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**ALCOHOL RELATED CRIME IN
CITY OF SYDNEY
LOCAL GOVERNMENT AREA**

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ALCOHOL-RELATED CRIME IN CITY OF SYDNEY LOCAL GOVERNMENT AREA

A REPORT FOR THE CITY OF SYDNEY COUNCIL

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ABBREVIATIONS

AIHW	Australian Institute of Health and Welfare
BAL	Blood Alcohol Level
BOCSAR	NSW Bureau of Crime Statistics and Research
ETP	Extended Trading Permits
LEC	Land and Environment Court
LGA	Local Government Area
MCDS	Ministerial Council on Drug Strategy
NDARC	National Drug and Alcohol Research Centre
NSW	New South Wales
RBT	Random Breath Testing
RSA	Responsible Service of Alcohol
SPA	Special Policy Area

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EXECUTIVE SUMMARY

Background

The City of Sydney commissioned research by the National Drug and Alcohol Research Centre (NDARC) to demonstrate the ‘cumulative impacts’ of increasing the amount of late night trading premises in areas where there is a relatively high density of existing late night trading premises. The research is one component of the City’s response to a decision by the Land and Environment Court (LEC) to uphold an appeal against the City’s refusal of a development application for a late trading licensed restaurant and cocktail bar in Kings Cross. The Court argued that the concepts of ‘cumulative impacts’ and a ‘saturation point’ are quantifiable and should be demonstrated.

It is crucial that this research be read with a sound understanding of the distinction between ‘cumulative impacts’ and ‘saturation point’. A saturation point is not a data-based concept. Unlike an empirically-driven approach to quantifying the relationship between alcohol availability and harms, a saturation, or tipping, point is a matter of majority community opinion. In order to help determine community opinion, the City commissioned a social survey in both Kings Cross and Darlinghurst. The results of the survey are presented in the June 2008 report titled *Late Night Trading: Community Perceptions*. The primary finding of this community survey was that a majority of randomly selected respondents stated that they would prefer less pubs and nightclubs operating within the confines of their precincts (including Kings Cross and Darlinghurst), which suggests a community saturation point for pubs and nightclubs has been reached.

Cumulative impacts, conversely, can be empirically quantified. Unacceptable cumulative impacts are defined as “the concentration of many licensed premises in a defined area and the associated impacts of crime, public disorder and nuisance that are above acceptable levels, and beyond the proper control and management of licensees, police, the local authority and other agencies”. By quantifying the associated impact, and measuring them in such a way that allows methodologically rigorous comparisons, both over time and between different defined communities, conclusions as to the cumulative impact in a defined area, and how the impact varies as the number, density and type of night trading premises vary, can be posited. The

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primary purpose of this report, therefore, is to begin to quantify the impact of alcohol-related crime on the Kings Cross and Darlinghurst areas.

The specific aims of this report are to:

1. quantify the cumulative impacts of alcohol-related crime in defined areas of the City of Sydney LGA;
2. identify evidence-based strategies that local governments might reasonably implement to reduce the impact of alcohol-related harm on their communities.

Late night trading in the City of Sydney

While late night trading premises potentially have negative impacts on the amenity of residential and other sensitive land uses, it is equally important to recognise that night trading premises play an important role in providing for the diverse social, cultural and economic needs of the community. Late night trading premises such as cafes, restaurants and clubs can have a central role as places for social engagement or as places that provide opportunities for performing arts and other cultural activities. A key role of local government is helping to maintain an appropriate balance between the positive and negative impacts of late night trading premises.

Principal findings of the report

The literature review

This report examines existing research relating to ‘cumulative impacts’ of late night trading premises on alcohol related harm in the community.

The principal findings of the literature review include:

- There is a documented link to criminal and anti-social behaviour associated with the operation of night premises where alcohol is consumed.
- The greater the *density* of night trading premises in a defined area, the greater the number of incidences of alcohol related harm, especially in areas of close geographical proximity to night trading premises. This has been demonstrated in the City of Sydney Local Government Area (LGA) where a strong positive relationship exists between higher density of licensed premises and higher rates of assault.
- International studies show bars are more strongly associated with alcohol-related harm, including assaults, than other types of licensed premises, such as restaurants. This has

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- been further refined in Australian studies that show nightclubs, hotels and taverns are more strongly associated with alcohol-related harms than restaurants and registered clubs.
- The majority of alcohol related harm occurs in outdoor areas (not in the licensed premises themselves) and that the majority of alcohol-related harm is associated with a minority of premises.
 - The majority of premises most associated with alcohol related harm have a 24 hour licence.
 - A study conducted in Perth shows that compared to hotels with no change to their trading hours, hotels granted extended trading hours were associated with a 70% increase in the level of monthly assaults, between 1991 and 1995. There was also a dramatic increase in the wholesale purchase of alcohol by hotels with extended trading hours compared to a modest increase for hotels without extended hours.

The role of local government

In public health terms, the three biggest drivers of levels of alcohol harm have been identified as price, advertising and availability, specifically, the cheaper alcohol is, the more available it is and the less regulated its advertising is, the greater the harms. This report comments on which strategies are likely to be most reasonably available to local governments in their efforts to reduce alcohol harm in their community.

It is also important to recognise the limitations of local government, perhaps most appropriately evidenced by the abovementioned LEC finding that over-ruled a Council decision to refuse a development application. Other examples include the limited input the City has in determining the quantity of policing available and limited control on state and/or federal measures to reduce alcohol related harm through pricing and taxation policies, such as those recently introduced to increase the price of ‘alcopops’. Where action is taken in conjunction with state authorities, such as the NSW Police and the Office of Liquor, Gaming and Racing (OLGR), federal authorities and appropriate community groups, there is a more reasonable expectation of cost-effective strategies being successfully implemented.

The principal findings relating to strategies to reduce alcohol related harm (be they initiated by local authorities, State or Federal Government, or at the grass-roots level) include:

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- Those strategies that have the most evidence for their success and are most available to local government are likely to be those aimed at reducing the supply, or availability, of alcohol (rather than manipulating price or advertising). Local governments and licensing authorities are able to influence availability of alcohol by limiting the density of alcohol outlets, managing the mix of different types of alcohol outlets in a defined area and restricting the trading hours of licensed premises.
- Education and public information campaigns tend to be popular within the community but there is no compelling evidence that, by themselves, they reduce alcohol-related harm.
- The value of Responsible Service of Alcohol (RSA) legislation relies on the willingness or capacity of relevant authorities (licensing officers and local police) to enforce it.
- Patron bans are unlikely to impact substantially on overall levels of alcohol-related harm.
- Although a relatively new concept in Australia, there is the possibility of strengthening laws that hold the serving establishment partly liable for damage or harm caused by a customer who is underage or drunk.
- Community-based approaches are theoretically sound and appear to be worth implementing, provided they are rigorously evaluated.
- In relation to advertising, the example of tobacco provides strong evidence that enforceable restrictions on alcohol advertising are possible to implement and would likely make a significant contribution to reducing, and maintaining reduced, rates of alcohol-related harm.

The strategies can, and should, be clearly identified to the community, along with mechanisms to facilitate community participation in the decision making process about which strategies ought to be implemented.

The case studies

Two case studies highlighting how other areas have attempted to reduce the cumulative impact of alcohol are considered. The first case study was of Ealing, United Kingdom. The London Borough of Ealing is located in West London and is London's third largest borough with 310,000 residents and 13,000 businesses. The compiled evidence showed that areas within Ealing with a greater number of alcohol outlets and/or greater densities of alcohol outlets, were associated with higher rates of alcohol-related harm.

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The second case study focused on Shoreditch, United Kingdom, where an evidence-based review examined the effects of the ‘special policy’ introduced in this area in 2004. The review showed an apparent lack of effectiveness of the ‘special policy’ project. The case study of Shoreditch offers a valuable lesson to the City as it clearly demonstrates that advocating strategies that are easier to implement, but do not have evidence for their cost-effectiveness, are unlikely to achieve significant reductions in alcohol-related harm. Specifically, locally implemented strategies that do not address factors associated with increased alcohol availability (number, density, types, trading hours of licensed premises) are unlikely to be effective.

Data analysis

Further work is required to establish how to measure changes in alcohol use and problems over time, or between different defined populations, in a methodologically rigorous way. This would facilitate the quantification and demonstration of the cumulative impacts of alcohol and would allow optimally valid comparative analyses. This is effectively the task set out by the ruling of the LEC. The primary purpose of this research is to begin this process.

The principal findings of the data analysis include:

- Kings Cross has statistically significantly more alcohol-related harm than Darlington and alcohol-related crime in both areas increased substantially from 2001-2006 (about 40% in Kings Cross and 20% in Darlington).
- In attempting to explain high rates of alcohol-related harm in different local areas, it is critical to identify that these are most likely linked to the specific combination of factors associated with higher rates of harm in each area, as identified in the literature: the number of alcohol outlets, their density, their type and their trading hours. For example, the higher rates of alcohol-related harm in Kings Cross, relative to Darlington, most likely reflects its higher proportion of late night trading venues (86% of hotels/clubs vs 60%), while the increase in alcohol-related harm in Darlington over time most likely reflects its increase in alcohol outlets (37% increase in 2001-2006). The crucial point here is that levels of alcohol-related harm in each local area reflect the different combinations of explanatory factors in each area, so that cost-effective interventions need to be tailored to each defined precinct.
- Within the LGA, Glebe has the lowest rate of alcohol-related crime (and easily the lowest proportion of 24 hour and late night venues at 17%); Pyrmont has the highest rate of

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alcohol-related crime (and substantial increases in the raw number of licensed premises and population growth).

- Outside the LGA, Manly and Coogee both have higher rates of alcohol-related harm, while Bondi is comparable, relative to both Kings Cross and Darlinghurst. While Manly and Coogee both have lower rates of licensed premises per 1,000 population than either Kings Cross or Darlinghurst, they have hotels that are consistently associated with high rates of alcohol-related harm, reflecting evidence that a small number of hotels are often associated with a large proportion of harm.

Late Night Trading: Community Perceptions – Social Survey

Complementary to this report is the analysis of the 2008 social survey conducted in the areas of Oxford St and Kings Cross, titled *Late Night Trading: Community Perceptions*. The major findings of the social survey, as they relate to this report, are as follows:

- The majority of survey participants (about 60%) believed that the areas of Oxford Street and Kings Cross had become worse, and this was particularly true of residents who had lived in one of these local areas for at least three years. This suggests that community perceptions highlighted in the social survey are consistent with the data in this report: the data show an increase in alcohol-related crime over time, which is reflected in the majority of community opinion.
- There was community support for determining and enforcing a ceiling in the number of liquor outlets. This suggests community sentiment is in line with the research evidence: restricting alcohol outlets is both likely to result in a reduction in harm (research evidence) and is acceptable to the community (social survey).
- There is community support for more stringent enforcement of laws regarding Responsible Service of Alcohol (RSA), as well as for stronger police presence to discourage anti-social behaviour. Again this reflects research evidence that RSA is only likely to be effective if there is the capacity to enforce and monitor RSA laws. Although this likely places a burden on police, there may be mechanisms to allow greater enforcement of RSA by strategically targeting those times likely to be most problematic in terms of alcohol-related harm.

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Conclusions

It is recognised that there are clear economic, social and cultural benefits to late night trading premises. People that live and work in the City, as well as tourists, are attracted to the diversity and vitality of late night precincts. However, it is essential for local, state and federal authorities, as well as local communities, to recognise that access to alcohol has an associated cost to both individuals and communities. The issue, therefore, is not whether the community is prepared to tolerate the harms associated with alcohol misuse, but attempting to quantify the level of harm a community is prepared to absorb in order to have legal access to alcohol. The challenge is to achieve and maintain an appropriate balance between the harms and benefits of alcohol.

A principal finding of this report is that there has been a cumulative increase in alcohol-related crime from 2001 to 2006 in both Kings Cross and Darlinghurst: rates of alcohol-related crime have increased by 40% and 20% respectively. The relatively high rates of alcohol-related crime in these two study sites (compared to other defined areas in Sydney) and the increase in alcohol-related crime over time, is consistent with evidence from the literature that rates of alcohol-related harm are associated with a number of factors: increased density of licensed premises; longer trading hours; the type of premises that are operating; and an increase in net availability of alcohol via more licenses, irrespective of their license type.

Although these data analyses show a cumulative increase in alcohol-related crime over time in both Kings Cross and Darlinghurst, an opinion about whether a saturation point has been reached needs to be formed with reference to the recent community survey conducted by the City of Sydney. When considered in light of the results of the social survey, there is a clear argument that both the Darlinghurst and the Kings Cross communities, while recognising the importance of the night time economy in contributing to the vibrancy of their communities, have serious concerns with regards to the amount of alcohol related harm that might result from the increase in alcohol related premises. Specifically, the majority of survey participants (about 60%) believed that the areas of Oxford Street and Kings Cross are experiencing increasing rates of alcohol-related harm, and that appropriate strategies for reducing, or at least capping, current rates of alcohol-related harm are: determining and enforcing a ceiling in the number of liquor outlets; more stringent enforcement of RSA laws; and stronger police presence to discourage anti-social behaviour.

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The most reasonable interpretation of existing data is that there is a cumulative and negative effect of increasing alcohol availability and outlet density on drunkenness and related problems, especially for those who live in the immediate area of licensed premises. Consequently, placing restrictions on the total number of alcohol outlets in a given area (regardless of type), their density and their trading hours are likely to be desirable policy options, given community concern about current rates of alcohol-related harm. Conversely, policies that increase alcohol availability are likely to increase both alcohol-related problems and community concern.

It is also relatively clear that the majority of harms are associated with a minority of premises and that most of this minority of problem premises are more likely to have extended trading hours. Premises that are open late at night/early mornings and are more likely to have a greater number of highly intoxicated patrons, are also more likely to be associated with a greater number of harms. This raises the possibility that longer trading hours typically result in greater consumption of alcohol and, therefore, a greater number of harms and a higher level of community concern.

Based on the available evidence to date, strategies that reduce alcohol-related harm and are most available to local authorities are those that restrict the availability of alcohol, such as restricting the number of alcohol outlets (the greater the net availability of alcohol, the greater the likely harms), the density of alcohol outlets within defined areas (the greater the density the greater the harms, especially in areas immediately surrounding alcohol outlets) and trading hours (the later hotels are open the greater the number of harms).

A potential problem in addressing alcohol-related harms is that strategies that aim to achieve greater restrictions on alcohol are often the most difficult to implement, partly due to resistance from the alcohol industry and partly due to a lack of clarity about which strategies increase and decrease harm (the apparent view of the LEC that a greater concentration of late night venues in defined areas is desirable, for example, appears counter to current evidence).

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Recommendations

NDARC make the following recommendations to the City of Sydney Council:

1. That the City work in partnership with state and federal governments, and with community groups, to implement and evaluate mutually agreed strategies, especially those that focus on restricting the supply of alcohol and prioritising those areas where there is clear indication of excessive cumulative impact.
2. The following specific strategies currently have the most evidence for their effectiveness and should be considered for implementation in defined areas of the LGA:
 - Net availability of alcohol ought to be restricted as much as possible. A desire to increase the mix of types of licensed premises in a defined area would ideally be balanced by a reduction in the existing types of licensed premises, rather than adding to them (which increases net availability of alcohol).
 - The density of alcohol outlets in a defined area should be restricted, which is of particular benefit for residents who live in the immediate area of licensed premises.
 - The number of late night trading venues, including 24-hour licenses, should be restricted to reduce the availability of alcohol.
 - RSA obligations should only be supported and encouraged if authorities have the capacity to enforce and monitor it.
3. That the City develop a comprehensive database of alcohol trading premises within the LGA. The database should report a bi-annual snapshot of the City of Sydney to allow for the monitoring of cumulative impact of late night and other alcohol trading premises over time. The database should include such information as:
 - locations of late night trading premises (including non-licensed premises that operate late at night);
 - conditions of consent for late night trading premises;
 - capacity, size and approved and actual hours of operation of individual late night trading premises;
 - conditions of liquor licences for late night trading premises;
 - crime data, including crime that occurs in the public domain and crime that occurs on individual late night trading premises;
 - NSW police linking data;

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- community perceptions in areas with a high concentration of late night trading premises;
- visitor numbers;
- transport availability indicators;
- traffic indicators;
- relevant demographic data;
- relevant locational data relating to defined areas of the LGA (such as parking spaces);
- sales data for late night trading premises with a liquor licence;
- complaints about and from individual alcohol trading premises;
- compliance infringements of individual alcohol trading premises; and
- hospital admittance data where harm has occurred that may be attributed to alcohol use.

It should be noted that much of these data are not currently available to local government. The City should work in partnership with state and federal authorities to improve data collection techniques, which would directly inform the database.

4. Based on these key indicators, it is recommended that the City develop planning mechanisms to contain the supply of alcohol where there is clear indication of excessive cumulative impact.
5. The City should work in partnership with state and/or federal authorities to introduce mandatory measures that restrict the advertising of alcohol, similar to those on tobacco. This reflects public health evidence that restricting supply, increasing price and restricting advertising are likely to result in the biggest reductions in harm across the whole community.
6. The City should endeavour to establish mechanisms to work in partnership with the community, involving them in the decision making and evaluation process.

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1. INTRODUCTION

1.1 Setting the scene: the decision of the Land and Environment Court

In December 2006, the LEC upheld an appeal against the Council of the City of Sydney's refusal of a development application for a late trading licensed restaurant and cocktail bar in Kings Cross. In part, Council's objection regarded the increase in antisocial behaviour and cumulative impacts that Council argued would arise from the new venue. A key component of the Court's response was as follows:

“Interestingly, the evidence on the cumulative impacts issue referred to the notion of saturation point which many of the residents and police said had been reached. However, no substantive evidence was presented...so as to allow any objective assessment.” (point 41)

The Court further argued that the concepts of 'cumulative impacts' and a 'saturation point' are quantifiable and should be demonstrated. In particular, the Court noted the necessity of collecting comparative data from a control area to enable comparisons with, in this case, the Kings Cross district of Sydney. Indicators of impact suggested by the Court included: i) the number of incidents that occur in licensed premises and the public domain (including assaults, malicious damage and disorderly conduct); ii) the number of noise and waste complaints made in relation to licensed premises; iii) the number of other licensed commercial uses; and iv) the frequency and scale of special events. The primary purpose of this report relates to point one of the Court's recommendations: to begin to quantify the number of alcohol-related incidents that occur in licensed premises and the public domain in the Kings Cross and Darlinghurst areas of the City of Sydney, using the most recent methodologies available.

1.2 Definitions for the purposes of this report

For the purposes of this report, the following definitions apply. Note that this section merely attempts to define the more commonly used terms in this report. Most potentially ambiguous terms are defined in the section of the report that is most relevant to that term.

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Cumulative impact

This can be defined as an estimate of the change in the number of alcohol-related incidents that occur in a defined area over time. For this report, these estimates are based on the most recent methodologies available. It is important to note that the estimates in this report do not attempt to quantify the absolute impact of alcohol on defined areas. Rather, they attempt to estimate changes over time in the level of alcohol-related criminal incidents in two defined areas (Kings Cross and Darlinghurst), relative to each other and relative to other defined geographical areas. Nor does this report attempt to establish causal relationships between changes in estimates over time and changes in the defined areas included: it may be useful to posit correlational relationships between changes in public amenity in a defined area (in this case the most relevant public amenity are those related to alcohol – hotels, clubs, restaurants and so on) and changes in estimates of alcohol-related criminal incidents, but it is very difficult to establish a causal relationship between these factors.

Saturation point

Unlike cumulative impact, a saturation point is not a data-based concept. For the purposes of this report, it is defined as the point at which the majority of residents of a given area determine that an unacceptably high rate of alcohol-related incidents has been reached, such that steps ought to be taken to attempt to restrict any further increases in the rate at which these incidents occur. This report does not seek to independently establish if a saturation point for alcohol-related crime has been reached in Kings Cross and Darlinghurst.

Alcohol-related harm

Given this report explicitly attempts to estimate the cumulative impact of alcohol-related criminal incidents, references to the original data components of the report are specifically limited to alcohol-related criminal incidents, as defined in Section 3.3.2. A common variation of this specific terminology in other sections of the report is the more generic concept of alcohol-related harm, which refers to a broader set of negative outcomes beyond alcohol-related criminal incidents, such as hospital Emergency Department presentations and traffic accidents.

Late night trading premises

For the purposes of this report, late night trading premises are those that have a license to trade after 12.30am. It includes, but is not restricted to, venues with a 24-hour license to serve alcohol.

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1.3 Defining the impact of alcohol: individuals vs populations

The impact of alcohol on a discrete population can be understood in terms of two distinct, but overlapping, orientations.

First, alcohol has an impact on individuals: the relationship between levels of consumption, alcohol dependence and the experience of alcohol-related problems varies widely between individuals. As a general example, some people drink relatively high amounts of alcohol, show signs of high alcohol dependence, but experience few problems. Conversely, others may drink relatively little, show no signs of alcohol dependence and yet experience substantial alcohol-related problems.

Second, alcohol has an impact across whole populations in two inter-related ways: the average consumption across the whole community and the number of people with high alcohol dependence and chronic drinking problems. The posited link between the two is that the higher the average consumption across a whole population, the greater will be the proportion of the community that have significant problems with alcohol (the greater the number of people exposed to alcohol, and the greater the extent to which they drink, the higher will be the proportion of the population that have significant problems with alcohol, and their problems will be more severe) (Rose, 1992).

It is important to make this distinction between the impact of alcohol on individual drinkers versus the population because responses aimed at minimising harm vary depending on which orientation is the primary focus. If the goal is to reduce the extent of problems for those individuals who already experience substantial harm, then appropriate intervention strategies are essentially clinical: GPs and other settings for early detection and intervention, through to specialist drug and alcohol clinics for those with chronic and high levels of alcohol dependence. If the goal is to reduce the harm caused to whole communities, for which the majority of members will not be experiencing substantial harm, then appropriate intervention strategies are essentially population focused: typical strategies include school-based education programs, legislation (for example, establishing a legal age of 18 years for the consumption of alcohol) and regulations (for example, regulating the availability of alcohol by restricting the operating hours of premises serving alcohol)

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1.4 Measuring population level harms: the empirical approach

Researchers have been good at measuring the impact of alcohol on individuals, but only recently grappled seriously with the problem of measuring the impact of alcohol on a whole, defined population. This is the task set out by the ruling of the LEC.

One attempt to measure the impact of alcohol is to try to establish the full costs associated with alcohol to a community. The social cost of alcohol abuse to Australia in 2004/2005, for example, has been estimated at \$15.3 billion, which comprises 27% of the social costs resulting from the impact of alcohol, tobacco and all illicit drugs. This is compared to a social cost of \$31.5 billion for tobacco (representing 56% of all costs) and \$8.2 billion for all illicit drugs combined (representing 15%) (Collins and Lapsley, 2008).

These estimates attempt to establish an overall measure of the full, or true, extent of alcohol-related harm. What researchers have traditionally not done well is establish how to measure changes in drug and alcohol use and problems over time, or between different defined populations, in a methodologically rigorous way. The importance of this point, to which the LEC has alluded, is that such comparative analyses allow valid identification of community characteristics that are associated with greater or fewer alcohol incidents, and are able to be effectively manipulated by all levels of government to optimally benefit the community.

One way of making comparisons over time is to use the Collins and Lapsley approach of adding up all the costs at one point in time, repeating the process at a subsequent point in time, and quantifying the difference. Similarly, this principle could be applied to examine the impact of alcohol on different communities, or even defined populations within a community: add up the costs imposed on one population and compare it to another. The problem with this approach is that the methodology is essentially inapplicable to the questions being asked: the Collins and Lapsley approach is a valid method for quantifying the total cost of alcohol, or other drugs, relevant to a defined population. If the question pertains to the relative effect of some change in a community over time, for example an increase in the number of hotels, or a reduction in the number of police, or a change in the tax regime (as has recently occurred in Australia with the increase in the rate of tax on alcopops), then a different methodology is required: one with optimal sensitivity to changes over time or between communities.

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To briefly summarise, the argument to date establishes two things: prompted by the decision of the LEC, it is necessary to define and quantify population level harms (as opposed to individual levels harms) and those harms ought to be measured in such a way that allows methodologically rigorous comparisons of alcohol-related harms, both over time and between different defined communities. This will facilitate the quantification and demonstration of the cumulative impacts of alcohol on the defined communities of interest.

The second major aspect of the decision of the LEC is to attempt to establish whether a saturation or tipping point is quantifiable and demonstrable, and whether this point has been reached in the defined communities of interest. Unlike an empirical-driven approach to quantifying harms, however, this is an interpretive question of community opinion: it can be quantified by generating appropriate data, but whether a saturation point for alcohol-related harm has been reached is a matter of majority community opinion, rather than an empirical analysis of the relevant data.

1.5 Measuring population level harms: community opinion

The empirical crime data in relation to alcohol-related harm are important, but say nothing about the levels of harm that individuals within a community are prepared to tolerate. This is essentially the concept of saturation, or a tipping point. The subtle point to draw out here is that having alcohol as a legal substance in Australia means that there will be some associated cost: the issue is not whether the community is prepared to tolerate the harms associated with alcohol misuse, but attempting to quantify the level of harm a community is prepared to absorb in order to have legal access to alcohol. There are no empirical data that can answer this question: it is a matter of determining the majority opinion of the individuals within a defined community. It is important that individuals are aware of the true extent of the impact of alcohol, both positive and negative, so that they can make an informed choice, but the level of harm a community is prepared to accept is not in itself an empirical question. Rather, it is a case of determining, and acting in accordance with the view of the majority. An accepted way to quantify the view of the majority is via surveys of randomly selected individuals within a community. Such a survey has been conducted under the auspices of the City of Sydney Council and the results discussed later in this report.

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1.6 Responding to harms: the role of local governments

Considering which strategies are reasonably available to local governments and other local authorities in responding appropriately to empirically determined rates of alcohol-related harm is important for two principal reasons. First, the strategies that are within the control of local government can, and should, be clearly identified to the community, allowing the community to assist in the decision making process. In the current context, for example, these could be identified in a community survey, asking residents to rank and allocate resources according to what they think ought to be done. Second, the value in doing this measurement work is directly related to the extent to which there is some reasonable prospect of reducing the levels of alcohol-related harm: if there are no strategies that local governments can implement to reduce harms then measuring the effect of changes, for local governments and local courts, becomes a relatively empty academic exercise. Therefore, this report will also examine the literature to identify previous and existing activities in which local governments may engage to reduce the levels of alcohol-related harms that exist within their communities.

1.7 Aims of this report

This report has two broad aims:

1. quantify the cumulative impacts of alcohol-related crime in defined areas of the City of Sydney LGA;
2. identify evidence-based strategies that local governments might reasonably implement to reduce the impact of alcohol-related harm on their communities.

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2. LITERATURE REVIEW

2.1 Harms of alcohol consumption

In global terms, 4% of the overall burden of disease is attributable to alcohol, which means it accounts for a similar amount of death and disability as tobacco use (4.1%), and is only surpassed by the burden of harm attributable to hypertension (4.4%), unsafe sex (6.3%) and being underweight (9.5%). In developed countries, including Australia, the alcohol-related burden of disease rises to 6.8% (Room *et al.*, 2005). Although the relationship between alcohol consumption and health is complex and multidimensional, alcohol is causally related to more than 60 medical conditions, the majority of which are deleterious relationships (Room *et al.*, 2005).

Relatively recent research has established that the detrimental aspects of alcohol use are not restricted to those with high levels of dependence (Kreitman, 1986). Put another way, this means that alcohol-related harm occurs across the continuum, from low dependent problem drinking to highly dependent chronic drinking. Crucially, however, further analysis shows that the majority of alcohol-related harm experienced in a defined community or population, is actually attributable to relatively minor injury and disease experienced by the numerically very large group of relatively low dependent problem drinkers, rather than the relatively severe disease experienced by the numerically small group of highly dependent drinkers.

Three pieces of evidence support this assertion. First, irregular drinking to the point of intoxication has been shown to contribute to the alcohol burden of disease (Rehm *et al.*, 2003). Since that is the dominant pattern of drinking in Australia (AIHW, 2008), it accounts for the majority of the burden of harm to the community overall (although not necessarily to individual drinkers). Second, analysing the disease codes applied to patients in health care settings shows that in high income countries with low mortality (including Australia), over half the alcohol-related burden of disease is attributed to alcohol-use problems, rather than alcohol dependence (Room *et al.*, 2005). Third, there is now substantial scientific support for the connection between alcohol consumption and non-disease related harms, such as violence and social disruption: an estimated 91% of street offences that occur between 10pm and 2am are alcohol-related (Ireland and Thommeny, 1993), while about two-thirds of patients presenting to an inner Sydney hospital emergency department following their involvement in inter-personal violence had been drinking

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(Poynton *et al.*, 2005). This connection, and the link with motor vehicle and other accidents, means alcohol consumption can cause substantial harm to the health of others in the community, not just to the drinker alone (Room *et al.*, 2005).

In conclusion, although health and social problems arising from alcohol use are often familiar and may be taken for granted, the high burden of harm attributable to alcohol provides strong justification for introducing and strengthening policies and practices aimed at reducing rates of alcohol-related problems. Further, for developed Western countries, these strategies are likely to be most cost-beneficial when they target the large group of relatively low dependent drinkers who episodically drink to intoxication.

2.2 Responding to alcohol harms: the role of local authorities

Accepting that it is the relatively large number of low dependent drinkers in the community that cause the majority of alcohol-related harm to themselves and others, raises the question as to which strategies local authorities might reasonably implement themselves, or support others to implement, in order to minimise the impact of alcohol harms. Local authorities include those responsible for granting and monitoring alcohol licenses, as well as those responsible for community amenity.

The question as to which strategies might reasonably be implemented will be examined in three ways: i) identifying what research evidence suggests is not effective; ii) identifying the public health policies that have been shown to be effective; and iii) examining the experience of local authorities in Australia and internationally.

2.2.1 What does not appear to work?

School-based education and public information

Education and public information campaigns tend to be popular within the community but have been shown to be ineffective (Room *et al.*, 2005). School-based education programs may increase knowledge about the risks of drinking and favourably alter attitudes towards excessive drinking, but achieving behaviour change through school-based programs has been very difficult to demonstrate (Foxcroft *et al.*, 2003). There is some suggestion from the literature that engaging other community groups in school-based education programs might increase their effectiveness, but the evidence is tentative at best and is not linked to sustained effects over time (Wood *et al.*,

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2006). Public information campaigns are similarly characterised by a lack of positive research evidence, suggesting media and other public health campaigns might be most effectively used in supporting the implementation of more proven strategies (Room *et al.*, 2005).

Responsible Service of Alcohol (RSA) training without enforcement

RSA training of hotel staff is essentially a mechanism introduced into Australia and some other developed countries to increase the likelihood that those who are under-age or who are already intoxicated are not served alcohol. There is clear evidence that this training is only effective in reducing alcohol-related harm if it is backed-up by active enforcement (Room *et al.*, 2005). Such enforcement is usually in the form of repeated police checks of licensed premises, at irregular times. Ensuring the value of RSA, therefore, fundamentally relies on the willingness or capacity of relevant authorities (licensing officers and local police) to enforce it.

Patron bans

Patron bans is the concept of denying entry or alcohol service to identified problematic individuals, either permanently or for a defined period of time. Although it is a difficult strategy to evaluate systematically, it is unlikely to impact much on overall levels of alcohol-related harm for two reasons. Firstly, it targets very few individuals, albeit individuals likely to have significant personal alcohol-related problems. Secondly, it is generally recognised and accepted that it is easier and more effective to influence the behaviour of licensees than customers (Room *et al.*, 2005).

2.2.2 What does appear to work?

In public health terms, the three biggest drivers of levels of alcohol harm are price, advertising and availability: specifically, the cheaper alcohol is, the more available it is and the less regulated its advertising is, the greater the harms (Hall, 2005). In addition to these major drivers, other approaches worth reviewing here, given they are relevant to Australia, are laws regarding the extent of licensees' liability, drink-driving laws and co-ordinated efforts across different community groups.

Licensee liability

Although a relatively new concept in Australia, there is the possibility of strengthening laws that hold the serving establishment partly liable for damage or harm caused by a customer who is

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underage or drunk (Room *et al.*, 2005). The major problem with this approach, and the primary reason it has not been systematically implemented in Australia, is the difficulty of linking the actions of an intoxicated or under-age person to a specific location or event. In any case, it is not a strategy readily available to local governments or local authorities.

Drink-driving laws

Establishing thresholds for Blood Alcohol Levels (BALs) that define illegal behaviour when exceeded, reinforced by advertising campaigns and the imposition of significant sanctions for those caught driving with an illegal BAL by random breath testing (the concentration of alcohol in the breath is essentially equivalent to BAL), has arguably been the most successful public health approach to reducing alcohol-related harm. From a population point of view, Random Breath Testing (RBT) is nonetheless unlikely to be substantially cost-effective, because it is very expensive to do in practice, and is only relevant to the relatively minor proportion of the population that drink and drive. Again, this strategy is not within the purview of local government.

Co-ordinating the efforts of local community groups

A current review identified 22 studies that aimed to evaluate the effectiveness of community-based approaches to reducing alcohol-related harm (Hawkins *et al.*, under review). The overall result of the review was that community-based studies generally show small intervention effects. It is not clear, however, whether the small effect are because the community-based approaches are ineffective, or because of the poor methodologies that have been used to evaluate them to date: only four of the 22 studies were of the highest level of methodological rigour and five employed the weakest methodological designs; 20 studies used inadequate outcome measures; and all 22 studies failed to describe their interventions adequately. Despite the current weak evidence base, community-based approaches are theoretically sound and appear to be worth implementing, provided they are rigorously evaluated.

Price

Increasing the price of alcoholic beverages and restricting availability are effective measures that have been shown to decrease consumption of alcohol and to have a positive effect on rates of cirrhosis mortality, drink-driving deaths and violent crime (Room *et al.*, 2005). One specific example of the effectiveness of changing price has been the application of a lower

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Commonwealth Government excise rate on low strength beer. As a result of this excise, the price of low strength beer was reduced and it now accounts for approximately 40% of beer consumed in Australia (Hall, 2005). Stockwell *et al.* (1998) have shown that night-time assaults and acute alcohol-related morbidity are strongly and significantly associated with the consumption of high strength beer and cask wine. Conversely, consumption levels of low alcohol beer were negatively associated with assault rates. This presents a compelling argument to increase tax on cask wine (low strength beer, for example, is currently taxed at four-times the rate of cask wine). More broadly, there is a sound economic argument for eliminating the current idiosyncratic discrepancies in the alcohol excise system by applying a standard excise based on the amount of alcohol being sold (volumetric tax). From a practical point of view, however, excise and price mechanisms are essentially beyond the control of local governments.

Advertising

Currently in NSW, advertising of alcohol by the alcohol industry, including manufacturers, is governed by a voluntary code of practice. Consequently there is no effective government monitoring of alcohol advertising and there are no legislative-enforced penalties for breaking the agreed code of practice. The example of tobacco provides strong evidence that strict and enforceable restrictions on alcohol advertising, which reaches the vast majority of the Australian population, would have a significant effect in reducing rates of alcohol-related harm.

Availability

The availability of alcohol is arguably the factor that local government might reasonably address. More specifically, local governments, together with licensing authorities, are able to influence the availability of alcohol by limiting the density of alcohol outlets, managing the mix of different types of alcohol outlets in a defined area and restricting the trading hours of licensed premises.

Density of outlets

A substantial body of descriptive evidence from the United States shows that the greater the density of alcohol outlets in a defined geographical location, the greater the number of alcohol-related harms, such as violent assault, hospital admissions, motor vehicle accidents, pedestrian injuries and drink driving (Donnelly *et al.*, 2006).

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There have been fewer Australian studies, but those that have been done generally confirm the results from the US:

- Stevenson *et al.* (1999) showed a strong positive relationship in LGAs in Sydney between outlet density and alcohol sales, and found that higher rates on both these factors predicted higher rates of assault. In rural NSW, outlet density was not predictive of assaults, while higher alcohol sales were.
- Donnelly *et al.* (2006) reported that more alcohol problems are related to higher densities of alcohol outlets: residents living in close proximity to licensed premises have reported significantly more problems with drunkenness and property damage than residents living further away; and residents living in areas with higher densities of alcohol outlets report more problems of drunkenness than residents living in areas with lower densities of alcohol outlets (Donnelly *et al.*, 2006). This is obviously going to be a bigger problem for those who live in the immediate vicinity of alcohol outlets, and so residents who choose to live there need to keep that in mind. Nevertheless, it is reasonable to try to minimise the harms that occur in and around licensed premises.

The most reasonable interpretation of existing data is that there is a cumulative and negative effect of increasing alcohol outlet density on drunkenness and related problems, especially for those who live in the immediate area of licensed premises, irrespective of licence type. Consequently, placing restrictions on the total number of premises in a given area (regardless of type) is a desirable policy option. Conversely, policies that increase alcohol availability are likely to increase alcohol-related problems.

Type of outlets

Studies from the United States have shown that bars (where the primary trading purpose of the premise is to sell alcohol) are more strongly associated with alcohol-related harm, including assaults, than other types of licensed premises, such as restaurants (Lipton and Gruenewald, 2002). Although data suggests an increase in the number of licensed restaurants is associated with increased violence, the strength of the relationship is less than for bars (Lipton and Gruenewald, 2002). Restaurants also appear to be related to reduced rates of hospitalisation (Lipton and Gruenewald, 2002), although this finding is offset by an increase in motor vehicle accidents (Scribner *et al.*, 1995).

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This relationship between types of outlet and harm has been further refined in Australian studies. Specific examples include:

- Stockwell *et al.*, (1992) showed nightclubs, hotels and taverns were more strongly associated with alcohol-related harm than restaurants and registered clubs.
- Homel and Clark (1994) found more than 75% of incidents of physical aggression in Sydney hotels were associated with less than 20% of hotels and 66% of sites had no incidents.
- Stockwell (1997) showed Perth premises classified as high-risk for motor vehicle accidents and drink-driving were found to have three times as many customers exiting with blood alcohol concentrations in excess of 0.15 mg/ml, compared to low-risk premises. Premises that continue to serve obviously intoxicated persons were most likely to be associated with harm.
- Jochelson (1997) used crime mapping on all incidents of assault and robbery recorded by police in Inner Sydney between July 1995 and June 1996. They identified crime hot spots (CBD, The Rocks, Kings Cross and Oxford Street) and showed that most harm occurs outdoors (rather than actually in licensed premises) and that three venues within each of these hot spots accounted for the vast majority of on-premises assaults.
- Considine *et al* (1998) trialled a new data collection process (linking data), which showed that four of 400 licensed premises accounted for a large majority of incidents and only 21 had above average incident rates.
- Briscoe and Donnelly (2003) showed that for inner Sydney, Newcastle and Wollongong:
 - Hotels and nightclubs were associated with more assaults than other premises. Hotels, for example, accounted for 76% of all assaults, even though they only comprised 21% of all licensed premises;
 - A minority of hotels accounted for a majority of assaults: 12% had at least 10 assaults each (equating to about half of all assaults), while 38% had none;
 - The majority of problem hotels had a 24 hour license (74% of 24 hour licensed hotels were associated with assaults, compared to 20% of 24 hour licensed hotels which were not associated with assaults);

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- Poynton *et al.*, (2005) showed about a third of patients had been drinking prior to presenting to an inner Sydney hospital emergency department, the majority of whom (about two-thirds) had been drinking at a licensed premises. Of all patients presenting for injuries from inter-personal violence, two-thirds had been drinking.

Taken together, the literature to date indicates that all types of licensed premises are associated with deleterious outcomes, although the relationship is strongest for hotels and in more densely populated areas (Stockwell *et al.*, 1992; Scribner *et al.*, 1994; Stockwell, 1997; Lipton and Gruenewald, 2002; Briscoe and Donnelly, 2003). It is also apparent that the harms evident in crime data also impact on other services, especially hospital emergency departments (Poynton *et al.*, 2005).

It is also relatively clear that the majority of harms are associated with a minority of premises, with premises that are open late at night/early mornings and with more highly intoxicated patrons report more harms. This raises the possibility that longer trading hours typically results in greater consumption of alcohol and, therefore, a greater number of harms.

Trading hours

Australian studies have shown three basic findings in regard to trading hours:

- Harms in inner Sydney, Newcastle and Wollongong are concentrated in the small number of licensed premises that are open late at night, or early mornings, and on weekends (Briscoe and Donnelly, 2001; 2003).
- A study of the effect of Extended Trading Permits (ETPs) for licensed hotels in Perth showed male drivers aged 18-25 years, apprehended between midnight and 2am after drinking at ETP hotels, had significantly higher blood alcohol levels (BALs) than drivers who drank at non-ETP hotels. Impaired female drivers apprehended before closing time, however, had significantly lower BALs after drinking at ETP hotels. The authors conclude that at peak times for alcohol-related offences, late trading is associated with higher BALs among those drivers most at risk of alcohol-related harm (young males) (Chikritzhs T and Stockwell T, in press).
- Compared to hotels with no change to their trading hours, hotels granted ETPs in Perth were associated with a 70% increase in the level of monthly assaults, between 1991 and

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1995. There was also a dramatic increase in the wholesale purchase of alcohol by ETPs, compared to a modest increase for non-ETPs, especially for high alcohol content drinks. It is not clear whether the increase in wholesale purchases was driven by increased patronage, increased consumption by the same number of patrons, or both, only that both wholesale purchases and assaults dramatically increased (Chikritzhs T and Stockwell T, 2002).

2.2.3 Summary of likely effective strategies that local authorities could implement

Of all possible strategies aimed at minimising alcohol-related harm, those that relate to the *availability of alcohol* are the most available to local governments. Based on current evidence, the following specific strategies have the most evidence for their effectiveness:

- Net availability of alcohol ought to be restricted as much as possible, irrespective of license types. That is, it appears that an increase in alcohol problems is more associated with the net availability of alcohol than with the mix of licensed premises. A desire to increase the mix of types of licensed premises in a defined area would ideally be balanced by a reduction in the existing types of licensed premises, rather than adding to them (which increases the overall net availability of alcohol).
- The density of alcohol outlets in a defined area should be restricted, which is of particular benefit for residents who live in the immediate area of licensed premises.
- There is a clear relationship between trading hours and harms. Specifically, the longer hotels and other licensed venues are allowed to be open, the more problems will result. Consequently, the number of late night trading venues, including 24-hour licenses, needs to be restricted.
- RSA training should only be supported and encouraged if authorities have the capacity and the desire to enforce and monitor it.
- Despite the current weak evidence base, it is likely that alcohol-related harms will be optimally reduced by involving a wide range of relevant groups in the local area working together systematically. Such groups would include local government, police, hospitals and allied health services, licensees, high schools, local courts and non-government organisations that work with high-risk groups, such as young people who have dropped out of school.

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Although not specifically addressed in this review (because they have not been sufficiently and systematically evaluated), a number of strategies have been implemented around closing times of hotels, in an effort to reduce the occurrence of alcohol-related harms. The major focus of these strategies is that they can support and help make it easier for police and security staff to work with intoxicated patrons. Although the following currently have an insufficient evidence-base, they may be worth implementing, but only if they are rigorously evaluated:

- Improved lighting in areas where alcohol-related crime has been shown to occur and closed circuit cameras. However, if implemented in isolation from other strategies this may simply shift undesirable behaviour to other locations.
- Alcohol-free zones. Again, if implemented in isolation from other strategies, this is likely to simply shift undesirable behaviour to other locations, but it may assist police and security staff to confiscate alcohol and move patrons back inside hotels or towards transport facilities.
- Improved transport options, including subsidised taxi fares and dedicated buses.
- Staggered closing times.
- High visibility policing at closing times.
- Cessation of serving at some time point prior to closing (eg. 30 minutes). Anecdotal evidence also suggests playing quieter music in the lead up to closing can be effective.
- Lock-outs (that is, preventing entry into an establishment after a certain hour) at an agreed time for all licensed premises in a defined and geographically proximal area. There is some anecdotal support that this has been effective in reducing rates of alcohol-related harm in Manly and it appears to be a popular strategy with police. The May 2008 meeting of the Ministerial Council on Drug Strategy (MCDS) resolved to review the evidence on lock-outs.

2.2.4 Putting the evidence together in a coherent package

Based on the evidence base to date, as outlined in the literature search above, strategies that reduce alcohol-related harm are those that restrict the availability of alcohol, for example, the number of alcohol outlets (the greater the net availability of alcohol, the greater the likely harms);

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the density of alcohol outlets within defined areas (the greater the density the greater the harms, especially in areas immediately surrounding alcohol outlets); and trading hours (the later hotels are open the greater the number of harms). But these strategies will need to be tailored to defined areas and that means achieving a balance between net availability of alcohol, density, trading hours; a balance that will differ between areas. For example, an area with a large number of licensed venues may need to balance that by restricting the number of them that are able to open late, or ensuring the density of outlets does not increase. Another area may have a large number of late night trading venues, which could potentially be balanced by restricting the number of alcohol outlets allowed to operate. The success with which other countries have managed to achieve this balance is explored in the next section.

2.3 Responding to alcohol harms: international experiences

2.3.1 Case study 1: Ealing town centre. The cumulative impact of pubs, clubs and restaurants

This study provided an assessment of the Ealing town centre area between 2002 and 2003, where ‘cumulative impact of pubs, clubs and restaurants’ was defined as “the concentration of many licensed premises in a defined area and the associated impacts of crime, public disorder and nuisance that are above acceptable levels, and beyond the proper control and management of licensees, police, the local authority and other agencies”.

The study attempted to acquire data on primary indicators to demonstrate whether a saturation point had been reached. Maps were utilised to assess the location (and time) of offences which had occurred across the borough and town centre, and to assess the proximity of these offences to licensed premises (locations of which were also plotted on the maps).

Additionally, the study summarised relevant policies and recent development applications for licensed premises while surveys of residents, businesses and community groups on the future development of the town centre were also conducted.

Licensed premises were largely concentrated in the town centre, and it was found that robbery, violence against the person, disturbances in a public place, disturbances in a licensed premises and drunkenness were all concentrated in this area. Most incidents occurred within 0-25 metres

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of a licensed premise. This finding is consistent with the evidence that residents living closer to alcohol outlets experience more harms (Donnelly *et al.*, 2006).

Criminal damage and noise were more widespread issues, as were drug offences (although data for the latter offence related to the police station where the offender was searched, not necessarily where the incident took place). The number of incidents and licensed premises were compared across five zones within the town. This provided evidence of cumulative impact/saturation point in two of the zones. Other comparisons included entertainment uses, number of licensed premises, and floorspace ratios across London's ten metropolitan centres. This showed Ealing to be unique. Limiting factors included parking, public transport, congestion, street cleaning and public space. The study also comprised a pedestrian footfall survey over consecutive Friday and Saturday nights in 3 locations to look at numbers of people, queues, anti-social behaviour.

Summary of Ealing case study

The literature review in Section 2.2, identified that in relation to availability of alcohol, the likely factors that increase alcohol related harm are a high number of alcohol outlets, a high density of alcohol outlets, and late-night trading hours. The practical experience of Ealing reflects this evidence:

- High density. Licensed premises were largely concentrated in the town centre, and it was found that robbery, violence against the person, disturbances in a public place, disturbances in a licensed premises and drunkenness were all concentrated in this area.
- Number of alcohol outlets. In two defined zones, the number of adverse incidents increased as a function of the number of licensed premises. That this was not the case in the other three zones examined reflects the importance of the need to tailor strategies to specific areas: clearly in two zones in Ealing there are too many licensed premises, while the number of licensed premises in three zones is either within acceptable levels, or the adverse effects of a large number of licensed premises is mitigated by confounding factors (eg. less density of licensed premises or relatively few late night trading premises).

2.3.2 Case study 2: Shoreditch night-time economy study, 2007

The London antisocial behaviour strategy recognised that street drinking, rowdy behaviour, drunkenness and disorder are all factors that stop people using public spaces. Responding to this,

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the Shoreditch evidence-based review examined the effects of the special policy introduced in this area in 2004, aptly named the Special Policy Area (SPA). The study, completed in 2004, can be summarised as follows:

- A review of policy, legislation and literature. This review described good practice, including RSA initiatives, providing snacks, discouraging happy hours, the development and implementation of the “*Shh Shoreditch Campaign*”, drink spiking awareness, and use of detection devices, such as metal detectors and cocaine wipes. It also sought to identify gaps in public transport that may impact on rates of alcohol-related harm.
- Acquisition of detailed information on the location, type and opening hours of night time uses. This information included a mapping exercise to examine the effect of a policy introduced in 2005 to limit the number of approvals for extended alcohol trading venues.
- Crime data collection involved a review of relevant crime statistics and a late night site visit with police. The principal findings were:
 - Significantly higher proportion of common assault and wounding in SPA than borough as whole (especially on weekends);
 - The most common time for alcohol-related incidents in the SPA is midnight-4am, when levels are 4 times higher than during the day. Similarly, thefts, including pick pocket incidents, are most common in the SPA between 11pm-3am;
 - The day and time of incident suggest that the level of common assault, wounding, pick pocketing and theft in the SPA are strongly related to night-time economy activity (nb in part due to large numbers of people in the area at those times);
 - Overall crime rates for violence and theft were higher for 2006/7 than 2003/4. This suggests that the interventions trialled in the Shoreditch SPA were not successful. This is consistent with the literature, in that the strategies trialled (RSA initiatives, providing snacks, discouraging happy hours, the development and implementation of the “*Shh Shoreditch Campaign*”, drink spiking awareness, and use of detection devices) do not have evidence of their effectiveness.
- Community consultation. This involved a number of strategies, as follows:
 - A noise study found that the number of noise complaints fell significantly since 2004. This may reflect the interventions put in place in the SPA, but more likely

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reflects that Shoreditch residents used the Shoreditch night-time economy less frequently, instead preferring to travel to other areas in Hackney;

- Meetings with key-stakeholders, phone interviews with 250 residents (noted that this sample may have been skewed to older residents as younger residents use mobile phones not land lines), interviews with 100 members of the community over two evenings and interviews with 10 licensees. The principal findings from these strategies were that Shoreditch residents were using the night-time economy less frequently, but that residents' perceptions of the night-time economy were more positive. Here was a decrease in the proportion of residents and key-stakeholders who reported that the night-time economy was disruptive, complemented by an increase in those wishing to see no further growth.

Summary of the Shoreditch case study

The apparent lack of effectiveness of the SPA project is most likely due to at least two factors.

- First, the strategies employed are inconsistent with research evidence about what actually works. These strategies are easier to implement, but they have been shown to be of limited effectiveness.
- Second, the issues that research shows are linked to increases in alcohol related harm (a greater number of alcohol outlets, a greater density of alcohol outlets and a greater number of late-night trading venues) were not addressed. Indeed, these factors appear to have increased: after the introduction of the SPA in 2004, another six extended trading licenses were granted (although this was a capped number, it still represents an increase); there has been minimal growth in businesses within the SPA since 2004, but that growth was predominantly in bars and restaurants; and the development and introduction of a large hotel just outside the SPA.

2.4 Responding to alcohol harms: City of Sydney Local Government Area

Prior to examining the data specific to, and the implications of the international experience for, the LGA, it is important to review current and recent activity auspiced by the City of Sydney to ensure any recommendations are consistent with existing strategic directions.

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2.4.1 Kings Cross licensed premises research (Urbis JHD, September 2006)

This report presented findings on the effects of late night licensed premises in Kings Cross, based on limited data from police, complemented by City of Sydney auspiced interviews and analysis.

The overall methods included:

- A review policy documents, population statistics and crime statistics.
- A review of relevant case studies (eg. Stonnington, Victoria and Ealing, UK).
- Interviews with eight stakeholders, including representatives from NSW Police, Bureau of Crime Statistics and Research (BOCSAR) and Non-Government organisations (eg. the Wayside Chapel).
- Geographic mapping of licensed premises and land use.

The principal findings can be summarised as follows:

- Late night venues were generally thought to add colour, vibrancy and activity to the Kings Cross area.
- There is a mix of business types in the area:
 - 15% of businesses are licensed premises, comprising restaurants (n=32), hotels (n=12), nightclubs (n=8), theatres (n=8) and other license types (n=5).
 - As a percentage of the total number of businesses: restaurants 9%, accommodation 8%, hotels 3%, clubs 2%, adult industry 2%, bars 1%;
 - 19 venues with a 24 hour licence were identified, of which three stay open for 24 hours while the remainder close for an hour for cleaning. These closing times are generally staggered to avoid large numbers of intoxicated people exiting from various venues at the same time. Crucially, this number of 24-hour licenses represents a significant increase from 15 years ago, when there was only one venue with a 24 hour licence.
- Crime data indicated a clear relationship between reported incidents and early hours of the morning. More specifically:
 - Assaults and stealing were found to have strong relationship with alcohol: the most common crime reported June 04-July 06 was assault, of which most occurred outside licensed premises between 8pm – 7am on weekends.

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- Stealing increased on weekends.
 - Problems also identified with under-age drinking, noise disturbance and lack of public transport.
 - Kings Cross command area has nearly double the state average for licensing breaches and detection of licence violations
- Visitor and worker numbers in the Kings Cross area are much greater than resident numbers, which may have some bearing on both the rates of adverse incidents and the number of resident complaints.

Summary of the Kings Cross licensed premises research

As was the case for Ealing, the types of crimes and disturbances reported in the Kings Cross licensed premises research, and their relatively high prevalence, are consistent with the research evidence that a relatively high densities of alcohol outlets, along with a high proportion of late-night trading venues, are associated with increased rates of alcohol-related crime (Donnelly *et al.*, 2006; Chikritzhs and Stockwell, *in press*; Briscoe and Donnelly, 2001; Briscoe and Donnelly, 2003).

2.4.2 Discussion paper “Night Trading Premises July 2006 City of Sydney”

The discussion paper aimed to assist Councillors, the community and stakeholders in their deliberations about how the City may address the impacts of night trading premises. It discussed such things as existing controls and strategies that apply to the city, the positive and negative impacts of night-trading premises, their economic and cultural role, as well as how some other cities are attempting to address the impacts of late night trading. Its purpose was to inform the development of the *City of Sydney Late Night Trading Premises Development Control Plan* (Late Night Trading DCP).

2.4.3 City of Sydney Late Night Trading Development Control Plan

The main aims of the draft DCP are to enable late night trading, managing the impacts of late night trading premises on the amenity of residential neighbourhoods and the City at large by setting flexible limits on late night trading hours (based on performance) and by promoting ongoing good management of late night trading premises. The DCP also aims to encourage a broad mix of night time uses with wide community appeal, catering to the diverse night-time

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recreational needs of people who work and live in the City, as well as people who visit the City. The DCP encourages premises that are not simply places where people go out late at night primarily to drink alcohol, but premises where alcohol consumption is either ancillary to their primary use or may not be consumed. These are often small, low impact or ‘niche’ places that contribute to night time diversity rather than usurp it.

The overriding philosophy of the draft DCP is that late night trading hours are a privilege and not a right and will only be approved in circumstances where an ongoing commitment to good management is evident through a series of successful trial periods (ie. late night trading hours will be only be approved on sustained merit over a period of time).

Summary of these papers

This report raises a number of issues of concern, in that the views apparently held by those in potential powerful positions, in terms of influencing the mix of businesses in defined areas, appear inconsistent with the research literature. In particular:

- If the LEC does indeed hold the view that longer trading hours are appropriate in areas with a significant presence of late trading entertainment venues, this runs counter to the research evidence that says late night trading venues, and a greater density of alcohol outlets in a defined area, are both strongly associated with increased rates of alcohol-related crime. This suggests some liaison with Court officials may be worthwhile.
- Although the apparent willingness of police to support trials of normal trading hours is a sensible approach, their apparent encouragement for a greater variety of venues may need to be qualified: whatever the merits of a greater diversity of alcohol outlets, this is likely to lead to an increase in alcohol-related crime and disturbances, if it is associated with an increase overall net availability of alcohol, the density of alcohol outlets or the proportion of late night trading venues.
- The key terminology used in the report needs to be carefully defined.

2.4.5 Summary for City of Sydney Local Government Area

The literature review conducted for this report can be distilled into key points:

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- With respect to City of Sydney LGA, there appears to have been an increase in the density of alcohol outlets in defined areas (eg. Kings Cross and the City), including an increase in the number of late night trading premises. The extent to which this increase in availability has led to an increase in alcohol-related harms has not been quantified adequately, although the literature clearly indicates that an increase in alcohol-related harm is associated with increased density of licensed premises, longer trading hours and an increase in net availability of alcohol via more licenses, irrespective of their license type. Data from the Ealing case study, as well as previously published Australian data, clearly show this relationship.
- Associated with an increase in applications for alcohol outlets over time, City of Sydney Council has taken a number of steps to achieve an optimal balance between various interests and minimising alcohol-related harm, for example, the Late Night Trading DCP. The extent to which these strategies have led to a decrease in alcohol-related harm is not clear from empirical data.
- A number of strategies have been shown to reduce alcohol-related harm, primarily increases in the price of alcohol, mandatory advertising restrictions and reduced availability of alcohol. Of these, the latter is most available to local government. Although greater restrictions on alcohol are often the most difficult strategies to implement, partly due to resistance from the alcohol industry, and partly due to a lack of clarity about which strategies increase and decrease harm (eg. the apparent view of the LEC that is counter to the evidence), the Shoreditch case study clearly demonstrates that implementing easier but less effective strategies is unlikely to achieve significant reductions in alcohol-related harm.
- In line with Council concerns that a ‘saturation point’ has been reached in two defined areas (Kings Cross and Darlinghurst), Council refused a development application for a late night trading hotel in Kings Cross, a decision which was successfully challenged in the LEC. A principal recommendation from the Court was that more rigorous analyses were required in order to more strongly demonstrate the relationship between an increase in alcohol availability and resultant harms.
- Therefore, an important requirement is for a methodologically rigorous analysis of alcohol harm data in defined areas perceived as problematic, in order to examine the

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statistical relationship between increased alcohol availability and resultant harm, as well as to attempt to determine if there is any evidence that the mix of alcohol outlets in a defined area impacts on resultant harms.

3. DATA ANALYSES

3.1 Introduction

Alcohol-related harm can be quantified in a number of complementary ways: emergency department presentations, crime data, ambulance incidents and traffic accidents. Previous research has examined the relationship between alcohol outlets and each of these harmful outcomes. For example, Poynton and colleagues (2005) estimated the proportion of alcohol-related presentations to an inner city hospital emergency department, as well as the resultant costs. Similarly, alcohol-related crime rates have been estimated for defined LGAs in Sydney, including inner Sydney (Briscoe and Donnelly, 2003).

Although these estimates are useful in quantifying the likely extent of alcohol-related harm within defined geographical areas, their major limitation is that they do not allow adequate examination of trends over time, or between different geographical areas, because of the high probability that harms are recorded differently by different police (eg. as police personnel move in and out of stations, crimes identified as alcohol-related would be likely to vary due to different officers and commanders having different priorities). Another limitation relates to the accuracy of what is routinely recorded: generally studies show that rates of alcohol-related harm are typically much greater than is routinely recorded in existing data collection systems.

These limitations initiated attempts to refine existing data sets to make them more useful in determining the impact of interventions or policy changes. The most advanced of these relates to alcohol-related crime. Nationally, Australian research has developed a method of estimating rates of alcohol-related crime. Although this methodology almost certainly underestimates the true extent of alcohol-crime, it provides a much more accurate examination of changes over time and comparison between different geographical areas. This method has recently been adapted and applied to specific settings in NSW (Breen *et al.*, under review), providing a clear example of the practicality and applicability of this methodology.

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3.2 Aims

This section has three aims:

1. To compare rates of alcohol-related harm in Kings Cross and Darlinghurst, and between these two areas and other defined areas within the City of Sydney and defined areas in greater Sydney.
2. To quantify the relationship between the increase in outlets over time and an increase in alcohol-related crime in different defined areas within the City of Sydney and in other defined areas in greater Sydney.
3. To determine if there is a statistically significant relationship between alcohol-related harm, and type or density of licensed premises in the City of Sydney LGA.

3.3 Methodology

3.3.1 Areas selected

The areas of interest (study sites) are Kings Cross and Darlinghurst. Appendix A shows the geographical boundaries of Kings Cross and Darlinghurst. In order to be comparable across sites, and to maximise comparability between regions and recorded alcohol-related crime, the definition of these areas is restricted to their postcodes: 2010 (includes the suburbs of Darlinghurst and Surry Hills); and 2011 (includes the suburbs of Kings Cross, Woolloomooloo, Elizabeth Bay, Potts Point, Rushcutters Bay).

A number of comparison areas have been identified, both within and beyond Sydney LGA. Other defined areas within the City of Sydney were selected because they are relatively geographically proximal to Kings Cross and Darlinghurst, and so may share some of the same characteristics, and because they fall within the jurisdiction of the same local government. Comparing the study sites to these areas increases confidence that any differences in the results reflect differences in the areas themselves, rather than broader differences such as local government regulations. Other comparison areas beyond Sydney LGA were also considered on the basis that these are other areas in Sydney that are reasonably well-defined and are areas to where relatively large groups of people tend to travel for night-time entertainment activities. In order to establish whether trends in alcohol-related crime are increasing across a number of defined areas within City of Sydney LGA, as well as different LGAs in the Sydney Metropolitan region, each of the following postcode areas are included for specific sets of analyses: 2000 (Sydney City, including Dawes Point, Haymarket, Millers Point and The Rocks); 2009

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(Pymont); 2042 (Newtown and Enmore); 2037 (Glebe and Forest Lodge); 2034 (Coogee and South Coogee); 2026 (Bondi) and 2095 (Manly).

3.3.2 Measures

Licensed premises

Historical records were obtained from City of Sydney to track the growth of licensed premises overall, and late night trading premises, in selected LGAs within the City of Sydney LGA.

Crime data source

The data used for these descriptive analyses came from de-identified, unit record, police data on recorded criminal incidents (except murder which is recorded victims) for all the suburbs between January 2001 and September 2007, were provided by the NSW Bureau of Crime Statistics and Research (BOCSAR). Incidents were selected on the basis of the postcode in which they occurred, rather than another measure of location, such as LGA, or another measure of persons involved, such as the residential postcode of the person of interest, in order to increase the likelihood that the incident impacted on local services (such as police resources and health care services). The date the incident occurred was used, rather than the date the incident was reported, in order to ensure the incident fell within the timeframe appropriate to these analyses.

Definition of a criminal incident

Defining a criminal incident is not straight-forward, because one incident may involve more than one offender or more than one victim. Alternatively, more than one incident may be recorded, even if the same offender and victim were involved. For example, a man reports to police that his neighbour was damaging his property and, when confronted, the neighbour assaulted him. Two criminal incidents are recorded because two distinct offence categories are involved (malicious damage to property and assault), even though the same victim and same offender were involved and the incidents occurred at the same time. Given this, a criminal incident is defined as an activity detected by, or reported to, police which: involves the same offender(s); involves the same victim(s); occurred at one location; occurred during one interrupted period of time; falls into one offence category; or falls into one incident type (eg. 'actual', 'attempted', 'conspiracy').

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The surrogate measure of alcohol-related crime

The validity of alcohol-related crime has been difficult to establish. Comparing across defined geographical areas is less susceptible to problems of validity, assuming the same measure is applied to both the intervention and control groups at both pre- and post-test: whatever inaccuracies exist in the measure ought to be comparable across comparison groups. The reliability of a measure presents a greater problem: it is likely that conducting an intervention could change the reporting behaviour of police, irrespective of actual changes. There are numerous documented examples of increased enforcement activity resulting in an increase in recorded violence (eg Putnam et al., 1993; Burns et al., 1995; Hawks et al., 1998).

One way to improve reliability is to use a surrogate definition, which focuses on a sub-set of crimes occurring in a defined time period, regardless of whether police have reported the incident as alcohol-related. A surrogate approach was developed on a national level in Australia (Mathews et al., 2002) and has been adapted and applied to NSW (Breen et al., under review).

Crimes included in the surrogate measure for alcohol-related crime

Consistent with Mathews et al. (2002) and Breen et al. (under review), only serious assaults were included: common assault; actual or grievous bodily harm; aggravated assault; assault with an offensive weapon; and driving causing bodily harm, death or wounding.

Since the narrowness of the national surrogate measure (Mathews et al., 2002) is largely dictated by which data are available nationally, adding crimes that are of concern to local communities seems reasonable both in principle (providing a wider group of anti-social behaviours to attempt to reduce) and methodologically (it does not introduce excessive variability in the measure [Breen et al., under review]). Consequently, this analyses also includes common assault and malicious damage (graffiti, malicious damage to property and public place offences, including damage to fountain/wall, shrine or monument).

Surrogate times: alcohol and non-alcohol times

Times in which injuries are most likely to be alcohol-related, and are most unlikely to be alcohol related, have been defined for Australia (Chikritzhs, Stockwell et al., 2000). Alcohol-related times are: Sunday 10pm - Monday 6am; Monday 10pm - Tuesday 2am; Wednesday 10pm – Thursday 2am; Friday 10pm – Saturday 6am; and Saturday 6pm - Sunday 6am. Non-alcohol-

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related times are: Monday 6am - Monday 6pm; Tuesday 6am - Tuesday 2pm; Wednesday 10am - Wednesday 2pm; Thursday 6am – Thursday 2pm; and Friday 6am - Friday 10am.

3.3.3 Statistical analyses

Ratio analysis

The geographical areas are compared in terms of their ratios for the number of surrogate incidents that occur in alcohol related times, relative to the number of surrogate incidents that occur in non-alcohol related times. Using this ratio approach controls for a number of exogenous factors, including unobserved factors, which may influence the general level of crime in different geographical areas, which would impact on the comparisons for alcohol-related crime. That is, the effect of alcohol availability in a community is likely to be larger in absolute terms for those areas with strong, pre-existing, underlying levels of crime (where alcohol use is more likely to result in crime because of the relatively high base rate of criminal activity). Therefore, the ratio approach increases confidence that the comparisons between defined areas, and over time, are specific to alcohol-related crimes, rather than being unduly influenced by co-existing factors.

Presentation of the results

Due to the nature of the data, standard error bars and 95% confidence intervals around ratios for number of surrogate incidents that occur in alcohol related times over the number of surrogate incidents that occur in non-alcohol related times were taken into account. These figures were generated for the majority of the graphs to provide sufficient information about the degree of uncertainty around each of the estimates. This allowed for some comparison across January 2001-September 2007. For statistical verification, a two sample t-test was used as an approach to compare multiple means of ratios from the independent city groups.

In addition, a one-way ANOVA was used to test for a difference in mean ratio of alcohol related incidents to non-alcohol related incidents. In order to identify specifically between differences of ratios across time for each city and maintain a significance level of 0.05 for the multiple comparisons, a Tukey's post hoc procedure was used because the sample sizes were equal among the nine various city suburbs. For the univariate measures, Shapiro-Wilk tests reported a p value > 0.05 with similar mean and medians to suggest the data is normally distributed and hence a parametric test may be more appropriate.

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Potential limitations of the statistical analyses

Using crimes in the measure of alcohol-related crime beyond those used nationally by Matthews *et al.* (2002), may reduce the degree of reliability in the data: in some LGAs police may be encouraged to record all crimes while in others, there may be less emphasis on recording some particular types of crime. The surrogate measure allows for this by only including the most serious crimes, so adding additional crimes may reduce the reliability in reporting between LGAs and, therefore, reducing the accuracy of the comparisons between LGAs. Despite this potential limitation, it is important to capture a range of alcohol-related crimes, which in turn improves the statistical strength of the comparisons across LGAs, because larger data sets are less vulnerable to random errors in the data. Including the additional crimes has been shown by Breen *et al.* (2008) to represent a scientifically acceptable balance between increasing the number of alcohol-related crimes and reducing the reliability of the comparisons.

Of the other specific types of crime that might have been included in the surrogate measure, it might be argued that the most crucial of these is disorderly conduct, since it is both likely to be prevalent in the LGAs selected, and is likely to be of nuisance value to the residents of the selected LGAs. However, these crimes were excluded in the interests of focussing on the most commonly occurring, and systematically reported, alcohol-related crimes.

The data regarding the number of licensed premises and their trading hours was provided by the City of Sydney Council. There is, however, some uncertainty as to how accurate these data are, particularly in terms of trading hours and even their exact location (it is sometimes difficult to identify the exact LGA into which an alcohol outlet ought to be most accurately categorised).

It might be argued that the data would show a different outcome if the rates of licensed premises were calculated on the basis of visitors to an area, rather than the population of residents. The logic is that it is the number of people in a given area that contribute to alcohol-related harm, not just the residential population. The number of visitors, however, is not crucial to this analysis for at least two reasons. Firstly, the ratio method takes account of overall different levels of population and crime in different areas (more visitors and a greater population would both likely increase crime rates overall, as well as alcohol-related crime) so the effect of the number of people in any given area is already controlled for by the ratio method (as are other potentially confounding issues, incidentally, such as different rates of illicit drug use in different areas).

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Secondly, although the data could be re-analysed using visitor numbers, this would reduce the rate of licensed premises, calculated using population estimates, for Kings Cross (n=8), Darlinghurst (n=9), since they have large numbers of visitors. However, other areas which already have much lower rates of licensed premises (eg. Bondi = 3 and Coogee = 2) have higher (Coogee) or comparable (Bondi) rates of alcohol-related crime. Consequently, re-calculating licensed premises rates based on visitor numbers is highly unlikely to change the conclusions.

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3.4 Results

3.4.1 Areas selected and their relevant characteristics

Population estimates

The population estimates of all selected areas are summarised in Table One.

Table 1: Population estimates of selected areas

Area	Postcode	POPULATION FIGURES*							% change
		2001	2002	2003	2004	2005	2006	2007*	
Sydney	2000	16,302	17,322	18,341	19,361	20,380	21,400	22,420	+ 27.3
Pymont	2009	7,618	8,357	9,096	9,834	10,573	11,312	12,051	+ 36.8
Darlinghurst	2010	22,864	23,217	23,571	23,924	24,278	24,631	24,984	+ 8.5
Kings Cross	2011	16,180	16,491	16,802	17,114	17,425	17,736	18,047	+ 10.3
Bondi	2026	29,663	29,714	29,766	29,817	29,869	29,920	29,971	+ 1.2
Coogee	2034	18,837	18,776	18,715	18,654	18,593	18,532	18,471	0.0
Glebe	2037	13,040	13,126	13,211	13,297	13,382	13,468	13,554	+ 3.8
Newtown	2042	14,776	15,081	15,385	15,690	15,994	16,299	16,604	+11.0
Manly	2095	14,109	14,077	14,045	14,013	13,981	13,949	13,917	0.0

* These estimates derive from the 2001 ABS community profile data, and the 2002-2006 ABS Quickstats. The Postcodes equate to the place of usual residence.

Number of licensed premises

The number of licensed premises in all selected areas are summarised in Table Two.

Table 2: Number of licensed premises in selected areas

Area	Postcode	2001	2005	2008	% change 2001-2008
Sydney	2000	706	846	744	+ 5.1
Pymont	2009	51	66	76	+ 32.9
Darlinghurst	2010	144	218	229	+ 37.1
Kings Cross	2011	144	108	137	- 5.1
Bondi	2026	71	88	89	+ 20.2
Coogee	2034	25	30	32	+21.9
Glebe	2037	51	56	49	- 4.1
Newtown	2042	61	77	83	+ 26.5
Manly	2095	81	95	89	+ 9.0

* These data derive from the Office of Liquor, Gaming and Racing Index for NSW

Relevant characteristics of selected areas

The alcohol-crime relevant characteristics of all selected areas are summarised in Appendix B.

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Alcohol-related crime rates

The alcohol-related crime rates per 1,000 population for all areas, by year, are summarised in Tables Three to Eight.

Table 3: Alcohol-related crime rates per 1,000 population for 2001.

	2001			
	Alcohol offences	All offences	Population	Rate
Sydney	953	2637	16,302	0.36140
Pyrmont	211	426	7,618	0.49531
Darlinghurst	557	1887	22,864	0.29518
Kings Cross	410	1308	16,180	0.31346
Bondi	298	836	29,663	0.35646
Coogee	217	528	18,837	0.41098
Glebe	180	723	13,040	0.24896
Newtown	149	584	14,776	0.25514
Manly	293	681	14,109	0.43025

Table 4: Alcohol-related crime rates per 1,000 population for 2002

	2002			
	Alcohol offences	All offences	Population	Rate
Sydney	1049	2832	17,322	0.37041
Pyrmont	277	532	8,357	0.52068
Darlinghurst	557	1795	23,217	0.31031
Kings Cross	437	1292	16,491	0.33824
Bondi	295	911	29,714	0.32382
Coogee	202	522	18,776	0.38697
Glebe	169	681	13,126	0.24816
Newtown	181	670	15,081	0.27015
Manly	265	622	14,077	0.42605

Table 5: Alcohol-related crime rates per 1,000 population for 2003.

	2003			
	Alcohol offences	All offences	Population	Rate
Sydney	1240	3137	18,341	0.39528
Pyrmont	280	527	9,096	0.53131
Darlinghurst	486	1551	23,571	0.31335
Kings Cross	413	1214	16,802	0.34020
Bondi	293	844	29,766	0.34716
Coogee	241	520	18,715	0.46346
Glebe	142	614	13,211	0.23127
Newtown	183	646	15,385	0.28328
Manly	349	701	14,045	0.49786

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Table 6: Alcohol-related crime rates per 1,000 population for 2004

2004				
	Alcohol offences	All offences	Population	Rate
Sydney	1216	3092	19,361	0.39327
Pyrmont	209	451	9,834	0.46341
Darlinghurst	575	1849	23,924	0.31098
Kings Cross	481	1241	17,114	0.38759
Bondi	290	748	29,817	0.38770
Coogee	236	499	18,654	0.47295
Glebe	158	616	13,297	0.25649
Newtown	183	661	15,690	0.27685
Manly	435	786	14,013	0.55344

Table 7: Alcohol-related crime rates per 1,000 population for 2005

2005				
	Alcohol offences	All offences	Population	Rate
Sydney	1552	3427	20,380	0.45287
Pyrmont	234	467	10,573	0.50107
Darlinghurst	568	1756	24,278	0.32346
Kings Cross	595	1442	17,425	0.41262
Bondi	325	827	29,869	0.39299
Coogee	274	581	18,593	0.47160
Glebe	133	537	13,382	0.24767
Newtown	210	656	15,994	0.32012
Manly	551	882	13,981	0.62472

Table 8: Alcohol-related crime rates per 1,000 population for 2006

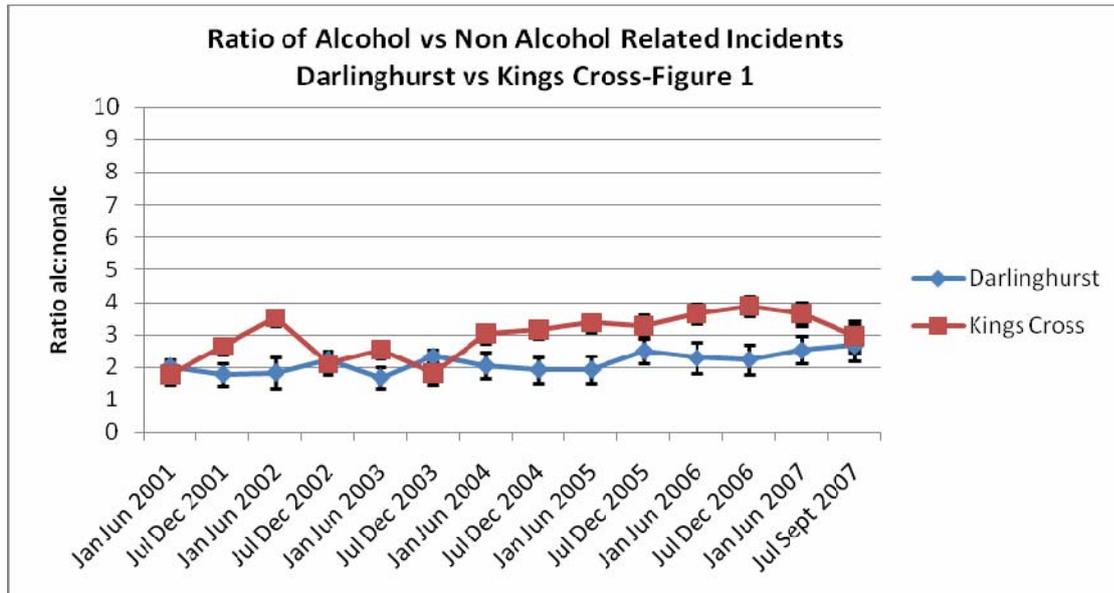
2006				
	Alcohol offences	All offences	Population	Rate
Sydney	1546	3410	21,400	0.45337
Pyrmont	180	395	11,312	0.45570
Darlinghurst	612	1768	24,631	0.34615
Kings Cross	599	1401	17,736	0.42755
Bondi	356	960	29,920	0.37083
Coogee	268	584	18,532	0.45890
Glebe	149	578	13,468	0.25779
Newtown	241	719	16,299	0.33519
Manly	494	859	13,949	0.57509

3.4.2 Alcohol-related ratios over time, within and across study sites

Kings Cross and Darlinghurst

For Kings Cross and Darlinghurst (study sites), changes in alcohol-related crime over time are given in Figure One.

Figure 1: Ratio of alcohol-related incidents to non-alcohol-related incidents, 2001-2007: Darlinghurst versus Kings Cross



nb: the reduction evident in the last time period reflects the data cut-off date of September 2007 (as opposed to December 2007), not a reduction in alcohol-related crime. The expected ratio as at the end of December 2007 would be close to 3 for Darlinghurst and 4 for Kings Cross.

Figure 1 shows that for Darlinghurst (blue line) and Kings Cross (red line), the ratio for the number of incidents that occurred in alcohol related times relative to the same incidents that occur in non-alcohol related times are very close to one another. The range of ratios for Kings Cross varies from a low of 1.75 (January – June 2001) to a high of 3.87 (July – December 2006). The range of ratios for Darlinghurst varies from a low of 1.67 (January – June 2003) to a high of 2.67 (July – September 2007).

Despite these ratios being reasonably similar, it does look as though Kings Cross has had, on average over the whole 2001 to 2007 time period, more alcohol-related crime than Darlinghurst. Calculating the average ratio for Kings Cross (2.94) and Darlinghurst (2.14) confirms this. A statistical test of the difference between these two mean values¹ shows that rates of alcohol-related crime in Kings Cross have been, on average, statistically significantly greater than in Darlinghurst.

Kings Cross and Darlinghurst vs other City of Sydney areas

Figure 2 compares ratios of alcohol-related crime in Kings Cross and Darlinghurst to other defined regions within the City of Sydney LGA.

Figure 2: Ratio of alcohol-related incidents to non-alcohol-related incidents, 2001-2007: Darlinghurst and Kings Cross versus Sydney LGAs

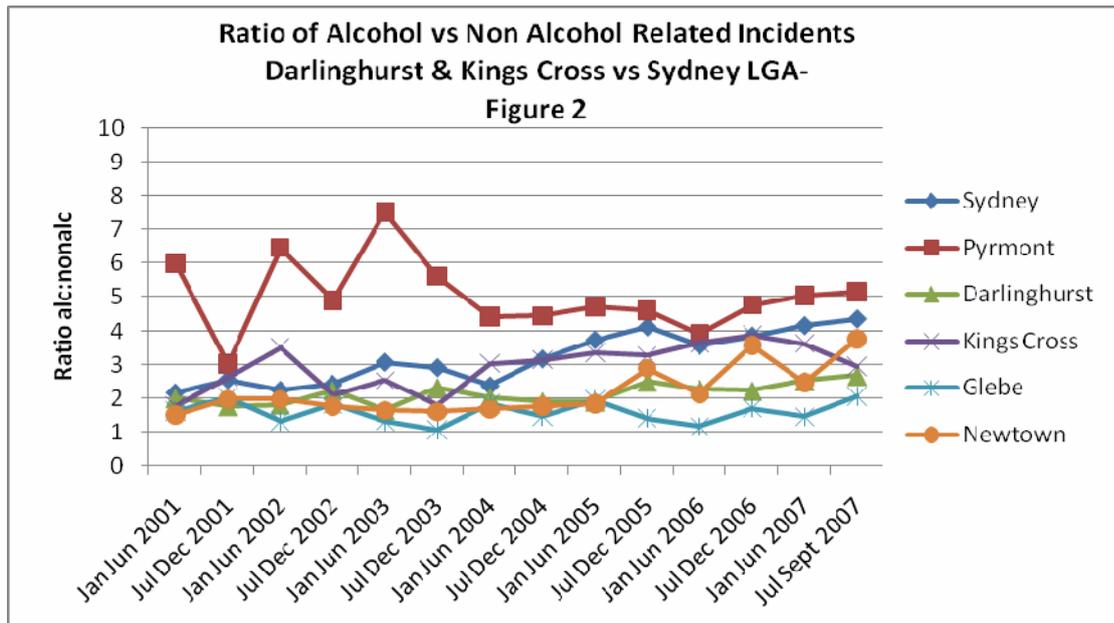


Figure 2 seems to suggest that different areas within Sydney LGA have had, on average over the whole 2001 to 2007 time period, different rates of alcohol-related crime. Statistical analyses² confirms that the following apparent differences are statistically significant:

- Pyrmont (5.05) has had higher rates of alcohol-related harm than Sydney (3.19), Kings Cross (2.94), Newtown (2.19), Darlinghurst (2.14) and Glebe (1.59);
- Sydney (3.19) has had higher rates of alcohol-related harm than Newtown (2.19), Darlinghurst (2.14), and Glebe (1.59).
- Kings Cross (2.94) has had higher rates of alcohol-related harm than Darlinghurst (2.14) and Glebe (1.59).

The statistical comparisons also confirmed that there are no statistically significant differences between the following areas:

- Sydney and Kings Cross;
- Darlinghurst and Newtown;
- Darlinghurst and Glebe.
- Kings Cross and Newtown;
- Glebe and Newtown;

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Kings Cross and Darlinghurst vs LGAs in greater Sydney

Figure 3 compares ratios of alcohol-related crime in Kings Cross and Darlinghurst to other defined regions in greater Sydney.

Figure 3: Ratio of alcohol-related incidents to non-alcohol-related incidents, 2001-2007: Darlinghurst and Kings Cross versus greater Sydney LGAs

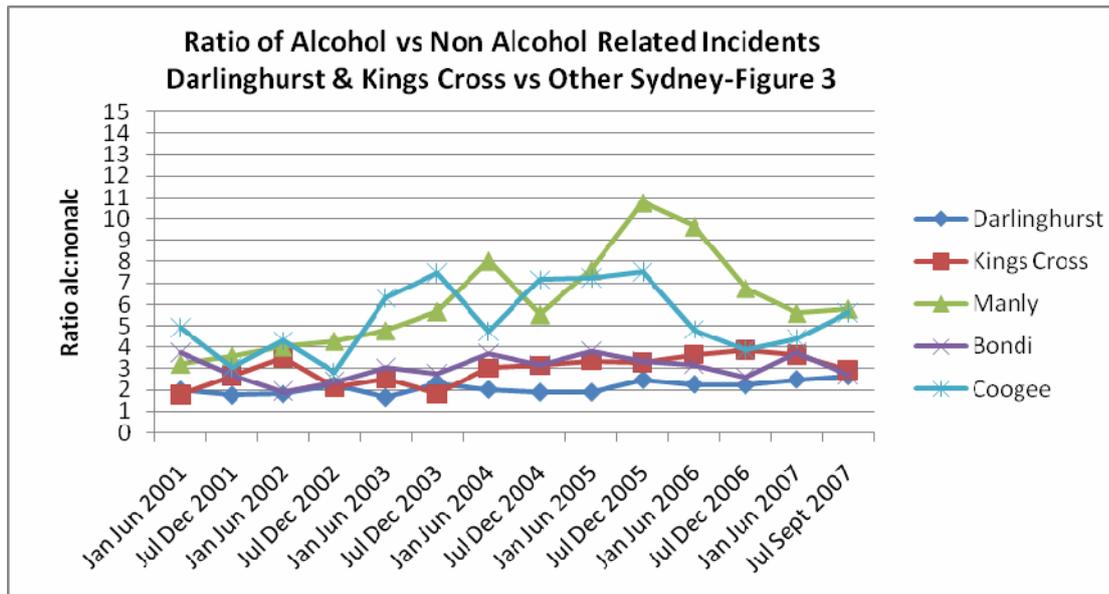


Figure 3 seems to suggest that Kings Cross and Darlinghurst have had, on average over the whole 2001 to 2007 time period, different rates of alcohol-related crime than other defined areas in the greater Sydney region. Statistical analyses³ confirms that the following apparent differences are statistically significant:

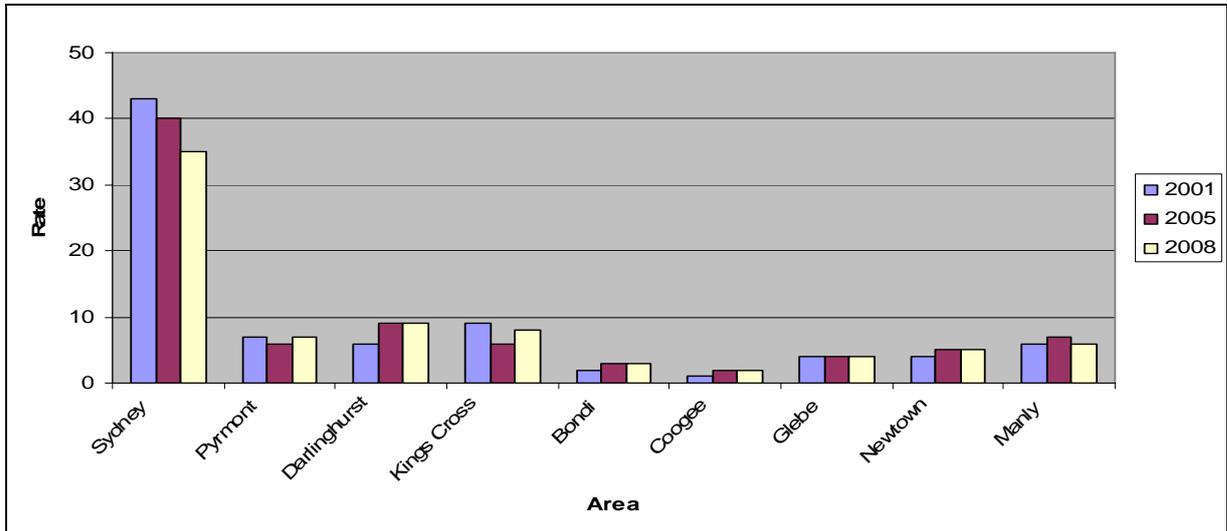
- Both Darlinghurst (2.14) and Kings Cross (2.94) have had lower rates of alcohol-related harm than Manly (6.09) and Coogee (5.31);
- Kings Cross (2.94) has had lower rates of alcohol-related harm than Coogee (5.31), Manly (6.09)

The statistical comparisons also confirmed that there is no statistically significant difference between either Kings cross or Darlinghurst and Bondi.

3.4.3 Rates of licensed premises per 1,000 population within and across study sites

Figure 4 shows the rates of licensed premises per 1,000 population.

Figure 4: Rate of licensed premises per 1,000 population



Sydney city clearly has the highest rate of licensed premises per population. The drop from about 45 to 35 licensed premises per 1,000 population is primarily due to its 27% increase in population (see Table 1), rather than the 5% increase in the number of licensed premises (see Table 2).

Conversely, the slight upward trends for Darlinghurst, Bondi, Coogee and Newtown generally reflect upward trends in their number of licensed premises (37%, 20%, 22% and 27% respectively), given their relatively modest changes in population size (9%, 1%, 0% and 11% respectively).

The rest are relatively stable. Cross checking numbers of licensed premises (Table 2) with population estimates (Table 1) shows the reasons for this stability vary. Pyrmont, for example, has had a substantial increase in the number of licensed premises (33%), but this has been counter-balanced by its population growth (37%). Manly has had a slight increase in licensed premises (9%), but no population growth. Kings Cross has shown a reduction in licensed premises (5%), balanced by relatively modest population growth (10%). Finally, Glebe has been stable on both indices (-4% and +4%).

3.4.4 Rates of crime and licensed premises over time, per 1,000 population

Figure 5 shows the rates of crime and licensed premises over time per 1,000 population.

Figure 5: Relationship between % change in rate of licenses per 1,000 population and crime rate, 2001-2006

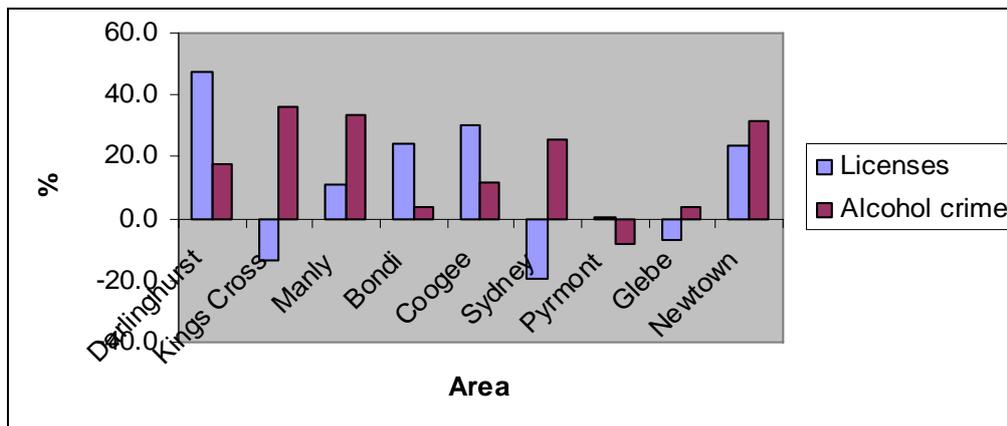
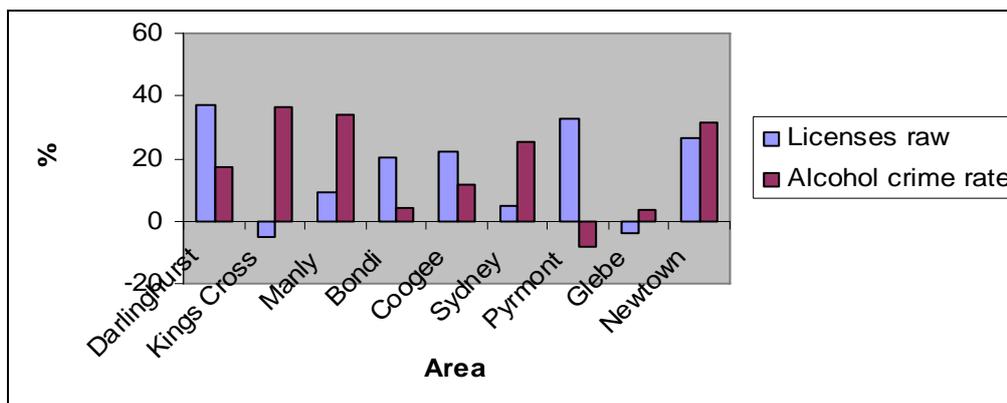


Figure 6 shows the relationship between % change in raw licenses and rate crime, 2001-2006

Figure 6: Relationship between % change in raw licenses and crime rate, 2001-2006



A number of observations can be made in relation to Figures 5 and 6:

- Crime has increased from 2001 to 2006 in all defined areas, except Pyrmont. This is also reflected in Figure 2. Pyrmont, Manly and Coogee are the only LGAs to experience any decline in their proportions of alcohol related crime in the 2001-2006 period (Figures 2

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and 3) although of these three, rates of crime in both Manly and Coogee are still higher in 2006 than they were in 2001, despite the reductions in alcohol-related crime in 2006 and 2007.

- Given Pyrmont is the clear exception in the data, it is worth considering why it is the only LGA to have fewer alcohol-related crimes in 2006 than in 2001, despite the large increase in the raw number of licensed premises over the same period (Figure 6). This apparent anomaly is explained by Figure 5: although the raw number of licenses in Pyrmont has increased by 33% (Table 2), this was balanced by the substantial increase in the population of Pyrmont (37%) over the same time period (Table 1). Given this, the most reasonable explanation for the overall decline in Pyrmont from 2001 to 2006 is that it has historically been at a very high rate, so was much more likely to decrease than increase, even though the decrease has been modest. This is a statistical effect, which also most likely applies to the reductions in crime in Manly and Coogee, called regression to the mean. In plain language, it is an effect that recognises that the extreme rate of alcohol-related crime in Pyrmont was much more likely to trend back towards the mean scores of the other LGAs, than continue separately from them.
- Alcohol-related crime in Kings Cross has increased by about 40% from 2001 to 2006, the highest increase in any defined area. It is closely followed by Manly and to a lesser extent Newtown. Darlinghurst recorded an increase in alcohol-related crime of about 20%.
- Generally speaking, Figure 6 shows that the number of licenses increases, so does the rate of alcohol-related crime, although the two are not exactly correlated: sometimes a small increase in alcohol outlets is associated with a large increase in crime (eg. Manly); and sometimes a large increase in alcohol outlets is associated with a small increase in crime (eg. Bondi). Kings Cross, Pyrmont and Glebe are the exceptions. The dramatic increase in alcohol harm in Kings Cross is associated with a fall in alcohol outlets, as is the small increase in harm in Glebe. This lack of a direct linear relationship between alcohol-related crime rates and alcohol outlets over time (both the raw number of outlets and their rate per 1,000 population) suggests that the effect of the actual number of alcohol outlets is strong, but is mediated by other variables, including the proportion of venues that are late night trading, the proportion of all alcohol outlets that are hotels/pubs or nightclubs and the density of alcohol outlets.

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4. CONCLUSIONS

Kings Cross compared to Darlinghurst

A key finding from these analyses is that there has been, on average, statistically significantly more alcohol-related harm in Kings Cross than Darlinghurst, between 2001 and 2007. Both Kings Cross and Darlinghurst, however, have experienced a trend of increasing alcohol-related crime over time: Kings Cross increased approximately 40% from 2001-2007, while Darlinghurst increased approximately 20%.

Data in Appendix B provides the most likely explanation for the greater rates of alcohol-related harm in Kings Cross is the substantially greater percentage of licensed venues that are late night trading in Kings Cross (86%), compared to Darlinghurst (60%). That Kings Cross appears to have a much smaller overall number of licensed premises (137 vs 229), suggests that the likely greater density of alcohol outlets in Kings Cross and the greater proportion of late night trading venues is related to its greater rates of alcohol-related crime.

Kings Cross and Darlinghurst compared to other City of Sydney LGAs

In interpreting these findings, the City of Sydney area (postcode 2000) is not considered because the areas of which it is comprised are too diverse to be meaningfully interpreted. It is likely, for example, that alcohol-related crime around The Rocks and Haymarket is very different to Millers Point and Dawes Point, even though all four areas have the 2000 postcode. For the remaining postcode areas within the City of Sydney LGA, a greater rate of alcohol-related harm has occurred in Pymont, between 2001 and 2007, relative to both Kings Cross and Darlinghurst. Furthermore, Kings Cross (but not Darlinghurst) has a higher rate of alcohol-related crime than Glebe, while both Kings Cross and Darlinghurst have comparable rates of alcohol-related crime compared to Newtown. Glebe has the lowest rate of alcohol-related crime.

The most likely explanation for the high rate of alcohol-related crime in Pymont since 2001 is the increase in the raw number of licensed premises over the same period, second only to Darlinghurst (Figure 6), coupled with a dramatic increase in population in the same time period. The dual effect of greater population and more licensed premises has most likely resulted in relatively high rates of alcohol-related crime.

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At the other end of the scale, the comparatively low rate of alcohol-related crime in Glebe clearly reflects its very low rate of late night trading premises (17%), compared to Kings Cross (86%), Darlinghurst (60%) and Pyrmont (50%) (Appendix B). Newtown has experienced the third largest increase in its number of licensed premises over time (Figure 6) which, coupled with a high proportion of late night trading venues (59%; Appendix B), is reflected in its alcohol-related crime rates being comparable to Kings Cross and Darlinghurst. These findings indicate that it is both a high overall number of licensed premises and a high percentage of late night trading venues that are associated with increased rates of alcohol-related harm.

Given the results of the Kings Cross versus Darlinghurst comparison, it may be the case that the percentage of late night trading venues is more associated with rates of alcohol-related harm than the overall number of alcohol outlets, although both are clearly important.

The concentration of late night trading venues in Kings Cross, in particular, may reflect the apparent view of the LEC that longer trading hours are appropriate in areas with a significant presence of late trading entertainment venues (eg Kings Cross). While there may be substantive pragmatic, or other, arguments for the appropriateness of grouping together late night trading venues (eg. easier policing, less disturbance to the majority of residents, and so on), it is clear from the data that this is also a crucial factor in increasing rates of alcohol-related harm, the burden of which becomes the responsibility of police, ambulance, hospitals, Local Government services and criminal courts.

Kings Cross and Darlinghurst compared to LGAs in the greater Sydney area

Figure 3 shows Manly and Coogee have higher rates of alcohol related harm than Kings Cross and Darlinghurst, while the rate of alcohol-related harm in Bondi is comparable to Kings Cross and Darlinghurst.

One interpretation of this result is that higher rates of alcohol-related harm are not necessarily directly linked to higher proportions of late night trading venues, since the percentage of late night trading venues in Manly and Coogee (44% and 50% respectively) are lower than for Kings Cross and Darlinghurst (86% and 60%). This finding illustrates a critical point: there is not one factor that will result in different rates of alcohol-related crime in different defined areas, but rather a combination of factors, the importance of which will vary from location to location.

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For example, while Coogee has a relatively small number of hotels (n=32; Appendix B), at least 50% of them are late night trading venues and there are a small number of Coogee hotels that are consistently identified as being highly associated with alcohol-related harm, especially assaults. This reflects the research evidence from metropolitan centres in NSW that a small number of hotels are associated with the majority of alcohol-related harm (Briscoe and Donnelly, 2003).

Manly, alternatively, has a relatively high rate of licensed premises per 1,000 population (n=6, compared to 8 for Kings Cross, 9 for Darlinghurst and 2 for Coogee; Appendix B) but an average percentage of late night trading venues (44%; Appendix B). The main issue with Manly appears to have been the enormous increase in alcohol-related harm in 2005 (Figure 3): despite the subsequent decline in rates of alcohol crime in 2006 and 2007, this spike has disproportionately increased the average rate of crime for Manly across the 2001 to 2007 period.

Finally, there is no evidence that increasing the mix of alcohol license types, without reducing the net availability of alcohol, is likely to be effective: although Pyrmont has the highest rates of alcohol crime and the lowest proportion of restaurants (34%), Coogee and Manly have higher rates of alcohol related harm than Kings Cross and Darlinghurst, despite comparable proportions of restaurants: Coogee 47%; Manly 67%; Kings Cross 48%; Darlinghurst 63% (Appendix B). Glebe, conversely, has a much lower rate of alcohol-related crime than Kings Cross, despite a comparable proportion of restaurants (49%).

The relationship between these data and the community perceptions survey

Complementary to this report is the analysis of the 2008 social survey conducted in the areas of Oxford St and Kings Cross, titled Late Night Trading: Community Perceptions. There are a number of findings particularly relevant to the results of these data analyses.

Firstly, the majority of survey participants (about 60%) believed that the areas of Oxford Street and Kings Cross had become worse, and this was particularly true of residents who had lived in one of these local areas for at least three years. This suggests that community perceptions highlighted in the social survey are consistent with the data in this report: the data show an increase in alcohol-related crime over time, which is reflected in the majority of community opinion.

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Secondly, there was community support for determining and enforcing a ceiling in the number of liquor outlets. This suggests community sentiment is in line with the research evidence: restricting alcohol outlets is both likely to result in a reduction in harm (research evidence) and is acceptable to the community (social survey).

Thirdly, there is community support for more stringent enforcement of laws regarding Responsible Service of Alcohol (RSA), as well as for stronger police presence to discourage anti-social behaviour. Again this reflects research evidence that RSA is only likely to be effective if there is the capacity to enforce and monitor RSA laws. Although this likely places a burden on police, there may be mechanisms to allow greater enforcement of RSA by strategically targeting those times likely to be most problematic in terms of alcohol-related harm.

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5. RECOMMENDATIONS

NDARC make the following recommendations to the City of Sydney Council:

1. That the City work in partnership with state and federal governments, and with community groups, to implement and evaluate mutually agreed strategies, especially those that focus on restricting the supply of alcohol and prioritising those areas where there is clear indication of excessive cumulative impact.
2. The following specific strategies currently have the most evidence for their effectiveness and should be considered for implementation in defined areas of the LGA:
 - Net availability of alcohol ought to be restricted as much as possible. A desire to increase the mix of types of licensed premises in a defined area would ideally be balanced by a reduction in the existing types of licensed premises, rather than adding to them (which increases net availability of alcohol).
 - The density of alcohol outlets in a defined area should be restricted, which is of particular benefit for residents who live in the immediate area of licensed premises.
 - The number of late night trading venues, including 24-hour licenses, should be restricted to reduce the availability of alcohol.
 - RSA obligations should only be supported and encouraged if authorities have the capacity to enforce and monitor it.
3. That the City develop a comprehensive database of alcohol trading premises within the LGA. The database should report a bi-annual snapshot of the City of Sydney to allow for the monitoring of cumulative impact of late night and other alcohol trading premises over time. The database should include such information as:
 - locations of late night trading premises (including non-licensed premises that operate late at night);
 - conditions of consent for late night trading premises;
 - capacity, size and approved and actual hours of operation of individual late night trading premises;
 - conditions of liquor licences for late night trading premises;
 - crime data, including crime that occurs in the public domain and crime that occurs on individual late night trading premises;

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- NSW police linking data;
- community perceptions in areas with a high concentration of late night trading premises;
- visitor numbers;
- transport availability indicators;
- traffic indicators;
- relevant demographic data;
- relevant locational data relating to defined areas of the LGA (such as parking spaces);
- sales data for late night trading premises with a liquor licence;
- complaints about and from individual alcohol trading premises;
- compliance infringements of individual alcohol trading premises; and
- hospital admittance data where harm has occurred that may be attributed to alcohol use.

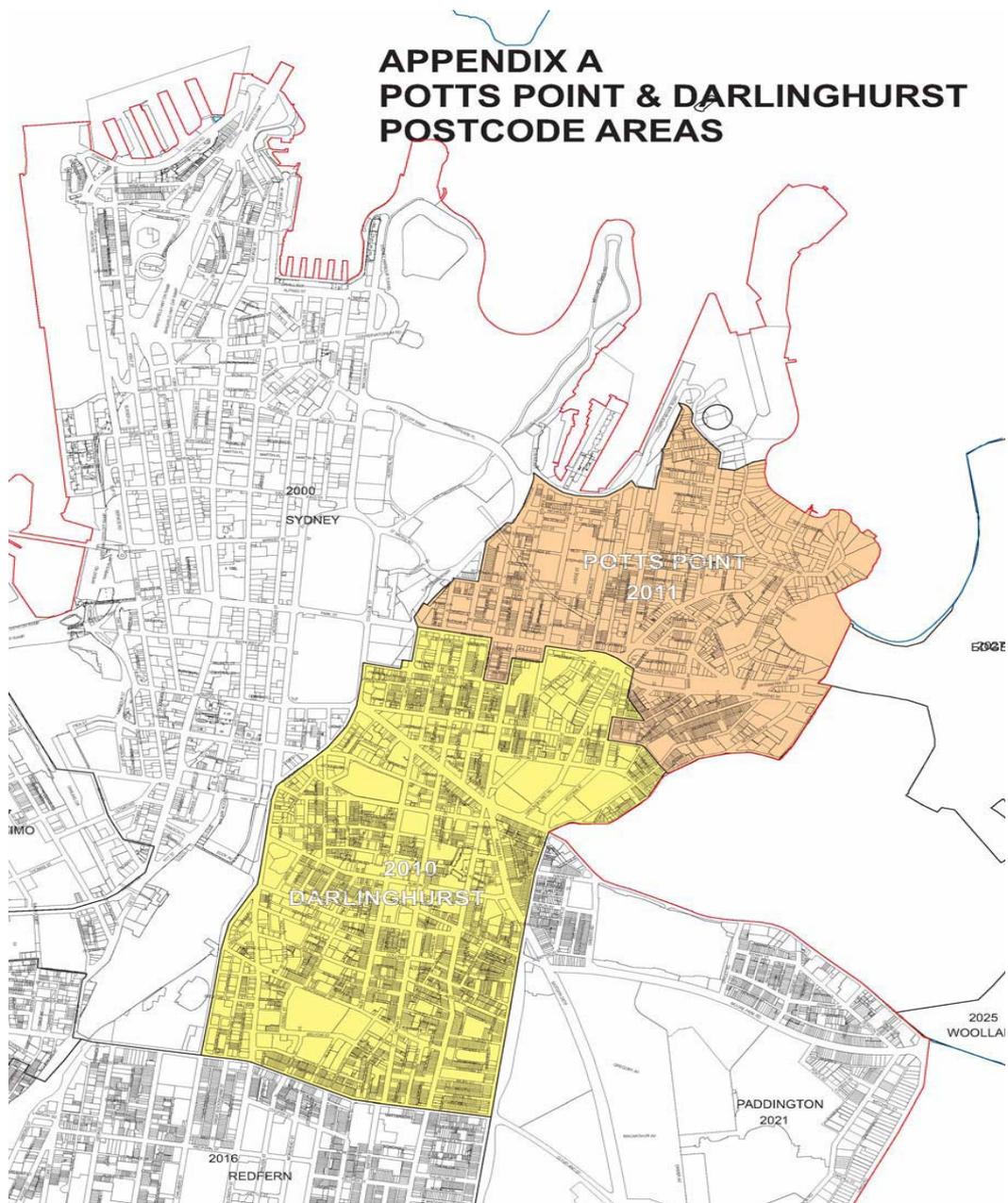
It should be noted that much of these data are not currently available to local government. The City should work in partnership with state and federal authorities to improve data collection techniques, which would directly inform the database.

4. Based on these key indicators, it is recommended that the City develop planning mechanisms to contain the supply of alcohol where there is clear indication of excessive cumulative impact.
5. The City should work in partnership with state and/or federal authorities to introduce mandatory measures that restrict the advertising of alcohol, similar to those on tobacco. This reflects public health evidence that restricting supply, increasing price and restricting advertising are likely to result in the biggest reductions in harm across the whole community.
6. The City should endeavour to establish mechanisms to work in partnership with the community, involving them in the decision making and evaluation process.

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APPENDICES

Appendix A: Geographical boundaries of Study Areas



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Appendix B: 2008 characteristics of included post-code areas

Characteristic	Postcode area									
	<i>Kings Cross</i>	<i>Darlinghurst</i>	<i>Sydney city</i>	<i>Pyrmont</i>	<i>Bondi</i>	<i>Coogee</i>	<i>Glebe</i>	<i>Newtown</i>	<i>Manly</i>	
Population	17,736	24,631	21,400	11,312	29,920	18,532	13,468	16,299	13,949	
# dwellings	12,259	14,351	10,574	5,967	15,753	9,300	6,890	8,232	7,732	
# licensed premises	137	229	744	76	89	32	49	83	89	
Rate licensed premises / 1,000 population	8	9	35	7	3	2	4	5	6	
Mix of licenses (%)										
<i>Hotels</i>	17 (12)	32 (14)	163 (22)	6 (8)	5 (6)	3 (9)	12 (24)	17 (20)	7 (8)	
<i>Clubs</i>	1 (1)	4 (2)	27 (4)	0 (0)	5 (6)	5 (16)	1 (2)	1 (1)	7 (8)	
<i>Nightclubs</i>	14 (10)	12 (5)	9 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	4 (4)	
<i>Hotel, club, nightclub</i>	32 (23)	48 (21)	199 (27)	6 (8)	10 (12)	8 (25)	13 (26)	19 (22)	18 (20)	
<i>Restaurant</i>	66 (48)	145 (63)	356 (48)	26 (34)	58 (65)	15 (47)	24 (49)	50 (60)	60 (67)	
<i>Other</i>	39 (26)	36 (16)	189 (25)	44 (58)	21 (24)	9 (28)	12 (24)	14 (17)	11 (12)	
Hotel, club, nightclub ^a										
24 hour licenses (%)	10 (34)	10 (23)	20 (11)	1 (17)	0 (0)	0 (0)	0 (0)	1 (6)	0 (0)	
Late night licenses (%) ^b	15 (52)	16 (37)	95 (53)	2 (33)	5 (50)	4 (50)	2 (17)	9 (53)	7 (44)	
24 hr & late night	25 (86)	26 (60)	115 (64)	3 (50)	5 (50)	4 (50)	2 (17)	10 (59)	7 (44)	
Up to 12.30am	4 (14)	17 (40)	65 (36)	3 (50)	5 (50)	4 (50)	10 (83)	7 (41)	9 (56)	

^aMissing data: Sydney city=19; Darlinghurst=5; Kings Cross=3; Manly=2; Newtown=2; Glebe=1.

^bLate night is defined as trading after 12.30am

Appendix C: Statistical notes from the results section

1. Two sample t-test (Shapiro Wilk $p > 0.05$); $\alpha = 0.05$; $p = 0.0005$.
2. One-way analysis of variance (Shapiro Wilk $p > 0.05$); $\alpha = 0.05$; $p < 0.0001$. In order to identify specific between area differences, a Tukey's post hoc procedure was utilised. The model accounted for 72.8% of the variability in mean ratio, based on crime included in the surrogate measure for alcohol related times and non alcohol related times. The variability does not include the number of venues in a defined LGA, nor operating hours (see Appendix B). The results of specific pair-wise comparisons are as follows:

Table 9: Results of tests of statistical significance: Kings Cross and Darlinghurst vs City of Sydney LGAs

Category Comparison	Difference between means	95% CI	Significance
Sydney vs. Pyrmont (1 vs 2)	1.87	[1.08, 2.65]	<0.0001
Pyrmont vs. Kings Cross (2 vs 4)	2.12	[1.33, 2.9]	<0.0001
Pyrmont vs. Newtown (2 vs 6)	2.87	[2.08, 3.65]	<0.0001
Pyrmont vs. Darlinghurst (2 vs 3)	2.92	[2.13, 3.70]	<0.0001
Pyrmont vs. Glebe (2 vs 5)	3.47	[2.68, 4.25]	<0.0001
Sydney vs. Newtown (1 vs 6)	1.00	[0.21, 1.78]	<0.0001
Sydney vs. Darlinghurst (1 vs 3)	1.05	[0.27, 1.83]	<0.0001
Sydney vs. Glebe (1 vs 5)	1.60	[0.81, 2.38]	<0.0001
Kings Cross vs. Darlinghurst (4 vs 3)	0.80	[0.02, 1.59]	<0.0001
Kings Cross vs. Glebe (4 vs 5)	1.35	[0.57, 2.13]	<0.0001

3. One-way analysis of variance (Shapiro Wilk $p > 0.05$); $\alpha = 0.05$; $p < 0.0001$. In order to identify specific between area differences, a Tukey's post hoc procedure was utilised. The model accounted for 59.1% of the variability in mean ratio, based on crimes included in the surrogate measure for alcohol related times and non alcohol related times. Again, the variability does not include the number of venues in each LGA nor operating hours (see Appendix B).

Table 10: Results of tests of statistical significance: Kings Cross and Darlinghurst vs greater Sydney LGAs

Category Comparison	Difference between means	95% CI	Significance
Manly vs. Bondi (7 vs 9)	3.02	[1.63, 4.41]	<0.0001
Manly vs. Kings Cross (7 vs 4)	3.15	[1.76, 4.54]	<0.0001
Manly vs. Darlinghurst (7 vs 3)	3.95	[2.56, 5.34]	<0.0001
Bondi vs. Coogee (8 vs 9)	2.25	[0.86, 3.64]	<0.0001
Coogee vs. Kings Cross (8 vs 4)	2.37	[0.98, 3.76]	<0.0001
Coogee vs. Darlinghurst (8 vs 3)	3.18	[1.79, 4.57]	<0.0001

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REFERENCES

- Australian Institute of Health and Welfare. *2007 National Drug Strategy Household Survey. First results*. Drug Statistics Series number 20.Cat.no. PHE 98. Canberra: AIHW, 2008.
- Breen C, Shakeshaft A, Slade T *et al.* Assessing alcohol related crime at the community level: the search for a reliable measure, *under review*, 2008.
- Briscoe S and Donnelly N. Problematic licensed premises for assaults in inner Sydney, Newcastle, and Wollongong. *Australia and New Zealand Journal of Criminology*, 36, 18-33, 2003.
- Briscoe S and Donnelly N. Temporal and regional aspects of alcohol-related violence and disorder. *Alcohol Studies Bulletin No. 1*, NSW Bureau of Crime Statistics and Research, Sydney, 2001.
- Chikritzhs T and Stockwell T. The impact of later trading hours for Australian public houses (hotels) on levels of violence, *Journal of Studies on Alcohol*, 63, 591-9, 2002.
- Chikritzhs T and Stockwell T. The impact of later trading hours for hotels (public houses) on breath alcohol levels of apprehended impaired drivers. *Addiction*, in press.
- Collins D and Lapsley HM. *The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004/05*. Publication number P3-2625. Commonwealth of Australia: Canberra, 2008.
- Considine R, Walker A, Wiggers J, Daly J, Hazell T and Fairhall S. Strategies to reduce alcohol-related harm in the Hunter. Two collaborative approaches. www.aic.gov.au/conferences/partnership/considin.pdf, 1998.
- Donnelly N, Poynton S, Weatherburn D, Bamford E, Nottage J. Liquor outlet concentrations and alcohol-related neighbourhood problems. *Alcohol Studies Bulletin No.8*, Sydney: Bureau of Crime Statistics and Research, 2006.
- Foxcroft DR, Ireland D, Lister-Sharp DJ, Lowe G, Breen R. Longer-term primary prevention for alcohol misuse in young people: a systematic review, *Addiction*, 98, 397-411, 2003.
- Hall W. British drinking: a suitable case for treatment? Cut tax on low alcohol drinks, curb drink driving, and offer brief interventions. *British Medical Journal*, 331, 527-8, 2005.
- Homel R and Clark J. *The prediction and prevention of violence in pubs and clubs*, in *Crime Prevention Studies V3*. Ed. Clarke, RV. Criminal Justice Press: Monsey NY, 1994.
- Ireland C and Thommeny J. The crime cocktail: licensed premises, alcohol and street offences. *Drug and Alcohol Review*, 12, 143-50, 1993.
- Kreitman N. Alcohol consumption and the preventive paradox. *British Journal of Addiction*, 81, 353-63, 1986.

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Lipton R and Gruenewald P. The spatial dynamics of violence and alcohol outlets. *Journal of Studies on Alcohol*, 63, 187-95, 2002.

Matthews, S., T. Chikritzhs, *et al.* (2002). Trends in alcohol-related violence in Australia, 1991/92-1999/00. Perth, National Drug Research Institute.

Matthews, S., S. Donath, *et al.* (2002). National Alcohol Indicators Project Technical Report No. 5. Trends in alcohol-related violence in Australia, 1991/92-1999/00. Perth, National Drug Research Institute.

Poynton S, Donnelly N, Weatherburn D, Fulde G and Scott L. The role of alcohol in injuries presenting to St Vincent's Hospital Emergency Department and the associated short-term costs. *Alcohol Studies Bulletin No. 6*, NSW Bureau of Crime Statistics and Research, Sydney, 2005.

Rehm J, Room R, Graham K, Monteiro M, Gmel G, Sempos CT. The relationship of average volume of alcohol consumption and patterns of drinking to burden of disease-an overview. *Addiction*, 98, 1209-28, 2003.

Room R, Babor T and Rehm J. Alcohol and public health. *The Lancet*, 365, 519-30, 2005.

Rose G. *The Strategy of Preventive Medicine*. Oxford Medical Publications, Oxford University Press: Oxford, 1992.

Scribner RA, MacKinnon DP and Dwyer JH. The risk of assaultive violence and alcohol availability in Los Angeles County. *American Journal of Public Health*, 85, 335-40, 1995.

Stevenson RJ, Lind B and Weatherburn D. The relationship between alcohol sales and assault in NSW, Australia. *Addiction*, 94, 397-410, 1999.

Stockwell T, Masters L, Phillips M, Daly A, Gahegan M, Midford R and Philp A. Consumption of different alcoholic beverages as predictors of local rates of night-time assault and acute alcohol-related morbidity. *Australia and New Zealand Journal of Public Health*, 33, 237-42, 1998.

Wood E, Shakeshaft A, Gilmour S, Sanson-Fisher R. A systematic review of school-based studies involving alcohol and the community. *Australia and New Zealand Journal of Public Health*, 30, 541-9, 2006.