

Driving After Drinking in Western Australia

Technical Report

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by:

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Executive Summary

This report describes a study funded by the Road Safety Council of WA that aims to develop and evaluate a system for monitoring the last place of drinking of drink-driving offenders as an aid to improved enforcement of both drink-driving and liquor licensing laws.

Two objectives of this collaborative project are addressed in this report. The first is to assess the completeness of the data for use in analysis and policy making and the second is to describe the existing trends and patterns. No names of individual licensed premises are cited in this document though this information has been forwarded to Western Australian Police Service, the Health Department of Western Australia and the Liquor Licensing Division of the Office of Racing, Gaming and Liquor.

Data for this project was obtained from the Western Australian Police Service Traffic and Operation Support's Evidentiary Breath Test Database. The analysis has shown that in general the data is complete enough in order to be used for analysis and policy making. However, the amount of missing data has increased in recent years, especially in country areas. In the financial year 1999/2000, 11% of locations of the last place of drinking were classified as "unknown" compared with just 1% in 1992/1993 suggesting that data collection can be improved in future years. Missing information is highest in the non-metropolitan regions being almost one-third of all cases in 1999/2000 for the Northern and Central Regions. Unfortunately the trend for incomplete data has continued into 2000/2001 based on an inspection of the data so far made available. Compounding this problem, among cases that specify the location of drinking as a licensed premise some 21% provide no name for the premises. However, in 1999/2000 this figure had dropped to 12% and the trend since the mid-90s is for this aspect of the data to be more complete.

This data provides a useful insight into patterns of last place of drinking of drink-drivers in Western Australia and this comprises the second half of the report. In 1999/2000 cases were fairly evenly split between private residences and licensed premises and a similar pattern existed in 1991/92, though during the intervening years this pattern has been more variable. A significant change is apparent for nightclubs, which by 1999/2000 accounted for 17% of all citations of a licensed premise, up from 10% in 1991/92. It has been found that over 50% of offences linked to a licensed premise are related to only 10% of licensed premises. Conversely the greatest majority of licensed premises are likely to only register once or twice in the offences recorded. Of the licensed premises identified several of those that have the greatest tally of appearances occur within a handful of Perth suburbs, namely: Leederville, Burswood, Northbridge, Fremantle, Scarborough, Cottesloe and Sorrento/Hillarys. It has also been found that within suburbs, particularly in entertainment districts, such premises can often be located very close together.

The greatest percentage of offences (64%) occurs between 8pm and 2am, while the 8am to 4pm period accounts for only 6% of all offences. Accidents and non-accidents tend to show a similar pattern over time of day by percentage, though non-accident offences are somewhat more concentrated between 8pm and 2am. Accidents tend to show greater percentages during daytime and also early evening. The periods between 2am and 8am and 4pm and 8pm are under-represented in data on police breath testing activities. However, overall there appears to be a very good match between the times at which enforcement activity was conducted and the times at which alcohol-related road crashes occurred.

The proportion of drink-driving offenders with a very high blood alcohol content (BAC) dropped substantially during the 1990s. In 1991/1992, 39.1% of all offenders had a BAC of over 0.15. By 1999/2000 this had dropped to 20.7% of all offenders. This is likely to reflect both greater numbers of tests being conducted (up 22%) and improved effectiveness of drink-driving enforcement practices.

It is hoped that these preliminary results might provide a foundation for supporting more effective policing and enforcement strategies in relation both to drink-driving and the regulation of licensed premises. There are some clear deficiencies in the data being collected but also much potential value in terms of the identification of high risk times, places and premises for alcohol-related problems.

In particular it is recommended that:

1. Data on last place of drinking of drink-driving offenders are recognised within the Western Australian Police Service and the Office of Racing, Gaming and Liquor as valuable inputs to the enforcement of both liquor licensing and drink-driving laws.
2. Steps are taken to improve the completeness of these data, in particular in relation to identifying specific licensed premises. These steps should include a supporting statement to all operational level police and automatic prompting at the point of computer data entry.
3. Comparisons of accident and non-accident data are made on a regular basis within the Police Service in order to help examine the extent to which random breath testing is optimally targeted in terms of time of day, day of week and the targeting of licensed premises. For example present analyses suggest slightly more breath-testing activity should occur in late afternoon and early in the morning.
4. Information systems to exchange these data between police, liquor licensing and public health are established so that accurate and timely information is exchanged on a regular basis.
5. Such information systems are probably best located within the Police Service with regular reports provided to health and liquor licensing.
6. Recognising that a small number of venues contribute the majority of drink-driving offenders last drinking on licensed premises, strategies are adopted to target these high risk premises.

1. Introduction

Previous research in Western Australia has found that 40 to 50% of drink-driving offenders had their last drink on licensed premises and that a small number of establishments in any area account for the majority of such cases (Lang et al, 1991; Brinkman et al, 2000). While these data have been collected routinely in Western Australia for over ten years there has been no systematic exchange of results between government departments with a statutory role in the enforcement of liquor licensing laws. Furthermore, the quality of the data from some regions of the state has deteriorated with increasing numbers of missing cases. In addition, there have been only limited efforts made to link these data in a Geographic Information System to other available data on local alcohol sales plus number and type of licensed premises (for example, Stockwell et al, 1996). Thus the full potential for targeting enforcement of drink-driving and liquor laws and thereby preventing serious road injury using these data has not yet been realised. The recent signing of a legal agreement permitting the flow of such data between the WA Police Service (WAPS), the National Drug Research Institute (NDRI), the Office of Racing and Gaming and Liquor (OGRL) and the Director of Public Health of the Western Australian Health Department provides a major opportunity to develop and evaluate new systems (Brinkman et al, 2000).

The present project was funded by the Road Safety Council and represents a collaboration between the Western Australian Police Service, the Liquor Licensing Division of the Office of Racing, Gaming and Liquor, the Health Department and NDRI. The project aims to develop and evaluate a system for monitoring the last place of drinking of drink-driving offenders as an aid to improved enforcement of both drink-driving and liquor licensing laws. The objectives of the project are to:

- review the current system of collecting last place of drinking data with a view to identifying possible improvements in the information collected,
- provide a report on the completeness of these data and on the patterns of drink-driving behaviour in terms of prior drinking locations,
- establish a Geographic Information System containing details of licensed premises, local alcohol sales, and drink-driving offences for liquor licensing and drink-driving enforcement purposes,
- document the extent to which this data is used for policy, planning and local operational purposes in relation to liquor licensing and drink-driving matters, and
- provide case studies on the use of this data for local drink-driving enforcement purposes, the regulation of licensed premises and policy and planning purposes.

This report aims to address the first two objectives by reviewing the data in terms of its completeness and broadly describing the existing trends and patterns.

The report is drawn directly from the Western Australian Police Service sources, particularly data regarding last place of drinking of drink-driving offenders. In the early 1990s a small number of additional questions were added to those routinely asked of all persons given an evidential breathalyser test. These questions inquire as to the last place at which the person consumed alcohol and, in particular, the names of licensed premises. The questions were added after a successful pilot phase involving collaboration between the NDRI and the Perth Breath Analysis Section of the Traffic and Operations Support Branch of the Western Australian Police Service. The information has recently been used in decisions made by the Director of Liquor Licensing, for example, in applications for extended hours of trading by a major Northbridge hotel, and has sometimes been used to help direct drink-driving enforcement activities. The data have also been used in numerous NDRI research projects (Gruenewald et al, 1999; Lang et al, 1991, 1998; Stockwell et al, 1991, 1992, 1997).

Further impetus to this project is given by a recent report from the Traffic Alcohol Section of Victoria Police describing a Licensed Premises Identification System (Cairns et al, 2000). The purpose of this system is to produce automatic and ad hoc reports on request providing profiles of the licensed premises in terms of citations by drink-drivers as the last place of drinking.

It is often pointed out that such data are limited to the place where the driver was last drinking and that they will frequently have done most of their drinking elsewhere. However, from the enforcement point of view the last place of drinking is where they attained their highest BAC, where there is most opportunity for server intervention and the most promising location for targeting breath-testing operations. It is also sometimes objected that these data are only indicators of the amount of police activity in enforcing drink-driving laws and of the changing nature of this enforcement. By good fortune it is possible to distinguish between cases where the police were called to a crash, from those conducted by mobile patrols and also from those detected by "Booze Bus" operations. It has been a requirement on all WA Police Officers to breath-test all drivers at a crash scene since January 1989. Thus the 10% or so of drink-drivers detected at crash scenes provide data reflecting high risk places and times for crashes as well as prior drinking locations – as opposed to mainly reflecting patterns of police enforcement activity (see, for example, Lang et al, 1989).

The study period for the project is from 1991/92 through 1999/00. The data has been divided, where useful, into the four Western Australian Police Regions as they stood in 1999 (these were Metropolitan, Central, Northern and Southern regions). It should be noted that totals between tables do not always add due to the differing number of unknowns or other unusable entries for particular variables.

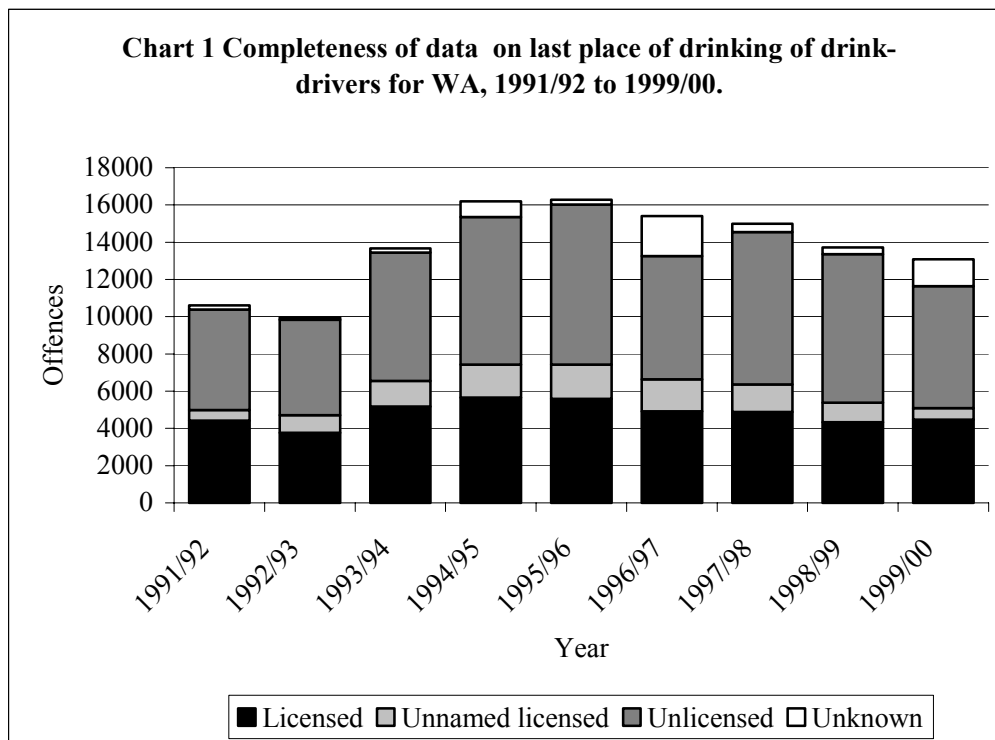
The data was obtained from the Western Australian Police Service Traffic and Operation Support's Evidentiary Breath Test Database via the Breath Analysis Section. Data was unit record data for each evidentiary breath test for the state by year. When an individual is breath tested, whether at an accident or part of an enforcement program such as "RBT", should the reading exceed the legal limit the individual is then required to complete an evidentiary breath test. Immediately following the evidentiary breath test the reporting officer is required to complete a form with all relevant data. This data was supplied as a download of raw data with identifying fields, such as names, removed.

2. Completeness

This section discusses the completeness of the data. The reliability of the data for making comparisons between types of licensed premises, different regions and across time will be highly influenced by the completeness of the data set. A high level of completeness of the information maintained consistently over time is the ideal.

2.1 Completeness of data by region over time

Chart 1 shows the relative completeness of the data set when considering the details provided for the last place of drinking. There are two kinds of incomplete entry of interest here. Firstly, when no entry or an *unknown* is given and secondly when a licensed premise is specified but not named (Table A1 in the Appendix provides the raw figures.) The proportion of *unnamed* premises has been falling since 1994/95 to less than 5% of all licensed premises in 1999/00. By contrast, the size of the *unknown* category, while variable through time reached its second highest level in 1999/00 at 11%.



For the Metropolitan region *unnamed* licensed premises as a proportion of total licensed premises peaked in 1995/96 at around 12% of all records. However, *unknown* entries had a significantly larger proportion in 1996/97 and in 1999/00 the proportion at 6% is also greater than the 5% average for the preceding years.

The Central region has the largest proportion of *unknown* citations in 1999/00 (32%), though *unnamed* premises are the lowest for the complete study period. Except for 1996/97 *unknown* responses averaged fewer than 4% of the total prior to 1999/00.

In the Northern region *unknown* entries have been relatively steady at around 4% of the total prior to 1999/00 when it reached 30%. *Unnamed* licensed premises average around 100 per annum or 7% of the total. In 1999/00 *unnamed* licensed premises reached their lowest count in the series at 25 records or only 2% of the total.

In the Southern region *unknown* entries reached their highest count (16% of the total) in 1999/00 and aside from another high year in 1996/97 average around 2% throughout the study period. As with the Central and Northern regions however, *unnamed* premises reached their lowest count in 1999/00.

2.2 Completeness of data by premises and accident and non-accident cases

Table 1 shows the total number of all offences for the study period, 1991/92 through 1999/00, by the accident and non-accident and by location, whether licensed premise, an unlicensed location or “unknown”.

It can be seen that *unknown* records account for 5% overall (8% of accidents and almost 5% of non-accidents). Because non-accidents account for 91% of all offences these statistics will tend to dominate the total. About one fifth of all licensed premises are *unnamed*, which accounts for 8% and 9% of the total accident and non-accident offences respectively.

Table 1 Premises type by accident and non-accident sources, all data 1991/92 through 1999/00

Premises	Accident		Not accident		Total	
	Number	%	Number	%	Number	%
Licensed						
Named	3,137	29.5	39,792	35.0	42,929	34.5
Unnamed	883	8.3	10,630	9.3	11,513	9.3
<i>Total</i>	<i>4,020</i>	<i>37.9</i>	<i>50,422</i>	<i>44.3</i>	<i>54,442</i>	<i>43.8</i>
Unlicensed	5,739	54.1	57,975	51.0	63,714	51.2
Unknown	858	8.1	5,355	4.7	6,213	5.0
Total	10,617	100.0	113,752	100.0	124,369	100.0

3. Characteristics of offending

3.1 Trends in premises type by region over time

Charts 2 and 3 show the breakdown of offences at licensed and unlicensed places for 1991/92 and 1999/00 respectively. The complete data set and data for all years in the study period are provided in Table A2 in the Appendix.

In 1991/92 around 50% of offences are related to private residences or other unlicensed premises and places and 50% are from licensed premises. For licensed premises, hotels and taverns account for 78% and nightclubs for 10% of the total. Similar proportions of all offences are linked to unlicensed places in 1999/00 and for licensed premises' nightclubs now account for a larger percentage (17%), while hotels and taverns account for 68%. However, in 1999/00 the data collection deteriorated (see above) with a significant number (1,444 of 13,083 or 11%) of offences recording "unknown" for the last place of drinking. In 1991/92 this percentage was only 2% or 231 records. In 1999/00 these *unknowns* included a significant number of records that provided only a street or suburb name as the last place of drinking, with no indication of the kind of premises. A review of the preliminary 2000/01 data reveals that this deterioration in data appears to have continued.

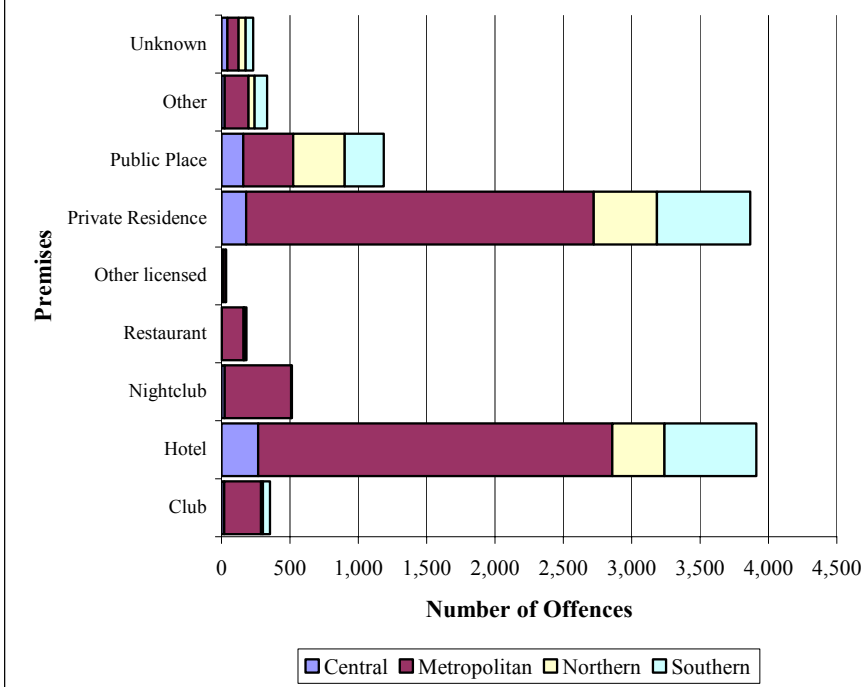
Over time there is a significant variation in the magnitude of offences at different premises and places (Table A2 in the Appendix). Comparing 1991/92 and 1999/00 the trend has been for an increase in private residence and nightclubs as premises cited as the last place of drinking. Hotels and public places show a decrease in 1999/00, though it is possible that the increased number of *unknowns* is accounting for some of this trend.

As can be seen in Chart 2 and 3, the Metropolitan region dominates the statistics, with the Southern region being the larger of the remaining regions. The non-metropolitan regions appear to have a reduced impact upon the offence pattern, but it is apparent that there is a more significant increase in the number of *unknowns* outside of the metropolitan area. It should also be noted that the "other" category in 1999/00 is likely to include some licensed premises that could not be identified due to the deterioration in the data collection.

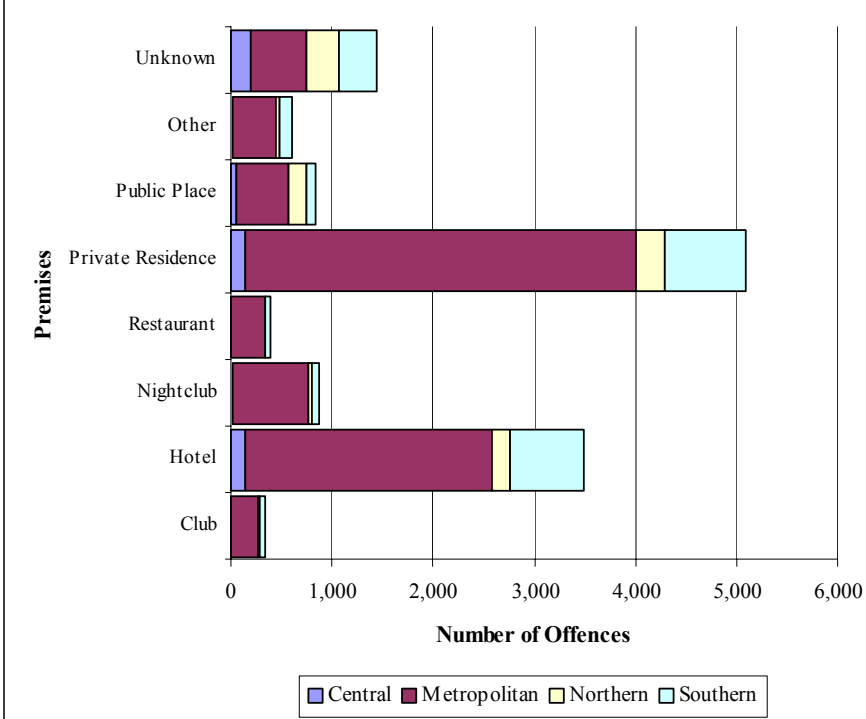
3.2 By time of day

The greatest percentage of offences occurs between 8pm and 2am. This time period accounts for 53% of accidents and 65% of non-accident offences. This pattern is also apparent when licensed premises versus other places are considered. For accidents, the 8pm to 2am period accounts for 55% of offences citing a licensed premise. For non-accidents this period accounts for 68%. The period between 8am and 4pm accounts for the lowest number of offences (6% overall) and significantly fewer cite a licensed premise. For this time period, 27% cite a licensed premises and 73% other places. Charts 4 and 5 illustrate these trends (see Table A3 in the Appendix for the raw data).

**Chart 2 Offences by premises type and police region
1991/92**



**Chart 3 Offences by premises type and police region
1999/00**



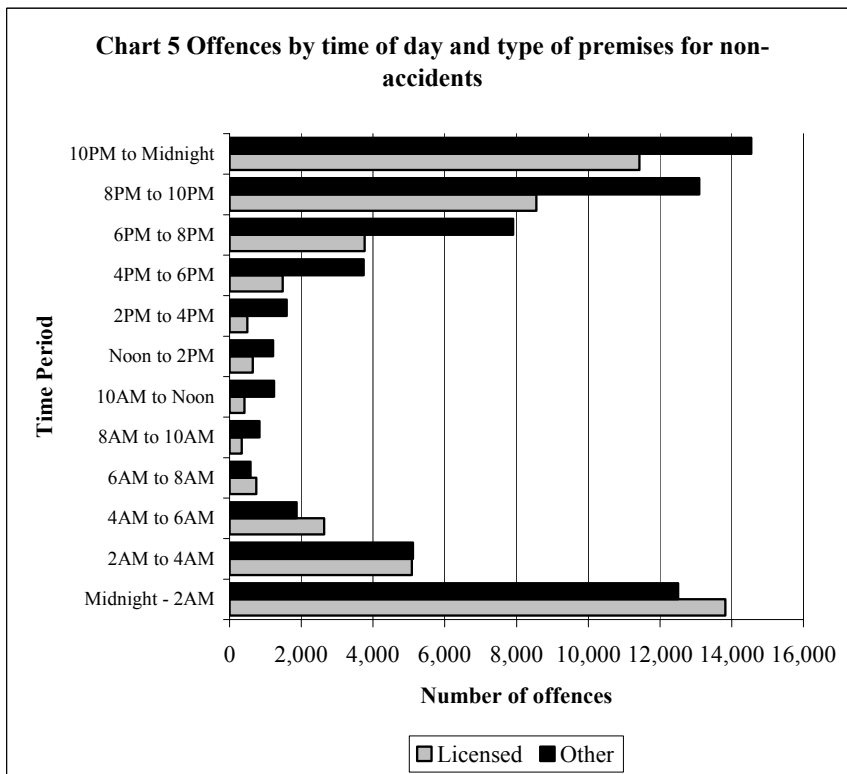
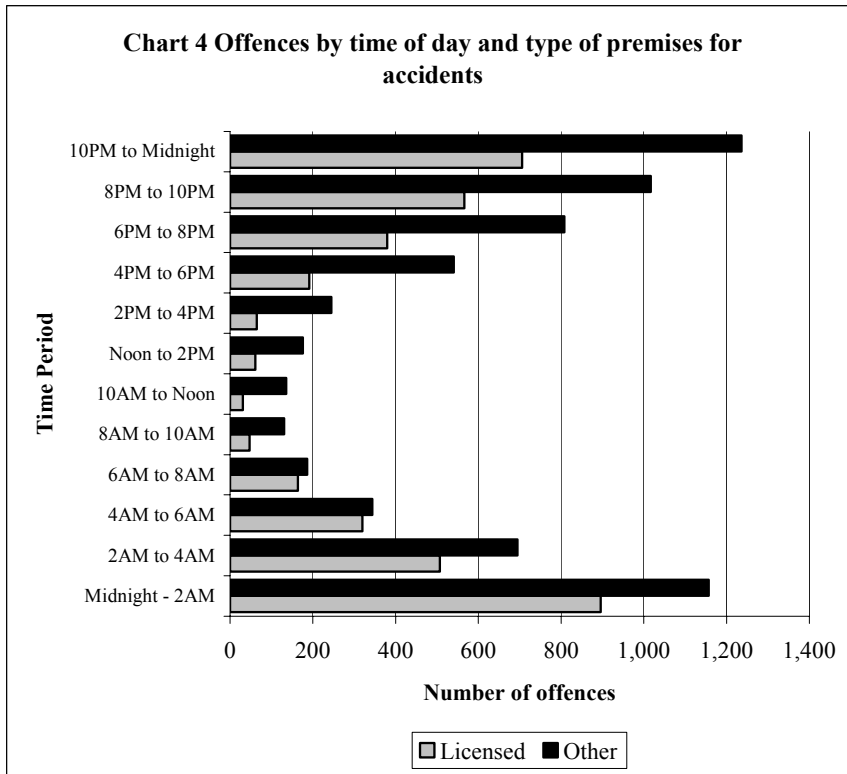


Chart 6 Offences by time of day by percentage: accident versus non-accident

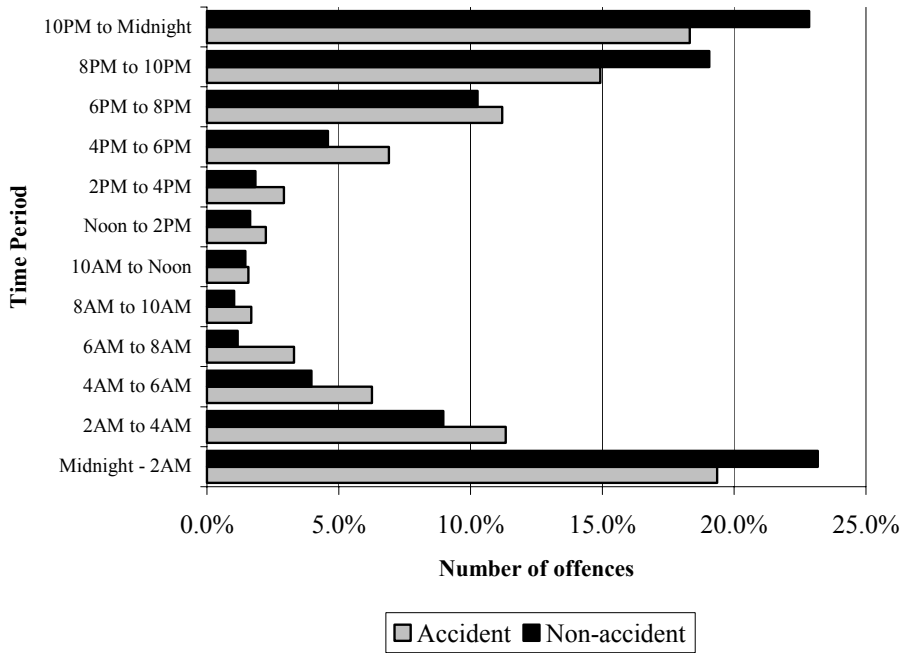
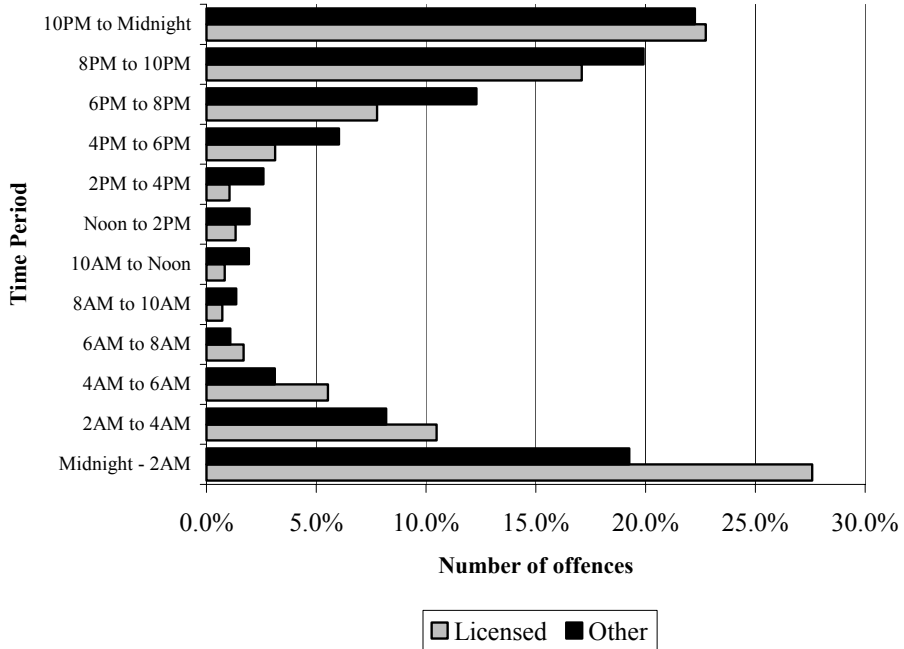


Chart 7 Offences by time of day by percentage: licensed versus other premises



3.3 Accident versus non-accident cases

A comparison of accident versus non-accident offences is useful because it allows for a consideration of the bias introduced naturally by law enforcement practices. Chart 6 shows the number of offences by percentage for each time period, comparing accident to non-accident.

In Chart 6 it is apparent that there is a small discrepancy between the hours when accidents are most likely to occur and when police are testing. Police presence appears to be over-represented from between 8pm and 2am, though this is time of the highest number of offences. The periods from 2am to 8am and from 2pm to 8pm, however, are times when police breath-testing activities might be increased. At these times the proportions of accident cases are higher than those of non-accident cases. However, overall there appears to be a very good match between the times at which enforcement activity was conducted and the times at which alcohol-related road crashes occurred.

3.4 Licensed versus unlicensed premises

Chart 7 shows that licensed premises account for more offences from 10pm to around 4am, whereas earlier in the evening, it is other premises (for the most part, private residences) that appear to be more likely to be linked to offences.

3.5 BAC levels in 1991/92 and 1999/00

Tables 2 and 3 show the pattern of blood alcohol concentration (BAC) tests in 1991/92 and 1999/00. The total of the tests is divided into the source of the test, that is, whether at an accident, a RBT or a patrol. The original data allows discrimination of these tests by indicating whether the test was conducted at an accident or RBT. If the test was at neither of these it has been assigned to the patrol category. Two points are important in interpreting these tables. Firstly, a change to the legal limit to 0.05 occurred in 1994 meaning that a comparison between Table 2 and 3 is valid only for the greater BAC levels. Secondly, BAC readings of between 0.02 and 0.05 are only relevant to probationary drivers.

Table 2 Overview of BAC occurrences by type of detection for 1991/92

Source	BAC				Total
	>=02	>=05	>=08	>=0.15	
Accident	20	48	383	476	927
Patrol	107	276	2,188	1,741	4,312
RBT	65	387	2,746	1,778	4,976
Total	192	711	5,317	3,995	10,215

Tables 2 and 3 show that while between 1991/92 and 1999/00 there has been a significant increase in the number of positive breath tests, the proportion of higher readings has decreased, particularly for offences involving a BAC of greater than 0.15. These almost halved from 39.1% of offences in 1991/2 to 20.7% in 1999/2000.

Table 3 Overview of BAC occurrences by type of detection for 1999/00

Source	BAC				Total
	>=02	>=05	>=08	>=0.15	
Accident	57	125	349	336	867
Patrol	98	340	969	595	2,002
RBT	977	2,936	4,043	1,652	9,608
Total	1,132	3,401	5,361	2,583	12,477

3.6 Drink-driving charges by region

Considering the complete study period (1991/92 through 1999/00) the greatest number of charges is for 0.08 and driving under the influence (DUI), defined as a BAC of greater than 0.15. Chart 8 shows the pattern of charges by the four police regions. In this chart, a small number of charges that were not allocated to a region have been ignored for clarity. About two thirds of all charges are made in the Metropolitan region. The Northern region clearly has the largest proportion of DUI offences (46% of all offences in the region). Overall, in 12% of cases, no charges were made and only 2% refused to be tested or asked for a blood test.

3.7 Hot spots and the “top 20” licensed premises

Map 1 shows the pattern of offences associated with each licensed premise in the metropolitan area for 1999/2000. Two nested proportional circles have been drawn against the location of each premise to illustrate the number of associated offences and accidents. It is apparent that a great number of offences and accidents arise from a small number of areas and a small number of premises. Similarly, a great majority of premises have very few or no associated offences. Note that because the data did not always identify premises and at times the specified premises were not clearly identified, the results for this section are restricted to totals for named premises only.

Table 4 shows the licensed premises (hotels, taverns, nightclubs, restaurants and clubs) that have recorded the greatest number of citations as the last place of drinking for 1999/00, however, with disguised names. Though these are absolute numbers and do not include adjustment for the number of patrons or the amount of alcohol consumed, the number of offences appears to be a valid means of measuring problem premises. This is particularly so given the average number of citations for licensed premise in the data is 4.5 and the great majority of premises appear only once, compared to the range of 25 to 95 offences for the “Top 20”. Most of the 20 premises are concentrated in only a few Perth suburbs, as was noted in regard to Map 1, namely: Burswood, Northbridge, Fremantle, Scarborough, Cottesloe and Sorrento/Hillarys. Map 2 shows the location of these “top 20” premises within the metropolitan area. (The map excludes one premise that is located in Kalgoorlie.)

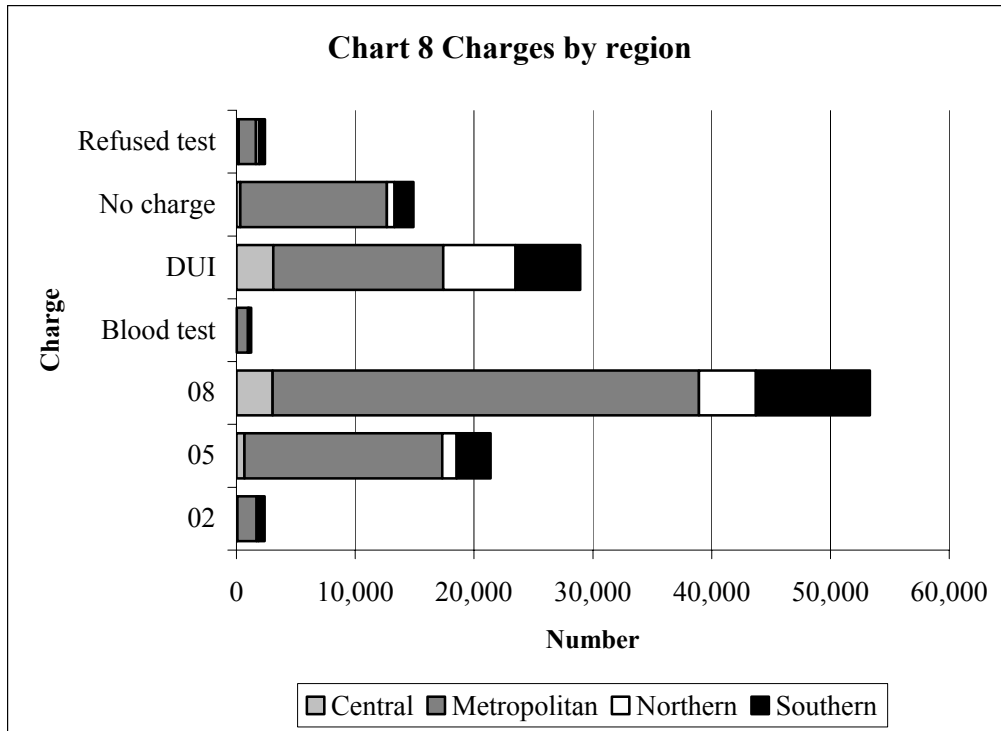


Table 4 “Top 20” licensed premises cited as last place of drinking by offenders, 1999/00. Confidential premises names have been removed.

Premises	RBT and patrols (DUI)	Accidents	Total
AAA (Leederville)	92 (12)	3	95
BBB (Burswood)	88 (15)	5	93
CCC (Fremantle)	90 (11)	3	93
DDD (Scarborough)	74 (5)	1	75
EEE (Sorrento)	64 (5)	4	68
FFF (Northbridge)	60 (12)	5	65
GGG (Hillarys)	63 (9)	1	64
HHH (Scarborough)	58 (5)	2	60
III (Cottesloe)	44 (7)	1	45
JJJ (Subiaco)	42 (4)	2	44
KKK (Leederville)	43 (3)	0	43
LLL (Fremantle)	39 (1)	2	41
MMM (Cottesloe)	38 (1)	1	39
NNN (Victoria Park)	27 (3)	5	32
OOO (Perth City)	28 (4)	3	31
PPP (Northbridge)	28 (4)	3	31
QQQ (Kalgoorlie)	29 (11)	1	30
RRR (Fremantle)	27 (4)	2	29
SSS (Cannington)	24 (2)	2	26
TTT (Northbridge)	23 (1)	2	25

Similarly, it is apparent from the addresses of the premises in Table 4 that a number of premises are not only in the same suburb but are located very close to each other. There are two premises in Table 4 that are within the same building complex, and a number that are located close to each other in an entertainment district. For the purpose of this study however, premises have been listed according to a distinct license number.

Table 5 shows the “Top 20” for 2000/01 based upon preliminary data and shows a similar pattern. A strict comparison between these two years is not possible because of the preliminary nature of the 2000/01 data and the higher number of unknowns in this data set.

Chart 9 illustrates how a relatively small percentage of premises account for a significant proportion of offences in 1999/2000. 37% of all offences are accounted for by only 5% of premises. In fact, almost 52% of offences are accounted for by only 10% of premises.

Table 5 “Top 20” licensed premises cited as last place of drinking by offenders, 2000/01 (Preliminary). Confidential premises names have been removed.

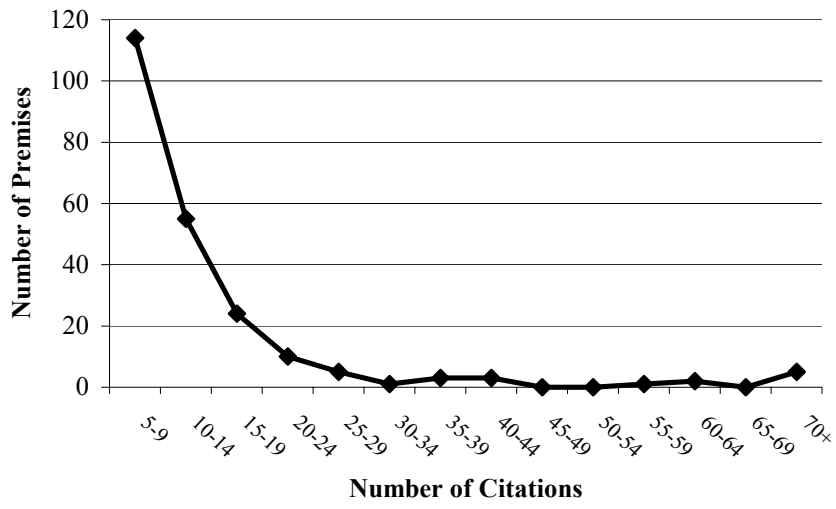
Premises	RBT and patrols (DUI)	Accidents	Total
BBB (Burswood)	76 (11)	4	80
III (Cottesloe)	67 (5)	3	70
DDD (Scarborough)	70 (8)	0	70
HHH (Scarborough)	53 (3)	0	53
CCC (Fremantle)	40 (6)	4	44
AAA (Leederville)	36 (3)	6	42
JJJ (Subiaco)	38 (0)	2	40
GGG (Hillarys)	36 (7)	2	38
UUU (Ascot)	35 (0)	0	35
VVV (South Perth)	32 (5)	1	33
FFF (Northbridge)	27 (3)	4	31
KKK (Leederville)	27 (3)	3	30
MMM (Cottesloe)	27 (0)	1	28
PPP (Northbridge)	25 (2)	3	28
WWW (Joondalup)	27 (0)	0	27
XXX (Northbridge)	24 (1)	2	26
YYY (Fremantle)	25 (3)	1	26
EEE (Sorrento)	20 (4)	3	23
ZZZ (Northbridge)	23 (2)	0	23
QQQ (Kalgoorlie)	18 (3)	3	21

3.8 Distances traveled

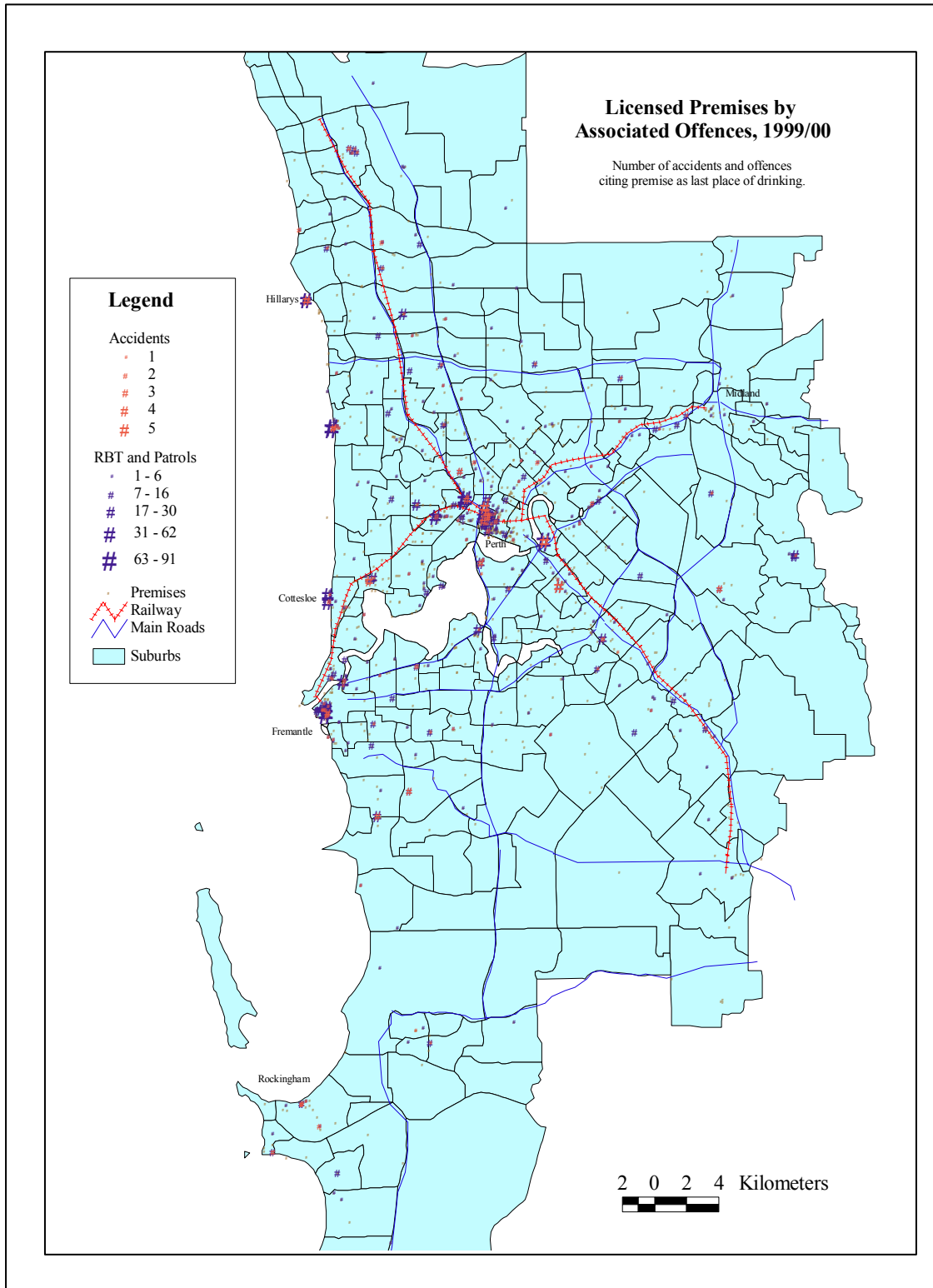
Maps 3 and 4 illustrate the distances travelled by offenders from all premises in Sorrento/Hillarys and Northbridge, respectively, to the suburb where police intervention occurred. These maps are provided as an illustration of the travel pattern from a suburban and central entertainment area. The median distances travelled before an accident was 6km for Sorrento/Hillarys but only 2.4km from Northbridge. The small number of accidents recorded out of Sorrento/Hillarys does put some doubt on the reliability of this figure; however, it does appear that distances travelled are more likely to be shorter from Northbridge. This may reflect the law enforcement targeting of Northbridge and in the case of accidents the likelihood of more traffic on the roads closer to the city centre.

Chart 9 Number of citations by number of offences

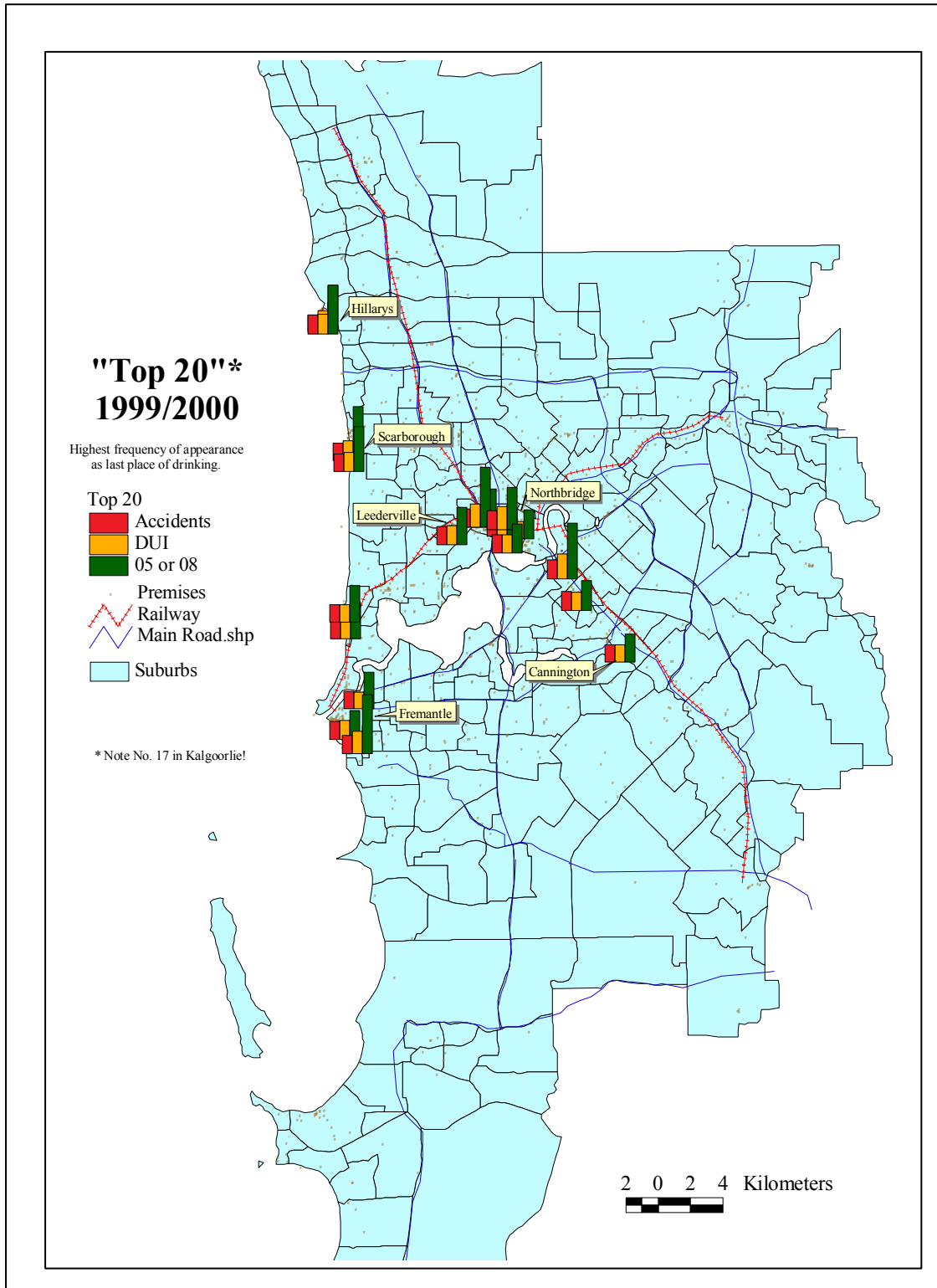
Excludes premises with less than 5 citations.



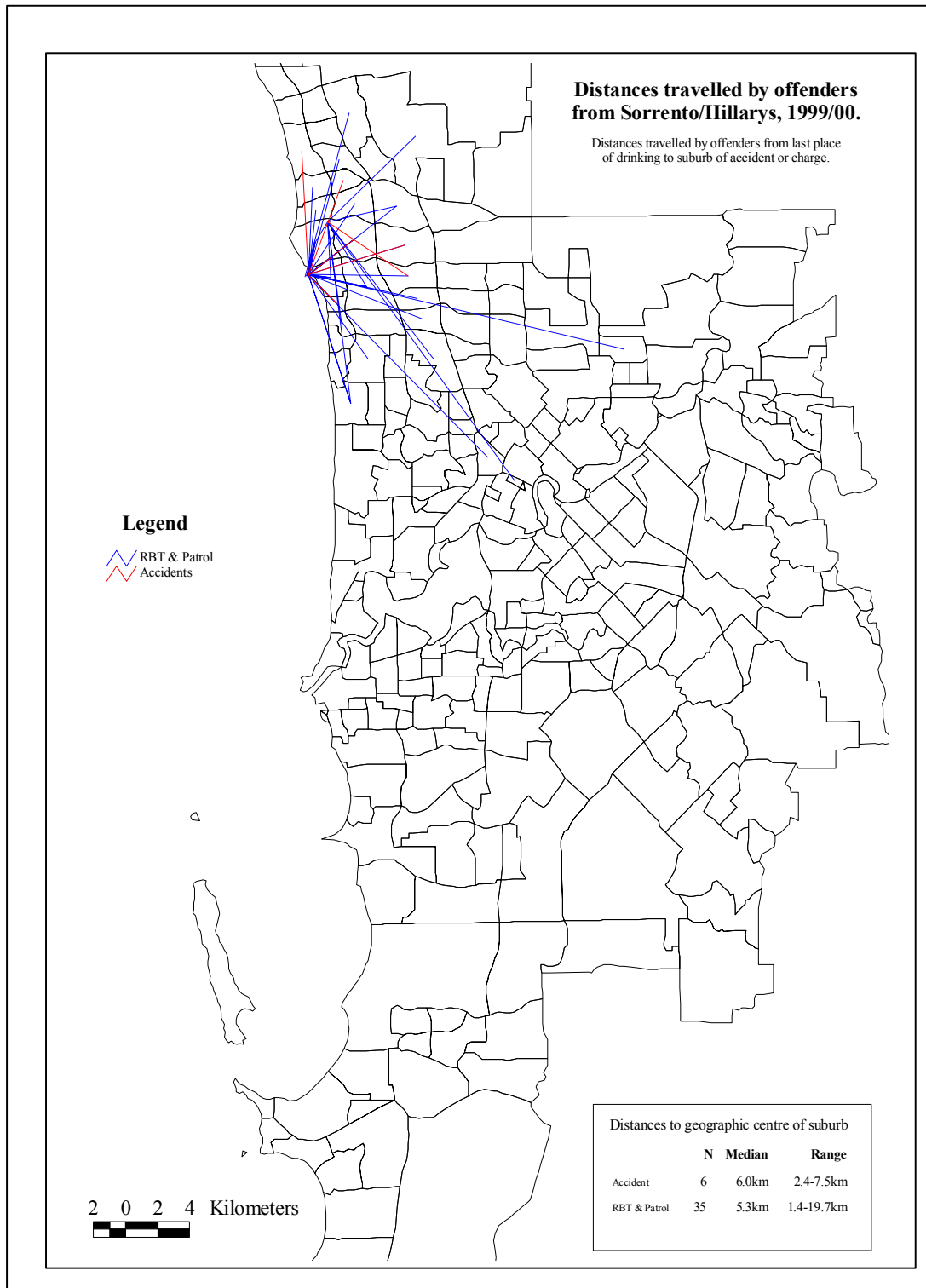
Map 1 Licensed premises by associated offences, 1999/2000.



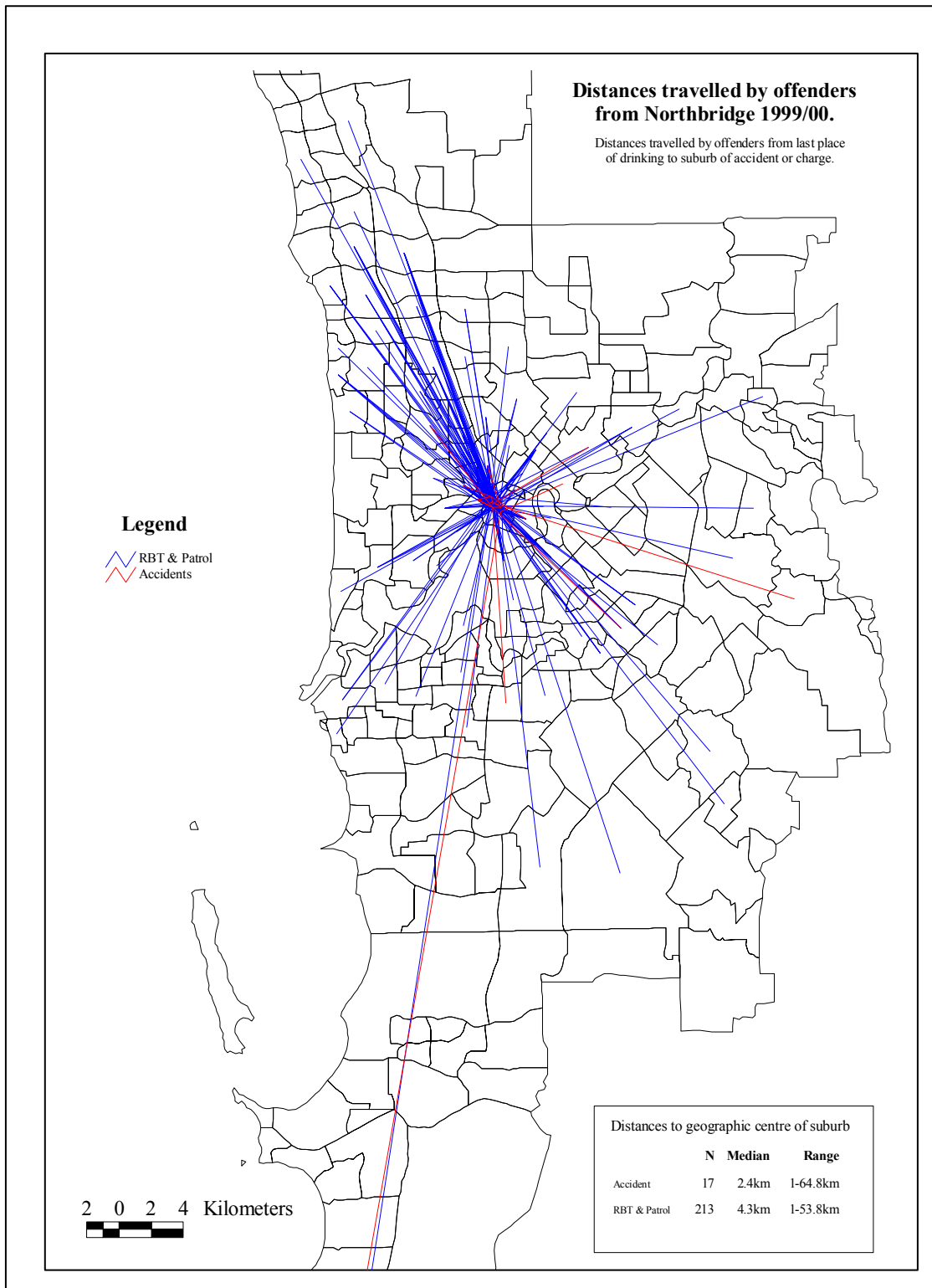
Map 2 The "Top 20" Licensed premises in terms of associated offences, 1999/2000.



Map 3 Distances travelled by offenders from Sorrento/Hillarys, 1999/2000.



Map 4 Distances travelled by offenders from Northbridge, 1999/2000.



4. Conclusion and recommendations

This analysis has shown that in general the data provided by the police is complete enough in order to be used for analysis and policy making. However, in terms of identifying particular premises and in reducing “unknowns”, data collection would need to be improved in future years. This is particularly apparent in viewing the 1999/2000 data, which has shown a significant deterioration in quality.

It is apparent that over 50% of offences linked to a licensed premise are related to only 10% of all of the licensed premises. Conversely the greatest majority of premises are likely to only register once or twice in the offences recorded. Of the licensed premises identified several of those that have the greatest tally of appearances in the data tend to occur in the same suburbs within the metropolitan area and even within a suburb, very close to each other.

The greatest percentage of offences occurs between 8pm and 2am, while the 8am to 4pm period accounts for the only 6% of all offences. Accidents and non-accidents tend to show a similar pattern over time of day by percentage, though non-accident offences are somewhat more concentrated between 8pm and 2am. Accidents tend to show greater percentages during daytime and also early evening. The period between 4pm and 8pm appears to be slightly under-represented in data on police breath testing activities. Overall, though there is a very strong relationship between the times of day at which non-accident breath-testing occurs at the risk of an alcohol-related crash occurring suggesting the activity is well targeted.

In 1999/2000 offences were fairly evenly split between private residences and licensed premises and a similar pattern existed in 1991/92, though during the intervening years this pattern has been more variable. A significant change is apparent for nightclubs, which by 1999/2000 accounted for 17% of all citations of licensed premises, up from 10% in 1991/92.

It is anticipated that these preliminary results might provide the foundation for future analysis for creating policies for more effective policing and enforcement strategies. In particular it is recommended that:

1. Data on last place of drinking of drink-driving offenders be recognised within the Western Australian Police and the Office of Racing, Gaming and Liquor as valuable inputs to more effective enforcement of both liquor licensing and drink-driving laws.
2. Steps are taken to improve the completeness of these data, in particular in relation to naming specific licensed premises. These steps should include a supporting statement to all operational level police and automatic prompting at the point of computer data entry. These improvements along with management support had already begun before NDRI began this project. NDRI will assist the continuation of this improvement program.
3. Comparisons of accident and non-accident data are made on a regular basis within the WAPS in order to help examine the extent to which random breath testing is appropriately targeted in terms of time of day, day of week and the targeting of licensed premises. Of particular interest is comparison by time of day, by time of day by day of week and by seasonal periods. Ideally this analysis would be conducted both routinely and on request.
4. Information systems to exchange these data between WAPS, OGRL and the Health are established so that accurate and timely information is exchanged on a regular basis. While periodic reports are a priority, a high priority is the ability to identify information on premises or areas of interest on an ad hoc basis.

5. Such information systems are probably best located within the WAPS with regular reports provided to health and liquor licensing.
6. Recognising that a small number of venues contribute the majority of drink-driving offenders last drinking on licensed premises, strategies should be adopted to target these high risk premises.

5. References

- Brinkman, S., Penna, F., Stockwell, T., O'Ferrall, I. and McDonald, C. (2000) The WA Liquor Licensing Demonstration Project. National Drug Research Institute and Alcohol Advisory Council of WA, Perth, WA.
- Cairns, I., Thiele, R. & van Niel, G. (2000) *LPIS: Licensed Premises Information System to identify licensed premises that are major source of impaired driving as well as other impaired driving trends*, Traffic Alcohol Section, Victoria Police, Melbourne: Internal Report.
- Gruenewald, P., Stockwell, T., Beel, A. and Dyskin, E. (1999) Beverage sales and drinking and driving: the role of on-premise drinking places. *Journal of Studies on Alcohol*, 60, 1, 47-53.
- Lang, E. and Stockwell, T. (1991) Drinking locations of drink drivers : an analysis of accident and non-accident cases. *Accident Analysis and Prevention*, 23, 6, 573-584.
- Lang, E., Stockwell, T., Rydon, P. and Beel, A. (1998) Can training barstaff in responsible serving practices reduce alcohol-related harm? *Drug and Alcohol Review*, 17, 1 39-50
- Stockwell, T., Somerford, P. and Lang, E. (1991) The measurement of harmful outcomes following drinking on licensed premises. *Drug and Alcohol Review*, 10, 99-106.
- Stockwell, T., Rydon, P., Gianatti, S., Jenkins, E., Ovenden, C. and Syed, D. (1992) Levels of drunkenness of customers leaving licensed premises in Perth, Western Australia : A comparison of high and low 'risk' premises. *British Journal of Addiction*, 87, 873-881.
- Stockwell, T., Masters, L., Philips, M., Daly, A., Gahegan, M., Midford, R. & Philp, A. (1995) *The Measurement of alcohol problems for policy (MAPP): a first report of research in progress*. Curtin University of Technology, Perth, Western Australia.
- Stockwell, T. (1997) Regulation of the licensed drinking environment: a major opportunity for crime prevention. *Crime Prevention Studies*, 7.

6. Appendix

Table A1 Completeness of data on premises name by year and police region.

Central									
Premises	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Licensed									
Named	295	209	259	501	488	258	218	210	165
Unnamed	30	42	43	106	108	56	52	89	12
<i>Total</i>	<i>325</i>	<i>251</i>	<i>302</i>	<i>607</i>	<i>596</i>	<i>314</i>	<i>270</i>	<i>299</i>	<i>177</i>
Unlicensed	361	321	432	809	662	264	345	412	221
Unknown	43	18	17	39	29	112	25	41	189
Total	729	590	751	1,455	1,287	690	640	752	587

Metropolitan									
Premises	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Licensed									
Named	3,233	2,664	3,869	3,682	3,786	3,672	3,537	2,948	3,284
Unnamed	290	631	907	1,321	1,376	1,333	1,123	697	492
<i>Total</i>	<i>3,523</i>	<i>3,295</i>	<i>4,776</i>	<i>5,003</i>	<i>5,162</i>	<i>5,005</i>	<i>4,660</i>	<i>3,645</i>	<i>3,776</i>
Unlicensed	3,081	2,807	4,195	4,629	5,714	4,552	5,615	5,095	4,794
Unknown	83	42	125	746	163	1,527	312	220	559
Total	6,687	6,144	9,096	10,378	11,039	11,084	10,587	8,960	9,129

Northern									
Premises	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Licensed									
Named	326	344	409	506	368	316	340	319	210
Unnamed	73	66	130	126	124	126	102	113	25
<i>Total</i>	<i>399</i>	<i>410</i>	<i>539</i>	<i>632</i>	<i>492</i>	<i>442</i>	<i>442</i>	<i>432</i>	<i>235</i>
Unlicensed	883	942	1,017	1,142	921	785	815	857	516
Unknown	50	19	33	29	19	187	43	42	326
Total	1,332	1,371	1,589	1,803	1,432	1,414	1,300	1,331	1,077

Southern									
Premises	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Licensed									
Named	559	546	631	971	939	666	788	855	803
Unnamed	188	211	310	218	239	211	193	157	102
<i>Total</i>	<i>747</i>	<i>757</i>	<i>941</i>	<i>1,189</i>	<i>1,178</i>	<i>877</i>	<i>981</i>	<i>1,012</i>	<i>905</i>
Unlicensed	1,062	1,051	1,240	1,337	1,300	1,008	1,413	1,609	1,015
Unknown	55	34	45	29	37	325	67	61	370
Total	1,864	1,842	2,226	2,555	2,515	2,210	2,461	2,682	2,290

Table A2 Offences by year, region and premises type

1991/92												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	20	268	24	2	11	325	180	158	23	361	43	729
Metropolitan	269	2,591	484	160	19	3,523	2,542	365	174	3,081	83	6,687
Northern	14	381	0	4	0	399	462	377	44	883	50	1,332
Southern	51	670	6	17	3	747	683	287	92	1,062	55	1,864
Total	354	3,910	514	183	33	4,994	3,867	1,187	333	5,387	231	10,612

1992/93												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	13	214	12	2	10	251	147	150	24	321	18	590
Metropolitan	266	2,425	462	115	27	3,295	2,309	296	202	2,807	42	6,144
Northern	25	359	7	16	3	410	489	421	32	942	19	1,371
Southern	42	672	19	23	1	757	638	302	111	1,051	34	1,842
Total	346	3,670	500	156	41	4,713	3,583	1,169	369	5,121	113	9,947

1993/94												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	19	265	17	1	0	302	227	164	41	432	17	751
Metropolitan	362	3,403	743	251	17	4,776	3,399	524	272	4,195	125	9,096
Northern	41	486	2	10	0	539	588	392	37	1,017	33	1,589
Southern	73	803	39	21	5	941	779	300	161	1,240	45	2,226
Total	495	4,957	801	283	22	6,558	4,993	1,380	511	6,884	220	13,662

1994/95												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	25	559	18	5	0	607	405	264	140	809	39	1,455
Metropolitan	339	3,589	784	275	16	5,003	3,420	767	442	4,629	746	10,378
Northern	24	579	14	15	0	632	629	429	84	1,142	29	1,803
Southern	70	1,045	54	19	1	1,189	942	289	106	1,337	29	2,555
Total	458	5,772	870	314	17	7,431	5,396	1,749	772	7,917	843	16,191

1995/96												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	23	473	96	4	0	596	348	234	80	662	29	1,287
Metropolitan	374	3,295	1,054	392	47	5,162	4,413	771	530	5,714	163	11,039
Northern	49	424	7	12	0	492	489	367	65	921	19	1,432
Southern	73	1,034	45	22	4	1,178	923	263	114	1,300	37	2,515
Total	519	5,226	1,202	430	51	7,428	6,173	1,635	789	8,597	248	16,273

1996/97												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	11	275	21	2	5	314	112	117	35	264	112	690
Metropolitan	311	3,437	1,017	234	6	5,005	3,341	704	507	4,552	1,527	11,084
Northern	27	386	14	11	4	442	424	309	52	785	187	1,414
Southern	50	758	54	14	1	877	691	208	109	1,008	325	2,210
Total	399	4,856	1,106	261	16	6,638	4,568	1,338	703	6,609	2,151	15,398

1997/98												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	6	239	21	3	1	270	177	132	36	345	25	640
Metropolitan	290	2,895	927	533	15	4,660	4,019	906	690	5,615	312	10,587
Northern	34	364	24	5	15	442	395	361	59	815	43	1,300
Southern	84	780	91	24	2	981	998	282	133	1,413	67	2,461
Total	414	4,278	1,063	565	33	6,353	5,589	1,681	918	8,188	447	14,988

1998/99												
Region	Licensed						Unlicensed				Unknown	Total
	Club	Hotel	Nightclub	Restaurant	Other	Total	Private Residence	Public Place	Other	Total		
Central	10	267	18	3	1	299	245	114	53	412	41	752
Metropolitan	301	2,183	788	364	9	3,645	3,843	825	427	5,095	220	8,960
Northern	41	334	46	5	6	432	422	379	56	857	42	1,331
Southern	78	838	79	17	0	1,012	1,135	339	135	1,609	61	2,682
Total	430	3,622	931	389	16	5,388	5,645	1,657	671	7,973	364	13,725

1999/00												
Region	Licensed						Unlicensed				Unknown**	Total
	Club	Hotel	Nightclub	Restaurant	Other*	Total	Private Residence	Public Place	Other	Total		
Central	7	151	19	0	0	177	143	52	26	221	189	587
Metropolitan	257	2,429	753	337	0	3,776	3,859	514	421	4,794	559	9,129
Northern	13	185	30	7	0	235	288	186	42	516	326	1,077
Southern	65	721	76	43	0	905	807	85	123	1,015	370	2,290
Total	342	3,486	878	387	0	5,093	5,097	837	612	6,546	1,444	13,083

*For 99/00 it was not possible to correctly identify licensed "other". It is likely that these cases have been counted in unlicensed other.

**Unknown includes a significant number of records that gave a street or suburb name only for last place of drinking.

Table A3 Accident and non-accident offences by time of day and licensed or other premise for complete data series 1991/92 through 1999/00.

Time Period	Accident			Not accident			Total		
	Licensed	Other	Total	Licensed	Other	Total	Licensed	Other	Total
Midnight - 2am	896	1,157	2,053	13,821	12,505	26,326	14,717	13,662	28,379
2am to 4am	507	695	1,202	5,081	5,111	10,192	5,588	5,806	11,394
4am to 6am	320	344	664	2,635	1,870	4,505	2,955	2,214	5,169
6am to 8am	164	186	350	742	585	1,327	906	771	1,677
8am to 10am	47	131	178	338	836	1,174	385	967	1,352
10am to Noon	31	136	167	416	1,238	1,654	447	1,374	1,821
Noon to 2pm	61	176	237	647	1,215	1,862	708	1,391	2,099
2pm to 4pm	65	245	310	495	1,598	2,093	560	1,843	2,403
4pm to 6pm	191	541	732	1,481	3,739	5,220	1,672	4,280	5,952
6pm to 8pm	380	808	1,188	3,760	7,910	11,670	4,140	8,718	12,858
8pm to 10pm	566	1,017	1,583	8,552	13,096	21,648	9,118	14,113	23,231
10pm to Midnight	706	1,236	1,942	11,425	14,540	25,965	12,131	15,776	27,907
Total	3,934	6,672	10,606	49,393	64,243	113,636	53,327	70,915	124,242