

S T A Y S A F E 19

FROM THE

JOINT STANDING COMMITTEE

ON

ROAD SAFETY

**ALCOHOL AND OTHER DRUGS ON
NEW SOUTH WALES ROADS**

I. THE PROBLEM AND COUNTERMEASURES

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FOREWORD

STAYSAFE has reviewed the extent to which drink-driving and drug-driving pose a road safety risk in New South Wales, and has reviewed the countermeasures that have been taken to address the road safety problems posed by alcohol and other drugs.

ALCOHOL

Driving while affected by alcohol is a major road safety problem in New South Wales.

STAYSAFE is satisfied that the introduction of random breath testing for the presence of alcohol in 1982 was associated with a significant decrease in the incidence of drink-driving. However, STAYSAFE is uncertain if random breath testing continues to be used in an manner that maximises its effectiveness as a drink-driving countermeasure, despite the maintenance of a high number of random breath tests being administered by police annually. STAYSAFE has identified a need to re-assess the policies and procedures underlying the management and operation of the random breath testing program.

STAYSAFE is also concerned about a lack of co-ordination of drink-driving countermeasures. STAYSAFE has noted a need to develop long term advertising and public relations policies and strategies that address the different facets of drink-driving.

Overall, STAYSAFE has concluded that drink-driving research and policy in New South Wales is in need of substantial review.

DRUGS OTHER THAN ALCOHOL

STAYSAFE has found that the extent of drug-driving in New South Wales, and the problem posed by drug-driving, remains unknown.

STAYSAFE notes the expenditure of almost \$0.6 million of road safety research funds since 1985 with the specific purpose of establishing the nature of the drug-driving problem. STAYSAFE has been particularly concerned with the failure to report the results, to date, of this drug-driving research program, and has requested that the Office of Public Management of the Premier's Department investigate the circumstances surrounding the management of the program by the Roads and Traffic Authority.

STAYSAFE has found that, as a result of the difficulties in establishing the nature of drug-driving in New South Wales, the development of countermeasures to drug-driving have been few and fragmented. STAYSAFE has indicated its concern with the need to ensure effective co-ordination of drug-driving research activities and countermeasure strategies.

ACKNOWLEDGMENTS

STAYSAFE acknowledges the diligence and enthusiasm of the new Committee Secretariat: the Director of STAYSAFE, Mr Ian Faulks, the Clerk of STAYSAFE, Mr Gary O'Rourke, and the STAYSAFE Stenographer, Ms Vanessa Lovett.

In Tabling the Report, STAYSAFE notes that the STAYSAFE Committee of the 49th Parliament wished to place on record its appreciation for the innovative work done by its Committee Secretariat: STAYSAFE's Technical Adviser, Mr Brian Vazey, the Clerk of STAYSAFE, Mr James Kelly, and the STAYSAFE Stenographer, Ms Vanessa Lovett, and for their dedication and loyalty. The Committee of the 49th Parliament wished to indicate their special thanks to Mr Vazey for the preparation of the initial draft of the STAYSAFE 19 report.

The STAYSAFE Committee of the 50th Parliament wishes to thank the former Committee Chairman, Mrs Anne Cohen MP (now Chief Secretary, Minister for Administrative Services, and Minister Assisting the Premier on the Status of Women), and its Members and Secretariat, for their contribution to STAYSAFE 19.

STAYSAFE has been greatly assisted by submissions, formal evidence, and advice from many concerned groups, interested bodies and concerned citizens. STAYSAFE would particularly mention generous and extensive support from the following individuals and organisations:

New South Wales Police Service
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Road Safety Bureau, Roads and Traffic Authority of
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National Roads and Motorists Association
Division of Analytical Laboratories, New South Wales
Department of Health
Division of Public Health, New South Wales Department of Health
Dr Helen Dauncey
Dr Michael Henderson
Vic Roads
Pharmaceutical Society of Australia



Mr Chris Downy MP,
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RECOMMENDATIONS

Alcohol

Known blood alcohol concentrations in drivers killed or injured in road crashes

1. The Roads and Traffic Authority, together with the Police Service, the Department of Health, and the State Coroner, act urgently to develop and implement measures to maximise the proportion of injured or deceased drivers, riders and pedestrians for whom a blood alcohol concentration is known. (Paragraph 2.25)

Consultation with the liquor industry

2. The Roads and Traffic Authority and the Chief Secretary's Department ensure that effective consultation concerning drink-driving occurs between the Road Safety Advisory Council and the Liquor Industry Ministerial Advisory Council. (Paragraph 2.45)

3. The Roads and Traffic Authority should invite the Liquor Industry Ministerial Advisory Council to nominate a person to be invited to membership of the Drink-Drive Task Force convened by the Roads and Traffic Authority. (Paragraph 2.45)

Consumption of alcohol in motor vehicles

4. The Roads and Traffic Authority investigate the feasibility and likely benefits of prohibiting the drinking of alcohol within the passenger compartment of private motor vehicles moving on public roads for all occupants of all ages. (Paragraph 2.61)

Taxation on alcoholic beverages

5. The State Licence Fee on light beers (defined as beers containing between 1.15% and less than 3.8% alcohol content) be reduced to 5%, and the State Licence Fee on low alcohol beers (defined as beers containing less than 1.15% alcohol content) be abolished completely. (Paragraph 2.68)

Display of non-alcoholic beverages

6. Non-alcoholic beverages, including non-alcoholic cocktails, should be always available, clearly advertised or placed in public view, and otherwise promoted in licensed premises to encourage safe drinking by those who are to drive after leaving the premises. (Paragraph 2.70)

Breath alcohol testing machines

7. The Chief Secretary's Department, together with the Department of the Attorney General, the Department of Health and the Roads and Traffic Authority, should determine the need for the introduction in New South Wales of legislation similar to the Road Traffic (Coin-operated Breath Machines) Amendment Act 1991 of South Australia, and introduce such legislation if required. (Paragraph 2.75)
8. The Department of Health and the Roads and Traffic Authority should jointly establish what problems have occurred with personal breath testing machines and take appropriate corrective action. (Paragraph 2.80)

Evaluation of random breath testing activities

9. The Roads and Traffic Authority should evaluate the effectiveness of random breath testing activities on the incidence of drink-driving from 1982 to the present. (Paragraph 2.113)

Admittance of blood alcohol concentration as evidence in courts

10. The Traffic Act, 1909, be amended to allow insurance companies to introduce the results of breath or blood tests in court as evidence of a driver's blood alcohol concentration at the time of the test. (Paragraph 2.114)

National review of random breath testing

11. The Roads and Traffic Authority and the Police Service should ensure that their random breath testing review activities are co-ordinated with the consultant conducting a national review of random breath testing for the Federal Office of Road Safety. (Paragraph 2.132)

Increasing the visibility of random breath testing operations

12. The Police Service should act to increase the visibility of random breath testing operations through:

- increasing the visibility of stationary breath testing operations (e.g., increased use of signs, better lighting, more operations at times when motorists are on the road)
- provision of advisory signs to police cars that indicate when the vehicle is being used for mobile breath testing
- the development and use of modified vans to serve multiple functions (e.g., as a mobile police station, or as a high visibility 'booze bus', for education and public relations, or as a mobile emergency field unit). (Paragraph 2.139)

Review of police procedures for the conduct of random breath testing

13. The policies and procedures established by the Police Service for breath alcohol testing should be reviewed to ensure the incorporation of new methods arising from the introduction of new screening technologies, and to allow for the development of innovative strategies in detecting drink-drivers. (Paragraph 2.148)

14. The Police Service procedures used for breath testing for alcohol ensure that once a roadside screening test is initiated there are established administrative procedures that allow for the effective audit of the breath testing operation. (Paragraph 2.149)

Drink-driving advertising and public relations

15. The Roads and Traffic Authority, through the Drink-Drive Task Force, should ensure that there is an integrated policy and long-term strategy for drink-drive advertising and public relations. (Paragraph 2.172)

16. The Roads and Traffic Authority and the Police Service ensure that drivers are adequately informed of any changes to drink-driving laws and enforcement practices through advertising, public relations, and rapid amendments to information sources such as the Motor Traffic Handbook and the Information Handbook for Heavy Vehicle Drivers. (Paragraph 2.172)

Community participation

17. The Roads and Traffic Authority identify and invite public lobby groups with a genuine interest in road safety issues, such as Parents Against Drink Driving, to membership of the Road Safety Forum. (Paragraph 2.185)

Education about drink-driving

18. The Roads and Traffic Authority evaluate the development and implementation of its secondary school program: "Are you in control". (Paragraph 2.190)

19. The Roads and Traffic Authority, together with the Department of Health and the Police Service, encourage and support the development of educational programs aimed at learner drivers to inform them of the dangers involved in the use of alcohol and driving. (Paragraph 2.202)

20. The Roads and Traffic Authority, in conjunction with Universities and the Technical and Further Education Commission, develop educational materials relating to drink-driving for use in tertiary education curricula, and, in particular, develop materials for use in teacher training courses (Diploma of Education and Bachelor of Education courses). (Paragraph 2.207)

*Drugs other than alcohol*Co-ordination of drug-driving research activities

21. A Drug-Drive Task Force should be established with a brief to establish the extent of road trauma and risk factors associated with drug-driving behaviour, and if determined to be needed, initiate, develop and implement a co-ordinated program of measures aimed at reducing drug-driving. (Paragraph 3.52)

22. The initial task of the Drug-Drive Task Force should be to identify the potential road safety problems posed by: drivers who drive while affected by prescription drugs or over-the-counter medications; drivers who have combined alcohol and drugs; and drivers who use psychostimulants in an attempt to offset fatigue. (Paragraph 3.53)

23. The Drug-Drive Task Force should ensure that its membership contains at least two independent members with specialist pharmacological and research expertise who do not have a contractual arrangement with the Roads and Traffic Authority. (Paragraph 3.56)

Roadside screening of drivers for drug-impairment

24. The Police Service implement training for new police officers, and in-service training for existing police officers, in roadside behavioural screening for drug-impairment of drivers. (Paragraph 3.77)

25. The Roads and Traffic Authority, Department of Health, and the Police Service evaluate roadside chemical screening tests currently available to assess the suitability and accuracy of the tests to detect drug-drivers. (Paragraph 3.80)

Education about drug-driving

26. The Department of Health, together with the Roads and Traffic Authority, evaluate the effectiveness of the current labels affixed to medicines and used to indicate to consumers that driving performance may be impaired. (Paragraph 3.87)

27. The Roads and Traffic Authority review existing published information relating to the use of psychostimulants and driving performance, and develop a cohesive strategy of advertising and public relations that targets both commercial drivers and transport companies. In the short term, factual advice relating to the acute and chronic use of ephedrine and other psychostimulant drugs should be included in the next issue of "Truck Stop" audio cassettes. (Paragraph 3.89)

28. The Roads and Traffic Authority ensure that the pre-driver curriculum and the 'Parent pack' of information about road safety issues contain a separate series of documents relating to drugs and driving. (Paragraph 3.90)

*Government funded drug-driving research
at the University of Sydney*

Investigation of the management of drug-driving research

29. The Office of Public Management act to examine the circumstances surrounding the proposal, establishment and management of the drug-driving research program conducted at the University of Sydney. (Paragraph B.26)

Publication of drug-driving research findings

30. The Roads and Traffic Authority ensure that the epidemiological study of the presence of drugs in crashed drivers in New South Wales conducted by Associate Professor Starmer at the University of Sydney is published as soon as possible. (Paragraph B.40)

31. The Roads and Traffic Authority ensure that behavioural studies undertaken by Associate Professor Starmer at the University of Sydney to examine the effects of diazepam, pentobarbitone and dexchlorpheniramine, with and without the presence of alcohol, are published as soon as possible. (Paragraph B.41)

32. The Roads and Traffic Authority should liaise with the Federal Office of Road Safety to ensure that an extensive literature review of the effects of drugs, with and without the presence of alcohol, on psychomotor skills, and more particularly driving performance, will be published as a matter of urgency. (Paragraph B.42)

ALCOHOL AND OTHER DRUGS ON NEW SOUTH WALES ROADS

I. THE PROBLEM AND COUNTERMEASURES

INTRODUCTION

1.1 STAYSAFE's first inquiry was into alcohol, other drugs, and road safety. The report from that inquiry recommended a trial of random breath testing, with new penalties for excessive blood alcohol, increased conspicuousness of police, highly visible breath testing, media publicity, education, evaluation and monitoring, and modern screening and evidentiary equipment (STAYSAFE 1, 1982).

1.2 Random breath testing was, after considerable public discussion, introduced into New South Wales in December 1982. Legislation was introduced to permit the compulsory taking and testing of blood of drivers and riders of motor vehicles and of pedestrians aged 15 years or over who were admitted to or treated at a public hospital following a road crash.

1.3 These changes brought quick results. Random breath testing was quickly credited with a huge drop in road crash fatalities. Examination of road crash statistics revealed the decrease in fatalities to be mostly in alcohol-related crashes. Evaluations of random breath testing operations, after two years of statistics were to hand, confirmed random breath testing as a very cost effective road safety measure (Arthurson, 1985). The New South Wales experience with random breath testing has been seen, nationally and internationally, as a successful major road safety countermeasure (Cairney & Carseldine, 1990; Evans, 1991; Homel, Carseldine & Kearns, 1989).

1.4 STAYSAFE also made recommendations about other issues in drink driving, including calling for a zero blood alcohol limit for learner and first year drivers, encouraging the provision and use of accurate self testing breath analysis instruments in licensed premises and requesting a trial of interlock devices to disable vehicles if drivers were unable to blow air free of illegal concentrations of alcohol (STAYSAFE 1, 1982).

1.5 The restriction of blood alcohol concentrations of young drivers to an effective 'zero' blood alcohol limit of 0.02 g/100 ml was not introduced at this time (see STAYSAFE 6, 1985). The introduction of self-testing breath analysis machines and of vehicle interlock systems has not occurred in the decade since STAYSAFE 1.

1.6 The contribution of alcohol to road crashes was soon examined again by STAYSAFE, with an emphasis on the administration of random breath testing (STAYSAFE 6, 1985). Random breath testing was confirmed as desirable, with emphasis on enforcement, visibility, and modern evidentiary testing equipment. STAYSAFE again called for a zero (or 0.02 g/100 ml) blood alcohol limit for learners and first year drivers. A measure restricting blood alcohol concentrations of learner drivers or a first year provisionally licensed drivers to an effective 'zero' blood alcohol limit of 0.02 g/100 ml was introduced in May 1985.

1.7 STAYSAFE recommended against mobile random breath testing on the grounds that it could undermine already established random breath testing operations by antagonising police/motorist relations (e.g., through perceptions of victimisation; STAYSAFE 6, 1985). While this recommendation prevailed for several years, surveys revealed that a substantial proportion of drivers felt that they could evade random breath testing by using back streets. This STAYSAFE recommendation was set aside by the Government, and mobile random breath testing was introduced in November 1987 as a supplement to stationary random breath testing.

1.8 STAYSAFE made a further, limited examination of the topic of drink-driving as a part of a series of reports arising from a broad inquiry into driver licensing (STAYSAFE 13, 1989). The focus of STAYSAFE 13 was on the particular matter of drink-drive offenders retaining their licences for the months or years it took for their cases to be decided by a court. STAYSAFE recommended immediate loss of licence for drivers found with over 0.15 g/100 ml of alcohol in their blood, and also recommended that these high range offenders not receive their licences back until a medical review confirmed them fit to drive. The recommendation for the immediate suspension of the licence of a motorist charged with a high range prescribed concentration of alcohol offence was implemented in November 1989, but it was not until July 1991 that a trial of a Driver Assessment Program for high range prescribed concentration of alcohol offenders was commenced.

1.9 In January 1991 the 0.02 g/100 ml prescribed concentration of alcohol limitation on learner drivers and first year provisionally licensed drivers was extended to drivers and riders for their first three years of licensing while they are under the age of 25 years, and to the drivers of heavy vehicles, public passenger vehicles and vehicles carrying hazardous loads.

1.10 The first STAYSAFE inquiry had a major focus on alcohol and driving, but the role of drugs other than alcohol in road safety was also examined.

1.11 STAYSAFE 1 (1982) contained three broad recommendations in the area of drugs other than alcohol. STAYSAFE called for a review of the drugs that were legally available, both through prescription or as medications sold over the counter, to assess their effects on driving performance. STAYSAFE also called for better education of both the medical profession and the public of the potentiating effects of alcohol on many prescription drugs, including a review of the labelling of drug packaging to highlight the potential of driving impairment that may be associated with drug use. Finally, STAYSAFE recommended that the police review the laws and

enforcement activities relating to illegal drugs to ensure that adverse consequences arising from illegal drug use and driving were reduced. In general, these recommendations have been met through administrative and legislative changes, and through targeted publicity activities.

1.12 During an inquiry into the safety of heavy vehicles (STAYSAFE 15, 1989) it was recommended that the Roads and Traffic Authority investigate the feasibility of random drug testing of heavy vehicle drivers and take appropriate action. A report on the feasibility of random drug testing has been compiled (Henderson, 1991), but no further action appears to have been undertaken.

1.13 In the decade since STAYSAFE 1 (1982), two significant legislative actions have been taken in the area of drugs and driving.

1.14 In December 1987 legislation was introduced to allow for blood and urine testing of motorists for drugs. Under this legislation a motorist suspected of being under the influence of a drug could be stopped and a breath alcohol test conducted. If this test was negative, police could then make an assessment of impaired behaviour, and if the police still suspected drug impairment the motorist could be arrested and taken to a hospital to obtain samples of blood and urine.

1.15 In January 1991 further legislative amendment enabled the police to request that the blood sample routinely taken from motor vehicle drivers or riders and pedestrians involved in crashes could be tested for drugs other than alcohol. That is, the requirements for police to conduct a negative breath alcohol test and to assess the motorist for impairment have been removed. Police must still, however, have reason to believe that the motorist was under the influence of a drug.

1.16 These activities will be reviewed in more detail in subsequent chapters.

The scope of the inquiry

1.17 In this inquiry, STAYSAFE has returned to the broad topic of the role of alcohol and other drugs in road safety.

1.18 The STAYSAFE Committee of the 49th Parliament issued a request for submissions into its inquiry into alcohol and other drugs and road safety to be forwarded by 30 April 1991. The terms of reference for the inquiry were stated to be:

"... the role of legal and illegal drugs in road accidents. The Committee will examine all mind-altering substances that have traffic safety consequences (alcohol, other recreational drugs, prescription drugs, stimulants) and issues of availability, education, detection, prosecution, penalties, restrictions and rehabilitation as they may affect car drivers, heavy vehicle drivers, motorcyclists, pedestrians, and other road users."

1.19 One public hearing was held before the STAYSAFE Committee of the 49th Parliament. On 18 April, 1991 Associate Professor Starmer, Department of Pharmacology, University of Sydney, and Dr Perl, a consultant pharmacologist working with the Police Medical Unit, discussed the findings of a research program into drugs and driving being conducted at the University of Sydney. (A detailed examination of this research program is contained within Appendix B at the end of this report.)

1.20 The STAYSAFE Committee of the 49th Parliament was dissolved with the calling of a State election in May 1991. The STAYSAFE Committee of the 50th Parliament was constituted in August 1991. In the interval two staff members of the STAYSAFE secretariat resigned, including the then Technical Adviser, Mr Vazey. It was not until October 1991 that the STAYSAFE secretariat was fully staffed. The STAYSAFE Committee of the 50th Parliament held public hearings into the problems caused by alcohol and other drugs on New South Wales roads in November and December 1991.

1.21 As can be seen from the terms of reference, STAYSAFE has encouraged submissions on all issues involved in the areas of drugs and driving and alcohol and driving. STAYSAFE has also examined recent international research literature, and interviewed many leading administrators and researchers concerned with road safety in Australia.

1.22 STAYSAFE has decided to report on the problems caused by alcohol and other drugs on New South Wales roads through two reports. The first part of its inquiry is documented in this report, titled:

Alcohol and other drugs on New South Wales roads. I. The problem and countermeasures.

1.23 The inquiry will continue, and STAYSAFE will issue the second part of its inquiry in a report titled:

Alcohol and other drugs on New South Wales roads. II. Offences, penalties, and the rehabilitation of convicted drivers.

The format of the report

1.24 This report into the problems caused by alcohol and other drugs on New South Wales roads and the measures that have or could be taken to address the problems is organised into sections dealing with, first, alcohol and road safety, and second, road safety and drugs other than alcohol.

1.25 In order to preserve a readable document, detailed examinations of particular issues are relegated to Appendices at the back of the report.

1.26 Citations to documents, unpublished reports, Government publications and published articles, papers and monographs generally follow the style guidelines established by the American Psychological Association. Full details of citations in the

text of the report appear in the References chapter. Citations of submissions received by STAYSAFE follow the format: Author, Submission number; where the Author is the person or organisation who made the submission, and the Submission number refers to the administrative numbering system used within STAYSAFE to document submissions received. Citations to submissions received by STAYSAFE are listed in the Submissions chapter, and ordered by their unique administrative number rather than in alphabetical progression.

ALCOHOL

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- Alcohol use and road safety**
- Epidemiology**
- Countermeasures to drink-driving**
 - Specific countermeasures that target alcohol consumption**
 - Specific countermeasures based upon enforcement of drink-driving laws**
 - Specific countermeasures based upon education about alcohol and road use**
 - Other possible countermeasures to drink-driving**

2.1 Alcohol is the most commonly used social drug in New South Wales. Alcohol is a legal drug, although its use in certain circumstances and places is illegal. In many ways, societal permission to legitimately use alcohol signifies entry into adulthood. In a similar sense, the ability to obtain and hold a driving licence also denotes entry into adulthood.

2.2 This chapter briefly reviews the role of alcohol in road safety. This chapter has an explicit focus on, first, identifying the road safety problem caused by drivers and riders who drink alcohol and later drive a motor vehicle or ride a motorcycle, and second, reviewing the countermeasures taken to address the problem of drink-drivers. The problem of alcohol use and road safety is defined, and current knowledge regarding trends in alcohol use is reviewed. The administrative arrangements established to co-ordinate countermeasures to drink-driving are examined. The specific countermeasures to drink-driving are examined under three general headings—countermeasures that target alcohol consumption by people who may attempt to drive; countermeasures based on enforcement of drink-driving laws; and countermeasures based on education about drinking and driving.

2.3 A second aspect of this inquiry into alcohol and other drugs on New South Wales roads will be reported separately. This second report will examine the sanctions aimed at deterring drivers who have been detected driving with an excessive blood alcohol concentration of alcohol, and will examine the measures and programs that deal with the rehabilitation of the convicted drink-driver.

Penalties for drink-driving

2.4 A detailed examination of the penalties imposed for drink-driving often reserved for the second report of STAYSAFE's inquiry into alcohol and other drugs on New South Wales roads. The current report will only list the offences related to drink-driving as part of an examination of the countermeasures to drink-driving with a focus on enforcement activities.

Rehabilitation of the drink-driver

2.5 The continuation or restoration of a driving licence to a convicted drink-driver will also form part of STAYSAFE's second report into alcohol and other drugs on New South Wales roads.

Drink-walkers

2.6 The particular problems associated with the safety of alcohol-affected pedestrians is not addressed as part of the general inquiry into alcohol and other drugs on New South Wales roads. STAYSAFE intends to examine the problems of drink-walking as part of a comprehensive inquiry into pedestrian safety at a future date.

Alcohol use and road safety

2.7 The relationship between blood alcohol concentration and crash risk was clearly established by Borkenstein, Crowther, Shumate, Ziel and Zylman (1974) in a classic report known as the Grand Rapids study. This relationship has been repeatedly confirmed (e.g., McLean & Holubowycz, 1981). Rather than reviewing the substantial amount of evidence about alcohol and crash risk, STAYSAFE will simply begin this report by accepting the following propositions:

- alcohol has a deleterious effect on driver behaviour and ability to perform skilled tasks;
- alcohol is a major factor in the causation of road crashes, especially serious ones.

Epidemiology

Trends in alcohol use in New South Wales

2.8 The most recent published review of alcohol use in New South Wales has been completed by the National Drug and Alcohol Research Centre for the World Health Organisation (Tebbutt, Muir & Heather, 1991). Tebbutt et al. have reviewed alcohol use indicators to determine trends in alcohol use over the past decade in New South Wales. Some unpublished information about alcohol use in New South Wales is also available. The Australian Bureau of Statistics conducts numbers of surveys that allow population estimates of consumption of alcohol and medications to be derived. General population surveys were conducted in 1977 and 1985 that enable estimates of alcohol consumption by people aged 18 years or older to be derived. The results of these surveys are presented in Table 1.

2.9 An alternative means of determining alcohol consumption could be to compile data relating to the sale of alcohol. However, it is recognised that data relating to alcohol sales can be unreliable as sales data do not necessarily reflect actual consumption data (Tebbutt et al., 1991).

2.10 What is clear is that there has been an overall decrease in the alcohol consumption levels of the population during the 1980's. In evidence to STAYSAFE, Dr MacAvoy, Director of the Drug and Alcohol Directorate of the Department of Health stated:

Table 1: Persons aged 18 years and over - average daily alcohol consumption (mls) by age, New South Wales, 1977 and 1985

Average daily alcohol consump- tion	Age group (years)												Total	
	18-24			25-44			45-64			65 and over				
	1977 survey	1985 survey	1990 survey	1977 survey	1985 survey	1990 survey	1977 survey	1985 survey	1990 survey	1977 survey	1985 survey	1990 survey		
DRINKERS														
Per male drinker	36.50	34.43		35.95	34.86		39.66	31.57		23.11	23.29		36.10	34.57
Per female drinker	11.96	19.43		13.62	13.43		16.39	13.14		18.49	13.71		14.61	14.57
Per drinker	26.66	34.00		27.07	26.00		30.69	24.71		21.02	19.43		27.51	26.43
TOTAL														
Per male	26.27	32.43		28.36	25.29		28.54	21.71		14.50	11.71		26.70	23.71
Per female	5.72	10.43		7.36	7.00		7.21	5.57		6.20	3.43		6.87	6.57
Per person	15.97	21.43		18.05	16.14		17.74	13.71		9.46	7.00		16.56	15.00

(from Tebbutt et al. 1991)

DR MacAVOY: "In relation to other countries in the world, Australia's ranking on a per capita consumption of beer, wine and spirits and absolute alcohol has declined in recent years. In 1987 Australia ranked fifteenth in the world in total absolute alcohol consumption compared with the rank of tenth in 1975. For example, beer consumption has fallen from a high of 175.9 litres per adult in 1979-80 to 145 litres in 1988-89 - a drop of 17 per cent. Over the same 10-year period consumption of wine, both table and fortified, has increased by 6.5 per cent, and the consumption of spirits and litres of absolute alcohol has risen by 23 per cent" (Minutes of Evidence, 16 December 1991, p.43)

2.11 However, consumption in the 18-24 year age group did not reflect this general trend. In fact, alcohol consumption in this group increased by 28% over the period of 1984-1989. There was a marked increase in the proportion of young males who were drinking heavily (defined as consuming 100 mls or more of alcohol on a daily basis). Binge drinking, or excessive drinking at irregular intervals, has also been identified as a problem in the younger age groups.

Trends in alcohol-affected road crashes

2.12 Indicators of the involvement of alcohol to road crashes include data relating to random breath testing operations, and data from road crash victims. Information is also available from surveys of alcohol use and road use of the general population or specific target groups.

2.13 Of these, the most popular indicator derives from the blood alcohol analyses which are routinely made following the deaths of drivers and riders. Measurements are available for about 75-85% of deceased motor vehicle controllers (drivers and riders) in any given year. In 1990, blood alcohol concentrations were not known in 9% of the motor vehicle controllers. Where the blood alcohol concentration of a deceased motor vehicle controller is known, 35% of those measured were found to be over the New South Wales legal limit of 0.05 g/100 ml blood alcohol concentration, or 0.02 g/100 ml blood alcohol concentration, whichever was applicable (Roads and Traffic Authority, 1991).

2.14 Table 2 shows the blood alcohol concentration of drivers and riders killed in road crashes in New South Wales in 1990. The majority of those killed who had an illegal blood alcohol concentration were found to have a blood alcohol concentration that exceeded 0.15 g/100 ml.

2.15 There is a significant number of young drivers killed in road crashes who have an illegal blood alcohol concentration: of the total number of deceased motor vehicle controllers with a known blood alcohol concentration in 1990, 42.5% of those killed were aged 17-29 years (Roads and Traffic Authority, 1991).

2.16 It was noted earlier that there is a tendency for young people to drink heavily. The importance of concern about this drinking pattern is reflected in the observation that the most likely manner that a person aged 18-34 years will be killed or seriously injured is either as a driver or passenger in a motor vehicle involved in a road crash

Table 2: Distribution of blood alcohol concentrations in motor vehicle controllers killed on New South Wales roads in 1990. Only cases where the blood alcohol concentration is known are included. Blood alcohol concentrations between .020 - .049 g/100 ml are included for deceased motor vehicle controllers who were unlicensed or who held a learner's licence or a provisional licence.

Blood alcohol concentration (g/100 ml)	Number killed	% of total
<i>LAWFUL CONCENTRATION</i>		
Nil	215	60.1
.001-.049	17	4.7
Subtotal	232	64.8
<i>UNLAWFUL CONCENTRATION</i>		
.020-.049	2	0.6
.050-.079	11	3.1
.080-.149	28	7.8
.150 and above	85	23.7
Subtotal	126	35.2

(Adapted from Roads and Traffic Authority, 1991)

where alcohol is implicated. More than 65% of all deaths in the 16-34 year age group are associated with alcohol, although not all result from drinking and driving.

The contribution of alcohol to road trauma

2.17 Some commentators (e.g., Australian Hotels Association, Submission LID 25) have argued that statistics detailing blood alcohol concentration of motor vehicle controllers involved in crashes do not reliably indicate the contribution of alcohol to crashes. These complaints deserve attention.

2.18 One criticism is that if drivers with an illegal blood alcohol concentration level had not consumed alcohol their crash risk would still have been higher than for average drivers with a zero blood alcohol concentration observed at similar places on similar occasions (see Evans, 1991). Heavy drinkers are known to be different from the general population (Donovan, Marlatt & Salzberg, 1983) and a longitudinal study of drink-drivers found that different crash rates could be expected even when such drivers are alcohol free (McCord, 1984). However, given the complexity of the system in which drink-driving is embedded, the evidence we have, whilst imperfect, is about as good as we can hope to get: it is possible that over one third of fatalities in New South Wales could be saved if all those individuals currently driving or walking with more than 0.05 g/100 ml blood alcohol concentration reduced their accident rate to that typical of drivers under 0.05 g/100 ml blood alcohol concentration.

2.19 Another criticism is that the responsibility for the crash occurrence is not taken into account (i.e., that in a proportion of crashes there may be drivers with an illegal blood alcohol concentration who are involved but these drivers are not necessarily responsible for the crash occurring). This point is addressed as part of an examination of the adequacy of available road crash statistics.

Adequacy of crash statistics

2.20 STAYSAFE has some concerns with the adequacy of the crash statistics produced by the Roads and Traffic Authority. These concerns relate to the number of crashes where there are unknown blood alcohol concentrations of crash-involved motor vehicle controllers, and to the lack of statistics that indicate crash responsibility in relation to known blood alcohol concentrations of motor vehicle controllers.

2.21 It was not until 1980 that statistics indicating the blood alcohol concentrations of deceased drivers became systematically reported in New South Wales. However, this important statistic has been continually marred by a large number of cases where the blood alcohol concentration is unknown. STAYSAFE has made repeated recommendations in its reports for action to be taken to increase the number of cases where the blood alcohol concentration is known (STAYSAFE 1, 1982; STAYSAFE 6, 1985; STAYSAFE 13, 1989). The assessment of alcohol involvement in a crash is based upon the blood alcohol concentration readings of the motor vehicle controllers involved in the crash, defined as either alcohol involved (at least one motor vehicle controller was over the legal blood alcohol concentration), alcohol not involved (either the blood alcohol concentrations of all controllers involved were below the legal limit or no motor vehicle controllers were involved in the crash), or unknown (the blood alcohol concentration was not known for at least one motor vehicle controller, and all

of the motor vehicle controllers who were tested had a legal blood alcohol concentration).

2.22 In 1990 the blood alcohol concentration was not known for 14.2% of fatalities in New South Wales. In 1989 19.4% of fatalities had an unknown blood alcohol concentration. This variation is not atypical, nor does it indicate an improvement: the percentage of unknown blood alcohol concentration in fatal road crashes in New South Wales has fluctuated between 10.1% in 1985 and 24.6% in 1987.

2.23 It should be possible to do better. Evans (1990) reported that in Delaware, USA, only 4.4% of deceased drivers and riders have an unknown blood alcohol concentration.

2.24 The importance of correcting this statistic cannot be underestimated. If the cases for which blood alcohol concentration is unknown actually had blood alcohol levels that were evenly distributed between zero and high range then their absence should not adversely affect the overall distribution of blood alcohol levels. But if the worst case scenario is assumed (i.e., in all cases where the blood alcohol level was unknown it was actually over 0.05 g/100 ml), then the effectiveness of random breath testing would be brought into question. Indeed, as the National Roads and Motorists Association (Submission LID 31) pointed out:

"... if all the 'unknowns' in 1989 were actually over 0.05 and those in the pre-RBT period were under 0.05, then RBT could not be deemed to be effective in reducing the role of alcohol in road fatalities during that year." (p.10)

2.25 The Royal Australian College of Surgeons (Submission LID 24) supports the routine testing of all road casualties aged 15 years or more. Improvement in the procedures by which the Roads and Traffic Authority receives information about the blood alcohol concentrations of deceased drivers, riders and pedestrians should be possible through closer liaison with the police (requesting that blood samples be taken), the Department of Health (ensuring that hospital emergency room procedures require a blood sample to be taken), and the State Coroner (ensuring that information concerning blood alcohol concentration presented to coronial inquests is passed on to the Roads and Traffic Authority).

Recommendation 1: The Roads and Traffic Authority, together with the Police Service, the Department of Health, and the State Coroner, act urgently to develop and implement measures to maximise the proportion of injured and deceased drivers, riders and pedestrians for whom a blood alcohol concentration is known.

2.26 A second criticism of the crash statistics lies in the difficulty of interpreting the role of alcohol in road crashes involving confusion of the concepts of 'involvement in crash' and 'responsibility for crash'. The statistics generated by the Roads and Traffic Authority on an annual basis include a measure of alcohol involvement in crashes. This statistic simply indicates if an illegal blood alcohol concentration was found in a crash-involved motor vehicle controller (i.e., driver or rider). The responsibility for a

crash occurring is not taken into account. In fact, there are no published data from New South Wales sources that estimate alcohol responsibility for crashes. STAYSAFE has been advised that the Federal Office of Road Safety maintains a database of fatal crashes on a national basis that does identify the person judged as responsible for a crash occurring. STAYSAFE notes that it is also possible to derive reasonable estimates for alcohol responsibility for fatal road crashes based upon analysis of existing data (Evans, 1990). The importance of identifying the person responsible for a crash occurring lies in being able to more closely define countermeasures that address alcohol-affected drivers.

2.27 Finally, STAYSAFE is aware of a criticism voiced at the 1990 Road Safety Researchers Conference that the statistical data about road crashes is insufficiently disaggregated and prevents the effective placing of drink-drive enforcement to where it is most needed. STAYSAFE received no evidence relating to this criticism, but suggests that the criticism should be examined as part of more general reviews of drink-driving, where appropriate.

Countermeasures to drink-driving

2.28 The following sections discuss, in detail, the various countermeasures undertaken to address the problems involved in the use of alcohol in combination with driving. The various countermeasures are organised into those associated with the consumption of alcohol, countermeasures based upon enforcement of drink-driving laws, and countermeasures based upon education about alcohol and road safety.

2.29 STAYSAFE felt that an important question in the area of alcohol and road safety was to determine the level of co-ordination of the various measures and activities taken to combat drink-driving.

2.30 In evidence to STAYSAFE, Mr Knapp, representing the Australian Hotels Association, clearly outlined his concerns with a lack of co-ordination of activities associated with limiting alcohol abuse, including drink-driving:

MR KNAPP: "... there are so many various groups trying to all do their little bit for various reasons. You only have to look at the Christmas period this year where we have found that the National Roads and Motorists Association is producing a bit of work, some posters and all sorts of documentation. Our industry has produced three separate posters and different types of information for the benefit of licensees and of media generally and Sky Channel in particular - I am sorry, other liquor industry groups have produced three. The Australian Hotels Association, together with the registered clubs and Tooheys ... produced four separate posters and a video for screening on Sky Channel because it is our firm belief that any education in this area should be directed towards the retail outlets wherever possible because that is where people are actually consuming alcohol and it is where licensees have got to understand their responsibilities.

"...The [Department of Health's Directorate of the] Drug Offensive, we are not too sure what it has produced but I am sure it has produced something as well. There is

the Minister for the Roads and Traffic Authority, the Health Minister, there is the Chief Secretary ... The Roads and Traffic Authority has produced another couple of posters this particular Christmas and the police have also produced a poster. So with all these groups out there it is just going from the sublime to the ridiculous ..." (Minutes of Evidence, 16 December 1991, p.66)

Mr Knapp went on to call for a meeting of the groups involved in combating alcohol abuse to see if better co-ordination of their disparate activities was possible.

2.31 STAYSAFE has investigated the mechanisms established to combat drink-driving, and these are described below. STAYSAFE makes no comment on the wider issue of co-ordination of activities to combat alcohol abuse within the general community, other than to support the recommendation of the New South Wales Parliament Legislative Council Standing Committee on Social Issues:

"That the Directorate of the Drug Offensive monitor and review all major drug reports issued in NSW, at the Federal level and elsewhere as appropriate, and prepare at least annually digests of these reports including assessments of the feasibility and cost implications of their recommendations, for the Ministerial Committee on the Drug Strategy"
(Standing Committee on Social Issues, 1991, p.xi)

2.32 The co-ordination of activities undertaken to combat drink-driving takes place through a number of groups that co-ordinate road safety activities, including the Road Safety Advisory Council, the Road Safety Forum, and the Drink-Drive Task Force.

Road Safety Advisory Council

2.33 The Road Safety Advisory Council advises the Chief Executive of the Roads and Traffic Authority on the identification of road safety issues to facilitate the co-ordination of the State's road safety activities in both the public and private sectors. The Road Safety Advisory Council was established in 1989, following the formation of the Roads and Traffic Authority under the Transport Administration Act, 1988.

2.34 The Chairman of the Road Safety Advisory Council is also a member of the Roads and Traffic Advisory Council, the peak advisory body relating to roads and traffic matters in New South Wales.

2.35 The membership of the Road Safety Advisory Council includes representatives of the Police Service, the Departments of the Attorney General, Health, School Education and Transport, and representatives of professional bodies concerned with road safety, including the National Roads and Motorists Association, the Local Government and Shires Association, the Royal Australian College of Surgeons, and the Australian Institute of Traffic Planning and Management. STAYSAFE notes that a representative of the liquor industry is not included amongst the membership of the Roads Safety Advisory Council.

Road Safety Forum

2.36 The Road Safety Forum was established by the Road Safety Bureau to provide a link between the Roads and Traffic Authority and organisations with a concern for road safety. It provides a mechanism for the Road Safety Bureau to obtain feedback from medical and other professional organisations about road safety programs. The role of the Road Safety Forum is limited to identification and discussion of road safety issues; it does not have a recommendatory role.

2.37 The membership of the Road Safety Forum includes the Royal Australian College of Surgeons, the Child Accident Prevention Foundation of Australia, the Media Council, the Insurance Council of Australia, the Australian Red Cross, the St John Ambulance Australia, the Australian Consumers Association, and the Road Transport Industry Training Committee. STAYSAFE notes that the liquor industry is not represented in the Road Safety Forum.

Drink-Drive Task Force

2.38 The Road Safety Bureau convenes a number of ongoing road safety 'Task Forces' in areas such as speed management, occupant protection, pedestrian and bicycle safety, driver fatigue, and drink-driving. These task forces are charged with developing an operational program of countermeasures on an annual basis.

2.39 The Drink-Drive Task Force has been formed "to reduce road trauma related to drink driver behaviour by initiating, developing and evaluating a co-ordinated program of measures aimed at reducing drink-drive behaviour" (New South Wales Police Service, Submission LID 32, p.12).

2.40 In addition to officers from a number of areas within the Roads and Traffic Authority, the Drink-Drive Task Force is composed of representatives from the police, the National Roads and Motorists Association, and the New South Wales Department of Health.

2.41 The Drink-Drive Task Force has responsibilities to:

- co-ordinate activities aimed at reducing road trauma and risk factors associated with drink-driving in New South Wales, identifying areas where action is needed
- plan further activities to reduce drink-driving
- ensure that appropriate people and groups are informed and consulted about activities aimed at reducing drink-driving
- develop evaluation strategies for the assessment of measures aimed at reducing drink-driving, including reviewing current and past drink-drive countermeasures
- act as a reference group for advertising and public relations campaigns that target drink-driving

STAYSAFE notes that a representative from the liquor industry is not a member of the Drink-Drive Task Force.

2.42 There appears to be a lack of consultation between the liquor industry, the Roads and Traffic Authority and other groups concerned with road safety.

2.43 There are consultative and representative bodies within the liquor industry. The Chief Secretary, Mrs Cohen MP, has recently established a peak body for the liquor industry in New South Wales: the Liquor Industry Ministerial Advisory Council.

Liquor Industry Ministerial Advisory Council

2.44 The Liquor Industry Ministerial Advisory Council is comprised of ten members representing the various liquor industry associations present in New South Wales. Its principal role is to provide advice to the Chief Secretary on matters affecting the liquor industry, including matters relating to legislative reform. The Liquor Industry Ministerial Advisory Council provides a formal venue for the diverse liquor industry associations to meet face to face to discuss issues of relevance to the industry. To date, the Liquor Industry Ministerial Advisory Council has deliberated on issues such as the problem of underage drinking, extended trading hours of licensed premises, responsible serving practices, and the issue of alcohol and violence.

2.45 It would seem appropriate for the liquor industry to be represented in bodies that are concerned with road safety, and more particularly, minimising road trauma associated with alcohol use. It seems appropriate, therefore, for the liquor industry to be represented at a senior, recommendatory level (i.e., the Road Safety Advisory Council) and at an operational level (i.e., the Drink-Drive Task Force). STAYSAFE does not believe that there is a need for the liquor industry to be represented in the Road Safety Forum if consultation is available through membership in other advisory bodies concerned with road safety.

Recommendation 2: The Roads and Traffic Authority and the Chief Secretary's Department ensure that effective consultation concerning drink-driving occurs between the Road Safety Advisory Council and the Liquor Industry Ministerial Advisory Council.

Recommendation 3: The Roads and Traffic Authority should invite the Liquor Industry Ministerial Advisory Council to nominate a person to be invited to membership of the Drink-Drive Task Force convened by the Roads and Traffic Authority.

Countermeasures that target alcohol consumption

2.46 STAYSAFE received two submissions from organisations associated with the liquor industry in New South Wales (Australian Hotels Association, Submission LID 25; Tooheys Limited LID 36). No submission was received from organisations within the club industry, the liquor store industry, restaurants and caterers, or distillers. In many ways this has limited STAYSAFE gaining a perspective of future changes in alcohol use and alcohol retailing in New South Wales.

2.47 In a review of drink-drive countermeasures introduced in Victoria during the 1980's, South (1988) noted that it seemed to be possible to make some progress in reducing drink-drive crashes without dramatically reducing alcohol consumption. While there appear to be gains available by tackling the combination of drinking and driving, there have been many road safety commentators of drink-driving countermeasures (e.g., Homel, 1988) who have sought to focus at least some road safety attention on the contribution which alcohol consumption makes to drink-drive crashes in New South Wales. There have been many calls to increase the price of alcohol, reduce the availability of alcohol, and restrict advertising of alcohol. The Australian Hotels Association (Submission LID 25) acknowledged the contribution which alcohol availability makes to traffic crashes.

2.48 While acknowledging the well documented (e.g., Smith, 1989) implications for road crashes of changes to the availability and ability to consume alcohol, STAYSAFE acknowledges that alcohol consumption is a public health issue, including but extending beyond its terms of reference. There seems to be no shortage of groups at the State and Federal level reviewing and reporting on these matters. The Standing Committee on Social Issues (1991) has indicated that a number of major reports have been prepared over the last few years.

2.49 Rather than duplicate the work of others, STAYSAFE has decided to: overall, acknowledge the great damage done by excessive alcohol consumption in causing road crashes; generally, encourage the development and implementation of cost effective measures to curb excessive consumption of alcohol; and comment selectively on particular matters pertinent to the consumption of alcohol, which have been raised in submissions received by STAYSAFE or within the scientific road safety literature.

2.50 Some major suggestions, not necessarily all endorsed by STAYSAFE, concerning alcohol consumption, are as follows:

- increase the minimum age for purchase of alcohol.
- increase enforcement of the law proscribing supply of alcohol to people aged under 18 years.
- restrict the hours and places for sale of alcoholic beverages.
- prohibit open alcohol containers in motor vehicles.
- better train people in the hospitality industry to deal with intoxicated patrons.
- increase the liability of those in the hospitality industry, who serve intoxicated patrons, for injuries which subsequently occur.
- re-arrange taxes to make beverages with high alcohol content less competitive with beverages with low or no alcohol.
- encourage licensed premises to provide and promote quality and low cost non-alcoholic beverages for those who are to drive.

These issues will be briefly discussed.

Minimum age for purchase of alcohol

2.51 Alcohol may be legally purchased in New South Wales from 18 years of age. If the minimum age for purchasing alcohol is increased there is a systematic decrease in the crash involvement of young drivers (Smith, 1989).

2.52 All states in the United States now have 21 years of age as their minimum age for the drinking of alcohol (although in some states the law is defined as the minimum age for the purchase and possession of alcohol). In many states the increase of the minimum age from 18 years to 21 years has been credited with substantially reducing high blood alcohol fatalities for drivers aged under 21 years (National Highway Traffic Safety Administration, 1989).

2.53 STAYSAFE 18 (1990) recommended that the Roads and Traffic Authority conduct a survey of public attitudes to a possible change in New South Wales law to a minimum age for the purchase of alcohol of 21 years. This recommendation appears to have not been accepted by the Roads and Traffic Authority. STAYSAFE notes that other investigatory bodies have not seen increasing the legal minimum age as practical (e.g., Standing Committee on Social Issues, 1990).

Enforcement of minimum age for purchase of alcohol

2.54 In 1990 illegal blood alcohol concentrations were found in 10% of the drivers and riders aged under 17 years who were injured or killed in road crashes; blood alcohol concentration was unknown in 22% of these drivers and riders (Roads and Traffic Authority, 1991).

2.55 The Standing Committee on Social Issues (1990) conceded that the current law banning alcohol sales to people under 18 years of age was being flouted, and called for more education and enforcement. STAYSAFE notes that the Chief Secretary's Department has foreshadowed new reforms to attack under-age drinking. STAYSAFE endorses the recommendations made by the Standing Committee on Social Issues (1990) aimed at improving enforcement of the law concerning under-age drinking.

2.56 The introduction of photographic licences provides an easy way for patrons of licensed premises to indicate that they are old enough to legally purchase alcohol. Few attempts at forging or altering photographic licences have been reported.

2.57 STAYSAFE endorses the proof-of-age card program established by the Roads and Traffic Authority. The card is issued by motor registries, on request and provision of appropriate documentation, and contains the person's name, photograph, date of birth and signature. The proof-of-age card provides a quick and easy way for staff in licensed premises to establish the age of people seeking to enter licensed premises.

Hours and places for selling alcohol

2.58 Smith (1989) reported on the close relationship between the occurrence of road crashes and availability of alcohol.

2.59 The Standing Committee on Social Issues (1990) noted the wealth of evidence which suggested a direct link between availability of alcohol and consumption of alcohol. The extension of opening hours of licensed premises, and increases in the number of premises licensed to sell alcohol have been shown to be associated with increases in alcohol consumption.

2.60 Despite this evidence, it appears the New South Wales community is happy with current levels of availability of alcoholic products.

Open Containers

2.61 Camkin (1991) advised of a recommendation, from the United States Presidential Commission on Drunk-Driving (1982), that unsealed alcohol beverage containers be prohibited within the passenger compartments of motor vehicles. Camkin concluded that the applicability of this recommendation was worthy of exploring in New South Wales. No evidence or estimate was advanced as to the possible or likely benefits of such a law for New South Wales.

Recommendation 4: The Roads and Traffic Authority investigate the feasibility and likely benefits of prohibiting the drinking of alcohol within the passenger compartment of private motor vehicles moving on public roads for all occupants of all ages.

More responsible serving of alcohol

2.62 In the United States those who serve alcohol have become liable for subsequent injuries if it can be established that they served alcoholic beverages to intoxicated individuals. This liability is established within what have been called "dram-shop liability laws" or "dram-shop statutes" in the United States. These laws have been pressed on all states following a recommendation of the Presidential Commission on Drunk-Driving (1982). There appears to be no serious consideration of such an approach in Australia.

2.63 The alternative approach, being adopted in Australia, is for training programs directed at helping hotel staff to identify and deal with problem drinkers. According to Homel et al. (1988), no evaluations of responsible server programs had been published and little explicit attention was given to drinking and driving as an important target behaviour. Homel (1990) argued that sanctions, either through common law actions or conditions built into liquor licensing legislation, would be necessary before server interventions were likely to be successful.

2.64 The Australian Hotels Association (Submission LID 25) acknowledged a need for longer and better training of licensees, staff and managers, but cautioned against expecting them to be "policeman, judge and jury". In evidence to STAYSAFE, Mr Knapp, representing the Australian Hotels Association, was critical of the development of training programs that address the more responsible serving of alcohol that have involved only particular segments of the liquor industry, rather than through consultation with all sectors of the liquor industry.

2.65 STAYSAFE notes that the development of server intervention programs has been particularly prompted by concerns over drink-walkers. As noted earlier, STAYSAFE intends to examine the safety of drink-walkers as part of a more comprehensive inquiry into pedestrian road safety at a future date.

Taxes and prices of alcohol

2.66 According to Ross (1990) the office of the United States Surgeon General reported in 1989 that a panel it had established to examine price and availability of alcoholic products had reported that an increase in the excise tax could have the largest long term effect on alcohol-impaired driving of all policy and program options available. They called for alcohol tax to reflect alcohol content rather than type of beverage.

2.67 Others who have recently advocated that alcohol tax should be structured to more firmly discourage consumption of high alcohol beverages, include the Standing Committee on Social Issues (1990), the National Highway Traffic Safety Administration (1989), and Smith (1989). Giving evidence before STAYSAFE, Mr Knapp, representing the Australian Hotels Association, called for a review of the tax on low alcohol beers to encourage consumption of low alcohol beers.

2.68 A submission from a major brewer of low alcohol beer, Tooheys Limited (Submission LID 36), advocated the abolition of the current New South Wales State Licence Fee of 10% of the wholesale cost of beer for light beers defined as containing less than 3.8% alcohol content. STAYSAFE notes that other Australian States have reduced or removed the licence fees on light beers: Victoria and South Australia have abolished the State Licence Fee on light beers with less than 3.8% alcohol content, Western Australia and the Northern Territory have a reduced licence fee on low alcohol beers. STAYSAFE is satisfied that there may be road safety gains resulting from a reduction of the taxation on light and low alcohol beers.

Recommendation 5: The State Licence Fee on light beers (defined as beers containing between 1.15% and less than 3.8% alcohol content) be reduced to 5%, and the State Licence Fee on light beers (defined as beers containing less than 1.15% alcohol content) be abolished completely.

Promotion of non-alcoholic beverages at licensed venues

2.69 Dr Sheehan, of the School of Social and Preventive Medicine at the University of Queensland expressed her concern to STAYSAFE at the promotion of alcohol at rock concerts in Queensland. She advised that promotions of alcohol and alcohol sales are banned at rock concerts in Norway and France. The Australian Broadcasting Commission's 4-Corners program of 27 May 1991 exposed vigorous promotion of alcoholic beverages at discos in clubs. Complaints have been received by STAYSAFE that it is impossible or expensive to obtain non-alcoholic beverages at many night-spots.

2.70 Mr Knapp, representing the Australian Hotels Association, reported that:

MR KNAPP: "... in one of these Arabic countries where you cannot drink alcohol, Fosters did the right thing and they have produced a non-alcoholic Fosters, so it is available". (Minutes of Evidence, 16 December 1991, p.67)

Recommendation 6: Non-alcoholic beverages should be always available, clearly advertised and placed in public view, and otherwise promoted in licensed premises to encourage safe drinking by those who are to drive after leaving the premises.

Coin-operated breath testing machines

2.71 Submissions relating to coin-operated breath testing machines were received from Lion Analytics Pty Limited (Submission LID 11), Professor Breakspere, University of Technology, Sydney (Submission LID 22), and Breathcheck Pty Limited (Submission LID 34).

2.72 The standards for the operation of breath alcohol testing machines have been established by a Standards Australia Committee on Alcohol Breath Testing Devices known as CS/77. The present standard is Australian Standard (AS) 3547 for Breath Testing Devices for Personal Use (non-evidentiary). There is some ambiguity with the current standard relating to length of time required before re-calibration and a requirement that the devices shut down after prolonged periods of non-use. A draft amendment to the existing standard is in the final stages of preparation. This draft amendment is known as DR 91160.

2.73 During a six month test of thirty breath alcohol testers which had been placed in various Victorian premises where liquor was served or consumed, over 3500 breath tests were recorded (Mackiewicz, 1988). The testers were described as "popular and well used", but Mackiewicz reported a fall-off in usage as the novelty wore off, and low usage at smaller locations. The above statistics average 6.4 tests per machine per day. Mackiewicz suggested that the machines were of value, both in educating drinkers about whether or not their pattern of drinking was placing them over the blood alcohol limit, and in dissuading about one third of those who measured over the legal limit from driving themselves from the venue. The calibration of the machines was described by Mackiewicz as "very good", with minor adjustments only needed in some machines during the trial period. However, some mechanical problems, for examples, in the operation of the coin mechanisms and excessive back pressure preventing effective operation, have been identified (Mackiewicz, 1988). (A jammed coin mechanism was observed, by chance, in an inspection at a Sydney club by STAYSAFE's former Chairman.) Such problems are of concern, given the evidence that some patrons at clubs are relying on the machines to guide them in their decisions as to whether or not to drive themselves home.

2.74 It is unclear to STAYSAFE if there is a need for tighter control of maintenance, calibration and design of the machines. No government controlled system for the operation of coin operated breath testing machines was described in any material reviewed by STAYSAFE. An allegation has been received, by telephone, that machines are commonly set to read high to protect proprietors from being sued for misinforming clients as to their legality. STAYSAFE notes that legislation protecting proprietors who install and operate these machines, has been recently passed in South Australia. The Road Traffic (Coin-operated Breath Machines) Amendment Act 1991 amends the Road Traffic Act, 1961 of South Australia by inserting the following:

"In any proceedings for an offence against this Act, no evidence can be

adduced as to a blood alcohol reading obtained from a coin-operated breath testing or breath analysing machine installed in any hotel or other licensed premises".

2.75 A review of the reasons for the introduction of this legislation in South Australia, and an evaluation of the effect of the legislation is desirable, as submissions received by STAYSAFE for this inquiry have proposed the introduction of similar legislation in NSW (e.g., Australian Hotels Association, Submission LID 25).

Recommendation 7: The Chief Secretary's Department, together with the Department of the Attorney General, the Department of Health and Roads and Traffic Authority should determine the need for the introduction in New South Wales of legislation similar to the Road Traffic (Coin-operated Breath Machines) Amendment Act, 1991 of South Australia, and introduce similar legislation if required.

2.76 It was forecast that a problem with the effective use of breath-testing devices could arise if they were misused for drinking games. This potential problem was reported as an insignificant problem by Mackiewicz (1988). There were concerns, though, that most users either failed to rinse out their mouths with water before use, or to wait the recommended 10 minutes between their last drink and attempting the breath test. Mackiewicz suggested that these concerns could be offset if the operating instructions were clearly stated.

2.77 Another unresolved issue is that it may be that the users of public breath test machines are already concerned sufficiently about drinking and driving to be unlikely to drink-drive. The presence of these machines may be irrelevant to those people who are more likely to be drink-drivers, including the binge and/or problem drinkers.

2.78 Generally, coin operated breath testing machines appear to be beneficial in informing drinkers of their level of intoxication.

Personal Breath Testing Machines

2.79 STAYSAFE 6 (1985) recommended "that the NSW Government establish a standard for self testing breath analysis machines and allow only those machines to meet that standard to be sold in New South Wales" (Recommendation 12).

2.80 Despite the promulgation of an Australian Standard for breath testing devices for personal use, a survey reported in the magazine Choice found that none of the personal breathalysers they obtained gave more than a very rough indication of the amount of alcohol. As noted earlier, a revision of the standard is being prepared. STAYSAFE's opinion it would be useful if health and road safety officials were involved in the development of a new standard.

Recommendation 8: The Department of Health and the Roads and Traffic Authority should jointly establish what problems have occurred with the introduction of personal breath testing machines to New South Wales and take appropriate corrective action.

Countermeasures based upon enforcement of drink-driving laws

2.81 The main offences for drink-driving are contained in the Traffic Act, 1909, although the police also have the power to use provisions of the Crimes Act, 1900 in circumstances of severe road crashes.

Drink-drive Offences

Drive Under the Influence of Intoxicating Liquor

2.82 It is an offence in New South Wales to drive under the influence of alcohol. Prior to December 1968 a driver affected by alcohol was charged with the offence of Driving Under the Influence of Intoxicating Liquor. In general, evidence of the offence rests on the police officers' observations of the driver's behaviour and appearance. There is no provision in the legislation defining the offence of Driving Under the Influence of Intoxicating Liquor for a chemical test. That is, the results of a chemical test cannot be used in court as evidence for the presence of alcohol and to indicate alcohol in such a concentration as to render the driver under the influence of alcohol. When the offence of Driving Under the Influence of Intoxicating Liquor was the only means of enforcing drink-drive offences it was necessary for the police to compile a comprehensive brief of evidence at court proceedings, including testimony about the behaviour and appearance of a driver who was charged. This process was time consuming and expensive.

2.83 The introduction of the offence of driving with a Prescribed Concentration of Alcohol has seen a reduction in the use of the provision of Driving Under the Influence of Intoxicating Liquor. Currently, a charge of Driving Under the Influence of Intoxicating Liquor is used in circumstances where the evidentiary requirements of driving with a Prescribed Concentration of Alcohol are not able to be met.

Prescribed Concentration of Alcohol

2.84 The introduction of instruments that could reliably and objectively measure the alcohol content in the human body led to the development of laws that proscribed driving with a blood alcohol concentration that exceeded specified legal limits. Such laws are known as per se laws because a blood alcohol concentration in excess of the limit is in itself an offence: there is no requirement for the police to demonstrate that the driver was under the influence of alcohol.

2.85 The offence of having a Prescribed Concentration of Alcohol exceeding a limit of 0.08 g/100 ml blood alcohol concentration was introduced in December 1968. The offence of driving with a Prescribed Concentration of Alcohol is the principal means of dealing with drink-drivers.

2.86 The specified legal limits of blood alcohol concentration have been altered several times since 1968. In December 1980 the specified legal limit was lowered from 0.08 g/100 ml blood alcohol concentration to 0.05 g/100 ml. In December 1982 three levels of the offence of driving with a Prescribed Concentration of Alcohol were introduced: low range (0.05 g/100 ml to less than 0.08 g/100 ml), medium range (0.08

g/100 ml to less than 0.15 g/100 ml) and high range (0.15 g/100 ml and above). A graduated series of penalties was introduced at the same time, with driving with a high range Prescribed Concentration of Alcohol attracting severe penalties.

2.87 A category of Prescribed Concentration of Alcohol offence known as 'special range' was introduced in December 1985. At this time it was made an offence for a holder of a learner's licence or a first year provisional licence to drive with a blood alcohol concentration between 0.02 g/100 ml to less than 0.05 g/100 ml. In December 1989 the special range offence was extended to include unlicensed drivers. In January 1991 the special range Prescribed Concentration of Alcohol offence was further extended to include drivers for the first three years of holding a provisional or full licence while they are under 25 years of age, drivers of public passenger vehicles, drivers of heavy vehicles, and drivers of vehicles carrying hazardous loads.

Methods of detection of drive-drivers

2.88 The detection of these offences is the responsibility of the police. Prior to 1968, police relied on observation of the behaviour and appearance of drivers to put together evidence that a driver was intoxicated. From 1968, however, police have been able to rely on evidence from a chemical test for the presence of alcohol in the body.

Breath alcohol testing

2.89 Breath alcohol testing was introduced in New South Wales in December 1968. Police, at their discretion (and typically based upon suspicion of an intoxicated state), could test drivers involved in crashes, drivers who exhibited an inappropriate manner of driving, or drivers who committed traffic offences. In July 1980 the breath alcohol testing policy was revised, and police were directed to breath alcohol test all drivers involved in road crashes and all drivers who committed traffic offences that attracted a penalty of 4 demerit points.

Random breath testing

2.90 Following the first STAYSAFE inquiry (STAYSAFE 1, 1982), random breath alcohol testing was introduced in December 1982. The operational directives covering other breath testing situations remained in force. Random breath testing was introduced initially for a three-year trial period until December 1985. Random breath testing operations were conducted from stationary locations or at crash locations until November 1987, when mobile random breath testing was introduced after a trial in limited areas of NSW.

2.91 Random breath testing may be fairly described as the keystone of current Government efforts to discourage drink-driving. The introduction of random breath testing in New South Wales was very successful, when supported by suitable penalties, publicity, and conspicuous random breath testing operations (Arthurson, 1985; Homel, et al., 1988; Homel, 1988; Kearns, Vazey, Carseldine & Arthurson, 1986).

2.92 Arthurson (1985) estimated that the annual reduction in road casualties resulting from the introduction of random breath testing were 205 deaths, 1125

serious injuries and 1270 minor injuries. Camkin (1991) estimated that over 1300 lives were saved in the first five years after the introduction of random breath testing.

2.93 Random breath testing activities in New South Wales have enjoyed a high level of community approval (see Figure 1). Community support now stands at around 95% approval (Camkin, 1991; Span, 1989).

2.94 Homel (1988) has described random breath testing in New South Wales as "boots and all" random breath testing, and assessed it as superior to some other versions (e.g., random breath testing "some of the time" through periodic operations or blitzes). The deterrent concept underlying random breath testing in New South Wales has been examined in detail by Homel (1988). Briefly, the random breath testing program was based on the equation:

$$\text{Deterrence} = \text{Perceived risk} \times \text{Perceived consequence}$$

The level of enforcement of random breath testing was determined to be that to establish a perceived risk of one chance in three of being breath tested at any time or place during a calendar year. The consequences arising from being detected drink-driving were determined to be quick, certain, and severe. A drink-driver detected at the preliminary roadside screening test is automatically arrested, and a graduated series of penalties of increasing severity was established to deal with progressively higher detected blood alcohol concentrations or with repeated offences. The perceptions of risk and consequence were to be emphasised through advertising and public relations activities.

2.95 The accepted view of random breath testing in New South Wales is that it was, and continues to be, a highly successful countermeasure to drink-driving.

2.96 Homel (1988) concluded that:

"Random breath testing in New South Wales had a deterrent impact of considerable magnitude, and this impact appears to have been sustained for more than 4 years. Effectively, therefore, the impact can be regarded as permanent." (p.262)

2.97 In the strategic document "Road Safety 2000: The strategic plan for road safety in NSW 1990's and beyond" (Roads and Traffic Authority, 1992), it is stated:

"Deterrent approaches have proved singularly effective in NSW during the last decade. Deterrence has been a principle of random breath testing (RBT): through a combination of publicity and enforcement activity, a specific behaviour (in this case drink-driving) has been discouraged by establishing in road users' minds a high penalty (arrest, possible loss or suspension of licence, fine) with a high perceived risk of detection." (p.25)

2.98 STAYSAFE accepts that the introduction of random breath testing brought immediate benefits to road trauma and road safety in New South Wales.

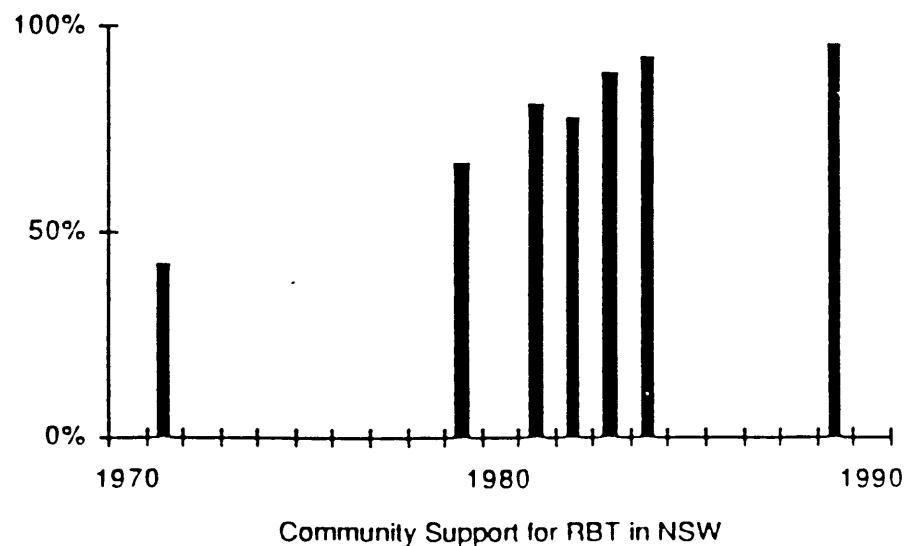


Figure 1: Community support for random breath testing in New South Wales.
(Adapted from Camkin, 1991, p.4)

2.99 However, STAYSAFE is aware of challenges to the prevalent expert view about the long-term benefits of random breath testing.

Has random breath testing had a long term benefit in New South Wales?

2.100 STAYSAFE considered the question of whether random breath testing in New South Wales has had a long term benefit. The answer is an equivocal yes. The immediate and sharp decline in alcohol-related crashes following the introduction of random breath testing had a substantial benefit in avoiding alcohol-related road trauma (Arthurson, 1985; Job, 1985). However, it is unclear if random breath testing is, as practiced in New South Wales in 1992, as effective as it could be in minimising alcohol-related road trauma.

2.101 Dr Henderson, in a submission (Submission LID 20) and in evidence to STAYSAFE, suggested that after the initial dramatic drop in annual road deaths in New South Wales in 1983 the annual number of deaths among vehicle drivers and passengers has stayed much the same, while pedestrian deaths and deaths among other road users continued to decline. Dr Henderson argued that a broad view of road fatality data world-wide indicated that deaths due to road crashes peaked in most countries around 1970 and thereafter has shown a progressive decline. He favoured an interpretation of the observation of a general trend towards fewer road deaths as indicative of the cumulative effect of all road safety activities. The trend is not smooth, however, and a factor such as level of economic activity can have major short term effects. Dr Henderson proposed that the economic recession of 1982-83 in New South Wales could have been a significant influence on the decrease in road fatalities observed after the introduction of random breath testing at the end of 1982. He observed that there has been a similar marked decrease in road fatalities in 1989-90 although there were not any major road safety initiatives introduced in that period. The most obvious similarity between 1982-83 and 1989-90 is a deep economic recession with a major downturn in the level of discretionary spending, reductions in transport use, etc.. He observed:

"Any countermeasure introduced at the start of a recession is bound to appear successful" (Henderson, Submission LID 20, p.5)

2.102 The Bureau of Transport and Communications Economics (1991) in its most recent statement of transport and communications indicators noted that:

"... There has been a long-term downward trend in the [road] fatality rate since the early 1970s. A similar downward trend in fatalities exists worldwide. In Australia, the current economic recession is contributing to the record low fatalities in the last year." (p.9)

2.103 Mr Camkin, General Manager of the Road Safety Bureau, in discussing the effectiveness of the Victorian Transport Accident Commission's 1991 television advertising campaign, indicated his belief that a downturn in the economy probably has had beneficial effects for road safety:

MR CAMKIN: "We are hoping to learn a lot more about the extent to which their current position is a consequence of the Transport Accident Commission's campaign ... and of course the recession. We have sought in vain, both officially and unofficially,

from the Transport Accident Commission hard evidence that their TV commercials ... are under-pinning their success. I suspect they are simply finding it too difficult to untangle the effect of these commercials from those of the new booze buses, from the effects of radar cameras, from the effects of red light cameras and the recession. My counterpart in Vic Roads has stated publicly that it is largely the latter. I just do not know. My mind is still open." (Minutes of Evidence, 18 November 1991, p.11)

2.104 Dr Henderson proposed that the fundamental question about the effectiveness of random breath testing is whether the introduction of random breath testing had a beneficial effect on deaths and injuries resulting from road crashes where alcohol use was implicated.

2.105 Figure 2 shows the proportion of fatal crashes involving alcohol, plotted on a month-by-month basis since 1980. During the period examined (1980-89) there has been a steady overall decline in the proportion of fatal crashes where alcohol was implicated. But there are fluctuations over shorter periods within this decade that are in contrast to the overall general trend. Simple linear regression has been applied to selected periods: 1980-82, 1983-86, and 1987-89. During 1980-82, before the introduction of random breath testing, there was a progressive decline in the proportion of fatal crashes where alcohol was involved. In 1983, the first year of random breath testing operations, the proportion of fatal crashes where alcohol was involved dropped sharply. But over the period 1983-86 there was a progressive increase in the proportion of fatal crashes. Finally, over the period 1987-89, a decline in the proportion of fatal crashes where alcohol was involved is again apparent.

2.106 In evidence to STAYSAFE Dr Henderson stated that random breath testing:

DR HENDERSON: "... was an extremely influential countermeasure when it was introduced. The evidence was quite sound for the first year, perhaps two years. I think it still has the potential for being a good and influential countermeasure. The international interest is based on those beliefs. What worries me is the evidence seems to be that its influence is waning, and started waning not that long after it was introduced. Some of the earlier evaluations were over-enthusiastic and did not take into account the existing downward trends. Most of the early evaluations compared the five years before the law with the three or four years after the law was implemented. In fact, road deaths peaked in New South Wales in 1978, as they did in most countries in the world in the mid 1970's, so that you were comparing a peak with a downward trend, so whatever you did would look good." (Minutes of Evidence, 18 November 1991, p.121)

2.107 Evans (1991) has briefly reviewed the evidence concerning random breath testing in New South Wales. He suggested that some of the observed reduction in alcohol-related fatalities was due to factors other than a lowered incidence of drivers driving while affected by alcohol. These factors could include an overall heightening of police awareness of police presence and enforcement activities leading to a reduction in other types of driver behaviour that are likely to lead to fatal crashes (e.g., instances of drivers driving at excessive speeds or speeds inappropriate for the road conditions), or an overall reduction in driving (especially by the high risk groups of drivers). Evans also supports Henderson's argument by noting that the nature of punitive enforcement interventions, such as the introduction of random breath testing,

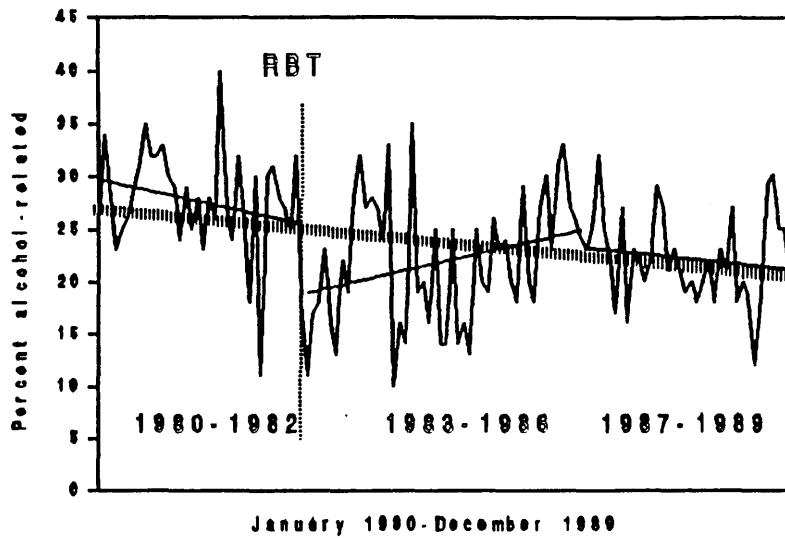


Figure 2: Percentage of fatal crashes involving alcohol in New South Wales, 1980-89. Linear regression functions are displayed for selected periods. (After Henderson, Submission LID 20, p.7)

favours short term effects. In this view, the publicity and advertising surrounding the introduction of the intervention, together with interest in observing the intervention (and even participating in the enforcement activity), leads to a sharp modification of habitual behaviour. Over time, however, interest wanes and behaviour drifts back towards its pre-intervention levels. This is particularly so if the perceived risk of detection for unsafe behaviour is low. There can be some argument over whether the Police Service's overall target to establish an annual average risk of one chance in three of being breath tested is sufficient to establish and maintain a perception of risk among drivers.

2.108 Similar concerns as to the continued effectiveness of random breath testing were expressed by Dr MacAvoy:

DR MACAVOY: "...The death rate associated with alcohol has declined substantially between 1979 and 1989 and the decline in the death rate has been partially attributed to a reduction in motor vehicle accident fatalities associated with alcohol. Data provided by the RTA of New South Wales show that around 22 per cent of road accident fatalities, including drivers, passengers and pedestrians in New South Wales in 1989 involved alcohol at a level over the legal limit of .05 - that is, 22 per cent of fatal accidents involved blood alcohol levels of .05 compared with 24 per cent in 1987. The change is really quite small, the majority of fatalities occurring in the Sydney region. When considering all prescribed concentration of alcohol offences ... the proportion charged with high [level] PCA offences, that is, in excess of 0.15, has not changed since random breath testing was introduced. However, since at least 1987 an increased proportion, 19 per cent in 1987 to 47 per cent in 1990, of all high range PCA offences have been detected by RBT units both stationary and mobile. This indicates to us that there may be a wearing off of the effect of random breath testing or a change in the tactical approach of RBT by the police. If it is the former, then ways of maintaining the deterrent effect of RBT may need to be considered. There appears to be no evidence forthcoming to lead one in either direction - a matter of some concern." (Minutes of Evidence, 16 December 1991, p.44).

2.109 The observations of Dr MacAvoy about the blood alcohol concentrations in drivers and riders killed in road crashes are illustrated in Figure 3, which has been adapted from Camkin (1991).

2.110 Officers within the Roads and Traffic Authority have also expressed their concern about the continued effectiveness of random breath testing. Span (1989) summarised the results obtained from face-to-face interviews with 1017 New South Wales residents aged between 17 and 69 years and who held a current drivers licence and had consumed an alcoholic drink at least once in the preceding twelve months, and found that:

"... around half of the respondents believed that RBT activity had decreased, although this figure was lower in the country areas. The fact that RBT activity had actually substantially increased since its introduction suggests that the saliency of RBT had begun to dissipate at the time of the survey. A third of respondents agreed that it is unlikely that a driver will be stopped by a RBT unit. Such results are cause for concern, as the basis of the deterrent factor of RBT is the perceived risk of detection." (pp.17-18)

2.111 Faced with such evidence from witnesses and the research literature STAYSAFE was unable to determine whether random breath testing has remained as effective as it potentially could be but did conclude that it was likely that the effectiveness of random breath testing could be enhanced.

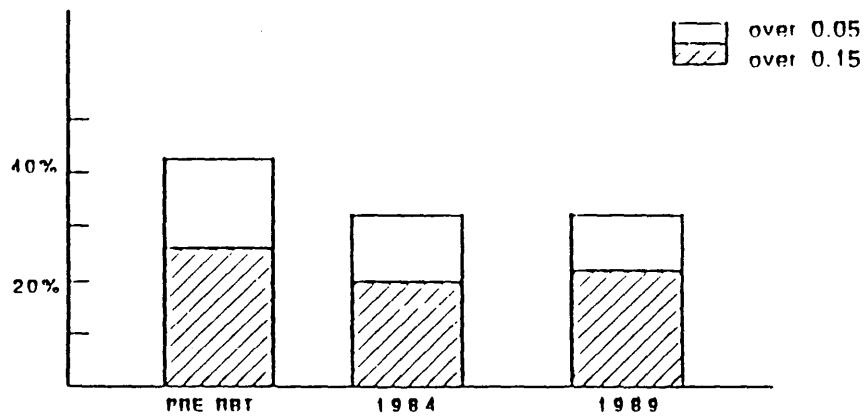


Figure 3: Proportion of drivers and riders killed with blood alcohol concentrations in excess of 0.05 g/100 ml. Adapted from Camkin (1991, p.4).

2.112 There is a need for a full evaluation of random breath testing as a countermeasure to drink-driving. This evaluation should consider all aspects of drink-driving, including the level of public support for random breath testing, the public's compliance with prescribed concentration of alcohol laws, the incidence and characteristics of injury and fatal crashes where alcohol was implicated, and the consistency of testing crashing or offending drivers and riders.

2.113 STAYSAFE recognises that it is almost a decade since the introduction of random breath testing in New South Wales, and it may be difficult to determine the long term effectiveness of random breath testing with any degree of certainty (see Evans, 1991). In reviewing drink-driving in Victoria, South (1989) found that policies and procedures had not been introduced in a structured manner, preventing allocation of benefits to particular programs. As well, some initiatives work much better in combination. For example, when self testing breath analysis machines were first introduced into clubs they were poorly used. After the introduction of random breath testing self test machines became commercially viable. Clearly, evaluations may become irrelevant if the particular context in which they were made is changed.

Recommendation 9: The Roads and Traffic Authority, in consultation with the Police Service, should review the impact of random breath testing activities on the incidence of drink-driving from 1982 to the present.

Changes in breath testing legislation

2.114 The Traffic Act, 1909 prevents insurance companies in New South Wales from using the result of a breath test [s. 4E (13)] or blood test [s. 4G (12)] as evidence that a person was under the influence of intoxicating liquor or incapable of driving or exercising effective control over a motor vehicle. As a result there are considerable difficulties for an insurer to prove in court that a driver was impaired by alcohol. STAYSAFE believes that an amendment to the Traffic Act to allow the introduction of the results of breath or blood tests as evidence of driver impairment would be desirable. As indicated by the National and Roads and Motorists Association (Submission LID 31) there is a need, if a legislative change occurs for appropriate publicity to indicate to drivers that their insurance cover could be endangered if they drive while impaired by alcohol.

Recommendation 10: The Traffic Act, 1909, be amended to allow insurance companies to introduce the results of breath or blood tests in court as evidence of a driver's blood alcohol concentration at the time of the test.

Changes in breath testing technology

2.115 The Police Service has recently introduced new breath testing technology. A new roadside screening device, the DS-190 Dual Screener Alcolmeter, was introduced in September 1990. Initially, one hundred and sixty seven of the handheld devices were distributed to Highway Patrol police in Sydney, Wollongong and Newcastle. The older alcolmeters in service are being progressively replaced State-wide as their working life expires. The Roads and Traffic Authority has also supplied DS-190 Dual Screener Alcolmeters to the Police Service (Ms Young, Minutes of Evidence, 25 November 1991, p.129).

2.116 The DS-190 Dual Screener Alcolmeter is an Australian design resulting from collaboration between the Programmes (Drug and Alcohol) Unit of the Police Service and an Australian company, Lion Analytics Pty Limited (see Submission LID 11).

2.117 The DS-190 Dual Screener Alcolmeter is a dual breath testing device. It has the capacity to screen motorists for the presence of breath alcohol in a "passive" mode through non-invasive sampling of expired air. If alcohol is detected during a passive screening test the device automatically switches to a "direct" sampling test. The operator fits a spit-trap mouthpiece and a standard breath alcohol test is conducted.

2.118 The DS-190 Dual Screener Alcolmeter features computerised storage and retrieval of data for about five thousand breath tests. Data identifying the officer administering the test, the time and date, the location, the type of breath test (stationary random breath testing, mobile random breath testing, or other breath testing circumstances such as crash attendance), and the vehicle registration are available for each and every test initiated. Once alcohol is detected during a passive screening test the device proceeds automatically to a direct screening test, thus establishing an audit trail. The stored data can be downloaded onto a police printer or personal computer.

2.119 The passive screening test eliminates the need for a mouthpiece for each and every breath test, resulting in better hygiene for police officers and motorists and considerable savings in consumable expenses. There is also more efficient use of police resources as the police officer administering the test now makes a record of the relevant data: in the past a designated police officer recorded the details during breath testing operations and was unavailable for actual administration of the test.

2.120 STAYSAFE is satisfied that the new DS-190 screening equipment will enable police to check drivers for the presence of breath alcohol without significant delays.

2.121 Within police stations a new Automatic (Infra-red) Breath Analysing Instrument is being introduced. The new instrument replaces the Smith and Wesson Breathalyser Model 900 which had been used from the commencement of breath testing operations in New South Wales in 1968. The new instruments are to be installed in police stations across the State, and are designed to accept data downloaded from the DS-190 Dual Screener Alcolmeter, thus continuing the information relating to individual breath tests that have proven positive for the presence of alcohol.

2.122 Individual police officers are able to operate the new instrument after completing a short period of training. The introduction of the new instruments will see the release to other duties of police currently working full-time on breath analysis duties, with a large reduction in overtime, recall to duty costs, and training costs.

2.123 The new breath analysing instrument provides a printout of all relevant information pertinent to the particular test being analysed, and also prints the certificate of breath analysis required under s. 4E of the Traffic Act, 1909.

2.124 STAYSAFE inspected the Breath Testing Unit of the Police Service at Parramatta, and was impressed with the efforts which have been made to ensure that the new technology involved in breath testing for alcohol is accurate and user-friendly. STAYSAFE is satisfied that the new equipment represents a major advance on the older breath testing devices now in service. STAYSAFE supports the introduction of DS-190 Dual Screener Alcolmeters and the Automatic (Infra-Red) Breath Analysing Instruments and would encourage the rapid allocation of these devices to police stations throughout New South Wales.

2.125 STAYSAFE was also impressed with facilities under development which will, if properly implemented, ensure that positive breath alcohol test results are acted upon.

2.126 STAYSAFE is aware of a number of issues that have arisen concerning police procedures in the conduct of random breath testing operations. These issues involve the level of random breath testing in rural areas, breath testing operations in the immediate vicinity of licensed premises, random breath testing in inclement weather, and the low visibility of random breath testing activities.

Random breath testing in rural areas

2.127 STAYSAFE has received a number of worrying suggestions that rural random breath testing may be less effective than metropolitan random breath testing. Rural communities have been alleged to quickly spread knowledge of the location of random breath testing activities. Individual police officers, outside of New South Wales, have expressed concern that police, in isolated communities, might easily falsify returns of breath testing, rather than carry it out, especially in inclement weather. It should be possible to conduct audits of random breath testing activities in country districts. Perhaps districts indicated by statistics to have particularly bad drink-drive problems might be closely examined. STAYSAFE notes that it would be helpful to lay to rest, or expose, these persistent but undocumented allegations that police are pretending to conduct random breath tests beyond those actually made.

Random breath testing outside licensed premises

2.128 There has long been controversy over breath testing activities being conducted in the immediate vicinity of licensed premises. STAYSAFE 6 (1985) recommended "that as a general principle RBT units should continue NOT to be stationed outside licensed premises."

2.129 This recommendation, while still adhered to, has been disputed by police. STAYSAFE is aware that incidents have occurred where police actions aimed at detecting and apprehending drink-drivers have taken place at licensed premises. Mr Knapp noted:

MR KNAPP: "Generally speaking police are encouraged to work with local hoteliers, and vice versa ... We have to try and get right away from the confrontationist approach ... Sometimes we have had instances where the random breath testing units have been located in the car parks of hotels." (Minutes of Evidence, 16 December 1991, p.74)

2.130 STAYSAFE believes that further discussion (including public debate) and research is required before there is any change to the standing orders regarding the operation of breath testing activities for the enforcement of drink-driving laws outside licensed premises. These comments do not preclude police conducting educational and public relations activities relating to breath alcohol testing outside licensed premises.

Random breath testing in inclement weather

2.131 STAYSAFE 6 recommended "that more effort be made to make RBT a highly visible and credible deterrent by the Police being seen to be testing in various types of road and weather conditions." STAYSAFE did not receive advice as to current policy and practices concerning random breath testing in the rain or other inclement weather conditions.

2.132 STAYSAFE is aware that the Federal Office of Road Safety is about to establish a project to perform a national review of random breath testing, including examination of current practices and determining better alternative practices. Superintendent Lane, the Commander (Traffic) in the New South Wales Police Service noted that a national review of random breath testing activities would:

MR LANE: "...try to identify what is occurring, what is the best times it should be operating, how much ... [should be done] of a daytime, how much should we be doing of a night time, what resources should we be using, whether there needs to be this concept of booze buses re-introduced - those sorts of things.

"So I believe that what we have got in place, and hopefully what the Federal Office of Road Safety are about to start as well, will enable us to do a complete review of RBT activities within this state. From that we will be able to better identify the need for equipment and the way in which we allocate our resources." (Minutes of Evidence, 25 November 1992, p.16)

Recommendation 11: The Roads and Traffic Authority and the Police Service should ensure that their random breath testing review activities are co-ordinated with the consultant conducting a national review of random breath testing for the Federal Office of Road Safety.

The low visibility of random breath testing activities

2.133 As indicated by Span (1989), there has arisen a perception among New South Wales motorists that the likelihood of encountering random breath testing operations has decreased.

2.134 Significant numbers of high range prescribed concentration of alcohol offenders are still detected. In evidence to STAYSAFE, Superintendent Lane, commenting on recent intensive random breath testing operations stated:

MR LANE: "What is concerning us is this high percentage of high range PCA offenders that we are still detecting. It represents approximately a third of the number of people that we charge" (Minutes of Evidence, 25 November 1991, p.6)

2.135 Superintendent Lane also commented on the level of advertising of random breath testing:

MR LANE: "When random breath testing was initiated ... there was a large proportion of the program involving PR - publicity and advertising. My own personal view is that I do not believe we still have that same level. Whilst it is recognised that we should test around about one in every three or four motorists to keep that profile on the road so far as police are concerned, I do not know if there is any evaluation or quantification as to determine the level or type of publicity we should have to maintain that deterrent impact. In other words, should it be sixty thousand dollars or should it be one or two million dollars, and just exactly what should that publicity contain as to whether it should be, in the short term, maybe a hard-hitting type of publicity and in the long term something that will change people's attitudes in relation to the way they drink and drive." (Minutes of Evidence, 25 November 1991, p.6)

2.136 The police in Victoria have greatly increased the level of random breath testing and have begun to use large conspicuous vans, or 'booze buses', containing evidentiary equipment and comfort facilities for police officers. They have been using new recruits to carry out the bulk of testing.

2.137 A trial of a borrowed Victorian booze bus was conducted at Albury during mid-1991. Superintendent Lane provided evidence that the Police Service were to examine the practicalities of operating limited numbers of booze buses again. He stated:

MR LANE: "...they are going to trial in South Region ... to have the complete processing occur within the bus, similar to what they do down in Victoria. So we will be watching with great interest just exactly how that bus - and it is a mobile police station, it has a multi-function purpose - how that operates... My understanding is from the Regional Commander that they will start utilising that bus within South Region and it will be the complete processing" (Minutes of Evidence, 25 November 1991, p.24)

2.138 STAYSAFE endorses the concept of a booze bus that is multi-purpose in design (e.g., it can serve as a mobile police station, be used for educational and promotional activities, etc., as well as be used as a highly visible booze bus). STAYSAFE further suggests that, if the trial in South Region is successful, that one bus in each Police region would probably be adequate provided it is used consistently.

2.139 STAYSAFE has been advised that legislative change may be required to enable the booze bus to serve as a mobile police station under the Traffic Act. STAYSAFE is also unsure if there needs to be modification of the Automatic (breath red) Breath Analyser to enable it to be satisfactorily installed in booze buses. These issues will need to be addressed.

Recommendation 12: The Police Service should act to increase the visibility of random breath testing operations through:

- increasing the visibility of stationary breath testing operations (e.g., increased use of signs, better lighting, more operations at times when motorists are on the road)
- provision of advisory signs to police cars that indicate when the vehicle is being used for mobile breath testing

- the development and use of modified vans to serve multiple functions (e.g., as a mobile police station, or as a high visibility 'booze bus', for education and public relations, or as a mobile emergency field unit).

Mobile random breath testing

2.140 In 1985, STAYSAFE 6 recommended "that Police NOT be given the power to operate random breath testing in the mobile mode, and that this be specified in the new legislation to continue random breath testing after the 3-year trial expires." The principal STAYSAFE concern appears to have been with ensuring that the public viewed random breath testing as fair and not discriminatory. However, it became evident through surveys of public opinion that a substantial fraction of drivers perceived stationary random breath testing as being easily evaded by the use of side streets. It was reasoned that this was spoiling the effect of random breath testing. Given that the concept of random breath testing was, by 1988, well accepted by a large majority, it was decided to introduce mobile random breath testing. Mobile random breath testing involved police in moving patrols to select motorists at random, direct them to pull over, and administer a breath test. Mobile random breath testing was to be used strictly as a supplement to, rather than a replacement of, stationary random breath testing.

2.141 In terms of detection of drink-drivers, mobile random breath testing is very effective, with on average, about 3% of the motorists tested yielding an illegal blood alcohol concentration.

2.142 However, the statistics of blood alcohol concentration, in casualties, do not indicate any marked increase in effectiveness of random breath testing in the period since the introduction of mobile random breath testing. That is, no marked drop in casualties with illegal blood alcohol concentrations occurred in 1988 or 1989.

2.143 It is unclear if mobile random breath testing has truly been random. Much of the mobile breath testing appears to have occurred after a driver or rider came to the attention of the patrolling police (e.g., the driver or rider was observed behaving in an erratic manner), rather than through making a random selection from the vehicles on the road.

Optimisation of random breath testing operations

2.144 The allocation of testing to high traffic times or to high drink-drive crash times, and to busy roads or to back streets, appears to be very much a matter for judgement and argument at present. Homel (1988) proposed experiments to ascertain optimal allocation of resources. STAYSAFE has received no evidence that experimentation has been undertaken sufficiently systematically to indicate optimal policy.

2.145 It is appreciated that random breath testing might get costlier after midnight, due to penalty rates and the availability of adequate numbers of police to staff random breath testing operations.

Review of breath testing policies and procedures

2.146 STAYSAFE was advised of the commission of a Breath Testing Review in a letter from Deputy Commissioner Stirton of the New South Wales Police Service dated 15 November 1991:

"The New South Wales Police Service has conducted Random Breath Testing operations on a Statewide basis since 1982. This has resulted in a reduction in road trauma and is the most successful pro-active program to date.

"Breath testing activities have been guided by instructions written in 1982 with amendments added as required.

"The Police Service is currently undertaking a review of breath testing techniques. This review will cover policy, instructions and equipment. An overview of Police breath testing activities in other States will also be included.

"Any comment you wish to make on the subject would be welcome...
(L. Stirton, State Commander)

2.147 Replying to this letter, STAYSAFE formally stated its belief that it is an appropriate time to review the policies and procedures used for breath testing for alcohol. STAYSAFE requested a meeting with the officers conducting the breath testing review to ensure that issues of concern identified by STAYSAFE were incorporated into the review. On 3 January 1992 the Director of STAYSAFE met with Inspector Armstrong and Sergeant Jones from the Traffic Operations Group for a briefing on the Breath Testing Review.

2.148 Inspector Armstrong and Sergeant Jones reported that they were undertaking a total review of breath testing operations in New South Wales. STAYSAFE fully endorses the breath testing review being conducted by the Police Service.

Recommendation 13: The policies and procedures established by the Police Service for breath alcohol testing should be reviewed to ensure the incorporation of new methods arising from the introduction of new screening technologies, and to allow for the development of innovative strategies in detecting drink-drivers.

2.149 STAYSAFE further recommends that a particular feature of the review of breath testing policies and procedures should be to ensure that clear records are kept identifying the police officers involved in breath testing, the number of breath testing operations conducted within a Patrol, the location and time of breath testing operations, and an unambiguous procedural record relating to any motorist who is detected with a suspected illegal blood alcohol concentration during a road screening test.

Recommendation 14: The Police Service procedures used for breath testing for alcohol ensure that once a roadside screening test is initiated there are established administrative procedures that allow for the effective monitoring of breath testing operations.

The continued use of random breath testing - detection or deterrence?

2.150 A question that concerned a number of submissions received by STAYSAFE centred on the issue of the whether random breath testing should be used as a method of deterring drinking and driving or as a method to detect drink-drivers.

Deterrence policy and civil liberties

2.151 The strategy underlying the policy and practices of random breath testing in New South Wales relies on the 'deterrence hypothesis', where it is held that people will modify their behaviour in the face of a risk of judicial penalties such as fines, licence suspensions and cancellations, and imprisonment (Engelberg, Mangioni & Wozniczka, 1982; Homel, 1988).

2.152 The civil liberties implications of random breath testing were drawn to STAYSAFE's attention by Dr Henderson (Submission LID 20), and have been the subject of debate in the scientific research literature concerning breath testing (e.g., Evans, 1991).

2.153 New South Wales legislation creating the various offences of driving with a prescribed concentration of alcohol relies on the concept of a per se law (Glad, 1987). That is, the presence of a prescribed concentration of alcohol is taken in itself to be evidence of an offence under the Traffic Act, 1909. There is no necessity for the arresting police officer to observe evidence of driving impairment as additional evidence of drink-driving.

2.154 STAYSAFE recognises that the legislative measures taken to allow for the introduction of random breath testing allowed for the introduction of laws of a very punitive nature. These laws were brought into place in the attempt to deter behaviour that was seen as undesirable. STAYSAFE accepts that proposals for extensions of drink-driving laws must be examined carefully to ensure that whatever measures are proposed are based on good evidence that the measures will be successful. That is, STAYSAFE accepts that any benefit-cost analysis of proposed legislative measures that target drink-driving must consider the "cost" to personal freedom as well as economic considerations.

Is 0.05 g/100 ml blood alcohol concentration appropriate?

2.155 STAYSAFE received submissions from Mr Leabeater (Submission LID 5) and Mr Wordsworth (Submission LID 10) that argued for the adoption of an effective zero blood alcohol concentration for all drivers. In practical terms, this means a blood alcohol concentration of less than 0.02 g/100 ml.

2.156 There are already groups of drivers in New South Wales who are restricted to a 0.02 g/100 ml blood alcohol concentration. For these drivers, a blood alcohol concentration exceeding 0.02 g/100 ml constitutes a special range Prescribed Concentration of Alcohol offence. Currently these special range offences require an effective zero blood alcohol concentration for unlicensed drivers, a holder of a learner's licence, drivers within the first three years of holding a provisional or full

licence while they are under 25 years of age, drivers of public passenger vehicles, drivers of heavy vehicles, and drivers of vehicles carrying hazardous loads.

2.157 STAYSAFE notes that the Police Service will soon be empowered to breath test boat operators for alcohol. Operators of recreational craft are subject to a prescribed alcohol concentration of 0.05 g/100 ml, while operators of charter and commercial vessels are restricted to the special range blood alcohol concentration of 0.02 g/100 ml. These limitations on boat operators reflect the approach taken with motor vehicle drivers.

2.158 STAYSAFE has not made a recommendation in the area of special range prescribed alcohol concentration offences, but notes that ultimately it may be feasible and desirable to introduce a zero alcohol limit (i.e., less than 0.02 g/100 ml blood alcohol concentration) for all drivers (see earlier remarks in paragraph 2.154).

Countermeasures based upon education about alcohol and road use

2.159 Most organisations concerned with road safety in New South Wales are active in producing and promoting educational materials about the dangers associated with alcohol and road use.

2.160 STAYSAFE views the education of the general public about alcohol abuse and the risk of detection and the consequences of drink-driving in two ways: first, education strategies for the section of the population that have drunk alcohol and who are able to drive a motor vehicle; and second, education strategies for those in the population who have not experienced alcohol and who have not driven a motor vehicle.

2.161 In practice, this distinguishes licensed drivers and learner drivers from pre-driving adolescents and children. Licensed drivers are generally targeted through advertising and public relations activities; pre-drivers are generally targeted through school-based activities, including curriculum development and special programs.

Education about alcohol abuse and drink-driving

2.162 Educational campaigns about alcohol abuse and drink-driving typically are designed to inform the public about appropriate alcohol consumption, or countermeasures that target enforcement of drink-driving laws, respectively.

Educational countermeasures associated with alcohol consumption countermeasures

2.163 The Department of Health has a major role in the education of the community of the dangers of alcohol consumption (Standing Committee on Social Issues, 1990). Representatives from the Department of Health presented evidence to STAYSAFE about their activities. STAYSAFE particularly noted the new campaign to be launched to focus attention on alcohol consumption. This campaign is under

the title: "Four for men, and for women two", and has been designed to inform the community of the revised recommended safe daily consumption of standard alcoholic drinks.

2.164 While STAYSAFE endorses the campaign as an approach to healthy consumption of alcohol, it is concerned that the daily limits recommended on health grounds stand in contrast with the limitations on alcohol consumption that form the basis of drink-driving laws (i.e., consumption of more than two or three standard drinks by a woman or man, respectively, over a short period, may result in a blood alcohol concentration nearing or exceeding the prescribed alcohol concentration limit of 0.05 g/100 ml).

Advertising and public relations activities associated with drink-driving countermeasures

2.165 STAYSAFE encountered substantial argument over the kinds of advertising likely to be effective in discouraging drink-driving. Strategic objectives implied by advocacy appear to range as follows:

- minimal advertising, as necessary to alert drivers to law changes and enforcement efforts.
- high profile advertising, sufficient to give the police confidence that the public and courts will support them if they are unusually vigilant.
- advertising aimed at tolerance of drink-drive offenders, focussing on the horrors of crashes.

2.166 The Roads and Traffic Authority (Submission LID 33) submitted that two main ideas formed the core of their drink-driving advertising and public relations activities.

- to deter potential drink-drivers by attempting to increase the perception of risk of detection in all motorists: if you drink and drive you are likely to get caught and the penalties you will face are harsh.
- to attempt to influence community values regarding drink-driving: drinking and driving do not mix.

2.167 STAYSAFE examined the advertising campaigns that have been conducted since the introduction of random breath testing in 1982. A listing of the characteristics of the campaigns is contained within Table 4. As can be seen, a wide variety of advertising and public relations activities have been undertaken since 1982.

2.168 STAYSAFE has noted the Victorian experience with the establishment of the Transport Accident Commission, and has considered the relevance of such a body in New South Wales. However, STAYSAFE will seek more evidence on this matter in its second report under the current inquiry.

2.169 The Police Service has indicated that it would like to see a review of drink-driving advertising and public relations:

MR NEWMAN (STAYSAFE): "What sort of public relations ... - in terms of advertising - do the police want to see? What approach do the police want taken in terms of what the public should be viewing ...?"

MR LANE: "...I believe that something needs to be [done]. Whether it is an evaluation, or whatever it is, we need to get a handle on just exactly how much publicity we need right across the calendar year and what content it should be to maintain that impact on the community.

"At the present time you basically only see publicity during holiday periods - school holidays, long weekends, and the like - and one of the things that I am asked is, 'We hear about your major operations which are generally run at Christmas and all the other holiday periods and school holidays. Is that giving people the impression that this is the only time that you do it?' (Minutes of Evidence, 25 November 1991, p.16)

2.170 In Homel's (1988) terms, what Superintendent Lane has described is not the "boots and all" approach to random breath testing that was adopted by New South Wales in the early 1980s, but rather a "random breath testing some of the time", or blitz, approach.

2.171 In advice to the Queensland Department of Transport, Elliott (1989) suggested that advertisements could usefully prey on driver's fears of having to leave their cars in isolated and vulnerable spots if they were arrested for drink-drive offences. Such a campaign has been run in Queensland.

2.172 While it is easy to lament the lack of conclusive evaluations of advertising in order to resolve argument over which kinds of campaigns are most valuable, it needs to be acknowledged that campaigns are implemented in a manner which makes it very difficult to separate their effects from those of other initiatives. Homel (1990) suggested that:

"everyday experience suggest that they [the advertising campaigns] have contributed to a background awareness in the community of the dangers of drinking and driving, but that their effects are probably greatly amplified by the existence of effective law enforcement." (p.6)

A similar finding was reported by National Highway Traffic Safety Administration (1989).

Recommendation 15: The Roads and Traffic Authority, through the Drink-Drive Task Force, should ensure that there is an integrated policy and long-term strategy for drink-drive advertising and public relations.

Recommendation 16: The Roads and Traffic Authority and the Police Service ensure that drivers are adequately informed of any changes to drink-driving laws and enforcement practices through advertising, public relations, and rapid amendments to information sources such as the Motor Traffic Handbook and the Information Handbook for Heavy Vehicle Drivers.

TABLE 4: Drink-driving campaigns of the Traffic Authority and the Roads and Traffic Authority, 1982-1991. The different advertisements are documented by date of commencement, the media used, the name of the advertisement, and a brief description of its content. (From Roads and Traffic Authority, Submission LID 33).

1982-1984.

The random breath testing advertising campaign began in December 1982. RBT aims to reduce drink-driving primarily through deterrence. The underlying theme of the advertising up until Easter 1984 was the probability of arrest and its consequences. This was captured in the slogan 'Will you be under 0.05 or under arrest?' It was concentrated into three major bursts- Christmas launch 1982; Christmas 1983; and an Easter 'booster' 1984.

The total budget for December 1983 to June 1984 was \$1,500,000.

Date	Medium	Name of Ad	Content
Christmas 1982	TV	How will you go? (Please accept our apology)	Introduction to the campaign/Apology for Inconvenience of RBT/Rationale for its purpose/Detection of drink-driving
		One in Three	Probability of detection
		Nightmare	More effective and numerous enforcement/High fear
Christmas 1983	TV	One in Three (1)	Probability of detection
		One in Three (2)	as above
		One in Three (3)	as above
		Human Graph	Illustrating graphically how RBT saves lives/benefits/compliments the citizens
TV + Cinema		Nightmare	More effective and numerous enforcement/High fear
		One in Three	Probability of detection
Easter 1984	TV	Remember how much RBT? (Pre-Easter)	Twice as much testing this Easter.
		Remember how much RBT? (Post-Easter)	Every police patrol car is operating as a booze bus
		Nightmare (Pre-Easter)	More effective and numerous enforcement ("over 300 vehicles")
		Nightmare (Post-Easter)	"

1982-1984 continued

Date	Medium	Name of Ad	Content
		Driveway	-
		Pub	-
		Disco	-
	Radio	Nightmare	-
		Driveway	-
		Pub	-
		Disco	-
	Press	-	-
	24-sheet poster	Every Highway Patrol Car	-
	Poster	Over 300 Booze Buses	-
	Bus Strips	One in Three	-
		Every Highway Patrol Car	-
	Taxi Backs	Over 300 Booze Buses	-

1984-1987.

A revised advertising strategy took place from Christmas 1984. It had a lower fear appeal and involved the community in promoting social responsibility. The new slogan was 'Stay under 0.05 or get off the road.' The total budget for 1986-1987 was \$600,000.

Date	Medium	Name of Ad	Content
Christmas 1984	TV	Inevitability	Every police car acting as a booze bus/Inevitability of being tested/To increase perception of RBT activity
		Consequences	Extent of damages to other property a drunk driver can potentially incur/'A \$10,000 drink'
Easter 1985	TV	Family	Unscripted testimonial interviews with real drink drive victims/family of victims. "Social responsibility" theme.
		Ruth	as above
		Rachel	as above
Christmas 1985	TV	Confessions of a drinking driver	Emphasises that you can have more 'fun' if you don't drink-drive home
Easter 1986	TV	Family	as above
		Ruth	as above
		Rachel	as above
Christmas 1986	TV	Inevitability	as above
		Radio	Christmas Present
	Press	Suburbs	The Xmas present of a \$1000 fine + possible disqualification for 1 Yr if drive at 0.05 or over
		No Thanks I'm Driving	Advice on strategy
	Outdoor	End of the road for drink driver	-
		All over summer they're all over Sydney	RBT/chance of being caught
		All over summer they're all over the country	as above

1987-1988

This program was based on the dual strategy of deterrence and attitude change.

Deterrence- Informing the public that RBT is even more effective and if you break the law you will get caught.

Attitude Change- Advertising less reliant on police and designed to work more on changing attitudes so as to reinforce the behavioural change that RBT has encouraged.

Also, special communication was aimed at young drivers highlighting the 0.02 limit which applies to them.

The total budget for November 1987 to June 1988 was \$577,400.

1988-89

This campaign particularly addressed the issues of deterrence—through RBT and mobile RBT—and peer group pressure to drink. The total budget for 1988-1989 was \$665,700.

Date	Medium	Name of Ad	Content
September 1987	Bus Backs	Drink drivers queue here	Illustrating penalty for drink-driving – loss of licence
October 1987	TV	Drink Drive 1	RBT/penalties
		Drink Drive 2	
		Drink Drive 3	
	Radio	Drink Drive 1	
		Drink Drive 3	
November 1987	Print	"200 get life"	Success of RBT
	Radio	"On your own"	-
		"Yeah"	-
December 1987	Radio	-	If you leave the car at home you'll have a lot more fun.
		Family	Unscripted testimonial interviews with real drink drive victims/family of victims
		Ruth	as above
		Rachel	as above
		Mobile	Introduction of mobile RBT - added risk
		No thank you	-
	Press	Don't drink and drive	-
		200 get life	-

1987-1988 and 1988-89 continued

Date	Medium	Name of Ad	Content
1987 (non-specific)	Billboards	All over Summer they're all over Sydney	RBT
		You'll have a lot more fun if you leave the car at home	-
	Press + Poster	It's the end of the road for the drunk driver	-
	Leaflet	Don't blow it-A guide to staying under 0.05	Advice and information on drinks/time
	TV	Family	Unscripted testimonial interviews with real drink drive victims/family of victims
		Ruth	as above
		Rachel	as above
Easter 1988	TV	Barbeque	Drink driver/slow reflexes/To address the credibility of 0.05 and correct the misapprehension that it is safe to drive after a few drinks
		Inevitability	Every police car acting as a booze bus/Inevitability of being tested/To correct the misapprehension that there is less RBT
		Mobile RBT	Mobile RBT units/Idea of inevitability of being tested
1988-89 (main periods Xmas + Easter)	TV	Barbeque	as above
	Radio	Mobile Strike Rate	Added risk of being caught drink-driving
		Raspberries	RBT
	Outdoor	" Hand", "Street Sign"	RBT/Mobile RBT
	Press	"Street Sign" (ethnic press)	-

1989-1990

This program carried over some advertising from 1988, the theme being that a driver should not succumb to social pressure, and should say "no" to drink driving. A very different advertising campaign was developed for 1990. T.V and print advertising was based on the concept of "senses poems"-that is, based on an emotion rather than logical sequential thinking. Each word conjures up an image which results in a series of mind images. The message clearly was the dire consequences of drink driving.

The total budget for 1989-1990 was \$1,453,000.

1990-1991

The campaign, on television, focussed on RBT and penalties for being caught drink-driving. Reference was also made to the role of RBT in "keeping people safe". The total budget for 1990-91 was \$750,000.

Date	Medium	Name of Ad	Content
September 1989	TV	Mobile RBT	Mobile RBT units/Inevitability of being tested
		Drinks Party	"Say no to drink driving"/Provides a role model for resisting peer group pressure
		Barbeque	Don't have to drink much to be impaired, in an emergency
	Radio	Raspberries	RBT
	24 sheet poster	All over Summer;if you think you can avoid RBT	Risk of being caught
	Bus Back	Side Street -Back Lane	Mobile-RBT
	Press	200 Get Life	Success of RBT in reducing the road toll.
1989-1990 (main periods Xmas + Easter)	TV	Dead Kid	Chance of crashing
		Dead Mate	Chance of crashing
		Cop	Mobile RBT + immediate licence suspension for .15 offence
		Cop	RBT and immediate licence suspension for .15 offence
		You Won't Survive	More chance of being caught drink-driving

1989-1990 continued

Date	Medium	Name of Ad	Content
	Radio	Police Sergeant	Penalties for drink driving
		Heapsa Tears	.15 offence - licence cancellation for 3 years
		Girlfriend	Emphasises harsher penalties \$1500 fine + licence cancellation for 3 years if 0.15.
		Thanks	Emphasises that people are realising the importance of not drinking and driving , hence accidents are coming down
		Girl Talk	Danger and stupidity of getting into a car with a drink driver
		Cab	Don't drink and drive-take a cab,bus etc.
	Posters	Dead Mate	as above
		Dead Kid	as above
		Bad Dream	Crash risk
		Paraplegic	Crash risk
	Press	It's not only dangerous to Drink + Drive, it can also cost you a lot	Information on penalties
	Taxi Backs	Stay under 0.05 or catch a cab	Reminder about the risks of being caught drink-driving.
	Superbus	Stay Under 0.05 or catch the bus	as above

1990-1991

Date	Medium	Name of Ad	Content
Dec 1990-Feb 91 March 91	TV	Drink Drive You'll Be Sorry	Chances of being caught by RBT /mobile RBT, penalties "Keeping people safe"
		Don't Drink and Drive	as above
		Drink Drive .05 and you'll be sorry	Penalties for driving at .05
		Drink Drive .15 and you'll be sorry	Penalties for driving at .15
	Press	Extension of .02 Limit	.02 limit extended to young drivers, and some professional drivers
	Brochure	Cheers without Fears	A guide to party givers
January 1991	Brochure	A guide to staying under the limit	Updated brochure with information about drink-driving and RBT and advice on drinks/time for staying under .02 and .05
April 1991	Brochure	.02 Limit	Brochures for young drivers and professional drivers

Alternatives to drink-driving

2.173 An important issue in dealing with drink-driving is to establish credible alternatives that can be taken if faced with a situation that could result in drink-driving, and to ensure that those people faced with drink-driving situations have been educated in how to deal with these situations.

Home Safely program

2.174 STAYSAFE interviewed Mr Broderick, a representative of the liquor industry, about the Home Safely program. The Home Safely program is centred around a document, termed the Contract For Life, which serves as focus for discussion between parents and their children on the question of drink-driving and attitudes. The child agrees to not drink and drive, but if they have been drinking, or they are with someone who has been drinking and intends to drive, they will telephone their parents. The parents agree to come and pick up their child and to talk about the situation after the event. The parents agree that they will not drink and drive. They undertake that if they have been drinking they will arrange alternative transport (e.g., a taxi) for their child.

2.175 The "Home Safely" program was recently re-launched in New South Wales at Forest High School on 11 February 1992 by the Chief Secretary, the Honourable Anne Cohen MP. The Home Safety program was not, however, identified by Marsh and Hyde (1990) as a road safety package used in Australian schools.

Access to public transport

2.176 Improved public transport, late at night and weekends, was suggested by Elliott (1989) for Queensland. Homel (1990) also suggested "we could always try making public transportation cheaper, safer, cleaner and more convenient." Both the Roads and Traffic Authority and the Police Service have advocated the encouragement of public transport use, walking, use of taxis, and the nomination of "designated drivers".

Designated drivers

2.177 STAYSAFE has been particularly attracted to schemes involving the designation of drivers who undertake to restrict their own alcohol consumption in order to drive friends and family who have consumed alcohol (e.g., Wilson, 1990).

2.178 STAYSAFE is satisfied that there are indications that there is a high acceptance of the designated driver concept, but has noted that the concept of the designated driver has received little formal encouragement in New South Wales. STAYSAFE examined publicity materials from New Zealand that promoted the designated driver concept.

2.179 While the road safety impact of such measures is not known, and there is a lack of evidence that initiatives of these kinds can solve all or even most of the drink-drive problem, those which cost little appear to deserve encouragement.

Public Lobby Groups

2.180 Homel et al. (1988) referred to an emerging trend for the whole community to organise itself into citizens groups. They anticipated that future policy makers in the drink-driving area may find community pressure to be a much more potent force than it has in the past.

2.181 Camkin (1991) commented that the success in the United States of implementing the recommendations of the Presidential Commission on Drunk Driving (1983) depended in large extent on the activities of public lobby groups:

"It would have to be agreed however that had it not been for the successful political lobbying so unique to the United States by such bodies as MADD (Mothers Against Drunk Driving) BADD (Business Against Drunk Driving) SADD (Students Against Drunk Driving) and DADD (Dads Against Drunk Driving) this progress would have been far more limited. These grass-roots organisations are now very extensive and are frequently embraced by the Federal agencies as a means of pressuring State Legislatures to adopt National programs " (p.3)

2.182 Community groups such as Mothers Against Drink Driving (in the United States) and Action on Drink Driving (in the United Kingdom) have been credited (Dunbar, 1990; Ross, 1990) with developing immense pressures on public policy makers in those two nations. Interestingly, the reactions of these two commentators were quite opposite: Ross (1990) lamented the increased emphasis on heavy penalties; Dunbar (1990) expressed enthusiasm for the public forcing politicians' hands on random breath testing.

2.183 It appears important that researchers and administrators communicate well with public lobby groups to ensure that these groups and Government are well informed of one another's data and aims. These needs were recognised in the National Health Policy on Alcohol in Australia, released by the Ministerial Council on Drug Strategy (1989).

2.184 STAYSAFE received a submission from one such public lobby group, Parents Against Drink Driving (Submission LID 4).

2.185 It seems that a consultative mechanism already established by the Roads and Traffic Authority, namely the Road Safety Forum, is well placed to ensure that effective communication occurs between researchers, administrators and public lobby groups.

Recommendation 17: The Roads and Traffic Authority identify and invite public lobby groups with a genuine interest in road safety issues, such as Parents Against Drink Driving, to membership of the Road Safety Forum.

Drink Drive Education in Secondary Schools

2.186 The submission received from the Roads and Traffic Authority contained few details of the educational programs about drink-driving that have been developed to target adolescents before they begin to drive or ride a motor vehicle.

2.187 However, a recent review of road safety education activities and initiatives available for use in Australian schools (Marsh & Hyde, 1990) contains detailed information concerning educational programs about drink-driving that have been developed for use with school students.

2.188 STAYSAFE sought additional information from Ms Stockwell, an officer in the School Education Unit of the Road Safety Bureau. Ms Stockwell provided STAYSAFE with materials developed for the "Are you in control" program in secondary schools, and described the current development of a pre-driver curriculum for adolescents and a 'parent pack' information kit.

2.189 The strategy adopted by the School Education Unit in developing curriculum documents for use in secondary schools is to supply material that provides information and, in the long term, attempts to induce attitudinal change.

2.190 The "Are you in control" program has already been distributed to secondary schools in New South Wales. It consists of four self-contained packages in the subject areas of English, Mathematics, Science and Health activities. In each subject area the material is designed to reflect the subject syllabus but use road safety related examples and information. For example, the Health activities package contains material in support of the Health Education syllabus, providing education on the effects of alcohol consumption on road safety. Road safety education, therefore, is integrated into the existing curriculum. STAYSAFE was surprised to find that no formal evaluation of the "Are you in control" program has been undertaken, although Ms Stockwell indicated that an evaluation had been proposed.

Recommendation 18: The Roads and Traffic Authority evaluate the development and implementation of its secondary school program: "Are you in control".

2.191 Currently the School Education Unit is developing a pre-driver curriculum for implementation in schools in 1993. The pre-driver curriculum is not a program of driving skill acquisition, but is aimed at giving knowledge and changing the attitudes of adolescents aged 16 years and over who hold, or are about to gain, a learners licence. The curriculum is being designed for use in years 10, 11 and 12, and is being prepared to integrate with the Physical Education/Personal Development/Health key learning area. The pre-driver curriculum will contain material relating to drink-driving, including videos and short print-based information sheets.

2.192 An educational program called PASS (Plan a Safe Study - A drink-driving prevention program for teenagers) has been developed and is under trial in Queensland. The program aims to change teenagers' attitudes and behaviour towards drink-driving. The program contains 12 core lessons addressing topics such as statistics of road crashes; how alcohol, even in small amounts, affects driving skills; the excuses used by passengers who travel with a drink-driver, and the ways to counter these excuses; the choices students can make to separate drinking from driving; the ways in which students can be assertive and refuse alcohol if they are driving; and the ways in which students can use assertive responses to avoid becoming a passenger with a drink-driver (Hyde & Marsh, 1990).

2.193 A teacher training package has been developed to complement the PASS program.

2.194 STAYSAFE interviewed Dr Sheehan, of the Department of Social and Preventative Medicine, University of Queensland, about the PASS program. Dr Sheehan indicated that epidemiological data about the incidence and extent of alcohol consumption led to the design of a program that focussed on separating drinking from driving. The PASS program targets the 90% of 15 year old school children who had not, or were unlikely to have, driven or cycled whilst affected by alcohol. A substantial evaluation has been arranged. During 1987 and 1988 a sample of 30,000 students, from randomly chosen schools, undertook the PASS program. Another 30,000 students who were not exposed to the program serve as the control sample for comparison purposes. The driving records of all students are being monitored, with accidents and offences being recorded. STAYSAFE understands that the evaluation of the PASS program may take five years to complete.

2.195 The Queenslanders impressed STAYSAFE with a hard nosed but realistic assessment that the "scatter-gun" approaches of the past had been of dubious documented value. They consciously decided, first, not to attempt to discourage drinking, and second, not to focus their efforts on altering the behaviour of those students who already were drinking and driving.

2.196 Instead, they identified those school students who had never driven, whilst drunk, as those most likely to be valuably influenced against drink-driving, and designed the PASS program specifically for this group with the aim of convincing them to keep their drinking and their driving separate.

2.197 Sheehan et al. (1991) found the characteristics of Queensland high school students to be very diverse. While a problem group, typically non conforming, lacking social awareness and self criticism, and with a "larger-than-life" lifestyle, was identified, there are other groups which might be targeted. In particular, Sheehan advocated developing separate programs directed at either established drink-drivers or potential drink drivers. She suggested that most established drink-drivers might be most effectively deterred after they had been caught offending (see also Homel, 1988).

2.198 STAYSAFE accepts that there are good grounds for believing that, in combination with random breath testing, the New South Wales and Queensland educational programs about the dangers of drinking and driving will have a substantial impact on young drivers.

2.199 The Australian Hotels Association (Submission LID 25) supported improved driver education at secondary level, but saw dangers in students perceiving adults as hypocritical, in relation to drink-driving. STAYSAFE 17 (1989) reported that children advised of high levels of experience of drink-driving by family members, and Sheehan advised STAYSAFE of similar findings in Queensland.

2.200 The need for drink-drive education in schools to be linked with general, community-wide programs, was indicated by Wright (1990), an officer of the Office of Alcohol Programs in the United States National Highway Traffic Safety Administration. He claimed that

"most learning about the issues surrounding alcohol ... occurs on the streets, in the courts and at home" (p.148).

Learner drivers and drink-driving education

2.201 The Roads and Traffic Authority provides information concerning drink-driving to learner drivers through the Motor Traffic Handbook. Licence tests to obtain a learner licence also assess understanding of drink-driving laws.

2.202 STAYSAFE is aware of a local program that has been developed to educate learner drivers in the Castle Hill area, but was unable to collect detailed evidence concerning the program. Apparently the program involves local staff of the Department of Health and the Police Service and is conducted off-road at a local motor sports race track. The day long program is aimed at learner drivers, and consists of basic training in driving skills and car control, and education about drink-driving and police enforcement of drink-driving laws. It seems that an important feature of the Castle Hill program is a requirement that a parent or guardian must accompany each learner driver during the program. Thus, as with the intent of the Home Safely program, the dangers associated with alcohol and driving are placed within a family context. STAYSAFE understands that support for this program has been sought from the Roads and Traffic Authority.

Recommendation 19: The Roads and Traffic Authority, together with the Department of Health and the Police Service, encourage and support the development of educational programs aimed at learner drivers to inform them of the dangers involved in the use of alcohol and driving.

Drink-driving education for post-secondary students

2.203 The activities of the School Education Unit of the Road Safety Bureau in the area of drink-driving concern, as would be expected, school age children and adolescents.

2.204 STAYSAFE sees a need to develop and implement appropriate educational programs and materials aimed at students undertaking post-secondary study in Universities or within the Technical and Further Education system.

2.205 STAYSAFE sees that, in particular, curriculum resources should be developed for students undertaking teacher training courses. These materials should be designed to be integrated with the secondary school curriculum resources already developed.

2.206 A recent article published in the Times Educational Supplement (21 April 1989) reported a study by the Transport and Road Research Laboratory in the United Kingdom (Hyde & Marsh, 1990). The article emphasised the lack of training in road safety education in pre-service teacher education institutions in the United Kingdom:

"Most secondary teachers have received no training in road safety education - despite 12 year old children being most at risk from road accidents.

"Staff in 95% of schools have received no in-service training for road safety education over the past three years, and only one in eight initial teacher-training programmes covers the subject, say the Transport and Road Research Laboratory.

"However, 70% of teachers recognise the importance of in-service training and 97% want initial training for secondary teachers in road safety" (cited in Hyde & Marsh, 1990, p.19)

2.207 As noted earlier, educational road safety programs do have materials that teachers can use to teach the appropriate curriculum, but few programs (cf., Queensland's PASS program) have developed explicit teacher training materials. STAYSAFE did not examine this issue in detail, but advice from Mr Charles, Deputy General Manager, Road Safety Bureau, indicates that there is a need for the development of teacher training materials in New South Wales (personal conversation, 28 February 1992).

Recommendation 20: The Roads and Traffic Authority, in conjunction with Universities and the Technical and Further Education Commission, develop educational materials relating to drink-driving for use in tertiary education curricula, and, in particular, develop materials for use in teacher training courses (Diploma of Education and Bachelor of Education courses).

Other possible countermeasures

Roads designed for alcohol-affected road users

2.208 The unforgiving nature of our road system becomes especially evident when inebriated drivers who have chosen to drive make mistakes at the wheel. Some 75% of Victorian crashes, in which a vehicle struck a fixed object such as a utility pole or tree, were found by Johnston (1980, in Homel et al., 1988) to be alcohol-related.

2.209 Johnston (1983) subsequently conducted research into the information which might help inebriated drivers. This led him to propose field trials of chevron alignment signs and a wide edgeline, but according to Homel et al. (1988) little further progress occurred.

2.210 STAYSAFE did not seek an explanation of why there have been delays in the development of road and roadside environmental measures that will minimise the risks posed by drink-drivers to other road users or themselves. STAYSAFE wishes to note, however, its intention to examine safety aspects of the road and roadside environment (road markings, signage, etc.) in a future inquiry.

2.211 Opportunities to reduce the hazardous nature of roadsides, for drivers who stray from the roadway, or lose control, include removal, relocation or guarding of roadside furniture such as utility poles. It appears that progress is unduly slow in selecting and correcting problems on roadsides.

Vehicular countermeasures to drink-driving

2.212 The principal vehicular countermeasure to drink-driving is the breath alcohol ignition interlock, which is a device that, when fitted appropriately to the ignition system of a motor vehicle, will not allow a driver to start the vehicle if breath alcohol is present.

2.213 The Social Development Committee (1988) recommended that a trial of ignition interlocks be instituted in Victoria. The results of this trial are awaited.

2.214 Breath alcohol ignition interlocks are usually considered as a measure for the management of a convicted drink-driver. STAYSAFE will deal with the question of ignition interlocks in detail in its second report on alcohol and other drugs on New South Wales roads.

2.215 STAYSAFE received no submissions or evidence of other vehicular countermeasures that could influence the problems posed by drink-driving. However, STAYSAFE believes that it is possible to identify measures in this area (see Vingilis, 1990). For example, the incidence of seat belt wearing by alcohol-affected drivers in New South Wales has not been examined. It is possible that drink-drivers who are heavily affected by alcohol (i.e., drivers who would, if tested, be expected to be classified as cases of medium to high range prescribed concentration of alcohol) are more likely to not use seat belts and therefore be more at risk of severe injury or death than would be otherwise expected.

2.216 STAYSAFE makes no recommendations concerning road environment or vehicular countermeasures to drink-driving, but suggests to the Roads and Traffic Authority that its research into drink-driving explicitly consider the possibility of such countermeasures being developed.

DRUGS OTHER THAN ALCOHOL

Index:

- Introductory remarks**
- Road safety and drugs other than alcohol**
- Epidemiology**
- Commercial drivers and the use and abuse of psychostimulants**
- Interactions between alcohol and other drugs**
- Countermeasures to drug-driving**
- Specific countermeasures that target drug use in the community**
- Specific countermeasures based upon enforcement of drug-driving laws**
- Specific countermeasures based upon education about drug-driving**

3.1 This chapter examines the issue of the effect of drugs other than alcohol upon road safety. The chapter examines the prevalence of drug use within the general population, it identifies the need for further specific information concerning drug effects on driving, it reviews current actions undertaken to obtain the required information, and it examines the current activities undertaken to address drug driving in the community.

3.2 Drug use is prevalent in Australia. Most Australians consume drugs each and every day: as part of medical treatment, for health promotion, for recreation and pleasure, and for ritual and celebration (Henry-Edwards & Pols, 1991).

Road safety and drugs other than alcohol

3.3 Any discussion of the role of drugs other than alcohol on road safety is necessarily complex. Some difficulties in assessing the effects of drugs on driving safety are that:

- laboratory studies, which involve dosages of drugs and the performance of psychomotor tasks which are purported to have some relevance to driving, are not necessarily predictive of crash risk;
- impairment due to a drug can vary dramatically from person to person and within the same person over time and on re-use;
- certain combinations of drugs can produce effects different from each drug alone;
- unlike alcohol, with other drugs the concentration of the drug in blood or other body fluids tends to be a poor predictor of impairment;
- there is little prospect of practical blood concentration limits being developed for drugs other than alcohol, other than to define the presence of any indicator that a drug has been used as illegal.

3.4 It is not just illegal drugs or the abuse of prescription drugs that can be problematic for adequate driving performance. Drugs legally obtained through prescription or as medications purchased 'over-the-counter' can also affect driving

ability. Further, the combined use of drugs and alcohol may also potentiate an otherwise low risk situation.

3.5 In this report the discussion of drug driving issues will be separated into the areas of:

Prescription and over-the-counter medications; and

Illegal drugs (including drugs included under the Drug Trafficking and Misuse Act, 1985, and the abuse of prescription pharmaceuticals)

3.6 This separation is not artificial. The way in which drug driving is viewed depends on whether prescription and over-the-counter medications are being considered, or whether it is the use of illegal drugs that is at issue. Following Home's (1986) consideration of drink-drivers, it is proposed that behind the rhetoric of the debate about drug effects on driving there are multiple and conflicting images. The driver who has used prescription drugs or otherwise legitimate medications is not seen as a drugged driver, merely as an unfortunate victim of drug side effects that have inadvertently, and often unexpectedly, affected driving performance. In contrast, the user of illegal drugs is seen as the drugged driver, who is morally flawed and who has committed more than a simple traffic offence. These two views merge when the heavy vehicle driver is considered. Here the driver is simultaneously a drugged driver and a victim: the drugs used, typically psychostimulants, are illegal but it is usually claimed that the reason for their use lies in the competitive economic environment of the heavy vehicle transport industry rather than with an individual morality at odds with the general community. The impairment of driving that often accompanies the combined use of alcohol and other drugs does not appear to distort these conflicting images: a driver who combines alcohol and prescription drugs or medications is seen to commit an 'honest' mistake; the user of illegal drugs and alcohol compounds an already negative image.

Epidemiology

3.7 The area of illegal drugs and drug abuse is the subject of many inquiries at the State and Commonwealth level. Accordingly, only brief general comments will be made about illegal drugs.

Trends in drug use in NSW

3.8 It is difficult to assess the level of use of prescription drugs and medications in New South Wales. There are data bases which are available, but these usually have deficiencies that restrict their usefulness (Tebbutt et al., 1991). These data bases include information relating to prescriptions that attract Commonwealth Government benefits, authorities to medical practitioners to prescribe Schedule 8 drugs to patients, and retail sales data.

3.9 STAYSAFE concluded that it was not appropriate to include estimates of consumption of medication and prescription drugs. STAYSAFE notes that an

internal Vic Roads memorandum from the Manager (Community Programs) to the Director (Road Safety) has commented on the problems associated with driving and the use of prescription drugs and medications:

"Drug induced impairment of driver performance can be a significant traffic safety problem and 44% of the top 32 drugs prescribed by doctors can affect driving. In fact, of the 250 most frequently prescribed drugs about 25% are either known or suspected to be capable of impairing human skilled performance. Furthermore, for many of these drugs there is a synergistic effect with alcohol." (Vic Roads, 1991, p.1)

3.10 In the area of illegal drugs there is more detailed information. Cannabis products are usually freely available in New South Wales and cannabis remains the most popular drug of abuse. The availability and use of narcotics has remained relatively constant for some time. The marked increase in the use of cocaine forecast during the 1980's has not occurred although cocaine remains available in New South Wales. It appears that in the case of hallucinogens (e.g., LSD) and inhalants (e.g., petrol, glue, solvents and aerosols) experimentation is somewhat commonplace but regular use is limited.

3.11 The psychostimulants are of particular interest as these drugs are often, and usually illegally, used by drivers as 'performance enhancers' to offset fatigue. Of the psychostimulant drugs, amphetamines are the most easily available and cheapest in New South Wales (Hall, comments included in Tebbutt et al., 1991). The use of psychostimulants to offset the fatigue associated with commercial driving is discussed in detail in a later section.

Trends in drug-related road crashes

3.12 The preceding review has briefly referred to drug use indicators and trends in drug use in the general population. What is required is to establish the relationship, if any, between drug use in the driving population and effects on road safety.

3.13 Perl, Homel, Cairns and Starmer (1987) published a study based on drivers' self reports that found that older drivers in New South Wales generally used more drugs (particularly cardiovascular, musculoskeletal and antiulcer drugs and drugs with specific action on the central nervous system). Drivers aged 25 years or less used more antibiotics and antiasthmatic (inhalant) drugs. Drivers aged 26-45 years old exhibited the most use of minor tranquillisers.

3.14 The Division of Analytical Laboratories of the Department of Health (Submission LID 14) routinely reports the incidence of some drugs associated with driving. The blood toxicology laboratory of the Division of Analytical Laboratories performs all analytical work on post-mortem and ante-mortem blood specimens obtained from injured or deceased motor vehicle drivers and riders in New South Wales and on non-crash-involved drivers and riders suspected of being alcohol or drug impaired. Traditionally, the laboratory has conducted blood alcohol analyses, but more recently the laboratory has been conducting blood and urine tests for drugs other than alcohol.

3.15 Mr Hodda, representing the Division of Analytical Laboratories stated his opinion that:

MR HODDA: "Our laboratories provide a range of forensic facilities including the analysis of illicit drugs and just for interest's sake we have charted the relative percentage of illicit drugs coming into the laboratory against the number of illicit drugs found in ... drug-drivers... they very broadly mimic the same, so it really just says that the relative proportion of illicit drugs in the population is what you find in drivers, and I suspect that if you wanted to go further and look at prescribed drugs you would find that you would come up with the same sort of proportion if you were looking at incidences - not necessarily toxic levels or important levels. But just in terms of the drug-taking nature of our population, you could probably derive those same sort of figures by looking at the national drug prescription ratios." (Minutes of Evidence, 25 November 1991, p.76)

3.16 Figure 4 shows the distribution of different drugs other than alcohol detected in samples obtained from drivers and riders in the period July 1989 - June 1990. It can be seen that the incidence of drugs detected in drivers highlights cannabinoids (derived from marijuana, hashish, etc.), opiates, benzodiazepines and amphetamines as drugs associated with drivers.

3.17 Dr McLean, of the School of Pharmacy, University of Tasmania (Submission LID 2) forwarded copies of an article discussing what sorts of sensible recommendations doctors can make for patients who wish to drive but have been prescribed drugs that may impair driving performance (McLean, 1987). Dr McLean concluded:

"There is a drug-driving problem, but its magnitude and the specific interplay between drug effects and individual patient characteristics is not yet known. Any drug used for its effects on the CNS [central nervous system], or which has CNS side effects, has the potential to contribute to road accidents. Combinations of centrally-acting drugs are particularly dangerous. Patients prescribed these drugs should be advised of the risks to driving safety, and particularly cautioned against the concomitant use of alcohol. Pharmacists' cautionary and advisory labels are a useful aid to compliance with this advice. Patients who drive for their living should be most thoroughly counselled on the benefits of avoiding drug impairment of their driving skills." (McLean, 1987, pp.45-46)

3.18 In evidence to STAYSAFE witnesses indicated that many of the drugs commonly supposed to be associated with increased crash risk were probably not likely to be associated with driving. That is, drugs such as the narcotics and sedatives were likely to be associated with a reduced probability of driving behaviour or to be associated with those individuals in the general population who do not have regular access to a motor vehicle. It is not clear that the sections of the population who tend to use particular drugs also form part of the driving population. The relationship between the illegal use of narcotics and driving is unknown. In the area of illegal drugs it is also very difficult to guess what will happen in terms of drug use: for example, the 'cocaine scare' of the late 1980's did not eventuate in New South Wales.

DRUG INCIDENCE IN DRIVERS		
		Total Cases: 221
DRUG	NUMBER	OCCURRENCE (%)
Cannabinoids	118	53
Opiates	64	29
Amphetamines	47	21
Cocaine	15	7
Methadone	11	5
Barbiturates	13	6
Benzodiazepines	58	26
Alcohol	14	6
Nil	7	3
Ephedrine	14	6
Other ^a	17	8

^a. Phenetermine (3), Diethylpropion (2), Pethidine (3), Metoclopramide (1), Carbamazepine (2), lignocaine (1), Doxepin (1), Dextropropoxyphene (2), Promethazine (1), Phenylpropanolamine (1).

Figure 4: Drug incidence in drivers, 1989/90 (n=221). From Division of Analytical Laboratories (1990; Submission LID 14)

3.19 The control of pharmaceutical drugs, in the interests of road safety, is greatly complicated by the obvious road safety benefits which many drugs have when they are taken responsibly by people with health conditions which, in themselves, would otherwise prove hazardous.

3.20 There is an urgent need for an examination of the relationship between individual drugs and driving performance and to identify any potentiating or otherwise deleterious reactions involved in the concurrent use of these drugs and alcohol.

3.21 STAYSAFE is aware of a research program to examine drugs and driving conducted at the University of Sydney from 1985 to the present. STAYSAFE has investigated the management of this research program and the results available to date, and a detailed commentary is contained in Appendix B.

Adequacy of crash statistics concerning drug-driving

3.22 There has been an absence of reporting in this area world wide.

3.23 STAYSAFE was particularly influenced by a report to the United States Congress on the use of drugs and the effects on road safety (Compton, 1988). The full text of Compton's principal conclusions has been included as Appendix A.

3.24 Compton argued that in order to determine the relationship between drug use and road safety there are several critical pieces of information that are required. These are:

- information about which drugs impair driving ability
- information about which drugs are associated with higher crash rates
- information about what drug dosage levels are associated with impairment of driving ability or higher crash rates
- information about the incidence of use of drugs identified as impairing to driving ability or associated with increased crash rates in all drivers

3.25 The Roads and Traffic Authority has been funding research aimed at providing some of the information required to establish the extent of drug-driving in New South Wales.

3.26 Associate Professor Starmer, of the Department of Pharmacology, University of Sydney, has been conducting an epidemiological study of drug involvement in crashed drivers and riders in metropolitan Sydney since 1985. This work is intended to provide a baseline of the incidence of drug-driving in New South Wales. STAYSAFE has found that despite the expenditure of almost \$0.6 million over the period 1985-90 no final report of the epidemiology of drug-driving in New South Wales has been published. A detailed account of the research program, and the deficiencies in its management and conduct, is contained in Appendix B. STAYSAFE's comments concerning this project bear principally on the Roads and Traffic Authority's management of the University of Sydney drug driving research program. STAYSAFE is satisfied that on the evidence available that the design of the University of Sydney's

drug driving research program has, in the main been satisfactory (see Compton, 1988; and Appendix A).

Commercial drivers and the use and abuse of psychostimulants

3.27 One of the most publicised areas where drug-driving is known to occur is among commercial drivers, particularly drivers of heavy vehicles (buses and coaches, large rigid trucks and semi-trailers).

3.28 STAYSAFE 15 (1989) referred to substantial evidence, from questionnaire surveys (Linklater, 1977, 1978; see also Nix-James, 1979) and from submissions, pointing to widespread use of psychostimulant drugs by drivers of heavy vehicles.

3.29 Recent reports of investigations into the heavy vehicle transport industry have similarly indicated that disturbing numbers of heavy vehicle drivers use psychostimulant drugs (e.g., Raggatt, 1990; Haworth, Vulcan, Schulze & Foddy, 1991; Hensher, Battellino, Gee & Daniels, 1991).

3.30 Raggatt (1990) reported that just over half of a sample of 93 long distance coach drivers indicated that they took pills to stay awake on the job, with just under one in ten indicating that they would use pills quite often or frequently.

3.31 STAYSAFE received a submission from Mr Young (Submission LID 6) that contained an extract from his unpublished Masters project report on the topic of heavy vehicles and road safety (Young, 1990). The extract was the fifth chapter of his thesis, and was titled 'The use of stimulant drugs'. Mr Young concluded that:

"... some commercial conditions operating in the Australian road freight industry adversely affect driver and operator behaviour often resulting in heavy vehicle crash involvement. This behaviour includes abuse of the speed limit, amphetamine/stimulant usage and illegally long hours behind the wheel. (Young, 1990, p.iii)

3.32 Mr Young's submission was supported by a submission from Mrs Scouller representing the Goulburn Valley Transport Wives Support Group (Submission LID 8). Mrs Scouller claimed that commercial pressures led to drug use:

"We as an organisation of transport drivers' wives are concerned about drugs taken in our industry by drivers and owner drivers. One thing that should be pointed out is that if the freight companies sent their freight out a day earlier and didn't require an overnight service there would not be such a demand on the drivers to get the freight there the next day, therefore eliminating the need to take stay awake stimulants. Also if the companies didn't work the drivers all day unloading and then loading the trucks for the return journey it would also eliminate the need for drug taking in the industry." (p.1).

3.33 STAYSAFE notes the discrepancy involved in limiting the hours that a commercial driver can drive a heavy vehicle yet there is no limit placed on other road users as to how long they can spend driving (see Leabeater, Submission LID 5).

3.34 Haworth et al. (1991) reported that it appeared that duromine and ephedrine were the drugs most favoured by truck drivers. Table 5 has been adapted from Haworth et al., and refers to data obtained from drivers of articulated trucks (28% of the total number of drivers surveyed) who indicated that they used psychostimulants. The data in Table 5 demonstrates that, regardless of crash history, that about a quarter of the truck drivers who acknowledged that they used pills to stay awake use them on a daily basis.

3.35 Hensher et al. (1991) reported that:

"It is a widely held belief that many long distance truck drivers resort to taking stimulant drugs to maintain alertness on long trips. The findings in this study confirmed this belief. A significant proportion of drivers admitted to taking stimulants to stay awake whilst on long trips. Of the drivers interviewed, 8.8% took stimulants on every trip, with 37.3% taking them on some trips. In total 46.1% of drivers interviewed take stimulants at least on some trips... This is slightly higher than the 40.7% found in the Linklater (1978) study of long distance truck drivers.

"... owner drivers take drugs the least, with 7.4% taking them on every trip and 30.3% taking them sometimes. A higher percentage of small company drivers than any other driver type admitted taking stimulants with 11.5% taking them on every trip and 48.5% taking them sometimes. A similar proportion of medium company drivers took pills on every trip, 11.7%, with 36.7% taking them sometimes. Only 3.3% of large company drivers take pills on every trip, with 37.7% taking them sometimes. Although these figures are slightly lower than those found in the pilot survey [Hensher, Battellino & Young, 1989], they still indicate a high incidence of dependence on stimulant drugs by long distance truck drivers.

"Stimulant drugs do not guarantee driver alertness, and can even cause hallucinations and sudden drowsiness whilst driving. Linklater (1977) found that of the drivers using stimulants, 28.8% reported experiencing hallucinations whilst driving within the preceding year. However, approximately 50% of drivers in this survey did not seem concerned about the dangers of using stimulant drugs and did not consider them to be an important contributor to truck crashes.

"Of all drivers, 49.9% said that stimulant drug use by truck drivers was not an important factor in truck crashes. This did not vary by driver type. Possibly this is because many drivers perceive that their driving skills are enhanced by such drugs. The AUSTROADS report (1991) contains claims that the use of amphetamines in clinical doses may actually reduce crash risk, particularly if the driver is fatigued. However, the report also states that amphetamines may impair some driving skills, such as the judgement of speed, and long term use can have serious side effects which result in an increased risk of crashes (AUSTROADS, 1991)." (Pp.62-63).

3.36 While it may be argued that short term use of psychostimulant drugs may, on occasion, reduce the risk of a particular driver crashing, it has been clear for many years that substantial numbers of drivers of heavy vehicles have been using psychostimulants frequently, and that substantial numbers have been relying upon them to work far beyond the hours which can normally be effectively worked without sleep. Haworth (1989) describes some of the negative effects, including increased risk taking, degraded accuracy of judgement, hallucinations, and massive onset of fatigue when sufficient dosages become unavailable. Because of the contradictory aspects of

TABLE 5: Truck drivers responses to questions about the use of 'stay awake' pills.

KNOWLEDGE OF USE OF STAY AWAKE PILLS BY OTHER TRUCK DRIVERS (n=285)	Number	Percentage
Hardly any	12	4.2%
About 25%	40	14.0%
Maybe 50%	81	28.4%
Perhaps 75%	61	21.4%
Just about all	32	11.2%
Unwilling to respond	3	1.1%
Don't know	56	19.6%

USE PILLS TO STAY AWAKE (n=285)	Number	Percentage
Yes	80	28.1%
No, don't know, or unwilling to respond	205	71.9%

FREQUENCY OF USING PILLS (n=78)	Number	Percentage
Occasionally	59	75.6%
Daily	10	12.8%
More than once a day	9	11.5%

BEST PILLS TO USE (n=74)	Number	Percentage
Caffeine	1	1.3%
Tenuate Dospan	9	11.3%
Duromine	21	26.3%
Ephedrine	27	33.8%
Other psychostimulant	6	7.5%
Various psychostimulants	8	10.0%
Unwilling to respond	1	1.3%
Don't know	1	1.3%

(Adapted from Haworth, Vulcan, Schulze & Foddy, 1991, p.35 (Table 22)).

psychostimulant use, Haworth (1989) cautioned against attempting to draw conclusions about the role of stimulants in road crashes.

3.37 An investigation of the feasibility of random drug tests, for drivers of long-distance trucks and coaches, was one of the recommendations in STAYSAFE 15 (1989). Henderson (1991) has completed a feasibility study at the request of the Roads and Traffic Authority.

3.38 Henderson found that the random testing of drivers for drugs presents problems which are fundamentally different from random alcohol-testing programs. He wrote:

"To the casual observer, there is nothing very difficult about superimposing a random drug-testing system on the existing system for random breath testing for alcohol. But the practical and legislative problems are many." (p.86)

3.39 Henderson identified a number of these problems, including

- it is not possible, based on current knowledge, to define a concentration of a drug in the body fluids above which driving should be prohibited, as, unlike alcohol, there is not a consistent empirically supported relationship to driver impairment or road crash rates
- it would be necessary to prohibit driving with any detectable amount of specified drug in the body, as random testing for drugs would be aimed at drivers with drugs present in their bodies but who are not yet demonstrating impairment (drivers impaired by drug use are already able to be tested under existing legislation as a police officer can require drug testing if it is considered, after a negative breath alcohol test, a driver is impaired by some other drug)
- to ensure passing a random drug test a driver could never use the drug, as many drugs continue to be excreted in the urine for days after their 'impairing' effect is over (cf. testing athletes for performance enhancing drugs)
- it would not be practicable to prohibit the use of many drugs by drivers, as many widely used drugs, legally available through prescription or over-the-counter purchase, are only a threat to road safety when they are used improperly
- while some drugs used as psychostimulants to offset driving fatigue are already illegal (e.g., ephedrine), many others are readily available as prescription drugs or as over-the-counter medications
- currently, the only body sample it would be possible to obtain during a roadside screening test for drugs would be urine, which would require special collection facilities
- random testing of drivers for drugs would significantly increase the workload of the New South Wales Government's drug-testing facilities, which are already pressed.

3.40 Henderson concluded that while the random testing of heavy vehicle drivers for drugs is feasible, whether it is practical or cost-effective is not known. Henderson called for more epidemiological information concerning drug use by heavy vehicle

drivers, solution of some of the technical difficulties involved in drug testing, and a review of the monetary and civil liberty costs that would be involved in establishing a random testing program for drugs in heavy vehicle drivers.

3.41 STAYSAFE is concerned that the occupational health implications of consuming drugs, known to be harmful to health, in order to accommodate extreme driving schedules have not been addressed. For example, Telford (1991), speaking on health and general fitness at the recent National Road Transport Accreditation Conference in Melbourne did not even indicate that drug use by truck drivers was a health concern, despite devoting his talk to the issues of alertness and concentration during the driving task.

3.42 STAYSAFE notes that a project investigating occupational health and safety aspects of truck driver fatigue is being conducted by WORKSAFE Australia on behalf of the Federal Office of Road Safety, and that an interim report is due in early 1992.

3.43 The evidence reviewed by STAYSAFE is principally of a descriptive nature. It is not clear that any effective progress has been made in dealing with the problem of long distance drivers relying on psychostimulant drugs to stretch their driving day.

3.44 On the contrary, STAYSAFE notes a well organised move involving representatives of the heavy vehicle industry and some senior government executives (e.g. preliminary report, Special Task Group on Driving Hours, 1991), to increase legal working hours of truck drivers. STAYSAFE notes that the working hours of truck drivers in New South Wales are already far in excess of those permitted in Europe and the United States.

3.45 STAYSAFE also notes that comment and criticism of the heavy vehicle transport industry too often results in claims from both industry and government administrations of a return to the adversarial approach that has typified the relationship between the industry and government administrations in the past. While STAYSAFE acknowledges that criticism can be uncomfortable, it is concerned that the groups representing the heavy vehicle transport industry did not see fit to provide submissions to STAYSAFE relating to drug use by heavy vehicle drivers.

3.46 STAYSAFE is concerned that the legitimate focus on the road safety concerns involving heavy vehicles may be at risk of being submerged in favour of claims that it is the manner in which the transport industry is structured that are the cause of behaviour that contributes to road safety problems.

Interactions between alcohol and other drugs

3.47 STAYSAFE noted the comments of Breakspere and Starmer (1986) as being a good general statement of drug-alcohol interactions and driving:

"A number of drugs can increase the adverse effects of alcohol on driving ability. A few, mainly anti-infective agents, reduce the ability of the body to metabolise alcohol. Some drugs

hasten the absorption of alcohol, and alcohol may hasten the absorption of some drugs. The net effect is often that the combination of a drug and alcohol may produce intoxication effects which are greater than would be expected. Usually these effects are additive, but occasionally the combined effect of drug and alcohol is greater than the sum of the individual effects. This causes great problems for habitual drinkers. One can easily imagine a situation where a driver, used to having one or two beers on his way home from work, suddenly gets into trouble when he continues this habit after starting some new drug treatment. Usually this is quite outside the driver's previous experience and the questions of adequate warning arise... individuals who receive prescribed drugs or obtain them over the counter from a pharmacy are urged to be acutely aware of their own feelings, especially after the first few doses of the new medicine.

"...The safest advice is that if you are taking any medication, ask the prescribing doctor and the pharmacist about alcohol interaction ... " (p.67)

Countermeasures to drug-driving

3.48 STAYSAFE has found that there is no mechanism for developing a co-ordinated program of measures to combat drug-driving in New South Wales. In STAYSAFE's view, such a mechanism is necessary.

3.49 STAYSAFE visited Victoria in August 1991, and interviewed officers from the Road Safety Division of Vic Roads. These officers described the establishment of an expert advisory body: the Advisory Group on Drugs and Driving (Vic Roads, 1991). This group is concerned with the impairment effects of drugs on driving performance. Its members have specialist training and experience in clinical pharmacology, forensic pathology, coronial services, policing, drug rehabilitation and road safety.

Drug-drive task force

3.50 The introduction of ongoing road safety Task Forces convened by the Road Safety Bureau in New South Wales provides a model for the development of a new advisory body to co-ordinate drug-driving research and countermeasures.

3.51 The Roads and Traffic Authority has developed general terms of reference for Task Forces. These general terms of reference require Task Forces to:

- monitor issues, trends and developments and clearly identify and define the road safety problem area for the purposes of countermeasure planning
- develop joint strategic action plans to address the problems and to promote and co-ordinate implementation of these plans
- improve efficiency and effectiveness of implementation of the program through pro-active consultation and co-ordination between stakeholders
- monitor, review and report on the implementation of the action plan.

3.52 The membership of a Drug-Drive Task Force could reflect that of the Vic Roads group (Vic Roads, 1991). The Drug-Drive Task Force should advise the Roads and Traffic Authority in the area of drugs and driving, and endorse programs developed to combat drug-driving.

Recommendation 21: A Drug-Drive Task Force should be established with a brief to establish the extent of road trauma and risk factors associated with drug-driving behaviour, and if necessary, initiate, develop and implement a co-ordinated program of measures aimed at reducing drug-driving.

3.53 On the basis of the research evidence, and the very limited epidemiological evidence relating to drug-driving that is currently available, it would appear that there are four areas of concern. These are:

- drivers who have used prescription drugs or over-the-counter medications and who are experiencing a deterioration in their ability to drive
- drivers who use alcohol in combination with use of prescription drugs and over-the-counter medications
- drivers who use psychostimulants to offset the effects of fatigue
- drivers who use prohibited drugs or who illegally use drugs normally available through prescription.

Recommendation 22: The initial task of the Drug-Drive Task Force should be to identify the potential road safety problems posed by: drivers who drive while affected by prescription drugs or over-the-counter medications; drivers who have combined alcohol and drugs; drivers who use psychostimulants in an attempt to offset fatigue; and drivers who use prohibited drugs or illegally use drugs available through prescription.

3.54 STAYSAFE notes a particular need to ensure that independent advice is available to the Drug-Drive Task Force. In evidence to STAYSAFE Dr Carseldine, previously the project officer within the Roads and Traffic Authority responsible for the University of Sydney research program for much of its existence, indicated that the Road Safety Bureau should not be held accountable for the failure of the University of Sydney study to be managed appropriately and to be concluded satisfactorily:

DR CARSELDINE: "... By and large, we needed to rely on his [Professor Starmer's] expertise in that area to tell us what was the most useful work to do. We are not behavioural pharmacologists. The Traffic Authority - and subsequently the Roads and Traffic Authority - was not in a position to dictate what was the most useful road safety work for him to be doing in that area. So we were really taking his advice [as to what should be looked at] ..." (Minutes of Evidence, 16 December 1991, p.35).

3.55 Without accepting Dr Carseldine's claim that the project officers and management of the Roads and Traffic Authority were never in a position to assess the value of the University of Sydney research program into drugs and driving, STAYSAFE is concerned that the problems with the University of Sydney study were promoted because no independent assessment of the research program was undertaken before the program began or at any time over the period 1985-90 when the program was funded.

3.56 Given that it is difficult for the Roads and Traffic Authority to provide such expertise from within its own ranks, STAYSAFE recommends that action be taken to ensure that independent referees are available to assess activities in the drug-driving area.

Recommendation 23: The Drug-Drive Task Force should ensure that its membership contains at least two independent members with specialist pharmacological and research expertise who do not have a contractual arrangement with the Roads and Traffic Authority.

Countermeasures that target drug use in the community

3.57 The medical and pharmaceutical professions have an obligation to ensure that drugs obtained by prescription or as over-the-counter medications are used appropriately. For example, where possible medicines that do not affect driving performance should be prescribed or sold.

3.58 There are some signs that the pharmaceutical industry may be active in developing and marketing drugs that do not impair driving performance. STAYSAFE received evidence relating to a recent television advertisement for non-sedating anti-histamines:

MR DOWNEY (STAYSAFE): "There is a television advertisement being shown currently which raises the issue of possible side effects arising from anti-histamine use and driving which particularly refers to non-sedating anti-histamines. The Committee understands that this road safety campaign has been created by the Merrill Dow company to market the anti-histamine drug traded as Teldane... do you have any comments to make about that advertisement?"

MR BELL: "...As far as comments go on that particular advertisement, it is fair to say that it has caused some controversy within the profession of pharmacists and at Government committee level in some areas... There was some discussion at the National Drugs and Poisons Scheduling Committee as to the appropriateness of that particular advertisement, given the fact that it is not possible, legally, to advertise a product in the Schedule 3 category of drugs and poisons and there was a suggestion that this indeed was an advertisement for a particular Schedule 3 product although no brand name is mentioned... My own feeling is that the advertisement does provide some valuable community information in that it makes people aware of the fact that medications may, in some instances, cause driving impairment. At least they have the potential to do so and that there should be a greater awareness in the community of both the risks and the benefits associated with medication. From the Pharmaceutical Society's point of view, we believe it is important that there be a far greater awareness of both risks" (Minute of Evidence, 18 November 1991, pp.101-102)

3.59 STAYSAFE has elected to not make a recommendation on this issue. STAYSAFE does find, however, that there is a need to keep the pharmaceutical industry under pressure to develop drugs which do not create traffic safety hazards.

3.60 The consumption of prohibited drugs, or the abuse of drugs obtained legally through prescription or by over-the-counter purchase, is subject to considerable enforcement effort through Government agencies and public groups. STAYSAFE supports these efforts.

Countermeasures based upon enforcement of drug-driving laws

3.61 Drug-driving in New South Wales is recognised as the offence of driving under the influence of a drug as defined in s. 5(2) of the Traffic Act, 1909.

Legislative definition of driving under impairment (drug)

3.62 Under the Traffic Act, 1909, a drug is defined as:

- alcohol
- a prohibited drug within the meaning of the Drug Misuse Trafficking Act 1985, not being a substance specified in the regulations as being excepted from this definition
- any other substance prescribed as a drug for the purposes of this definition

Schedule N

3.63 Prescribed substances for drivers are listed in Schedule N of the Motor Traffic Regulations, 1935. The substances presently prescribed for the purposes of the definition of "drug" in s. 2 (1) of the Traffic Act 1909 are listed in Appendix C.

3.64 A person commits an offence under this section of the Traffic Act regardless of whether or not their driving is adversely impaired by the drug. All that is required is proof that a person's mental faculties or physical capabilities are not in a normal condition.

3.65 There is the potential for considerable confusion, and considerable abuse, under the current system. STAYSAFE received submissions from Dr Jagger (Submissions LID 7 and LID 27) which recorded his concern, and confusion, over his legal status as a driver after he had been prescribed Neludeine (containing a barbiturate) and Valium (containing diazepam). Barbiturate derivatives and diazepam are prescribed substances under Schedule N of the Motor Traffic Regulations, 1935. Dr Jagger was unsure whether the consumption of these drugs should ban him from driving, notwithstanding that he held a pertinent medical certificate.

Coronial inquiries and drug-driving

3.66 The process by which substances are prescribed as "drugs" under s. 2 (1) of the Traffic Act 1909 has been the subject of comments by the State Coroner, Mr Kevin Waller, in his investigations of the bus crashes at Grafton and Kempsey. The State Coroner's remarks, and his recommendations, have had a large impact on the policies and practices surrounding drug-driving in New South Wales, yet have not received full publication.

3.67 In late October 1989 a semi-trailer and a bus collided on the Pacific Highway at Cowper, near Grafton. The State Coroner concluded a two-part hearing into the circumstances surrounding the crash, with a coronial finding being handed down in February 1990. A recommendation contained within this finding was that the drug ephedrine be included amongst those in Schedule N to the Traffic Act, 1909. The State Coroner scheduled a further hearing into the crash during March 1990, with a view towards examining various aspects of road safety which might have a bearing on reducing the likelihood of further crashes involving long-distance buses. His concluding comments concerning drug-driving after the second hearing into the Grafton bus crash are here reproduced in full:

"It is now notorious that the evidence in the first period of hearing of this inquest disclosed huge amounts of ephedrine in the body of the deceased truck driver ... some 80 times a normal therapeutic dose. I might say I believe that there exists other evidence confirmatory of that of the Division of Analytical Laboratories [the Department of Health laboratories located at Lidcombe]. I recommended at the end of that hearing that the drug Ephedrine be added to those in Schedule N to the Motor Traffic Regulations that driving under the influence of that drug is made an offence. The Government acted with commendable alacrity in that regard.

"What is a matter of concern to Dr. Judith Perl and others, is that the method of specifying what drugs may be applied to driving means that many other drugs, whose effects impair driving, may be ingested without jeopardy. One may be under the influence of the newest drug on the market, for example, and cause an accident, but one is not thereby guilty of the offence of driving under the influence of a drug under s. 5(2) of the Traffic Act, 1909. In these days when new drugs are coming onto the market in increasing number, and designer drugs are manufactured to copy the effects of other drugs, although chemically different, it is clear that the legislation will always lag behind in attempting to cope with the evil of drugged people driving motor vehicles.

"One answer to the problem is that, rather than have a list of prohibited drugs like Schedule N, laws could be passed similar to those in California whereby it is an offence to drive under the influence of any substance which might impair driving. The concept of "impaired driving" is not new to the law, but has never been a criterion for being under the influence of any substance in N.S.W. If a driver exhibits the signs of being "under the influence", i.e. unsteady gait, slurred speech, smelly breath, that is enough to secure a conviction. I really do not see any necessity to invoke the notion of impaired driving, but would suggest, if it were thought that a change in the law be advisable, that it be an offence to drive under the influence of any drug. If one wished to be more specific, one could retain the drugs in Schedule N, and add the words "or any other substance possessing similar characteristics or having similar effects" to the stipulated drugs. This would be my recommendation.

"There is understandable concern that persons who take therapeutic dose of a drug may be caught under this new provision. I do not believe drugs are handed out in such prescribed dosages as would render people incapable of standing or walking normally, or speaking normally. If they are, then people in that condition should not drive anyway. They represent a danger to others.

"As Dr. Perl said, drugs are safe unless inappropriately taken. Necessary drugs, such as those for people who suffer from epilepsy or diabetes, and which make it safer for persons to drive than if they did not have them, do not cause people to behave abnormally if used in proper doses.

"Concern was expressed at the hearing that there is no proper procedure in place to test persons hospitalised as a result of motor vehicle accidents for drugs as well as alcohol. Under section 5AA of the Traffic Act, where a person undergoes a breath test which is negative, but the officer believes he may be under the influence of a drug (and how would the constable know that it was a drug mentioned in Schedule N), he may be arrested and taken to hospital for a blood or urine sample to be taken. Certain safeguards are provided. However, the situation where a person is taken to hospital from an accident unconscious or helpless is not covered by the law regarding driving whilst drugged. Section 4E, 4F and 4G indicate that a blood sample may then be taken from that person, but analysed only for alcohol. The reason for that may be that it is often difficult to judge from analytical results alone whether a driver was affected or not. On the other hand, evidence of erratic driving coupled with evidence of a nil alcohol reading but a high drug reading in the blood could well be sufficient to obtain a conviction. It is recommended that the Minister for Transport consider amending the law so as to enable a blood sample to be taken from an accident victim and analysed for its drug content.

"In this regard it might be mentioned that it became known to me during the hearing that Professor Graham Starmer of Sydney University had been conducting research into the incidence of drug-taking among drivers involved in accidents over the past 5 years. There was some danger of this research being stopped prematurely, as it is now virtually complete, requiring only the collation of material. With the Court acting as intermediary agreement was reached that this very important study be carried through to finality.

"On the subject of drugs, an anonymous writer informed me of a place where he said "shakers" were readily available without prescription, at a particular pharmacy. This information was handed onto the Police, and appropriate action taken." (Waller, 1990a, pp.38-40)

3.68 Seven weeks after the crash near Grafton a second bus crash, involving two buses, occurred on the Pacific Highway at Clybucca, near Kempsey. The coronial finding of the inquest into this crash was handed down in June 1990. In part, it was found that:

"The body of Mr Wirth contained the drug Ephedrine. [Mr Wirth was the driver of the southbound bus, and State Coroner determined that it was probable that the crash occurred when Mr Wirth failed to steer his vehicle around a curve with the result that the bus drove directly into the path of a northbound bus]. The evidence of Dr Judy Perl was that the levels were not high, and were consistent with a therapeutic dose. However, there is no evidence that Mr Wirth has been prescribed any drug other [than] amoxycillin for an abscessed tooth for many years. His father has said that he did not like taking medication of any kind. His mother said he had not had an asthma attack for 3 to 4 years. There is a complete absence of evidence that Mr Wirth took Ephedrine with the authority of any prescription. The probability remains that he took it as a means to stay awake and alert, this drug being notoriously used by long-distance drivers for this purpose. Mr Kingsford-Smith, the passenger, heard Mr Wirth's actions which sounded very much as though he was taking a tablet or tablets. This occurred just after some flowers had been dropped off. Flowers were delivered at Macksville by Mr Wirth at 2:30am. Residue of Ephedrine was found in the stomach of the deceased Mr Wirth, so it seems likely that it was at this time that he took the ephedrine. This is some evidence, in my opinion that he was feeling tired. Dr Perl tells us that ephedrine masks the feeling of tiredness, but one of the hazards of taking that substance is that sudden sleep may result, following the normal stimulating effect of the drug." (Waller, 1990b, p.4)

3.69 Waller (1990b) further commented:

"An interesting feature of this hearing was the revelation that the driver whose vehicle had ventured onto its incorrect side of the road had taken the drug Ephedrine. While it is true that he had nowhere near the alarmingly high level of Mr Hutchins, the driver of the semi-trailer in the Grafton case, nevertheless it surely should jolt devotees of this particular stimulant to know that in the two worst road disasters in Australian history, each driver at fault was found to have Ephedrine in his system. As a drug taken to stay awake and alert it failed totally.

"The lesson is obvious." (p.12)

3.70 STAYSAFE received submissions from Mr Bell, representing the Pharmaceutical Society (Submission LID 21) and Mr Berman, of the Criminal Law Review Division, Attorney General's Department (Submission LID 9), both of which opposed the proscribing of therapeutic drugs which may lead to drivers failing to take desirable medication.

Screening for drugs other than alcohol

3.71 In testimony to the STAYSAFE Committee of the 49th Parliament, Dr Perl described in some detail the procedures currently required of police when they suspect drug-induced impairment in a driver:

DR PERL: "It's a very complex procedure that protects individual's rights. Basically the last thing we wanted to see was police just going out and picking on someone because they know that person happens to be a drug user. So when a police officer sees a person committing an offence or the manner of driving suggests that they're intoxicated, or when they've attended a collision and the person is obviously affected by something they must first of all administer a breath test to exclude the possibility that alcohol was a contributing factor.

"If the person passes the breath test, that is, they're under .05, ... then if the police officer still suspects this person is intoxicated they must undergo an assessment by the police officer. Now that could be something very simple like being asked to 'Just walk over here' and then they watch for the type of walking ability that the person has got, their manner of speech, their appearance, pupil size. The police are getting lectures from me in terms of what types of symptoms to start looking for; they get them from their supervisors as well.

"Once they're satisfied in their own mind that the person is definitely affected by something and they've excluded the [possibility of] alcohol, then the person can be arrested and taken to a hospital where a blood and urine sample must be given. The doctor must take the sample within two hours of the offence. The police then have to provide a report outlining why the driver was arrested in the first place: why were they arrested, why was he suspected of having a drug present? That report must go to the blood sampling section at Parramatta. The blood and urine sample are forwarded to the government analysts who analyse the samples. The results come back to the blood sampling section ...

"The report by the police officer and the results from the analyst come together at the blood sampling section and are passed to the police medical officers and we make a decision whether or not the symptoms are related to ... [the drug found]. If not then we suggest no action be taken. If the symptoms are consistent with that particular

drug then we will suggest that they proceed with a charge of driving under the influence and then the police officer is informed by his traffic sergeant. So he has no idea until we've already made the decision about the samples." (Minutes of Evidence, 18 April 1991, pp.11-12).

3.71 STAYSAFE has considered how the current system might be improved. Better roadside drugs screening tests might be a cost-beneficial addition to the present system.

Roadside screening for drug impairment

3.72 Dr Perl and Associate Professor Starmer, in testimony before the STAYSAFE Committee of the 49th Parliament, suggested that a roadside screening test could save much of the costs of this current process of dealing with the drugged driver. The following discussion took place:

MRS COHEN (STAYSAFE): "Just one other thing we have been curious about, do you see any prospects to developing a roadside test?"

DR PERL: "No, it would be impossible to do a roadside test because we need a body fluid sample. The only possible roadside test that we could do would be if you used saliva or if you managed to get a urine sample by having like a booze bus situation where a person can go privately to supply a sample and you use a screening method such as the Roche 'Ontrak' system or something very simple that will do no more than indicate the presence of a drug so if it comes up positive it is like a roadside screening test for alcohol. It is nothing more than an indication that the drug is present and then you would have to pursue it, which would perhaps be quite a good way to go."

"Presently the roadside [alcohol] breath testing has [been] developed to speak in, and then they proceed further if they have got the indication. Professor Starmer, you were working on a saliva [screening test] ..."

ASSOCIATE PROFESSOR STARMER: "We still are. Our methodology wouldn't be applicable to a roadside screening test but it certainly would be useful, for example, to obviate the need for taking blood samples."

MRS COHEN (STAYSAFE): "Which would be a progression?"

ASSOCIATE PROFESSOR STARMER: "Urine samples are not very good for telling you much more than the person has used the drug, it is sort of a post hoc situation but saliva relates over time with what is in the blood and, therefore, probably what is in the brain." (Minutes of Evidence, 18 April 1991, pp.14-15)

3.73 In-depth training of police officers, in recognising drugs, has been introduced into some police administrations. A correct identification of at least one drug, in 87% of suspects, is claimed (National Highway Traffic Safety Administration, 1989) following training of Los Angeles police. Dr Perl, in testimony before STAYSAFE, advocated better training of New South Wales Police, for drugs recognition.

3.74 STAYSAFE has been advised that two training programs for police to conduct drug-impairment assessments have been considered by the Police Service (Police Service, Submission LID 33).

3.75 The Standardised Field Sobriety Test assists general police to initially assess a driver suspected of drug impairment. The test consists of three standard procedures: a Walk and Turn test (balance and co-ordination), a test of One-Legged Standing (balance and co-ordination), and a Horizontal Gaze Nystagmus test (jerking movements of the eyes).

3.76 The Drug Recognition Expert training program is a specialist program that trains selected police officers to administer checks of a suspected driver's clinical eye signs, pulse, blood pressure, and body temperature. Two additional behavioural tests are also administered: a modified One-Legged Standing test, and a Finger to Nose test.

3.77 STAYSAFE has been advised that the Police Service have been examining the feasibility of including training in the Standardised Field Sobriety Test and the Drug Recognition Expert program. STAYSAFE supports training programs that will enable police officers to better detect and assess drug-impairment in drivers.

Recommendation 24: The Police Service implement training for new police officers, and in-service training for existing police officers, in roadside behavioural screening for impairment by drugs.

3.78 In addition to behavioural screening tests, there are chemical screening tests available, which require samples of body fluids (e.g., blood, urine, saliva).

3.79 The Police Service (Submission LID 33) provided details of the On-Trak roadside screening system. The On-Trak system requires a urine sample, which is tested in self-contained assay kits for specific drugs. For example, assay kits are available that indicate use of cocaine, marijuana or other cannabis products, barbiturates, morphine and amphetamines.

3.80 Mr Ryan (Submission LID 17) forwarded to STAYSAFE details of a drug detection system which relies on involuntary deteriorations in visual reflexes which may be detected in the response of subjects' eyes to changes in their field of view. The literature supplied to STAYSAFE asserted that this system, termed the EM/2 Alcohol & Drug Impairment Analyser and manufactured by Oculo Kinetics Inc, was being used by a number of American companies to routinely test their employees for alcohol and drug dependency. STAYSAFE has not sought to establish the feasibility of this device being used at the roadside.

Recommendation 25: The Roads and Traffic Authority, Department of Health and the Police Service evaluate roadside chemical screening tests that are currently available to assess the suitability and accuracy of the tests to detect drug-drivers.

Drug use and fitness to hold a driving licence

3.81 Mr Moriss (Submission LID 3), a resident of Tasmania who is a diabetic receiving oral agents (Rastinon) for treatment, brought STAYSAFE's attention to the fact he is required to supply medical evidence on an annual basis for the continuation of his driving licence but that the initial responsibility to notify the appropriate authority of his diabetic condition rested with him. The advice to licence staff regarding diabetes is entirely voluntary, and there is no necessity to do so.

3.82 Mr Lavis (Submission LID 1) communicated to STAYSAFE his concern that people known to abuse drugs are not subject to any restriction on their driving. Mr Lavis was concerned that there is no obligation for the driving licence of a person known to abuse drugs to be suspended or cancelled.

**Specific countermeasures based upon education
about drug-driving**

3.83 The advertising and public relations activities of the Roads and Traffic Authority relating to recent drug-driving campaigns are shown in Table 6. STAYSAFE finds that, not surprisingly, these activities are fragmented. There is a need for the development of a consistent advertising and public relations strategy to address issues in drug-driving.

General education

3.84 STAYSAFE received copies of fact sheets or pamphlets distributed in pharmacies. These fact sheets contained descriptions and diagrams relating to the following subjects: 'Pain Relievers (also known as Analgesics or Painkillers)'; 'Drinking - Driving'; 'Wise Use of Medicine'; and 'Driving Under Medication (also known as DUM)'. In some fact sheets the Traffic Authority is listed as a sponsoring agency, in others the Roads and Traffic Authority.

3.85 The fact sheet dealing with driving under medication was sponsored by the Hayfever and Allergy Information Service. The Driving Under Medication pamphlet does not distinguish between drugs that are prescribed under the Traffic Act and drugs that may affect driving.

3.86 The New South Wales Centre for Education and Information on Drugs and Alcohol (1987) has produced a booklet to inform the public that many drugs and medicines can have a bad effect on driving and other co-ordination skills. The booklet identifies the following drugs as potentially dangerous to driving:

- depressants, including alcohol, marijuana in small doses, sleeping tablets, tranquillisers, barbiturates, narcotics, some pain killers like codeine, some allergy medicines, and some medicines for blood pressure, nose inflammations and fungal infections
- stimulants, including amphetamines, cocaine, some diet pills and some cold and flu medicines
- hallucinogens, including LSD, marijuana in high doses, ecstasy, and psilocybin

TABLE 6: Drug-driving campaigns of the Traffic Authority and the Roads and Traffic Authority, 1987-1991. The different advertisements are documented by date of commencement, the media used, the name of the advertisement, and a brief description of its content. (From Roads and Traffic Authority, Submission LID 33).

DRUG DRIVE CAMPAIGN-1987, 1990

On the 1st October 1987 a proposal to undertake a campaign to inform motorists about changes to the drug drive legislation was approved. Before the legislation came into force, the Government encouraged people to not use illegal drugs which can have a dangerous effect on driving and co-ordination skills. The campaign consisted of the following separate elements- deterrence (aimed at illegal drug users), reassurance (aimed at the general public), and education aimed at the general public to raise awareness of the effects of everyday drugs and asking that they check with their doctor, chemist or dentist before they drive). In 1990, a brochure and poster were produced to further emphasise that drugs and driving can be a fatal mix.

The total budget for 1987-1988 was \$259,000.

Date	Medium	Name of Ad	Content
1987	Leaflet	Drugs and Driving	Information about dangerous drugs in relation to driving. Also, information on safety checks.
	Radio	Deterrent	Informs drivers that from Dec 1 the Police can insist on a blood and urine test from any driver observed and believed to be affected by drugs.
		Advice	Advises drivers to follow their Doctor, Dentist or Chemist's advise regarding the safe dose of medication.
		Reassurance	Informs people that it is ok to take medication and drive if their doctor, dentist or chemist approves it.
	Press	Name Plates	Check with a doctor, chemist or dentist before you drive, if you take medication.
	Poster	Name Plates	Check with a doctor, chemist or dentist before you drive, if you take medication.
		Some medication can affect your ability to drive	Informs drivers that they may be arrested and taken to a hospital for a blood and urine test if suspected of drug driving. If medication may affect your ability, don't drive.
	Direct Mail	-	Letters signed by the Minister, brochures and poster to doctors, chemists and dentists seeking their support in reassuring and advising their clients.
	Tabloid	Smash	Informs drivers that they may be arrested and taken to a hospital for a blood and urine test if suspected of drug driving. If medication may affect your ability, don't drive.
		Name Plates	Check with a doctor, chemist or dentist before you drive, if you take medication.

Date	Medium	Name of Ad	Content
1990	Poster	Pills, Potions and Driving = Bad Medicine	Warns drivers that drugs and driving can be a fatal mix. Directs drivers to the brochure listing drugs that can affect driving.
	Brochure	Pills, Potions and Driving can be bad medicine.	Lists the drugs that can affect driving. Warns that the police have the power to stop drivers they suspect are impaired, take a breath test, and if necessary take them to a hospital for a blood and urine test.

The booklet examines such issues as tolerance, unknown or unrecognised effects, and problems with combinations of drugs (particularly drug-alcohol combinations). Finally, the booklet describes the law relating to drugs and driving.

Labelling of prescription drugs and over-the-counter medications

3.87 STAYSAFE notes that the Minister for Health Services management, representing the Minister for Health and Community Services, stated on 3 December 1991, in answer to a question from Mr Gibson MP on 22 August 1991, that the Pharmacy Board of New South Wales regards part of the professional role of a pharmacist is to ensure optimal drug therapy, both through the supply of medicines and through the provision of advice and information about medicines to those who prescribe or use drug products.

Recommendation 26: The Department of Health, together with the Roads and Traffic Authority, evaluate the effectiveness of the current labels affixed to medicines and used to indicate to consumers that driving performance may be impaired.

Heavy vehicle drivers and psychostimulants

3.88 STAYSAFE considers that, at the very least, there should by now have been factual advice about the health implications arising from the acute and chronic use of ephedrine and other psychostimulant drugs placed in the hands of every long distance driver, and where feasible, those who presently press them for tight schedules. To date it appears that little has been done in this area.

3.89 The Roads and Traffic Authority has a continuing program in heavy vehicle safety, using, in particular, audio tapes produced under the "Truck Stop" moniker. STAYSAFE has been advised that material regarding drug use by truck drivers was recorded for this ongoing program, but that this material has not been included in any cassettes released to date.

Recommendation 27: The Roads and Traffic Authority review existing published information relating to the use of psychostimulants and driving performance, and develop a cohesive strategy of advertising and public relations that targets both commercial drivers and transport companies. In particular, factual advice relating to the acute and chronic use of ephedrine and other psychostimulant drugs should be included in the next issue of "Truck Stop" audio cassettes.

Secondary education

3.90 The activities of the School Education Unit of the Road Safety Bureau were described in the earlier chapter on Alcohol. There is a need to ensure that materials produced for use in secondary schools also address the issue of drugs and driving.

Recommendation 28: The Roads and Traffic Authority ensure that the pre-driver curriculum and the 'Parent pack' of information about road safety issues contain a separate series of documents relating to drugs and driving.

CONCLUSIONS

4.1 The General Manager, Road Safety Bureau, in evidence to STAYSAFE, put his views on ensuring that existing road safety programs are monitored and new areas for action are identified in the following terms:

MR CAMKIN: "In terms of our countermeasure programs, the bulk of our effort in the drug area is focused on alcohol, while most of our research is focused on other drugs. That is as good a point as any to initiate some comment on our philosophy, and this is my philosophy and that of the Road Safety Bureau generally (and, I would like to suggest, that of most of the road safety community in those countries which follow the scientific public health or epidemiological approach to the management and prevention of road trauma). Simply it says: focus most of your countermeasure effort on demonstrably successful strategies directed at known major problem areas and focus most of your research effort on (a) improving those strategies, and (b) quantifying [other areas where there may be problems] ... and then, if so indicated by the disclosed magnitude of the problem, on developing countermeasures ..." (Minutes of Evidence, 18 November 1991, p.3)

4.2 STAYSAFE has reviewed the current knowledge of the extent that drink-driving and drug-driving pose a road safety risk in New South Wales, and has reviewed the bulk of the countermeasures that have been undertaken to address the roads safety problems posed by alcohol and other drugs.

Alcohol

4.3 STAYSAFE is satisfied that the introduction of random breath testing for the presence of alcohol was associated with a significant decrease in the incidence of drink-driving.

4.4 STAYSAFE is less sure that random breath testing, as the principal countermeasure to drink-driving, has continued to be used in the most effective manner. STAYSAFE was disturbed to find that little has been done to ensure the conduct and reporting of research into fundamental questions about drink-driving in New South Wales since the mid 1980's. The development of innovative policies and procedures to address drink-driving in New South Wales has been limited, despite improvements in technology to detect drink-drivers and drug-drivers and despite what appears to be a high degree of public support for drink-driving and drug-driving countermeasures.

4.5 STAYSAFE has concluded that drink-driving research and policy in New South Wales is in need of substantial review.

4.6 STAYSAFE is concerned that Government administrations charged with monitoring drink-driving in New South Wales have not fully concentrated on "improving those strategies" aimed at reducing the incidence of drink-driving. STAYSAFE finds that only isolated evaluative research in the area of drink-driving has been sponsored by the Traffic Authority, now the Roads and Traffic Authority,

since the evaluations of the introduction of random breath testing in the early to mid 1980's. STAYSAFE finds that monitoring of the published literature relating to drink-driving has been poor, particularly in relation to determining target groups among the drinking population who are more in danger from drink-driving.

4.7 STAYSAFE recorded the recent introduction by the Police Service of new technology to screen drivers for breath alcohol. However, STAYSAFE was not satisfied that the policies and procedures for breath testing operations in New South Wales allowed for the most effective use of the new equipment. STAYSAFE is pleased to note that an internal Police Service review of breath testing operations commenced during the inquiry.

Drugs other than alcohol

4.8 STAYSAFE has concluded that the extent of drug-driving in New South Wales, and the problems posed by drug-driving, are largely unknown. The development of countermeasures to combat drug-driving has therefore been very limited.

4.9 STAYSAFE has concluded that there are three principal areas of drug-driving that require attention: the drugged driver who has used prescription or over-the-counter medications and who is experiencing effects that degrade driving performance; the alcohol-affected driver who has also used drugs; and the drugged driver who uses psychostimulants in an attempt to offset fatigue.

4.10 Research into drug-driving in New South Wales has been limited. The bulk of public funds in the drug-driving area has been expended on a single group of researchers, originally headed by Professor Watson and now by Associate Professor Starmer, who conducted studies into aspects of drug-driving at the Department of Pharmacology, The University of Sydney over the period 1985-90. In evidence before STAYSAFE, Dr Carseldine, an officer with the Roads and Traffic Authority who had close responsibilities in the day-to-day management of the University of Sydney program stated:

DR CARSELDINE: "... By and large, we needed to rely on [Professor Watson and Associate Professor Starmer's] ... expertise in that area [drug-driving] to tell us what was the most useful work to do. We are not behavioural pharmacologists. The Traffic Authority - and subsequently the Roads and Traffic Authority - was not in a position to dictate what was the most useful road safety work ... to be doing in that area." (Minutes of Evidence, 16 December 1991, p.35)

4.11 STAYSAFE does not share Dr Carseldine's view. Any Government funding agency should ensure that it is able to independently evaluate the work performed on its behalf by a contractor or consultant. STAYSAFE notes that the Traffic Authority, now the Roads and Traffic Authority, provided total funding of just under \$0.6 million over the period 1985-90 for the research program without requiring publication of the findings or independent corroboration of the value of the research being undertaken (see Appendix B). STAYSAFE notes that no completion date to the research program was established at the commencement of the funding. A completion date was eventually specified, but STAYSAFE finds that the final report from Associate

Professor Starmer has been overdue since March 1990. At the time of tabling and printing of this report to Parliament, the final report has not been submitted to the Roads and Traffic Authority.

4.12 STAYSAFE has expressed its concerns with the management of public funds for drug-driving research by the Traffic Authority, now the Roads and Traffic Authority, and has referred evidence in this area to the Office of Public Management, Premier's Department, for investigation.

APPENDIX A

EXTRACT FROM COMPTON (1988), PP.29-35.

Compton, R.P. (1988). Use of controlled substances and highway safety: a report to Congress. Washington, DC: National Highway Traffic Safety Administration, United States Department of Transportation.

A.1 "The precise nature and extent to which drugs other than alcohol are a highway safety problem (i.e., impair driving ability and increase crashes) cannot be specified at this time. In order to determine the relationship between drug use and highway safety several critical pieces of information are needed. These are:

1. Which drugs impair driving ability,
2. Which drugs are associated with higher crash rates,
3. What drug dosage levels are associated with impaired driving or higher crash rates, and
4. How frequently are the drugs that impair driving ability and are associated with higher crash rates being used by drivers.

A.2 Data on how specific drugs both impair driving ability and are associated with crashes are needed to establish a causal link between those specific drugs and higher crashes. Knowing which drugs impair driving ability is important because drugs that impair driving ability have the potential for increasing crash risk. Also, this information allows attention to be focused on the drugs that are likely to be a serious highway safety problem.

A.3 Knowing that a drug impairs driving ability, however, is insufficient to establish that it leads to more crashes. A drug may impair some aspects of driving ability and not necessarily be associated with increased crashes, at least to the extent that it can be measured. People have an ability to compensate for certain types of behavioural deficits (e.g., they may pay more attention to the driving task, drive more conservatively, etc.). Also, the driving environment is in many ways quite forgiving. Thus, it is important to have evidence that specific drugs are associated with higher crash rates.

A.4 On the other hand, a drug may be found to be associated with higher crash rates (i.e., be overrepresented in crashes) without necessarily impairing driving ability. For example, persons who use particular drugs may have certain personality

characteristics that predispose them to drug use, as well as to engaging in driving behaviours that lead to crashes.

A.5 In addition, some drugs may impair driving ability or be associated with increased crashes only at certain dosage levels. At low levels, no impairment or increased risk may occur, while doses exceeding a certain value may produce these effects. Finally, there may be some drugs that have the potential to produce severe driving impairment, but are not being consumed by the driving public at a time that would affect driving.

A.6 Information about which drugs impair driving ability will come primarily from laboratory and simulator research, while information about which drugs are associated with increased crash rates will come primarily from epidemiological research. Ultimately, one would like to be able to specify which drugs (and at what dosages) increase crash risk. Determining the crash risk associated with drug use requires firm evidence that a causal relationship exists between drug use and crash occurrence. The ability to make such a causal inference will require evidence produced by these complementary sources.

A.7 In summary, evidence from all four types of data is needed to establish that specific drugs are highway safety problems. The role of alcohol in traffic crashes, for example, has been well established by evidence from all four of these sources. We know that alcohol impairs driving ability, is overrepresented in crashes, is used frequently by the driving public, and the relationship between BAC and impairment is known. To establish that other drugs are serious highway safety problems will require that similar evidence be developed.

A.8 Each of these four categories of information is discussed briefly below.

1. Determining Which Drugs Impair Driving Ability

A.9 The study of how drugs affect driving related skills has produced a large and diverse literature. Methods used have included laboratory studies of human performance and "driving related skills," use of driving simulators, and on-the-road studies (using actual vehicles, typically on a closed course.).

A.10 Laboratory and simulator research have been the primary methods used to determine which drugs impair driving ability. Previous research of this type was limited by a number of problems that preclude interpreting observed impairment on laboratory, driving simulator, and on-the-road tasks as implying that significant impairment of actual driving skill would result. Problems encountered include the wide range of tasks different researchers use, the diversity of methods used to measure behaviour in the laboratory and field, the lack of agreement about what constitutes critical driving skills, and the highly artificial and sometimes inappropriate nature of the tasks employed.

A.11 Future success in determining which drugs have the potential to impair driving will not be easy. Many drugs need to be tested. The process of evaluating the effects

of a drug on driving ability is a complex, time consuming and costly undertaking. An optimal approach to this issue will require that the driving task be better understood. When the critical skills necessary for safe driving have been determined, then research can be conducted to assess the extent to which specific drugs, at various doses, impair these skills.

A.12 Until then, progress will still be possible through improved research methods to assess the effects of drugs on "driving related" behaviour in the laboratory, through simulated driving, and in on-the-road studies. This work will continue to be suggestive of the type of psychological and behavioural deficits different drugs produce. No precise inference to actual driving impairment or increased crash risk will be feasible. Even this limited progress will require other improvements in research methodology (e.g., more realistic simulation of driving, standardised selection of tasks that measure critical driving skills, standardised measures of performance, assessment of various combinations of drugs and alcohol that parallel typical usage patterns).

A.13 There is promise of greater progress in the near future in this area as a result of recent methodological improvements that have made simulator and on-the-road research more likely to yield useful information. More realistic simulators and computerised data processing technology for instrumented vehicle research have made these research techniques capable of producing more useful information than could be obtained previously.

2. Determining Which Drugs Are Associated with Increased Crash Rates

A.14 A different approach is required to determine which drugs increase crash rates. In this case one needs to look directly at crash data. Several alternative methods could be used to collect information pertaining to the role drugs play in crashes. Research could be conducted to determine the incidence of drug use in crash and noncrash involved drivers so that an estimate of the extent to which the drugs contributed to the occurrence of the crash could be made. The finding that a drug was overrepresented in crash involved drivers would suggest strongly that it played a role in increasing crash risk.

A.15 Previous studies of the incidence of drug use by crash involved drivers have not collected acceptable drug use data from noncrash involved drivers. An empirical determination of drug use requires the collection of body fluid samples (primarily blood). Such studies are not contemplated at this time by the Department of Transportation.

A.16 Another way to estimate the role drugs play in crash occurrence would be to determine the rate at which crash involved drivers are estimated to have been responsible for their crashes, and then to compare these crash responsibility rates between drivers in whom specific drugs are detected and drug-free drivers. Increased crash responsibility rates for drivers under the influence of specific drugs, as compared to drug-free drivers, would strongly suggest that the drugs use increased crash risk. In this approach, drug-free drivers are used as the control group rather than noncrash involved drivers. This method has not been used extensively, but appears to be a

practical alternative to obtaining a control sample of noncrash involved drivers. NHTSA recently used this method in a small study of injured drivers. NHTSA is

currently initiating a larger study of fatally injured drivers that will involve this type of crash responsibility analysis.

3. Determining What Drug Dosage Levels Are Associated With Impaired Driving

A.17 Little is currently known about the relationship between dosage level and driving impairment. The ability to predict the behavioural consequences of different dosage levels of most drugs is currently quite limited (i.e., only gross generalisations can be made, such as: high doses generally have a greater effect than small doses).

A.18 Future progress in determining the relationship of drug dosage level to driving impairment and increased crashes will be difficult for many drugs with potential for abuse. Most psychoactive drugs are chemically complex molecules, whose absorption, action and elimination from the body are poorly understood. Considerable differences between individuals exist in the rates at which these processes occur. Other problems that will have to be overcome in order to understand the relationship between drug dosage level and driving impairment are:

- * the poor correlation between psychological or behavioural effects and blood or plasma level for many drugs,
- * sensitivity and tolerance effects (after repeated administrations of psychoactive drugs the body's response changes),
- * accumulation in the blood or other body fluids (the drug or metabolites are not quickly eliminated from the body).

A.19 Currently it is not possible to equate the presence of specific amounts of many drugs in the blood, or other body fluid, of an individual with a specific psychological or behavioural effect. At present, this type of research is difficult and costly, requiring expensive equipment for drug assays. Dosages that may be given to volunteer subjects are limited by ethical considerations. Sophisticated experimental procedures must be used. Sophisticated experimental procedures must be used. Many drugs must be tested, alone and in combinations, while new drugs are constantly being introduced.

A.20 It is possible that, for some drugs with the potential to impair driving ability, it will not be technically feasible to establish a specific dosage level that is indicative of impairment for all drivers. With this in mind, further consideration needs to be given to alternative approaches, for example, the development of a performance test that would be indicative of driving impairment.

A.21 In the interim, useful information about the relationship of drug dosage levels and impairment of driving related behaviour can be acquired for selected drugs of interest through research using more realistic driving simulators or computerised

instrumented vehicles. Well designed studies of this type for a few frequently used drugs would allow their potential for real driving impairment to be better gauged and would further our understanding of the effects of different drug-dosage levels.

4. Determining the Frequency of Drug Use By Drivers

A.22 Determining the incidence with which noncrash involved drivers drive after taking drugs will also be difficult to accomplish. This information is important for several reasons. Some drugs may be shown to severely impair driving ability, but if people do not typically drive after using them then they do not represent a serious highway safety hazard. From a highway safety standpoint, these drugs will be of less concern than those drugs used by large percentages of drivers. Secondly, the enforcement of laws against driving while impaired by drugs may require the ability to test body fluids for the presence of specific drugs. Knowing what drugs are commonly used by driver allows enforcement agents to focus their attention on these high priority drugs. Finally, knowing the frequency of driver drug usage is important for determining the significance of the problem and thus the resources that should be devoted to reducing it.

A.23 Practical and methodological difficulties have limited the usefulness of past research on drug use by drivers. Methodological problems have stemmed primarily from and inability to obtain representative samples of drivers for study. Most studies of crash involved drivers and drivers detained by the police have used small or non-representative samples. Consequently, the results cannot be generalised. The practical problems that have hindered previous research on drug use by drivers have arisen from the inability to detect and measure the presence of some drugs in drivers and the costs of screening for a wide range of possible drugs, resulting in only a few drugs being included in most studies.

A.24 Determining the number of drivers who operate a motor vehicle after having consumed drugs requires the collection and analysis of blood samples. The use of body fluids other than blood cannot currently provide this information. Many drugs will remain in some body fluids, like urine, for a considerable period of time (days, and in some cases weeks) after the psychological and behavioural effects have passed.

A.25 Ascertaining the frequency with which specific drugs are being used by drivers requires roadside surveys of the general driving public in which blood samples are collected. There has been virtually no research of this type conducted to date. Since such research is expensive to conduct and would require a major effort to obtain sufficient co-operation, it is unlikely that this type of research could be conducted until there is widespread recognition of the potential benefits to society.

A.26 On the other hand, determining the incidence of drug use by crash involved drivers is something that could be accomplished. Recent advances in drug testing technology have made large-scale drug incidence studies much more feasible and likely to produce useful data than in the past. For example, research to determine the incidence of drugs in a representative sample of fatally injured drivers, reflecting

current drug usage patterns, could be undertaken without the problems associated with obtaining blood samples from live drivers.

General Conclusions

A.27 It is obvious that many drugs have the potential to impair driving and increase crash risk when used in inappropriate ways. This includes virtually all illegal drugs and many prescription drugs. Not all instances of drug use will lead to impairment of driving ability. Prescription drugs, when used to treat conditions which may themselves impair driving ability, may reduce or eliminate the impairment, thus having a beneficial effect on driving. Also, many drugs that may not produce significant driving impairment at a moderate dose may produce impairing effects at a high dosage.

A.28 We know that many people drive after having taken drugs. Studies of drug use by drivers involved in crashes indicate that drugs other than alcohol are detected in 10 to 22% of these drivers. A significant number of drivers detained for suspicion of driving while intoxicated have also been shown to have taken drugs. It is not possible to say whether the drugs used by drivers involved in crashes were responsible for the occurrence of the crashes. Mere incidence statistics alone can not answer this question. Incidence rates may simply reflect drug usage rates in the general driving population.

A.29 While much remains to be learned, we have made considerable progress in the last several decades in understanding the affects of drugs on driver behaviour. Our knowledge can be summarised as follows:

- * The nature and extent to which drugs, other than alcohol, are a serious highway safety problem cannot be specified with certainty at this time
- * A growing body of literature suggests that certain drugs (e.g., marijuana) impair psychological and behavioural abilities that are functionally related to driving, even though the extent to which drug impaired driving causes crashes can not be inferred from this research. The accumulating evidence suggests there is a risk posed by driving after consuming some drugs at high dosage levels.
- * Drugs that may impair driving include certain prescription and over-the-counter drugs as well as illegal drugs.
- * Drugs are quite often used in combination with high doses of alcohol, so that understanding the combination effects of drugs and alcohol is important.
- * The frequency with which drivers drive, are arrested, or crash while under the influence of drugs other than alcohol is not known. However, the available data on drug use by crash involved drivers suggests that

the drug and driving problem is substantially less than the alcohol and driving problem.

- * It may not be possible to establish specific levels of drugs in body fluids that are associated with driving impairment (as has been done with alcohol).
- * The drugs that appear to have the most potential to be serious highway safety hazards (based upon currently available information regarding incidence and impairment) are: tranquillisers (e.g., Valium(R)), sedatives and hypnotics (e.g., barbiturates), and marijuana."

APPENDIX B

GOVERNMENT FUNDED DRUG DRIVING RESEARCH AT THE UNIVERSITY OF SYDNEY

B.1 In the second half of 1984, the then Minister for Transport, Mr Unsworth MP, held a meeting with Professor Watson, then Head of Department of Pharmacy, The University of Sydney. Professor Watson raised concerns about the role of drugs in traffic crashes (see Vine & Watson, 1983). He sought funding for The University of Sydney to acquire new equipment to facilitate the screening of drivers of motor vehicles for the presence of drugs that might affect their ability to control a motor vehicle.

B.2 In a Ministerial Memorandum dated 3 October 1984, Mr Unsworth wrote to Mr Davies, Chairman of the Traffic Authority of New South Wales, indicating that in his view it would be appropriate for the Government to contribute \$200,000 to enable purchase of the required equipment for screening drivers for the presence of drugs. The cost of this equipment was met through a Cabinet allocation for a number of special road funding initiatives. The Government provided a "grant of \$200,000 being a 50% contribution to the acquisition by the University of Sydney of a ... mass spectrometer" (Drug Research Agreement: Traffic Authority Special Road Safety Programme 1984-5, p.1).

B.3 The Government also approved a further \$50,000 towards funding of research by the University on the Authority's behalf into, first, road safety related impairment by drugs, and second, operational aspects of possible countermeasures. This funding was not listed as a grant, but was for commissioned work at the direction of the Traffic Authority. However, the responsibility for design of specific research projects and the implementation of the projects, rested with Associate Professor Starmer and Professor Watson.

B.4 A formal agreement was signed by Professor Watson, representing the University of Sydney, and Mr Breadner, then Secretary of the Traffic Authority of New South Wales, on 25 January 1985 and 2 February 1985, respectively. Mr Saffron and Dr Carseldine of the Traffic Authority were appointed to manage the project involving the purchase of the mass spectrometer. Dr Saffron of the Traffic Authority was appointed to be the project manager for the drug-driving research program.

B.5 The evidence relating to identification of which officers were responsible for the drug-driving research program is confusing. The following written responses from Mr Camkin were received to a series of questions from STAYSAFE:

STAYSAFE: "The STAYSAFE Committee understands that the officers involved in establishing the research program that is now being conducted by Associate Professor Starmer were Mr B Vazey, Dr D Saffron and Dr D Carseldine. Is this information correct? If any other officers of the RTA or its predecessor organisations were involved in the formulation of the research program, who were they?"

MR CAMKIN: "Mr Vazey, Dr Saffron and Dr Carseldine were not directly involved in the initial formulation of the research programs, although they did visit Professor Starmer and Professor Watson on 23 November 1984 to discuss administrative arrangements for the proposed projects.

"Mr E Spragg who was the Manager of the Traffic Accident Research Unit at the time was responsible for the establishment and management of the project in its initial stages.

"There were also of course a number of more senior officers involved in approvals of the work. There were also approvals by the Minister and Cabinet and by the Traffic Authority itself."

STAYSAFE: "STAYSAFE understands that the officer responsible for the project management of the research program now being conducted by Associate Professor Starmer was Dr D Carseldine (up to the time of his appointment as Manager, Licensing Policy in mid-1991). Is this information correct? Were any other officers involved in overseeing the project from 1985-1991? Who currently has the responsibility of the program within the RTA for the finalisation of Professor Starmer's project?"

MR CAMKIN: "The day to day management of a project is delegated to a project officers who, of course, is not responsible for all major decisions regarding that project.

"Dr Carseldine was the project officer for this project for much, but not all, of the time up to his promotion to Licensing Policy Section. Work on the program in the Traffic Authority commenced around June or July 1984 leading to approval in October 1984 by the Minister for Transport, Mr Unsworth, of the purchase of a TSQ Mass Spectrometer. This work was managed day to day personally by Mr Spragg. Around the same time (October 1984) there was a special road safety program funded by the Government. The Traffic Authority had 21 projects under this program, two relevant projects being the purchase of the TSQ Mass Spectrometer and one entitled "Drug research". Mr Spragg was appointed project manager for the TSQ Mass Spectrometer and Dr Saffron was appointed project manager for the Drug Drive Research program. On 17 November, Mr Spragg who had by then been placed in charge of the whole of the Special Road Safety Program, also took over day to day management of all aspects of the drug driving research. Mr Spragg continued as project manager until October 1986 [?, see below].

"During the period (mid-October - mid-December 1984) that Dr Saffron was project leader for part of the drug work, he delegated day to day running of the project to Dr Carseldine. Dr Carseldine also provided some support to Mr Spragg until the end of December 1984, but from early January 1985 Mr Spragg appears to have run the project without Dr Carseldine's help.

"Mr Spragg subsequently took up other duties and from October 1985 [?, see above] Dr Carseldine took over the day to day management of the project. In 1989 when the road safety area was restructured, Dr Carseldine became Leader, Motor Vehicle User

Safety and, as time to undertake day to day management of projects became limited, Mr D Span commenced day to day project management activities of the drug driving research around April 1990."

B.6 Dr Saffron's role appears limited to a period of several weeks. In evidence to STAYSAFE Dr Saffron has indicated that he did not have a detailed knowledge of the events surrounding the formulation of the drug-driving research program at the University of Sydney:

DR SAFFRON: "I actually was not involved in the formulation of the project but I have examined the files associated with the project. It seems to me that this was a project which appealed to the Government of the time ... The original funding revolved around the purchase of a mass spectrometer because the University [of Sydney] thought it was handicapped in not having that sort of equipment, not being able to do this sort of research and that was heavily supported by the Minister at the time, Mr Unsworth as I understand - I can only tell from the files that was the case. Subsequently it was supported by Cabinet.

"The protocols at the time said that the funding was to commence research in this area so the notion was to get these people started on some research. Subsequently it had some support from other Ministers along the way. It has been seen to be an important thing, this sort of work, to be done. We have done our best to get it on a contractual footing but it has not always been possible. The initial principal in the study was Professor Watson who was the Professor of Pharmacy at the University of Sydney and Professor Watson very strongly resented any technical input from researchers on the ground in the Traffic Authority and he dealt at a high level and his expertise was seen as more important. There is approval from Ministers, the Traffic Authority Committee itself, the Chairman of the Traffic Authority on file." (Minutes of Evidence, 18 November 1991, pp.45-46)

B.7 It was been claimed by witnesses that the drug-driving research projects formed part of the "grant" for the purchase of the mass spectrometer. This ambiguity was to have consequences in later years.

B.8 There was similar ambiguity relating to the probable size, scope and duration of the research program. Ambiguity also was associated with the procedures in relation to publication of the research findings.

B.9 The initial funding was for the financial year 1984/1985, but the Traffic Authority agreed to provide continuing funding beyond 1984/1985, subject to Government objectives, priorities and availability of funds. The funds for continuity in the research projects were to be provided after consideration of reports of the research already carried out, estimates for the cost of continuation during the following financial year, and consideration of budget allocations for road safety programs. This agreement, in effect, allowed for open-ended funding: at no time in the evidence presented to STAYSAFE was there a specified termination or completion date for the research program.

B.10 The University of Sydney researchers were allowed the right to publish research findings in scientific journals as the findings became available. The Traffic Authority, however, required that they be informed of any findings prior to

publication and the Government (i.e., the Minister) required reasonable opportunity to consider the policy implications of the research findings prior to publication. In addition, the Traffic Authority retained the right of first opportunity to publish collections of findings, edited collections, or reports of works relying on collections of findings. In effect this agreement appears to constrain both the researchers of the University of Sydney and the Traffic Authority from publishing research findings on a progressive basis. The University of Sydney researchers were required to submit manuscripts of the research findings to the Traffic Authority and the Minister, prior to publication, while the Traffic Authority granted the effective right of first publication to the researchers. This situation, in practice, appears to have limited the desire and perhaps the ability of either parties to publish any research findings.

B.11 STAYSAFE notes that the problems with publication of the University of Sydney study reflect a general problem with road safety research. Officers from the Roads and Traffic Authority have acknowledged that publication of the results of studies as in-house reports typically do not allow for a critical review of either the design and conduct of the studies or the analysis and description of the results. In evidence to STAYSAFE, Dr Saffron discussed the shortcomings of a drug-driving study by Hendtlass (1985), saying that the study:

DR SAFFRON: "... was very vigorously criticised by other researchers - not by me [but] by pharmacologists and people interested in statistical design of experiments ... This is a problem in road safety generally, a lot of research put out is not really published in journals or anything, it is just issued." (Minutes of Evidence, 18 November 1991, pp.17-18)

B.12 The Roads and Traffic Authority was to be kept informed on an ongoing basis of progress in the drug-driving research at the University of Sydney through a series of unpublished reports. These consisted of, first, research progress reports, which were due at quarterly intervals, second, a series of management reports relating to financial reconciliation of funds received and expended through the University of Sydney in relation to research projects, and last, special reports related to problems and difficulties in the conduct of the research and requests for variations to the agreed research program.

The drug-driving research program at the University of Sydney 1985-1991

B.13 Based on evidence submitted by the Road Safety Bureau, STAYSAFE requested copies of all reports relating to the research program. Fourteen documents comprising of research progress reports and management reports for the period 1985-1991 were forwarded. These research project reports covered the following periods: December 1985; June 1986; December 1986; December 1987; May 1988; July 1988; November 1988; June 1989; August 1989; October 1989; December 1989; March 1990; November 1990; and April 1991. The Road Safety Bureau also supplied, at the request of STAYSAFE, copies of correspondence relating to the performance of the project. By and large the correspondence, research reports and management reports supplied to STAYSAFE reveal details of an ongoing research program apparently proceeding satisfactorily, although delays through equipment malfunction

are mentioned, and the research progress reports and management reports were not being diligently submitted every quarter, as specified.

B.14 No evidence was submitted to STAYSAFE that publication of the research findings was being considered by either Professor Watson and Associate Professor Starmer or the Traffic Authority during the course of the research program from 1985-1990. STAYSAFE notes, however, that material relating to the methodology for use of the mass spectrometer was published (Vine, Watson, Dodson, Starmer, 1987).

B.15 In February 1990, five years after funding for the research program commenced, the Road Safety Bureau moved to terminate the funding of the research program being conducted by the University of Sydney. A letter from Mr Camkin, General Manager of the Road Safety Bureau, to Associate Professor Starmer, contained a request that the final report of the research be submitted by 31 March 1990. In later correspondence new termination dates were suggested. (Waller's comments quoted earlier imply that at this time representations for the continuation of funding of the University of Sydney research program into drug-driving were being made at senior levels within the New South Wales Government; see Waller, 1990a, p.40)

B.16 In the latest correspondence available to STAYSAFE the current deadline was set for December 1991. On 8 January 1992 the STAYSAFE wrote to Mr Camkin, General Manager, Road Safety Bureau requesting, among other things, confirmation that the final report had been received. Mr Camkin replied in a letter to the Chairman of STAYSAFE, dated 23 January 1992:

"Mr Faulks also asked about a final report from Professor Starmer. Professor Starmer has forwarded a copy of the final statistical information and analysis for the epidemiological study ... As you will see, there is a great deal of information to be interpreted, which he has said will be encompassed in his final report, yet to be reviewed [received?], but anticipated 'as soon as possible'."

In summary, an interim report containing statistical analyses is available (Cairns, 1991) but the final report from Associate Professor Starmer has still not been submitted.

B.17 Some of the officers involved in managing the research program had reservations about the arrangements for the research program. The following evidence was given by Dr Carseldine, the project manager of the University of Sydney drug-driving research program for much of the time since 1985:

DR CARSELDINE: "... I can only agree with the concern expressed by Members of the [STAYSAFE] Committee that the project has management problems. From the very early days the project was never put on a proper contractual basis. From my point of view, it was a constant struggle to try and reach a basis where funding was contingent upon performance. Over a number of years there were endeavours to put it on that basis, but those endeavours were never completely successful...." (Minutes of Evidence, 16 December 1991, p.34)

Dr Carseldine was aware that STAYSAFE was investigating with the management of the research program, and that STAYSAFE had requested and received substantial records relating to the management of the program. His statement is honest and frank.

B.18 It is a source of concern to STAYSAFE that the project managers appear to have been unwilling or unable to express concerns relating to the management of the projects prior to their appearance before STAYSAFE. There is no indication in the documents supplied to STAYSAFE that the project managers were concerned about inadequacies in the management and administration of public monies for the research program. For example, no action appears to have been taken to require Professor Watson or Associate Professor Starmer to submit progress reports every quarter, as specified in the agreement between the University of Sydney and the Roads and Traffic Authority.

B.19 STAYSAFE finds that Dr Carseldine's evidence suggests that the typical relationship between project manager and funding recipient was not evident throughout the duration of the research program.

B.20 The formulation and commencement of the project was done at the directive of Mr Unsworth, then Minister for Transport. Ministerial support for this project has continued, most recently in an undated memorandum from Mr Baird, Minister for Transport, to Mr Fisk, Chief Executive of the Roads and Traffic Authority, received by him on 25 June 1990. In this memorandum the Minister endorses Associate Professor Starmer's work and requests continued support for the program through "the use of [a Roads and Traffic Authority] vehicle for research into the effects of drugs on driving". The annotations on this memorandum indicate that the Minister for Transport's request was accepted by senior executives of the Roads and Traffic Authority with none demurrant.

B.21 Mr Camkin provided a written reply to a STAYSAFE query about the vehicle:

STAYSAFE: "What was the make, model and purchase price of the vehicle supplied to Professor Starmer to assist in this research? Has this vehicle been returned to the RTA, if not for what purpose is it currently being used?" (Ian Faulks, Director of STAYSAFE, 19 November 1991)

MR CAMKIN: "The purchase of the car was approved by the Premier in June 1987.

"According to accounts from the University of Sydney, the car was purchased in the 3rd quarter of 1987 and it appears that the price was \$10,000. The vehicle is a Ford Lazer.

"The Minister for Transport, Mr Baird, in a memorandum to the RTA's Chief Executive (received 21 June 1990) advised that he had met with Professor Starmer and appreciated 'the value of Professor Starmer's work and would therefore be pleased if you could ensure that the vehicle is available for the use of the University until the end of June 1992.'

"In accordance with this instruction, the car is still with Professor Starmer, who has stated that it is still being used in road safety related work - to do with driver fatigue. The work which the car had been used for on the drugs project, collection of blood samples, accident reports and injury reports, had been finalised." (H L Camkin, General Manager, Road Safety, 22 November 1991)

B.22 There is a standard process by which consultants and contractors are engaged. The Office of Public Management (1990) has provided the most recent statement of the requirements, including the following:

- consideration of the alternatives and costs
- preparation of a specification (including consideration of such aspects as identification and description of the purpose of the project, definition of the terms of reference, statement of the objectives of the project, statement of the individual tasks to be performed, a timetable for the project, identification of the resources required, specification of ownership of intellectual property and terms of disclosure, requirements for the final report, provision for termination of contract, and arrangement for payment)
- inviting bids and tenders
- selection
- acceptance of engagement
- management (including such aspects as appointment of a project officer, appointment of a management committee to review progress, definition of the standards required and establishment of target dates, development of a procedure for dealing with unsatisfactory performance, development evaluation mechanisms to assess quality of work performed)

B.23 STAYSAFE finds that some, but not all, of these standard requirements were established in the formal agreement previously described, and that during the course of the project some, but not all, of these standard requirements were met.

B.24 In the letter to Mr Camkin of 8 January 1992 (previously mentioned above) STAYSAFE sought papers that could clarify the actions of senior managers concerning the research program. The relevant section of this letter is reproduced below:

"... The Committee has requested copies of material relating to the management of this research program. Copies of some correspondence with Professor Starmer and his co-workers have been forwarded. Can you please supply the Committee with internal memoranda, records of meetings, and correspondence relating to Dr Carseldine's evidence that "... a number of endeavours [were made] to put it [the research program] on ... [a contractual basis]". In particular, what "endeavours" were made? For example, was advice prepared for the relevant Ministers outlining the need for the research program to be subject to a contractual agreement? Was any consideration given to approaching the Vice-Chancellor of the University of Sydney or the Head of the Department of Pharmacology, to facilitate the better management and administration of the research program? I note that nowhere in the material supplied to the Committee does there appear to be any concern at the way the research program was being conducted." (Ian Faulks, Director of STAYSAFE)

B.25 Mr Camkin responded in a letter to the Chairman of the STAYSAFE Committee dated 23 January 1992. The relevant section of his letter is reproduced below:

"... Mr Faulks also requested a further set of documents which would evidence attempts to put the relationship with Professor Starmer on a contractual footing. It is a large task, quite costly in staff time, to go through all papers relating to the project, yet again, and I am not sure that it will in fact add anything to the great deal of information already supplied in response to an earlier request. I am not clear as to the relevance to STAYSAFE's current inquiry into the role of legal and illegal drugs in road accidents, but am sure that the relevant files could be made available should the Committee wish to see them." (H L Camkin, General Manager, Road Safety)

B.26 It is here that matters now stand. On the evidence available, STAYSAFE finds that there has been a failure to ensure that the drug-driving research projects at the University of Sydney were monitored adequately. STAYSAFE has been unable to determine if appropriate and timely advice about the performance of these projects has been provided to the responsible Ministers.

Recommendation 29: The Office of Public Management act to examine the circumstances surrounding the proposal, establishment and management of the drug-driving research program conducted at the University of Sydney.

B.27 The challenge to STAYSAFE's right to investigate the management of the drug-driving research program at the University of Sydney cannot remain without a firm rejoinder: the documents requested by STAYSAFE are relevant to the STAYSAFE inquiry as, under its terms of reference, STAYSAFE has a mandate to:

"Monitor, investigate and report on the road safety situation in New South Wales".

B.28 On a tangential note, the Roads and Traffic Authority (1991) has provided an annual report for the financial year 1990-91 that provides information on consultants and contractors engaged by the Authority during the year. The guidelines issued by the Office of Public Management (1990) do not require pre-existing consultancies and contractors to be listed in annual reports, and so the University of Sydney study is not identified. STAYSAFE finds this an important omission.

B.29 There are other aspects of the University of Sydney research program that also deserve closer inspection and comment. An important question is to determine what the Roads and Traffic Authority intended to do with the results of the research program when they became available. Dr Carseldine gave evidence on this issue:

DR CARSELDINE: "What we were really counting on was for Professor Starmer to finish the research work and to give us a report that would tell us not only the technical findings of the research programs that he had undertaken but also the implications for road safety in New South Wales. We wanted Professor Starmer to recommend the courses of action that we should undertake, we never received a report along those lines ... we have been asking for a final report for some years now. We are still waiting for that report." (Minutes of Evidence, 16 December 1991, p.36)

B.30 This evidence is confusing. On the one hand, the Roads and Traffic Authority is asking for research work related to drug use and driving performance to be completed, so that countermeasures can be formulated. On the other hand, the Roads and Traffic Authority did not ensure that it had developed sufficient skills and knowledge in the area of drugs and driving to enable the feasibility of any recommendations emanating from projects conducted by the University of Sydney to be determined.

B.31 It should be noted that the original funding of research by the University on the Authority's behalf included funds for research into operational aspects of possible countermeasures to drug-driving. This aspect of the research program (the development of a roadside drug screening test based on saliva samples) was discontinued at an early stage (see below).

B.32 Another important question is to establish what findings have come from the research program? STAYSAFE has reviewed the available information. A brief summary of the research program follows.

Epidemiological study

B.33 Cairns (1991) has reported statistical analyses for 824 drivers who were involved in road crashes, most of which had been subjected to analysis for the presence of drugs. The presence of drugs other than those likely to be administered in medical treatment after the crash has been established in more than 250 cases.

B.34 Drugs that have been detected and which may be of concern from a road safety perspective include: tetrahydrocannabinol (THC, the active ingredient of cannabis); various stimulants (including amphetamine and ephedrine as well as licit stimulants); narcotic analgesics, excluding pethidine; anti-epileptic drugs; and anti-depressants and tranquillisers (see Cairns, 1991).

B.35 Cairns (1991) has compared the obtained sample of crash-involved drivers with general data relating to drivers in New South Wales. He found that:

- the sample contained a higher proportion of drivers in the age range 20-25 years than expected and a lower proportion in the age range 41-50 years than expected
- the sample contained a higher proportion of crashes on a main road or trunk road than expected
- the sample contained a lower proportion of females than expected
- the sample contained a higher proportion of driver crashes which occurred in the afternoon (2:00 p.m. to 4:00 p.m.) than expected, and a lower proportion than expected in the evening (7:00 p.m. to midnight)
- the sample did not differ in terms of trauma scores
- the sample did not differ in terms of the speed limits in force at the crash location
- the sample did not differ in terms of responsibility for the crash occurring
- the sample did not differ in terms of the blood alcohol concentrations found in drivers involved in crashes

B.36 Despite the statistical analyses being available to the Roads and Traffic Authority since December 1991, no communications relating to the interpretation of the results have been received by STAYSAFE.

Behavioural studies

B.37 The impairment of cognitive and psychomotor functions in humans has been examined for three drugs: diazepam (a minor tranquilliser), pentobarbitone (a central nervous system depressant) and dexchlorpheniramine (an antihistamine sold as an over-the-counter medication). The effects of acute and sub-chronic administration of these drugs, both alone or in combination with a 'social dose' of alcohol, have been examined. Data collection for the study of sub-chronic doses of these drugs was reported as complete in March 1990.

B.38 An examination of cognitive and psychomotor impairment of epileptic patients receiving anticonvulsant therapy was reported as in progress in December 1989. By March 1990 it was reported that the testing of control subjects remained to be completed.

Development of drug-driving countermeasures

B.39 The initial program formulated in 1985 indicated that a screening test based on saliva samples was to be developed as a enforcement countermeasure for drug-driving. This part of the research program was suspended at an early stage. STAYSAFE has been advised that Associate Professor Starmer has recommended development of a saliva screening test for the presence of drugs under a contractual arrangement with the Federal Office of Road Safety and Rark Research.

Comments relating to the University of Sydney drug-driving research program

B.40 Given the paucity of information concerning drug-driving in New South Wales a detailed epidemiological study would seem to be a necessary prerequisite to the formation of a coherent program to address drug-driving issues (Appendix 1; see also Compton, 1988). Indications for New South Wales might well be gained from an examination of epidemiological studies conducted elsewhere, but such studies would not reflect local patterns of drug use and abuse.

Recommendation 30: The Roads and Traffic Authority ensure that the epidemiological study of the presence of drugs in crashed drivers in New South Wales conducted by Associate Professor Starmer at the University of Sydney is published as soon as possible.

B.41 The behavioural studies, on the other hand, could be conducted anywhere. There is no particular reason to suspect that the pharmacological action of a drug affecting driving would differ radically across human subjects in Sydney, San Francisco, Tokyo or Paris. It would be appropriate, therefore, to monitor and review the published literature on drugs and driving, and to publish the results of the behavioural studies conducted at the University of Sydney in refereed scientific journals as soon as practicable after the studies are complete. For example, a major aspect of the behavioural studies at the University of Sydney concerned an examination of the effects of diazepam, with or without the presence of alcohol, on

motor performance. Recently, a German research team published an exhaustive review and experimental study of the effect of diazepam on driving performance, using a driving simulator (Friedel, Joo, Reker, Kading, Klostermann, Saturnus & Schneider, 1990). As the studies at The University of Sydney have not been published, Friedel et al. were not able to incorporate and discuss the University of Sydney findings in their review.

Recommendation 31: The Roads and Traffic Authority ensure that behavioural studies undertaken by Associate Professor Starmer at the University of Sydney to examine the effects of diazepam, pentobarbitone and dexchlorpheniramine, with and without the presence of alcohol, are published as soon as possible.

B.42 STAYSAFE has been advised that a literature review of current knowledge about drug-driving has been requested under the contractual arrangement between the Federal office of Road Safety and Rearth Research and Associate Professor Starmer.

Recommendation 32: The Roads and Traffic Authority should liaise with the Federal Office of Road Safety to ensure that an extensive literature review of the effects of drugs, with and without the presence of alcohol, on psychomotor skills, and more particularly driving performance, will be published as a matter of urgency.

APPENDIX C

SCHEDULE N OF THE MOTOR TRAFFIC REGULATIONS, 1935 - SUBSTANCES PRESCRIBED AS DRUGS

(Reg. 130B)

ALPRAZOLAM
AMYLOBARBITONE
AZATADINE
BARBITURIC ACID DERVATIVES not otherwise specified in this Schedule
BENZODIAZEPINE DERIVATIVES not other wise specified in this Schedule
BROMAZEPAM
BROMPHENIRAMINE
BUCLIZINE
BUPRENORPHINE
BUTOBARBITONE
CHLORALHYDRATE
CHLORDIAZEPOXIDE
CHLORMETHIAZOLE
CHLORPHENIRAMINE
CHLORPHENTERMINE
CLEMASTINE
CLOBAZAM
CLONAZEPAM
CLORAZEPATE
CODEINE
CYCLIZINE
CYCLOBARBITONE
CYPROHEPTADINE
DEXCHLORPHENIRAMINE
DEXTROPROPOXYPHENE
DIAZEPAM
DIETHYLPOPION
DIHYDROCODEINE
DIMENHYDRINATE
DIMETHINDINE
DIPHENHYDRAMINE
DIPHENYLPRYALINE
DOXYLAMINE
EPHEDRINE (excluding pseudoephedrine)

ETHYLMORPHINE
FENFLURAMINE
FLUNITRAZEPAM
FLURAZEPAM
GLUTETHIMIDE
HYDROXYZINE
LORAZEPAM
MAZINDOL
MEBHYDROLIN
MECLOZINE
MEDAZEPAM
MEPROBAMATE
MEPYRAMINE
METHDILAZINE
METHYLPHENOBARBITONE
MIDAZOLAM
NALBUHINE
NITRAZEPAM
OXAZEPAM
PENTAZOCINE
PENTOBARBITONE
PHENIRAMINE
PHENOBARBITONE
PHENTERMINE
PHENYLTOLOXAMINE
PIZOTIFEN
PRAZEPAM
PROMETHAZINE
PROPYLHEXEDRINE
QUINALBARBITONE
SECBUTOBARBITONE
TEMAZEPAM
THENYLDIAMINE
TRAIZOLAM
TRIMEPRAZINE
TRIPROLIDINE

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LIST OF SUBMISSIONS RECEIVED

- LID 1 Mr L. Lavis
- LID 2 Dr. S. McLean, Department of Pharmacy, University of Tasmania
- LID 3 Mr M. Moriss
- LID 4 P.A.D.D. (People Against Drink Driving) - Mrs B. Lowrey
- LID 5 Sydney Road Services Pty Limited - Mr P. Leabeater
- LID 6 Mr S.P. Young
- LID 7 Mr I. McManus MP, referring submission from Dr F. Jagger
- LID 8 Goulburn Valley Transport Wives Support Group Inc
- Mrs Lorraine Scouller
- LID 9 Criminal Law Review Division, Attorney General's Department
- Mr P.Berman
- LID 10 Mr P.J. Wordsworth
- LID 11 Lion Analytics Pty Limited - Mr A. Porter
- LID 12 Scriptographic Publications Pty Limited - Mr M. Mitchell
- LID 13 Ms A. Raymond, Drink Driver's Program, Department of Community Medicine, St. Vincent's Hospital (Fitzroy, Victoria)
- LID 14 Division of Analytical Laboratories, Department of Health - Dr E. E. Crematy
- LID 15 Mr A. Smith
- LID 16 Mr P. Horder
- LID 17 Mr W.F. Ryan
- LID 18 Mr R.B. Frenkel
- LID 19 International Reform Alliance - Mrs G. Gilding
- LID 20 Michael Henderson Research - Dr M. Henderson

- LID 21 Pharmaceutical Society of Australia (New South Wales Branch) Limited
- Mr J. Bell
- LID 22 Professor R.J. Breakspere, Dean, Faculty of Science, University of Technology, Sydney
- LID 23 Mr I. McManus MP, forwarding additional submission from Dr F. Jagger
- LID 24 N.S.W. Road Trauma Committee, Royal Australian College of Surgeons
- Mr P.J. McGrath
- LID 25 Australian Hotels Association (N.S.W. Branch) Incorporated - Mr G. Knapp
- LID 26 Mr I.A. Macdonald
- LID 27 Mrs D.F. Foo
- LID 28 (Anonymous)
- LID 29 Dr H. Dauncey
- LID 30 Division of Environmental and Occupational Health, Queensland Department of Health - Dr R.A. Ramm
- LID 31 National Roads and Motorists Association - Mr R. Cox
- LID 32 Police Service - Commissioner A. Lauer
- LID 33 Roads and Traffic Authority - Mr B. Fisk
- LID 34 Breathcheck Pty Limited - Mr D.J. Malcolm and Ms G. Peters
- LID 35 Industrial Program Service - Mr R.L. Smith
- LID 36 Tooheys Limited - Mr R. Fraser

LIST OF WITNESSES

STAYSAFE Committee of the 49th Parliament

18 April 1991

Dr Judith Perl, Consultant Pharmacologist employed by the Medical Branch, New South Wales Police Service.

Associate Professor Graham Starmer, Department of Pharmacology, employed by The University of Sydney.

STAYSAFE Committee of the 50th Parliament

18 November 1991

Mr Harry Leonard Camkin, General Manager, Road Safety, employed by the Roads and Traffic Authority of New South Wales.

Dr David Gilbert Saffron, Manager, Road User Safety, employed by the Roads and Traffic Authority of New South Wales.

Mr John Alfred Bell, Pharmacist, representing the Pharmaceutical Society of Australia.

Ms Maxine Esther Goodman, Pharmacist, representing the Pharmaceutical Society of Australia.

Dr Helen Ruth Dauncey, Consultant Pharmacologist.

Dr John Michael Henderson, Medical Practitioner and Consultant in Health and Safety Matters.

25 November 1991

Superintendent Mervin Lyle Lane, employed by the New South Wales Police Service.

Inspector Warren Edward Burns, employed by the New South Wales Police Service.

Senior Sergeant Terence Raymond Tamblin, employed by the New South Wales Police Service.

Sergeant John Dennis O'Donnell, employed by the New South Wales Police Service.

Dr Judith Perl, Consultant Pharmacologist employed by the Medical Branch, New South Wales Police Service.

Mr Alan Ernest Hodda, Analytical Chemist, employed by the New South Wales Department of Health.

Mr Bruce Owen Searles, Assistant General Manager, employed by the National Roads & Motorists' Association.

Mr David Alexander Piper, Manager, Legal Services, employed by the National Roads & Motorists' Association.

Ms Michelle Viola Booth, Manager, Road Safety, employed by the National Roads & Motorists' Association.

Mr Barry Craig Watson, Behavioural Scientist, employed by the National Roads & Motorists' Association.

Ms Rosslyn Teresa Young, Manager, Safety and Community Affairs, Sydney Central Region, employed by the Roads and Traffic Authority of New South Wales.

16 December 1991

Dr Donald Clement Arthur Carseldine, Manager, Licensing Policy Development, employed by the Roads and Traffic Authority of New South Wales.

Dr Michael George MacAvoy, Director, Drug and Alcohol Directorate, employed by the New South Wales Department of Health

Ms Leanne Margaret Miller, Acting Manager, Prevention Policy Section, Drug and Alcohol Directorate, employed by the New South Wales Department of Health.

Dr Andrew Lee Ball, Medical Practitioner

Mr Gregory Knapp, Executive Officer, employed by the Australian Hotels Association