 4 4 All Towns 22285

#### TABLE 4.2: VEHICLE OBSERVATION AND INTERVIEW SAMPLING RATES BY TOWN

#### 4.2 Seat Belt Wearing Rates - Observation Surveys

All results are presented in the following tables as percentages of vehicle occupants (either for the whole sample or in a nominated group) who were observed wearing seat belts. Observations for which belt use could not positively be identified are excluded. In all cases, the sample size on which that estimate is based is also shown. The Z-test for proportions has been used to determine the significance of differences in wearing rates for some categories and is quoted wherever appropriate.

#### 4.2.1 Overall

Overall, 93.8% of occupants were observed to be wearing seat belts throughout rural Victoria, New South Wales and the Northern Territory. The highest wearing rates were recorded in Wagga Wagga (98.4%), Shepparton (98.0%) and Ararat (97.6%). Towns with the lowest rates were Kyogle (86.2%) and Avoca (86.7%). Generally, the smaller towns had lower wearing rates than the larger towns (see Table 4.5) Table 4.3 summarises the overall wearing rates for each town surveyed.

Town	Sample	Number Wearing Seat Belts	%
Alice Springs	2116	1890	89.3
Ararat	2502	2441	97.6
Avoca	615	533	86.7
Cobram	1967	1826	92.8
Darwin	8888	8255	92.9
Junee	2516	2237	88.9
Kyogle	939	809	86.2
Lismore	1651	1560	94.5
Mildura	2204	2121	96.2
Moree	1655	1565	94.6
Ouyen	947	880	92.9
Shepparton	3465	3394	98.0
Wagga Wagga	3725	3667	98.4
Walcha	1127	1006	89.3
Ali Towns	34317	32184	93.8

#### TABLE 4.3: SEAT BELT WEARING RATES BY TOWN

Table 4.4 shows the variation in wearing rates in each of the states. Victoria had the highest wearing rate (95.7%).

#### TABLE 4.4: SEAT BELT WEARING RATES BY STATE

State	Sample	Number Wearing Seat Belts	%
Victoria	11700	11195	95.7
New South Wales	11613	10844	93.4
Northern Territory	11004	10145	92.2
All Towns	34317	32184	93.8

Table 4.5 shows the wearing rates by the population grouping of the towns over both states and the Northern Territory. It shows that the larger towns have significantly higher wearing rates than the smaller towns. This is consistent across New South Wales and Victoria, although the difference is more marked in New South Wales.

#### TABLE 4.5: SEAT BELT WEARING RATES BY POPULATION GROUPING BY STATE

Population Grouping	Vic		NSW		NT		All States	
	Sample	%	Sample	%	Sample	%	Sample	%
< 10,000	3529	91.8	4582	88.4			8111	89.9
> 10,000	8171	97.4	7031	96.6	11004	92.2	26206	94.9
All Towns	11700	95.7	11613	93.4	11004	92.2	34317	93.8

#### 4.2.2 Seating Position

Wearing rates by occupant seating position are shown for all sites in Table 4.6. Occupants in the front left passenger seat had the highest wearing rates (95.7%), followed by drivers 94.0%). Lower rates were recorded for centre positions in which only 76.8% of occupants wore seat belts. It should be noted that it is possible that observation of seat belt use in centre seating positions was less reliable than side positions due to the difficulty in recording lap belt use.

Seating Position	Sample	Number Wearing Seat Belts	%
Driver	22023	20700	94.0
Front Centre	254	195	76.8
Front Left	7864	7524	95.7
Right Rear	1863	1703	91.4
Rear Centre	645	554	85.9
Left Rear	1668	1508	90.4
All Front Seats	30141	28419	94.3
All Rear Seats	4176	3765	90.2
All Positions	34317	32184	93.8

#### TABLE 4.6: SEAT BELT WEARING RATES BY SEATING POSITION

#### 4.2.3 Belt Type

The observed wearing rates for each of the different types of seat belts are shown in Table 4.7. The large majority of observations were of the inertia reel type and occupants wore these at a much higher rate than static belts. It is also evident from the results that the various types of child restraint are used at high rates. Of the child restraints, children in child seat harnesses had a 100% wearing rate. However, due to the small sample sizes, it is not possible to draw reliable conclusions about differences in wearing rates between the various child restraint types. However, it can be concluded that the overall wearing rate of child restraints is significantly higher (at the 95% confidence level) than that of inertia reel or static belts.

#### TABLE 4.7: SEAT BELT WEARING RATES BY BELT TYPE

Belt Type	Sample	Number Wearing Seat Belts	%
inertia Reel	28688	27229	94.9
Static	4248	3770	88.7
Child Seat	628	592	94.3
Child Harness	83	83	100.0
Booster Seat with Restraint	153	152	99.3
Booster Seat w/o Restraint	156	151	96.8
Approved Infant Restraint	172	163	94.8
None	116	0	0.0
Beit type not recorded	73	41	56.2
All Belt Types	34317	32181	93.8

#### 4.2.4 Vehicle Type

Three vehicle categories were used for the purposes of this survey: seat belt wearing rates for each of these are identified in Table 4.8. The overall proportions of each vehicle type observed was similar to those of the FORS Stage 2 survey, although there was a higher proportion of cars and station wagons observed in this survey. Almost 82% of the sample were cars or station wagons, and occupants in these vehicles wore belts at the highest rate (95.0%). Occupants in utilities and panel vans had a significantly lower rate than for vans or cars and station wagons, whilst occupants in vans had a significantly lower rate than for cars and station wagons.

#### TABLE 4.8: SEAT BELT WEARING RATES BY VEHICLE TYPE

Vehicle Type	Sample	Number Wearing Seat Belts	%	
Utility/Panel Van	4436	3894	87.8	
Car/Station Wagon	27234	25885	95.0	
Van	1672	1545	92.4	
Vehicle type not recorded	975	860	88.2	
All Vehicle Types	34317	32184	93.8	

#### 4.2.5 Time of Day

For the purposes of determining the wearing rates at various times of the day, observations have been grouped into the shifts adopted for the actual survey. Table 4.9 shows that some differences in wearing rates were observed over the day. In particular, the wearing rates in the morning shift are marginally but significantly lower (at the 95% level) than both the afternoon shifts.

#### TABLE 4.9:SEAT BELT WEARING RATES BY TIME OF DAY

Shift	Sample	Number Wearing Seat Beits	%
<b>7am-11</b> am	9720	9017	92.8
11am-3pm	11783	11129	94.4
<b>3pm-</b> 7pm	12814	12038	93.9
All Times	34317	32184	93.8

#### 4.2.6 Day of Week

Table 4.10 shows that there is little variation in wearing rates by day of the week. However, although the difference is not large, weekend wearing rates are significantly different from weekday rates at the 95% level.

Day of Week	Sample	Number Wearing Seat Belts	%
Monday	4633	4328	93.4
Tuesday	4288	4013	93.6
Wednesday	4623	4309	93.2
Thursday	4743	4438	93.6
Friday	5384	5056	93.9
Saturday	5384	5061	94.0
Sunday	5262	4979	94.6
Weekdays	23671	22144	93.5
Weekend	10646	10040	94.3
All Davs	34317	32184	93.8

#### TABLE 4.10:SEAT BELT WEARING RATES BY DAY OF WEEK

#### 4.2.7 Age

The seat belt wearing rates for each of the age categories used for this survey are shown in Table 4.11.

Children 1 year and younger had high rates (reflecting the high use of child restraints), whilst the 50+ age group had significantly higher wearing rates than any other group except those 1 year and younger. Wearing rates of occupants at or above driving age was significantly higher than those aged between 2 and 16 years.

The 5 - 7 years age group had the lowest recorded wearing rate (82.4%) followed by the 2 - 4 years age group (91.6%). Wearing rates show increases with age group above 7 years, but decrease from 2 - 7 years.

#### TABLE 4.11: SEAT BELT WEARING RATES BY AGE

Age	Sample	Number Wearing Seat Belts	%
0 - 5 months	142	133	93.7
6 months - 1 year	296	281	94.9
2 - 4 years	992	909	91.6
5 - 7 years	1017	905	89.0
8 - 16 years	1472	1364	92.7
17 - 29 years	10700	9928	92.8
30 - 49 years	13361	12625	94.5
50+ years	6212	5941	95.6
Age not recorded	125	98	78.4
All Ages	34317	32184	93.8

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#### 4.2.8 Sex

Table 4.12 shows the variation in seat belt wearing rates between sexes. Females wore belts at a significantly higher rate (95.7%) than males.

#### TABLE 4.12:SEAT BELT WEARING RATES BY SEX

Sex	Sample	Number Wearing Seat Beits	%
Male	18269	16886	92.4
Female	15229	14570	95.7
Sex not recorded	819	728	88.9
All People	34317	32184	93.8

#### 4.2.9 Weather

The survey was conducted in all weather conditions, and Table 4.13 shows how wearing rates vary with the weather. In wet conditions, wearing rates are slightly higher than in fine conditions and this difference is significant at the 95% confidence level. Note that only 5.6% of all observations were conducted in wet conditions.

#### TABLE 4.13:SEAT BELT WEARING RATES BY WEATHER

Weather	Sample	Number Wearing Seat Belts	%
Fine	31522	29543	93.7
Showers	1941	1844	<b>95</b> .0
Fog	133	124	93.2
Weather not recorded	721	673	93.3
All Weather	34317	32184	93.8

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#### 4.3 Characteristics of Seat Belt Non-Wearers - Interview Data

#### 4.3.1 General

All results presented in the following tables are percentages of total interviews completed (either for the whole sample or in a nominated group) for responses to the questions in the interview. In each case, the sample size on which the percentage is based is also shown.

It should be noted that the following tables represent proportions of seat belt non-wearers in certain categories only. That is, conclusions about overall seat belt wearing rates in a particular category, or whether particular categories are over or under represented in the non-wearer population, cannot be made from these results alone. Details of the overall survey population would be required to make such conclusions. Census information has been quoted wherever possible, but even this only provides an indication of the actual survey population.

It is considered that the sample of interviews obtained is representative of the population of seat belt non-wearers in rural areas.

Table 4.14 shows the total number of interviews conducted and the number of non-wearers in each town. The various interview rates for each town are also shown. Note that the Darwin figure is for three weeks of survey in three different areas within Darwin.

The interview rate achieved was found to depend primarily on site layout and the level of activity at the site. High interview rates were achieved in Walcha, Shepparton and Ouyen.

Some towns had lower interview rates and this may be due partly to the human elements of interviewing. Some proprietors of sites expressed concerns about use of their sites for interview purposes (e.g. due to loss of business) and for this reason, interviewers were instructed not to persist strongly if non-wearers did not consent to an interview initially. It is also expected that refusal rates of interviewees would vary considerably between towns and states and possibly even sites within towns. Due to the relative uniformity of site types across all towns, it is not considered that the choice of sites would contribute significantly to variation in interview rates.

Town	Number of Interviews	Number of Non-Wearers	Interview Rate %
Alice Springs	96	226	42.5
Ararat	31	61	50.8
Avoca	54	82	65.9
Cobram	102	141	72.3
Darwin	265	633	41.9
Junee	55	279	19.7
Kyogie	98	130	75.4
Lismore	69	91	75.8
Mildura	39	83	47.0
Moree	75	90	83.3
Ouyen	64	67	95.5
Shepparton	68	71	95.8
Wagga Wagga	38	58	65.5
Walcha	110	121	90.9
All Towns	1164	2133	54.6

#### TABLE 4.14:NUMBER OF INTERVIEWS AND INTERVIEW RATES BY TOWN

#### 4.3.2 Daily Distance Travelled

Seat belt non-wearers were asked to estimate the distance they were intending to travel on the day of their interview. Table 4.15 details the proportions of interviewed non-wearers travelling in each distance category, and it shows that most (79.1%) were travelling less than 50 km and just under half were travelling less than 10 km on the day. 10.4% of those interviewed said they would have travelled or would travel over 100 km in the day.

#### TABLE 4.15:NUMBER OF SEAT BELT NON-WEARERS BY DAILY DISTANCE TRAVELLED

Distance	Number	%
Less than 10km	533	49.2
10-50km	324	29.9
50-100km	114	10.5
100-200km	49	4.5
200-500km	46	4.2
More than 500km	18	1.7
No Response	80	
Total	1164	100.0

#### 4.3.3 Trip Purpose

Table 4.16 shows the number of seat belt non-wearers in each trip purpose category. The majority of the trip purposes were local/everyday (43.2%) and work related (37.4%). A further 13.4% were recreational trips.

#### TABLE 4.16:NUMBER OF SEAT BELT NON-WEARERS BY TRIP PURPOSE

Trip Purpose	Number	%
Local/Everyday	478	43.2
Work Related	414	37.4
Recreational	148	13.4
Holiday Travel	35	3.2
Other	31	2.8
No Response	58	-
Total	1164	100.0

#### 4.3.4 Trip Direction

78.4% of interviewees said they were travelling to their destination, rather than from their main trip destination. This high proportion may indicate a basic misunderstanding of the question by many of those interviewed.

#### TABLE 4.17:NUMBER OF SEAT BELT NON-WEARERS BY TRIP DIRECTION

Trip Direction	Number	%
To Destination	866	78.4
From Destination	238	20.4
No Response	60	
Total	1164	100.0

#### 4.3.5 Origin

Most non-wearers interviewed were found to live in the area of the interview; only 13.9% said they were visitors to the area. This is consistent with results related to the daily distance travelled and trip purpose results detailed above.

#### TABLE 4.18:NUMBER OF SEAT BELT NON-WEARERS BY ORIGIN

Origin	Number	%
Local	969	86.1
Visitor	157	13.9
No Response	38	-
Total	1164	100.0

#### 4.3.6 Reason for not Wearing Seat Belt by Attitude to Seat Belt Laws

Reasons for not wearing seat belts cited by non-wearers in this survey are cross tabulated with their attitude to seat belt laws in Table 4.19. The major proportion of non-wearers claimed either to have forgotten, couldn't be bothered or that they were only travelling a short distance. However, most non-wearers said they favoured compulsory seat belt usage. Of interest is that over 10% oppose compulsory seat belt usage, and many of these said they didn't wear belts because they were dangerous or uncomfortable, as well as the reasons above.

## TABLE 4.19: NUMBER OF SEAT BELT NON-WEARERS BY REASON FOR NOT WEARING SEAT BELTS BY ATTITUDE TO SEAT BELT LAWS

Reason	Strongly Favour	Favour	Accept	Opposed	Strongly Opposed	No Opinion/ Response	Total	%
Ineffective	6	0	1	3	o	ο	10	0.9
Dangerous	2	5	4	13	3	0	27	2.3
Uncomfortable	11	16	20	7	6	8	68	5.8
Belt not Fitted	7	12	6	4	1	19	49	4.2
Damaged/Difficult to do up	6	5	2	0	0	2	15	1.3
Forgot	102	109	47	14	3	14	289	24.7
Couldn't be Bothered	25	44	35	15	3	29	151	12.9
Short Distance	121	129	57	14	7	18	346	29.6
Not Needed in Back Seat	1	8	3	0	0	1	13	1.1
Sick/Exempt	17	14	5	4	2	5	47	4.0
Other	33	26	11	4	4	11	89	7.6
No Response	9	9	1	4	1	42	66	5.6
Total	340	377	192	82	30	149	1170	
%	<b>29</b> .1	32.2	16.4	7.0	2.6	12.7		100.0

#### 4.3.7 Reason for Fatal Accidents in Rural Areas

Interviewees were asked what they thought was the prime reason that approximately 50% of fatal road accidents occurred in rural areas. The results are shown in Table 4.20. They indicate that 'inappropriate speed for the conditions' was the most common reason given. A large number also said that 'unfamiliarity with rural conditions' and 'poor roads' were the major reasons. Only 5.9% said that 'tiredness' was the major cause and 9.5% said 'drink driving' was the major cause.

#### TABLE 4.20:NUMBER OF SEAT BELT NON-WEARERS BY REASON FOR RURAL FATAL ACCIDENTS

Reason	Number	%
Speed for Conditions	305	28.8
Different Rural Conditions	69	6.5
Unfamiliarity	142	13.4
Incorrect Overtaking Procedures	13	1.2
Poor Lighting	2	0.2
Long Stretches	24	2.3
Not Wearing Seat Belts	36	3.4
Drink Driving	101	9.5
Poor Roads	174	16.4
Tiredness	63	5.9
Other	83	7.8
Don't Know	47	4.4
No Response	105	-
Total	1164	100.0

#### 4.3.8 Attitude to Random Breath Testing

Table 4.21 shows the attitude of seat belt non-wearers to random breath testing. 89.8% of those interviewed said they agreed with random breath testing whilst only 7.9% disagreed. 4 interviewees said they did not know what random breath testing was.

#### TABLE 4.21:NUMBER OF SEAT BELT NON-WEARERS BY OPINION OF RANDOM BREATH TESTING

Opinion	Number	%
Agree	951	89.8
Disagree	84	7.9
Don't Know what it is	4	0.4
Don't Know	20	1.9
No Response	105	•
Total	1164	100.0

#### 4.3.9 Number of Years Held Licence by Age

Non-wearers were asked to estimate the number of years they had held a drivers' licence. Table 4.22 shows that most respondents were drivers who had held a licence for between 11 and 20 years (many aged between 31 and 40 years). A further 23.7% had held their licence for between 5 and 10 years (almost all aged between 21 and 30 years) and 17.8% for between 21 and 30 years.

#### TABLE 4.22:NUMBER OF SEAT BELT NON-WEARERS BY AGE BY NUMBER OF YEARS HELD LICENCE

				Years	Held Lic	ence					
Age	0-1	2-4	5-10	11-20	21-30	31-40	41-50	51-60	>60	Ali	%
-	years	years	years	years	years	years	years	years	years	Years	
8-16 years	3	0	0	0	o	o	0	0	0	3	0.3
17-29 years	28	105	205	40	0	0	0	0	0	378	38.8
30-49 years	0	0	24	246	138	9	2	0	0	419	43.1
50+ years	0	0	1	7	30	79	45	9	2	173	17.8
All Ages	31	105	230	293	168	88	47	9	2	973	
%	3.2	10.8	23.6	30.1	17.3	9.0	4.8	0.9	0.2		100.0
							Missing	observa	tions	197	
							Total Int	erviews		1170	

#### 4.3.10 Occupation

For the purposes of this analysis, occupations of non-wearers have been grouped according to the Australian Census categories. Table 4.23 shows that the most highly represented non-wearers were tradespersons, labourers or were involved in home duties. The 1986 Census proportions show that tradespersons and labourers may be over represented and that clerks may by under-represented in the non-wearer population. Only information about the overall survey population can confirm such results.

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#### TABLE 4.23:NUMBER OF SEAT BELT NON-WEARERS BY OCCUPATION

Occupation	Number	%
Managers/Administrators	73	7.0
Professionals	79	7.6
Para-Professionals	62	6.0
Tradespersons	190	18.2
Cierks	45	4.3
Sales/Personal Services	92	8.8
Plant/Machinery Operators	92	8.8
Labourers & Related	134	12.9
Home Duties	105	10.1
Unemployed	48	4.6
Retired	70	6.7
Student	37	3.6
Other	10	1.0
Unknown	5	0.5
No Response	122	1
Total	1164	100.0

#### 4.3.11 Education Level

Table 4.24 shows the level of education reached by the non-wearers interviewed. Most said that they had completed at least some years at secondary school, and 31.9% had at least completed secondary school. Some 12% said they had undertaken and completed post secondary study, compared to 8.6% in the 1986 Census. However, education levels are likely to be different in rural areas from the overall population, so this comparison may not be wholly valid.

#### TABLE 4.24:NUMBER OF SEAT BELT NON-WEARERS BY EDUCATION LEVEL

Education Level	Number	%
Completed Primary School	24	2.3
Secondary School 1-3 years	269	25.8
Secondary School 2-4 years	416	39.9
Completed Secondary School	212	20.3
Completed Post-Secondary School	121	11.6
No Response	122	
Total	1164	100.0

#### 4.3.12 Personal Annual Income

Nearly three quarters (73.5%) of the interviewed non-wearers who responded to this question said that they had a personal annual income of \$30,000 or less, as shown in Table 4.25. Only 7.9% had an income over \$45,000. However, 1986 Census information shows that almost 89% of the population above 15 years had an income below \$30,000 indicating that this group may be under represented and higher income groups may be over represented in the population of non-wearers. It is not possible to draw firm conclusions about this as the survey was undertaken in rural areas which may not be representative of the total population. To determine with confidence whether any group is under or over represented, interviews of the total **survey** population or rural demographic data for Victoria, NSW and the Northern Territory would be required (i.e. wearers and non-wearers).

# TABLE 4.25:NUMBER OF SEAT BELT NON-WEARERS BY PERSONAL ANNUAL INCOME

Personal Annual Income	Number	%
≤ \$15,000	195	26.2
\$15,000 - \$30,000	352	47.3
\$30,000 - \$45,000	138	18.5
> \$45,000	59	7.9
No Response	420	-
Total	1164	100.0

#### 4.4 Comparison with Federal Office of Road Safety Surveys - 1988

This section provides brief comparisons between the results of this survey and the results of the FORS Survey of Occupant Restraint: Stage 2 (Ove Arup & Partners, 1988). The surveys were conducted at the same fourteen towns, and so useful comparisons can therefore be made. It should be noted that the results from this survey include the observations where no seat belt was fitted. The 1988 survey results have been adjusted accordingly.

As the 1990 surveys required sites appropriate for interviews of non-wearers, surveys were conducted at service stations and other suitable sites (see Appendix A). The 1988 surveys were conducted at intersections and service stations.

The variation between 1988 and 1990 seatbelt wearing rates has been tested for significance with the Z-test for proportions at the 95% level (NAASRA 1988). The resulting Z-value for the difference in proportions of seat belt wearers between 1988 and 1990 is tabulated below.

#### 4.4.1 Town and State

Table 4.26 shows the comparison between 1988 and 1990 of the seat belt wearing rates in the surveyed towns and states.

Also shown are results from the 1989 Rural Town Restraint Use Survey in Victoria, which indicate that wearing rates have increased steadily in Victorian towns between 1988 and 1990. Wearing rates have risen markedly in all three states between 1988 and 1990, particularly in Victoria and the Northern Territory.

Increases are evident in every surveyed town, and are particularly large in Avoca, Shepparton, Ouyen, Alice Springs and Darwin. The most significant increases occurred in Alice Springs, Darwin and Shepparton.

Town	FORS Survey	VICROADS Survey	FORS Survey	increase on	Z - Valu <del>e</del>
	1988	1989	1990	1988 rate	
	%	%	. %	%	
Alice Springs	65.6		89.3	36.1	20.0
Ararat	82.2	91.3	97.6	18.7	18.2
Avoca	70.2	83.4	86.7	23.5	7.4
Cobram	79.8	86.2	92.8	16.3	12.7
Darwin	71.9		92.9	29.2	38.1
Junee	81.6		88.9	8.9	7.5
Kyogie	85.1		86.2	1.3	0.9
Lismore	82.7		94.5	14.3	10.9
Mildura	83.1	86.1	96.2	15.8	15.0
Moree	80.5	•	94.6	17.5	12.4
Ouyen	75.2	87.1	92.9	23.5	11.5
Shepparton	81.2	88.8	98.0	20.7	22.0
Wagga Wagga	88.4		98.4	11.3	17.5
Walcha	87.0		89.3	2.6	2.0
Victoria	80.0	87.3	95.7	19.6	37.7
New South Wales	84.6		93.4	10.4	23.1
Northern Territory	70.3	-	92.2	31.2	99.5
All Towns	78.8	87.3*	93.8	19.0	59.9

TABLE	4.26:SEAT	BELT	WEARING	RATES	BY	TOWN	AND	STATE: 1	1988,	1989 &
1990										

\* Wearing rate applies to Victorian towns common to all surveys only

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#### 4.4.2 Seating Position

Large increases were observed in wearing rates for all seating positions, as shown in Table 4.27. The largest increases were recorded for rear seats with an overall increase of 44.6%, including an increase of 71.1% for the rear centre position. Factors contributing to these increases could include the higher proportion of vehicles with inertia reel belts and a generally better standard of belt, particularly in rear seats. Note that due to the larger samples and therefore confidence in the results, the increases were most significant in the driver and front left position.

A slightly different pattern emerges in 1990 with rear seat wearing rates higher than the front centre position, which had the smallest increase between 1988 and 1990. In addition, occupants in the front left position wore belts at a higher rate than drivers in 1990, whereas the opposite was the case in 1988.

#### TABLE 4.27:SEAT BELT WEARING RATES BY SEATING POSITION: 1988 & 1990

Seating Position	FORS Survey	FORS Survey	increase on	Z - Value
	1988	1990	1988 rate	
	%	%	%	
Driver	81.9	94.0	14.8	40.8
Front Centre	67.1	76.8	14.5	3.0
Front Left	80.8	95.7	18.4	30.1
Rear Sides	65.3	90.9	39.2	27.4
Rear Centre	50.2	85. <del>9</del>	71.1	15.2
All Positions	78.8	93.8	19.0	59.9

#### 4.4.3 Sex

Table 4.28 shows that large increases are again evident for both sexes between 1988 and 1990. Although the rate for females was still higher in 1990, males increased their wearing rates markedly (21.3%), thus reducing the difference between males and females.

#### TABLE 4.28:SEAT BELT WEARING RATES BY SEX: 1988 & 1990

Sex	FORS Survey 1988 %	FORS Survey 1990 %	Increase on 1988 rate %	Z - Valus
Male	76.2	92.4	21.3	45.1
Female	82.6	95.7	15.9	38.0
All People	78.8	93.8	19.0	59.9

#### 4.4.4 Age

A similar pattern for wearing rate by age was observed in 1988 and 1990 as shown in Table 4.29. However, wearing rates are significantly higher for most age groups in 1990 and the difference between wearing rates in different age groups has also reduced.

The largest increases are evident in the 5-7 years and 8-16 years age groups, with 74.2% and 42.6% increases respectively. The significance of the increases were higher for the older age groups, mainly due to the larger samples.

Age	FORS Survey 1988 %	FORS Survey 1990 %	increase on 1988 rate %	Z - Value
0-5 months	93.6	93.7	0.1	0.0
6 months-1 year	88.3	94.9	7.5	3.0
2-4 years	70.8	91.6	29.4	12.4
5-7 years	51.1	89.0	74.2	19.9
8-16 years	65.0	92.7	42.6	19.1
17-29 years	75.5	92.8	22.9	36.8
30-49 years	82.6	94.5	14.4	32.1
50+ years	86.9	95.6	10.0	17.5
All Ages	78.8	93.8	19.0	59.9

#### TABLE 4.29:SEAT BELT WEARING RATES BY AGE: 1988 & 1990

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#### 5.0 CONCLUSIONS

The 1990 Survey of Characteristics of Seat Belt Non-Wearers successfully collected information from seat belt observations and interviews of seat belt non-wearers in fourteen rural towns throughout Victoria, New South Wales and the Northern Territory.

It is clear from these surveys that seat belt wearing rates have increased markedly since the Federal Office of Road Safety surveys in 1988. Very similar patterns of seat belt wearing were also observed in this survey for the various categories.

The interview data showed that most non-wearers were on relatively short local/everyday or work related trips and were locals. The data also indicated that most non-wearers agreed with compulsory seat belt laws and the main reasons for not actually wearing belts were that they either forgot, couldn't be bothered or were only travelling a short distance.

It is apparent from the results of this survey that public education campaigns and general awareness of road safety issues have contributed to increases in seat belt wearing rates throughout New South Wales, Victoria and the Northern Territory. However, it is important to note that some groups are still wearing belts at lower rates. Although not showing conclusive information about non-wearer characteristics, this survey has provided a clear indication of the areas in which public awareness in rural areas needs to be heightened; i.e. occupants in rear and centre seating positions, occupants with static belts fitted, occupants in rear and seating positions, occupants in utilities and panel vans, children aged between 5 and 7, occupants on short, local/everyday or work related trips, local residents and labourers/tradespersons/plant operators.

#### 6.0 **REFERENCES**

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- 3. National Association of Australia State Road Authorities (NAASRA), "Guide to Traffic Engineering Practice - Part 4; Road Crashes", 1988
- 4. Ove Arup & Partners, "Feasibility Study for a Survey of Occupant Restraint in Rural Areas", Federal Office of Road Safety, Canberra, 1986
- 5. Ove Arup & Partners, "Survey of Occupant Restraint: Stage 2", Federal Office of Road Safety, Canberra, 1988, CR 76
- 6. Ove Arup Transportation Planning, "1989 Rural Town Restraint Use Survey", Vic Roads, GR 90-4, April 1990
- Pederson, D.G. and Mahon, H.G., "Seat Belt Wearing in the Canberra Region -Observations of Occupants and Interviews with Drivers", Anutech Pty Ltd, Office of Road Safety, CR 32, December 1983.

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Appendix A: Survey Locations and Maps

#### SITES: ALICE SPRINGS

- S1 Shell Service Station Dalgety Road
- S2 Mobil Service Station Stuart between Hele and Smith
- S3 BP Service Station Cnr Stuart/Smith
- S4 Hungry Jacks Schwarz Cres
- S5 BP Service Station Stuart between Gregory and Stott
- S6 Shell Service Station Cnr Larapinta/Fogarty
- S7 Mitre 10 Hardware Larapinta between George and Railway
- S8 Kentucky Fried Chicken Cnr Stott/Todd
- S9 Shell Service Station Cnr Todd/Bagot
- S10 Lasseters Casino Barrett Drive



#### SITES: ARARAT

S1	Caltex Service Station - Cnr Barkley\Queen
S2	BP Service Station - Cnr Collings/Ingor
S3	Mt Ararat Service Station - Cnr Barkley/King
S4	Public Car Park - High between Collings and Ingor
S5	Mobil Service Station - Cnr Campbell/Blake
S6	Harrison's Hardware - Cnr Queen/Moore
S7	Safeway Supermarket Car Park - Cnr Ingor/High
S8	Shell Service Station - Cnr Lambert/Lowe
S9	Hooper's Supermarket Car Park - Onr Vincent/Moore
S5 S6 S7 S8 S9	Mobil Service Station - Cnr Campbell/Blake Harrison's Hardware - Cnr Queen/Moore Safeway Supermarket Car Park - Cnr Ingor/High Shell Service Station - Cnr Lambert/Lowe Hooper's Supermarket Car Park - Cnr Vincent/Mo

S10 Shell Service Station - Cnr Vincent/Laidlaw



#### SITES: AVOCA

- S1 Shell Service Station High south of Astbury
- S2 Avoca Hotel Bottle Shop Cnr High/Cambridge
- S3 Public Car Park High between Cambridge and Bridport
- S4 Public Car Park High between Russell and Cambridge
- S5 Shell Service Station Cnr High/Russell
- S6 Ampol Service Station High between Duke and Russell
- S7 Avoca Hospital Liebig between Bridport and Dalton
- S8 Ampoi Service Station Cnr High/Duke
- S9 Mobil Serivce Station High between Cambridge and Bridport
- S10 Avoca Post Office High between Cambridge and Bridport



#### SITES: COBRAM

- S1 Esso Service Station Cnr Murray Valley/Station
- S2 ADCO Service Station Cnr Murray Valley/Levis
- S3 Caltex Service Station Cnr Terminus/Market
- S4 Ampol Service Station Broadway between Gemmel and Dillon
- S5 Public Car Park Cnr William/Bank
- S6 Tuckerbag Car Park Cnr Main/Sydney
- S7 Mitre 10 Broadway between Gemmel and Dillon
- S8 Mobil Service Station Murray Valley between Catona and Campbeli
- S9 Denbro Hardware Broadway between Gemmel and Dillon
- S10 Ampol Service Station Murray Valley between Levis and Ritchie



#### SITES: DARWIN AREA 1 (15/8/90 - 21/8/90)

- S1 Shell Service Station Cnr Daly/McMinn
- S2 Diamond Beach Casino Southern Car Park
- S3 Shell Service Station Cnr Parap/Gregory
- S4 Parap Shopping Centre Car park
- S5 BP Service Station, Fannie Bay Cnr Ross Smith/Dick Ward
- S6 Fannie Bay Shopping Centre Ross Smith near Philip
- S7 BP Service Station Cnr Bagot/Fysh
- S8 Winnellie Shopping Centre Stuart Hwy
- S9 BP Service Station, Ludmilla Cnr Bagot/Fitzer
- S10 Mobil Service Station Cnr Bagot/Totem



#### SITES: DARWIN AREA 2 (22/8/90 - 28/8/90)

- S11 Rite Price Supermarket Car Park Progress
- S12 Shell Service Station, Nightcliff Cnr Progress/Dick Ward
- S13 Mobil Service Station Bagot/Skelton
- S14 Kentucky Fried Chicken Car Park Cnr Bagot/Easther
- S15 Homestead Hardware Car Park Cnr Bagot/Fitzgerald
- S16 Shell Service Station Cnr Trower/Dripstone
- S17 BP Service Station Cnr Linton/Trower
- S18 Red Rooster Car Park Trower between Linton and Bradshaw
- S19 Hungry Jacks Car Park Trower between Linton and Bradshaw
- S20 Hibiscus Shopping Centre Cnr Vanderlin/Leanyer



#### SITES: DARWIN AREA 3 (29/8/90 - 4/9/90)

- S21 Northlake Shopping Centre Cnr McMillan/Lakes
- S22 BP Service Station, Malak Holzerland St
- S23 Darwin Airport Terminal Car Park
- S24 Shell Service Station Stuart Hwy (opp. Airport)
- S25 BP Service Station, Berrimah Stuart Hwy near Valley
- S26 Shell Truck Port Cnr Stuart/Berrimah
- S27 BP Service Station Stuart Hwy near Diviney Rd
- S28 Shell Service Station, Palmerston Cnr Stuart/Yarrawonga
- S29 Mitre 10 Hardware Georgina Cres, Palmerston
- S30 Palmerston Shopping Centre Supermarket Car Park



#### SITES: JUNEE

- S1 Esso Service Station Illabo between Knight and Prince
- S2 Mobil Service Station Cnr Kanaley/Lord
- S3 Ampol Service Station Cnr Main/Cox
- S4 Danny's Shop Hill between Lorne and Edgar
- S5 Junee Motors Service Station Cnr Gaba/Seignior
- S6 Shell Service Station Cnr Crawley/Broadway
- S7 U-turn site Broadway between Victoria and Crawley



#### SITES: KYOGLE

- S1 BP Service Station Norledge between Smith and Saville
- S2 Caltex Service Station cnr Summerland/Kyogle
- S3 Public Car Park Geneva between Bloore and Roxy
- S4 Rest Area Summerland between Clarkes and McDougal
- S5 Shell Service Station Cnr Summerland/Stratheden
- S6 Esso Service Station Cnr Summerland/Ettrick
- S7 Public Car Park Summerland between Geneva and Stratheden
- S8 Hardware Store McDougal between Ettrick and Walters
- S9 Kyogle Bowling Club Cnr Larkin/Geneva
- S10 Kyogle Hospital Summerland between George and Highfield



#### SITES: LISMORE

S1	Esso Service Station - Ballina between Dawson and Conway
S2	Shell Service Station - Cnr Dawson/Magellan
S3	Ampol Service Station - Ballina between Keen and Dawson
S4	Golden Fleece Service Station - Cnr Union and Three Chain
S5	Shops/Newsagent - Bridge between Baillie and Woodlark
S6	Lismore Shopping Square - McKenzie between Daidem and Brewster
S7	Central Parking - Molesworth between Magellan and Woodlark
S8	Shell Service Station - Ballina between Bryant and Gallagher
S9	Central Parking - Woodlark between Molesworth and Keen
S10	Hospital Parking - Uralba east of Hunter



#### MILDURA SITES:

- BP Service Station Cnr Seventh/Magnolia **S**1
- Ampol Service Station Cnr Seventh/Orange S2
- BP Service Station Cnr Eleventh/Riverside S3
- Ampol Service Station Cnr Deakin/Fifteenth S4
- Esso Service Station Cnr Deakin/Fifteenth **S**5
- Golden Fleece Service Station Cnr Fifteenth/San Mateo S6
- McDonald's Car Park Deakin between Fourteenth and Fifteenth **S**7 **S**8
  - Fisher's Supermarket Car Park Deakin between Tenth and Ninth
- Kentucky Fried Chicken Car Park Deakin between Thirteenth and Hunter S9
- Barnacle Bill's Seafood Car Park Deakin between Acacia and The Boulevard S10



#### SITES: MOREE

- S1 Caltex Service Station Cnr Frome/Anne
- S2 Balo Square Shopping Centre Balo between Gwydir and Heber
- S3 Ampol Service Station Cnr Alice/Dover
- S4 BP Service Station Cnr Balo/Gwydir
- S5 Public Car Park Balo between Gwydir and Heber
- S6 Moree Hospital Victoria between Balo and Edward
- S7 Shell Service Station Cnr Alice/Frome
- S8 Shell Service Station Cnr Balo/Gwydir
- S9 BP Service Station Frome between Joyce and Gusport
- S10 Fast Food Store Cnr Frome/Anne



#### SITES: OUYEN

- S1 BP Roadhouse Cnr Farrell/Mitchell
- S2 Ampol Roadhouse Cnr Gregory/Oke
- S3 Ampol Service Station Cnr Gregory/Oke
- S4 Mobil Roadhouse Farrell north of Emmett
- S5 Queenbee Roadhouse Farrell north of Fuller
- S6 Ouyen Hospital Cnr Clay/Britt
- S7 Foodmaster Supermarket Oke between Cooper and Pickering
- S8 Newsagent Oke between Gregory and Pickering



#### SITES: SHEPPARTON

S1	Ampol Service Station - Cnr High/North
S2	Mobil Service Station - Cnr Wyndham/Nixon
S3	Ampol Service Station - Cnr Wyndham/Vaugham
S4	Shell Service Station - Cnr Wyndham/Fitzjohn
S5	Caltex Service Station - Cnr Wyndham/Vaughan
S6	Caltex Service Station - Cnr Benalla/Mitchell
S7	Public Car Park - Welsford between Fryers and High
S8	Public Car Park - Wyndham between Vaughan and High
S9	Pizza Hut - Wyndham between Macintosh and Somer
S10	McDonald's - Wyndham between Longstaff and Guthrie



#### SITES: WALCHA

S1	Take Away/Hairdresser - Fitzroy between Pakington and Derby
S2	West End Take Away - Fitzroy between Thee and Meridan
S3	Shell Service Station - Fitzroy between Meridan and South
S4	Baker, Butcher, Nursery - Derby between Apsley and Fitzroy
S5	Derby St Parking - East side between Fitzroy and Petrol Station
S6	Walcha Hospital - South between Croudace and Legge
S7	Derby St Parking - West side between Fitzroy and power pole
S8	Take Away and Petrol - East end of Fitzroy St
S9	Mobil Service Station - Derby between Apsley and Fitzroy
S10	Caltex Service Station - Cnr Pakington/Fitzroy



#### SITES: WAGGA WAGGA

- S1 Mobil Service Station Cnr Baylis/Edward
- S2 McDonalds/Pizza Hut Car Park Fox between Edward and Donnelly
- S3 Ampol Service Station Cnr Edward/Docker
- S4 Esso Service Station Cnr Railway/Albert
- S5 Caltex Service Station Baylis between Tompson and Morrow
- S6 Kentucky Fried Chicken Cnr Crampton/Fitzmaurice
- S7 Caltex Service Station Fitzmaurice between Crampton and Kincaid
- S8 Payless Supermarket Car Park Trail between Crampton and Kincaid
- S9 Coles/Fossey Car Park Tongaboo between Morrow and Tompson
- S10 Jewell Supermarket Car Park Tongaboo between Morgan and Edward



Arup Transportation Planning

Appendix B: Sampling Frame

#### SITE ALLOCATION TABLE - 10 SITES

					DAY			
Shift	Time	1	2	3	4	5	6	7
1	0700-0820	S1	S2	53	S4	S5	S6	S7
	0820-0940	S8	S9	S10	<b>S</b> 1	S2	S3	S4
	0940-1100	S5	S6	S7	S8	S9	S10	<b>S</b> 1
2	1100-1220	S2	S3	<b>S</b> 4	S5	S6	S7	S8
	1220-1340	S9	S10	S1	S2	\$3	S4	S5
	1340-1500	S6	S7	<b>S8</b>	S9	S10	<b>S</b> 1	S2
3	1500-1620	S3	<b>S</b> 4	S5	S6	S7	S8	S9
	1620-1740	S10	S1	S2	S3	S4	S5	S6
	1740-1900	S7	<b>S</b> 8	S9	S10	S1	S2	S3

Site	Туре	Location
S1		
S2		
S3		
S4		
S5		
S6		
S7		
S8		
S9		
S10		

Arup Transportation Planning

Appendix C: Survey Forms



TIME: (match observation sheet) (24 hour clock please; e.g. 9.00am = 0900, 1:30 pm = 1330)	ROAD SAFETY ISSUES:
LOCATION: (match observation sheet)	Q7. 50% of fatal road accidents occur in rural areas. Why do you think this is so? 1. Speed too fast for conditions 2. Different conditions in country/rural ares
SEATING POSITION: (match observation sheet) (place tick or cross in appropriate box)	<ol> <li>Unfamiliarity with country/rural roads</li> <li>Incorrect use of overtaking procedures</li> </ol>
DRIVER 1 4 7 2 5 8 3 6 9	5. Poor lighting 6. Long stretches of road 7. Not wearing seat belts 8. Drink driving 9. Poor roads 10. Tiredness 11. Other(specify
TRAVEL DETAILS	12. Don't know
Q1. Approximately how far are you intending to travel today? (kilometres) Q2. What is the purpose of your trip? 1. Local/everyday, e.g. shopping 2. Work related	Q8. Do you agree with random breath testing of drivers? 1. Yes 2. No 3. Don't know what breath testing is 4. Don't know / no opinion
3. Recreational (day trip) 4. Holiday travel (longer than one day)	PERSONAL DETAILS:
5. Other (specify)	Q9. Sex? (M or F)
Q3. Are you travelling to or from your destination?	Q10. Age? (approx years)
Q4. Are you a local resident or a visitor travelling through the area? 1. Local 2. Visitor	Q11. For approximately how many years have you had a drivers licence for?
SEATBELT ISSUES:	010. What is your occupation?
Q5. What is your main reason for not wearing a seat belt? 1. Ineffective	(office use only)
<ol> <li>2. Dangerous</li> <li>3. Uncomfortable/hard on clothing</li> <li>4. Belt not fitted</li> <li>5. Belt damage/difficult to do up</li> <li>6. Forgot</li> <li>7. Could not be bothered</li> <li>8. Only travelling short distance</li> <li>9. Don't need to in back seat.</li> </ol>	Q11. What is your education level reached? 1. Completed primary school 2. Secondary school (1-3 years) 3. Secondary school (4-5 years) 4. Completed secondary school 5. Completed post secondary education
10. Sick or exempt 11. Other (specify)	Q12. What is your approximate personal annual income? 1. Less than \$15000
Q6. What are your attitudes to the law         requiring compulsory use of seat belts?         1. Strongly favour       2. Favour         3. Accept       4. Opposed         5. Strongly opposed       6. No opinion	2.\$15000 to \$30000 3.\$30000 to \$45000 4. More than \$45000 5. None of your business