NSW GOVERNMENT | The Treasury

Evaluation of the Sydney CBD Entertainment Precinct Plan of Management

Centre for Program Evaluation

29 August 2016

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- Liquor Regulation 2008 -
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Acronym list

ABS	Australian Bureau of Statistics
ACTP	ACT Policing
AIC	Akaike Information Criteria
APDC	NSW Admitted Patient Data Collection
APRA	Australasian Performing Right Association
BCA	Benefit-cost analysis
BCR	Benefit-cost ratio
BOCSAR	Bureau of Crime Statistics and Research (New South Wales)
CBD	Central Business District
CHeReL	Centre for Health Record Linkage
COPS	Computerised Operational Policing System
CPE	Centre for Program Evaluation, NSW Treasury
CPTED	Crime Prevention Through Environmental Design
CCTV	Closed-circuit television
DAGJ	Department of Attorney General and Justice
DCF	Discounted cash flow
DFS	Department of Finance and Services
DoJ	Department of Justice (New South Wales)
DPC	Department of Premier and Cabinet (New South Wales)
EDDC	NSW Emergency Department Data Collection
GLARMA	Generalised Linear AutoRegressive Moving Average
HAT	High Alcohol Time
LAC	Local Area Command
L&GNSW	Liquor & Gaming NSW
LGA	Local Government Area
LNMAR	Late Night Management Areas Research
NHMRC	National Health and Medical Research Council
NPV	Net present value
OLGR	Office of Liquor, Gaming & Racing
OMCG	Outlaw motorcycle gang
PV	Present Value
RMS	Roads and Maritime Services (New South Wales)
RSA	Responsible Service of Alcohol
RTD	Ready-to-drink
SA2	Statistical Area Level 2
SHFA	Sydney Harbour Foreshore Authority
TfNSW	Transport for NSW
UK	United Kingdom
WTP	Willingness to pay

Executive Summary

Background to the 2014 measures

In 2014 the NSW Government introduced a range of measures with the aim of reducing alcohol-related violence and antisocial behaviour in the Sydney Central Business District (CBD) Entertainment precinct (the CBD precinct). These measures were introduced in two phases between February and December 2014.

- Phase One included the legislated liquor reforms implemented via the *Liquor Amendment Act 2014* including a 1:30am lock out and 3:00am cessation of alcohol service, the application of a liquor licence freeze to the newly established CBD precinct and the introduction of temporary banning orders that police can issue to remove troublemakers from the CBD precinct. Phase One measures commenced on 24 February 2014.
- Phase Two covered a range of measures to improve the safety of venues and patrons, the environment and travel in the CBD precinct. These measures were introduced via the Sydney CBD Plan of Management and the majority of them commenced on 18 July 2014.

These measures are collectively referred to as 'the Plan'.

Purpose and scope of the report

The evaluation employed quantitative and qualitative approaches to conduct a process, outcome and economic evaluation of the Plan. The aims of the overall evaluation were threefold to:

(1) -examine the development of the Plan and assess whether it has been implemented as intended

(2) -identify whether the Plan achieved its aim of reducing alcohol-related violence

(3) -determine whether the Plan delivered a net benefit to the NSW community.

Some potential indirect consequences of the Plan—as identified in the process of evaluation—were also investigated. A considerable amount of data would be required to comprehensively investigate all possible indirect consequences of the Plan, including to the entire community and business sectors across New South Wales. This was beyond the scope of this evaluation. However, in order to provide some indication of the changes that may have occurred in the CBD precinct since the Plan commenced, case studies were conducted with a focus on three specific aspects identified by stakeholders, namely the CBD precinct environment, the community, and licensed premises and related sectors.

Data sources and interpretation

This evaluation was informed by a variety of quantitative and qualitative data comprising:

- police record data of alcohol-related and total non-domestic assaults occurring in the precinct and nearby areas between January 2009 and December 2015, provided by the NSW Bureau of Crime Statistics and Research (BOCSAR)
- alcohol-related ambulance callouts occurring in the precinct and nearby areas between July 2012 and June 2015, provided by NSW Ambulance and enhanced by Turning Point Alcohol and Drug Centre
- a NSW Ambulance and NSW Health emergency department linked dataset, with linkage undertaken by the Centre for Health Record Linkage (CHeReL)
- implementation costs of the Plan, provided by State government agencies, local government and licensed premises

- criminal justice system costs relating to alcohol-related assaults (from a range of published data sources) and health system costs relating to alcohol-related injury (from specific emergency department and admitted patient cost data for Sydney hospitals)
- published benchmark data on willingness to pay to avoid injury
- consultations with State and local government agencies and services; peak industry bodies representing the liquor, hospitality, business, tourism, music, retail, security and transport industries; licensed premises; and community organisations
- live music data provided by the Australasian Performing Right Association (APRA)
- Safe Space and Take Kare Ambassador program data provided by the City of Sydney
- licensing information of CBD precinct venues and gaming data provided by Liquor & Gaming NSW (L&GNSW)
- transport data provided by Transport for NSW (TfNSW)
- pedestrian activity and perceptions of safety survey data collected by AusTraffic on behalf of the NSW Department of Justice (DoJ)
- feedback from licensed premises in the CBD precinct collected through two online surveys developed and administered by NSW Treasury.

Econometric modelling was conducted using official police and health datasets to determine whether there is evidence that the Plan has reduced alcohol-related assaults and injury. These datasets provide all recorded incidents that occurred within the defined CBD precinct boundaries.

Throughout the report, the presentation of the evaluation findings is supported by a discussion of the strengths and limitations of the relevant data sources.

Types of data and how to interpret results

Program evaluation usually examines a range of data sources. The use of multiple data sources provides a broader and more robust evaluation, as it allows for the verification of findings and confirmation of consistent themes. However, it should be recognised that different data sources have different limitations. In this evaluation, the key types of data used are official, survey, third party and qualitative.

Official government data capture the incidence of events or usage of services, and are thus subject to minimal reporting biases. The official data sources for this evaluation include police record of assaults, ambulance callouts, emergency department attendance, and financial data provided by government agencies. Due to the objective nature of these data, they have been used as key input in modelling. It is acknowledged that these data were not collected for the purpose of this evaluation, and thus represent the most relevant, though not necessarily perfect, indicators for the analysis.

Survey data are usually self-reported with participants completing a series of questions without direct researcher involvement. The survey data used in this evaluation include Treasury's licensed premises surveys (where a satisfactory response rate was achieved) and the Department of Justice's pedestrian intercept surveys. Self-reported data are subject to potential biases including: non-response bias, where participants may differ significantly from those who did not respond to the survey**;** and recall bias, where the information provided by participants may be inaccurate or incomplete.

Third-party data have also informed this evaluation; for example, live music and pedestrian activity. These data have been collected using a variety of methods and have been made available to CPE at various levels of disaggregation. The format of these data provides limited scope for in-depth analysis.

Qualitative information is collected through stakeholder consultations in an open-ended way. This information would not otherwise be captured through other methods. Consultation findings are based on the views of the stakeholders consulted and may be subject to bias.

The CBD precinct

The CBD Entertainment precinct covers a large geographic area including parts of Surry Hills and Darlinghurst, across to the Rocks, and from the border of Kings Cross precinct to Cockle Bay.

As at 27 June 2016, there were 1,014 active liquor licences in the precinct, comprising 768 on-premises licences (where the supply of alcohol is supplementary to another product or service such as food), 203 hotel licences, 20 club licences, 20 small bar licences and 3 limited licences (for special events).

Of the total number of licences, approximately two-thirds (or 670) are for venues that trade before midnight and one-third (or 344) is for venues that trade after midnight.

Process evaluation findings

The process evaluation found that the Plan was implemented effectively and with a high degree of program fidelity.

Policy development and governance

In January 2014 the NSW Government developed the Phase One measures, which included the 1:30am lock outs, 3:00am cessation of service and the establishment of the CBD precinct boundaries. This was overseen by the Office of Liquor, Gaming & Racing (OLGR) which at that time had responsibility for regulating the liquor industry in New South Wales, with input from the NSW Police Force and the Department of Premier and Cabinet (DPC).

In February 2014, a CBD Entertainment Precinct Taskforce comprising DPC, DoJ, OLGR and the City of Sydney was established and reported to a Steering Committee. The Taskforce developed Phase Two of the Plan and met until late 2014, by which time the key elements of this Phase had been implemented.

Measures for safer venues and patrons

Overall, there has been a high level of compliance with the licensing conditions implemented under the Plan. This has been facilitated by the extensive work of both the current regulator L&GNSW, and the former regulator OLGR, to educate licensed premises about the new licensing conditions, particularly in the initial stages of the Plan's operation. In addition, there have been efforts by licensed premises and Liquor Accords to explain the changes to their patrons and ensure that premises meet the new requirements and minimise any penalties for non-compliance.

Where L&GNSW has identified licensing breaches by venues in the CBD precinct, these have been for relatively low-level offences including failure to produce Responsible Service of Alcohol (RSA) competency cards or interim certificates upon request and failure to keep an incident register in the approved form.

Treasury's 2015 and 2016 licensed premises surveys and stakeholder consultations identified that some venues have experienced challenges with implementing the drink restrictions after midnight (which were viewed as complex and numerous), the 1:30am lock out, restrictions on drink promotions and 3:00am cessation of service. However, these challenges have not translated to non-compliance.

Implementing agencies identified particular challenges in monitoring and enforcing compliance by licensed vessels. By their nature, the RSA practices on licensed vessels are less transparent and there are inherent challenges in enforcing compliance when vessels are in transit. Moreover, while vessel operators are required to schedule their initial disembarkation through a booking service controlled by Roads and Maritime Services (RMS), there is no similar requirement for drop-offs at the end of the night. Consequently the location and arrival time of the boats cannot be anticipated, and this has reportedly made it difficult for the Sydney Harbour Foreshore Authority (SHFA) rangers and the NSW Police Force to manage the often large crowds disembarking from these vessels at various times throughout the night.

As at 26 June 2016, 16 licensed premises had received exemptions from elements of the Plan. The use of a uniform statutory test for the granting of exemptions has assisted in protecting the overall integrity of the Plan and the limited number of exemptions granted has ensured that program fidelity has not been compromised by overuse of the exemptions mechanism.

Measures for safer travel

There was widespread stakeholder support for the transport initiatives implemented under the Plan. The prepaid taxi fares were identified as improving the perception of safety for taxi drivers and reducing the potential for conflict with passengers. There was widespread support for the expansion of the secure taxi ranks that has taken place in the CBD precinct.

However, some stakeholders expressed concerns about the limited public transport options from the CBD precinct late at night, which was seen to be potentially exacerbated with the introduction of the 1:30am lock out and 3:00am cessation of service.

Measures for a safer environment

There are a number of initiatives delivered under the Plan that aim to create a safer environment in the CBD, including closed-circuit television (CCTV) cameras, improved lighting, 24-hour street cleansing, high-visibility policing and the Safe Space and Take Kare Ambassador program. Stakeholder consultations focused on the Safe Space and Take Kare Ambassador program, which has provided effective outreach support to vulnerable persons and assisted police in managing the streets during peak night-time periods.

Outcome evaluation findings

There is evidence that the Plan has reduced alcohol-related violence in the CBD precinct, as measured by changes in total non-domestic assaults and alcohol-related non-domestic assaults and injury. Antisocial behaviour was not examined as part of this evaluation due to data limitations.

Econometric modelling was undertaken to analyse whether the objective of the Plan—to reduce alcohol-related violence—has been achieved and whether the results are statistically significant. This process takes into account seasonality and the previous trends in assaults and injury.

Assaults

Since January 2009, the incidence of alcohol-related non-domestic assaults in the CBD precinct has been declining. Following the implementation of the Plan in February 2014, alcohol-related non-domestic assaults declined by 16% and total non-domestic assaults declined by 11.4%.

Declines in alcohol-related non-domestic assaults occurred:

- at the times of the night where major elements of the Plan apply, with a 22.8% decline between 1:30am and 3:00am and a 36% decline between 3:00am and 6:00am
- across all assault types, with the largest declines occurring for assaults that caused the most harm—grievous bodily harm (55.4%) and actual bodily harm (29.8%)
- both inside and outside licensed premises (15.5% and 16.3% respectively) and in the venue type where assaults are more prominent (19.3% for hotels)
- both on weekdays and weekends (13.5% and 13.3% respectively).

Assaults in areas surrounding the precinct were also examined. Alcohol-related non-domestic assaults increased by 14.2% in a close displacement area, which covers the suburbs surrounding the precinct. However, comparing the number of alcohol-related assaults 12 months before and 12 months after the Plan's introduction, the increase in average monthly assaults in the close displacement area (2 assaults) does not offset the decline in average monthly assaults in the CBD precinct (12 assaults).

Further, there is no conclusive evidence of a change in assaults in a distal displacement area (comprising Newtown, Glebe, Coogee, Double Bay and Bondi Beach).

Injury

In addition to reducing alcohol-related violence in the CBD precinct, the supply reduction and harm minimisation strategies of the Plan may also result in reduced alcohol-related injuries, both as a result of fewer alcohol-related assaults and fewer non-violent injuries due to less alcohol being consumed and less intoxication.

This evaluation is one of the first Australian studies to examine alcohol-related harm using ambulance data linked with emergency department and hospital admissions data. Ambulance callouts to the CBD precinct for alcohol-related, non-domestic injuries can thus be examined in relation to the patient's severity of injury (severe and critical, or potentially serious to less urgent) as assigned in the emergency department.

Between February 2014 and June 2015, alcohol-related injury declined for:

- severe and critical injury on weekends (by 48.7%) and what is known as the "high alcohol time (HAT)" period which encompasses 6:00pm Friday to 6:00am Sunday (by 52.4%)
- potentially serious and less urgent injury on weekends (30.7%), during the HAT period (39.2%) and in the HAT period for a subset category of where the patient was intoxicated (31.7%).

Alcohol-related injury was also examined for a proximal displacement area. It was found that:

- severe and critical injuries declined during the HAT period (92.1%) and for a subset category of where the patient was intoxicated (90.1%)
- but potentially serious and less urgent injury increased overall (66.9%), on weekends (71.3%) and before midnight (82.3%).

However, the magnitude of the increase in potentially serious to less urgent injuries in the displacement area does not offset the significant reductions in alcohol-related injuries observed in the CBD precinct.

The findings of the injury data analysis are consistent with those of the assault data analysis, with both showing reductions in the precinct since the introduction of the Plan.

Economic evaluation

A benefit-cost analysis of the Plan was undertaken to determine whether the Plan has delivered a net economic benefit to the NSW community. To examine this, financial, economic and social impacts associated with the Plan were identified and compared to a counterfactual case of a 'no policy change' scenario to determine the marginal costs and benefits. The difference between the two cases reflects the impact of the Plan and is used to determine whether the Plan has achieved a net benefit for the community.

The analysis finds that the benefits of avoiding alcohol-related assaults and injury outweigh the costs of implementing the Plan, resulting in an estimated net benefit of $29.8 million to the NSW community over the February 2014 to December 2015 period. The benefit-cost ratio was estimated to be 3.6, suggesting the Plan has achieved a return in present value terms of $3.60 for every dollar cost.

The net benefit is reflective of significant benefits (avoided costs) associated with the reductions in alcohol-related assaults and injury. The benefits (costs avoided) to individuals from the reduction in injury are estimated at $33.1 million, using the value of a statistical life year estimate based on Australian benchmarks. The costs avoided to government services are estimated at $8.3 million.

The costs of the Plan reflect the implementation costs to State government ($7.4 million), local government ($1.3 million) and licensed premises ($0.7 million), as well as the costs to government services of $2.2 million associated with the estimated increase in assaults and injury in the proximal displacement area. While the increases in the displacement area may or may not be attributable to the Plan, a conservative approach has been taken and these costs have therefore been included.

Overall, the benefit-cost analysis shows that the Plan has successfully delivered a net benefit to the NSW community.

Case studies – Indirect consequences

Some potential indirect consequences of the Plan—namely, change to the CBD precinct environment, the community, and licensed premises and related sectors—were also investigated in this evaluation.

The CBD precinct environment

There is a lack of available data to definitively conclude which mechanism(s) influenced the positive outcomes in the CBD precinct. The reductions in assaults and injury identified in the outcome evaluation may be the result of a number of factors such as reduced alcohol consumption and intoxication and crowding and/or foot traffic in the CBD precinct.

The DoJ pedestrian activity survey data indicate a 20% decline in foot traffic between midnight and 4:00am in the CBD precinct between February 2014 and February 2015. In addition, Treasury's survey of CBD licensed premises found that some survey respondents, particularly after midnight traders, have reported declines in patronage.

Community

A CBD resident group consulted as part of the evaluation reported modest improvements in amenity and safety in their local area since the Plan commenced.

Data collected by AusTraffic on behalf of DoJ examined perceptions of safety in the CBD precinct. In 2014, 2015 and 2016, the majority of respondents indicated that they felt either 'very safe' or 'safe'. Compared with the 2015 survey, a greater proportion of respondents in 2016 felt that the 'lock out laws' had improved public safety (49.8% in 2016 compared with 39.8% in 2015).

The 1:30am lock out and supply reduction measures (e.g. 3:00am cessation of service and drink restrictions) restrict consumer behaviours by limiting the ability of patrons to move between venues after 1:30am and by placing restrictions on the availability and range of alcoholic beverages that can be purchased by patrons after midnight. Measuring the magnitude of consumer choice impacts is challenged by limited data available to identify the size of the affected consumer group or determine the value that consumers place on having access to the CBD precinct after midnight.

Licensed premises and related sectors

As there are no publicly available data on business performance and staffing at the CBD precinct level, Treasury undertook its own online surveys of licensed premises to gain feedback on the perceived impacts of the Plan. Such online surveys rely on self-reported data and have lower reliability.

Premises trading after midnight reported an average decline in turnover between 2013 and 2015, while premises trading before midnight reported an average increase over the same period. Both before and after midnight traders reported declines in staffing levels, with the latter reporting a more significant decline.

From stakeholder consultations and Treasury's surveys, many licensed premises indicated that they have adjusted their business models in a number of ways. These strategies included changing food and beverage prices, diversifying the products offered and targeting different patron markets.

Live music

Treasury's licensed premises survey indicated that spending on live music has declined in 2015 compared with 2013 and 2014. Further data provided by APRA suggests that the live and recorded music industry has experienced declines in admissions of around 12% between 2014-15 and 2012-13 in an area approximating the precinct. The live music industry representatives expressed concerns that the cultural vibrancy of the precinct has been affected, and that this could have longer term implications for artists and the industry.

Gaming sector

Thirteen venues with gaming licences have received an exemption to the lock out on the basis that they cease alcohol service from 1:30am and introduce additional measures to mitigate any increased risk of violence. This has permitted these venues to allow new patrons to enter the venue after 1:30am to participate in gaming activities. L&GNSW gaming revenue data for the precinct indicate marginal to modest growth between 2013 and 2015 of 1.3% for clubs and 5.9% for hotels.

Conclusions

The process evaluation found that the Sydney CBD Entertainment Precinct Plan of Management was implemented effectively and with a high degree of program fidelity. As noted in the literature, multi-component interventions incorporating a range of supply reduction and harm minimisation strategies are likely to be most effective in reducing alcohol-related harm.

The outcome evaluation found that the Plan has achieved its aim of reducing alcohol-related violence in the CBD Entertainment precinct. Since the introduction of the Plan in February 2014, alcohol-related non-domestic assaults, total non-domestic assaults and alcohol-related injury have all declined, including after taking into account the previous downward trend. Alcohol-related non-domestic assaults and potentially serious and less urgent injury have increased in the areas surrounding the CBD precinct; however, these increases do not offset the declines that occurred in the CBD precinct.

A benefit-cost analysis found that between February 2014 and December 2015, the Plan has delivered an estimated net benefit of $29.8 million to the NSW community. Substantial benefits to individuals from injury avoided and costs avoided to the NSW justice and health systems have outweighed the costs of program implementation and the costs associated with the increase in assaults and injury in an area surrounding the precinct.

1 Introduction

This report presents an evaluation of a range of measures that were implemented by the NSW Government in 2014 to reduce alcohol-related violence and antisocial behaviour in the Sydney Central Business District (CBD) Entertainment precinct (the CBD precinct). This included:

- the legislated liquor reforms implemented via the *Liquor Amendment Act 2014* including the 1:30am lock out and 3:00am cessation of alcohol service
- the measures introduced via the Sydney CBD Entertainment precinct Plan of Management targeted at improving the safety of venues and patrons, the environment and travel in the CBD precinct.

Hereafter, 'the Plan' is used to refer to these reforms. The evaluation assesses the Plan over the two years since it was implemented. This evaluation is principally focussed on the impacts of the 2014 reforms on the CBD precinct, with some analysis of areas surrounding the CBD precinct and within the broader Sydney Local Government Area (LGA).

1.1 Measures to reduce alcohol-related violence

For a considerable period of time, the NSW Government has sought to reduce the harm of alcohol consumption through a variety of measures ranging from encouraging community engagement and behavioural change through to regulatory and legislative reforms. The initiatives have been a combination of state-wide and location-specific measures, complemented by a move towards a greater emphasis on risk-based licensing by Liquor & Gaming NSW (L&GNSW) (formerly the regulator Office of Liquor, Gaming & Racing (OLGR)).[1]

In 2014 the NSW Government introduced a series of measures in a continued effort to address the problem of violence and alcohol-related harm in Sydney. (The context and background for this policy response are described in Appendix A.) These measures were introduced in two phases as detailed below.

1.1.1 Phase One

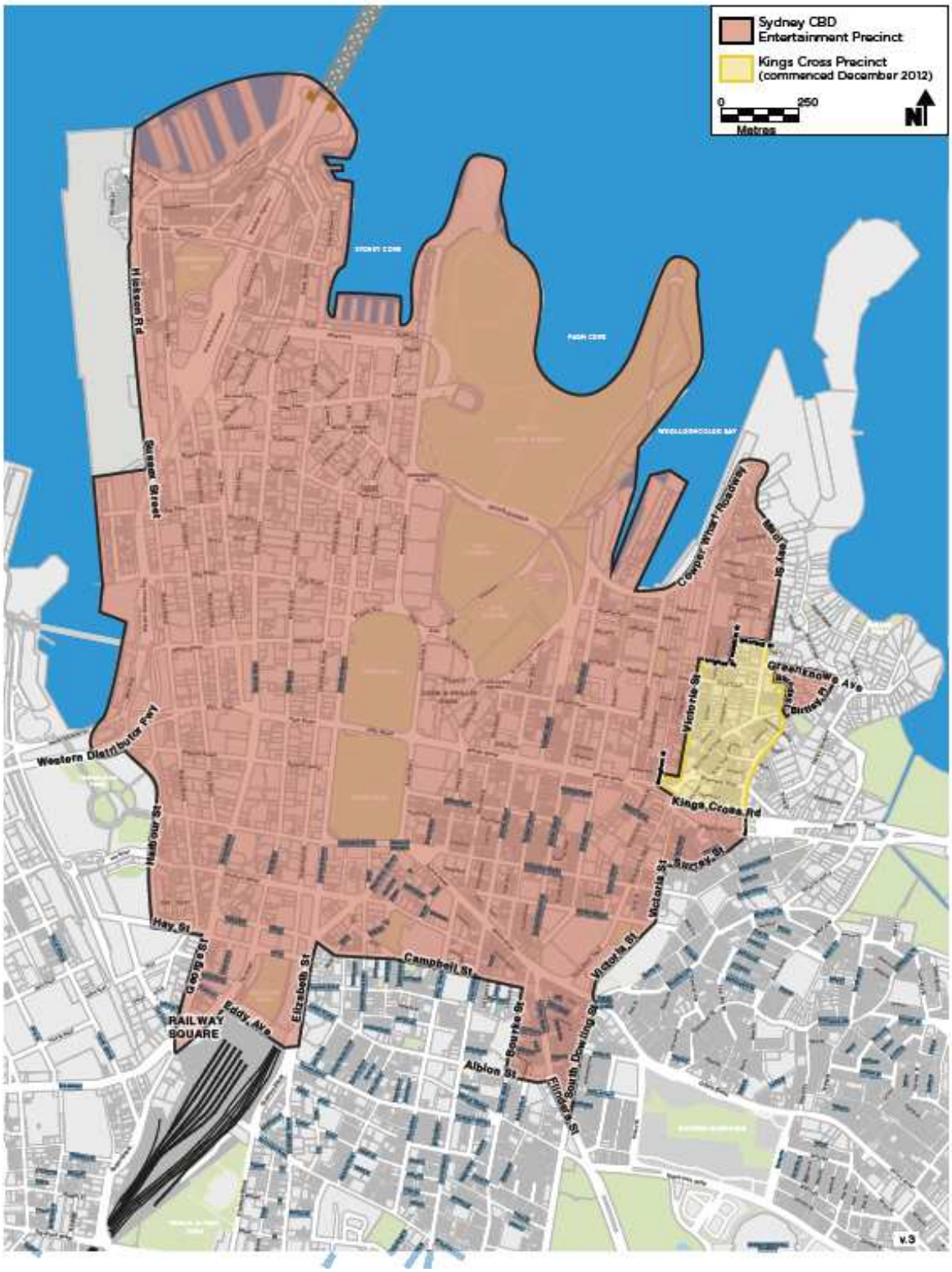
On 30 January 2014 the *Liquor Amendment Bill 2014* and the *Crimes and Other Legislation Amendment (Assault and Intoxication) Bill 2014* were passed through Parliament. The *Liquor Amendment Bill 2014* was aimed at strengthening the Government's risk-based approach to managing liquor licensing. The Bill amended the *Liquor Act 2007* and *Liquor Regulation 2008* and included:

- a new state-wide closing time of 10:00pm for all takeaway alcohol sales
- a new Periodic Licence Fee Scheme
- suspension of the trial of online Responsible Service of Alcohol (RSA) training[2]
- the establishment of the new CBD precinct and introduction of 1:30am lock outs and 3:00am cessation of alcohol service in the precinct. As illustrated in Figure 1.1 and Figure 1.2, the CBD precinct differs significantly from the boundaries of the Sydney Local Government Area (LGA)
- application of a liquor licence freeze to the newly established CBD precinct
- temporary banning orders that police can issue to remove troublemakers for up to a maximum of 48 hours from the CBD precinct.

[1] An overview of historical alcohol-related violence trends in the state and the NSW Government response to alcohol-related violence prior to 2014 is provided in Appendix A.

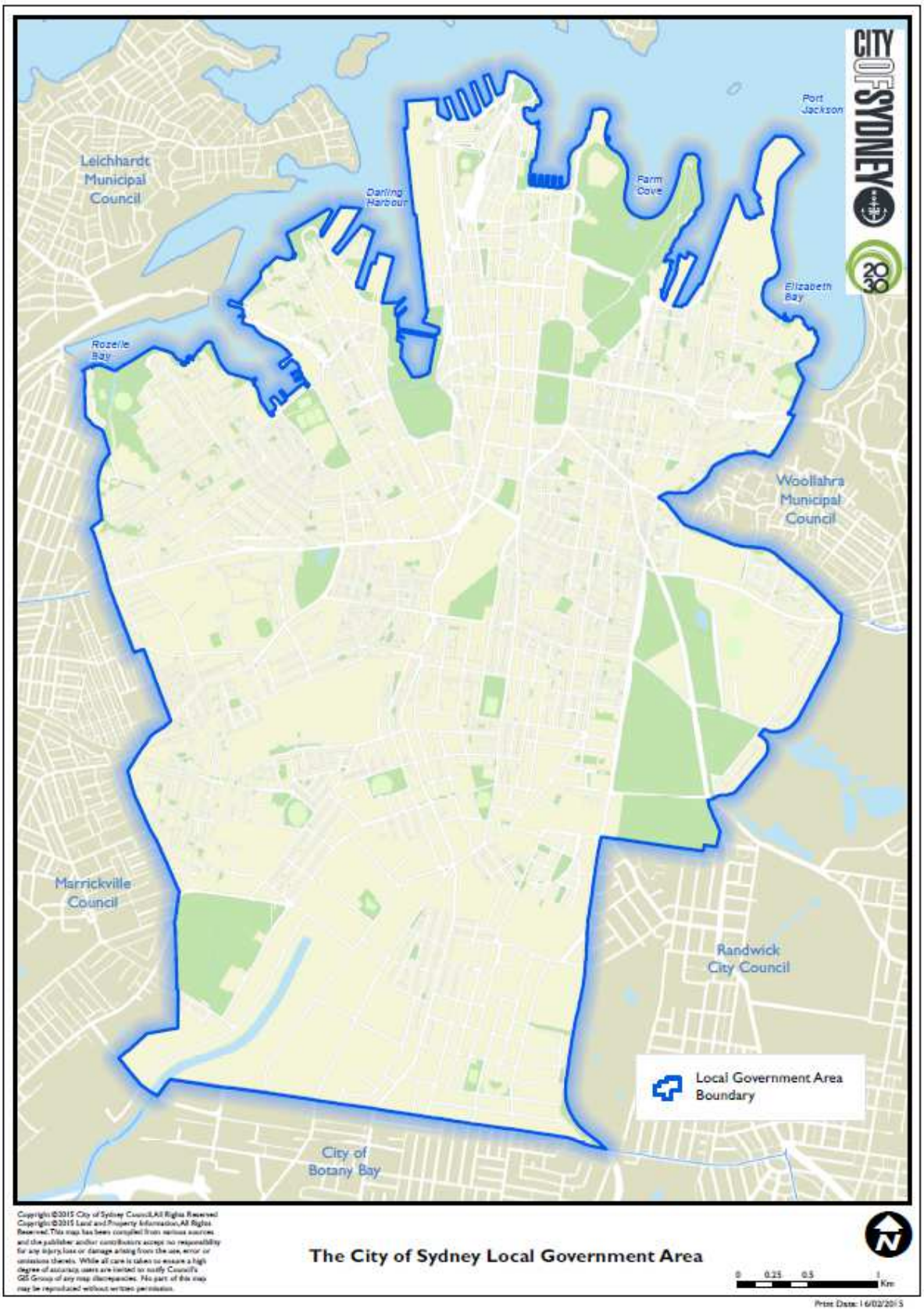
[2] Following a review, online RSA training was resumed on 1 July 2015 with 'higher standards designed to balance quality training and access to providers' (Grant, 2015).

Figure 1.1: Map of the Sydney CBD Entertainment precinct



Source: NSW Government (2014a).

Figure 1.2: Map of the Sydney Local Government Area



Source: City of Sydney (2015a).

With the exception of the suspension of online RSA training that became effective on 5 February 2014 and the staged implementation of the Periodic Licence Fee Scheme that commenced in April 2015, the Phase One measures commenced on 24 February 2014.

The *Crimes and Other Legislation Amendment (Assault and Intoxication) Bill 2014* amended the *Crimes Act 1900*, the *Law Enforcement (Powers and Responsibilities) Act 2002*, the *Crimes (Sentencing Procedure) Act 1999* and other state-wide legislation relating to assault and intoxication. This Bill was aimed at promoting the personal responsibility of offenders and included:

- a mandatory minimum 8-year jail sentence for 'one-punch' assaults
- increasing the maximum sentence to 25 years for the illegal supply and possession of steroids
- the removal of voluntary intoxication as a mitigating factor in sentencing
- increases to criminal infringement notice penalties, including for offensive language, offensive behaviour and continued drunk and disorderly behaviour
- greater police powers allowing the NSW Police Force to conduct drug and alcohol testing where they suspect an offender has committed a drug or alcohol-related violent assault.

These changes came into effect on 31 January 2014.

1.1.2 Phase Two

On 5 February 2014 the NSW Government announced that the legislative changes would be accompanied by a Plan of Management that was being developed for the CBD precinct. On 28 May 2014 the Plan was publicly released and included licence conditions and initiatives aimed at improving the safety of venues and patrons, the environment and travel in and around the CBD precinct (NSW Government, 2014a).

Table 1.1 outlines the measures implemented under the Plan. The majority of these measures commenced on 18 July 2014, several months after the Phase One legislative controls were implemented.

Table 1.1: Overview of Phase Two measures

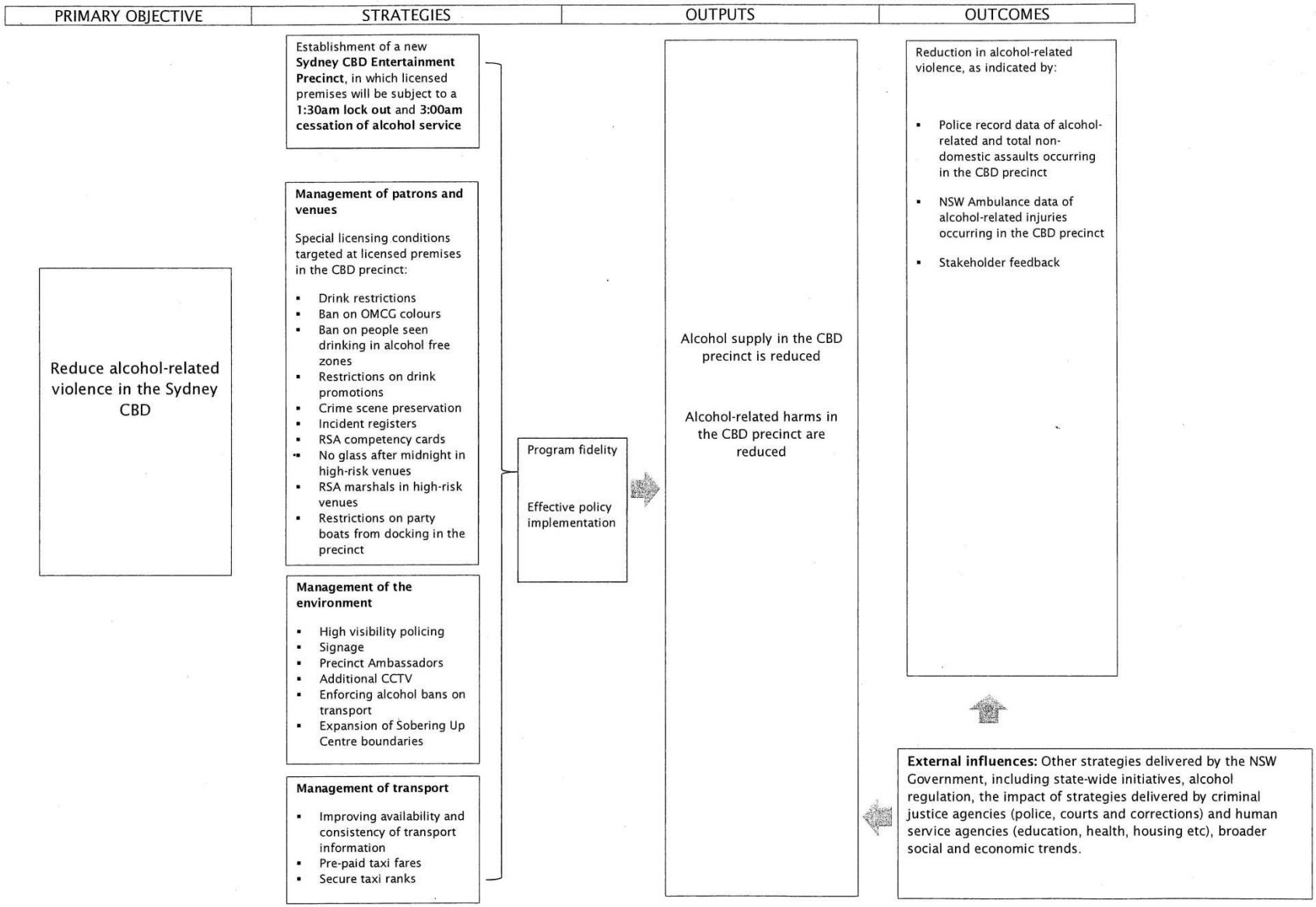
Measures for safer venues and patrons	Measures for a safer environment	Measures for safer travel
▪ New drink restrictions for all venues (e.g. no shots after midnight) and restrictions on drink stockpiling after 2:00am ▪ Ban on outlaw motor cycle gang (OMCG) colours ▪ Ban on people seen drinking in alcohol-free zones ▪ Restrictions on drink promotions ▪ Crime scene preservation ▪ Incident registers ▪ Updated RSA training requirements ▪ Restrictions on licensed vessels ▪ Glass prohibited during late trading period on any day in high-risk venues with evidence of violence ▪ RSA marshals in high-risk venues with evidence of violence and intoxication	▪ High-visibility policing ▪ Enforcement of alcohol bans on public transport ▪ Provision of Variable Message Signage – large, portable electronic signs used for traffic and pedestrian management ▪ Safe Space and Take Kare Ambassador program ▪ Additional closed-circuit television (CCTV) cameras ▪ Alignment of Sobering Up Centre boundaries with the CBD precinct.	▪ Improving availability and consistency of transport information ▪ Expansion of secure taxi ranks and pre-paid taxi fares

Source: NSW Government (2014b).

1.2 Logic model

In scoping and planning this evaluation, a logic model (Figure 1.3) was developed to establish the links between the objectives, strategies, intended outputs and intended outcomes of the Plan.

Figure 1.3: Logic model



1.3 Evaluation aims and scope

The evaluation employed quantitative and qualitative approaches to conduct a process, outcome and economic evaluation of the Plan. The aims of the overall evaluation were threefold:

(1) -to examine the development of the Plan and assess whether it has been implemented as intended

(2) -to identify whether the Plan achieved its aim of reducing alcohol-related violence

(3) -to determine whether the Plan delivered a net benefit to the NSW community.

The scope of the evaluation is consistent with the NSW Government Program Evaluation Guidelines, which recommend that process, outcome and economic components of evaluation are combined to provide the most robust evaluation (Department of Premier and Cabinet, 2016).

Some potential indirect consequences of the Plan—as identified in the process of evaluation—were also investigated. These potential indirect consequences included:

- changes in alcohol-related violence in areas surrounding the CBD precinct
- changes to the CBD precinct environment, in the context of pedestrian activity and patronage
- impacts to the community, with regards to perceptions of safety, resident experiences and consumer choice
- impacts to businesses in the CBD precinct, specifically licensed premises and related sectors (including live music, tourism and accommodation and gaming).

A considerable amount of data would be required to comprehensively investigate all possible indirect consequences of the Plan, including to the entire community and business sectors across New South Wales. While this was beyond the scope of this evaluation, some indication of the changes that may have occurred in the CBD precinct since the Plan commenced were investigated through three case studies. The case studies are presented as follows: the CBD precinct environment (Chapter 7), the community (Chapter 8) and views of licensed premises and related sectors (Chapter 9).

Table 1.2 provides a summary of the evaluation scope and the areas of liquor licensing regulation that fall beyond the remit of this project.

Table 1.2: Evaluation scope

In evaluation scope	Outside evaluation scope
▪ Legislated liquor reforms introduced in the CBD precinct in February 2014 (i.e. 1:30am lock out, 3:00am cease of service etc.) ▪ CBD Plan of Management introduced in July 2014 aimed at improving the safety of venues and patrons, the environment, and transport in the CBD precinct	▪ State-wide measures including the 10:00pm takeaway sale restrictions and sentencing changes ▪ Other liquor licensing regulations including: Periodic Licence Fee Scheme, Three Strikes Disciplinary Scheme, Violent Venues Scheme ▪ Measures applying to areas outside the CBD entertainment precinct, including Kings Cross

1.3.1 Process evaluation

The process evaluation examined the development and introduction of the Plan, as well as ongoing program implementation and program fidelity. Program fidelity is defined within the program evaluation literature as the extent to which the delivery of an intervention is consistent with the model for the intervention that was originally developed (Mowbray et al., 2003). Program fidelity has been assessed in this evaluation to confirm that the Plan was delivered as intended. It is necessary to assess program fidelity as it helps to distinguish unsuccessful outcomes caused by failed implementation from those attributed to shortcomings in the policy itself. Similarly, an examination of fidelity helps to clarify whether any positive outcomes might be improved with better implementation (Carroll et al., 2007).

The process evaluation was informed by consultations with a range of stakeholders including the State and local government agencies responsible for developing and implementing the Plan, as well as representatives of the liquor and hospitality industry. Feedback from Treasury's licensed premises surveys conducted in April 2015 and February 2016 was used to assess the implementation of the Plan including the nature and quality of communication with industry and compliance challenges. Data provided by L&GNSW (formerly provided by the regulator OLGR) also provided an indication of compliance and enforcement activity in the CBD over the two years since the Plan was introduced.

The findings from the process evaluation are presented in Chapter 3.

1.3.2 Outcome evaluation

The primary objective of the Plan was to reduce alcohol-related violence. This evaluation uses the incidence of assaults and alcohol-related injury as indicators of violence.

The outcome evaluation used a pre-and-post comparison to examine the impact of the Plan on assaults and injury. Alcohol-related, non-domestic and total non-domestic assault data were examined for the period January 2009 to December 2015, with January 2009 to January 2014 representing the pre-implementation period and February 2014 to December 2015 representing the post-implementation period.

NSW Ambulance data for the CBD precinct were linked to NSW Health data to measure the changes in alcohol-related injury by the severity of the injury. Linked injury data was examined for the period July 2012 to June 2015.

The outcome evaluation also originally intended to examine the impact of the Plan on antisocial behaviour in the CBD precinct, including offences such as disorderly conduct, offensive language and offensive behaviour. However, the incidence of such offences is commonly a representation of targeted policing activity rather than the actual occurrence of such behaviour. For these reasons, antisocial behaviour was not examined as part of this evaluation.

Detailed explanations of the method of the assault and injury analyses are provided in Chapter 4 and Chapter 5, respectively.

1.3.3 Economic evaluation

The economic evaluation used a benefit-cost analysis to assess the magnitude and value of policy impacts to individuals, businesses, government and the community. The aim of the economic evaluation was to assess the costs and benefits of the policy in order to determine whether the policy had an overall net economic benefit to society.

The economic evaluation drew upon the findings of the assault (Chapter 4) and injury analyses (Chapter 5) to determine the magnitude and value of benefits (or costs avoided) that could be reasonably attributed to the Plan. Program implementation cost data were examined for implementing agencies, local government and business. In addition, qualitative analysis for the impact of the reforms to industry, individuals and the community draws on stakeholder consultations and business survey findings.

A detailed explanation of the parameters used in the economic evaluation is provided in Chapter 6.

1.3.4 Case study of licensed premises and related sectors in the CBD precinct

The aim of the case study of licensed premises and related sectors in the CBD precinct was to explore the views of key stakeholders affected by the Plan. The case study (presented in Chapter 9) drew on the findings of several business surveys (discussed in section 1.4.4) and stakeholder consultations, reporting on the perceived impact of the Plan on licensed venues' turnover, staffing levels and operating costs. In addition, using industry data, the chapter explores the impact of the Plan on two related sectors—live music and gaming.

1.3.5 Challenges in isolating impacts

The two major regulatory measures introduced under the Plan, namely the 1:30am lock out and 3:00am cessation of service, were introduced simultaneously in February 2014. As a result, it was not possible for the evaluation to disaggregate between the relative impacts of each of these measures. The evaluation outcomes are therefore indicative of the effect of the combined measures. Wherever possible, qualitative information about particular elements of the Plan has been sought and is discussed throughout the report. The evaluation is also informed by research that has examined the impacts of specific regulations or initiatives.

Importantly, this is an evaluation of measures specific to the CBD precinct, but it is recognised that these measures are operating in the broader context of a number of state-wide changes, in particular, the 10:00pm takeaway liquor sales restriction and the introduction of the Periodic Licence Fee Scheme.

1.3.6 The 2016 Independent Review

At the time of writing this report, another broader review was taking place. The *Independent Review of the Impact of the Liquor Law Reforms* was being undertaken by the Hon. Ian Callinan AC QC. This review will examine the 1:30am lock out and 3:00am cease of service in the CBD and Kings Cross Entertainment precincts, as well as the state-wide 10:00pm restriction on takeaway alcohol sales and the Periodic Licence Fee Scheme. This review is scheduled to report to the NSW Government in August 2016.

1.4 Data sources

Table 1.3 summarises the data sources used to inform the relevant parts of the evaluation. Further detail on each data source is provided below.

Table 1.3: Data sources that informed the evaluation

	Process evaluation	Outcome evaluation	Economic evaluation	Case study Views of businesses	Case study Community impacts
Police record data		✓	✓		
NSW Ambulance data		✓	✓		
Health data linked with NSW Ambulance data		✓	✓		
Licensed premises survey (CBD precinct)	✓		✓	✓	
Stakeholder consultations	✓		✓	✓	✓
Pedestrian counts and community survey					✓
Program data	✓		✓		
Financial and other industry data			✓	✓	

1.4.1 Police record data

The NSW Bureau of Crime Statistics and Research (BOCSAR) reports on criminal incidents recorded through the NSW Police Force's Computerised Operational Policing System (COPS).[3] The outcome evaluation involved statistical analysis of police record data provided by BOCSAR to examine whether there has been a reduction in reported assaults within the CBD precinct following the introduction of the Plan.

The analysis specifically examined changes in the number of alcohol-related and total non-domestic assaults in the CBD precinct from January 2009 to December 2015. The analysis examined changes by the following breakdown: the timing of incidents (time of day, day of week), the location of assaults (inside or outside licensed premises), the type of assault and incidents by venue licence type.

The statistical analysis was conducted using the statistical software R and accounted for underlying trends and seasonality. The potential displacement of violence was studied by examining the changes in alcohol-related and total non-domestic assaults at the close displacement area, which is a radius around the CBD precinct (see Figure 4.1), and the distal displacement area, which includes suburbs further away from the CBD precinct.[4] A detailed explanation of the method adopted in this component of the evaluation is provided in Chapter 4.

[3] - COPS is an operational database used by the NSW Police Force to record information relevant to all victims, offenders and incidents that require police action.

[4] - The close displacement area examined as part of the assault analysis includes Ultimo, Chippendale, Surry Hills, Elizabeth Bay, Rushcutters Bay, Pyrmont (excluding The Star), The Star and parts of Darlinghurst, Haymarket and Paddington. The distal displacement area includes the suburbs of Newtown, Glebe, Double Bay, Coogee and Bondi Beach.

1.4.2 NSW Ambulance data

Enhanced NSW Ambulance data was used to determine whether there was a reduction in alcohol-related injury since the introduction of the Plan. Alcohol-related ambulance callouts between July 2012 and September 2015 were extracted by NSW Ambulance for the geographical boundaries of the CBD precinct, The Star and the proximal displacement area (see Figure 5.1).[5] Turning Point Alcohol and Drug Centre (affilitated with Monash University) undertook a process of systematic coding of clinical case notes for further identification of cases where alcohol was involved.

NSW Treasury obtained ethics approval for the enhancement and analysis of NSW Ambulance Unit Record Level data through South Eastern Sydney Local Health District Human Research Ethics Committee (HREC Reference: 13/050 (LNR/13/POWH/168)).

1.4.3 Linked emergency department and admissions data with NSW Ambulance data

The enhanced, alcohol-related NSW Ambulance dataset was linked with the NSW Health Emergency Department and Admitted Patient Data Collections by the Centre for Health Record Linkage (CHeReL). NSW Treasury obtained ethics approval for access to and analysis of this linked dataset through the NSW Population and Health Services Research Ethics Committee (AU RED Reference: HREC/15/CIPHS/65).The aim of the data linkage was to allow for analysis of the types and severity of alcohol-related injury that originated in the CBD precinct and surrounding areas. Further explanation of the methodology used for the injury analysis is provided in Chapter 5.

In addition, patient pathways and severity of injury were examined to assess the short-term costs of care in the emergency department and hospitals as part of the economic evaluation in Chapter 6.

1.4.4 Online surveys

An examination of existing data sources found that published data on business activity, employment and business counts were not available at the CBD precinct level. This reflects the fact that:

- the CBD precinct is a unique boundary that does not align with any publicly recognised statistical geographies (e.g. post codes, LGA or Statistical Areas (SA2) defined by the Australian Bureau of Statistics (ABS))
- specific business data are published only at aggregate levels (e.g. ABS data)
- many licensed venues are privately owned and are not required to publicly disclose their financial statements.

The five-yearly business census conducted by the City of Sydney was also considered for this evaluation. However, given that the last census was held in 2012 and the next is expected to be conducted in 2017, any pre-and-post analysis in the context of the Plan (which was implemented in 2014) is not possible.

Furthermore, while the published data that is available provides valuable background and context of the business environment that is relevant for understanding the hospitality, food and accommodation services sectors in New South Wales, generally these data are also non-specific to the precinct, and reflect a wide variety of local and macroeconomic factors.

To gauge the perceived implications of the Plan for licensed premises and related businesses in the CBD precinct, Treasury sought to obtain feedback from all licensed premises through a number of online surveys.

[5] The proximal displacement area examined as part of the injury analysis was defined by Menendez et al. (2015). It is a radius around the CBD precinct and includes parts of Ultimo, Chippendale, Haymarket, Surry Hills, Darlinghurst, Rushcutters Bay, Elizabeth Bay and Potts Points (but excludes The Star and Pyrmont).

Table 1.4 details the key themes, target population and response rates for each of the surveys.

- In April 2015, all licensed premises in the CBD precinct were invited to participate in an online survey seeking views on the implementation of the Plan, the impact of the Plan on business, and perceptions about whether the Plan is achieving a reduction in alcohol-related harm. A total of 238 licensed venues responded to the 2015 survey, representing a 20.7% response rate.
- In February 2016, the licensed premises survey was readministered to all licensed premises in the CBD precinct. The questions were modified to focus more heavily on business impacts and operations, and less on the Plan's implementation. A total of 211 venues responded to the 2016 survey, representing a 22.3% response rate.[6] As shown in Table 1.5, the 2016 survey respondents were generally representative of the licensed premises population by size of venue (patron capacity) and trading hours of venues (before and after midnight traders). However, hotels and high-risk venues were overrepresented among survey respondents, while on-premises and non-high-risk venues were underrepresented.[7] These limitations are noted throughout the evaluation report, and have been taken into consideration in reporting on the findings from the survey.

In 2016 an additional licensed premises survey was administered to licensed premises in an 'outside precinct' catchment area roughly defined as the remainder of the Sydney LGA and the entirety of the Newtown and Marrickville suburbs. While feedback from these licensed premises provided useful broader context for this evaluation, only the survey responses specific to the CBD precinct (where the Plan applies) have been presented here.

Table 1.4: Treasury's online licensed premises surveys

Target population	CBD precinct licensed premises	CBD precinct licensed premises	Broader Sydney LGA licensed premises
Year	2015	2016	2016
Survey themes	▪ Rollout of the Plan ▪ Information provision and communication ▪ Compliance ▪ Business impacts ▪ Perceptions of violence ▪ General views of the Plan	▪ Compliance ▪ Business impacts ▪ Business operations ▪ General views of the Plan	▪ Business impacts ▪ Visitors and patronage ▪ Business practices ▪ Perceptions of violence ▪ General views on liquor licensing at the local, State or national level
Respondents / Population[(a)] (n / N)	238 / 1,150	211 / 946	104/ 712
Response rate (%)	20.7	22.3	14.6
Appendix reference[(b)]	B1	B2	C

Note: The surveys excluded packaged and wholesale liquor outlets. (a) The survey population differs from the total licensed premises population (N=1,014) as it excludes those premises that could not be contacted due to incorrect or missing contact details (b) Indicates Appendix reference to survey questionnaires.

6 - The total population of licensed premises in the CBD precinct was smaller in 2016 due to a reduction in active licences following the introduction of the Periodic Licence Fee Scheme.

7 - Box 1.1 provides a summary of the different licence types. High-risk venues are defined as those with a licence to operate after midnight and with a patron capacity of over 120 persons, and are listed at Schedule 1B of the *Liquor Regulation 2008*.

Table 1.5: Breakdown of the 2016 CBD precinct licensed premises survey respondents

	Respondents		Population	
	n	%	N	%
Licence type				
On-premises	126	59.7	768	75.7
Hotel	75	35.5	203	20
Club	6	2.8	20	2
Small bar	4	1.9	20	2
Limited	-	0	3	0.3
Total	**211**	**100**	**1,014**	**100**
Trading hours				
Before midnight	139	65.9	670	66.1
After midnight	72	34.1	344	33.9
Total	**211**	**100**	**1,014**	**100**
Patron capacity				
0 to 60	27	12.8	172	17
61 to 120	49	23.2	229	22.6
120 to 300	50	23.7	214	21.1
301 to 500	23	10.9	100	9.9
More than 500	40	19	102	10.1
Non-submit	22	10.4	197	19.4
Total	**211**	**100**	**1,014**	**100**
Risk-level				
High-risk	63	29.9	172	17
Non-high-risk	148	70.1	842	83
Total	**211**	**100**	**1,014**	**100**

Note: The total licensed premises population as at 27 June 2016.

Box 1.1: Licence types

Hotel licences apply to premises where the primary purpose is the supply of alcohol. This includes pubs, some nightclubs, accommodation hotels and bars.

On-premises licences apply to premises where the supply of alcohol is supplementary to another product or service such as food. These licences apply for a variety of purposes including restaurants, catering services, vessels, tourism establishments and entertainment venues (nightclubs).

Club licences apply to registered clubs that bring together groups of people with shared cultural, political, sporting and social interests, and in doing so supply alcohol.

Packaged liquor licences apply to liquor stores selling takeaway alcohol only.

Small bar licences allow liquor to be sold in a bar with a maximum capacity of 60 patrons.

Limited licences allow alcohol sales for consumption on licensed premises at a function, special event or trade fair.

Source: L&GNSW (2016a)

1.4.5 Stakeholder consultations

Qualitative data was collected by NSW Treasury through consultations with key stakeholders. In March 2015, consultations were conducted with around 80 representatives from over 40 organisations. Over March and April 2016, a further 75 representatives were consulted from over 35 organisations. In the majority of cases the 2016 consultations focussed on obtaining an update for the past 12 months and expanded on 2015 discussions. In addition, 12 organisations were consulted for the first time in 2016.

The organisations consulted included:

- state and local government agencies involved in the implementation of the Plan
- other government services such as NSW Ambulance and NSW Health
- peak industry bodies representing the liquor, hospitality, business, tourism, music, retail, security and transport industries
- licensed premises inside and outside the CBD precinct and related Liquor Accords
- NSW Police Force Local Area Commands (LACs) inside and outside the CBD precinct
- local councils outside the CBD precinct
- community organisations representing interest groups such as residents, youth and victims of violence.

A list of the organisations consulted as part of the evaluation is provided at Appendix D. The notes from the interviews were analysed for key themes and informed the assessment of implementation, outcomes and other impacts.

1.4.6 Pedestrian counts and intercept survey

The Department of Justice (DoJ) commissioned AusTraffic to conduct pedestrian counts at four locations in and around the CBD precinct to determine how pedestrian activity may have been affected with the introduction of the Plan and other legislative reforms. A baseline count was conducted at hourly intervals between midnight and 4:00am on Sunday 23 February 2014. The count was repeated on Sunday 22 February 2015. Due to the construction of the CBD light rail that impacted on a number of count points, pedestrian activity was not counted in 2016. The pedestrian activity data are presented in Chapter 7.

AusTraffic also conducted pedestrian intercept surveys focussing on the perceptions of safety of visitors to the CBD precinct. These surveys were conducted at similar times to pedestrian counts, with a baseline survey conducted in 2014 and two subsequent surveys in 2015 and 2016. The perceptions of safety data are presented in Chapter 8.

1.4.7 Implementation costs

Implementation costs refer to the direct cost of implementing the Plan to the NSW Government and the City of Sydney between February 2014 and December 2015. These cost estimates were provided to Treasury by the various implementing agencies. Licensed venues may have also incurred costs associated with implementing the changes of the Plan. Implementation cost estimates were used as an input to the economic evaluation (see Chapter 6).

1.4.8 Other data used to value costs and benefits

The economic evaluation drew upon a range of data sources and costing methods to determine the value of impacts that could be attributed to the Plan.

A comprehensive quantitative analysis of the impact of the Plan on the incidence of assault and injury was undertaken to support estimation of the magnitude of benefits (costs avoided). The value of these benefits is determined using available data or published benchmarks. These were compared to the value of implementation costs, where data was provided by the respective government agencies.

In the absence of data for non-market costs and benefits, published literature and methodologies were used to estimate the value of these impacts. Sensitivity testing of different discount rates was also undertaken to determine how this impact may influence the model result.

Valuation data and methodologies used are summarised in Chapter 6.

1.4.9 Other indicators

A range of other indicators was used to provide context about the CBD precinct environment including:

- gaming revenue data of licensed premises in the CBD precinct, provided by L&GNSW
- data provided by the City of Sydney on behalf of the Salvation Army about the operation of the Safe Space and Take Kare Ambassador program
- data provided by the Australasian Performing Right Association (APRA) to inform an analysis of the impacts of the Plan on the live music and entertainment industry.

1.4.10 Exclusions

It is acknowledged that pedestrian activity and perceptions of safety were explored in the City of Sydney Late Night Management Areas Research (LNMAR). This research aimed to gather information on the night-time economy to inform and support planning and management of the Sydney LGA at night. As such LNMAR data were not used in this evaluation.

In an attempt to capture information on changes to other businesses in the CBD precinct such as liquor stores, takeaway food outlets and convenience stores, Treasury administered an online survey to a sample of ground-level businesses in the precinct in early 2016. However, due to a very low response rate, the findings from this survey have not been used to inform this evaluation.

1.5 Report content

This report contains five components: a literature review, process evaluation, outcome evaluation, economic evaluation and indirect outcomes (case studies). An outline of the report structure is provided in Table 1.6.

Table 1.6: Report structure

Evaluation topics	Chapter number	Description
Literature Review	2	The purpose of the literature review is to identify key research on alcohol-related violence and interventions aimed at reducing it, in order to inform the theoretical framework for the evaluation. This Chapter presents the literature relating to the effectiveness of interventions in Australia and overseas that are aimed at reducing alcohol-related harm.
Process Evaluation		
Policy Development and Implementation	3	The aim of the process evaluation is to examine how the Plan has been delivered. This includes describing the Plan's development and implementation, and identifying any challenges in the process.
Outcome Evaluation		
Direct Outcome		*The primary objective of the Plan is to reduce alcohol-related violence to individuals in the CBD precinct. The assault and injury analyses are used to determine whether the Plan has been effective in achieving its intended objective.*
Assault Analysis	4	Assaults are used as an indicator of violence. This Chapter uses econometric modelling techniques to examine whether non-domestic assaults declined since the implementation of the Plan. This Chapter also examines whether non-domestic assaults changed in areas surrounding the CBD precinct.
Injury Analysis	5	Alcohol-related injury is used as an indicator of harm to individuals, including cases where injury is the result of violence (assaults) or accidents related to intoxication. This Chapter uses econometric modelling techniques to determine whether alcohol-related injuries have declined since the implementation of the Plan. This Chapter also examines whether alcohol-related injuries changed in areas surrounding the CBD precinct.
Economic Evaluation		
Benefit-Cost Analysis	6	The aim of the economic evaluation is to identify the benefits and costs of the Plan since its introduction, and determine whether the Plan had an overall net economic benefit to the NSW community. This Chapter discusses the aim and rationale, method and findings of a benefit—cost analysis. Relevant assumptions behind the benefit-cost analysis were based on the results of the outcome evaluation.
Indirect Outcomes		*The Plan may also indirectly influence the CBD precinct and its various stakeholders in a number of ways, both positive and negative. Indirect outcomes are assessed in three case studies described in Chapters 7, 8 and 9.*
CBD Precinct Environment	7	This Chapter examines whether the CBD precinct environment has been impacted by the Plan, in the context of pedestrian activity and licensed premises patronage.
Community	8	This Chapter examines whether the Plan has any implications for the community in the CBD precinct, focusing on perceptions of safety, resident experiences and consumer behaviour.
Licensed Premises and Related Sectors	9	This Chapter reports on the views of CBD precinct licensed premises and related sectors (including live music, accommodation and gaming) regarding the potential impacts of the Plan on business conditions and operations.

2 Literature Review

Key points

- A range of strategies has been adopted by Australian and international jurisdictions to reduce the harms associated with alcohol consumption. These strategies are typically aimed at reducing the demand for alcohol, reducing the supply of alcohol and minimising the harms associated with alcohol consumption.
- There is clear evidence that restricting the supply of alcohol on-premises through the regulation of venue trading or service hours is effective in reducing alcohol-related harm.
- A review of the available evidence for other measures found that:
  - lock out provisions may be useful as a mechanism for reducing movement between venues and managing patrons. However, there is a lack of clear evidence to suggest that lock outs as stand-alone interventions are effective in reducing alcohol-related harm
  - while police interventions can be effective in addressing crisis incidents, sustained police operations are needed to address systemic problems
  - the impact of media awareness campaigns is unclear, particularly in the context of popular advertising that promotes alcohol consumption. Strategies that provide information directly to patrons have been shown to have some effect
  - to date the use of closed-circuit television (CCTV) has not been shown to be effective in reducing alcohol-related violence and antisocial behaviour, although systems that are actively monitored are more likely to have an impact than those with passive or no monitoring arrangements.
- The literature shows little evidence of displacement of violence and antisocial behaviour as a result of interventions delivered in entertainment precincts
- The evidence suggests that the most effective interventions are those incorporating a variety of strategies that are implemented using a planned, strategic and whole-of-government approach.

This chapter provides an overview of Australian and international literature that has examined alcohol-related violence and interventions aimed at reducing it. The chapter presents the findings from national and international interventions aimed at reducing alcohol-related violence, particularly those interventions that are comparable to the measures introduced by the NSW Government in 2014.

The primary aim of this literature review is to identify which interventions, targeted at reducing the harms of alcohol consumption, have been found to be most effective. In addition, the literature review has informed the design, methodology and approach of this evaluation.

2.1 Risk factors for alcohol-related violence

Alcohol-related violence is influenced by a variety of individual, venue and environmental factors. Some of the key risk factors identified in the literature are provided in Box 2.1 below.

Box 2.1: Risk factors for alcohol-related violence

Individual characteristics: Violent incidents occurring in and around licensed premises commonly involve perpetrators and/or victims who have consumed alcohol or are intoxicated (Green & Plant, 2007). Intoxication is associated with:

- increased physical and verbal aggression
- reduced cognitive and verbal capacity to resolve conflict
- heightened emotionality
- impulsive behaviour
- minimisation of consequences and distorted interpretation of events (Miller et al., 2015; Morgan & McAtmaney, 2009).

Venue characteristics: The occurrence of alcohol-related violence is influenced by the characteristics and management strategies of licensed venues including:

- size and layout – Venues that promote patron discomfort through high levels of noise, poor ventilation, high temperatures, extensive queues, inconvenient bar access, inadequate seating, poor or low lighting and congestion points may be at an increased risk of violence (Hughes et al., 2011a; Hughes et al., 2011b; Morgan & McAtmaney, 2009).
- staff – Venues with staff who display a permissive attitude towards intoxication, aggression or illegal activities may attract patrons who display these behaviours. Venues with staff lacking conflict resolution skills and improper Responsible Service of Alcohol (RSA) standards are also at a heightened risk (Green & Plant, 2007).
- policies – Lax policies on dress code and drink promotions may increase the risk of violence (Green & Plant, 2007).

Environmental characteristics: A significant proportion of violence occurs on the streets and footpaths outside licensed venues. Some environmental characteristics that have been found to influence violence include:

- high alcohol outlet density
- long queues outside licensed venues and at transport hubs
- congestion points and crowding
- inadequate transport options
- low lighting (Graham & Homel, 2012).

2.2 Intervention types and evidence base

A range of strategies have been adopted by Australian and international jurisdictions to reduce harm associated with alcohol consumption. These can be identified as:

- demand reduction strategies – aimed at reducing the demand for alcohol, including strategies such as education programs and community awareness campaigns
- supply reduction strategies – aimed at reducing the supply of alcohol, including measures such as trading hour and service restrictions
- harm minimisation strategies – aimed at reducing the harms caused by the consumption of alcohol, including measures such as lock outs, policing interventions and ambassador initiatives.

While all Australian jurisdictions adopt a mix of strategies, harm minimisation tends to be the central focus of liquor licensing and regulation.

The body of literature is growing around the impact and effectiveness of interventions aimed at reducing alcohol-related violence. The majority of the studies undertaken both in Australia and overseas usually examine one discrete intervention such as restrictions to trading/service hours or lock out provisions, rather than a multi-component intervention such as the suite of measures introduced by the NSW Government in Sydney in February 2014. This is likely to reflect the fact that few jurisdictions have implemented a suite of measures like that in New South Wales. Nevertheless, this evidence base is important in informing decision-makers about effective measures for achieving reductions in violence.

2.2.1 Quality of evidence

While the body of literature is growing, considerable variability remains in the quality of research undertaken. In order to appropriately weight the evidence presented in this review, the literature collected was assessed for rigour and quality in design. A basic quality assessment tool was developed based on the hierarchy of evidence (originally developed by the Canadian Task Force on the Periodic Health Examination (1979)) and the Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies developed in Canada (Effective Public Health Practice Project, 2009). This tool was used to score each study according to relevance, study design, consistency with methodological rules and risk of bias.

There were no randomised control trials identified in the literature search, however there were several quasi-experimental designs involving a pre and post-comparison of an intervention and control area.[8] However, the majority of studies relied upon pre-post comparison without control and/or qualitative evidence. Findings from studies that scored a high quality rating are prioritised throughout the remainder of this chapter.

The grey boxes in this chapter list the measures introduced by the NSW Government in 2014 that are relevant to the literature reviewed.

2.3 Regulatory controls

There is a large body of literature that has examined the impact of regulatory controls and licensing restrictions on alcohol-related violence and antisocial behaviour. In particular, there are a number of studies that evaluated the regulation of on-premises and takeaway alcohol supply and the imposition of lock out provisions as a strategy designed to minimise harms associated with patrons moving between venues. Fewer studies have considered the impact of RSA practices on violence.

[8] Randomised control trials are studies in which subjects are randomly allocated to a treatment and control group. These studies are regarded as the highest quality methodology for a single study. A quasi-experimental design is considered the next highest quality methodology and shares similarities with randomised control trials, but they specifically lack the element of random assignment to treatment or control.

2.3.1 Supply of alcohol on-premises

Measures introduced in 2014: ***Intended effect: Supply reduction***

- 3:00am cease of alcohol service
- drink restrictions for all venues after midnight including:
  - no shots, slammers, shooters or bombs
  - no doubles (excluding genuine cocktails)
  - no ready-to-drink (RTD) packaged beverages with alcohol by volume content exceeding 5%
  - drink sales limited to four per patron at a time.
- drink sales after 2:00am limited to two per patron at a time.

Measures to restrict the supply of alcohol on-premises are commonly used to reduce alcohol consumption. Research has shown that intoxication increases the risk of physical aggression (Morgan & McAtmaney, 2009). The majority of research evaluating the impact of supply of alcohol on-premises has focused on the regulation of venue trading or alcohol service hours.

In one of the most rigorous studies identified in this review, Kypri et al. (2010), used a quasi-experimental design to assess the impact of regulatory changes including trading hour restrictions in the Newcastle Central Business District (CBD) on the incidence of assault. The study found a statistically significant reduction in assault in the Newcastle CBD, while the incidence of assault in the control area remained stable. In a follow-up study conducted in 2014, Kypri et al. found the effects were sustained for 5 years following implementation. It was concluded that the change in closing time from 5:00am to 3:30am may have been the 'active ingredient' that contributed to the positive outcomes in Newcastle (Kypri et al., 2014). This is because there was little or no change in assault in the control area of Hamilton that, despite having lock outs and other venue management strategies in place, was not subject to restrictions on trading hours (p.326).

The findings reported by Kypri and colleagues (2010, 2014) align with the results of international studies. Stockwell & Chikritzhs (2009) conducted a systematic review of 49 studies that sought to evaluate the impact of changes to liquor trading hours in various countries. The authors reported that the high-quality studies they reviewed commonly found positive relationships between changes in trading hours and rates of alcohol consumption and related harms (p.165).

In other contexts, deregulation has occurred and trading hours have been extended. These policies have been justified by the expectation that flexible trading hours will result in staggered crowd dispersal from venues and an associated reduction in aggressive interactions between patrons (Humphreys et al., 2013).

In their assessment of small changes to trading hours of Norwegian licensed premises, Rossow & Norström (2012, p.530) found that for every 1-hour extension of trading hours, there was a statistically significant increase of 16% in the incidence of assault. This relationship was found to be symmetrical, whereby a restriction in trading hours reduced assault by the same magnitude. Further, using a pre-post design (without control) Humphreys et al. (2013) found that an extension to trading hours led to a statistically significant 36% increase in violence between 3:00am and 6:00am in the City of Manchester. Similar findings were reported by Hahn et al. (2010) in the United States.

The evidence clearly indicates that interventions aiming to reduce the supply of alcohol on-premises through the regulation of trading or service hours are effective in reducing alcohol-related harm when hours are restricted rather than extended. Restrictions in service times are likely to reduce alcohol consumption, which in turn may minimise intoxication and potentially aggressive interactions between patrons. Kypri et al. (2010, p. 7) also suggested that trading hour restrictions reduce violence by decreasing the number of people visiting entertainment precincts, thereby minimising the likelihood and magnitude of violence.

There appear to be no recent evaluations of reasonable quality that examine the impact of specific drink restrictions (e.g. quantity and types of drinks sold after midnight) on alcohol-related violence and antisocial behaviour.

2.3.2 Lock outs

Measure introduced in 2014: ***Intended effect: Harm minimisation***

- No entry or re-entry of patrons after 1:30am in venues in the CBD precinct.

In Australia, there has been an increasing move towards the imposition of lock out provisions in entertainment precincts. Lock outs operate by restricting the entrance of patrons into a licensed venue after a certain hour, and prohibiting patrons who leave a venue from re-entering after the lock out period. Lock outs are based on the rationale that movement between venues and congestion late at night causes aggressive and violent interactions between patrons (Hadfield, 2011; Miller et al., 2012).

There are a number of Australian studies that have sought to evaluate the impact of lock out provisions on alcohol-related harm. This is challenging because lock outs tend to be implemented alongside other regulatory measures such as restrictions to service hours. While the findings of these studies are mixed, common themes exist.

Research conducted by Kypri et al. (2014) on the regulatory changes in the Newcastle CBD entertainment precinct provided high-quality evidence that the lock out provisions did not contribute to the reduction in the incidence of assault. The authors concluded that the reduction in assault was more likely a result of restrictions to trading hours.

Mazerolle et al. (2012) conducted a pre- and post-longitudinal analysis of two sites subject to lock out provisions in Queensland. While the study found a significant reduction in the number of violent incidents inside licensed premises (across both sites), there was no evidence of an overall reduction in violence (p.56). The authors found that lock out provisions were useful in compelling owners of licensed premises to take control of their venues through management of patrons and crowd control (p.73). However, the authors discussed the importance of complementary strategies to manage violent behaviour in the public spaces outside venues, which constitutes the majority of recorded crime in this context.

Miller et al. (2012) conducted a pre-post analysis with a control area to assess the impact of lock out provisions on alcohol-related emergency room presentations in Ballarat, Victoria. The study found that there was an initial decline in presentations; however these effects were short-lived as the rates increased 6 months after implementation (p.374). The authors concluded that:

> *Lock outs, as a stand-alone intervention, are unlikely to have a sustained effect on ED* [emergency department] *presentations for either assault or intoxication* (Miller et al., 2012, p.374).

A study by the NSW Bureau of Crime Statistics and Research (BOCSAR) following the imposition of licensing restrictions (including lock outs) on the 48 licensed premises with the highest rates of assault in New South Wales used pre-post analysis (without control) and found a significant decline in the recorded incidence of assaults and glassing attacks in licensed premises (Moffatt et al., 2009). Interestingly, these improvements were also experienced by premises not affected by the licensing restrictions, which suggested that the regulatory controls (including the lock outs) were not solely responsible for the changes. The authors speculated that the strong downward trends in assault prior to implementation, the intensive publicity surrounding the restrictions and the intensive enforcement activity undertaken by the Office of Liquor, Gaming and Racing (OLGR) (now undertaken by the Liquor & Gaming NSW (L&GNSW)) and the NSW Police Force may have contributed to the decrease (Moffatt et al., 2009, p.7).

There were other studies identified in this review that presented a more optimistic picture of the impact of lock out provisions on alcohol-related harm. While these studies are useful in highlighting the potential utility of lock outs, the findings of these studies should be interpreted with caution due to methodological limitations and poor quality design.

Palk et al., (2010) examined the impact of lock outs in the Gold Coast, Queensland using a pre- and post-comparison of police records. The authors found a decline in incidents occurring in or near licensed premises following the imposition of the lock out policy (p.11). Further, a pre- and post-evaluation conducted of a temporary lock out policy implemented in the Victorian Local Government Areas (LGA) of Melbourne, Port Philip, Yarra and Stonnington in 2008 similarly showed a reduction in reported assaults and assault related ambulance transports, between 8:00pm and midnight (KPMG, 2008, p.6). However, this study also found an increase in assaults and ambulance transports between midnight and 2:00am (KPMG, 2008, p.7). This study was complicated by the exemptions from lock out policies granted to a large number of the premises in the intervention area.

This review has found that there is limited high-quality evidence that supports lock out provisions as an effective measure to reduce alcohol-related harm. The higher quality studies (see (Kypri et al., 2014; Mazerolle et al., 2012; Miller et al., 2012; Moffatt et al., 2009) suggest that lock out provisions as stand-alone interventions may have limited sustained impact in reducing the harmful effects of alcohol consumption in entertainment precincts (as measured by crime and injury data). Importantly however, in the context of the Plan, lock outs have been implemented in addition to other interventions. The effectiveness of multi-component interventions is discussed in Section 2.9 below.

2.3.3 Responsible Service of Alcohol

RSA practices have been adopted in New South Wales since the introduction of harm minimisation legislation in 1996. The measures introduced via the Plan sought to reinforce and strengthen RSA practices and principles, particularly in the CBD precinct.

Measures introduced in 2014: ***Intended effect: Harm minimisation***

- state-wide suspension of online RSA training courses
- introduction of RSA competency cards for all CBD venues
- employment of RSA marshals in high-risk venues in the CBD precinct.

The majority of studies that have evaluated RSA practices have measured outcomes such as levels of intoxication rather than the impact of RSA on reducing the incidence of alcohol-related violence and antisocial behaviour (Miller et al., 2015). This review found no evaluations of specific measures such as RSA marshals.

Miller et al. (2015, p.54) found that the effectiveness of RSA in reducing alcohol-related violence and antisocial behaviour is highly dependent on regular and sustained enforcement activity by police and compliance officials. Enforcement of RSA is problematic because of ambiguous conditions of 'intoxication' and practical difficulties for bar and wait staff to subjectively monitor the drunkenness of patrons and for police and compliance officers to prosecute venues for breaching RSA requirements (p.54).

2.4 Police interventions

Measures introduced in 2014: ***Intended effect: Harm minimisation***

- enhanced state-wide police powers to conduct drug and alcohol testing when they suspect an offender has committed a drug or alcohol-related violent assault
- increased state-wide police enforcement of existing bans on alcohol consumption on public transport
- temporary and long-term banning orders from the CBD precinct
- high-visibility policing in and around the CBD precinct.

A number of strategies are adopted by law enforcement agencies to address alcohol-related violence and antisocial behaviour. This includes (but is not limited to) targeted policing campaigns focusing on high-risk locations, venues or specific offence types, high-visibility policing, zero tolerance approaches, intelligence-led policing and enforcement activities. Despite the key involvement of policing agencies in managing entertainment precincts, there has been little current evaluation research exploring the impact of policing strategies on alcohol-related harm and violence.

A high-quality study of ACT Policing (ACTP) on alcohol-related crime in the Civic entertainment precinct in Canberra was conducted by Smith et al.(2011). Numerous strategies were adopted by ACTP with the aim of curbing alcohol-related harm including: high-visibility policing in the Civic precinct area; education and awareness around responsible service and liquor licensing; monitoring and enforcement of licensed premises; and intelligence gathering and analysis (p.21).

Using a quasi-experimental design, Smith et al. (2011) found that there was initially a sharp reduction in the number of recorded assaults in the intervention area, compared with relative stability in the control area. However, the study found that these effects were temporary, as there was a sharp increase in the number of assaults two months after the strategies were adopted (p.41). The authors reported that the initial decline might have been a result of early and positive engagement by ACTP with licensed premises and intensive enforcement action. However, these activities diminished beyond the implementation period, which subsequently limited outcomes (p.43).

In their systematic review, Jones et al. (2010, p.9) similarly found that the results of policing campaigns were often temporary. In line with this, the authors advocated for consistent and ongoing enforcement activity by policing agencies. The review also found that policing interventions targeted at high-risk venues were more effective in achieving a reduction in alcohol-related violence and antisocial behaviour than other less targeted and 'low-level' approaches (Jones et al., 2010, p.9).

In 2010, the Queensland Government announced a two-year trial of Drink Safe Precincts – a pilot program which aimed to reduce alcohol-related violence in three entertainment precincts through increased police presence, enhanced service availability and improved coordination between agencies (Department of Premier and Cabinet, 2013). The evaluation of the initiative included a pre- and post-comparison of crime and health data (without control) and found an overall positive impact on violence and safety problems in the three intervention areas. Similar to the research by Smith et al. (2011) and Jones et al. (2010), the evaluation concluded that the Drink Safe Precincts were effective for 'short-term crisis management' (Department of Premier and Cabinet, 2013). While policing strategies were a key component of the initiative, the evaluation was unable to determine to what extent the change in policing practice was responsible for these observed changes.

These three studies demonstrate the potential utility of police interventions on reducing the incidence of alcohol-related violence and antisocial behaviour, at least in the short-term. However, these studies also highlight the important role of police in monitoring and enforcing compliance of licensed premises on a regular and ongoing basis. Importantly, in New South Wales, enforcement activity is also undertaken by OLGR, so the impact of such interventions should be considered in this context. Further, over the past decade the NSW Police Force has consistently run intensive police operations in the Sydney CBD and surrounds. This contrasts with the research outlined above which used a series of one-off interventions as a basis for assessment.

2.5 Information and awareness raising activities

Measures introduced in 2014: ***Intended effect: Demand reduction***

- state-wide *Stop Before It Gets Ugly* multimedia advertising campaign aimed at warning of the dangers of excessive and binge drinking
- more late night transport information provided to patrons in the CBD precinct.

Information and awareness raising activities are frequently used by governments in an attempt to change the drinking culture and reduce alcohol-related violence and antisocial behaviour. Strategies that have often been adopted in Australia include:

- wide-scale education campaigns that aim to raise awareness and understanding of the risk factors associated with alcohol consumption
- campaigns that aim to promote current policies and programs
- mobilisation strategies that aim to encourage and assist patrons to utilise services such as transport or first aid (Morgan et al., 2011, p.26).

There is a lack of research linking the use of information and awareness raising activities to a reduction in alcohol-related violence and antisocial behaviour. The existing research in this area is complicated as these activities tend to be secondary to other interventions such as licensing restrictions, thus adding to the difficulty of determining the extent to which these activities are responsible for observed outcomes.

Miller et al. (2011) conducted a study of the impact of community interventions, including a media awareness campaign on alcohol-related emergency department presentations in Geelong, Victoria. The study found that the intervention was not associated with reduced alcohol-related attendances at the emergency department. The authors highlighted that the ad hoc nature of implementation and lack of whole-of-government approach may have diminished the potential for positive outcomes. The authors argued that awareness campaigns in Australia are inherently challenged by the influx of popular media that promotes the consumption of alcohol (p.552). A study undertaken by Pettigrew et al. (2012, p.797) similarly demonstrated the widespread advertising that exists in Australia to promote alcohol as being 'fun, social and inexpensive'. In the face of this, awareness raising activities may be more effective when supported by other regulatory and policing interventions that help to address the problem in the short-term, while information and awareness raising activities persist to enable cultural change in the longer-term.

In the international context, an evaluation was conducted of the Nite Zone initiative in Glasgow, Scotland (Allison & Pan, 2011). The Nite Zone initiative involved a variety of activities, including a discrete information strategy aimed at educating the community to safely access transport. The study found a 9.3% reduction in violent crimes (p.11). The authors concluded that the reduction was largely due to the information campaigns directed at patrons leaving licensed premises (p.11). However, the findings of the study should be interpreted with caution due to the heavy reliance on primarily qualitative evidence.

These two studies present a mixed picture of the potential effect of information and awareness raising activities on alcohol-related crime. On the one hand, media campaigns that aim to change cultural behaviour may be hindered by prolific alcohol advertising and promotion (Miller et al., 2011). On the other hand, the Glasgow study has shown that mobilisation strategies that aim to encourage and directly assist patrons to utilise services such as transport can be effective (Allison & Pan, 2011). However, there is a need for further robust research to reliably assess the outcomes of such campaigns.

2.6 Precinct ambassador initiatives

Measure introduced in 2014: ***Intended effect: Harm minimisation***

- Safe Space and Take Kare Ambassador program.

Precinct ambassadors are non-police personnel that provide assistance to vulnerable persons in entertainment precincts (Miller et al., 2015, p.48). Ambassadors fulfil a public support role by providing transport information, administering first aid and calling upon the assistance of other services such as police and ambulance as required.

While these initiatives have been trialled in a number of locations including Melbourne, Auckland and the United Kingdom (UK), there have been no evaluations to date that have used robust outcome measures to assess the impact of such initiatives on the incidence of violence and antisocial behaviour. The research that has been conducted has used only qualitative evidence and program data to demonstrate effectiveness. For this reason, the following studies should be interpreted with caution.

In Newcastle, UK a Street Pastor program has been operating since it was piloted in London in 2003. The program involves Christian pastors voluntarily engaging with people on the streets, particularly late at night (Taylor, 2011). A qualitative assessment of the program undertaken by Taylor in 2011, found overall positive perceptions of the initiative. In particular, the program has reportedly assisted police in managing the night time environment. While the study found that the key to the success of the program was the voluntary nature of the pastors, the author also noted that the impact of the pastor program on violence was difficult to quantify (Taylor, 2011). Another study conducted by Green & Johns (2011) similarly explained that the links between the Street Pastor program and crime trends are not clear.

Further, in 2013 a study was undertaken by Fairweather to assess the impact of the Town Pastor program that has been operating in various parts of Suffolk in the UK since 2006. Using qualitative feedback from program volunteers, pastors and the community, Fairweather (2013) reported that the pastors provided a 'much needed service' to support the night time economy. However, due to other initiatives operating simultaneously to the pastor program in Suffolk and similarly to the challenges faced by Taylor (2011) and Green & Johns (2011), it was difficult to ascertain the actual impact of the program on the incidence of crime and disorder.

Recently the City of Sydney (2015b) conducted an evaluation of the Safe Space and Take Kare Ambassador program implemented in Sydney in 2014 as part of the Plan. Similarly to the feedback reported with regard to the UK pastor programs (Fairweather, 2013; Taylor, 2011), the City of Sydney report demonstrated support for the initiative. The study relied primarily on qualitative evidence to show the program has had an impact on de-escalating conflict and preventing the incidence of alcohol-related violence. As a specific measure introduced as part of the Plan, this initiative is discussed further in Chapter 3 and will be examined as part of this evaluation.

2.7 Closed-circuit television

Measures introduced in 2014: ***Intended effect: Harm minimisation***

- installation of 10 additional CCTV cameras in the CBD precinct and upgrading of CCTV signage.

While no research has specifically assessed the impact of CCTV on alcohol-related violence and antisocial behaviour, the evidence on the impact of CCTV in preventing general crime is now well established. This research has consistently demonstrated that the effectiveness of CCTV is limited to certain circumstances.

A systematic review conducted by Welsh & Farrington (2008) concluded that the use of CCTV cameras has a modest but significant desirable impact on crime. However, it is most effective in reducing crime in car parks and when targeted at vehicle crimes. CCTV has not been found to have any impact on alcohol-related violence or antisocial behaviour, given the spontaneous nature of these offences (Welsh & Farrington, 2008).

The literature indicates that the monitoring of CCTV is one of the most important factors influencing outcomes (Wilson & Sutton, 2003). Monitoring of CCTV can be classified into three broad categories:

- active monitoring, whereby a person sits and monitors camera footage in real time
- passive monitoring, monitors are in view and are casually monitored by operators who react when an incident is observed in progress
- no monitoring, where recording devices record images that can be accessed and replayed if a crime is reported (Hulme et al., 2015, p.7).

In Sydney, licensed venues tend to operate passively monitored CCTV or recording only cameras, while the City of Sydney manages an integrated system of cameras that are actively monitored 24 hours per day. The latter has been found to be more effective in preventing crime (Gill & Spriggs, 2005).

Further, the literature has recently begun to suggest that CCTV plays a valuable role in the monitoring and detection of crime, particularly in entertainment precincts (Hulme et al., 2015; Levesley & Martin, 2005). However, no empirical studies have been undertaken to evaluate the effectiveness of CCTV in this capacity.

2.8 Displacement

There is a longstanding concern that geographically targeted crime prevention strategies may result in the displacement of offending to another area without the intervention (Parliament of Victoria, 2012, p.49). In the context of entertainment precincts, it is hypothesised that displacement might occur because patrons choose to consume alcohol in other areas or at other times where they will not be subject to restrictions. This shift might be accompanied by an associated rise in alcohol-related violence and antisocial behaviour in areas where these patrons are now becoming intoxicated.

Three studies identified in this review explored the impact of interventions delivered in entertainment precincts on displacement. The findings were as follows:

- Kypri et al. (2010) found that a restriction in the trading hours of licensed premises in Newcastle produced a reduction in assault. The authors found no geographic displacement of assault to the nearby area of Hamilton.

- Mazerolle et al. (2012) found that lock out provisions in Brisbane had an impact on reducing assault inside licensed premises. Further, the authors reported that there was no evidence of displacement of assault to the streets and footpaths outside licensed premises.
- Finally, Palk et al. (2010) reported a reduction in alcohol-related incidents in the late evening and early morning following the imposition of lock out provisions in northern Queensland, but found no evidence of displacement to other time periods such as earlier in the night.

The above studies are consistent with previous reviews (see Eck, 2002; Guerette & Bowers, 2009; Morgan et al., 2011) where there was little evidence of displacement. This includes displacement to other geographic areas, time periods and spaces within an entertainment precinct. Further, the broader evidence base has shown that when displacement does occur, it is commonly less than the treatment effect (Guerette & Bowers, 2009, p.1331). This suggests that interventions can be beneficial, even when some displacement is experienced.

2.9 Multi-component interventions

It is important to note that the Plan introduced by the NSW Government in 2014 represents an initiative with multiple components, which the aforementioned literature suggests is likely to be a key strength of the approach.

The evidence presented in this review has shown that each broad intervention area has both strengths and limitations. In this way, the literature consistently highlights the value of implementing an intervention that includes multiple complementary activities.

One of the few evaluations that have considered the effectiveness of a multi-component strategy was the evaluation by OLGR of the Byron Bay Alcohol Action Plan (OLGR, 2015). In 2013 the Action Plan was introduced, which included a number of strategies targeted at regulating the environment, licensed premises, transport and special events in the Byron Bay local area. A major component of the Action Plan was the introduction of the terms of the Byron Bay Liquor Accord, which included a 1:30am lock out, extensive drink restrictions and RSA requirements.

The evaluation of the Action Plan encompassed detailed analysis of police record data before and after the changes were implemented, extensive stakeholder consultation, a survey of licensed premises, a cost analysis and analysis of compliance and enforcement data. The evaluation found that there was a 24.7% reduction in alcohol-related non-domestic assault after the Action Plan was introduced. However, the effect of the intervention was not statistically significant. Analysis of a longer time series of police record data would be beneficial for ascertaining the long-term impacts of the Action Plan. Nevertheless, the results are suggestive of a positive outcome for Byron Bay (OLGR, 2015).

Furthermore, a systematic review conducted by Jones et al. (2010) found that multi-component interventions have strong evidence of effectiveness. The authors reported:

> *'There is growing evidence that effective delivery of multi-component programmes in drinking environments can reduce alcohol-related harm and consequently costs to health services, criminal justice agencies and a range of other public services'* (Jones et al., 2010, p.41).

Importantly, multi-component interventions were found to be effective when based on a strategic and planned approach involving significant consultation prior to implementation (p.36). It is also critical that interventions are adapted to suit their unique settings, with preliminary and ongoing consultation with local stakeholders.

2.10 Published reviews of the 'lock out laws'

There have been a number of studies undertaken that have assessed the impacts and effectiveness of various elements of the 2014 measures implemented in Sydney.

In April 2015, Menendez et al. from BOCSAR undertook a comprehensive analysis of assault trends in the Sydney CBD and surrounding areas before and after the Plan was introduced in February 2014. The authors reported a 36% reduction in alcohol-related assaults in the CBD precinct between January 2009 and December 2013. The study also found an increase in assaults in The Star precinct, however the authors noted that the increases may represent random fluctuation, and cannot necessarily be attributed to the Plan.

In a subsequent study, Donnelly et al. (2016) also from BOCSAR examined whether the February 2014 reforms resulted in displacement of assaults to The Star in Pyrmont. The study found that there was a statistically significant increase in the number of non-domestic assaults recorded at The Star following the introduction of the reforms, however the authors noted that in absolute terms the increase was 'fairly small' and was much lower than the decrease in assaults observed in the CBD precinct (p.1).

Fulde et al. (2015) examined emergency department attendances for alcohol-related serious injuries in the CBD precinct before and after the 2014 reforms were introduced. In the two-year study period there were 318 alcohol-related serious injury presentations to St Vincent's hospital in the period before the introduction of the Plan, and 246 in the period after the introduction of the Plan. This reduction was found to be statistically significant.

3 Policy Development and Implementation

Key points

- The process evaluation found that the Plan has been implemented effectively and with a high degree of program fidelity.
- The policy development and implementation of Phase One was followed by the establishment of a Taskforce and Steering Committee, which provided strong interagency and inter-governmental partnerships for the development of Phase Two.
- In 2014, the City of Sydney established a City Night Time Operations Group to provide an information sharing and strategy forum for industry and agencies involved in night-time operational issues.
- Overall, there has been a high level of compliance with the licensing conditions implemented under the Plan. The use of a statutory test for the granting of exemptions and the small number granted (16 as at 30 July 2016) has supported program fidelity.
- However, in Treasury's 2015 and 2016 licensed premises surveys, a small number of venues identified that there have been logistical challenges in complying with some aspects of the Plan such as the drink restrictions after midnight and the 1:30 lock outs, but these have not necessarily translated into licence breaches.
- There are continued challenges in enforcing compliance for licensed vessels and specific problems with intoxicated patrons disembarking from 'party boats' and attempting to enter licensed premises in the CBD precinct.
- The transport initiatives of the Plan were implemented effectively and have consistently received strong community and stakeholder support.
- Despite this, there were some concerns raised by stakeholders relating to the limited public transport options in the CBD precinct late at night, which was seen to be exacerbated with the introduction of the 1:30am lock out and 3:00am cease of service.
- The Safe Space and Take Kare Ambassador program provided effective outreach support to vulnerable persons and assisted police in managing the streets during peak night-time periods.

This chapter presents the findings from the process evaluation. The process evaluation was conducted in two stages:

- The first stage involved a detailed examination of the development and implementation of the Plan, with a particular focus on the first 12 months of the Plan's operation (2014).
- The second stage provided an update on the implementation of the Plan in the second year of operation (2015) and also assessed the fidelity of the Plan.

The process evaluation was informed by consultations in 2015 and 2016 with a range of stakeholders, data collected through Treasury's 2015 and 2016 licensed premises surveys and program data provided by agencies.

3.1 Policy development and governance

3.1.1 Phase One: Development of regulatory controls and CBD precinct boundaries

In January 2014 the NSW Government developed the Phase One regulations, which included the 1:30am lock outs, 3:00am cease of service and the establishment of the CBD precinct boundaries. This was largely overseen by the Office of Liquor, Gaming & Racing (OLGR) which at that time, had responsibility for regulating the liquor industry in New South Wales, with some input from the NSW Police Force and senior personnel in DPC. OLGR oversaw the development of the measures and boundaries that would constitute the new CBD precinct, which were ultimately approved by the NSW Government. The development of the licence conditions were informed by the Kings Cross precinct Plan of Management implemented in 2012, which laid the foundation upon which the CBD measures were developed.

Also in January 2014, the Department of Justice (DoJ) oversaw the drafting of the state-wide legislation, which included the sentencing changes for alcohol-related offences, with the NSW Police Force playing a key assisting role. Other government agencies consulted as part of this evaluation were not formally involved in the policy development process until after the NSW Cabinet had approved the Phase One measures. A public announcement was made by then Premier Barry O'Farrell on 21 January 2014, and on 30 January 2014 Parliament was specially recalled and the *Liquor Amendment Act 2014* and the *Crimes and Other Legislation Amendment (Assault and Intoxication) Act 2014* were formally passed.

3.1.2 Phase Two: Development of the Plan of Management

On 12 February 2014 a high-level whole-of-government Steering Committee (hereafter 'the Committee') was established to oversee the coordination and implementation of the measures. The Committee was chaired by DPC and also included representatives from:

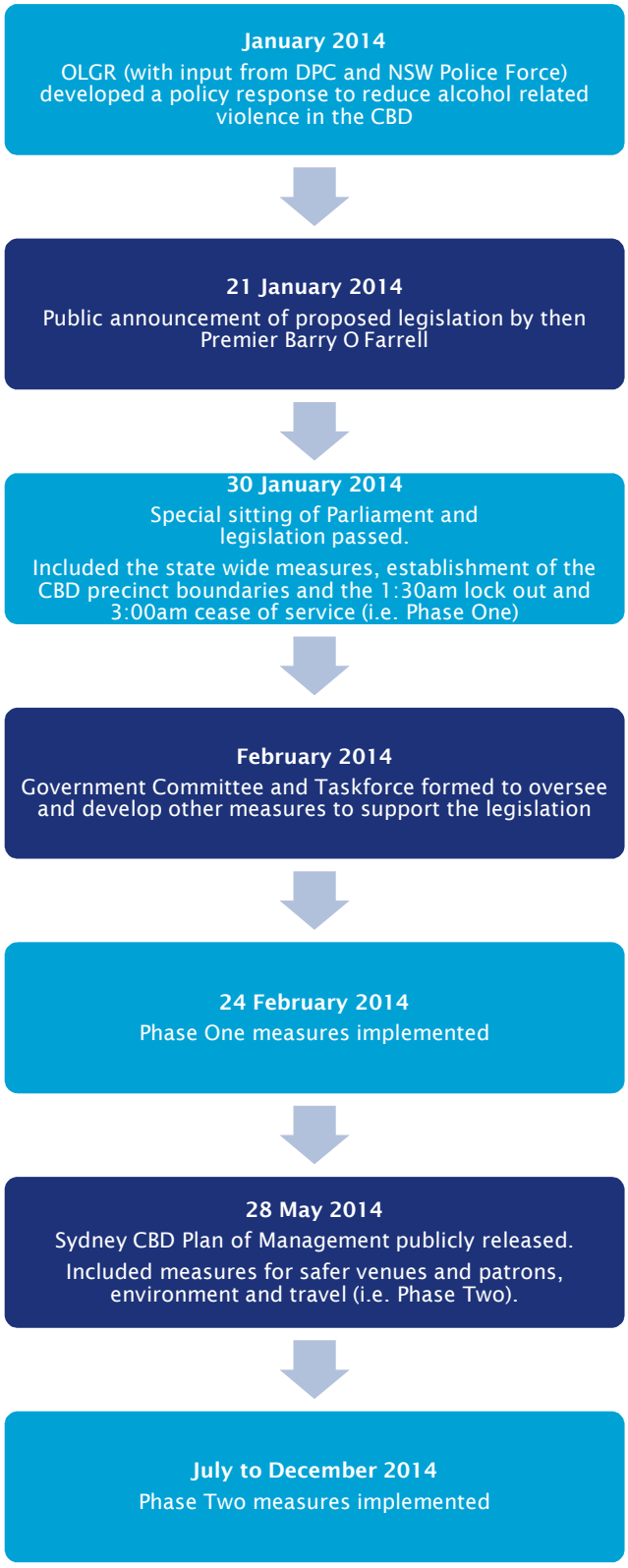
- Department of Attorney General and Justice (DAGJ)
- OLGR
- NSW Police Force
- Transport for NSW (TfNSW)
- Department of Family and Community Services
- Department of Finance and Services (DFS)
- Ministry of Health
- City of Sydney.

Reporting to the Committee was the CBD Entertainment Precinct Taskforce (hereafter 'the Taskforce'), which included State Government representatives from OLGR, DPC and DoJ, as well as local government representatives from the City of Sydney. Led by DPC, this Taskforce was responsible for developing the Phase Two measures to complement the lock outs, cease of alcohol service and other Phase One measures. Phase Two included strategies targeted at making venues, the environment and travel safer in and around the CBD (NSW Government, 2014a) (see Table 1.1). The Taskforce operated intensively for three weeks up until the end of February 2014 when Phase One was rolled out, and continued to meet regularly, exchange information and share advice in the lead up to the roll out of Phase Two on 18 July 2014. A timeline of key events is provided in Figure 3.1.

3.2 Timeframes

Feedback from the consultations consistently highlighted the short timeframes that characterised policy development and implementation. Figure 3.1 provides an overview of the timeline.

Figure 3.1: Timeline of key events



The condensed planning period limited opportunities for the implementing agencies to consult with external stakeholders. An Industry Stakeholder Reference Group was established with key industry associations, Liquor Accords and major venue and chain venue owners. A briefing session with this Reference Group was led by DPC and attended by OLGR, DoJ and the NSW Police Force shortly prior to the Plan's implementation on 21 February 2014. However, it was widely acknowledged that this meeting served the purpose of informing stakeholders of the changes rather than allowing parties to actively provide input into the development of the new policies.

3.3 Interagency coordination and partnerships

The government agencies consulted as part of the evaluation consistently highlighted the strength of the interagency coordination and partnerships that governed the development and implementation of the Plan. In particular, the Taskforce was described by several stakeholders as a good example of a multi-agency and multi-government team working effectively together on a joint initiative, with open and transparent sharing of information between members.

DPC's leadership sent a clear message to implementing agencies that the Plan and associated measures were a NSW Government priority, which led to the timely completion of tasks and a smooth roll out of the initiative. The Committee, which operated alongside the Taskforce, was supportive of and engaged with the project. This ensured that decisions were made and formal approval was reached without delay.

Numerous agencies noted the active involvement of the City of Sydney, as an implementing partner in both the Taskforce and the Committee. For example, in the lead up to the Phase One implementation, there were concerns raised about potential crowding of people at the 1:30am lock out time. In addition, the roll out of the Phase One measures occurred shortly before the weekend of the Sydney Gay and Lesbian Mardi Gras, which presented resourcing challenges for the NSW Police Force, TfNSW and the City of Sydney. Nevertheless, these challenges were met. The City of Sydney was instrumental in mitigating this risk and coordinated the use of the emergency communication systems to help direct pedestrians out of crowded areas. This level of coordination across state and local government was regarded by all implementing agencies as a key factor that contributed to successful implementation.

In July 2014, leadership of the Taskforce was transferred from DPC to DoJ. The Taskforce continued to meet until late-2014, when it had largely concluded its functions with both Phase One and the major elements of Phase Two having been implemented.

In 2014, the City of Sydney established a Night Time City Operations Group, comprising representatives from a number of agencies including the NSW Police Force, DoJ, TfNSW, the Sydney Harbour Foreshore Authority (SHFA), as well as the NSW Taxi Council, NSW Taxi Operators and Drivers Association, Salvation Army, Liquor Accords, the Australian Hotels Association, and Punchbowl buses (operators of the NightRide bus service).

In consultations stakeholders consistently provided positive feedback about the operation and function of this group. For example, the group played a central role in identifying the need for additional transport in Darling Harbour and initiating the implementation of an additional secure taxi rank in this area (Wheat Road) to address this need. Overall, the group was seen as effective in the sharing of information and facilitating decision-making around night-time management in the CBD.

3.4 Measures for safer venues and patrons

A significant number of the Plan's measures have resulted in changes to the licence conditions of venues in the CBD. As the agency responsible for monitoring and regulating liquor licensing in New South Wales at that time, OLGR led the communication efforts in 2014 to educate licensees about the changes to their licence and have continued to work with licensed premises to ensure ongoing compliance. In addition, the NSW Police Force conducts regular inspections of venues and liaised with OLGR (now undertaken by L&GNSW) in relation to breaches of licence conditions. Further, the City of Sydney undertakes monitoring of venues in relation to planning consents and environmental impacts of new or existing venues through pro-active inspections programs (sometimes with police) and complaint investigations.

3.4.1 Compliance and enforcement

Between February 2014 and December 2015, OLGR conducted 922 general inspections of licensed premises in the CBD precinct comprising 739 inspections in 2014 and 183 in 2015.[9] Of the 336 breaches that occurred over these two years, the majority (238 or 70.8%) were for regulations that existed prior to February 2014 such as the provision of gaming or automatic teller machine signage. Only 98 (or 29.2%) were breaches of Plan-specific measures (see Table 3.1) and most of these were for the relatively low-level breaches such as failure to produce Responsible Service of Alcohol (RSA) competency cards or interim certificates upon request and failure to keep an incident register in the approved form.

Table 3.1: Breaches of the Plan

Breach type	2014		2015		Total	
	n	% of total (n 192)	n	% of total (n 144)	n	% of total (n 336)
RSA competency cards	41	21.4	2	1.4	43	12.8
Incident registers	30	15.6	11	7.6	41	12.2
Lock outs	5	2.6	-	-	5	1.5
Drink restrictions	3	1.6	6	4.2	9	2.7
Total	**79**	**41.1**	**19**	**13.2**	**98**	**29.2**

Data source: L&GNSW (2016b)

Note: 2014 period = February to December, 2015 period = January to December. These data are current as at April 2016 and are subject to change according to the timing of L&GNSW's data entry processes.

The overall strong compliance with the measures introduced under the Plan is reflective of the effective information provision strategies that were employed by OLGR (in conjunction with the efforts of the NSW Police Force) to educate licensees about the requirements of the new licence conditions. Further, there was considerable commitment by licensees and Liquor Accords to understand and comply with their new licence conditions. In the first year of the Plan's operation, OLGR adopted a saturation approach that included a range of communication strategies and mass deployments of inspectors to ensure the majority of the industry was captured.

This was supported by findings from Treasury's 2015 licensed premises survey that found 83.6% of respondents relied upon OLGR as their main source of information about the Plan, and over two-thirds (69.3%) of respondents indicated that they were 'very satisfied' or 'satisfied' with the information provided or made available to them about the specific actions required of their venues to comply with the new regulations.

In 2015, this saturation model was replaced with more targeted enforcement activity to address harms using a risk-based compliance approach.

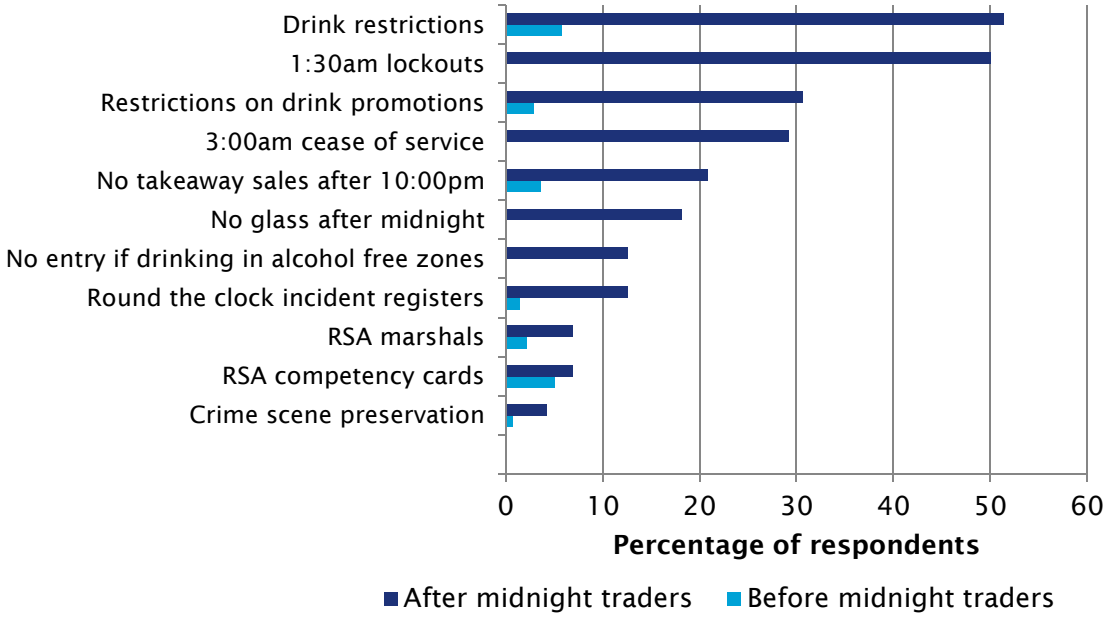
[9] Excluding wholesale liquor outlets.

Treasury's 2016 licensed premises survey asked venues in the CBD precinct to identify which of the regulations (if any) were most beneficial in helping them to promote a safer drinking environment. The introduction of RSA competency cards was deemed to be the most beneficial regulation by 35.6% of respondents (75 venues). Consultation feedback demonstrated support for the introduction of the competency cards as it shifted responsibility to bar and wait staff, thus minimising the administrative burden for licensees.

Treasury's 2016 licensed premises survey found that 33.6% of respondents (71 venues) had experienced one or more challenges in meeting the regulations implemented as part of the Plan. This does not imply that a breach of regulation had occurred; rather, it demonstrates that at times some survey respondents have experienced implementation difficulties. Of the 72 after midnight traders that responded to the survey, 47 (65.3%) reported compliance challenges. Only 24 venues (17.3%) that close before or at midnight indicated they had experienced compliance challenges. This difference is not unexpected given that after midnight traders are required to comply with a greater number of licence conditions. This is consistent with findings from the 2015 licensed premises survey.

As Figure 3.2 shows, of the 71 venues that experienced compliance challenges, the regulations that caused the most difficulties were the drink restrictions, followed by the 1:30am lock outs, restrictions on drink promotions and 3:00am cease of service.

Figure 3.2: Compliance challenges by licence condition



Data source: Licensed premises survey (CBD precinct) (2016).

Note: Includes data provided by 71 venues that reported compliance challenges in the survey. Respondents may select multiple responses, therefore percentages do not add to 100.

Qualitative survey responses and consultations with licensees and industry representatives offered some explanations of the breaches and compliance challenges listed in Table 3.1 and Figure 3.2.

Survey respondents indicated that the drink restrictions posed practical challenges for venue staff, who are required to be acutely aware of the time in order to satisfy the various restrictions imposed at different times throughout the night (e.g. no shots after midnight, limits on the number of drinks per patron after midnight and 2:00am etc.). There was a perception among survey respondents that the drink restrictions were numerous and complex, and there was a significant amount of knowledge required by staff to ensure compliance. This was deemed to be problematic for the hospitality industry, as staff turnover is typically high and thus significant and ongoing staff training is required.

Similar to the feedback received in Treasury's 2015 licensed premises survey, further issues were raised around the restrictions on the supply of any drink containing more than 50% spirits or liqueur after midnight. This was identified as being problematic for venues offering premium spirits to their guests. Venues reported difficulties in explaining to patrons that they were not able to purchase their drink of choice. However, some venues have been granted an exemption from this measure (see Section 3.4.2 below).

A lack of patron awareness was a key issue discussed in consultations and identified by respondents in Treasury's 2015 and 2016 licensed premises surveys. Venue operators described the ongoing need to explain the regulations to patrons, particularly the 1:30am lock outs, with some adopting methods such as installing clocks at the entrance to assist with turning away patrons after the lock out period. This lack of understanding was identified as being particularly common amongst international visitors.

While the transition to RSA competency cards was generally supported by respondents of the licensed premises survey, it was also found that there were initial problems because of delays in the issuing of physical cards. The shifted onus on staff (rather than licensees) to produce their qualification may explain the higher number of breaches related to this element of the Plan (particularly in 2014, as shown in Table 3.1).

Feedback provided by implementing agencies identified particular challenges in monitoring and enforcing compliance by licensed vessels. By their nature, the RSA practices on licensed vessels are less transparent and there are inherent challenges in enforcing compliance when vessels are in transit. As a way of enforcing the legislative requirements of vessels, OLGR (and now L&GNSW) in partnership with the NSW Police Force and the NSW Food Authority conduct joint operations. These operations are resource-intensive and pose specific Occupational Health and Safety risks for those conducting the operations, and as such they are only conducted a few times per year. As a result of the limited number of inspections for licensed vessels, some operators (commonly identified as 'party boats') have reportedly not maintained compliance to an adequate standard. [10] There were reports in consultations that some operators were willing to breach regulations such as trading beyond their licence hours and/or serving alcohol to intoxicated patrons, as the benefits were perceived to outweigh the relatively low risk of being caught for non-compliance.

With regard to party boats, there are specific problems with intoxicated patrons attempting to enter CBD premises from boats docking at wharfs surrounding the precinct. To avoid the problems associated with this, some venue operators in the CBD precinct and nearby areas have implemented blanket bans on persons attempting to enter their venues from these boats. Moreover, while vessel operators are required to schedule their initial disembarkation through a booking service controlled by Roads and Maritime Services (RMS), there is no similar requirement for drop-offs at the end of the night. Consequently the location and arrival time of the boats cannot be anticipated, and this has reportedly made it difficult for SHFA rangers and the NSW Police Force to manage the often large crowds disembarking from these vessels at various times throughout the night. This is exacerbated by the fact that patrons are not able to disembark from licensed vessels in the CBD precinct after midnight, which has reportedly created increased demand for wharves outside the precinct and problems with crowding, such as wharves located near The Star.

[10] 'Party boats' are commonly referred to as licensed chartered vessels that provide 'dance party' types of entertainment and cater for a younger demographic.

3.4.2 Exemptions

The NSW Government recognised that given the large number and variety of venues in the CBD, an exemption mechanism should be made available for special circumstances. Under Clause 53ZI of the *Liquor Regulation 2008,* venues are able to apply for an exemption at a cost of $500. Applications are now assessed by L&GNSW (and previously by the regulator OLGR), with input from police, using a risk reduction perspective. Applicants must demonstrate that the granting of an exemption will not contribute to an increase in violence and antisocial behaviour in the precinct area and venues will be required to adopt additional measures that are effective in reducing the risk of alcohol-related violence or antisocial behaviour in or about the premises (e.g. additional security, earlier cessation of alcohol service etc.).

The use of a uniform statutory test for the granting of exemptions has assisted in protecting the integrity of the various elements of the Plan and to ensure that program fidelity was not compromised by overuse of the exemptions mechanism.

As at June 2016, exemptions had been granted to 16 venues in the CBD (L&GNSW, 2016c). The two main types of exemptions granted so far have related to the 1:30am lock outs for gaming and sporting venues and the supply of any drink containing more than 50% spirits or liqueur after midnight for premium bars.

The *Liquor Amendment (Special Events Extended Trading) Regulation 2014* removed the 1:30am lock out condition for licensed premises in the CBD precinct on 1 January 2015 and 1 January thereafter, to accommodate the significant increase in patrons celebrating New Year's Eve. The removal of the lock out in the early hours of 1 January was to support a more staggered crowd dispersal of post-midnight crowds and to 'reduce street congestion, public transport pressures and public safety risks' (Parliament of New South Wales, 2014).

The regulation was only passed on 1 December 2014, which created some pressure points for services such as the NSW Police Force and TfNSW, which had limited time to re-consider and plan crowd management and service delivery approaches to take account of the changed circumstances. Despite this, there were no major issues on New Year's Eve in 2014, and the changed arrangements were well developed by the time of the 2015 celebrations. Feedback from police and Destination NSW indicated that there were fewer crowds in the CBD on New Year's Eve in 2014 compared with previous years and this may have reflected public concerns about safety following the Sydney Siege in December 2014. [11]

Some liquor industry stakeholders suggested that the exemption from the lock out should be extended to other hallmark events in Sydney, specifically the Gay and Lesbian Mardi Gras. However, L&GNSW has noted that this event differs to the New Year's Eve celebrations since the timing of the Mardi Gras parade occurs prior to midnight, which allows visitors and patrons considerable time to move to licensed premises before the lock out period commences. An industry-wide application to have the lock out lifted for this event was rejected on this basis.

Stakeholders from the live music industry, the liquor, hospitality and accommodation industries, and local government raised concerns in consultations that the statutory test applied to assessing applications for exemption was too narrow. In particular, stakeholders felt that venues with good management practices and a good compliance history should be given the opportunity to apply for an exemption from various elements of the Plan. There were specific calls for exemptions to be applied to venues whose primary purpose is the provision of live music and entertainment, as the activities of these venues were seen to positively contribute to the vibrancy and culture of the city. As at June 2016, three live music venues had submitted applications to L&GNSW for exemptions to specific elements of the Plan. These applications were still being processed at the time of the writing of this report.

[11] - On the 15-16 September 2014, a lone gunman held up the Lindt Café in Martin Place in the Sydney CBD. This incident is frequently referred to as the 'Sydney Siege' incident.

3.5 Measures for safer travel

It was acknowledged in the CBD Plan of Management that the availability of safe and reliable late-night transport options is 'a vital part of a functioning night-time precinct' and as such, the effective management of transport was one of the key elements of the Plan (NSW Government, 2014a). From a crime prevention perspective, transport can play an important role in reducing congestion and thus the potential for conflict (Scott et al., 2016). There were three main transport initiatives implemented under the Plan, including:

- the provision of more late-night transport information in the precinct
- the expansion of the operating hours of secure taxi ranks in the precinct
- the expansion of prepaid taxi fares to all secure taxi ranks in the precinct.

The implementation of these initiatives involved TfNSW, the NSW Police Force, City of Sydney, RMS, the NSW Taxi Council and the NSW Taxi Operators and Drivers Association. In addition, TfNSW was provided with funding under the Plan to undertake data collection and research on late-night transport usage in the CBD precinct. A summary of the findings from this research is provided in Appendix F.

3.5.1 Late night transport information

TfNSW developed a variety of communication materials that were intended to provide late night visitors to the CBD precinct with specific information about transport options. TfNSW worked closely with the City of Sydney to distribute Zed cards (a specific kind of marketing tool) and other promotional materials to the 50 largest licensed premises in the CBD precinct, so that they could provide this information directly to their patrons. In addition, the Safe Space and Take Kare Ambassadors (established under the Plan and discussed further in Section 3.6.2) assisted in distributing transport information to passers-by.

While there were some challenges in distributing information over the relatively large geographical area of the CBD precinct, overall this element of the Plan was implemented effectively.

3.5.2 Secure taxi ranks and prepaid fares

As at May 2016, there were nine secure taxi ranks operating in the CBD, including the additional secure rank established at Wheat Road in Darling Harbour in December 2015. These ranks are managed by security guards employed by TfNSW at key locations across the CBD to ensure driver and passenger safety. The City of Sydney provides the signage and infrastructure at the rank. Under the Plan, the ranks were staffed with an additional security guard and operating hours were extended from the period 10:00pm to 4:00am to the period 9:00pm to 6:00am. However, in 2015 these hours of operation were reviewed again and a decision was made to revise them to 10:00pm and 5:00am due to low patronage at either end of the night. This revision of operating hours allowed the reallocation of funding for the provision of the new secure rank at Wheat Road, Darling Harbour.

In consultations, stakeholders consistently expressed support for the continued operation of secure taxi ranks in the CBD. In particular, stakeholders noted increased accessibility of taxis between the 1:30am lock out and 3:00am cease of service, where previously there were fewer taxis at this time.

Under the Plan, pre-paid taxi fares were extended to all ranks in the CBD following amendments to the *Passenger Transport Regulation 2007.* Pre-paid taxi fares aim to provide a safer working environment for taxi drivers and reduce the incidence of fare evasion. Taxi drivers may request that passengers pre-pay their taxi fares for journeys starting at any of the secure taxi ranks in the CBD precinct (TfNSW, 2015a). The City of Sydney was responsible for providing the signage and infrastructure for prepaid fares at the secure taxi ranks in the CBD, while TfNSW provided the additional security personnel. Despite there being a low take up of prepaid taxi fares, stakeholders expressed support for the continued operation of the scheme as it increases the perception of safety for drivers attending the CBD to pick up passengers, particularly in terms of preventing fare evasion and driver-passenger conflict.

3.5.3 Availability of late-night transport in the CBD

While the evaluation found that the elements of the Plan relating to transport management in the CBD precinct were implemented effectively, consultations with stakeholders raised some issues with the late night transport network in the CBD. A number of stakeholders believed that there should be a greater focus on improving late night transport options for visitors to the CBD. These issues are discussed below.

There are a number of transport options available in the CBD precinct. In summary:

- trains and buses are the main forms of public transport available to individuals, though their frequency and availability is limited late at night. In general, Sydney trains do not operate between 1:45am and 4:30am, with limited services after midnight
- NightRide bus services operate to replace trains between these late night hours, with extra services on weekends. NightRide services operate in addition to regular late night bus services. As at June 2016, there were 12 NightRide bus services operating from Town Hall (Park Street), Central (George Street) and Kings Cross (Bayswater Road) to various locations
- as at June 2016, there were nine secure taxi ranks operating in the CBD from 10:00pm to 5:00am on Friday and Saturday nights
- with changes to the *Passenger Transport Regulation 2007* in December 2015, ridesharing services such as Uber and Lyft are now available.

Limitations with late-night transport in the CBD identified by stakeholders

Despite there being a number of services available to visitors to the CBD precinct, there are (and have always been) limited public transport options available in the early hours of the morning, with the last train departing the CBD from Central Station at 1:45am and the last ferry departing from Circular Quay prior to 1:00am. After 1:30am the main non-private transport options available to persons in the CBD include regular late-night bus services, the NightRide bus service, taxis and ridesharing services. Stakeholders identified some key issues with the pre-existing late-night transport options in the CBD, as follows:

- stakeholders noted that NightRide bus services were generally unpopular due to the presence of security guards on board the buses, issues with accessing bus stop locations and a reduced consumer experience[12]
- the location of the late-night bus stops are a considerable distance from the northern end of the CBD, namely the Rocks and Circular Quay. This was seen as a barrier to transport access for those visiting these parts of the CBD

[12] The patronage data collected by TfNSW in 2014 showed that only 13.2% of total late-night bus services in the CBD precinct achieved capacity of 85% or higher (see also Appendix F).

- while taxis are a commonly used transport option by people leaving the CBD late at night, issues have arisen when intoxicated and/or drug affected people have been refused service by drivers
- the costs associated with taxi and ridesharing services may preclude some persons from accessing these services, particularly those visiting the CBD from areas further afield.

Interaction of the Plan with transport choices as identified by stakeholders

Stakeholders identified instances where the introduction of the Plan particularly the 1:30am lock out and 3:00am cessation of alcohol service, do not interact well with existing late-night transport options in the CBD.

First, it is suggested that the 1:30am lock out and 3:00am cessation of alcohol service has created a surge in demand for transport services in the CBD whereby patrons are seeking to access transport *en masse* at these times. This was seen to be problematic for the following two reasons:

- increased crowding of people at fast food outlets and public transport hubs has been observed at these key times, and there are concerns about the increased risks to personal safety as a result of this
- while Uber has increased the transport options available late at night, the increased cost of ridesharing services such as Uber during peak periods of demand, make these modes of transport unviable for some people (particularly those travelling to areas further from CBD). [13]

Secondly, stakeholders suggested that many late night venues in the CBD are closing earlier than prior to the Plan, as they can no longer serve alcohol to patrons after 3:00am. Where prior to the Plan, some patrons chose to wait inside licensed venues until the commencement of the 5:00am train service, this is no longer possible because the venues have closed. This is believed to be impacting patron behaviour in two ways:

- patrons are choosing not to visit the CBD precinct at all
- patrons have to wait at fast food outlets or public transport hubs until the commencement of the early morning train service at 5:00am, again increasing risks for safety.

These issues are believed to be particularly pertinent for individuals visiting the precinct from areas outside the Sydney metropolitan area, where other modes of transport such as taxis and ridesharing services were cost prohibitive.

In light of these issues, in consultations a number of stakeholders identified the need to align all late night travel options with the 1:30am lock out and 3:00am cessation of service to provide individuals with a safe and reliable means of travelling home. However, as will be discussed in the section below, there are practical and financial considerations in doing so.

Addressing stakeholder concerns around late-night transport

A number of stakeholders advocated for the extension of train operating hours. However, there are practical infrastructure constraints associated with operating trains for extended hours in Sydney. TfNSW noted that the times at which the train network is not operating are used for essential maintenance work and upgrades. The train shutdown period each evening is viewed as essential by transport representatives for maintaining the infrastructure and ensuring the ongoing efficiency of the network during peak times. The 1:45am to 4:30am period is the lowest demand time of the day for train services, and is therefore the most suitable period for these works to be undertaken.

[13] Uber operates on a surge pricing model, whereby an increase in demand for the service is met with an increase in price paid by the consumer.

Furthermore, should a decision to expand services be made, then this would need to apply to the entire network. Switching on only part of the train network would simply shift people from the CBD to nearby areas without actually getting them safely home, particularly for those persons travelling from areas outside the Sydney region. For this reason, partially switching on the network for inner Sydney stations or selected lines is considered to be unsuitable for ensuring people get home safely.

The alternative of switching on the entire network and upgrading the network to be able to accommodate 24-hour services without reductions in peak-time efficiency is anticipated to come at significant cost. No formal costing of this has been undertaken and is outside the scope of this evaluation. However, it would be anticipated this would require global reform of the rail network across the Sydney region and would require substantial investment (in addition to existing planned capital works).

Finally, the longer term implications of the light rail project that is being established in the CBD are yet to be considered. It is anticipated that the integration of light rail into the public transport network will have significant implications for overall transport options in and nearby the precinct, though it is recognised that the light rail is still under construction.

3.6 Measures for a safer environment

There are a number of initiatives delivered under the Plan that aim to create a safer environment in the CBD. These include:

- high-visibility policing
- the installation of ten additional public space CCTV cameras and upgrade of CCTV signage
- the piloting of two GoBo light projectors and deployment of Variable Message Signage to assist with wayfinding[14]
- the introduction of 24-hour cleansing and waste removal in George Street (including the footpaths and street) to wash down footpaths and remove rubbish
- the Safe Space and Take Kare Ambassador program.

These initiatives were largely extensions of existing initiatives under the directive of the City of Sydney, the NSW Police Force and DoJ. For example, the City of Sydney operates an extensive CCTV network encompassing comprehensive monitoring arrangements and partnerships with police and has a long-term capital and maintenance plan for its network. Consultations highlighted the benefits of the additional funding provided under the Plan, which provided an opportunity to upgrade and expand upon this infrastructure and found no issues with implementation.

3.6.1 Policing

Stakeholder discussions with a number of police Local Area Commands (LACs) indicated that no additional police resources have been required to implement the Plan. Rather, existing resources are being re-allocated with the 1:30am lock out and 3:00am cease of service providing distinct times around which police activities can now be targeted. Due to improvements in levels of violence in the CBD precinct (see Chapter 4), the police reported that greater resources are now available for other policing strategies including increased licensing and enforcement activity, high-visibility policing, and preventive (rather than reactive) policing.

[14] GoBo light projectors cast a taxi icon and arrow to the pavement directing visitors to the Martin Place secure taxi rank.

Furthermore, the Sydney Commands no longer rely upon the resources of regional commands to assist with managing the CBD environment late at night, instead utilising CBD officers who have the benefit of local knowledge. However, this may also reflect ongoing moves by the NSW Police Force to improve their policing practices and may not necessarily relate to the Plan alone.

The police have benefited from improved relationships across various agencies including SHFA rangers, Take Kare Ambassadors, City of Sydney CCTV control room operators, and other local council staff such as cleaning teams. As discussed above, there is now greatly improved coordination across the services through the City of Sydney-chaired Late Night City Operations Group, Late Night Transport Working Group and Safe Space Ambassador Program Steering Group, and this is perceived by stakeholders to have played a key role in improving the safety of the CBD late at night.

3.6.2 The Safe Space and Take Kare Ambassador program

The Safe Space and Take Kare Ambassador program was initially funded under the Plan as a pilot to operate for 12 weeks in the summer months. It operated between 10:00pm and 4:00am every Friday and Saturday night between 5 December 2014 and 21 February 2015. The City of Sydney, DoJ, the NSW Police Force, the Thomas Kelly Youth Foundation and St Vincent's Hospital formed the Steering Committee that oversaw the pilot. The initiative was provided with additional funding to operate until May 2015 and has since been given an additional three years of funding by the City of Sydney and DoJ to operate year-round, with added financial support from the private sector.

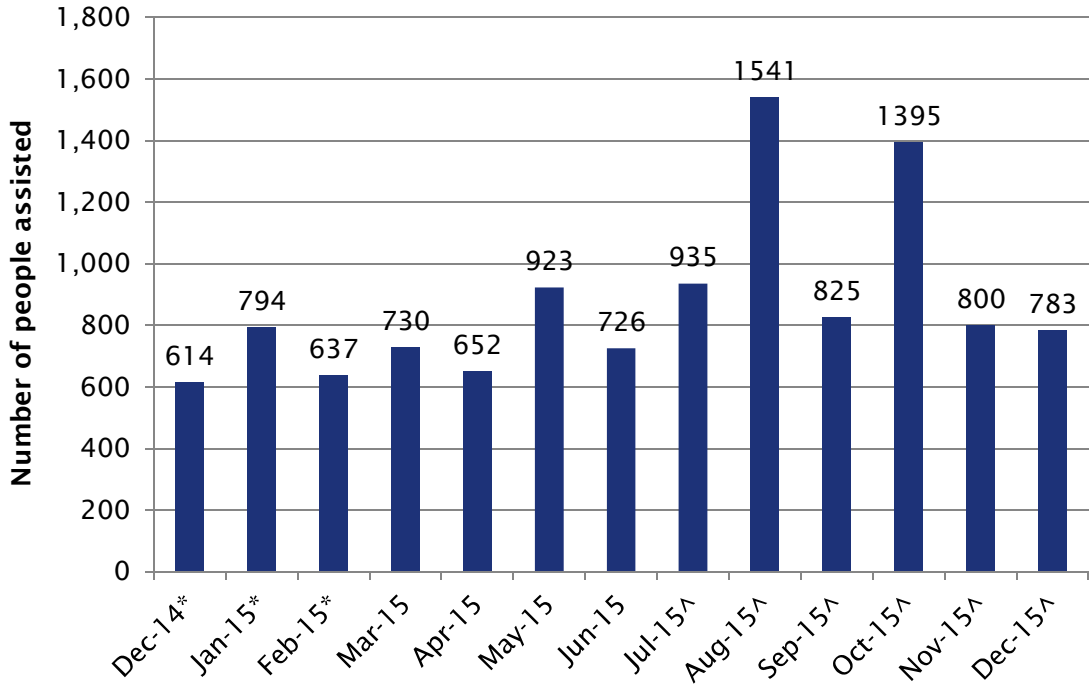
The Safe Space is located adjacent to Town Hall and was operated by the Salvation Army.[15] On Friday and Saturday nights paid staff and trained volunteers provide information and assistance to vulnerable and intoxicated people in the CBD precinct late at night. This is undertaken by Ambassador teams: one static that operates from the Safe Space and others that roam throughout the precinct on foot.

During the three-month pilot period, around 2,000 people were assisted by the Take Kare Ambassadors, the majority of whom were intoxicated and drug affected young people between 18 and 25 years old (City of Sydney, 2015b). As shown in Figure 3.3, the number of people assisted spiked after July 2015, when the program was expanded to Kings Cross and an additional Safe Space was setup on Bayswater Road. The Ambassadors provided assistance in a variety of ways including referring people to transport, emergency services, friends, family and accommodation. The Safe Space itself offers first aid (including vomit bags), water, phone chargers and basic shoes (thongs).

When the Light Rail developments commenced on George Street in late-2015, there were several changes to bus timetabling and bus stop locations in the CBD. This included the NightRide bus service that had previously departed from Town Hall and was relocated to Park Street. The Take Kare Ambassadors were instrumental in helping to re-direct passengers to the new bus stop locations and provided over 2,800 people with assistance in this regard between October and November 2015. It was highlighted that more support and communication from TfNSW could have been provided.

[15] The Salvation Army ceased operation of the Safe Space program on 30 June 2016. St John's Ambulance commenced operation of the Safe Space on 1 July 2016.

Figure 3.3: People assisted by Take Kare Ambassadors



Data source: City of Sydney (2016a)

Note: *Denotes the pilot period. The Oct – Nov '15 period excludes an additional 2,868 assistances provided in relation to the relocation of NightRide bus services due to the Light Rail. ^Includes assistances provided by Ambassadors located at the Kings Cross Safe Space.

Table 3.2: Take Kare Ambassadors

Period	Average number of volunteers per night (n)	
	Town Hall	Kings Cross
Dec 2014	8.4	N/A
Jan 2015	9.7	N/A
Feb 2015	11.1	N/A
Mar 2015	7.6	N/A
Apr 2015	7.6	N/A
May 2015	6.2	N/A
Jun 2015	8.1	N/A
Jul 2015	7.1	2.5
Aug 2015	6.3	1.5
Sep 2015	7.3	1
Oct 2015	6.9	1.3
Nov 2015	6.9	1.9
Dec 2015	8.2	1.5

Data source: City of Sydney (2016a)

Note: Excludes an additional 39 volunteers on New Year's Eve 2014.

The Safe Space and Take Kare Ambassador program is perceived by many stakeholders to be of significant value to the CBD. In particular, stakeholders across the government, industry and community sectors identified that the outreach style of support was a key strength of the initiative. Take Kare Ambassadors adopted a non-threatening, proactive and friendly approach to de-escalate potential conflict, which was not always possible for police and security personnel because of the nature of their roles. Several stakeholders noted that similar initiatives trialled previously were less successful because of the use of security personnel or police, rather than members of the community as volunteers. This is consistent with the findings reported by Taylor (2011) and Fairweather (2013) with regard to volunteer-based pastor programs in the United Kingdom (as discussed in Chapter 2).

The program is underpinned by good governance structures whereby Ambassadors regularly exchange information with police, SHFA rangers and City of Sydney CCTV control room operators about vulnerable persons and/or potential incidents. The police welcomed assistance from the Ambassadors in peak weekend periods, which have traditionally been regarded as a 'police-only job'. Police noted that the Take Kare Ambassadors have played a role in reducing demand for the Sobering Up Centre, which was setup in 2013 to help reduce alcohol-related violence and antisocial behaviour by targeting intoxicated people that are acting in a manner that puts themselves or others at risk, and placing them in a secure and safe location until they sober up (NSW Police Force, 2013). The boundaries of the Sobering Up Centre were expanded when the CBD precinct was established. In mid-2016 the Sobering Up Centre was closed.

The City of Sydney (2015b) evaluation report of the program provides first-hand accounts of the ways in which vulnerable persons were assisted by the initiative in the CBD late at night.

3.7 Fidelity of the Plan

Fidelity is the extent to which the delivery of an intervention adheres to the protocols and program model originally developed (Mowbray et al., 2003). The evaluation of implementation fidelity is important because it may moderate the relationship between an intervention and its outcomes and helps to prevent potentially false conclusions being drawn about an intervention's effectiveness (Carroll et al., 2007). Evaluating fidelity involves assessing:

- adherence – the extent to which the program or policy is delivered as it was designed, including content, methods and activities
- exposure or dosage – the amount of the program or policy delivered in relation to the amount originally intended (i.e. coverage)
- quality of delivery – the manner in which the program or policy is delivered
- participant responsiveness – the manner in which participants react to or engage in a program or policy (Carroll et al., 2007; Dane & Schneider, 1998; Mihalic et al., 2004).

The Plan is primarily a regulatory intervention supported by a number of discrete policies and initiatives delivered by different levels of government. In this sense, the Plan differs from other typical client-based programs, where a discrete client group or participants have received a specified dosage of a service or program. Nevertheless, the findings of the process evaluation can be extrapolated to provide a high-level assessment of the Plan's fidelity, particularly with regard to enforcement activities, information provided to licensed venues and compliance. In this context, Table 3.3 provides a brief assessment of the Plan against the four fidelity criteria from the program evaluation literature.

Overall, the process evaluation found that the Plan was implemented with a high degree of fidelity.

Table 3.3: Fidelity of the Plan

Fidelity criteria	Key comments relating to the Plan
Adherence	The majority of elements of the Plan were introduced in two phases in February and July 2014 and have since remained consistent. There have been no major changes to the nature or extent of the licensing conditions, transport or environmental initiatives.
Exposure or dosage	The boundaries of the CBD precinct have remained consistent over the duration of the Plan's implementation. A limited number of exemptions have been granted based on a uniform statutory test that was developed at the outset of the Plan's introduction. The conditions for the granting of exemptions have not been modified, and this has ensured a consistent approach to reviewing and granting exemption applications.
Quality of delivery	Significant efforts were made by OLGR to educate licensees of the changes required to implement the Plan, and this contributed to high compliance with the regulations. There were also high levels of satisfaction by licensed venues in relation to the information provided on compliance matters in the lead up to February 2014, which is indicative of high-quality service delivery. Ongoing monitoring by L&GNSW (previously by the regulator OLGR) and the NSW Police Force and the consistent approach to non-compliance through the imposition of penalties and strikes, have ensured that the vast majority of venues in the CBD are compliant with the regulations and as such, the licensing conditions are being implemented as intended. Strong interagency and intergovernmental coordination governed the development and implementation of the Plan. A Taskforce and Steering Committee led by DPC operated until the Phase One and Phase Two measures of the Plan had been implemented.
Participant responsiveness	The consistent approach to non-compliance has facilitated a responsive and engaged licensed venue population in the CBD, who are generally highly compliant with the regulations. There have been some issues identified with a lack of patron awareness with the regulations (particularly tourists), which is a source of risk for venue owners. However, this does not appear to have translated to breaches of the regulations.

4 Assault Analysis

Key points

- The Plan has achieved its objective of reducing alcohol-related violence in the CBD precinct, with a 16% reduction in alcohol-related non-domestic assaults and an 11.4% reduction in total non-domestic assaults following the Plan's introduction.
- The largest reductions occurred for the assaults that resulted in the most harm—actual bodily harm and grievous bodily harm.
- Assaults declined most sharply during the times when the key regulatory measures of the Plan are operating, the 1:30 am lock out and the 3:00 am cessation of service and in premises where the most assaults typically occur (hotels/pubs).
- Alcohol-related assaults increased in a close displacement area following the Plan's introduction. However, examining the number of alcohol-related assaults 12 months before and 12 months after the Plan's introduction, the increase in average monthly assaults in the close displacement area (2 assaults) does not offset the decline in average monthly assaults in the CBD precinct (12 assaults).
- There is insufficient evidence to suggest that total non-domestic assaults have changed in the close displacement area.
- There is also insufficient evidence to suggest that assaults—both alcohol-related and total non-domestic—have changed in a distal displacement area, which is further away from the CBD precinct.

4.1 Scope

This chapter assesses the impact of the Plan on assaults in the CBD precinct and surrounding areas. To do this, econometric modelling was undertaken to analyse whether the objective of the Plan—a reduction in alcohol-related violence—has been achieved and whether the results are statistically significant.

It should be noted that this is a study of correlation and does not necessarily demonstrate causation. For this reason, statistical significance is interpreted as a change that is likely to be attributed to the Plan with a level of confidence.

Statistical significance (p-value less than 0.05) is observed if the change in assaults following the Plan's implementation can, with some level of confidence, be attributed to the Plan. A lack of statistical significance implies that there is not enough evidence to attribute the change in assaults to the Plan.

The analysis was undertaken using two data series:

- alcohol-related non-domestic assaults[16]
- total non-domestic assaults. [17]

The analysis was undertaken by space (inside and outside licensed venues), licence type, time of night, day of week and assault type. [18] Further analysis was undertaken to identify whether there has been any associated displacement of crime to other nearby geographic areas.

[16] This includes non-domestic assaults that resulted in actual bodily harm and grievous bodily harm, incidents of common assault, food/drink spiking and assaults on police that have been flagged by police as alcohol-related.

[17] This includes all non-domestic assaults that resulted in actual bodily harm and grievous bodily harm, incidents of common assault, food/drink spiking and assaults on police.

[18] "Outside licensed venues" means not inside a licensed venue. This category captures the assaults that have not occurred in a club, hotel/bar or on-premises licensed venue.

4.1.1 Police record data

Unit record police data of assaults detailing the date and time of incidents were sourced from the NSW Bureau of Crime Statistics and Research (BOCSAR) for the period January 2009 to December 2015. The pre-intervention period is defined as January 2009 to January 2014, and the post-intervention period is defined as February 2014 to December 2015.

As described in Chapter 1 of this report, a range of legislative and supporting measures were introduced in Phase One and Phase Two of the Plan. These measures came into effect between February 2014 and December 2014. February 2014 is considered the key implementation date from which pre-intervention and post-intervention periods are defined, since the most prominent measures of the Plan, namely the 1:30am lock out and 3:00am cease of service, commenced at this time.

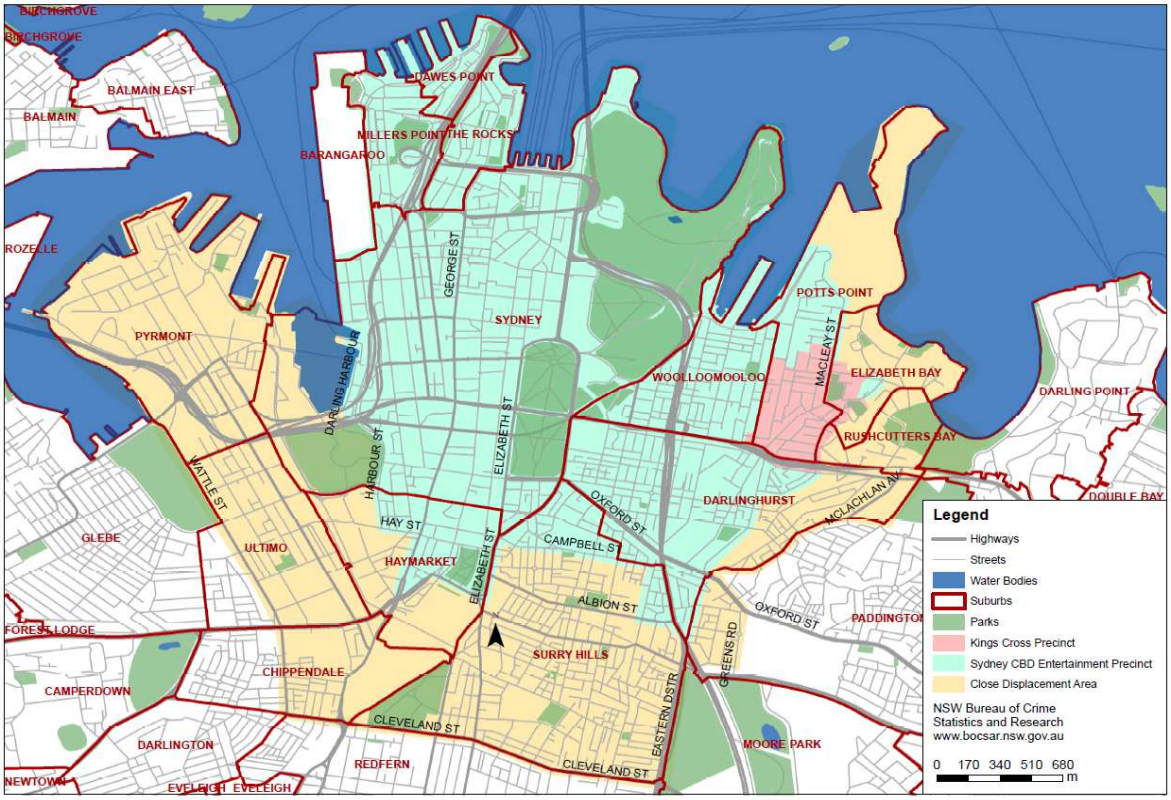
The analysis in this chapter is undertaken using firstly, alcohol-related non-domestic assaults (hereafter alcohol-related) and secondly, total non-domestic assaults, separately. Alcohol-related assaults were analysed because the Plan was introduced to address the problem of alcohol-related violence. Total non-domestic assaults were analysed to align with the majority of the previous studies undertaken in this field, which have used total non-domestic assaults (see for example (Kypri et al., 2010, 2014; Mazerolle et al., 2012; Menendez et al., 2015; Moffatt et al., 2009; Moffatt & Weatherburn, 2011; Palk et al., 2010; Smith et al., 2011). Some research uses total non-domestic assaults because the alcohol-related incidents identified by police can be subject to variation in recording practices as it is difficult at times to judge whether alcohol was involved when an incident occurred. The degree of intoxication is also difficult to ascertain. As noted by Briscoe & Donnelly (2001), some assaults are reported some time after the occurrence of the incident, which makes assessment of alcohol involvement difficult. As such, the incidents of alcohol-related assaults may be underestimated.

4.2 Methodology

The impact of the Plan on the incidence of assaults in the CBD precinct was measured using an interrupted time-series analysis. This method was used to assess whether the change in the number of assaults was statistically significant for each of the aforementioned categories following the Plan's implementation.

The possible displacement of assaults following the implementation of the Plan was studied by examining the trends of assaults in a close displacement area (see Figure 4.1 and Section 4.4) and a distal displacement area, which is defined as the suburbs of Newtown, Glebe, Coogee, Double Bay and Bondi Beach. The suburbs in the distal displacement area were selected as they have night-time entertainment and so there is potential that crime may displace to those suburbs.

Figure 4.1: Map of the Sydney CBD Entertainment precinct and close displacement area



Source: BOCSAR

The counts of assaults were analysed using a state-space model for count data—the Generalised Linear AutoRegressive Moving Average (GLARMA) model through the glarma package in R statistical software. The GLARMA model is designed to analyse time-series count data with a small number of observations (Dunsmuir & Scott 2015).

To account for seasonality, each model includes a dummy variable for every month of the year. Seasonality is accounted for in line with prior research (Kypri et al., 2010, 2014) and June is selected as the reference month given the consistently lower levels of assaults in that month.

To account for the fact that the Plan may impact assault counts in a number of ways, and as discussed by Menendez et al. (2015), the impact of the Plan was estimated under four scenarios defined as follows:

- smooth (linear)—a slow change in monthly assaults over time following the implementation of the Plan
- step—a sudden and permanent change in the number of monthly assaults
- pulse—a sudden change in monthly assaults at the introduction of the Plan followed by a reversion back to prior monthly assault counts
- combination of pulse and smooth—a sudden transition followed by a slow change over time of monthly assaults following the introduction of the Plan.[19]

[19] Refer to Appendix G for diagrammatical representations of these scenarios.

Each sub-analysis of assault data was estimated in relation to these four scenarios and the best fit scenario was chosen.[20] For each model, the model residuals were checked using the Ljung-Box test to ensure that the model does not exhibit a lack of fit.[21]

The beta coefficient from each model represents the impact of the Plan (with some level of confidence) on assaults while taking into consideration the trend in assaults prior to the Plan. The confidence intervals for the corresponding beta coefficient estimates are presented in the statistical tables and show that there is a 95% probability that the true value of beta lies within that range. Further, the statistical tables present the change in assaults that can be attributed to the Plan.[22] See Box 4.1 for an example of interpreting the statistical tables provided in this chapter.

Box 4.1: Example of interpreting the statistical table

In Table 4.1, the beta coefficient estimate for alcohol-related assaults is -0.174, which indicates that alcohol-related assaults declined after the Plan was introduced. The confidence interval shows that there is a 95% probability that the true value of this beta lies between -0.259 and -0.094. This beta coefficient is statistically significant as the associated p-value (0.00006) is less than 0.05. The beta coefficient assists in determining that the attributed impact of the Plan on alcohol-related assaults is a 16% reduction (as shown by the 'change' column) and this has occurred suddenly (as shown by the 'step' scenario) after the Plan's implementation and then plateaued.[23]

4.3 Assault analysis: CBD Precinct

4.3.1 Assaults

From the beginning of the analysis period, January 2009, the number of alcohol-related assaults in the CBD precinct has been declining (Figure 4.2). After the implementation of the Plan in February 2014, alcohol-related assaults in the CBD precinct declined by 16%. Declines in assaults occurred both inside licensed premises (by 15.5%) and outside licensed premises (by 16.3%) (Table 4.1). The step scenario in Table 4.1 indicates that these reductions occurred immediately after the Plan's implementation, and then plateaued.

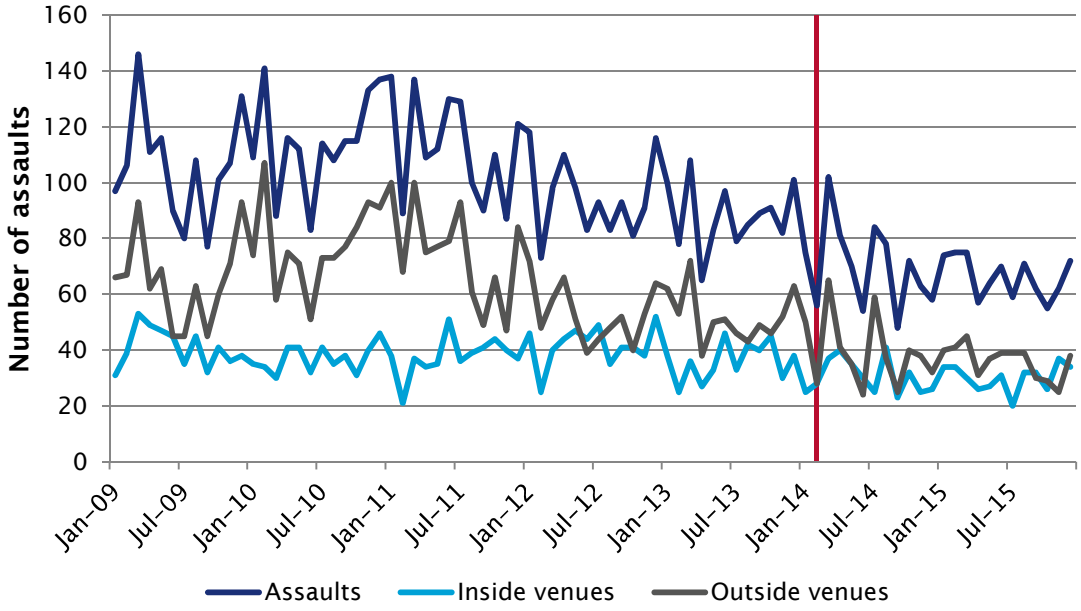
[20] The Akaike Information Criteria (AIC) statistic was computed for each model and used to compare the different ways that the Plan could impact the trends in assaults.

[21] The Ljung-Box test results have not been reported here but can be provided upon request to NSW Treasury.

[22] Refer to the *Technical Appendix* for details on the model and calculations of the attributed change.

[23] Attributed change = e(ß)-1

Figure 4.2: Alcohol-related non-domestic assaults in the CBD precinct



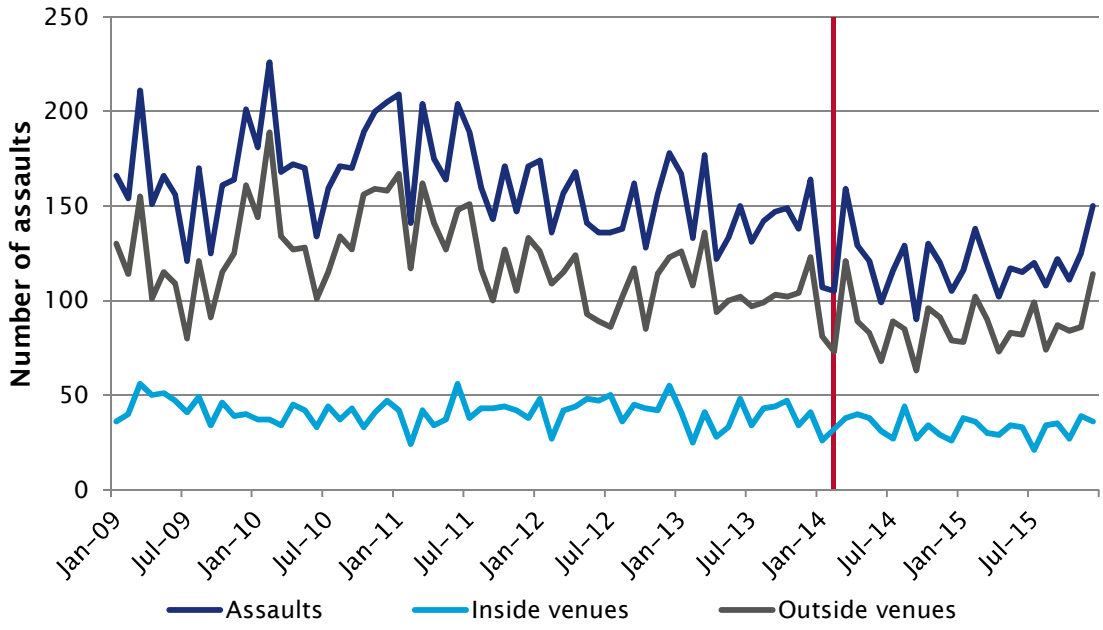
Data source: BOCSAR (2016)

Table 4.1: Alcohol-related non-domestic assaults in the CBD precinct (model results)

	ß	Confidence interval	p value	Change (%)	Scenario
Assaults	-0.174	(-0.259, -0.094)	0.00006	-16.0	Step
Inside venues	-0.168	(-0.297, -0.040)	0.01379	-15.5	Step
Outside venues	-0.178	(-0.305, -0.089)	0.00477	-16.3	Step

Since January 2009, the number of total non-domestic assaults in the CBD precinct also followed a declining trend (Figure 4.3). After the Plan's implementation, total non-domestic assaults in the CBD precinct declined by 11.4% (Table 4.2). Total non-domestic assaults declined after the Plan's implementation by 13.7% inside licensed premises and 9.8% outside licensed premises. The step scenario in Table 4.2 implies that assaults declined immediately after the Plan's implementation,and then plateaued.

Figure 4.3: Total non-domestic assaults in the CBD precinct



Data source: BOCSAR (2016)

Table 4.2: Total non-domestic assaults in the CBD precinct (model results)

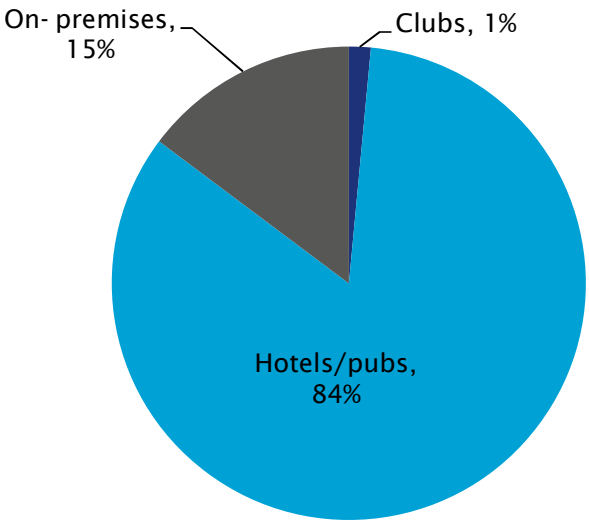
	ß	Confidence interval	p value	Change (%)	Scenario
Assaults	-0.12	(-0.188, -0.060)	0.0006	-11.4	Step
Inside venues	-0.15	(-0.271, -0.023)	0.0160	-13.7	Step
Outside venues	-0.10	(-0.193, -0.043)	0.0205	-9.8	Step

4.3.2 Assaults by venue licence type

Over the analysis period, the assaults that occurred in hotels/pubs accounted for approximately 84% of assaults that occurred inside licensed premises (Figure 4.4). For hotels/pubs, alcohol-related assaults in the CBD precinct declined after the implementation of the Plan by 19.3% (Figure 4.4). Similarly, total non-domestic assaults for hotels/pubs in the CBD precinct declined by 17.7% immediately after the implementation of the Plan (Table 4.3).

Statistically significant changes in assaults—both alcohol-related and total non-domestic—were not observed for clubs and on-premises licensed venues in the CBD precinct.

Figure 4.4: Share of assaults by licensed venue type



Data source: BOCSAR (2016)
Note: Data from 2009 to 2015 (N=3,231).

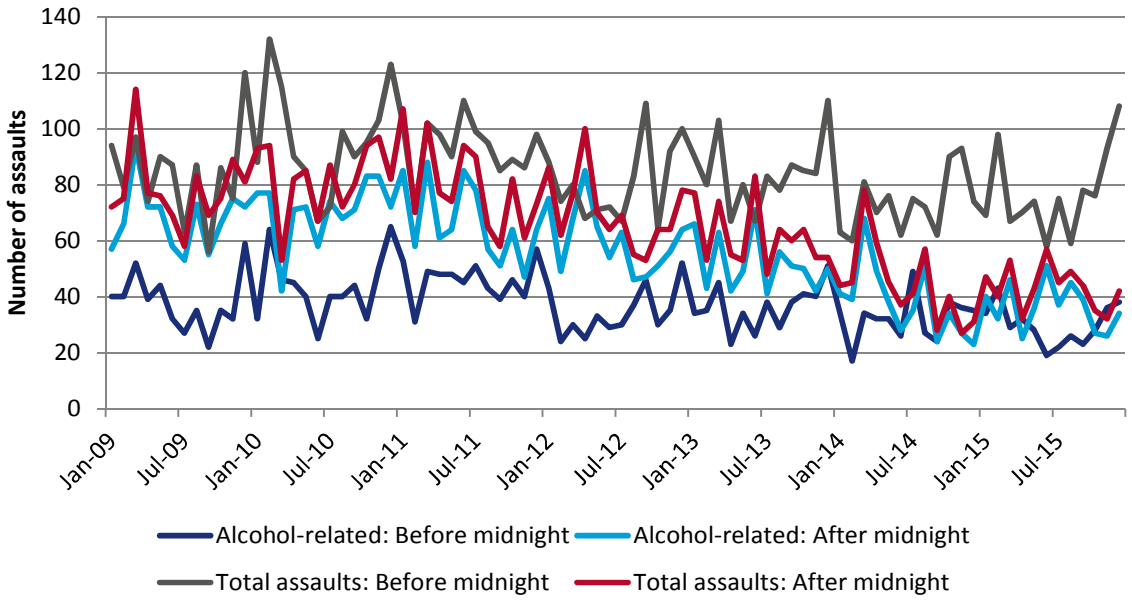
Table 4.3: Alcohol-related and total non-domestic assaults in the CBD precinct for hotels/pubs (model results)

	ß	Confidence interval	p value	Change (%)	Scenario
Alcohol-related assaults	-0.21	(-0.353, -0.077)	0.0035	-19.3	Step
All non-domestic assaults	-0.19	(-0.329, -0.060)	0.0063	-17.7	Step

4.3.3 Assaults by time of night

Prior to the introduction of the Plan, most of the alcohol-related assaults that occurred in the CBD precinct were after midnight (from 12:00am to 6:00am) compared to before midnight (6:00pm to 12:00am) (Figure 4.5). However, most of the total non-domestic assaults occurred before midnight.

Figure 4.5: Alcohol-related and total non-domestic assaults in the CBD precinct before and after midnight



Data source: BOCSAR (2016)

Following the implementation of the Plan, the alcohol-related assaults in the CBD precinct that occurred before midnight declined by 4.9% while those that occurred after midnight declined by 23%. However, only the declines that occurred after midnight were statistically significant.

The total non-domestic assaults in the CBD precinct that occurred before and after midnight also declined following the Plan's implementation by 3.6% and 22.7%, respectively. As with alcohol-related assaults, only the decline that occurred after midnight was statistically significant (Table 4.4).

Table 4.4: Alcohol-related and total non-domestic assaults in the CBD precinct by time of night (model results)

Time of night	ß	Confidence interval	p value	Change (%)	Scenario
Alcohol-related assaults before midnight	-0.05	(-0.187, 0.069)	0.4951	-4.9	Step
Alcohol-related assaults after midnight	-0.26	(-0.375, -0.159)	0.0000	-23.0	Step
All non-domestic assaults before midnight	-0.04	(-0.123, 0.045)	0.4288	-3.6	Step
All non-domestic assaults after midnight	-0.26	(-0.363, -0.164)	0.0000	-22.7	Step

Following the Plan's implementation, the assaults that occurred between 1:30am (lock out time) and 3:00am (cease of service) declined by 22.8% for alcohol-related assaults and 22.9% for total non-domestic assaults (Table 4.5).

Table 4.5: Alcohol-related and total non-domestic assaults in the CBD precinct from 1:30am to 3:00am and 3:00am to 6:00am (model results)

Time of night	ß	Confidence interval	p value	Change (%)	Scenario
Alcohol-related assaults 1:30-3:00am	-0.26	(-0.420, -0.098)	0.0019	-22.8	Smooth
Alcohol-related assaults 3:00-6:00am	-0.45	(-0.639, -0.263)	0.0000	-36.0	Smooth
All non-domestic assaults 1:30-3:00am	-0.26	(-0.411, -0.113)	0.0011	-22.9	Smooth
All non-domestic assaults 3:00-6:00am	-0.44	(-0.611, -0.269)	0.0000	-35.4	Smooth

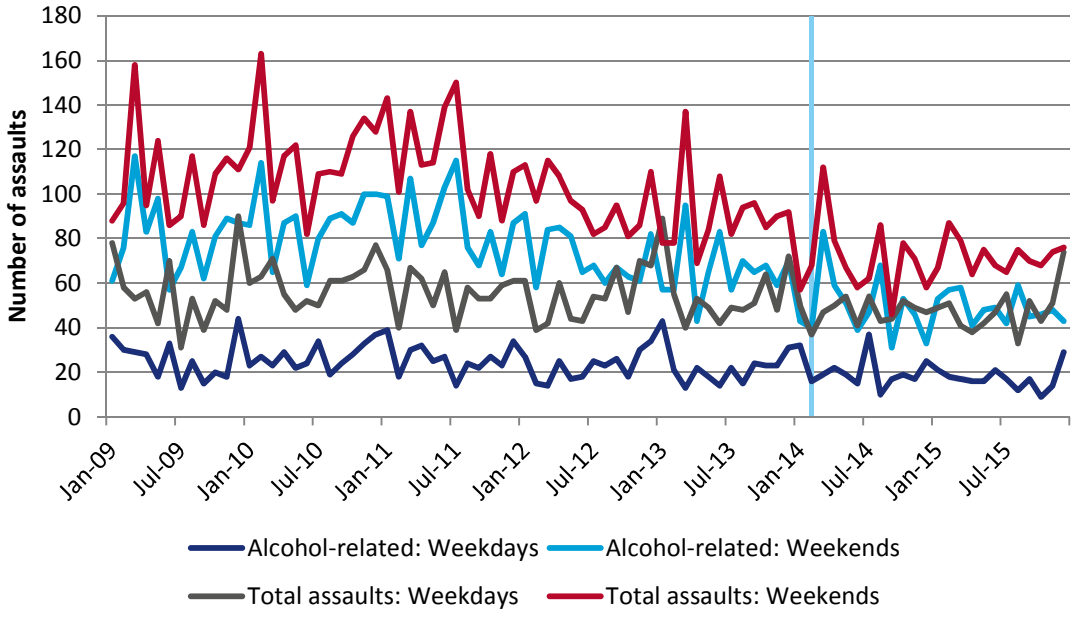
For the time period after the 3:00am cease of service (between 3:00am and 6:00am), assaults declined by 36% for alcohol-related assaults and by 35.4% for total non-domestic assaults. Both of these declines occurred gradually following the Plan's implementation, as shown by the 'smooth' scenario (Table 4.5).

During these time periods (from 1:30am to 3:00am, and from 3:00am to 6:00am), a large proportion of total non-domestic assaults were flagged as alcohol-related. On average, 87% and 84% of assaults were flagged as alcohol-related between 1:30am and 3:00am, and between 3:00am and 6:00am, respectively. As such, this has led to similar reductions in magnitude for the two assault categories. Results shown in Table 4.5 imply that following the Plan's implementation, assaults reduced by a greater extent after the 3:00am cease of service in comparison to the 1:30am lock outs.

4.3.4 Assaults on weekdays and weekends

Analysis was undertaken for assaults that occurred on weekdays (Monday to Thursday) and weekends (Friday to Sunday) in the CBD precinct. The assaults that occurred on weekends accounted for around 75% of all alcohol-related assaults and 64% of total non-domestic assaults (Figure 4.6).

Figure 4.6: Alcohol-related and total non-domestic assaults in the CBD precinct on weekdays and weekends



Data source: BOCSAR (2016)

Following the implementation of the Plan, alcohol-related assaults that occurred on weekends declined by 13.3% and on weekdays declined by 13.5% (Table 4.6).

Total non-domestic assaults that occurred on the weekends declined by 7.7% after the introduction of the Plan while the assaults that occurred on weekdays declined by 3.2%. However, only the reduction on the weekends was statistically significant (Table 4.6).

Table 4.6: Alcohol-related and total non-domestic assaults in the CBD precinct on weekdays and weekends (model results)

Weekdays and weekends	ß	Confidence interval	p value	Change (%)	Scenario
Alcohol-related assaults weekdays	-0.15	(-0.277, -0.005)	0.0194	-13.5	Smooth
Alcohol-related assaults weekends	-0.14	(-0.224, -0.061)	0.0015	-13.3	Smooth
All non-domestic assaults weekdays	-0.03	(-0.114, 0.056)	0.4137	-3.2	Smooth
All non-domestic assaults weekends	-0.08	(-0.149, -0.013)	0.0341	-7.7	Smooth

4.3.5 Assaults by type

The assault types analysed in this section are those classified by police records as common assaults and assaults that resulted in actual bodily harm and grievous bodily harm and other assaults.[24] The assaults that occurred most frequently are common assaults. Alcohol-related common assaults declined gradually following the implementation of the Plan by 13.4%. The alcohol-related assaults that resulted in actual bodily harm and grievous bodily harm declined immediately after the Plan's introduction by a greater magnitude of 29.8% and 55.4%, respectively (Table 4.7). As shown by the p-values in Table 4.7, all of these reductions are statistically significant. Other alcohol-related assaults that occurred in the CBD precinct declined immediately after the Plan's implementation by 7.6%; however, this reduction was not statistically significant (Table 4.7).

Similarly, statistically significant reductions occurred immediately after the Plan's introduction in total non-domestic assaults that resulted in actual bodily harm and grievous bodily harm of 27.1% and 45.9%, respectively (Table 4.7). Total non-domestic common assaults declined gradually by 5.7%, however, this reduction was not statistically significant. Other total non-domestic assaults that occurred in the CBD precinct declined gradually following the Plan's implementation by 15.5%; however, this reduction was not statistically significant.

[24] 'Grievous Bodily Harm' is defined as: any permanent or serious disfiguring of the person including bodily disease and the destruction of the foetus of a pregnant woman, whether or not the woman suffers any other harm. 'Actual Bodily Harm' is defined as: actual injury or harm to the victim. 'Common assault' is defined as: any person who unlawfully assaults or beats another person shall be guilty of an offence, although this does not have to result in actual injury or harm (BOCSAR, 2015). Other assaults include assaults on police and food/drink spiking.

Table 4.7: Alcohol-related and total non-domestic assaults in the CBD precinct by type (model results)

Assault type	ß	Confidence interval	p value	Change (%)	Intervention
Alcohol-related					
Common Assaults	-0.14	(-0.235, -0.053)	0.0018	-13.4	Smooth
Actual Bodily Harm	-0.35	(-0.508, -0.199)	0.0000	-29.8	Step
Grievous Bodily Harm	-0.81	(-1.311, -0.341)	0.0041	-55.4	Step
Other assaults	-0.08	(-0.347, 0.189)	0.5656	-7.6	Step
Total non-domestic					
Common Assaults	-0.06	(-0.124, 0.006)	0.0899	-5.7	Smooth
Actual Bodily Harm	-0.32	(-0.448, -0.184)	0.0000	-27.1	Step
Grievous Bodily Harm	-0.61	(-1.031, -0.224)	0.0076	-45.9	Step
Other assaults	-0.17	(-0.468, 0.112)	0.2030	-15.5	Smooth

4.4 Assault analysis: Displacement areas

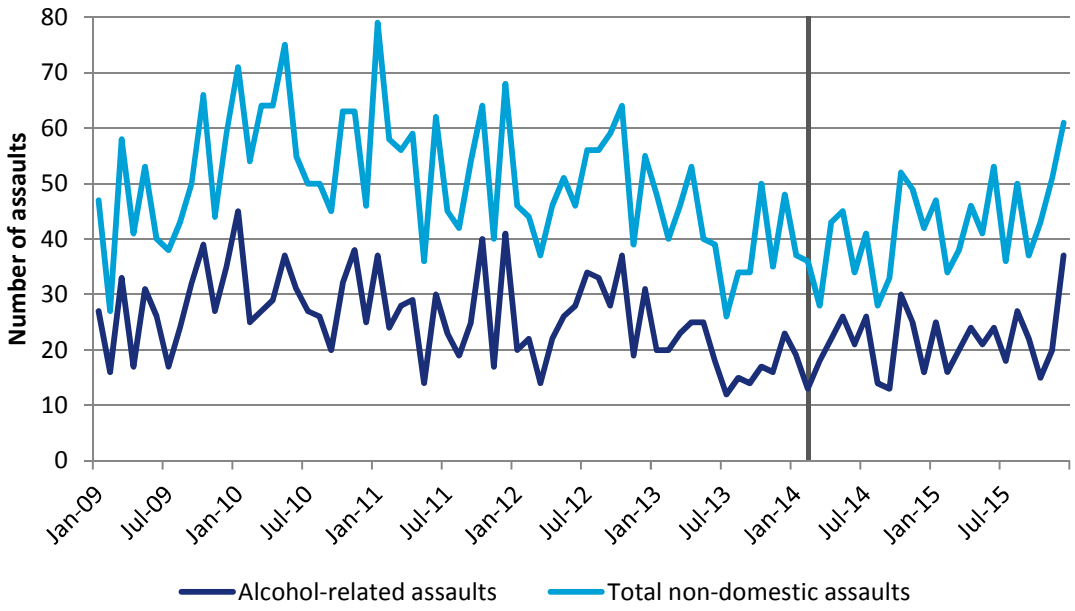
The displacement areas analysed in this report are categorised as a:

- close displacement area, which is a radius around the CBD precinct and includes Pyrmont, The Star, Ultimo, Chippendale, Surry Hills, Elizabeth Bay, and Rushcutters Bay and parts of Darlinghurst, Haymarket and Paddington. Refer to Figure 4.1 for the exact boundaries
- distal displacement area, which is defined as the suburbs of Newtown, Glebe, Double Bay, Coogee and Bondi Beach.

4.4.1 Close displacement area

Between January 2009 and January 2014, the number of assaults in the close displacement area fluctuated (Figure 4.7). Following the implementation of the Plan, the alcohol-related assaults in the close displacement area increased gradually by 14.2%. The total non-domestic assaults in this area also increased by 10.6% , gradually following the Plan's introduction (Table 4.8); however, this increase was not statistically significant.

Figure 4.7: Alcohol-related and total non-domestic assaults in the close displacement area



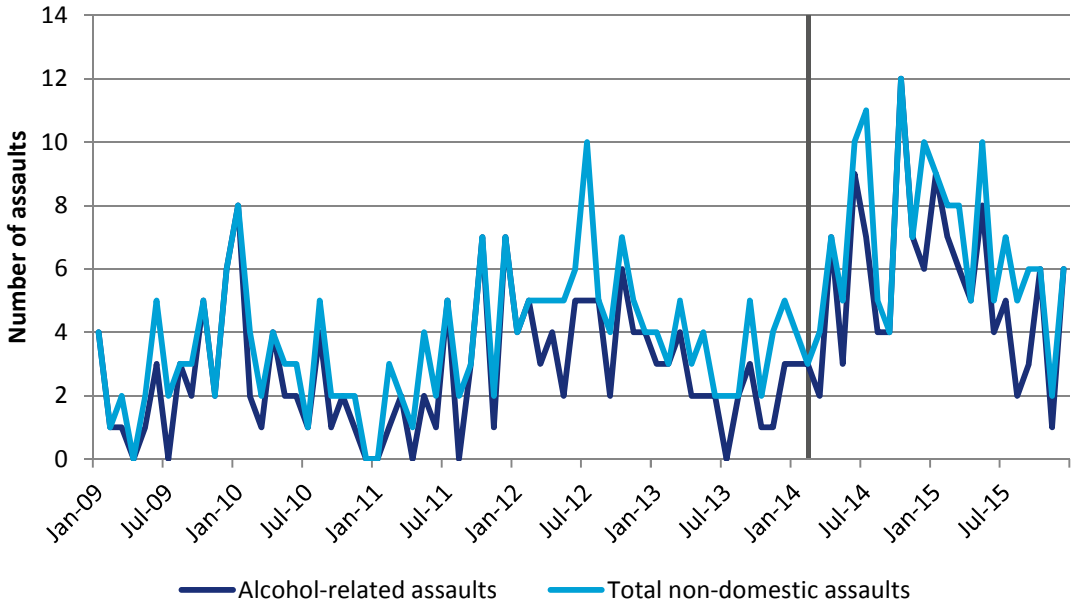
Data source: BOCSAR (2016)

Table 4.8: Alcohol-related and total non-domestic assaults in the close displacement area (model results)

	ß	Confidence interval	p value	Change (%)	Scenario
Alcohol-related assaults	0.13	(0.004, 0.257)	0.0474	14.2	Smooth
All non-domestic assaults	0.10	(0.008, 0.189)	0.0514	10.6	Smooth

The number of assaults that occurred specifically at The Star was relatively steady prior to the Plan's introduction (Figure 4.8). After the Plan was introduced, assaults at The Star increased between February 2014 and October 2014, and preliminary modelling suggested that this increase was statistically significant. However, the absolute number of assaults that occurred at The Star remained relatively small. For example, alcohol-related assaults at the Star increased from a monthly average of 2 assaults in the 12 months prior to the Plan's introduction to a monthly average of 6 assaults in the 12 months after the Plan's introduction (Figure 4.8). Nevertheless, the number of assaults at The Star has been following a generally declining trend since late-2014, gradually returning to levels prior to the introduction of the Plan.

Figure 4.8: Alcohol-related and total non-domestic assaults in The Star

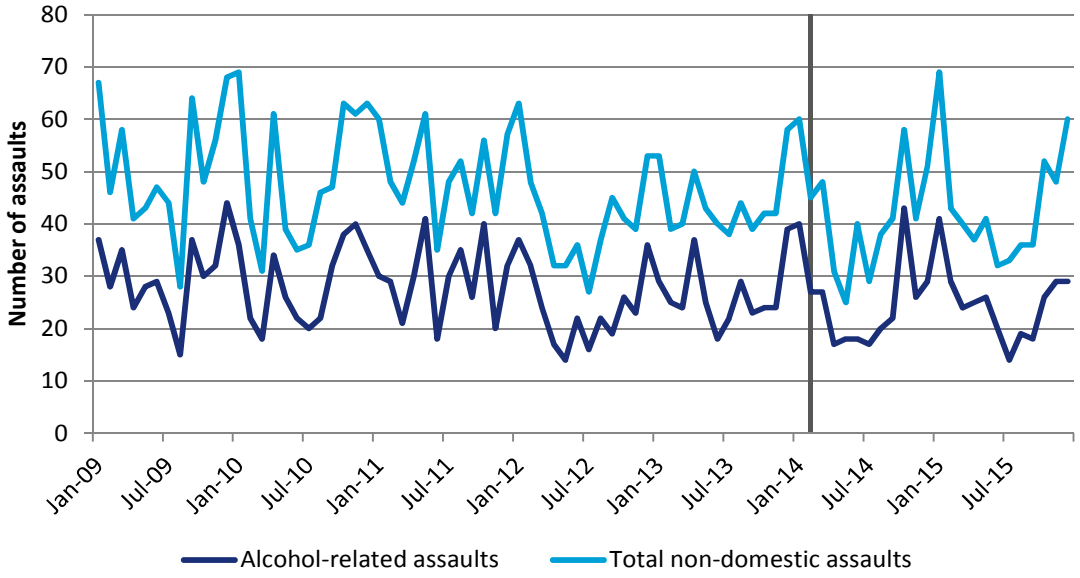


Data source: BOCSAR (2016)

4.4.2 Distal displacement area

The distal displacement area includes suburbs that are considered entertainment locations, namely Newtown, Glebe, Coogee, Double Bay and Bondi Beach. Of these suburbs, Newtown accounted for the greatest proportion (over 30%) of assaults over the last seven years. The assaults in the distal displacement area were relatively stable prior to the Plan's introduction (Figure 4.9). After the Plan was introduced, assaults in the distal displacement area increased by 22.9% for alcohol-related assaults and by 22% for total non-domestic assaults but then declined to prior levels (Table 4.9). However, these immediate sharp increases were not statistically significant.

Figure 4.9: Alcohol-related and total non-domestic assaults in the distal displacement area



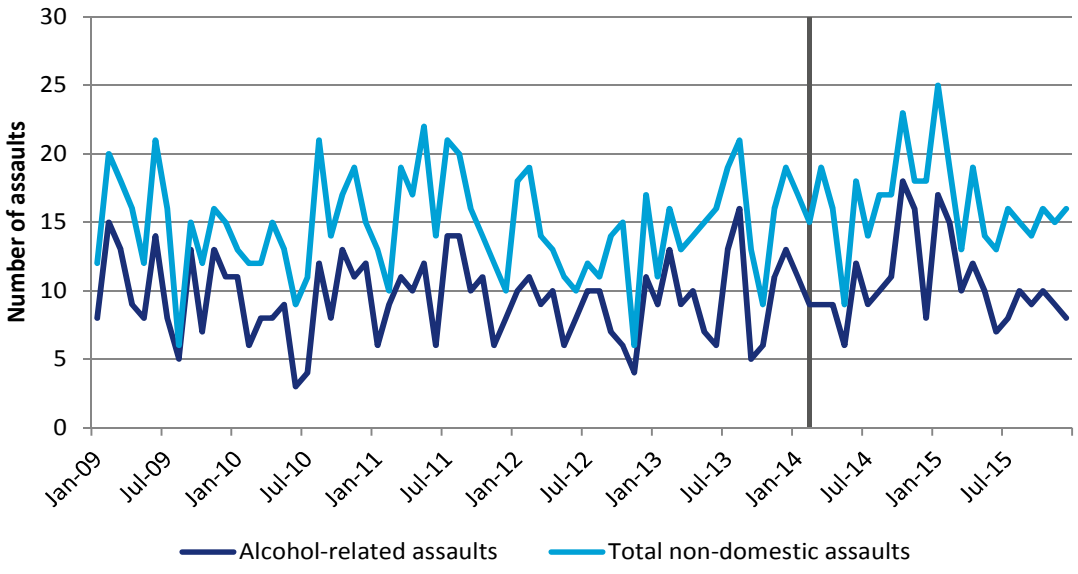
Data source: BOCSAR (2016)

Table 4.9: Alcohol-related and total non-domestic assaults in the distal displacement area (model results)

	ß	Confidence interval	p value	Change (%)	Intervention
Alcohol-related assaults	0.21	(-0.228, 0.600)	0.3270	22.9	Pulse
All non-domestic assaults	0.20	(-0.110, 0.511)	0.2130	22.0	Pulse

Specifically, the assaults that occurred in Newtown were relatively steady over the period before the implementation of the Plan (Figure 4.10). Preliminary modelling showed that assaults in Newton—both alcohol-related and total non-domestic—increased after the Plan was introduced and then plateaued. However, the increases following the Plan's implementation were not statistically significant, which means that they cannot be attributed to the Plan.

Figure 4.10: Alcohol-related and total non-domestic assaults in Newtown



Data source: BOCSAR (2016)

In summary, the results presented in this section suggest that following the Plan's introduction, alcohol-related assaults have increased in the close displacement area but there is insufficient evidence to suggest any change in the distal displacement area. There is also insufficient evidence to suggest that total non-domestic assaults have changed in either the close displacement area or the distal displacement area.

To gauge the net impact of the Plan on assaults, the difference between the number of alcohol-related assaults 12 months before and 12 months after the Plan's introduction is examined for the CBD precinct as well as the close displacement area. The increase in average monthly assaults in the close displacement area (2 assaults) is found to be insufficient to offset the decline in average monthly assaults in the CBD precinct (12 assaults).

4.5 Discussion

The modelling results show that both alcohol-related and total non-domestic assaults in the CBD precinct declined following the implementation of the Plan. In particular, alcohol-related assaults declined by 16% and total non-domestic assaults declined by 11.4%.

By assault type, the largest and most significant reductions occurred for assaults that resulted in the most serious harm—actual bodily harm and grievous bodily harm. Following the Plan's implementation, alcohol-related assaults in the CBD precinct declined similarly on both the weekend and weekdays (by around 13%). However, the reduction in total non-domestic assaults was larger on the weekends compared to the weekdays.

Reduction in assaults in the CBD precinct occurred both inside and outside licensed premises. For the assaults that occurred inside licensed premises, the most significant reductions occurred in venues with a hotel/pub licence, with assaults down by 19.3% for alcohol-related assaults and 17.7% for total non-domestic assaults.

Assault reductions in the CBD precinct by time period show that significant declines occurred around the major elements of the Plan, the 1:30am lock out and the 3:00am cease of service. However, the reductions in assaults after the 3:00am cease of service were of greater magnitude. In particular, total non-domestic assaults declined by 22.9% between 1:30am and 3:00am compared to a decline of 35.4% between 3:00am and 6:00am. These results show that the Plan has reduced assaults in places and at times where the majority of the regulations apply.

Alcohol-related assaults have increased in a close displacement area to the CBD precinct, by 14.2%. However, examining the number of alcohol-related assaults 12 months before and 12 months after the Plan's introduction, the increase in average monthly assaults in the close displacement area (2 assaults) does not offset the decline in average monthly assaults in the CBD precinct (12 assaults).

There is insufficient evidence to suggest that total non-domestic assaults have changed in the close displacement area or that alcohol-related assaults have changed in a distal displacement area.

5 Injury Analysis

Key points

- The analysis indicates that the Plan has reduced the incidence of both *severe and critical injury* and *potentially serious to less urgent injury* in the Central Business District (CBD) precinct, particularly over the weekend period and High Alcohol Time (HAT) periods.[25]

Impact on alcohol-related injuries in the CBD precinct

- The modelling results showed reductions for:
  - severe and critical injuries that occurred over the weekend and HAT periods, particularly for patients where *alcohol was involved*
  - potentially serious to less urgent injuries over the weekend and HAT periods for injuries where *alcohol was involved* and for the HAT period where *the patient was intoxicated.*
- Initial reductions were also found for potentially serious to less urgent injuries before midnight where *alcohol was involved*. However, these declines were not sustained over the post-intervention period.

Impact on alcohol-related injuries in other areas

- The proximal displacement area experienced:
  - declines in severe and critical injuries during the HAT periods for injuries *where alcohol was involved* and *where the patient was intoxicated*
  - increases in potentially serious to less urgent injuries *where alcohol was involved* and where the *patient was intoxicated*. However, these increases were followed by a slow decrease indicating these effects have not been sustained.

5.1 Scope

The association of harm with the consumption of alcohol is well established. Research shows consumption of alcohol increases the risk of emergency department attendance, with risk level increasing as a function of the amount consumed (Cherpitel et al., 2006). There is strong evidence of the association of alcohol consumption and violence, as well as non-violent immediate effects such as intoxication and accidental injury (e.g. trips and falls) (Egerton-Warburton et al., 2014; Morgan & McAtmaney, 2009). Consumption of alcohol can also have a range of cumulative and longer term effects on health (National Health and Medical Research Council (NHMRC), 2009).

While the primary objective of the Plan is to reduce alcohol-related violence and associated injury in the CBD precinct, the supply reduction and harm minimisation strategies of the Plan may also result in reduced non-violent alcohol-related injuries (that is, fewer personal injuries due to alcohol consumed or intoxication).

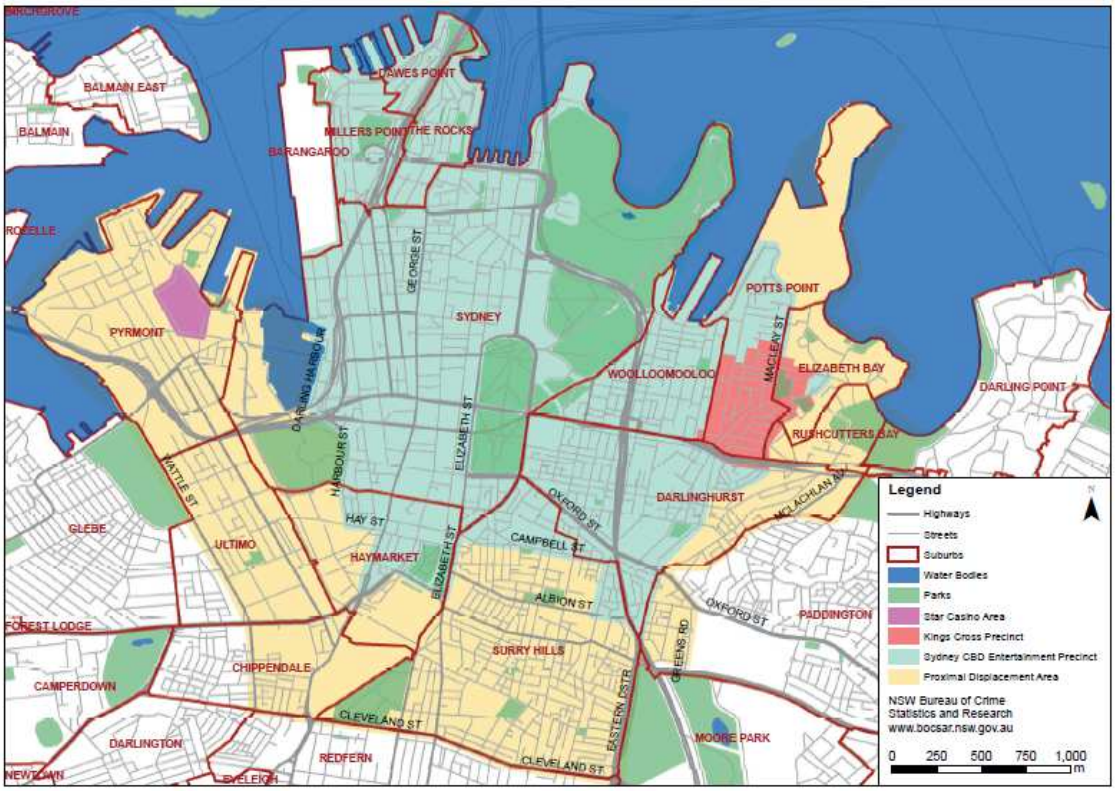
This chapter analyses changes in alcohol-related injury (using econometric modelling) to determine whether the Plan contributed to a reduction in injuries in the CBD precinct, and whether the results are statistically significant. To do this, a linked dataset was used comprising:

- ambulance data, provided by NSW Ambulance
- emergency department data, provided by NSW Health from the NSW Emergency Department Data Collection (EDDC)
- admitted patient hospital data, provided by NSW Health from the NSW Admitted Patient Data Collection (APDC).[26]

[25] - HAT period is defined as the weekend period, from 6:00pm Friday to 6:00am Sunday.

Data was also examined for nearby geographic areas: the proximal displacement area (as defined by Menendez et al. 2015) and The Star (see Figure 5.1 for boundaries). The analysis covered alcohol-related injuries by time of night, day of week and severity of injury.[27]

Figure 5.1: Map of the Sydney CBD Entertainment precinct and proximal displacement area



Source: Menendez et al. (2015)

5.2 Data

5.2.1 NSW Ambulance data

NSW Ambulance data collections include operational information from the Computer Aided Dispatch system, and data documented by clinicians in the paper-based Patient Health Care Record and electronic medical record.

NSW Ambulance extracted unit record data using geospatial coordinates of ambulance pickup location for the CBD precinct, proximal displacement area and The Star. This was consistent with the geographical areas used for the extraction of police record data by the NSW Bureau of Crime Statistics and Research (BOCSAR) for the analysis of assault data in Chapter 4. The ambulance data were extracted for the period July 2012 to June 2015. This includes 19 months prior to the introduction of the Plan and 16 months after. A longer historical series was not available due to pre-July 2012 data being stored as paper-based records. However, the time series used was considered to be sufficient for examination of the impact of the Plan on alcohol-related injury.

[26] - Data was prepared for this study with the ethics approval of the NSW Population and Health Services Research Ethics Committee.

[27] - Triage category is collected as part of the EDDC and was used as an indicator of the severity and urgency of the presenting injury.

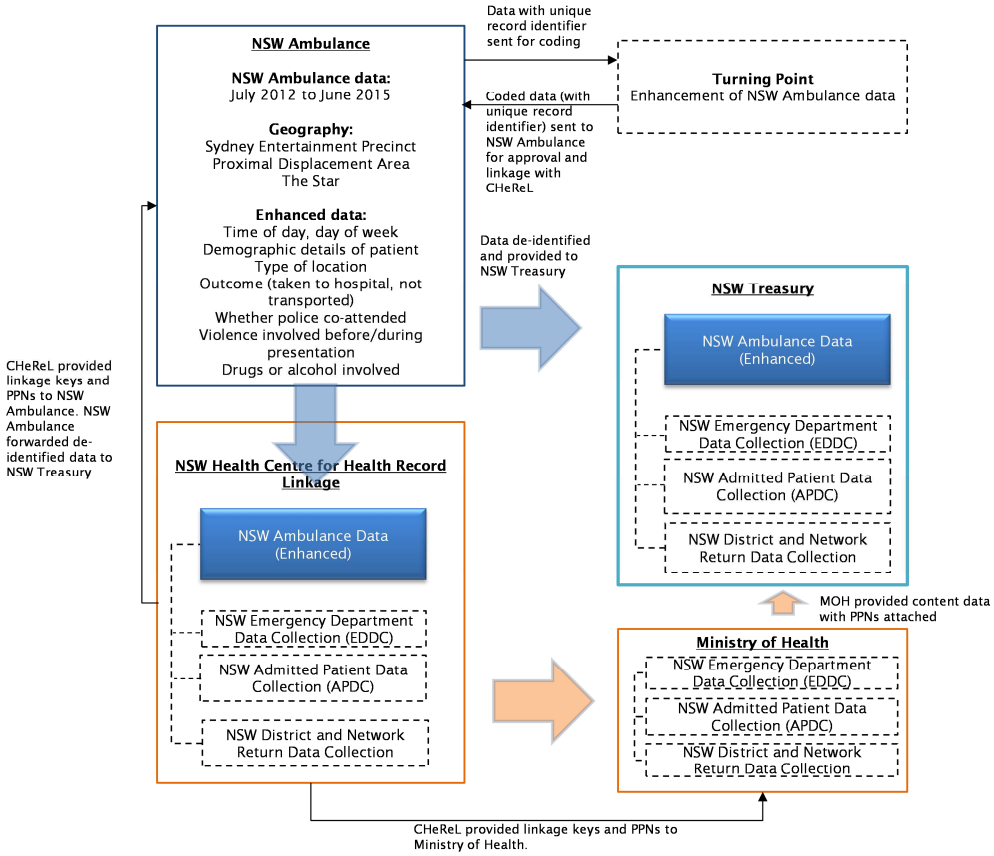
NSW Ambulance data were enhanced by a process of clinical coding of paramedic notes to identify which ambulance attendances involved alcohol. This process was undertaken by the Turning Point Drug and Alcohol Research Centre.[28]

5.2.2 Linkage of the NSW Emergency Department and Admitted Patient Data Collections

Following the above enhancement process, NSW Ambulance data was linked with key variables from the NSW EDDC and the APDC. This linkage process was undertaken by the Centre for Health Record Linkage (CHeReL).[29]

Figure 5.2 provides a summary of the linkage process and Table 5.1 provides a description of these datasets.

Figure 5.2: Data enhancement and linkage process



Note: NSW District and Network Return data were also linked during the above process and was used in the economic evaluation.

28 - Approval was provided by the South Eastern Sydney Local Health District Human Research Ethics Committee (HREC Reference: 13/050 (LNR/13/POWH/168)).

29 - Approval was provided by the NSW Population and Health Services Research Ethics Committee (HREC Reference: HREC/15/CIPHS/65).

Table 5.1: NSW Health data collections

Data collection	Description
NSW EDDC	The purpose of the EDDC is to assist clinicians in the management of patients; and to enable comparisons of performance in respect to access to services, quality clinical outcomes, patient management, customer satisfaction and cost effectiveness. Each record in the collection represents a patient presentation to an emergency department.
APDC	The APDC records all inpatient separations (discharges, transfers and deaths) from all public, private, psychiatric and repatriation hospitals in New South Wales, as well as public multi-purpose services, private day procedure centres and public nursing homes.

Source: Centre for Health Record Linkage (CHeReL) (2015)

5.3 Methodology

The impact of the Plan on the incidence of alcohol-related injury in the CBD precinct was measured using an interrupted time-series analysis. Consistent with the econometric modelling technique used for the analysis of assaults data (see Chapter 4), this method was used to assess whether the change in the number of injuries was statistically significant for each of the categories noted in Section 5.1. Statistical significance implies that the change in injuries after the Plan's introduction can, with some level of confidence, be attributed to the Plan while a lack of statistical significance indicates there is insufficient evidence to attribute the change to the Plan.

An examination of trends in alcohol-related injury in the proximal displacement area and The Star was also undertaken to study whether the incidence of alcohol-related injuries was potentially displaced following the Plan's implementation.

The number of injuries was analysed using a state-space model for count data—the Generalised Linear AutoRegressive Moving Average (GLARMA) model through the glarma package in R statistical software. The GLARMA model is designed to analyse time-series count data with a small number of observations (Dunsmuir & Scott 2015). To account for seasonality, each model includes a dummy variable for every month of the year, with a selected reference month. The reference month for the injury analysis was selected as June to align with the assault analysis.

To account for the fact that the Plan may impact on the incidence of injury in a number of ways, the impact of the Plan was estimated under four scenarios, and each of these scenarios was examined for the sub-analysis of injury data and the best fit model was selected.[30]

The four scenarios are described as follows:

- smooth (linear) scenario—a slow change in monthly injuries over time following the implementation of the Plan
- step scenario—a sudden and permanent change in the number of monthly injuries
- pulse scenario—a sudden change in monthly injuries at the introduction of the Plan followed by a reversion back to prior monthly injury counts
- combination of pulse and smooth scenarios —a sudden transition followed by a slow change over time of monthly injuries following the introduction of the Plan.

[30] The Akaike Information Criteria (AIC) statistic was computed for each model and used to compare the different ways that the Plan could impact the trends in injuries.

5.3.1 Interpretation of results

The figures in each section show the total injuries for the cohort being examined and how these have fluctuated over time and should be interpreted in conjunction with the modelling results tables provided within each sub-section.

The modelling results presented in the tables illustrate:

- the beta coefficient was calculated to determine the impact of the Plan (to some level of confidence) on injuries while taking into consideration the changes in injuries prior to the Plan
- the confidence intervals show a range where there is a 95% probability that the true value of beta falls within that range
- a p-value of 0.05 or less indicates the observed changes were statistically significant and could be reasonably attributed to the Plan.

Further, the beta coefficient was used to calculate the percentage change in injuries that can be reasonably attributed to the Plan, with some level of confidence.

Overall, the above statistics have been used to determine the level of confidence or likelihood that the Plan has had an impact on the incidence of injury.

The model specifications are provided in Appendix G. Box 5.1 provides an example of how to interpret results.

Box 5.1 Example of interpreting the statistical table

When interpreting results the positive or negative value of the beta coefficient indicates whether injuries increased or decreased since the Plan came into effect. For example, in reference to Table 5.2, the beta coefficient estimate for the total number of injuries *where alcohol was involved* is -0.64 indicating a decline in injuries in the post-Plan period. The confidence interval shows that there is a 95% probability that the true value of this beta lies between -1.411 and 0.144. This beta coefficient is not statistically significant as the associated p-value (0.1252) is greater than 0.05. The attributed change in the 'change' column is calculated using the beta coefficient, and in this case, is a 47.1% reduction.

The 'pulse' scenario in the 'scenario' column shows injuries decreased suddenly following the Plan's implementation, and then reverted back to prior monthly numbers. Overall, these declines were not found to be statistically significant and therefore cannot be attributed to the Plan.

Where results are statistically significant, these are highlighted in grey in the relevant tables.

Table 5.2: Example – Severe and critical alcohol related injuries – CBD precinct (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total injuries	-0.64	(-1.411, 0.144)	0.1252	-47.1	Pulse

5.3.2 Analysis

The analysis assessed non-domestic injuries that occurred in a public place. This was achieved by filtering the data by patient location to exclude patients that originated from residential locations.

A preliminary analysis was undertaken on the unlinked NSW Ambulance data to examine total alcohol-related injuries and was followed by an analysis of the linked dataset, which allowed for more detailed categorisation of injuries by severity of injury (using emergency department triage categories).

The analysis presented in this chapter examines the linked ambulance-emergency department dataset by:

- patient alcohol characteristics (e.g. whether the patient is intoxicated or has consumed alcohol)
- patient severity of injury (ranging from severe and critical injury through to less urgent).

Patient alcohol characteristics are used to determine two subsets of the cohort including:

- injuries where alcohol was involved – includes all injuries where the patient was identified by the paramedic as having consumed alcohol prior to the injury occurring. This includes patients that may or may not be considered to be intoxicated
- injuries where the patient was intoxicated – includes all injuries where the patient was assessed by the paramedic as being intoxicated.[31]

Severity of injury characteristics were used to examine patients who were:

- Assigned an Australasian Triage Category – these include patients who are transported to the emergency department and assessed by medical staff to determine the severity of the injury and the treatment to be received (see Box 5.2 for Australasian triage category definitions). The two subsets of injury data examined were:
    - Severe and critical injury – includes persons with injuries classified under the Australasian Triage Categories 1 and 2.
    - Potentially serious to less urgent injury – includes persons with injuries classified under the Australasian Triage Categories 3, 4 and 5.
- Not assigned a triage category (or where none was available) – includes patients who were not transported to the emergency department or were transported but did not wait for treatment. This cohort of patients is likely to include less serious types of injuries.

The time of night analysis examined before midnight (6:00pm to 12:00am) and after midnight (12:01am to 6:00am).

The period of week analysis examined weekdays (Monday to Thursday) and weekends (Friday to Sunday) and is consistent with the assault analysis conducted in Chapter 4. In addition, a further analysis period, defined as HAT period was examined and includes injuries that occurred between the hours of 6:00pm on Friday to 6:00am on Sunday. The HAT period was identified as a high intensity period in a Sydney emergency department study where a high number of alcohol-related injuries were observed to pass through the emergency department (Fulde et al., 2015).

Section 5.4 presents the results of the analysis.

[31] Trained Turning Point Drug and Alcohol Research Centre staff were responsible for clinical coding of paramedic notes to determine these cohorts.

Box 5.2 Australasian triage category definitions

Category 1:

- **Immediately life-threatening:** conditions that are threats to life (or imminent risk of deterioration) and require immediate aggressive intervention.

Category 2:

- **Imminently life-threatening:** condition is serious enough or deteriorating so rapidly that there is the potential of threat to life, or organ system failure, if not treated within 10 minutes of arrival in the emergency department; or
- **Important time critical treatment:** the potential for time-critical treatment (e.g. thrombolysis, antidote) to make a significant effect on clinical outcome depends on treatment commencing within a few minutes of the patient's arrival in the emergency department; or
- **Very severe pain:** humane practice mandates the relief of very severe pain or distress within 10 minutes.

Category 3:

- **Potentially life-threatening:** condition may progress to life or limb threatening, or lead to significant morbidity, if assessment and treatment are not commenced within 30 minutes of arrival; or
- **Situational urgency:** potential for adverse outcome if time critical treatment is not commenced within 30 minutes; or
- Humane practice mandates the **relief of discomfort or distress** within 30 minutes.

Category 4:

- **Potentially serious:** condition may deteriorate, or adverse outcome may result, if assessment and treatment is not commenced within one hour of arrival in the emergency department. Symptoms are moderate or prolonged; or
- **Situational urgency:** potential for adverse outcome if time critical treatment is not commenced within one hour; or
- **Significant complexity or severity:** likely to require complex work-up and consultation and/or inpatient management; or
- Humane practice mandates the **relief of discomfort or distress** within one hour.

Category 5:

- **Less urgent:** condition is chronic or minor enough that symptoms or clinical outcome will not be significantly affected if assessment and treatment are delayed up to two hours from arrival.

Source: Department of Health and Ageing (2009)

5.3.3 Research considerations

There have been many studies which have examined changes in the incidence of alcohol-related emergency department presentations. However, this is possibly the first Australian study to use a linked ambulance-emergency department dataset to examine the effectiveness of the Plan on health outcomes.

When interpreting the results, statistical significance implies that the change in injuries after the Plan's introduction can, with some level of confidence, be attributed to the Plan. However, it should also be noted that this is a study of correlation and does not necessarily demonstrate causation. For this reason, statistical significance is interpreted as a change that *is likely* to be attributed to the Plan with a level of confidence.

Further considerations for interpretation of this analysis are:

- The definition of alcohol-related injuries is broad and may overestimate or underestimate the - cohort relevant to this study -

  Although this is an evaluation of whether the Plan has achieved its objective of reducing alcohol-related violence, it is acknowledged that the chosen proxy of alcohol-related injury includes cases that are not related to violence, as further disaggregation was not conducted due to unreliability of the 'violence' flag. The classification of injuries where alcohol is involved is broad and will capture patients experiencing longer term as well as short-term consumption effects. As a result of these factors, the cohort of alcohol-related injuries may overestimate or underestimate changes in alcohol-related injuries that are relevant to the Plan which primarily targets short-term consumption impacts through supply restriction and harm minimisation measures.

- Only patients that are transported by ambulance to the emergency department are included in the study

  The cohort has been selected based on patient ambulance pickup location. Whilst this has been useful for determining the origin of the patient and attributing any observed changes to the Plan, not all alcohol-related injuries that occur in the precinct will result in an ambulance being called or the individual being transported to an emergency department by ambulance.[32] As a result, the sample of alcohol-related injuries that originate from the precinct, displacement areas and The Star may understate the actual number of incidents, particularly for less urgent and minor forms of injury where the need for an ambulance is reduced.

- Patients who have not consumed alcohol but who were injured by a perpetrator who had - consumed alcohol are not included in the study -

  The cohort has been selected based on patient's alcohol consumption. In some instances, individuals who have not consumed alcohol may be injured by a perpetrator who has consumed alcohol. These alcohol-related injuries have been excluded and as a result, the sample of alcohol-related injuries that occurred in the precinct, displacement areas and The Star may understate the actual number of incidents.

- Some NSW Ambulance records could not be linked to NSW Health records

  Of the 11,269 NSW ambulance records provided for record linkage to the APDC and EDDC, there were 601 records that were un-linkable due to insufficient data. This represents a small number of records, however would still have an impact on the composition of data used in analysis relating to severity.

5.4 Alcohol-related injury: CBD precinct

There were 4,718 ambulance patient records where alcohol was identified as being involved for the period July 2012 to June 2015, with 74.6% of these patients identified as being intoxicated.

Approximately 80% of these cases were transported to hospital, assessed in the emergency department and assigned a triage category, where:

- approximately 10% of patients had severe and critical injuries (assessed as Triage Categories 1 and 2) (see Section 5.4.1)
- approximately 70% of patients had potentially serious to less urgent injuries (assessed as Triage Categories 3, 4 and 5) (see Section 5.4.2).

[32] - Patients may choose to travel to an emergency department by alternative means (e.g. by car) or may choose not to attend at all.

Approximately 20% of patients attended by ambulance were not assigned a triage category (see Section 5.4.3):

- around 13% were not transported, either due to refusal of treatment or being assessed by paramedics as not requiring further treatment
- approximately 7% were transported to the emergency department; however there were no further records of the person being processed in the emergency department. This may reflect the patient choosing not to wait to seek medical attention or any error in data collection processes which prevented accurate linkage of ambulance records to emergency department records
- less than 0.2% of ambulance patients were transported by an alternative mode of transport to the emergency department (e.g. by private car).

5.4.1 Severe and critical alcohol-related injury

There were 387 severe and critical alcohol-related injuries that were attended by ambulance in the CBD precinct between July 2012 and June 2015. Of these, 64.9% (251) of patients were assessed as intoxicated and 10.1% (39) had involved physical violence. Of the severe and critical injuries, 25.3% (98) were assessed as Triage Category 1 and 74.7% (289) were Triage Category 2.

Figure 5.3 shows severe and critical alcohol-related injuries *where alcohol was involved* and a subset of these *where the patient was intoxicated*. From March 2014, both these series declined, as indicated by the negative beta coefficients of -0.64 and -0.18 respectively (see Table 5.3). However, these declines were not found to be statistically significant and therefore cannot be attributed to the Plan.

Table 5.3: Severe and critical alcohol-related injuries in the CBD precinct (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total – alcohol involved	-0.64	(-1.411, 0.144)	0.1252	-47.1	Pulse
Total – intoxicated patient	-0.18	(-0.700, 0.353)	0.5237	-16.2	Step

Severe and critical injury on weekdays, weekends and during HAT periods

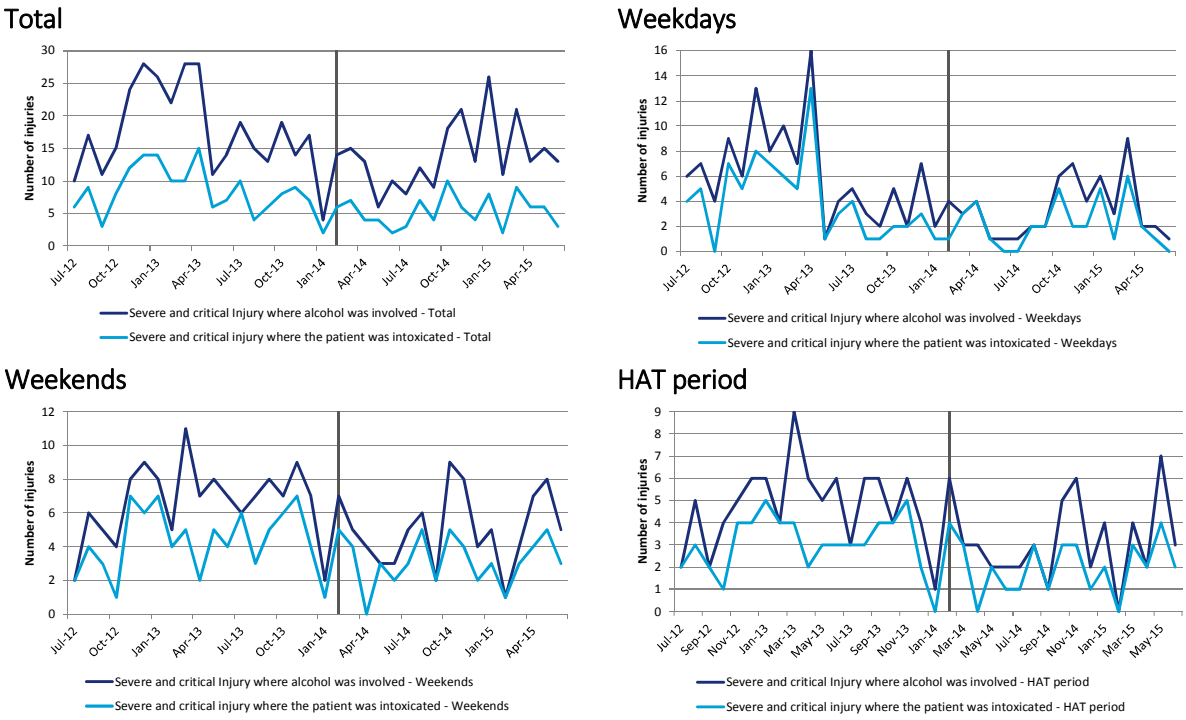
Of the severe and critical alcohol-related injuries, 54.8% (212) occurred during the weekends and 45.2% (175) of injuries occurred on weekdays. Further, 37.5% (145) of all severe and critical alcohol-related injuries occurred during the HAT period—a high intensity emergency department period defined by the hours of 6:00pm Friday to 6:00am Sunday (Fulde et al., 2015).

Figure 5.3 shows severe and critical alcohol-related injuries for weekdays, weekends and the HAT period. The modelling results presented in Table 5.4 show statistically significant declines in injuries *where alcohol was involved* on the weekends and during the HAT period. On the weekends, injuries *where alcohol was involved* declined by 48.7% immediately after the Plan's implementation and then plateaued. Similar trends were observed for injuries *where alcohol was involved* that occurred during the HAT period, which declined by 52.4% immediately after the Plan's implementation.

The injuries *where the patient was intoxicated* that occurred after midnight and during the HAT period declined following the Plan's implementation, by 45.6% and 51.7%, respectively (Table 5.4). These reductions occurred immediately after the Plan and then plateaued. However, these results were not statistically significant.

Weekdays were also tested, however the number of injuries in this category was small and no trend was observed that could be reliably correlated with the Plan. These results are indicated as 'n.a.' in the table below.

Figure 5.3: Severe and critical alcohol-related injuries in the CBD precinct on weekdays, weekends and during HAT periods



Data source: NSW Ambulance (2016a); NSW Health (2016)

Table 5.4: Severe and critical alcohol-related injuries in the CBD precinct on weekdays, weekends and during HAT periods (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Weekdays[a]	n.a.	n.a.	n.a.	n.a.	n.a.
Weekends	-0.67	(-1.217, -0.082)	0.0286	-48.7	Step
HAT period[b]	-0.74	(-1.469, -0.089)	0.0258	-52.4	Step
Intoxicated patient					
Weekdays[a]	n.a.	n.a.	n.a.	n.a.	n.a.
Weekends	-0.61	(-1.320, 0.090)	0.1080	-45.6	Step
HAT period[b]	-0.73	(-1.576, 0.137)	0.1460	-51.7	Step

Note: Grey shaded rows denote results that are statistically significant. (a) The number of weekday serious and critical injuries was small and could not be statistically tested. (b) HAT period = the weekend period, from 6:00pm Friday to 6:00am Sunday.

These trends were consistent with the views of emergency department stakeholders, who had observed reductions in very serious and critical injury presentations to the emergency department during weekend periods since the Plan came into effect.[33] Overall, the analysis suggests that, with some level of confidence, the Plan has had a positive impact on reducing the incidence of severe and critical alcohol-related injury during the weekends and the HAT period.

Further, the results were consistent with the analysis undertaken by Fulde et al. (2015). The authors found that there were significant declines in the number of seriously injured patients that presented at the St Vincent's Hospital emergency department (also defined by Triage Categories 1 and 2) during the HAT period since the Plan came into effect. Overall, the analysis confirms that reductions in severe and critical injury on weekends and during the HAT period are likely to be attributable to the Plan.

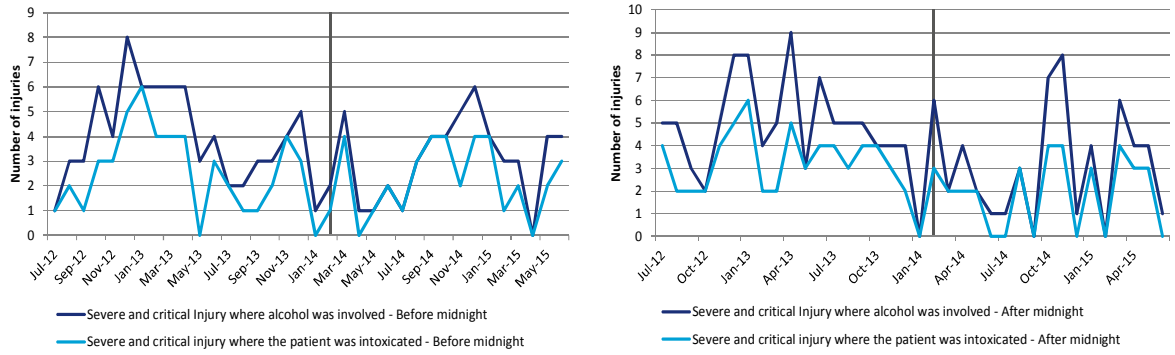
[33] St Vincent's Hospital was consulted during this evaluation.

Severe and critical injury by time of night

In the CBD precinct, 33.1% (128) of severe and critical alcohol-related injuries occurred before midnight and 37.5% (145) occurred after midnight.[34] Figure 5.4 shows the injuries that occurred before and after midnight over the July 2012 to June 2015 period.

Figure 5.4: Severe and critical alcohol-related injuries in the CBD precinct by time of night

Before midnight - After midnight



Data source: NSW Ambulance (2016a); NSW Health (2016)

The modelling results for injuries *where alcohol was involved* and *where the patient was intoxicated* shows that following the Plan's implementation, injuries before midnight increased and then followed a smooth decline. The injuries that occurred after midnight declined immediately and then plateaued. However, despite these trends these results were not statistically significant (see Table 5.5).

Table 5.5: Severe and critical alcohol-related injuries in the CBD precinct by time of night (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Before midnight[(a)]	0.79	(-0.152, 1.540)	0.1097	120.2	Pulse and smooth
After midnight	-0.46	(-1.190, 0.189)	0.1480	-37.1	Step
Intoxicated patient					
Before midnight[(a)]	0.93	(-0.371, 1.682)	0.1604	153.3	Pulse and smooth
After midnight	-0.58	(-1.428, 0.285)	0.1492	-44.2	Step

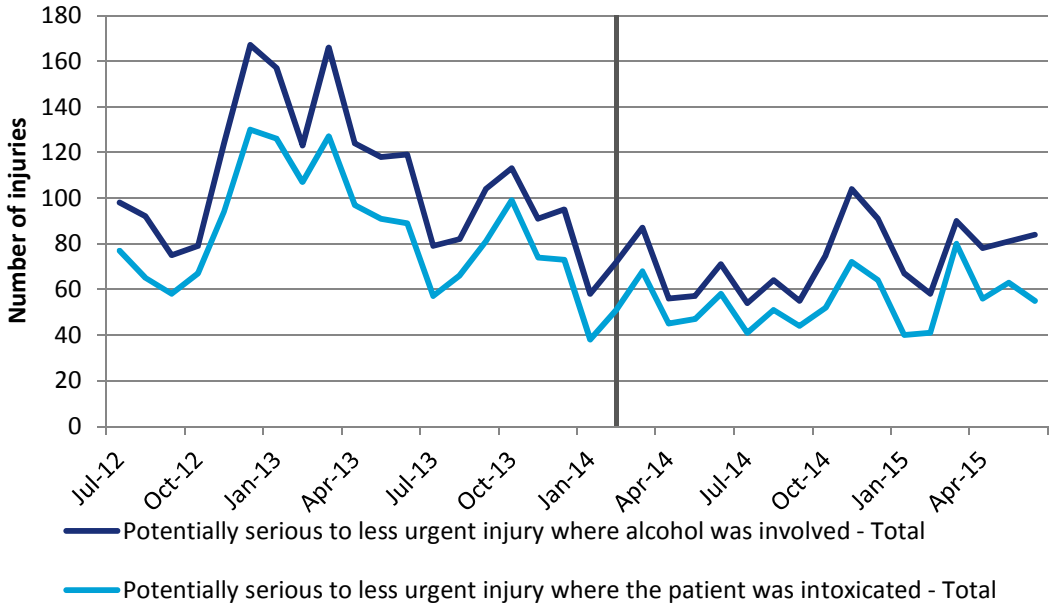
Note:
(a) The before midnight change is very high due to small numbers and no observable trend. Results are not statistically significant.

5.4.2 Potentially serious to less urgent alcohol-related injury

There were 3,308 potentially serious to less urgent alcohol-related injuries that were attended by ambulance in the CBD precinct between July 2012 and June 2015. Of these, 76.9% (2,544) of patients were assessed as intoxicated and 8.9% (294) involved physical violence. Of the potentially serious to less urgent injuries, 38.8% (1,284) were assessed as Triage Category 3, 48.9% (1,618) were Triage Category 4 and 12.4% (410) were Triage Category 5. The results of this section therefore primarily reflect changes in the potentially serious and urgent Triage Categories 3 and 4.

[34] Note the before and after midnight periods do not sum to 100% with the remainder of injuries having occurred during the daytime period (6:00am to 5.59pm).

Figure 5.5: Potentially serious and less urgent alcohol related injuries in the CBD precinct



Data source: NSW Ambulance (2016a); NSW Health (2016)

Figure 5.5 shows potentially serious to less urgent alcohol-related injuries that occurred in the CBD precinct since July 2012 for injuries *where alcohol was involved* and a subset of these *where the patient was intoxicated*. Injuries in this category were generally declining before the Plan came into effect, particularly after March 2013.

Comparison between the pre-intervention and post-intervention periods shows injuries *where alcohol was involved* decreased initially in the months following the intervention then increased and peaked in December 2014. Injuries after this time decreased and have since fluctuated below pre-intervention levels.

The modelling results (see Table 5.6) also show that injuries *where alcohol was involved* declined in the months after the Plan was introduced (by 16.3%) before the levels of injury plateaued. However, this reduction is not statistically significant.

The modelling results also show that the potentially serious to less urgent injuries *where the patient was intoxicated* declined by 25.1% after the Plan's implementation and then plateaued and this decline was statistically significant.

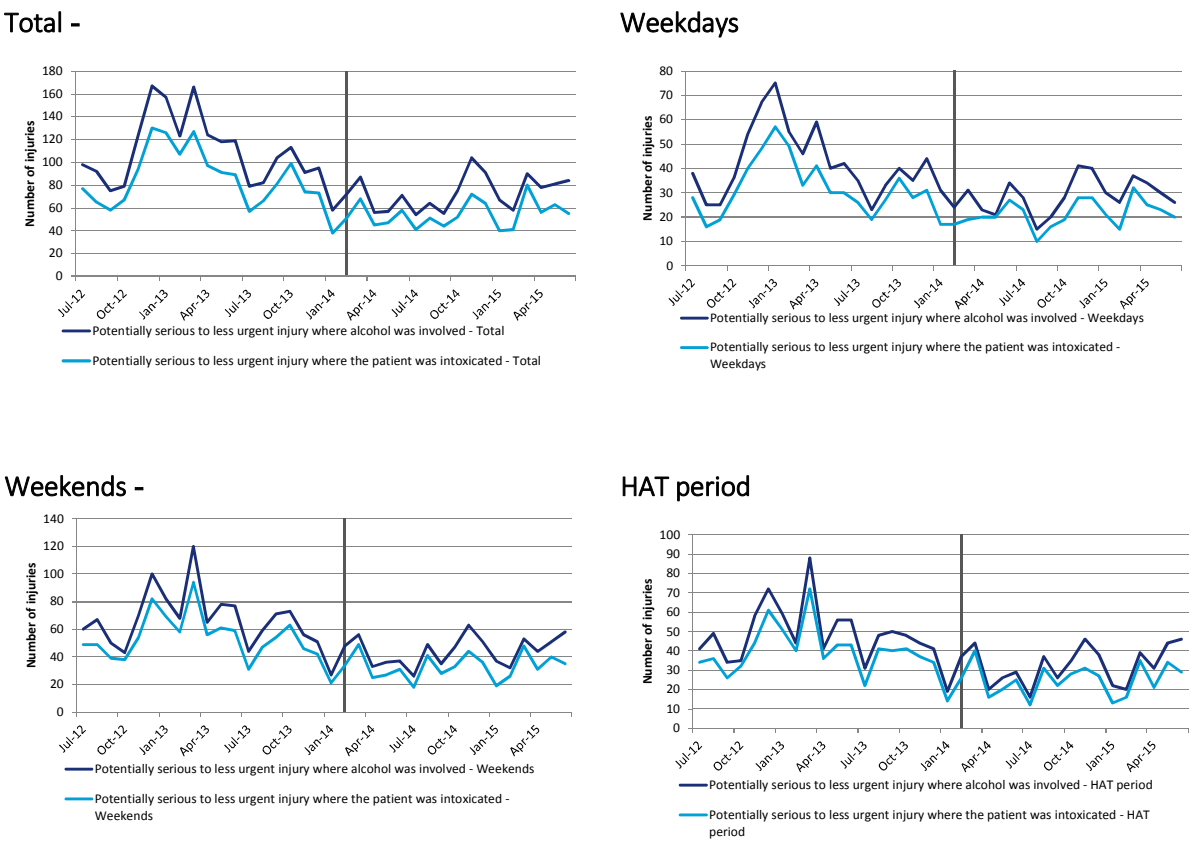
Table 5.6: Potentially serious to less urgent alcohol related injuries in the CBD precinct (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total – alcohol involved	-0.18	(-0.368, -0.078)	0.1487	-16.3	Step
Total – intoxicated patient	-0.29	(-0.393, -0.063)	0.0240	-25.1	Step

Note: Grey shaded rows denote results that are statistically significant.

Overall, these results suggest the Plan is likely to have been effective in reducing the incidence of potentially serious to less urgent injury in the CBD precinct, particularly for injuries *where the patient was intoxicated*.

Figure 5.6: Potentially serious to less urgent alcohol related injuries in the CBD precinct on weekdays, weekends and during HAT periods



Data source: NSW Ambulance (2016a); NSW Health (2016)

Potentially serious to less urgent injury by weekend, weekday and HAT periods

Of all potentially serious to less urgent alcohol-related injuries, 44.4% (1,469) occurred during the HAT period, 61% (2,018) occurred during the weekend period and 39% (1,290) occurred during the weekday period. Figure 5.6 shows the potentially serious to less urgent alcohol-related injuries for weekdays, weekends and the HAT period.

The modelling results presented in Table 5.7 show statistically significant declines in injuries where *alcohol was involved* on the weekends and during the HAT period. On the weekends, injuries where *alcohol was involved* declined by 30.7% immediately after the Plan's implementation and then plateaued. Similar trends were observed during the HAT period, which declined by 39.2% immediately after the Plan's implementation.

Analysis of potentially serious to less urgent injuries *where the patient was intoxicated* show similar trends to incidents *where alcohol was involved*. However, the declines in injury were only statistically significant during the HAT period. The results indicate a 31.7% reduction in injuries during the HAT period following the Plan's implementation.

Analysis of injuries during the weekday period found there was an increase in potentially serious to less urgent injuries *where alcohol was involved* and *where the patient was intoxicated.* However, these results were not statistically significant.

Table 5.7: Potentially serious to less urgent alcohol related injuries in the CBD precinct on weekdays, weekends and during HAT periods (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Weekdays	0.27	(-0.021, 0.506)	0.1037	30.6	Pulse and smooth
Weekends	-0.37	(-0.503, -0.133)	0.0097	-30.7	Step
HAT period[(a)]	-0.50	(-0.576, -0.142)	0.0017	-39.2	Step
Intoxicated patient					
Weekdays	0.33	(0.012, 0.618)	0.2237	39.2	Smooth
Weekends	-0.23	(-0.530, -0.110)	0.1536	-20.2	Step
HAT period[(a)]	-0.38	(-0.569, -0.082)	0.0278	-31.7	Step

Note: Grey shaded rows denote results that are statistically significant.
(a) HAT period = the weekend period, from 6:00pm Friday to 6:00am Sunday.

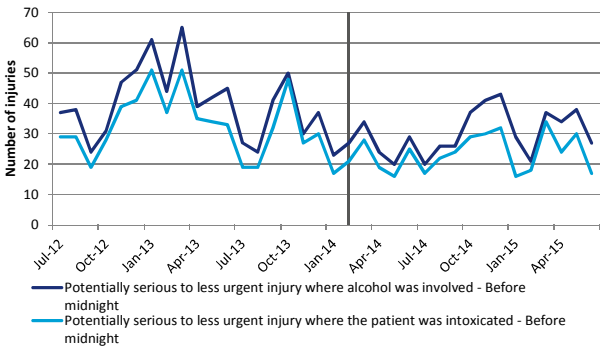
Overall, the Plan is likely to have been effective in reducing the incidence of potentially serious to less urgent injury in the CBD precinct during the HAT period *where alcohol was involved* and *where the patient was intoxicated*, and on the weekends *where alcohol was involved*. These impacts have been sustained.

Potentially serious to less urgent injury by time of night

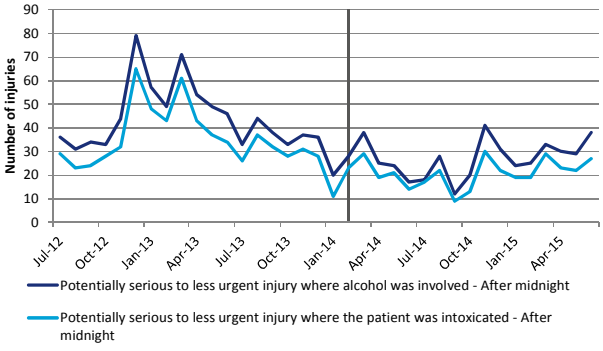
In the CBD precinct, 38.4% (1,270) of potentially serious to less urgent alcohol-related injuries occurred before midnight and 40.1% (1,327) occurred after midnight. Figure 5.7 shows the potentially serious to less urgent alcohol-related injuries for before and after midnight.

Figure 5.7: Potentially serious and less urgent alcohol related injuries in the CBD precinct by time of night

Before midnight -



After midnight



Data source: NSW Ambulance (2016a); NSW Health (2016)

The modelling results for injuries *where alcohol was involved* and *where the patient was intoxicated* showed that injuries declined both before and after midnight (see Table 5.8). However, statistical significance is observed only for injuries that occurred before midnight and *where alcohol was involved*—a decline of 30.9% occurred immediately after the Plan was implemented but the decline was not sustained.

Table 5.8: Potentially serious to less urgent alcohol related injuries in the CBD precinct by time of night (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Before midnight	-0.37	(-0.779, -0.003)	0.0426	-30.9	Pulse
After midnight	-0.21	(-0.538, -0.072)	0.2664	-18.6	Step
Intoxicated patient					
Before midnight	-0.31	(-0.826, 0.029)	0.1178	-26.8	Pulse
After midnight	-0.35	(-0.588, -0.064)	0.0542	-29.6	Step

Note: Grey shaded rows denote results that are statistically significant.

5.4.3 Ambulance patients not assigned a triage category

This category makes up the remainder of alcohol-related attendances to the CBD precinct and represents patients that are not assigned a triage category with many of these being the lowest priority cases.

This cohort has been described here for completeness. However, as this category is largely comprised of lower priority cases, any observed fluctuations may reflect changes in local ambulance capacity and/or demand for services, particularly as these types of injuries are likely to be given a lower priority. Interpretation of the results for this injury category should be considered with caution as fluctuations are likely to be driven by external factors independent of the Plan.

Between July 2012 and June 2015, there were 1,023 ambulance patients that were not assigned a triage category. Of these:

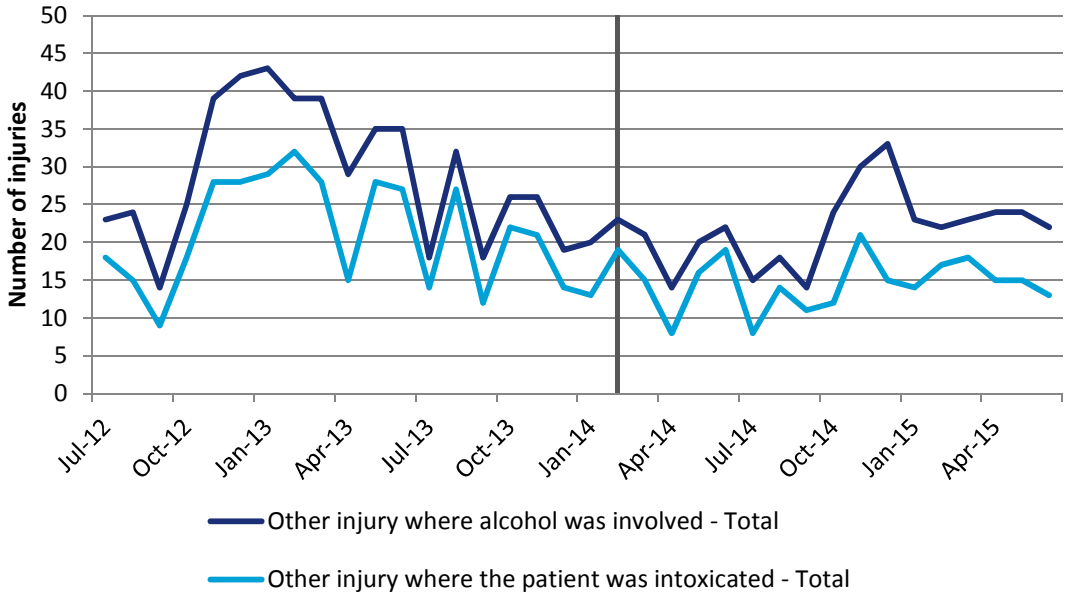
- 67.4% of patients were not transported to the emergency department
- 32.4% of patients were transported to the emergency department; however there were no further records of these patients being processed in the emergency department; and
- 0.2% of patients opted to travel to the emergency department by alternative transport mode e.g. by private car.

The decision not to transport is made for a variety of reasons: assessment of the patient by paramedics as not requiring further medical attention; refusal of the patient to be transported; as well as other various reasons. For many of these cases the severity of injury is likely to be very low, hence diminishing the need for transport to an emergency department by an ambulance.

For this cohort 71.1% of patients were assessed as intoxicated and 9.8% involved physical violence.

Figure 5.8 shows that in the post-intervention period, injuries *where alcohol was involved* decreased initially in the months following the intervention then gradually increased and peaked in December 2014. Injuries have since, on average, gradually declined. The modelling results (see Table 5.9) indicated that observed changes were not statistically significant.

Figure 5.8: Other alcohol-related injuries in the CBD precinct



Data source: NSW Ambulance (2016a); NSW Health (2016)

Table 5.9: Other alcohol related injuries in the CBD precinct (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total – alcohol involved	0.32	(0.085, 0.701)	0.3727	50.8	Smooth
Total – intoxicated patient	-0.17	(-0.523, 0.131)	0.4853	31.1	Step

5.5 Alcohol-related injury: Proximal displacement area

The proximal displacement area is defined by BOCSAR (Menendez et al., 2015) and is a radius around the CBD Entertainment precinct. This area includes parts of Ultimo, Chippendale, Haymarket, Surry Hills, Darlinghurst, Rushcutters Bay, Elizabeth Bay and Potts Point. Refer to Figure 5.1 for the exact boundaries.[35]

There were 1,155 ambulance records for the period July 2012 to June 2015 *where alcohol was involved,* with 70.1% of these identified as *where the patient was intoxicated*. It should be noted that in the analyses for time of day and period of week, the number of records for the proximal displacement area is small. Thus, large per cent changes should be interpreted in the context of the absolute numbers of injuries that have occurred.

Approximately 78% of the total cases were transported to hospital, assessed in the emergency department and assigned a triage category, where:

- approximately 11% of patients had severe and critical injuries (Triage Categories 1 and 2) (see Section 5.5.1)
- approximately 67% of patients had potentially severe to less urgent injuries (Triage Categories 3, 4 and 5) (see Section 5.5.2).

[35] The proximal displacement area defined in Figure 5.1 is the area used by BOCSAR in 2015 for analysis of potential displacement of crime. While BOCSAR has since expanded their definition of proximal displacement (and this new definition is reflected in the assault analysis in Chapter 4 of this report) NSW Ambulance data used for this analysis were extracted in 2015 using the originally defined displacement area.

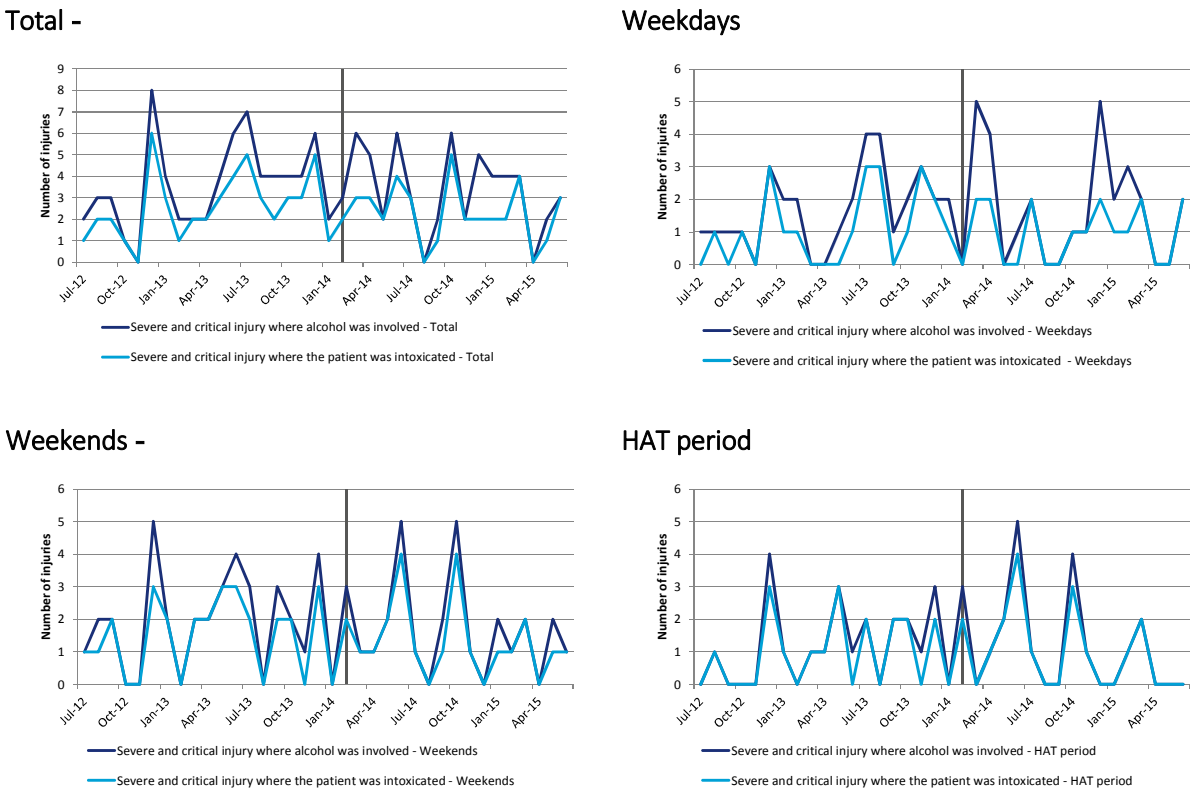
Approximately 22% of patients attended by ambulance were not assigned a triage category (see Section 5.5.3):

- 16.3% were not transported (either due to refusal of treatment or being assessed by paramedics as not requiring further treatment)
- 5.5% were transported to the emergency department; however there were no further records of the patient being processed in the emergency department
- less than 0.1% of ambulance patients were transported by an alternative mode of transport to the emergency department (e.g. by private car).

5.5.1 Severe and critical alcohol-related injury

There were 126 severe and critical alcohol-related injuries that were attended by ambulance in the proximal displacement area between July 2012 and June 2015. Of these, 70.6% (89) of patients were assessed as intoxicated and 11.1% (14) had involved physical violence. Of the severe and critical injuries, 21.4% (27) were assessed as Triage Category 1 and 78.6% (95) were Triage Category 2. Figure 5.9 shows the severe and critical alcohol-related injuries occurring in the proximal displacement area since July 2012 for injuries *where alcohol was involved*, and a subset of these *where the patient was intoxicated*. Injury numbers for the proximal displacement area are small and sporadic.

Figure 5.9: Severe and critical alcohol-related injuries in the proximal displacement area



Data source: NSW Ambulance (2016a); NSW Health (2016)

The modelling results (see Table 5.10) indicate that severe and critical injuries *where alcohol was involved* and *where the patient was intoxicated* declined gradually following the Plan's implementation. However, these declines are not statistically significant.

Table 5.10: Severe and critical alcohol-related injuries in the proximal displacement area (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total – alcohol involved	-0.82	(-1.654, 0.006)	0.0864	-55.9	Smooth
Total – intoxicated patient	-0.77	(-1.756, 0.228)	0.1139	-53.7	Smooth

Severe and critical injury by weekend, weekday and HAT periods

Of all severe and critical alcohol related injuries in the proximal displacement area, 33.6% (42) occurred during the HAT period, 52% (66) occurred during the weekend period and 48% (60) occurred during the weekday period. Table 5.11 shows the severe and critical alcohol-related injuries for weekdays, weekends and the HAT period. These figures highlight that the absolute numbers of injuries are small.

The modelling results in Table 5.11 shows that severe and critical injuries *where alcohol was involved* declined during the HAT period by 92.1% in the months following the introduction of the Plan. Analysis of severe and critical injuries *where the patient was intoxicated* showed similar results, indicating a 90.1% reduction in the number of injuries during the HAT period.

Weekdays were also tested; however the number of injuries in this category was small and could not be statistically tested. These results are indicated as 'n.a.' in the table below.

Table 5.11: Severe and critical alcohol-related injuries in the proximal displacement area on weekdays, weekends and during HAT periods (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Weekdays[a]	n.a.	n.a.	n.a.	n.a.	n.a.
Weekends	-0.80	(-2.207, 0.199)	0.1331	-54.9	Pulse and smooth
HAT period[b]	-2.54	(-4.418, -1.036)	0.0009	-92.1	Pulse and smooth
Intoxicated patient					
Weekdays[a]	n.a.	n.a.	n.a.	n.a.	n.a.
Weekends	-0.77	(-2.386, 0.313)	0.2274	-53.7	Pulse and smooth
HAT period[b]	-2.32	(-4.313, -0.693)	0.0067	-90.1	Pulse and smooth

Note: Grey shaded rows denote results that are statistically significant.

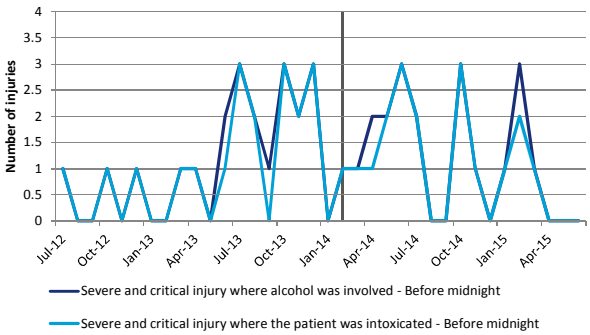
(a) The number of weekday severe and critical injuries was small and could not be statistically tested. (b) HAT period = the weekend period, from 6:00pm Friday to 6:00am Sunday.

Severe and critical injury by time of night

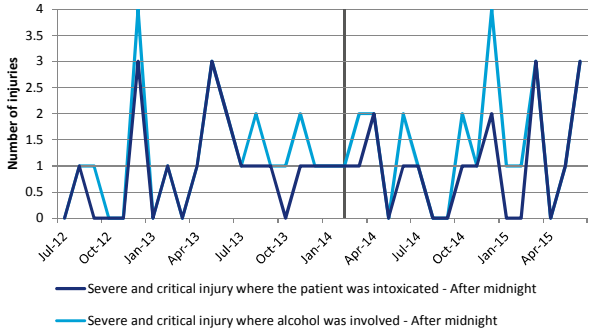
In the proximal displacement area, 32.8% (41) of severe and critical alcohol-related injuries occurred before midnight and 36.8% (46) occurred after midnight between July 2012 and June 2015. Figure 5.10 shows the severe and critical alcohol-related injuries for before and after midnight.

Figure 5.10: Severe and critical alcohol-related injuries in the proximal displacement area by time of night

Before midnight



After midnight



Data source: NSW Ambulance (2016a); NSW Health (2016)

Modelling results *where alcohol was involved* and occurred before midnight indicated there was slow change in injuries following the introduction of the Plan. The estimated reduction in injury was 94.7% in the months following the introduction of the Plan (Table 5.12).

For severe and critical injuries that occur after midnight for both cohorts examined, there was an immediate change in injuries in the months following the introduction of the Plan before the levels of injury plateaued. However, these changes are not statistically significant.

Table 5.12: Severe and critical alcohol-related injuries in the proximal displacement area by time of night (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Before midnight	-2.93	(-3.854, -0.680)	0.0257	-94.7	Smooth
After midnight	-0.42	(-1.489, 0.961)	0.4420	-34.6	Step
Intoxicated patient					
Before midnight	-2.07	(-4.227, -0.642)	0.0749	-87.4	Pulse and smooth
After midnight	-0.87	(-2.247, 0.644)	0.1730	-58.1	Step

Note: Grey shaded rows denote results that are statistically significant.

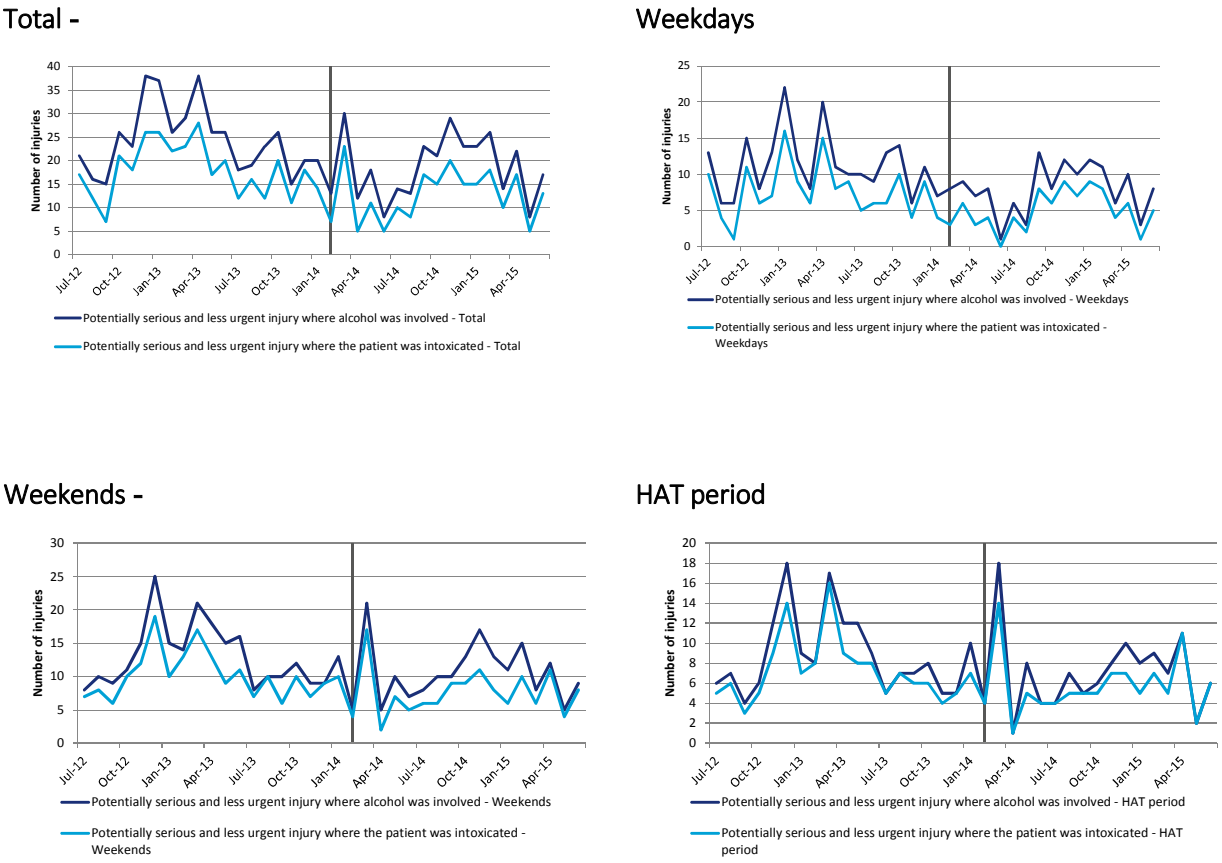
Overall, the results indicate the Plan may have had some positive impacts on the incidence of alcohol-related injury in the proximal displacement area in the hours before midnight.

5.5.2 Potentially serious to less urgent injury alcohol-related injury

There were 776 potentially serious to less urgent alcohol-related injuries that were attended by ambulance in the proximal displacement area between July 2012 and June 2015. Of these, 71.4% (554) of patients were assessed as intoxicated and 7.9% (61) involved physical violence. Of the potentially serious to less urgent injuries, 52.7% (409) were assessed as Triage Category 3, 38.8% (301) were Triage Category 4 and 8.5% (66) were Triage Category 5. The results are therefore likely to be largely reflective of changes in the potentially serious Triage Categories 3 and 4.

Figure 5.11 shows the potentially serious to less urgent injuries in the proximal displacement area experienced a downward trend in the months following the implementation of the Plan. This was followed by increases in injury counts from June 2014 to December 2014 before, on average, a period of decline.

Figure 5.11: Potentially serious to less urgent alcohol-related injuries in the proximal displacement area on weekdays, weekends and during HAT periods



Data source: NSW Ambulance (2016a); NSW Health (2016)

The modelling results (see Table 5.13) indicate an increase in potentially serious to less urgent injuries in the post-intervention period, by 66.9% for injuries *where alcohol was involved* and 71.2% *where the patient was intoxicated*.

Table 5.13: Potentially serious to less urgent alcohol-related injuries in the proximal displacement area (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total – alcohol involved	0.51	(0.044, 0.724)	0.0086	66.9	Pulse and smooth
Total – intoxicated patient	0.54	(0.076, 0.880)	0.0294	71.2	Pulse and smooth

Note: Grey shaded rows denote results that are statistically significant.

Overall, these results suggest there has been some displacement of potentially serious to less urgent injuries to the proximal displacement area since the Plan was introduced. However, it should be noted that these increases have not been sustained and in recent months have declined.

Potentially serious to less urgent injury on weekdays, weekends and during HAT periods

Of all potentially serious to less urgent injuries in the proximal displacement area, 36.7% occurred during the HAT period, 55% occurred during the weekend period and 45% occurred during the weekday period.

Table 5.14 show injuries increased during the weekday period *where alcohol was involved* and *where the patient was intoxicated,* however, these increases were not statistically significant and are therefore not correlated with the Plan.

Potentially serious to less urgent injuries also increased during the weekend and HAT periods. The results were statistically significant for the injuries that occurred during the weekend period. It is estimated there was a 71.3% increase in the levels injury *where alcohol was involved* during the weekend period.

Table 5.14: Potentially serious to less urgent alcohol-related injuries in the proximal displacement area on weekdays, weekends and during HAT periods (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Weekdays	0.38	(-0.160, 0.866)	0.1615	46.3	Pulse and smooth
Weekends	0.54	(-0.047, 0.860)	0.0458	71.3	Pulse and smooth
HAT period[(a)]	0.42	(-0.030, 1.069)	0.1156	51.8	Pulse and smooth
Intoxicated patient					
Weekdays	0.57	(-0.136, 1.129)	0.1002	77.0	Pulse and smooth
Weekends	0.30	(-0.058, 0.986)	0.2410	34.4	Pulse and smooth
HAT period[(a)]	0.37	(-0.132, 1.073)	0.2517	45.4	Pulse and smooth

Note: Grey shaded rows denote results that are statistically significant. '

(a) HAT period = the weekend period, from 6:00pm Friday to 6:00am Sunday.

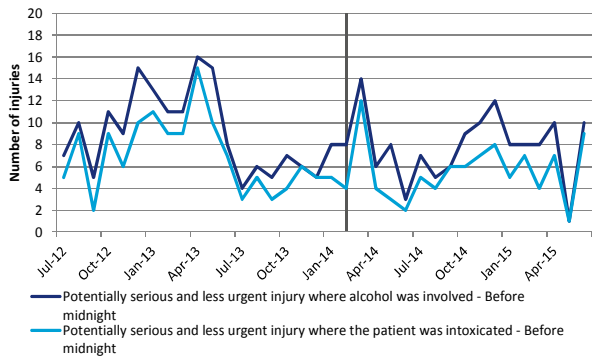
Overall, these results suggest there has been some displacement of potentially serious to less urgent injuries in the proximal displacement area during the weekend period since the Plan was introduced. However, it should be noted that the magnitude of this displacement does not offset the significant reductions in alcohol-related injuries observed within the CBD precinct, particularly during the HAT period.

Potentially serious to less urgent injury by time of night

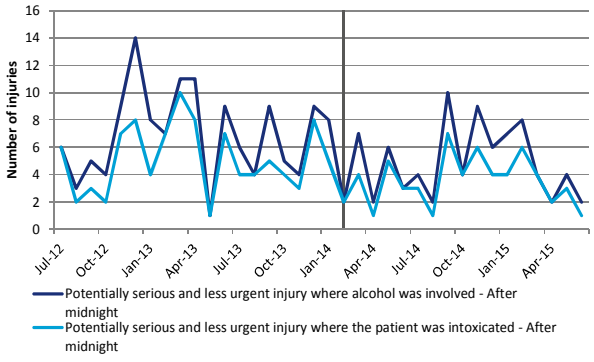
In the proximal displacement area, 39.3% (305) of potentially serious to less urgent alcohol-related injuries occurred before midnight and 27.7% (215) occurred after midnight between July 2012 and June 2015. Figure 5.12 shows potentially serious to less urgent alcohol-related injuries before and after midnight.

Figure 5.12: Potentially serious to less urgent alcohol-related injuries in the proximal displacement area by time of night

Before midnight -



After midnight



Data source: NSW Ambulance (2016a); NSW Health (2016)

The modelling results in Table 5.15 show injuries that occurred before midnight experienced a sudden increase following the introduction of the Plan followed by a slow change in injuries over time. Before midnight there was a statistically significant increase in injuries of 82.3% for injuries *where alcohol was involved* and 152.2% for injuries *where the patient was intoxicated.*

The modelling results also show there was a sudden decline in injuries after midnight; however these declines were not statistically significant.

Table 5.15: Potentially serious to less urgent alcohol-related injuries in the proximal displacement area by time of night (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Alcohol involved					
Before midnight	0.60	(0.059, 1.129)	0.0295	82.3	Pulse and smooth
After midnight	-0.67	(-0.950, 0.845)	0.1666	-48.7	Pulse
Intoxicated patient					
Before midnight	0.93	(0.204, 1.448)	0.0169	152.2	Pulse and smooth
After midnight	-1.28	(-1.654, 0.570)	0.0571	-72.3	Pulse

Note: Grey shaded rows denote results that are statistically significant.

Overall, these results suggest there has been some displacement of potentially serious to less urgent injuries in the proximal displacement area to an earlier time of night since the Plan was introduced.

5.5.3 Ambulance patients that are not assigned a triage category

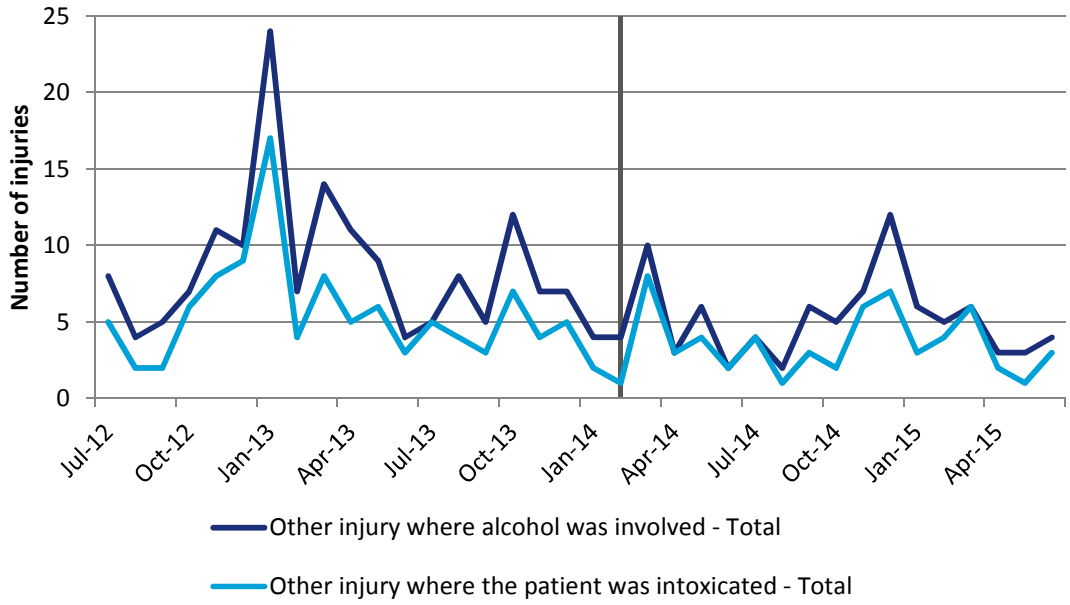
In the proximal displacement area, there were 253 ambulance patients that were not assigned a triage category between July 2012 and June 2015. Of these, 74.3% of patients were not transported to the emergency department (and hence not assessed and assigned a triage category).

The remaining patients that were not assigned a triage category comprised: 25.3% of patients that were transported to the emergency department; however there were no further records of the person being processed in the emergency department; and 0.4% of patients that opted to travel to the emergency department by alternative transport mode e.g. by private car.

For this cohort 66% of patients were assessed as intoxicated and 7.9% involved physical violence.

Figure 5.13 shows the number of monthly injuries in this cohort is small and declined from January 2013. However, following the introduction of the Plan, injuries increased and peaked in March 2014 and again in December 2014. Injuries have since gradually declined. The modelling results (see Table 5.16) indicated that observed changes were not statistically significant.

Figure 5.13: Other injuries where alcohol is involved in the proximal displacement area



Data source: NSW Ambulance (2016a); NSW Health (2016)

Table 5.16: Other injuries where alcohol is involved in the proximal displacement area (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total – alcohol involved	0.22	(-0.382, 0.834)	0.4744	24.9	Pulse and smooth
Total – intoxicated patient	0.40	(-0.304, 1.022)	0.2894	49.2	Step

This category comprises the least serious injuries. Any observed fluctuations may reflect changes in local ambulance capacity and/or demand for services, particularly as these types of injuries are likely to be given a lower priority. Interpretation of the results for this injury category should be considered with caution as fluctuations are likely to have been driven by external factors independent of the Plan.

5.6 Alcohol-related injury: The Star

The Star cohort comprised 152 records *where alcohol was involved*, of which 80.9% was *where the patient was intoxicated*.

Approximately, 83% of these cases were transported to hospital and assessed in the emergency department where they were assigned a triage category. Of the remaining cases:

- 14.5% were not transported (either because they were assessed by paramedics as not requiring further treatment or due to refusal of treatment)
- 2.6% were transported to the emergency department; however there were no further records of the person being processed in the emergency department
- no ambulance patients were transported by an alternative mode of transport to the emergency department (e.g. by private car).

Due to the small number of injuries that occurred at The Star, the number of severe and critical injuries and potentially serious to less urgent injuries were analysed in aggregate (referred to as 'alcohol-related injuries') (see Section 5.6.1). The cohort of alcohol-related injuries that were not assigned a triage category was too small to analyse and hence not presented.

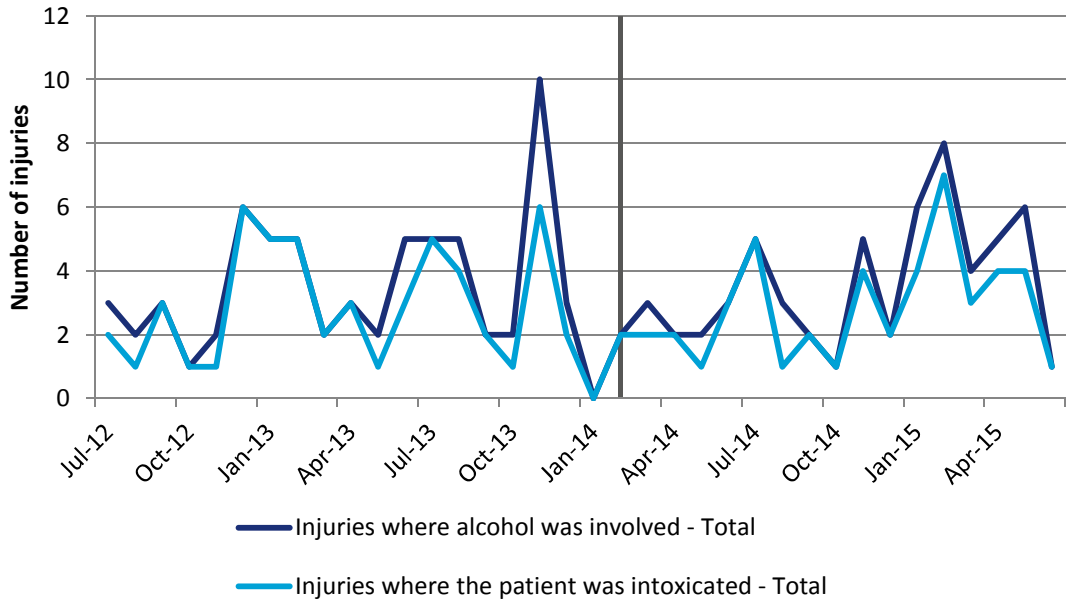
5.6.1 Alcohol-related injury

There were 126 alcohol-related injuries that were attended by ambulance and assessed in the emergency department between July 2012 and June 2015. Of these, 80.2% (101) of patients were assessed as intoxicated and 7.1% (9) had involved physical violence.

Of the alcohol-related injuries, 2.6% (3) were assessed as Triage Category 1, 8.6% (11) were Triage Category 2, 30.3% (38) were Triage Category 3, 32.2% (41) were Triage Category 4, and 9.2% (12) were Triage Category 5.

Figure 5.14 shows that the alcohol-related injuries are small and sporadic; however there appears to be an increasing trend in injuries since the Plan came into effect. The Pulse and Smooth scenario was identified as the best-fit model option which reflected the behaviour of the intervention scenario where this increasing trend has not been sustained but gradually declined in recent months.

Figure 5.14: Injuries where alcohol is involved – The Star



Data source: NSW Ambulance (2016a); NSW Health (2016)

The modelling results (see Table 5.17) show injuries where *alcohol was involved* and where *the patient was intoxicated* increased. However, these changes were not statistically significant and do not correlate with the Plan.

Table 5.17: Injuries where alcohol is involved – The Star (model estimates)

	ß	95% confidence interval	p value	Change (%)	Scenario
Total – alcohol involved	0.42	(-0.436, 1.231)	0.3934	52.0	Pulse and smooth
Total – intoxicated patient	0.39	(-0.490, 1.371)	0.4688	47.2	Pulse and smooth

Overall, the analysis did not find any conclusive evidence that the Plan has had an impact on the incidence of alcohol-related injury at The Star.

6 Benefit-Cost Analysis

Key points

- The Plan has resulted in an estimated net benefit of $29.8 million (net present value (NPV)) to the NSW community over the February 2014 to December 2015 period.
- The estimated benefit-cost ratio (BCR) of 3.6 suggests the Plan has achieved a return in present value terms of $3.60 for every dollar cost.
- The positive NPV is reflective of net reductions in alcohol-related assaults and injuries that occurred in the Central Business District (CBD) precinct and displacement areas and the resulting high value of benefits (costs avoided) to individuals, health care services and the criminal justice system.
- Some social and economic impacts (such as consumer choice impacts) have not been valued quantitatively due to difficulties obtaining robust and reliable data and as a result costs may be underestimated.

6.1 Scope and methodology

The aim of the economic evaluation is to assess the costs and benefits of the Plan to determine if the Plan has delivered a net economic benefit to society. To examine this, financial, economic and social impacts associated with the Plan were identified and compared to a counterfactual case (or 'no policy change' scenario) to identify the incremental costs and benefits. The difference between the two scenarios reflects the impact of the Plan and is used to determine whether the Plan has achieved a net benefit for the community. The scenarios examined are described in Table 6.1.

Table 6.1: Description of scenarios examined

Scenarios	Description
No Policy Change Scenario (or base case)	This is the counterfactual case and assumes that the Plan was not implemented. This scenario assumes that pre-Plan trends in alcohol-related violence and injury continued over 2014 and 2015.
CBD precinct Plan Scenario	This scenario reflects the actual incidence of alcohol-related assaults and injury since February 2014 when the first phase of measures was introduced. This scenario is based on the statistically significant results from the econometric modelling in Chapters 4 and 5. This scenario also considers impacts to government, business and the community.

The approach for conducting the benefit-cost analysis can be summarised by the following steps:

(1) -Identify all impacts of the Plan for each stakeholder group

(2) Quantify the magnitude of impacts

(3) -Value the identified impacts (both monetary and non-monetary) in dollar terms

(4) -Determine whether there is a net benefit to society from implementing the Plan (i.e. assess whether the benefits outweigh the costs).

Appendix H provides further detail of the methodology employed.

Benefits and costs of the Plan have been considered from the perspective of the NSW community and wherever possible include the direct and indirect impacts of the Plan to all stakeholder groups for both tangible and intangible impacts. Table 6.2 summarises the key benefits and costs considered for the analysis.

Table 6.2: Potential costs and benefits by stakeholder group

Stakeholder group	Benefit/Cost	Description
Government	Cost	▪ Implementation costs to government (state and local)
	Benefit	▪ The benefit to government services (costs avoided) resulting from: - reductions in alcohol-related assaults and the value of this to the criminal justice system - reductions in alcohol-related injuries and the value of this to the health services system
Industry	Cost	▪ Licensed premises costs of implementing the Plan ▪ Any net negative impacts of the Plan on business activity
Community	Cost	▪ The cost to consumers of having restricted choices in the precinct
	Benefit	▪ Benefit of avoiding alcohol-related injuries ▪ Benefit of any improved perception of safety ▪ Benefit of an improvement in neighbourhood amenity

Key considerations underlying the benefit-cost analysis model include:

- the analysis is conducted ex-post and is based on the post-Plan period of February 2014 to December 2015
- all values are expressed in 2015 dollars
- the analysis is conducted from the perspective of the state
- as an ex-post evaluation benefits and/or costs that have already been realised are not being discounted. Correctional services costs are incurred in the future and have therefore been subject to discounting (see Section 6.2.3)
- only changes in assault and injury that were found to be statistically significant (see Chapter 4 and Chapter 5, respectively) were used
- sensitivity analysis was undertaken for a range of potential benefits and costs
- health and lifestyle benefits to individuals have been based on reductions in alcohol-related injury (and not assault) to avoid double counting.

Box 6.1: Decision criteria

The NPV and BCR are the primary decision criteria in benefit-cost analysis. The NPV expresses the difference between the present value (PV) of future benefits and PV of future costs of the Plan,

i.e. NPV = PV (Benefits) – PV (Costs).

The BCR is calculated by dividing the PV of benefits by the PV of costs.

Where the benefit-cost analysis results in a:

- positive NPV and BCR above 1, the Plan has delivered a net benefit to society
- NPV equal to zero and BCR of 1, the Plan has achieved a neutral economic position (e.g. neither a net benefit nor a net cost)
- negative NPV and BCR of less than 1, the Plan has incurred a net cost to society.

The model rationale, drivers and assumptions for the benefit-cost analysis are presented in the section below.

6.2 Data sources, assumptions and limitations

The cost-benefit model draws primarily on the findings of the assault (Chapter 4) and injury analyses (Chapter 5), as well as data provided by government agencies and industry. Published cost benchmarks have also been sourced to assist with estimating the value of impacts.

The model drivers have been developed based on the best available data. This has included data provided by the implementing government agencies (state and local), NSW Bureau of Crime Statistics and Research (BOCSAR), NSW Ambulance, NSW Health, as well as Treasury's 2015 and 2016 licensed premises surveys and stakeholder consultations.

Where high quality evidence is not available, assumptions have been made in order to estimate the magnitude and/or value of the impact. A summary of the model drivers and any associated assumptions are provided in Table 6.3.

Table 6.3: Summary of model drivers examined

Model driver	Description
Implementation costs	
Implementation costs to government	The financial costs to government entities of implementing the Plan. This includes one-off implementation costs as well as ongoing costs of delivering the Plan's measures for safer venues and patrons, safer travel and a safer environment. These costs have been shared by Liquor & Gaming NSW (L&GNSW) (and formerly by the regulator the Office of Liquor, Gaming & Racing (OLGR)), Transport for NSW (TfNSW), Department of Justice (DoJ), Department of Premier and Cabinet (DPC) and the City of Sydney.
Implementation costs to licensed premises	The additional financial costs incurred to licensed premises and/or their employees to ensure they are compliant with the measures introduced under the Plan. Costs considered include additional staff training and Responsible Service of Alcohol (RSA) competency cards, costs of providing polycarbonate drinkware after midnight, additional costs of security and on-premises closed-circuit television (CCTV).
Impacts on crime and injury	
Criminal justice system benefits and costs	Includes criminal justice system: ▪ costs avoided (benefits) resulting from any statistically significant decrease in alcohol-related assault in the CBD precinct ▪ costs resulting from any statistically significant increase in alcohol-related assault in the close displacement area examined. Criminal justice system costs and benefits include the value of changes to police judicial support and investigation activities, as well as court and correctional services.
Health system benefits and costs	Includes health system: ▪ costs avoided (benefits) resulting from any statistically significant decrease in alcohol-related injury in the CBD precinct ▪ costs avoided (benefits) resulting from any statistically significant decrease in severe and critical alcohol-related injury in the proximal displacement area ▪ costs resulting from any statistically significant increase in potentially serious and less urgent alcohol-related injury in the proximal displacement area. Health system costs and benefits include the value of changes to ambulance, emergency department and hospital in-patient resources.
Valuing health and lifestyle benefits to individuals	The benefits to individuals of avoiding alcohol-related injuries. This has been valued using a 'Willingness to Pay' approach and estimates the value that society places on an individual avoiding death or injury. This method attempts to value all other health and lifestyle benefits to individuals (tangible and intangible) not estimated in the health system avoided costs above.
Other impacts	
Other business impacts	The value of impacts to business activity that may be attributed (partially or fully) to the Plan.
Costs to consumers	The cost to consumers of having restricted choices available in the CBD precinct, particularly after midnight. This considers the value consumers place on: ▪ unrestricted access to a range of alcoholic beverages after midnight ▪ being able to enter and re-enter venues without restriction after 1:30am.
Benefits to consumers	The value that consumers who visit the CBD precinct place on any improvements in the perception of safety in the CBD.
Benefits to residents	The value that CBD precinct residents place on any improvement in neighbourhood amenity.

6.2.1 Implementation costs to government

The cost of implementing the Plan has been shared by the State government (through the former OLGR, the NSW Police Force, TfNSW, DoJ and DPC) and local government (the City of Sydney). The types of costs incurred by government between February 2014 and December 2015 are summarised in Table 6.4 and include:

- $4.2 million on measures for safer venues and patrons (including Phase One measures)
- $1.3 million on safer environment initiatives
- $0.8 million on measures for safer transport.

A state-wide public awareness campaign (the 'Stop Before It Gets Ugly' campaign) was also delivered from 21 September 2014 to 26 January 2015 at a cost of $2.5 million. This cost has also been included in the estimates.

The estimated ongoing annual operating cost to implement the Plan is $2.6 million, with 67.8% of ongoing costs funded by L&GNSW.[36] The cost of providing proactive policing and enforcement strategies by the NSW Police Force has been excluded from this estimate. It was advised that the NSW Police Force is delivering on-ground strategies utilising existing budgets (Section 6.2.3).

[36] Excludes advertising costs e.g. the Stop Before it Gets Ugly campaign.

Table 6.4: Government implementation costs

Cost item	Agency	Description	2013 14 ($ 000)	2014 15 $ 000)	2015 16 ($ 000)
Implementation costs for safer venues and patrons initiatives					
Regulatory and compliance costs*	OLGR	▪ Additional inspections and monitoring of venues ▪ Education, communication and media costs ▪ Assessment of applications for exemptions ▪ Additional legal and litigation costs	595.9	1,740.0	1,740.0
Compliance costs*	City of Sydney	▪ Additional monitoring of planning regulations	40.4	42.0	54.0
Enforcement[a]	NSW Police Force	▪ Inspection of licensed premises and enforcement of regulations	n.a.	n.a.	n.a.
Sub-total			**636.3**	**1,782.0**	**1,794.0**
Implementation costs for safer transport initiatives					
Secure taxi rank infrastructure	City of Sydney	▪ Establishment of the Bathurst Street and Pitt Street (Martin Place), Wheat Road, Darling Harbour secure ranks	0.0	0.0	127.0
Security at secure taxi ranks*	TfNSW	▪ Provision of security staff	0.0	261.9	388.4
Signage for pre-paid taxi fares	City of Sydney	▪ Installation of pre-paid taxi fares signage at secure ranks	0.0	17.3	0.0
Transport communications*	TfNSW	▪ Late night transport communications	0.0	22.9	2.1
Sub-total			**0.0**	**302.1**	**517.5**
Implementation costs for safer environment initiatives					
Expansion and integration of Safe Space and Take Kare Ambassadors*	City of Sydney, DoJ	▪ Safe Space program costs[b]	0.0	145.0	110.0
Additional CCTV*	City of Sydney	▪ Installation of 10 new CCTV cameras and new CCTV signage to improve visibility of CCTV cameras throughout the CBD. ▪ Preventive maintenance and additional monitoring staff*	0.0	557.0	187.0
Additional GoBo lighting and Variable Message Signage*	City of Sydney, DoJ	▪ Installation of directional Gobo wayfinding to secure taxi ranks and use of Variable Message Signage to assist the public to find transport hubs quickly and more directly.	0.0	63.5	23.4
Additional street cleaning*	City of Sydney	▪ New 24/7 cleaning of George Street to remove glass, etc., and installation of additional bins in high volume litter hot spots.	0.0	84.0	86.0
Policing practices[a]	NSW Police Force	▪ Delivery of high-visibility and proactive policing strategies.	n.a.	n.a.	n.a.
Sub-total			**0.0**	**849.5**	**406.4**
Other implementation costs					
Stop Before It Gets Ugly campaign	DPC	▪ Creative development ▪ Media services	0.0	2,447.2	0.0
Sub-total			**0.0**	**2,447.2**	**0.0**
Total			**636.3**	**5,380.8**	**2,717.9**

Note: All costs have been adjusted to 2015 dollars using the General Government Final Consumption Expenditure (GGFCE) Index

(a) Changes to police practices have been resourced from within existing budgets.

(b) The costs for the Safe Space Ambassador program exclude private funding of the program.

* indicates an ongoing implementation cost. n.a. = not available.

Data source: DPC (2015), DoJ (2016c), City of Sydney (2016b), L&GNSW (2015), TfNSW (2016b).

The most significant costs occurred in the first full financial year of the Plan (2014-15). Since then the costs have reduced to $2.7 million, of which $2.6 million is identified as ongoing recurrent spending.

6.2.2 Implementation costs to industry

Implementation costs to industry include the compliance costs incurred by licensed premises and/or their employees to meet the operational requirements imposed under the Plan.

Through consultation and in Treasury's 2015 and 2016 licensed premises survey, industry stakeholders identified a number of costs associated with implementing the Plan (Table 6.5). The costs of providing additional staff training and obtaining staff RSA competency cards were identified as key costs to industry.

Other potential implementation costs and the rationale for inclusion or exclusion from the analysis are described below.

The key criteria used to determine whether an implementation cost will be included in the analysis are:

(1) -the cost is incurred as a result of the Plan and would not have occurred in the 'No Policy Change' scenario

(2) -there is a net cost to the state that is not offset through a transfer effect. For example, taxes and subsidies are considered to be transfers in benefit-cost analysis as the tax is a cost to business but a benefit to government which receives this tax as revenue.

Table 6.5: Description of implementation costs to industry

Cost Item	Included/ Excluded	Description and Rationale
RSA competency cards	Included	The roll out of the RSA competency cards was an initiative implemented under the Plan to tighten the integrity of RSA training and minimise the likelihood of fraudulent activity around RSA qualifications (OLGR, 2015). From 1 July 2014, all bar and wait staff working in the CBD precinct were required to undergo RSA renewal training and were provided with an RSA competency card as evidence of this achievement. The cost of obtaining RSA competency cards is paid by the employee receiving the training, or in some instances by the employing venue (at their discretion).
Staff training	Included	Consultation with industry stakeholders highlighted the complexity of the Plan, particularly measures introduced after midnight such as drink restrictions, which posed practical challenges for venue staff who are required to be acutely aware of the time and the various restrictions imposed at different times throughout the night (e.g. no shots after midnight, limits on the number of drinks per patron after midnight and 2:00am etc.). There was a perception among survey respondents and stakeholders consulted that a significant amount of knowledge is required by staff to ensure compliance. Staff training was highlighted by industry as an implementation cost and has been included in the analysis.
Application for exemptions	Included	Licensed premises are able to apply for an exemption to the various measures. Applications are now assessed by L&GNSW (and previously by the regulator OLGR), with input from police, using a risk reduction perspective. As at June 2016, exemptions had been granted to 16 venues in the CBD (L&GNSW, 2016c). This is a voluntary process, and the time spent by business on preparing applications is a cost to business.
Exemption fees	Excluded	Exemption application fees cost $500 per application. These fees are a cost to business; however fees are also a revenue (and benefit) to government. On this basis exemption fees are considered to be a benefit-cost transfer and have been excluded.

Cost Item	Included/ Excluded	Description and Rationale
On-premises CCTV	Excluded	Exemptions to the conditions of the Plan are given in limited circumstances if a venue can ensure that they will comply with alternative measures to reduce the risk of alcohol-related violence. Additional CCTV coverage has been a key mitigation measure that has been adopted by venues granted exemptions. However, at the state level, while a cost to business CCTV technology and installation are also a benefit to other businesses that are providing these services. As such, this is viewed as an economic transfer and has been excluded from the analysis.
Polycarbonate drinkware	Excluded	Certain licensed premises who are listed as designated venues must remove all glass drinking vessels from patrons and any general area of the premise that patrons have access to during late trading periods. Designated premises are required to purchase polycarbonate drinkware to replace glassware in the after midnight service period. The one-off cost to business of purchasing polycarbonate drinkware was considered as part of the analysis. However, consultation with L&GNSW found that whilst some venues in the CBD precinct do have a requirement to comply with this condition, these requirements were already in place prior to the Plan. There have been no new venues that have been designated to comply with this requirement since the Plan came into effect and therefore no additional marginal costs incurred since February 2014.
Security staff	Excluded	To ensure compliance with the 1:30am lock out some venues indicated employing more security staff. However, overall the licensed premises survey (2015) found there was a net reduction in the number of security staff employed in the precinct compared with 2013. As such, this has been excluded from the analysis.
On-premises signage and advertising	Excluded	Additional signage and advertising within premises to ensure patron awareness of the measures is a requirement of the Plan. When the Plan was introduced, OLGR provided all signage at no cost to venues. These costs are included in the costs to OLGR (see Table 6.4).

Key information and assumptions for estimating the costs of providing staff competency cards and additional staff training, as well as exemption applications are provided below.

RSA competency cards

RSA competency cards can be renewed for a fee of $35 (L&GNSW, 2016h). This cost is paid by the employee receiving the training, or in some instances by the employing venue (at their discretion). Data collected for Treasury's 2016 licensed premises survey included the average number of employees in 2015 compared with 2013 by venue size and type. This data was used to estimate the total number of bar and wait staff employees in the CBD precinct in 2014-15.

It is estimated there were approximately 15,000 bar and wait staff employed in the CBD precinct in 2014-15 and the cost of implementing RSA competency cards in the precinct (at a cost of $35 per staff member) was $535,518.

Costs of this element of the Plan are considered to be one-off to staff employed in the CBD precinct in 2014-15 as RSA competency cards have since become a state-wide initiative.

Staff training

Significant and ongoing staff training was highlighted by industry as an implementation cost. This was particularly the case for bar and wait staff employed after midnight, as drink restrictions (e.g. no shots after midnight, limits on the number of drinks per patron after midnight and 2:00am etc.) and the 1:30am lock out posed practical challenges for venue staff.[37]

[37] It is acknowledged that some high-risk venues had similar restrictions and requirements of trade, in which case staff training would have been an ongoing cost rather than an additional cost.

Consultation with industry stakeholders indicated the additional costs were approximately $800 to train 30 staff. This equates to approximately 1.5 hours of training per staff member on an award wage rate of $18.21 per hour. [38]

Data collected for Treasury's 2016 licensed premises survey was used to estimate the total number of bar and wait staff employed after midnight in the CBD precinct in 2014. In 2014-15, it is estimated there were 5,604 bar and wait staff employed over the course of a year after midnight in the CBD precinct. The cost of additional staff training was estimated to be $153,077 in 2014-15. Some of this cost is likely to be an additional ongoing cost to business each year for new staff employed.

Applications for exemptions

Venues are able to apply for an exemption to the various measures of the Plan. As at June 2016, exemptions had been granted to 16 venues in the CBD (L&GNSW, 2016c).

It is acknowledged that the process of applying for the exemptions is also a cost to business. Using an approximate time spent method, it is estimated that the costs to business per application is approximately $2,160 per application (assuming a standard hourly rate for a mid-level manager in the hospitality industry to draft an application over a two week period). This equates to an estimated total cost of $34,560 in application drafting costs to business (assuming 16 venue applications as above).

Summary

The above requirements came into effect from 1 July 2014 and costs are summarised in Table 6.6.

Table 6.6: Estimated implementation costs to industry

Cost Item	Estimated cost ($)
RSA competency cards	535,518
Staff training	153,077
Exemption applications	34,560
Total	**723,155**

Note: Data reported in 2015 dollars. Estimates are for the February 2014 to December 2015 period.

6.2.3 Valuing the impact on the criminal justice system

To determine the impact of the Plan on the criminal justice system the analysis of the alcohol-related assault dataset presented in Chapter 4 was used to determine:

- the 'CBD precinct Plan' Scenario that was the alcohol-related assault trend observed post implementation of the Plan
- the 'No Policy Change' Scenario that assumes that the alcohol-related assault trend observed prior to the Plan continues into the post-Plan period.

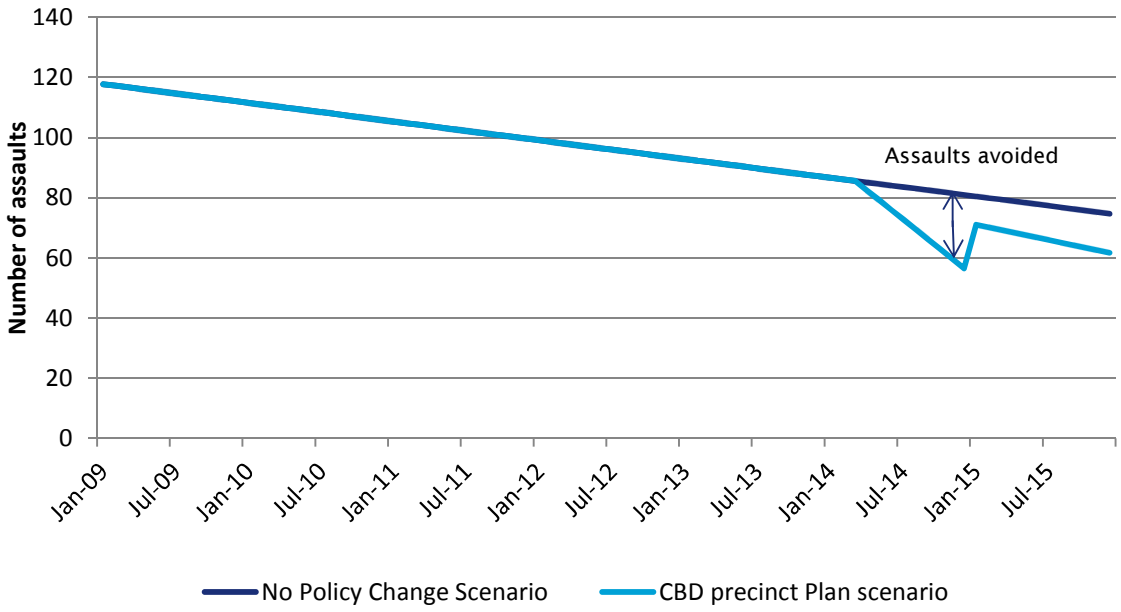
The difference between the two scenarios is the number of assaults avoided as a result of the Plan. When valuing the impacts for the criminal justice system, only changes in assaults which were likely to be attributed to the Plan (i.e. the statistically significant results) were used.

To illustrate, Figure 6.1 shows the alcohol-related assaults in the CBD precinct under the two scenarios. The number of assaults that occurred in the CBD precinct following the Plan's implementation declined more sharply than the number of assaults that would have occurred if the Plan was not implemented (shown by the No Policy Change Scenario). The difference between the two lines is the assaults avoided.

The estimates are summarised in Table 6.7.

[38] Food and beverage attendant Grade 1 (Fair Work Ombudsman, 2016).

Figure 6.1: Alcohol-related assaults in the CBD precinct



Data source: BOCSAR (2016)

Table 6.7: Estimated assault change by area

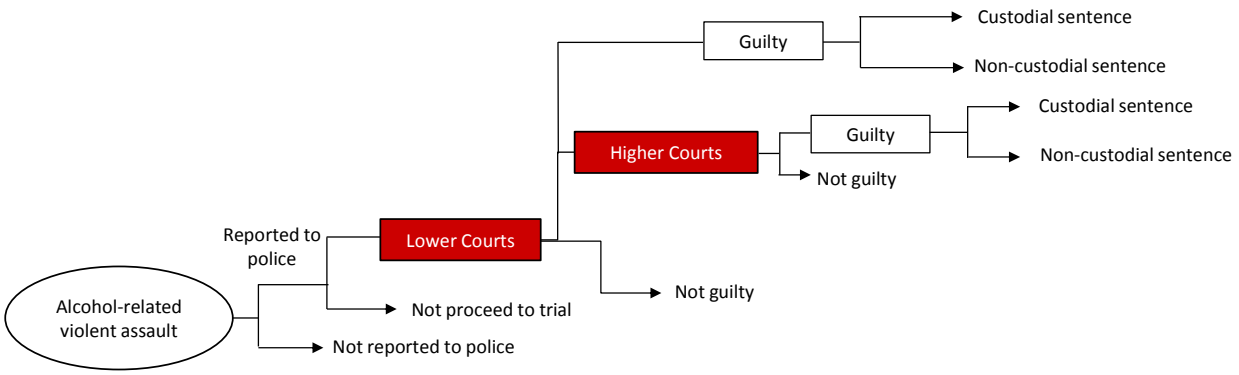
Area	Data series used	Change	Estimated Impact Assault number
CBD precinct	Alcohol-related, non-domestic	Decrease	-183
Displacement area	Alcohol-related, non-domestic	Increase	36

Note: Estimates are for the February 2014 to December 2015 period.

The number of assault changes (shown in Table 6.7 above) were used to estimate the value of the impact of the Plan on the criminal justice system, including police, court and correctional resources.

To estimate this impact, it is acknowledged that resource costs may differ depending on the criminal justice system pathway taken. Figure 6.2 shows eight possible post-crime outcomes for offenders. The probability of each of these outcomes occurring for offenders where the principal offence is assault was determined using the Australian Bureau of Statistics (ABS) NSW criminal court outcomes statistics presented in Table 6.8. These probabilities were applied to the estimated assault numbers shown in Table 6.7 to determine the likelihood and type of pathway and associated costs avoided as a result of the reduction in assaults.

Figure 6.2: Criminal justice system pathways



Note: This figure has been modified from the justice system probability pathways depicted in Byrnes et al. (2012)

Table 6.8: New South Wales criminal justice system probability pathways for assaults

Justice system pathway	% of Assaults (2014 15)
Police reporting outcomes	
Reported crime does not proceed to trial	5.3
Reported crime proceeds to trial	94.7
Lower court outcomes	
Lower court finds guilty – awards custodial sentence	*18.4*
Lower court finds guilty – awards non-custodial sentence	*51.5*
Lower court finds not guilty	*22.4*
Higher court outcomes	
Higher court finds guilty – awards custodial sentence	*1.9*
Higher court finds guilty – awards non-custodial sentence	*0.2*
Higher court finds not guilty	*0.3*

Data source: ABS (2016a, 2016c)

Each of these pathways is costed for police, court and correctional resources as shown in Table 6.9. The methodology for how these averages were derived is described below.

Table 6.9: New South Wales average costs for acts intended to cause injury

Justice system pathway	Police Investigation cost ($)	Police Judicial support cost ($)	Court cost ($)	Correctional cost ($)
Reported crime does not proceed to trial	4,902	n.a.	n.a.	n.a.
Lower court outcomes				
Lower court finds guilty – awards custodial sentence	4,902	2,813	1,122	80,961
Lower court finds guilty – awards non-custodial sentence	4,902	2,813	1,122	9,169
Lower court finds not guilty	4,902	4,158	1,658	n.a.
Higher court outcomes				
Higher court finds guilty – awards custodial sentence	4,902	10,676	30,952	80,961
Higher court finds guilty – awards non-custodial sentence	4,902	10,676	30,952	9,169
Higher court finds not guilty	4,902	12,082	37,387	n.a.

Data source: ABS (2015, 2016a, 2016c); NSW Audit Office (2013); Productivity Commission (2016), Taylor and Bareja (2002)

Note: Data reported in 2015 dollars.

Police resource costs

In the absence of detailed police costings, the value of NSW police investigation and judicial support activities is estimated using State level police data of historical expenditure (sourced from the Productivity Commission, 2016) by activity type (NSW Audit Office, 2013).

These expenditure estimates were then used to determine the average cost of police investigation and judicial support activities based on the following methods.

Average investigation costs per assault

To determine average police investigation costs per assault, it was necessary to estimate at the State level the total police time allocated to investigating assaults. It is recognised that some offence categories have higher investigation resource commitments than others and a suitable proxy was sourced to allow for this resource allocation to be adequately recognised. In the absence of actual investigation time data, average police custody hours by offence type were used as a proxy to weight police resources by offence category (Taylor and Bareja, 2002). This method has been used in other Australian crime studies (Byrnes et al., 2012; Collins et al., 2008). The police resource weightings were applied to total police proceedings by offence category to estimate resource allocations for each offence category.

The estimated offence category allocations were then applied to the total estimated police investigation expenses in 2014-15 to determine the value of investigation resource allocations for each offence category.

Average costs for assault investigations were determined by dividing the total estimated value of resources allocated to assaults by the number of police proceedings where assault was the principal offence. Average police investigation costs are summarised in Table 6.9.

The formulas for determining the average investigation costs per assault are:

$$V_{assault} = \frac{P_{assault} X T_{assault}}{P_{total} X T_{total}} X E_{investigation}$$

$$Average\ investigation\ costs\ per\ assault = \frac{V_{assault}}{P_{assault}}$$

Where: -

$T_{assault}$ = Average time in custody for assault cases -

T_{total} = Average time in custody for all offence types

$P_{assaults}$ = Number of police proceedings for assaults

P_{total} = Number of police proceedings for all offence types

$E_{investigation}$ = Total value of police expenditure on investigations

$V_{assault}$ = Total value of police time on assault investigation activities

Average judicial costs per assault

ABS Criminal Courts data (ABS, 2016c) were used to determine the average cost of police judicial support for assault cases proceeded against. Average court time to finalisation for court types and offence categories at the national level was used to determine the average police time spent on judicial activities by offence type. Average police time by offence category was applied to the number of NSW court cases (for each type of offence) to determine the total NSW police resource time commitment to judicial inquiry in NSW.

The average costs of judicial support for court cases where assault was the principal offence were determined by dividing the total estimated value of NSW police judicial support resources by the estimated police time commitment to support judicial activities of assault cases.

Average police judicial support costs are summarised in Table 6.9.

The formulas for determining the average judicial support costs per assault are:

$$V_{assault} = \frac{C_{assault} X T_{assault}}{C_{total} X T_{total}} X E_{judicial\ support}$$

$$Average\ judicial\ support\ costs\ per\ assault = \frac{V_{assault}}{C_{assault}}$$

Where:

$T_{assault}$ = Average time to court case finalisation for assaults

T_{total} = Average time to court case finalisation for all offence categories

$C_{assault}$ = Number of court cases finalised for assaults

C_{total} =Number of court cases finalised for all offence categories

$E_{judicial\ support}$ = Total value of police expenditure on judicial support

$V_{assault}$ = Total value of police time on assault judicial support activities

Court costs

ABS Criminal Courts data (ABS, 2016c) were used to determine the average criminal court costs for assault cases proceeded against. The methodology used an average court time to finalisation approach (outlined for average judicial costs per assault above) to determine court resource allocations by court level and offence type in NSW.

The average cost for assault cases finalised in lower and higher courts were determined by dividing the total criminal court recurrent expenditure for 2014-15 by the estimated court commitment to assault cases finalised in 2014-15. Average court costs are summarised in Table 6.9.

The formulas for determining the average court costs are:

$$V_{assault} = \frac{C_{assault} X T_{assault}}{C_{total} X T_{total}} X E_{criminal\ courts}$$

$$Average\ \ court\ costs = \frac{V_{assault}}{C_{assault}}$$

Where:

$T_{assault}$ = Average time to court case finalisation for assaults

T_{total} = Average time to court case finalisation for all offence categories

$C_{assault\ =}$ Number of court cases finalised for assaults by court level finalised

$C_{total\ =}$ Number of court cases finalised for all offence categories by court level finalised

$E_{criminal\ courts}$ = Total value of criminal court expenditure

$V_{assault}$ = Total value of court time by court level

Correctional costs

The average NSW correctional costs are $237 per day in a custodial (prison) setting and $27 per day for community corrections (Productivity Commission, 2016). Furthermore, the expected time to serve for acts intended to cause injury is estimated as one year (ABS, 2015), equating to an estimated cost of $86,628 in custodial corrections costs and $9,811 in non-custodial sentencing costs where the court finds the offender guilty.

The formula for determining the average correctional costs is:

$$Average\ correctional\ cost\ per\ assault\ (guilty\ verdict) = K_{daily}\ X\ T_{ETS}$$

Where: -

K_{daily} = Average correctional cost per day -

T_{ETS} = Expected time to serve (days) for assaults

The average time in remand before time is served is approximately 11 months from the date of the incident (ABS, 2015). In the benefit-cost model, correctional costs are incurred within the year of the incident, and are discounted accordingly. The table below shows the average correctional costs (discounted at 7%).

In recognition of the recent changes in Minimum Mandatory Sentencing a further scenario taking into account longer periods served is also modelled in the Sensitivity Analysis (see Section 6.4.1) to determine how the costs of extended sentencing affect the results.

Summary

These averages presented in Table 6.9 are applied to the estimated assault impact (see Table 6.7) and court proceeding probability weightings (Table 6.8). The value of costs and benefits to police, courts and corrective services are summarised in Table 6.10.

Total benefits are reflective of costs avoided as a result of statistically significant reductions in assaults in the CBD precinct. Total costs are reflective of increases in assaults in the close displacement area outside the CBD precinct.

Table 6.10: Estimated costs and benefits to NSW criminal justice system

Cost item	Change	Estimated Impact Assault number[(a)]	Estimated value ($ m)		
			Police	Courts	Correctional
CBD precinct	Decrease	-183	1.5	0.4	3.9
Displacement area	Increase	36	0.3	0.1	0.8
Total benefits (costs avoided)			**1.5**	**0.4**	**3.9**
Total costs			**0.3**	**0.1**	**0.8**

Note: Data reported in 2015 dollars. Estimates are for the February 2014 to December 2015 period.

6.2.4 Valuing the impact on health services

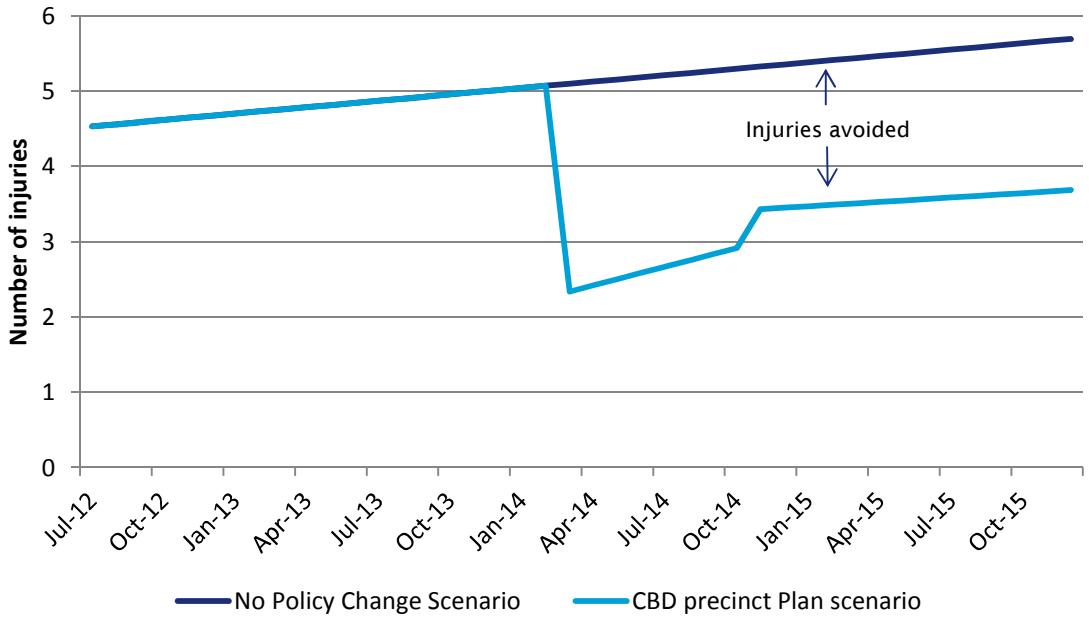
To determine the impact of the Plan on the NSW Health service, the linked NSW Ambulance and NSW Health dataset (presented in Chapter 5) was used to establish:

- the CBD precinct Plan Scenario that was the injury trend observed post implementation of the Plan
- the No Policy Change Scenario that assumes that the average injury trend observed prior to the Plan continues into the post-Plan period.[39]

The difference between the two scenarios is the number of injuries avoided as a result of the Plan. When valuing the impacts to health services, only changes in injury which were likely to be attributed to the Plan (i.e. those found to be statistically significant) were used.

For example, Figure 6.3 shows the injuries under the CBD precinct Plan Scenario and the No Policy Change Scenario for severe and critical alcohol-related injuries that occurred during the HAT period in the CBD precinct. In this instance, the reduction in injuries in the post-Plan period represents injuries avoided when compared with the No Policy Change Scenario trend. The difference between the two lines shows the injuries avoided and are summarised in Table 6.11.

Figure 6.3: Severe and critical alcohol-related injuries during HAT periods in the CBD precinct



Data source: (NSW Ambulance, 2016a; NSW Health, 2016)
Note: The No Policy Change scenario is a projection and based on the continuation of historical pre-Plan trends.

[39] The injury trend data was available for the February 2014 to June 2015 period. The July 2015 to December 2015 period is projected based on the historical trend observed for the post-Plan period (February 2014 to June 2015).

Table 6.11: Estimated injury change by type and area

Area / injury type	Data series used	Change	Estimated Impact Injury number(*)
CBD precinct			
Severe and critical injuries	Alcohol involved, HAT period	Decrease	-48
Potentially serious and less urgent injuries	Alcohol involved, HAT period	Decrease	-8
Displacement area			
Severe and critical injuries	Alcohol involved, HAT period	Decrease	-51
Potentially serious and less urgent injuries	Alcohol involved, Weekends	Increase	19

Note: * Estimates are for the February 2014 to December 2015 period.

The magnitude of injury changes (shown in Table 6.11) were used to estimate the value of the impact of the Plan to the various areas of the health system, including estimating the value of these changes to ambulance, emergency department and hospital resources.

The costing methodology for each of these is described below.

Ambulance service costs

Using the NSW Ambulance full cost recovery fees and charges guideline (NSW Ambulance, 2016b), it is estimated that a standard callout for an emergency is $700 per call-out, and then an average variable rate of $6.31 per kilometre.

NSW Health emergency department data shows that the majority of incidents that occur in the CBD precinct and surrounding area are transported to St Vincent's Hospital in Paddington before returning to the nearby Paddington ambulance centre. Based on return rates (and an average distance of 6km travelled), the estimated cost per incident to NSW Ambulance is $737.86.

This average cost has been applied to the estimated injury impact identified in Table 6.11. The value of costs and benefits to the NSW Ambulance service are summarised in Table 6.12.

Table 6.12: Estimated costs and benefits to NSW ambulance service

Cost Item	Change	Impact Injuries number (n)	Estimated value ($)
CBD precinct			
Severe and critical injuries	Decrease	-48	-35,319
Potentially serious and less urgent injuries	Decrease	-8	-5,905
Displacement area			
Severe and critical injuries	Decrease	-51	-37,280
Potentially serious and less urgent injuries	Increase	19	14,122
Total benefits (costs avoided)			**78,504**
Total costs			**14,122**

Note: Reported in 2015 dollars. Estimates are for the February 2014 to December 2015 period.

Emergency Department and hospital (admitted patient) costs

The District and Network Return Data Collection was provided by NSW Health as part of the NSW Health data linkage process described in Chapter 5. This data provided actual patient costs of the cohort examined and was used to determine:

- the proportion of alcohol-related injury patients admitted to hospital following admission to the emergency department
- the average emergency department and admitted patients costs of alcohol-related injuries that occurred during the HAT period.

These data were used to determine average per incident costs to health services.

Data was also available for all further emergency department and hospital admissions for the patient cohort up to one year following the incident. This data was examined to determine any other ongoing short-term primary health care service costs incurred by individuals that were identified to have experienced alcohol-related injuries in the CBD precinct and surrounding areas.

It should be noted that the average 'other short-term incident' costs were based on all presentations by the patient cohort following their initial presentation. The causal, ongoing effects of re-presentation were not considered and some of these costs may have been incurred by patients for unrelated injuries. As such, the other short-term costs have been excluded from the results tables in Section 6.3 , however are used in the sensitivity testing to demonstrate how additional short-term health costs avoided (benefits) may affect the results.

Average individual incident costs and other short-term health services costs are summarised in the table below.

Table 6.13: Average health services costs, emergency department and hospital

Cost Item	Emergency department costs ($)	Admitted patient costs ($)
Average incident costs[(b)]		
CBD precinct		
Severe and critical injuries	1,260	3,460
Potentially serious and less urgent injury	394	2,565
Displacement area		
Severe and critical injuries	1,295	7,206
Potentially serious and less urgent injury	554	2,183
Other short-term costs[(c)]		
CBD precinct		
Severe and critical injuries	6,044	19,346
Potentially serious and less urgent injury	5,810	20,059
Displacement area		
Severe and critical injuries	9,013	34,948
Potentially serious and less urgent injury	6,072	16,866

Data source: NSW Health (2016)

Note: Reported in 2015 dollars.

Average cost data was based on the actual patient data provided during the data linkage process described in Chapter 5.

(a) Average incident costs = the average costs incurred at the time of the alcohol-related incident.

(b) Other short-term costs = the average costs incurred due to re-presentation in the year following the incident. As these short-term costs may or may not reflect the initial alcohol-related injury, these costs are only used as a 'high health benefit' scenario presented in the sensitivity section of this report.

These averages are applied to the estimated injury impact identified in Table 6.11. The value of costs and benefits to emergency department and hospital service are summarised in Table 6.14 below.

Table 6.14: Estimated costs and benefits to the Emergency Department and Hospital Services

Cost Item	Change	Impact Injuries number	Incident costs ($)	Other short term costs[a] ($)
CBD precinct				
Severe and critical injuries	Decrease	-48	97,737	217,947
Potentially serious and less urgent injury	Decrease	-8	4,358	53,093
Displacement area				
Severe and critical injuries	Decrease	-51	160,800	1,036,538
Potentially serious and less urgent injury	Increase	19	15,980	158,470
Total benefits (costs avoided)			**262,895**	**1,307,577**
Total costs			**15,980**	**158,470**

Data source: NSW Health (2016)

Note: Reported in 2015 dollars. Estimates are for the February 2014 to December 2015 period. (a) Other short-term costs are only used in the 'high health benefit' scenario presented in the sensitivity section of this report.

Additional outpatient costs are not included in the above estimates. However, as many of these costs are paid as out-of-pocket expenses by individuals (e.g. services for physiotherapy, etc), these are likely to be captured within the costs to individuals described in the section below.

Valuing health and lifestyle benefits individuals

In addition to health services costs, this analysis recognises there are further personal costs to individuals when they experience harm. These costs can include both tangible and intangible costs to individuals (and their families), particularly when the injury is serious or critical, requiring a period of recovery, or resulting in permanent disability or death.

To estimate these costs, a 'willingness to pay' (WTP) approach has been used to value the impact of the Plan on individuals. A WTP approach is used to calculate the social cost of death or injury and does this by establishing how much society is willing to pay to reduce the risk (or avoid) fatality or serious injury. This method is preferred to other traditional approaches, such as a human capital approach, as it provides a more representative value of costs to individuals as it takes into consideration other general wellbeing factors, not just earnings and productivity.

To estimate these costs, two alternative WTP estimates have been considered:

- WTP estimates based on the value of a statistical life year. This is the value that society is willing to pay to reduce the risk of premature death by one year based on research reported by the Office of Best Practice Regulation (OBPR) (2014).
- WTP estimates based on the WTP to avoid death and/or injury in road crashes. These estimates are based on road safety research and can be found in the TfNSW Economic Appraisal Guidelines (TfNSW, 2015c).

These estimates are described further below.

Value of a statistical life year saved – WTP estimates

The value of a statistical life year estimates draw upon international and Australian research to determine a credible estimate of a statistical life year (OBPR, 2014).

The value of a statistical life is estimated to be $4.3 million representing an average value for a healthy person to live another 40 years (OBPR, 2014). The value of a statistical life year saved is estimated as $185,119 (in 2015 dollars) (OBPR, 2014) and represents the value that society places on preventing one premature death by one year.

For the purposes of this analysis it was assumed that these estimates were relevant for patients that experienced severe or critical injuries only. These patients have a higher likelihood of longer term or extended recovery indicated by longer hospital stays, type and severity of injury.

WTP estimates have not been applied to patients with potentially serious to less urgent injuries, as only 5.9% of these patients were admitted to hospital.

Road safety sector – WTP estimates

This method draws largely upon research undertaken by the Australian Road Safety sector to determine the value that individuals place on avoiding the risk of death or injury in road crashes (TfNSW, 2015a).

The estimates per incident have been taken from the TfNSW Economic Appraisal Guidelines (2015b) that are shown in Table 6.15.

Table 6.15: WTP of individuals to avoid death or injury

Cost Item	Road safety sector estimates WTP per incident avoided ($)
Serious injury risk reduction	475,833
Other injury	78,919

Data source: TfNSW (2015b)
Note: Reported in 2015 dollars.

However, caution should be taken when using these estimates as they may not be directly transferable from road accident injuries to alcohol-related injuries in an urban entertainment setting such as the CBD precinct, and thus may over or under estimate the value of benefits to individuals. Accordingly, the value of a statistical life year WTP estimate is considered to be a more conservative estimate and has been used to determine the results presented in Section 6.4.2. The road safety sector estimates have been included in the sensitivity section of the analysis as a high individual benefit scenario to demonstrate the value of other potential benefits to individuals.

Summary

As for health sector costs discussed in Section 6.2.4 the above estimates were applied to the statistically significant reductions in injuries observed within the CBD precinct to estimate the costs avoided (benefits) to individuals of these reductions. These estimates were also applied to the observed changes in injuries in the proximal displacement area. The value of costs and benefits to individuals are summarised in Table 6.16.

Table 6.16: Estimated avoided costs (health and lifestyle benefits) to individuals

Cost Item	Change	Impact Injuries number	Estimated value ($ million)	
			Value of a statistical life year saved WTP[(a)]	Road safety sector estimates WTP
CBD precinct				
Severe and critical injuries	Decrease	-48	-15.6	-22.8
Potentially serious and less urgent injury	Decrease	-8	0.0	-0.6
Displacement area				
Severe and critical injuries	Decrease	-51	-17.6	-24.0
Potentially serious and less urgent injury	Increase	19	0.0	1.5
Total benefits (costs avoided)			33.1	**47.4**
Total costs			0.0	**1.5**

Note: Reported in 2015 dollars. Estimates are for the February 2014 to December 2015 period. (a) Estimates have not been applied to potentially serious and less urgent injuries as only a small proportion of these are admitted to hospital.

6.2.5 Other impacts

As identified in Table 6.3, a range of other tangible and intangible costs and benefits are relevant for consideration. These are summarised below.

Impacts to consumers

The Plan has likely impacted consumers by restricting consumer choices, particularly for consumers that visit the precinct after midnight. The measures do this by restricting the availability and range of alcoholic beverages that can be purchased by patrons after midnight; and also by preventing entry and re-entry to venues after 1:30am.

Determining the magnitude of consumer choice impacts and how consumer behaviour may be affected is complex. In this instance, the magnitude of consumer impacts is unknown due to limited data available to identify the size of the consumer group impacted or determine the value that consumers place on having no restrictions on drink choices after midnight or on their movement between venues in the CBD precinct after 1:30am.

The feedback from Treasury's 2016 licensed premises survey and the pedestrian count data indicates there may have been some declines in patronage and foot traffic in the CBD precinct since the introduction of the Plan. While these declines may be attributed to a wide range of factors such as changing consumer preferences in favour of other entertainment precincts, they may also reflect changes in consumer behaviour due to reduced consumer choice in the CBD precinct.

In the absence of robust data to measure and value this impact, consumer choice impacts have not been valued in the benefit-cost analysis results presented in Section 6.3 . This is a limitation of the economic evaluation, and the analysis may under estimate the costs. Any negative impacts to consumers if included in the modelling would result in a decrease in the net benefits quantified.

Impacts to business

In the context of the benefit-cost analysis framework where impacts are valued from the State perspective, it is assumed that any lost profits after midnight by licensed premises located in the precinct are being transferred elsewhere in the economy by:

- displacement of consumer spending to earlier in the evening or day
- displacement of consumer spending to licensed premises outside the CBD precinct
- substitution of consumer spending to other goods and services (such as other types of entertainment venues).

Such displacement or substitution represents a redistribution of consumer spending within the State. In benefit-cost analysis, this is known as the transfer effect and is considered to carry no net impact on the NSW economy.

Impacts to residents

As discussed in Chapter 8, consultation with a resident group representative in the northern end of the CBD indicated there have been modest improvements in their local area since the Plan was introduced. This was related to a reduction in late-night revellers passing through the area and a concomitant reduction in noise. Notably, the representative did not identify any significant alcohol-related issues in their area prior to the Plan being introduced. The resident representative also indicated that alcohol-related issues were not of great concern to their group.

As a result, no solid conclusions about the impacts of the Plan on residents could be drawn. Impacts to residents have therefore not been quantified.

Live music and cultural impact

Due to a lack of high quality data, the impact of the Plan on the live music industry has not been included in the modelling. As outlined in Chapter 9, there is evidence that the sector has experienced decreased activity in the CBD precinct since the Plan came into effect; however, there is not sufficient evidence to confirm if these declines are attributable to the Plan or in response to broader factors.

As the live music sector is of cultural value to the wider community, any net negative impacts to the sector if included in the modelling would result in a decrease in the net benefits quantified.

6.3 Results

6.3.1 Present value of benefits

Table 6.17 outlines the present value of identified benefits associated with the Plan for the February 2014 to December 2015 period.

The present value of benefits is estimated as $41.4 million at a discount rate of 7% in line with NSW Government guidelines for economic appraisal (NSW Treasury, 2007). The greatest value of these benefits ($33.1 million) is the value to individuals of having avoided injury. The remaining benefits ($8.3 million) are to government due to avoided costs of service delivery. In many instances, these benefits may not be reflected by a reduction in total expenditure by these agencies but as resources saved and reallocated more efficiently to other activities.

Table 6.17: Present value of benefits

Benefits	PV of benefits ($ 000)[a]		
	4% Discount rate	7% Discount rate	10% Discount rate
Government			
Criminal justice system (costs avoided)			
Police	2,067.6	2,067.6	2,067.6
Courts	491.7	491.7	491.7
Correctional	5,578.2	5,421.8	5,273.9
Sub-total	8,137.4	7,981.0	7,833.2
Health system (costs avoided)			
Ambulance	41.2	41.2	41.2
Emergency Department	118.3	118.3	118.3
Hospital (admitted patients)	128.6	128.6	128.6
Sub-total	288.1	288.1	288.1
Total benefits government	8,425.6	8,269.2	8,121.3
Community			
Total benefits to individuals	33,135.9	33,135.9	33,135.9
Total Benefits	**41,561.4**	**41,405.1**	**41,257.2**

Note: Results are reported in 2015 dollars. Results are for the February 2014 to December 2015 period. (a) As this is an ex-post evaluation the majority of benefits and costs are not incurred in the future (with the exception of correctional costs). As such, the results are not sensitive to changes in the discount rate.

6.3.2 Present value of costs

Table 6.18 outlines the present value of identified costs associated with the Plan of Management for the February 2014 to December 2015 period.

The present value of costs is estimated as $11.6 million at a discount rate of 7%. The largest costs ($8.7 million) are implementation costs for government. The remainder of costs are for impacts relating to displacement resulting in costs to the criminal justice system ($2.2 million); as well as $0.7 million in implementation costs to business.

Table 6.18: Present value of costs

Costs	PV of costs ($ 000)[a]					
	4%	Discount rate	7%	Discount rate	10%	Discount rate
Government						
Implementation costs						
State Government						
DoJ		-190.4		-190.4		-190.4
L&GNSW (previously OLGR)		-4,075.9		-4,075.9		-4,075.9
DPC		-2,447.2		-2,447.2		-2,447.2
TfNSW		-675.3		-675.3		-675.3
Local Government – City of Sydney		-1,346.1		-1,346.1		-1,346.1
Sub-total		-8,734.9		-8,734.9		-8,734.9
Criminal justice system (displacement)						
Police		-567.9		-567.9		-567.9
Courts		-135.1		-135.1		-135.1
Correctional		-1,532.1		-1,489.2		-1,448.5
Sub-total		-2,235.1		-2,192.1		-2,151.5
Health system (displacement)						
Sub-total		23.2		23.2		23.2
Total costs government		-10,946.8		-10,903.9		-10,863.3
Industry						
Implementation costs		-723.2		-723.2		-723.2
Community						
Total costs to individuals (displacement)		0.0		0.0		0.0
Total Costs		**-11,670.0**		**-11,627.0**		**-11,586.4**

Note: Results are reported in 2015 dollars. Results are for the February 2014 to December 2015 period. (a) As this is an ex-post evaluation the majority of benefits and costs are not incurred in the future (with the exception of correctional costs). As such, the results are not sensitive to changes in discount rate.

6.3.3 Summary of benefit-cost analysis results

Table 6.19 shows the NPV of the CBD Plan of Management is estimated to be a net benefit of $29.8 million at a 7% discount rate for the February 2014 to December 2015 period. The Plan also has a BCR of 3.6, which implies a return in present value terms of $3.60 for every dollar cost. The Plan also returns a positive NPV for discount rates of 4% and 10%.[40]

The positive NPV is reflective of net reductions in alcohol-related assaults and injuries that occurred in the CBD precinct and the resulting high value of benefits (costs avoided) to individuals, health care services and the criminal justice system.

Table 6.19: NPV and BCR of the Plan

Indicator	Results[a]					
	4%	Discount rate	7%	Discount rate	10%	Discount rate
PV Benefits ($'000)		41,561.4		41,405.1		41,257.2
PV Costs ($'000)		-11,670.0		-11,627.0		-11,586.4
Total NPV ($'000)		29,891.5		29,778.0		29,670.8
BCR		3.6		3.6		3.6

Note: Results are reported in 2015 dollars. Results are for the February 2014 to December 2015 period. (a) As this is an ex-post evaluation the majority of benefits and costs are not incurred in the future (with the exception of correctional costs). As such, the results are not sensitive to changes in discount rate.

[40] - This is an ex-post evaluation and only future correctional costs are subject to discounting. Changes of discount rate thus have minimal impact upon the result.

In addition, the annual NPV (excluding sunk costs) is estimated as $10.0 million with a BCR of 3.8 at a discount rate of 7%.

6.4 Sensitivity analysis

A range of input variables were examined to determine the sensitivity of benefit-cost analysis results to input changes. Sensitivity testing was undertaken on the input variables where data was not robust or was subjective.

Key input variables that were tested for their influence on the model result include:

- changes to mandatory minimum sentencing and the impact on correctional costs
- other short-term health services costs for patients who had an alcohol-related injury
- alternative WTP estimates for valuing health and lifestyle benefits to individuals.

Findings from this analysis are provided in the sub-sections below.

6.4.1 Introduction of mandatory minimum sentencing

New minimum mandatory sentencing was introduced in February 2014 for serious alcohol-related or drug-fuelled violent offences and will result in longer sentences (NSW Government, 2014b). To account for these changes, a longer average sentence and expected time to serve has been estimated and applied to the correctional cost analysis presented in Section 6.2.3 .

This scenario results in a more significant decline in correctional costs or additional costs avoided (or benefits) to the criminal justice system. The positive NPV and BCR are shown in Table 6.20.

Table 6.20: NPV and BCR – Mandatory Minimum Sentencing

Indicator	Results		
	4% Discount rate	7% Discount rate	10% Discount rate
PV Benefits ($'000)	47,723.8	47,173.7	46,668.0
PV Costs ($'000)	-13,362.6	-13,211.5	-13,072.6
Total NPV ($'000)	34,361.2	33,962.2	33,595.5
BCR	3.6	3.6	3.6

Note: Results are reported in 2015 dollars. Results are for the February 2014 to December 2015 period.

At a 7% discount rate, the impact of incorporating this cost into the analysis leads to a BCR of 3.6 and an NPV of $33.9 million.

6.4.2 Additional other short-term health costs

The average cost of the other ongoing short-term primary health care services in the year following the initial alcohol-related injury incident was determined as discussed in Section 6.2.4 However, these cost estimates were excluded from the analysis undertaken in Section 6.3 as there is limited evidence that these costs were incurred as a result of the initial alcohol-related injury incident and may be due to other unrelated factors.

As there was a net reduction in alcohol-related injuries, the inclusion of the additional 'other short-term health services' costs leads to additional costs avoided (or benefits). The positive NPV and BCR are shown in the table below and show the Plan achieves an estimated net benefit of $30.9 million at a discount rate of 7% and a BCR 3.7.

Table 6.21: NPV and BCR – Other short-term health costs

Indicator	Results					
	4%	Discount rate	7%	Discount rate	10%	Discount rate
PV Benefits ($'000)		42,710.6		42,554.2		42,406.3
PV Costs ($'000)		-11,670.0		-11,627.0		-11,586.4
Total NPV ($'000)		31,040.6		30,927.1		30,819.9
BCR		3.7		3.7		3.7

Note: Results are reported in 2015 dollars. Results are for the February 2014 to December 2015 period.

6.4.3 Impacts to individuals using WTP approach

The average costs to individuals using the WTP approach using road safety sector estimates (Section 6.4.3) were excluded from the results presented in Section 6.3 in favour of WTP estimates using the statistical value of a life year saved which is considered to be more conservative.

The inclusion of the road safety sector WTP estimates are considered to be a high benefit scenario for individuals. The inclusion of these benefits results in an NPV of $43.5 million and a BCR of 4.7 at a discount rate of 7%.

Table 6.22: NPV and BCR – Impact to individuals using WTP approach

Indicator	Results [(a)]					
	4%	Discount rate	7%	Discount rate	10%	Discount rate
PV Benefits ($'000)		55,243.9		55,087.5		54,939.6
PV Costs ($'000)		-11,670.0		-11,627.0		-11,586.4
Total NPV ($'000)		43,573.9		43,460.4		43,353.2
BCR		4.7		4.7		4.7

Note: Results are reported in 2015 dollars. Results are for the February 2014 to December 2015 period. (a) The change in discount rates does not materially influence results as the WTP estimates are not subject to discounting.

6.5 Conclusion

Benefit-cost analysis is a tool for determining whether a policy or program delivers a net benefit to the NSW community, which subsequently assists government decision makers to determine whether a policy or program should be continued, modified or substituted for a more favourable alternative option. Benefit-cost analysis conducted in this evaluation found that benefits of avoiding alcohol-related assault and injury outweigh the costs of implementing the Plan, resulting in an estimated net benefit of $29.8 million to the NSW community over the February 2014 to December 2015 period. A BCR of 3.6 was found, suggesting the Plan has achieved a return in present value terms of $3.60 for every dollar cost.

The net benefit derived from the Plan is primarily attributed to the benefits to community of avoiding harm, followed by benefits to government of avoiding the associated service delivery costs to the criminal justice and health services systems.

The sensitivity analysis suggests that the Plan continues to achieve a positive net present value even when other factors are taken into consideration. The sensitivity analysis shows that it is unlikely that the variables examined would dramatically influence the NPV and BCR results presented in Section 6.3.

Overall, the analysis shows the Plan has successfully delivered a net benefit to society.

7 Case Study: The CBD Precinct Environment

Key points

- Among many factors, the reductions in assaults and injury identified in Chapters 4 and 5 may be in part attributed to reduced alcohol consumption and intoxication, crowding and/or foot traffic. There is some indication of reductions in foot traffic and patronage of licensed premises in the Central Business District (CBD) precinct, though these data have limited representativeness and should be interpreted with caution.

Pedestrian activity

- Pedestrian activity data provided by the DoJ show that the CBD precinct experienced a 20% decline in foot traffic between 2014 (pre-Plan) and 2015 (post-Plan). Declines were experienced across all time intervals between midnight and 4:00am.
- Declines were experienced in 20 of the 23 count points, with Pyrmont Bridge being one of the few count points that showed a considerable increase in pedestrian activity (of 57.7%).

Licensed premises patronage

- Treasury's 2016 licensed premises survey indicated that day time and early evening (pre-9:00pm) patronage in the CBD has remained stable since the Plan was introduced; however night time patronage (post-9:00pm) has declined, particularly impacting hotels, nightclubs and other venues that trade after midnight.

As discussed in Chapter 2, the various elements of the Plan were intended to reduce the supply of alcohol and minimise the harms of alcohol consumption in the CBD precinct.

As key elements of the Plan (i.e. the 1:30am lock out and 3:00am cessation of service) were implemented in February 2014, this evaluation was unable to isolate the separate effects of each element on crime and injury. However, previous research has shown that in isolation, supply reduction strategies such as the restriction of venue trading and alcohol service hours are most effective in reducing alcohol-related harms (Kypri et al., 2014; Stockwell & Chikritzhs, 2009). Supply reduction strategies act by constraining alcohol consumption, which may in turn minimise intoxication and potentially aggressive interactions between patrons. In their research that focused on the Newcastle CBD, Kypri et al. (2010, p.7) also found that service hour restrictions may reduce violence by decreasing the number of people visiting entertainment precincts, thereby minimising the likelihood and magnitude of violence.

The reductions in assaults and injury in the CBD precinct observed in this evaluation may be the result of a number of factors, including:

- reduced alcohol consumption and intoxication by patrons visiting the CBD precinct
- reduced patronage and crowding inside licensed premises
- reduced foot traffic and crowding in the public areas outside licensed premises
- a combination of the above.[41]

While there are generally limited data available to explain the improvements in assaults and injury, there are some data that were collected and analysed as part of this evaluation that may provide some explanation. This includes pedestrian activity data collected by AusTraffic on behalf of the Department of Justice (DoJ) and patronage data collected as part of Treasury's 2016 licensed premises survey. There is no data available on levels of alcohol consumption in the CBD precinct.

[41] It is acknowledged that these factors may in turn be the results of several components of the Plan such as the reinforcement of Responsible Service of Alcohol (RSA) practices and measures for safer travel.

7.1 Pedestrian activity in the CBD

Pedestrian activity is a component of a vibrant night time environment and also has implications for actual and perceived safety. In consultations, stakeholders indicated that foot traffic in the CBD precinct has declined since the Plan came into effect in February 2014.

The main quantitative data source for pedestrian activity in the CBD is pedestrian count surveys that were commissioned by DoJ and undertaken by AusTraffic in 2014 and 2015 at four different areas (consisting of 23 different count points) in and around the CBD precinct. The four areas were:

- George Street North near Circular Quay, an area that comprises a large business and corporate community with a number of cafés and restaurants whose primary trade occurs during the day
- George Street South near Haymarket, which is an entertainment area in close proximity to major shopping outlets, cinemas and theatres
- Cockle Bay near Darling Harbour, which has a high density of restaurants and bars and is a popular destination among tourists
- the Outer CBD including Central and Railway Square, major transport hubs (inside the CBD precinct) and Surry Hills locations (just outside the CBD precinct).

The pedestrian counts were conducted at hourly intervals between midnight and 4:00am on Sunday 23 February 2014 (pre-Plan) and Sunday 22 February 2015 (post-Plan). Due to the construction of the CBD light rail, which would have an impact on pedestrian movements in the CBD, pedestrian activity counts were not undertaken in 2016.

The data show that there was an overall 20% decline in pedestrian activity after midnight across the four areas between 2014 and 2015 (see Table 7.1). Reductions in pedestrian activity were recorded in each of the hourly intervals from midnight to 4:00am, with the reductions generally greater later in the night.

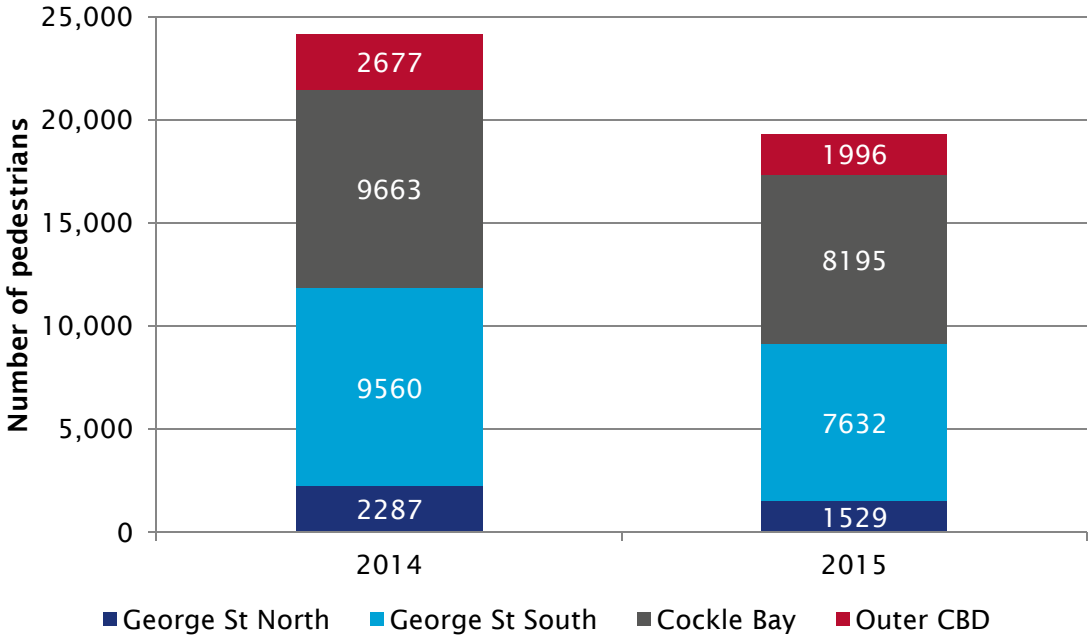
Table 7.1: Pedestrian activity in the CBD precinct by time of night

Area	Midnight to 1:00am	1:00am to 2:00am	2:00am to 3:00am	3:00am to 4:00am	Midnight to 4:00am
	% change from 2014 to 2015				
George Street North	-20	-48.9	-37.6	-32	-33.1
George Street South	-13	-18	-23.2	-34.9	-20.2
Cockle Bay	-8.7	-13.6	-25.2	-23.4	-15.2
Outer CBD	-22.2	-21	-36.4	-27.7	-25.4
Total	**-13**	**-20**	**-26.5**	**-29.8**	**-20**

Data source: Department of Justice (2015a, 2016a)

The George Street North area recorded the largest hourly decline of 48.9% between 1:00am to 2:00am and the largest overall decline (33.1%) over the period midnight to 4:00am. Cockle Bay recorded the smallest overall decline of 15.2%. Despite the high rate of reductions in the George Street North and the Outer CBD areas between 2014 and 2015, these areas only contributed to 15.6% and 14.1% respectively of the total change in pedestrian activity over the period. The two areas accounting for the highest share of decline in total pedestrian activity in the CBD were George Street South followed by Cockle Bay (Table 7.2).

Figure 7.1: Pedestrian counts in the CBD precinct



Data source: Department of Justice (2015a, 2016a)

Table 7.2: Pedestrians counts share of total

Area	Spread of pedestrians (%)			Share of total change in pedestrian activity between 2014 and 2015 (%)
	2014	2015	2014 and 2015	
George Street North	9.5	7.9	8.8	15.6
George Street South	39.5	39.4	39.5	39.9
Cockle Bay	40	42.3	41	30.4
Outer CBD	11.1	10.3	10.7	14.1
Total	**100**	**100**	**100**	**100**

Data source: Department of Justice (2015a, 2016a)

Some stakeholders suggested there had been a general shift in foot traffic after 1:30am away from areas subject to the Plan (such as George Street North and South) to areas that were outside the precinct boundary that is not subject to as strict licensing regulations. As pedestrian counts were not undertaken at other nearby areas such as Newtown or Double Bay, it was not possible to determine as part of this evaluation if foot traffic has shifted to areas further away from the CBD precinct.

Table 7.3 presents the percentage change in pedestrian counts at each of the individual count points. The fall in pedestrian activity was observed across most of the individual count points with all but three of the 23 individual count points recording a decrease in pedestrian activity.

Pyrmont Bridge experienced the largest increase in pedestrian activity (up 57.7%) reflecting increased foot traffic between the CBD and Pyrmont (including The Star), which fall outside the CBD precinct and are not subject to the conditions of the Plan. Increases in pedestrian activity across Pyrmont Bridge occurred in both directions (60.6% increase towards the CBD side and a 55.1% increase towards the Pyrmont side).

Table 7.3: Pedestrian counts by collection point location

Area	Collection point location	Percentage change from 2014 to 2015 (%)
Cockle Bay	Pyrmont Bridge	57.7
George St South	Bathurst St, east of Kent St	25.2
George St South	Liverpool St, west of George St	6.7
George St South	George St, at Albion Place	-5.7
George St South	Pitt St, north of Goulburn Street	-9.7
Outer CBD[(a)]	int. Chalmers Street and Devonshire Street	-11.5
Cockle Bay	Lime Street and King Street	-11.7
George St South	Liverpool St, east of George St	-11.8
Outer CBD	int. Oxford Street and Riley Street	-14.0
George St South	George St, north of Hay Street	-14.1
George St South	George St, north of Druitt St	-22.3
George St South	Goulburn St, west of Pitt St	-27.5
George St South	George St, south of Goulburn St	-27.9
George St North	George St at Martin Place	-31.4
Outer CBD	int. Railway Square, City Road and Lee Street	-31.6
George St South	Bathurst St, west of Pitt St	-32.6
George St North	George St at Hunter Street	-32.8
George St North	George St at Bridge Street	-33.6
George St North	George St at Alfred Street	-35.8
George St South	George St, north of Bathurst St	-46.6
George St South	George St, north of Goulburn St	-49.0
Cockle Bay	Cockle Bay Wharf South	-52.9
Outer CBD	int. William Street and Crown Street	-59.5

Data source: Department of Justice (2015a, 2016a)
Note: (a) Located just outside the CBD precinct area.

7.1.1 Limitations of the pedestrian activity data

There are a number of limitations that should be considered when examining the pedestrian activity data. These are:

- pedestrian counts were undertaken on one night in 2014 and one night in 2015 and may not be representative of annual foot traffic trends
- data may be skewed by evening specific events both inside and outside the CBD precinct such as the weather conditions, special events and local construction activity, which may influence consumer decisions and local foot traffic
- the data does not allow half-hourly interval analysis, which presents challenges in assessing pedestrian activity around the time of the 1:30am lock out.

Furthermore, pedestrian activity data was not collected in 2016 due to the construction of the George Street light rail.

7.2 Patronage of licensed premises in the CBD precinct

Patronage, like pedestrian activity, may have potential implications for the positive assault and injury outcomes presented in Chapters 4 and 5 respectively.

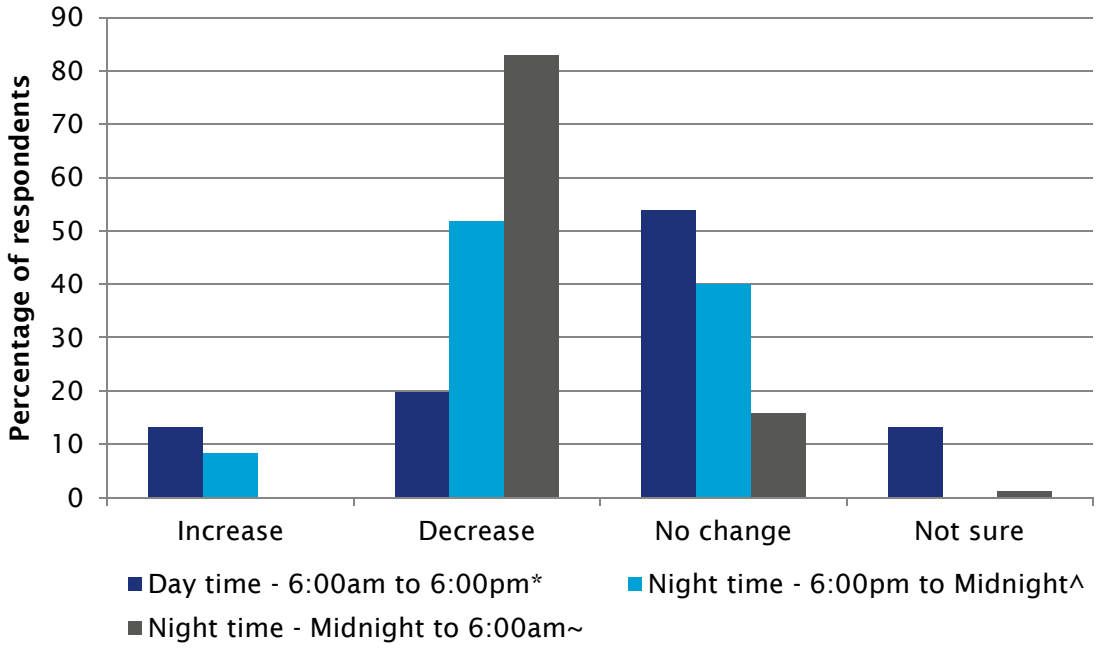
While the findings of Treasury's licensed premise survey are discussed in greater detail in Chapter 9, this section presents the survey findings relating to the patronage between 2013 (pre-Plan) and 2015 (post-Plan), in addition to information provided in stakeholder consultations. It should be noted that the findings presented below are collected from the 211 licensed premises that responded to the survey (22.3% response rate) and are not necessarily representative of the entire CBD precinct licensed premises population (see Table 1.4).[42] It should also be noted that these are anecdotal observations by respondents.

Treasury's 2016 licensed premises survey (CBD precinct) asked respondents to indicate how patronage had changed at their venue between 2013 and 2015 by time of day for three time periods:

- day time hours – 6:00am to 6:00pm
- night time hours – 6:00pm to midnight
- night time hours – midnight to 6:00am.

Observed patronage trends for venues in the CBD precinct are presented in Figure 7.2 and discussed by time of day in the sub-sections below.

Figure 7.2: Changes to patronage between 2013 and 2015



Data source: Licensed premises survey (CBD precinct) (2016)

Note: The data has been segmented by trading hour. Venues were able to respond to patronage questions for the periods of opening. The survey population for each time period are: * 6:00am to 6:00pm (n=182); ^ 6:00pm to Midnight (n=205); ~ Midnight to 6:00am (n= 82).

[42] A disproportionately high number of hotels responded to the survey, while a disproportionately low number of on-premises venues responded to the survey. Therefore, the findings of the survey may not be representative of the entire licensed premises population in the CBD precinct.

7.2.1 Day time patronage – 6:00am to 6:00pm

Stakeholder discussions indicated that day time patronage in the CBD precinct has remained relatively stable after the Plan came into effect. Stakeholders indicated this was largely due to the size and diversity of day time markets in the CBD, including the day time workforce and tourist populations that access the CBD. Some sectors in the precinct, in particular the restaurant and café sector, reported strong day time trade over the past 24 months. Due to the strength and diversity of CBD day time trade, there has been an active move by some licensed premises to capture more of the day time market as part of their business model (and in response to changes in their patronage during night time hours).

The licensed premises survey showed mixed results with 53.8% of venues that trade during the day observing no change in patronage from 2013, followed by 19.8% of respondents observing a decrease, 13.2% observing an increase, and the remainder being unsure of changes in patronage (see Figure 7.2).

7.2.2 Night time patronage – 6:00pm to midnight

The licensed premises survey supported feedback provided in stakeholder consultations that from their own observations venues in the precinct have experienced reduced night time patronage after the Plan was introduced in February 2014, including patronage before midnight. This survey found that:

- 51.7% of venues that trade between the hours of 6:00pm and midnight observed declines in patronage since the Plan was introduced compared with 40% of venues that observed no change and 8.3% that have observed an increase in patronage (see Figure 7.2)
- 50% of venues that observed a decrease in patronage were hotels and 46.2% were on-premises licences

Stakeholders observed that declines in patronage were occurring later in the evening with the early 6:00pm to 9:30pm period still a peak trading period. This was an observation particularly for boutique bars and restaurants, which in many instances reported increased trade earlier in the evening. Growth of corporate and family patron markets was identified as a key factor driving early evening patronage, as well as a healthy share of daytime workers and CBD visitors staying on for the early evening seating.

In contrast, stakeholders indicated patronage had declined in the later pre-midnight period (after 9:30pm) due to fewer patrons remaining in the CBD after dinner. This particularly impacted late night traders, such as hotels and nightclubs. Stakeholders also indicated there were fewer visitors travelling specifically to the CBD to access late night entertainment after this time. Some respondents highlighted that increases in early evening trade (before 9:30pm) were not sufficient to fully offset reductions in trade during the later pre-midnight period (after 9:30pm).

7.2.3 Night time patronage – midnight to 6:00am

In consultations, Liquor Accords and licensed venues in the CBD precinct reported significant reductions in patronage after midnight since the Plan was introduced in February 2014. This was consistent with the observed reductions in foot traffic in the precinct, as detailed in Section 7.1 . It was acknowledged that there may be a range of factors contributing to a reduction in patronage to the CBD during night time hours, including underlying changes to drinking and entertainment patterns as well as the growth of suburban entertainment areas.

The introduction of 1:30am lock outs and 3:00am cease of service under the Plan has reduced the period in which patrons can move between and consume alcohol in licensed premises. A recurrent theme of consultations was that this has influenced consumer decisions to visit the CBD.

Some possible further explanations for the reductions were cited by stakeholders as:

- growth in licensed premises and entertainment venues in local areas outside the CBD, which has provided a convenient and attractive alternative for consumers to access late night entertainment in proximity to their place of residence
- the negative publicity of the lock outs and the associated change in broader perception that the CBD is not a 'fun' place to go out
- increased community concern about visiting the CBD due to major and heavily publicised events such as the deaths of Thomas Kelly and Daniel Christie and the Sydney Siege in December 2014 (the latter is likely to have impacted on consumer activity in the CBD precinct over Christmas and New Year's Eve in 2014)[43]
- a shift in consumer preferences toward the boutique bar and restaurant culture
- considerable changes to live music scheduling in the CBD, which may be influencing community perceptions of the CBD as an entertainment destination (see Chapter 9).

In addition, some individuals were identified as being impacted more significantly than others by the 1:30am lock out, particularly hospitality staff and shift workers which were unable to access venues after their shift.

The licensed premises survey found that:

- 82.9% of after midnight traders in the CBD precinct observed declines in patronage between midnight and 6am since the Plan was introduced (see Figure 7.2); compared with 15.9% that observed no change and 1.2% of respondents that were unsure. No respondents had observed increases in patronage
- 70.6% of venues that observed a decline in patronage were hotels, followed by on-premises licences (27.9%) and clubs (1.5%).

[43] - The highly publicised death of Thomas Kelly in an alcohol-fuelled attack in Kings Cross in July 2012, led to the NSW Government's development and implementation of the Kings Cross Plan of Management in September 2012. On New Year's Eve 2013, Daniel Christie was the victim of a one-punch assault in Kings Cross and died in Hospital in January 2014.

8 Case Study: Community

Key points

- Sections of the community have reported modest improvements in amenity and safety and minimal negative impacts from the Plan.

Perceptions of safety

- It is well established that fear of crime can affect the health and wellbeing of individuals and communities. However, the assessment of community perceptions of safety is challenged by the multitude of personal, environmental and other factors that influence individual perceived safety levels.
- Data collected by AusTraffic on behalf of the Department of Justice (DoJ) indicated that perceptions of safety were high across the surveyed sections of the Central Business District (CBD) precinct, with the majority of respondents indicating that they felt either 'very safe' or 'safe' across each of the three survey years. Only a small minority of respondents felt 'unsafe'.
- The proportion of survey respondents who believed the 'lock out laws' had improved public safety increased from 39.8% in 2015 to 49.8% in 2016.

Resident experiences

- Consultation with the representative of a resident group in the northern end of the CBD precinct found that residents had noted modest improvements in the amenity of their local area since the Plan was introduced.

Consumer choice

- The 1:30am lock out and supply reduction measures (e.g. 3:00am cease of service and drink restrictions) restrict consumer behaviours by limiting the ability of patrons to move between venues after 1:30am and by placing restrictions on the availability and range of alcoholic beverages that can be purchased by patrons after midnight.
- These measures also restrict the choices available to consumers visiting the precinct after midnight, thereby negatively impacting consumers and reducing personal utility.
- Measuring the magnitude of consumer choice impacts is challenged by limited data available to identify the size of the affected consumer group or determine the value that consumers place on having access to the CBD precinct after midnight.

This chapter examines the impact of the Plan on the community in the CBD precinct, with a specific focus on perceptions of safety, resident experiences and consumer choice. The findings in this chapter are informed by a pedestrian intercept survey conducted by AusTraffic on behalf of the DoJ and consultations with resident groups.

8.1 Community perceptions of safety

It is well established that fear of crime can affect the health and wellbeing of individuals and communities (ABS, 2010). In a similar way, high levels of community perceptions of safety can indicate high levels of trust and social cohesion within a neighbourhood or local area (ABS, 2010). The assessment of community perceptions of safety is challenged by the subjectivity of 'safety' in the context of a range of personal experiences and environmental factors. It is well established that an individual's perception of safety is often not reflective of actual crime rates in an area (Cossman & Rader, 2011; Jackson, 2005). There is a number of factors that have been found to influence perceptions of safety or fear of crime. These include:

- personal characteristics including age, gender, disability, socioeconomic status, health and prior victimisation. For example, a study conducted by Indermaur & Roberts (2005) found that the elderly, women and those with poor health tend to feel less safe compared with those who are younger and/or male

- environmental factors such as public amenity (e.g. rubbish in the streets, dilapidated buildings) and the occurrence of social incivilities (e.g. rowdy behaviour and lack of neighbourhood support) (Cossman & Rader, 2011)
- an individual's exposure to media and information that extensively promotes reports of crime, as well as second hand information provided by family and friends about physical disorder in the local environment (Davis & Dossetor, 2010; Johnson, 2004).

To assess the impact of the Plan on community perceptions of safety, a pedestrian intercept survey conducted by AusTraffic on behalf of the DoJ was analysed. The findings from this analysis are presented in the sections below.

8.1.1 Pedestrian survey

AusTraffic was commissioned by DoJ to undertake pedestrian intercept surveys in 2014, 2015 and 2016 to gauge the public perception of safety during night time hours within the CBD precinct. The surveys were undertaken over three years on:

- Saturday 22 February 2014 (two days before the Phase One regulations came into effect)
- Sunday 22 February 2015
- Saturday 12 March 2016 and Saturday 19 March 2016.

Each year, the interviews were conducted between 9:00pm and 1:00am at Cockle Bay Wharf, George Street North, George Street South and Kings Cross. The survey instrument (provided in Appendix E) was replicated each year, with an additional question asked in the 2015 and 2016 surveys about the respondents' perceptions of the 'lock out and last drinks laws'. For the purpose of this evaluation, only the results for Cockle Bay Wharf, George Street North and George Street South have been analysed.

The number of pedestrians who completed the surveys varied by years, with 593, 600 and 652 participants in 2014, 2015 and 2016 respectively. Demographic information collected shows that the age and gender profiles of participants were relatively consistent across the three years with slightly lower representations of females in the two older age groups and higher representations of males in the under 25 years and 25-39 year age groups in 2016 (see Table 8.1).

Table 8.1: Perceptions of safety survey sample

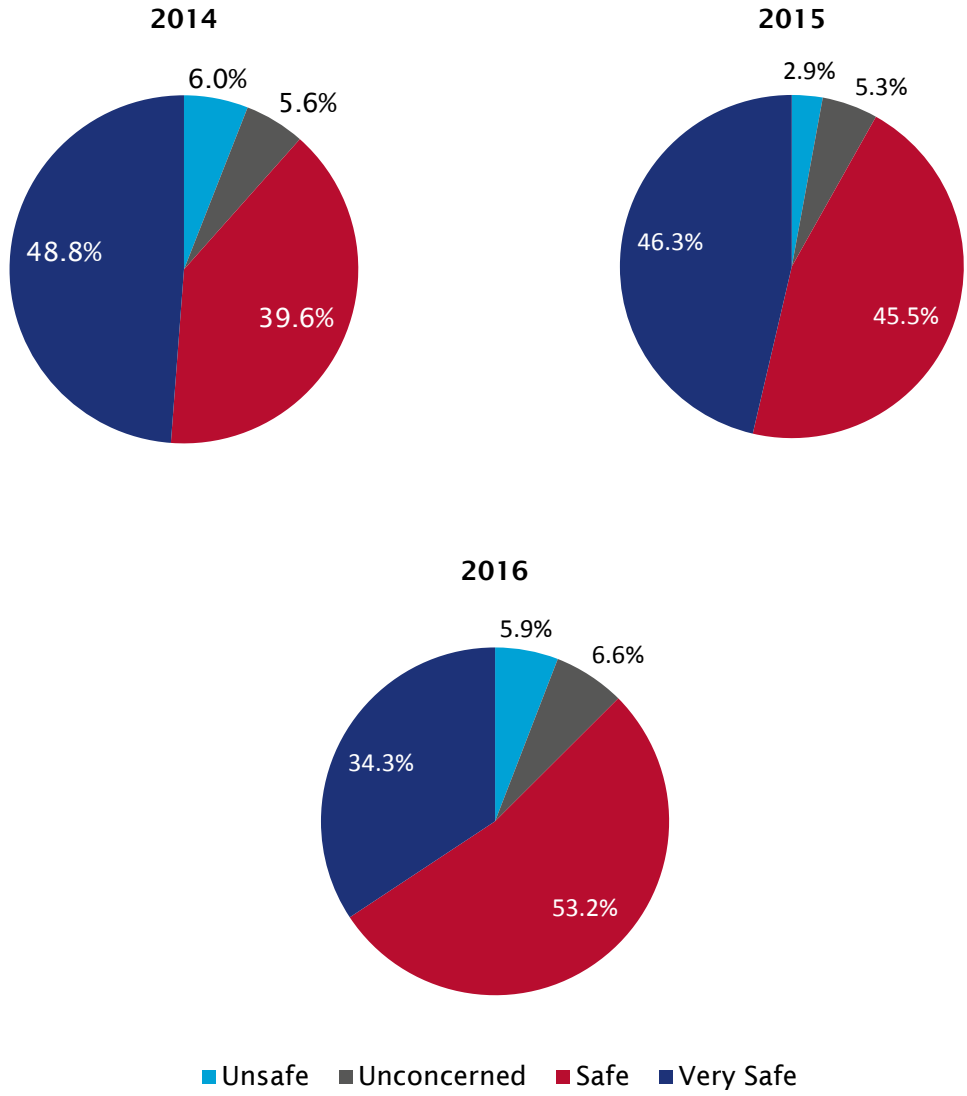
Gender Age	2014 (%)	2015 (%)	2016 (%)
Male - Under 25 years	18.4	16.6	24.3
Male - 25 to 39 years	25.9	32	32.4
Male - Over 40 years	8.2	7.7	5.7
Female - Under 25 years	20.8	17.6	21.1
Female - 25 to 39 years	21.6	20.8	14.9
Female - Over 40 years	5.1	5.4	1.5
Total	**100**	**100**	**100**

Data source: DoJ (2015b, 2015c, 2016b) Note: n = 593, 600 and 652 for 2014, 2015 and 2016 respectively. Valid responses = 587, 597 and 649 in 2014, 2015 and 2016 respectively.

While care should be taken in comparing the survey findings across years, the data below provide a snapshot of feelings of safety of visitors to the CBD precinct area immediately prior to and in the two years following the Plan's introduction.

Respondents were asked to indicate how safe or unsafe they felt in their respective locations late at night. The categorical responses allowed were 'unsafe', 'unconcerned', 'safe' and 'very safe'. As shown in Figure 8.1, the majority of respondents felt either very safe or safe across the three survey years (88.4%, 91.8% and 87.5% in 2014, 2015 and 2016 respectively). Only a minority of respondents felt 'unsafe' in each of the three years.

Figure 8.1: Perceptions of safety in the CBD precinct

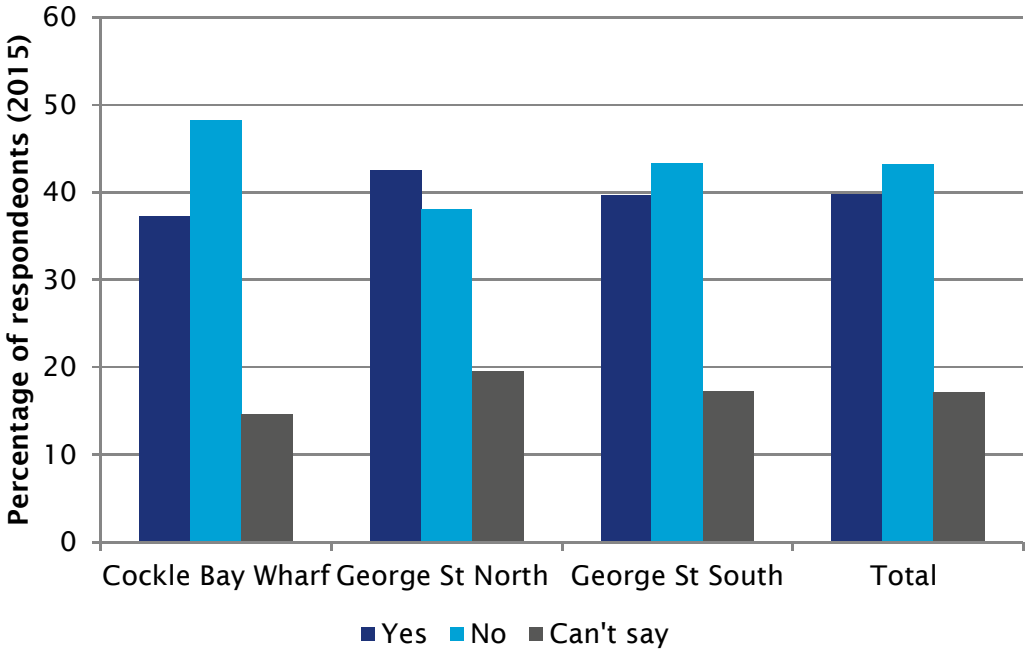


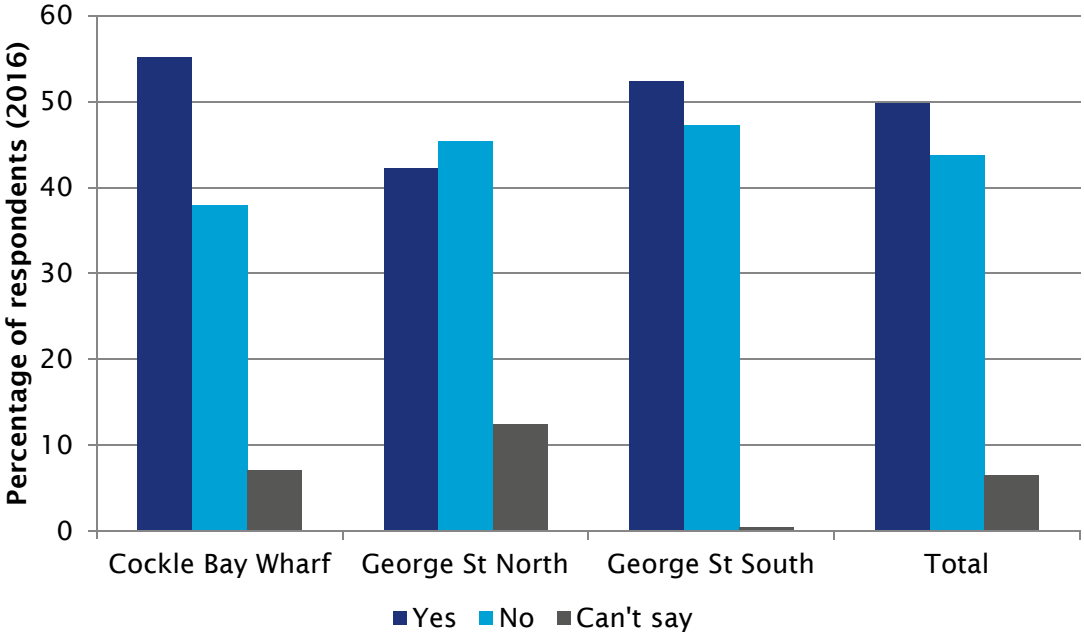
Data source: DoJ (2015b, 2015c, 2016b)

Note: Total respondents n = 593, 600 and 652 in 2014, 2015 and 2016 respectively. Valid responses were 588, 589 and 647 in 2014, 2015 and 2016 respectively.

Participants of the 2015 and 2016 survey were also asked to comment on whether the implementation of the 'lock out and last drinks laws' had contributed to improved overall public safety. As shown in Figure 8.2, less than half of the respondents in 2015 (43.1%) and 2016 (43.7%), did not believe that the regulations had improved public safety. This might be associated with the negative public perception of the lock outs and associated public debate. Compared with the 2015 survey, a greater proportion of respondents in 2016 felt that the lock outs had improved public safety (49.8% in 2016 compared with 39.8% in 2015) and a smaller proportion felt that they could not comment (6.5% in 2016 compared with 17.1% in 2015). This might reflect a greater public awareness of the regulations in 2016, two years following the Plan's introduction.

Figure 8.2: Attribution of perceptions of safety to 'lock outs and last drink laws'

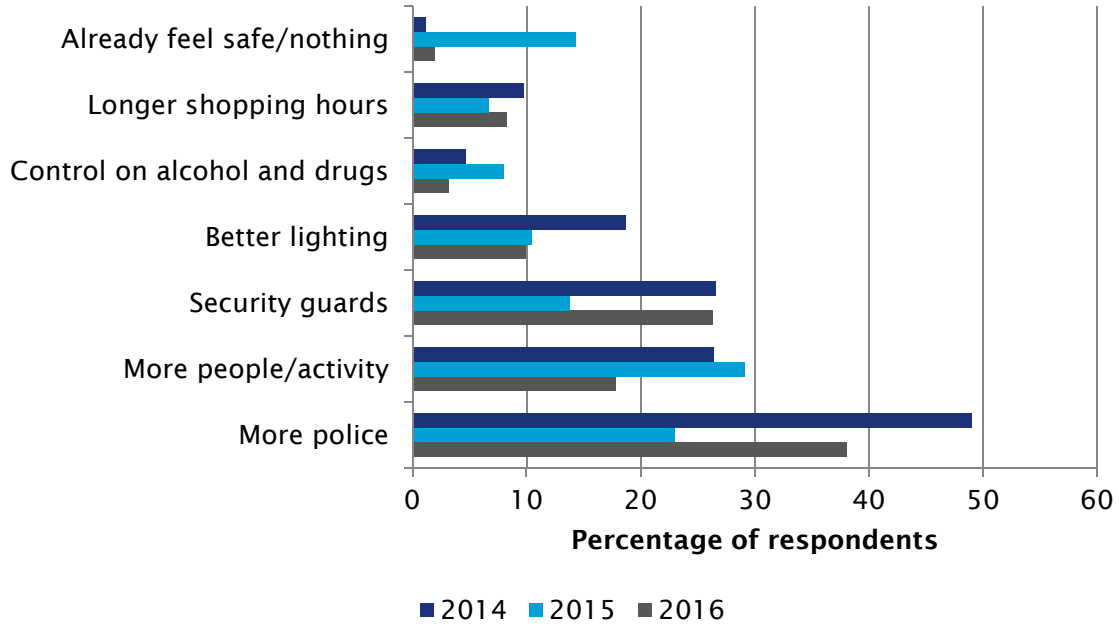




Data source: DoJ (2015c, 2016b)

Survey respondents were also asked what initiatives or environmental factors they thought would increase their feelings of safety and/or reduce crime. Respondents were asked to select one or more options from a predetermined list. Figure 8.3 shows that of the 1,845 survey respondents over three years, more than one third (36.7%) felt that an increased police presence would contribute to improved night time safety and almost one quarter of respondents (24.3%) felt that more people/activity in the CBD would assist in this regard. In aggregate only 5.7% of individuals thought that no further changes were required.

Figure 8.3: Ways to improve feelings of safety and/or reduce crime



Data source: DoJ (2015b, 2015c, 2016b)

Note: Total respondents n = 593, 600 and 652 in 2014, 2015 and 2016 respectively

8.1.2 Limitations of the pedestrian intercept survey

There is a number of limitations to be considered when examining the perceptions of safety survey results. These are:

- the perceptions of safety surveys are not representative of the general population, as only those individuals who were out in the CBD precinct at night time were sampled for participation. Individuals with safety concerns are likely to be under represented in the sample
- data collection in 2014 occurred two days before the first phase of the Plan came into effect. Given the extensive media attention relating to regulatory changes around this time, the perceptions of individuals surveyed at this time may be subject to bias.

8.2 Links between pedestrian activity and perceptions of safety

Chapter 7 presented the pedestrian activity data, which showed an overall 20% decline in foot traffic in the CBD between 2014 and 2015, pre- and post- the Plan being introduced. In consultations a few stakeholder groups associated the reduced pedestrian activity in the CBD with deteriorated feelings of safety. There were reports that some individuals, particularly those who finish work late at night such as hospitality and shift workers, feel less safe walking through the city at night to catch transport or walk home as there are fewer people on the street. Furthermore, as noted above, almost a quarter of respondents across the 2014, 2015 and 2016 DoJ perception of safety surveys identified 'more people/activity in the CBD' as a factor that they felt would improve feelings of safety and/or reduce crime in the CBD (see Figure 8.3).

The Crime Prevention Through Environmental Design (CPTED) literature confirm a link between pedestrian activity and community safety. CPTED shows that well-designed urban environments are essential for improved actual and perceived safety in the community (Department of Sustainability and Environment, 2002). One of the principles of CPTED is 'natural surveillance', whereby urban environments should be designed to maximise the visibility and surveillance of the public environment (Gearson & Wilson, 1989). This includes maximising activity in public places, which results in a greater number of 'eyes on the street' from passers-by and productive users of the space who act as 'guardians' (Clancey et al., 2012; Cozens et al., 2005). The literature has shown that if offenders perceive that they can be observed (even if they are not), they may be less likely to offend and potential victims are more likely to feel safer (Cozens et al., 2005). In this context, it is possible that a reduction in pedestrian activity may result in a reduction in feelings of safety.

The CPTED literature has also shown that formal/organised and mechanical surveillance are also important. The former represents surveillance provided formally by local stakeholders such as security guards and shop keepers, while the latter is closed-circuit television (CCTV) monitoring (Cozens et al., 2005). One stakeholder group raised concerns about the reduction in the formal surveillance from security guards in the CBD since the Plan was introduced. The 1:30am lock out has meant that where prior to the Plan security guards would have been visible at the entrance of venues managing people entering and exiting until closing time, these guards are now inside the venues after 1:30am (since no new patrons are able to enter). This has resulted in a decrease of 'eyes on the street' (Clancey et al., 2012).

While the CPTED literature highlights the importance of maximising surveillance through space activation, it is also noted that this should be balanced with designing spaces that attract the right mix of people and are not overly dense and thus more susceptible to crime and disorder (Cozens et al., 2005). Some stakeholders observed that since the Plan was introduced there are fewer groups of intoxicated people on the streets late at night and in the early morning, which has improved their feelings of safety (discussed below in relation to resident views). It is evident that perception of safety is subjective and is likely to vary depending on the personal experience and demographic of the individual. However, it is worthy to note here that levels of pedestrian activity in the CBD may have a role to play in influencing feelings of safety.

8.3 Resident experiences

The Sydney CBD has a resident population of 28,630 people (ABS, 2016b).[44] The CBD precinct borders other predominantly residential areas including Pyrmont – Ultimo, Redfern – Chippendale, Surry Hills, Darlinghurst and Potts Point – Woolloomooloo SA2 areas, which house a further 92,762 residents (ABS, 2016b). To determine resident experiences of the Plan representatives of community groups in the CBD and immediate neighbouring suburbs were invited to participate in the consultation process.

A resident group from the northern end of the CBD precinct towards The Rocks, Walsh Bay and Millers Point reported they had observed modest improvements in their local area since the Plan was introduced. This was related to a reduction in late-night revellers passing through the area and a concomitant reduction in noise. While general support for the Plan as a positive contribution to the amenity and safety of their local area was acknowledged, it was also noted that the residents in this area of the CBD did not find alcohol-related issues to be of great concern to them, with traffic, parking, pets, heritage control, tree planting issues, building activity and other neighbourhood issues of greater concern.

[44] Estimated resident population for the Sydney-Haymarket-The Rocks SA2 geographical area.

8.3.1 Limitations of consultations with residents

It is recognised that views of the community representatives consulted as part of the evaluation might reflect the most active members of the resident group and are not representative of all residents in those areas or the CBD precinct more generally. Nevertheless, residents who have shared their views with the resident group representative have an interest in improving and maintaining safety and amenity in their local areas, thus their views are valuable.

Other consultations with community organisations focused on issues that were more closely related to the Kings Cross Plan of Management and thus the findings of these consultations are not presented here.

Residents in certain parts of the CBD precinct (e.g. the Haymarket area) were not captured due either to an unwillingness of resident groups to be involved and/or the absence of an active resident group in certain areas.

8.4 Consumer behaviour and restricted choice

The 1:30am lock out and supply measures (e.g. 3:00am cease of service, drink restrictions) implemented under the Plan are the core regulatory measures that restrict consumer behaviours. These measures do this by:

- restricting the availability and range of alcoholic beverages that can be purchased by patrons after midnight
- preventing the entry and re-entry to venues in the CBD precinct after 1:30am.

Determining the magnitude of consumer choice impacts and how consumer behaviour and personal utility may be affected is a complex task. In this instance, the magnitude of consumer impacts is unknown due to limited data available to identify the size of the consumer group impacted or determine the value that consumers place on having no restrictions on drink choices after midnight or on their movement between venues in the CBD precinct after 1:30am.

Consultation with industry stakeholders indicated that consumer behaviours have changed since the Plan came into effect, reflected by reduced late-night patronage and foot traffic (see Chapter 7). Stakeholders also highlighted that these behaviours are likely to have been influenced by negative publicity of the lock out laws as well as a broader perception that the CBD precinct is no longer a vibrant late-night precinct. This has been widely reflected in the public media since the regulations commenced. Whilst perception may be very different to actual consumer experiences, these perceptions may be factored into consumer decisions for when and how they choose to visit the precinct.

Overall, it should be noted that the mechanism of the Plan was designed to restrict stockpiling of drinks, excessive and rapid alcohol consumption, and to better manage flows of people late at night inside the CBD precinct. However consumer behaviour can be difficult to predict and may result in unintended consequences. Reductions in patronage before 1:30am was not the intention of the Plan, and may be reflective of changes in consumer behaviour in response to the policy change. The 1:30am lock out was cited by industry stakeholders as one of the key elements of the Plan influencing consumer decisions to attend the CBD precinct; and was viewed as being one of the more restrictive elements of the Plan to consumer behaviour.

9 Case Study: Views of Licensed Premises and Related Sectors

Key points

The purpose of this chapter is to report on the feedback from licensed premises and other related stakeholders. This chapter presents the self-reported data from a sample of licensed premises who responded to Treasury's 2015 and 2016 CBD licensed premises surveys, along with findings from stakeholder consultations. However, such online surveys rely on self-reported data and have lower reliability.

- Survey respondents with venues closing after midnight have reported an average decline of 20.4% in turnover while before midnight traders have reported an average increase of 13.7% between 2013 and 2015.
- Before and after midnight traders reported declines in staffing level between 2013 and 2015 of 2.9% and 17.7%, respectively.
- Licensed premises have reported reduced spending on live music and recorded music in the CBD precinct. Live music expenditure as a share of turnover has stayed within the range of 3% to 4% from 2013 to 2015.
- A high proportion of responding venues that trade after midnight (84.7%) have adjusted their business models. These adjustments have included diversifying the range of products and services offered, changing food and beverage prices, and targeting different patron markets.
- Gaming sector pre-duty profits have increased by 1.3% for clubs and 5.9% for hotels between 2013 and 2015.
- Licensed premises in the CBD precinct are reportedly unable to receive planning approval from local council for general refurbishment of their premises, due to restrictive wording in the *Liquor Amendment Bill 2014.* This has reduced the level of investment in venue infrastructure in the CBD precinct and was not the original intent of the legislation.

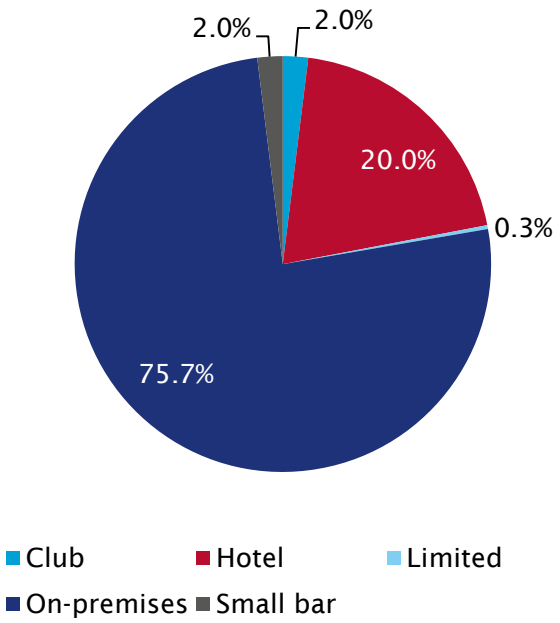
The purpose of this chapter is to report on the feedback from licensed premises and other related stakeholders. This chapter presents the outcomes from Treasury's 2015 and 2016 CBD licensed premises surveys, with a focus on business operations and adaptation and views of the Plan. Potential impacts to the music and entertainment industry and the gaming sector are also discussed, drawing on information collected through Treasury's 2016 CBD licensed premises survey and data provided by the Australasian Performing Right Association (APRA) and Liquor & Gaming NSW (L&GNSW).

9.1 CBD precinct licensed premises

The CBD precinct has been subject to a liquor licence freeze since its establishment in February 2014. Some selected areas within the precinct, such as Oxford Street, Darlinghurst and the Southern CBD, had previously been subject to a freeze. The freeze prohibits the granting of new licences for hotel, club, producer/wholesaler, packaged liquor and on-premises licences for public entertainment venues (e.g. nightclubs). The freeze also prevents the permanent extension of trading hours for these licence types (L&GNSW, 2016d). Small bars with a patron capacity of less than 60 persons and that do not trade beyond 2:00am, and other on-premises licensed venues (such as restaurants) are generally exempted from the freeze (L&GNSW, 2016d).

As at 27 June 2016, there were 1,014 active liquor licences in the CBD precinct, excluding packaged and producer/wholesaler licences.[45] The majority of licences were on-premises (75.7%), comprising entertainment venues and restaurants (where the supply of alcohol is supplementary to another product or service), followed by hotel (20%), club and small bar (2% each) and limited (special event) licences (0.3%) (see Figure 9.1). Box 1.1 in Chapter 1 provides the definitions of the licence types.

Figure 9.1: Active liquor licences in the CBD precinct



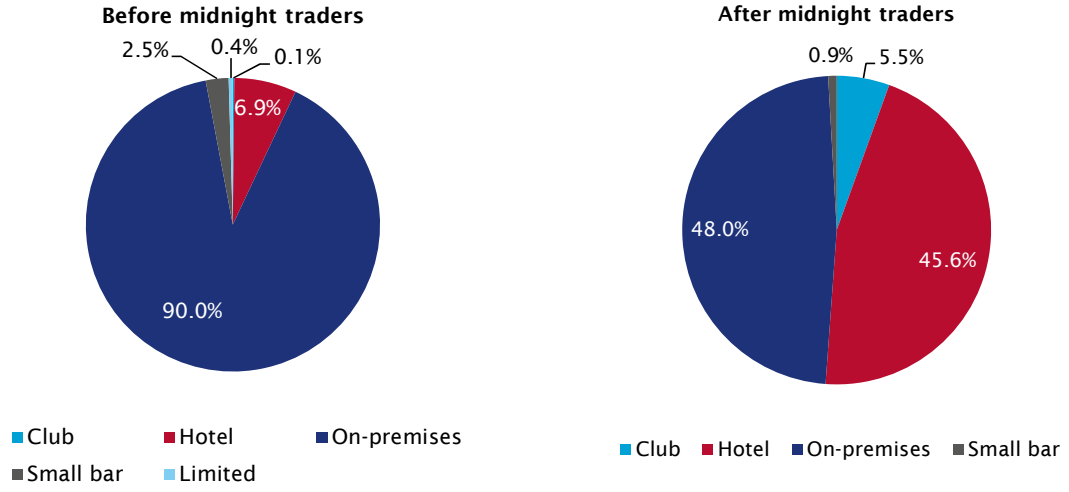
Data source: L&GNSW (2016e)
Note: Data as at 27 June 2016. Excludes packaged and wholesale liquor outlets.
Before midnight traders, n=670; after midnight traders, n=344.

The licensed premises population can be further distinguished into two groups: venues that close before or at midnight ('before midnight traders') comprising a total of 670 venues, and venues that trade after midnight ('after midnight traders') comprising a total of 344 venues.

Before midnight traders primarily hold an on-premises licence type (90%) (see Figure 9.2). In contrast, after midnight traders are more evenly distributed across on-premises licences (48%) and hotel licences (45.6%), with a small proportion of club licences (5.5%). Table 9.1 provides a summary of CBD precinct licence numbers by before/after midnight trading status.

[45] The introduction of the Periodic Licence Fee Scheme in 2015 incentivised the return of inactive licences to the regulator. The 2016 estimate is considered to be representative of the 'active licence' population and is not comparable with previous years. The total number of active licences differs from the total CBD precinct survey population in Chapter 1. The survey population represents licensed premises with valid contact details that were invited to complete the survey.

Figure 9.2: Active liquor licences in the CBD precinct by trading hour



Data source: L&GNSW (2016e)

Note: Data as at 27 June 2016. Excludes packaged and wholesale liquor outlets. Total licensed premises population (N=1,014).

Table 9.1: Active liquor licences in the CBD precinct by trading hour

Licence type	Before midnight traders (n)	After midnight traders (n)	Total (N)
On-premise	603	165	768
Hotel	46	157	203
Club	1	19	20
Small bar	17	3	20
Limited	3	0	3
Total	**670**	**344**	**1,014**

Data source: L&GNSW (2016e)

Note: Excludes packaged and wholesale liquor outlets. These numbers differ slightly to the population of the licensed premises survey (CBD precinct) (n=946), since some licensees were unable to be contacted for participation due to incorrect or missing contact details.

The Plan directly influences the operation of licensed premises in the CBD precinct. It does this by implementing:

- alcohol supply reduction strategies – reducing alcohol consumption of patrons through the implementation of drink restrictions (e.g. no shots after midnight), the cessation of alcohol service after 3:00am and stricter enforcement of RSA
- other harm minimisation strategies – controlling movement between venues late at night by preventing the entrance of new and returning patrons into licensed premises after 1:30am; reinforcing and strengthening RSA practices; and installing additional CCTV.

While the intention of the Plan is to promote a safe environment at all times, most of the above measures relate to licence conditions for premises that trade after midnight. Nevertheless, the survey of licensed premise business conditions covers both types of venues (before midnight and after midnight traders), which allows a comparison of how each group views their experience of the Plan.

9.2 CBD precinct licensed premises survey

As a result of the limitations of published data (discussed in Section 1.4.4), Treasury undertook an online survey of licensed premises to gain an understanding of the perceived impacts of the Plan. A total of 211 venues responded to the 2016 survey, representing a response rate of 22.3%. The response rate is considered reasonable for this evaluation.

As shown in Table 1.5, while survey respondents were generally representative of the licensed premises population by size of venue (patron capacity) and trading hours of venues (before and after midnight traders), there may be some response bias due to the under-representation of on-premises licensed venues and over-representation of hotel licences. The self-reported nature of the data also has implications for the reliability of the findings. It should also be noted that:

- responses to questions regarding attribution of the Plan on business turnover and employment are subjective. There may be varied levels of objectivity and individual knowledge of factors that influence business performance
- licensing conditions are one of many factors that may influence business performance and cannot be easily disaggregated from other local and macroeconomic factors.

9.3 Reported turnover

As discussed in Chapter 7, some CBD precinct licensed premises survey respondents reported a reduction in night time patronage since the Plan commenced. Some survey respondents are of the view that the reduction in patronage affected business turnover and staffing levels, particularly for venues that trade after midnight.

In Treasury's 2016 licensed premises survey (CBD precinct) 154 venues provided information about their turnover before and after the implementation of the Plan. The average change in reported turnover between 2013 and 2015 was an increase of 1.7% (Table 9.2). While the average change in reported turnover among after midnight traders was a decline of 20.4%, the average change for before midnight traders was an increase of 13.7%. Businesses that reported a decline in turnover attributed the change to factors both related to and independent of the Plan.

Table 9.2: Average change in reported turnover between 2013 and 2015

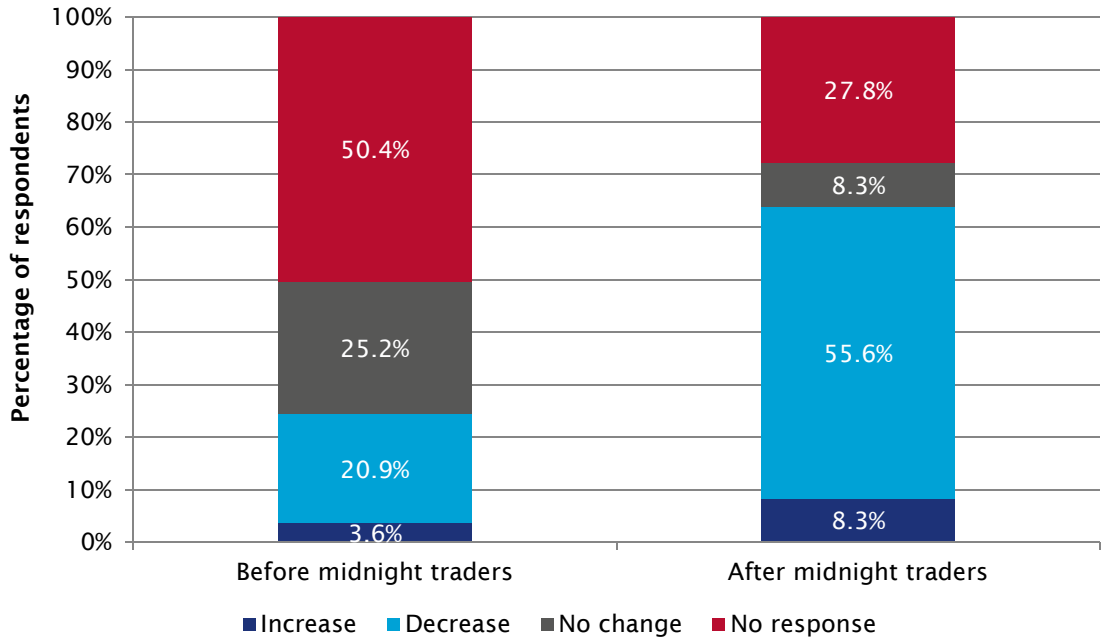
	Before midnight traders	After midnight traders	Total
Average change in reported turnover 2013-15 (%)	13.7	-20.4	1.7

Data source: Licensed premises survey (CBD precinct) (2016)
Note: 154 venues responded to the turnover questions for both 2013 and 2015.

To understand the perceived impact of the Plan on business, respondents were asked whether the Plan had played a role in changes to business turnover. In total, 51.9% (or 80 respondents) indicated that the Plan had an impact on business turnover (positive or negative), with 7.1% (11 venues) indicating an increase in turnover and 44.8% (69 venues) indicating a decrease in turnover. Figure 9.3 provides a breakdown of the perceived impact by before and after midnight traders.

Of the respondents that believed the Plan had played a role in reducing their turnover, 50.7% were hotel licences and 44.9% were on-premises licences.

Figure 9.3: Venues that attributed turnover changes to the Plan



Data source: Licensed premises survey (CBD precinct) (2016)
Note: The above figure indicates the percentage of venues that indicated they had experienced a change in turnover between 2013 and 2015 that they attributed to the Plan (n = 139 for before midnight traders and n=72 for after midnight traders).

The majority of respondents indicated that reduced patronage and local foot traffic had contributed to a reduction in turnover in the CBD precinct. Respondents also indicated the lock out and supply reduction measures such as the cease of service, and the negative public image of these measures had likely contributed to reduced late night patronage.

A key concern raised in consultations was that the measures have made the CBD less appealing as an entertainment precinct. This was believed to have resulted in less people staying later in the evening or even visiting the precinct for entertainment purposes.

Other factors noted in consultations that may be impacting patronage and business turnover, included:

- increased competition due to growth in licensed premises and entertainment venues in local areas outside the CBD
- changing consumer behaviours and shift of market share away from hotels and larger late night venues, in favour of more intimate boutique bars and restaurants.

The impact of rising general operating costs on profit margins was also reported to be a key concern for venues (discussed further in Section 9.6).

9.4 Reported staffing level

Of the 167 venues that responded to questions on employment in Treasury's 2016 CBD licensed premises survey, the reported Full Time Equivalents (FTE) staffing level reduced by an average of 8.5% between 2013 and 2015 (Table 9.3). Reported declines in FTE staffing level were larger for after midnight traders, with an average of 17.7% compared to an average of 2.9% for before midnight traders. Survey respondents have attributed the change to factors both related to and independent of the Plan.

Table 9.3: Average change in reported staffing level between 2013 and 2015

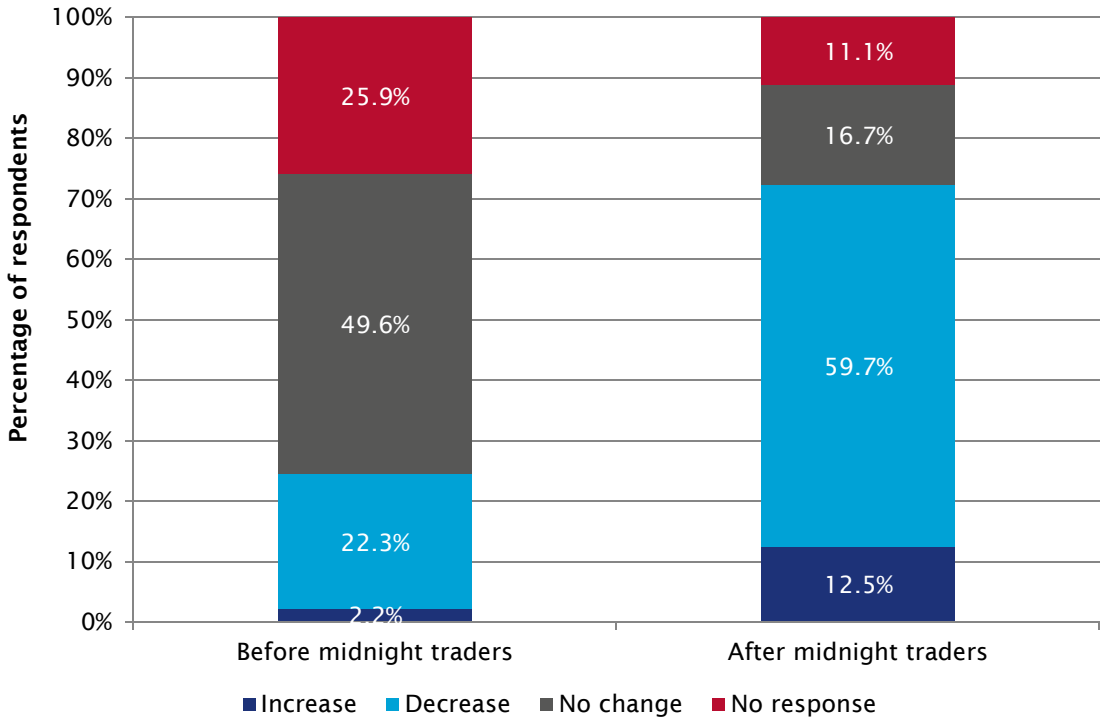
	Before midnight traders	After midnight traders	Total
Average change in FTE staff 2013-15 (%)	-2.9	-17.7	-8.5

Data source: Licensed premises survey (CBD precinct) (2016)
Note: 169 venues responded to the employment questions for both 2013 and 2015

To understand the perceived impact of the Plan on business, venues were asked whether the Plan had played a role in changes to staffing levels over the 2013 and 2015 period. In total, 51.5% (or 86 venues) indicated the Plan had some impact on staffing levels (positive or negative), with 7.9% (12 venues) indicating FTE staff had increased as a result of the Plan and 44.3% (74 venues) indicating FTE staff had reduced as a result of the Plan. Figure 9.4 provides a breakdown of the perceived impact by before and after midnight traders.

Of the respondents that believed the Plan had played a role in reducing their staffing levels, 50.7% were hotel licences and 44.9% were on-premises licences.

Figure 9.4: Venues that attributed employment changes to the Plan



Data source: Licensed premises survey (CBD precinct) (2016)
Note: The above figure indicates the percentage of venues that indicated they had experienced a change in staffing level between 2013 and 2015 that they attributed to the Plan (n = 139 for before midnight traders and n=72 for after midnight traders).

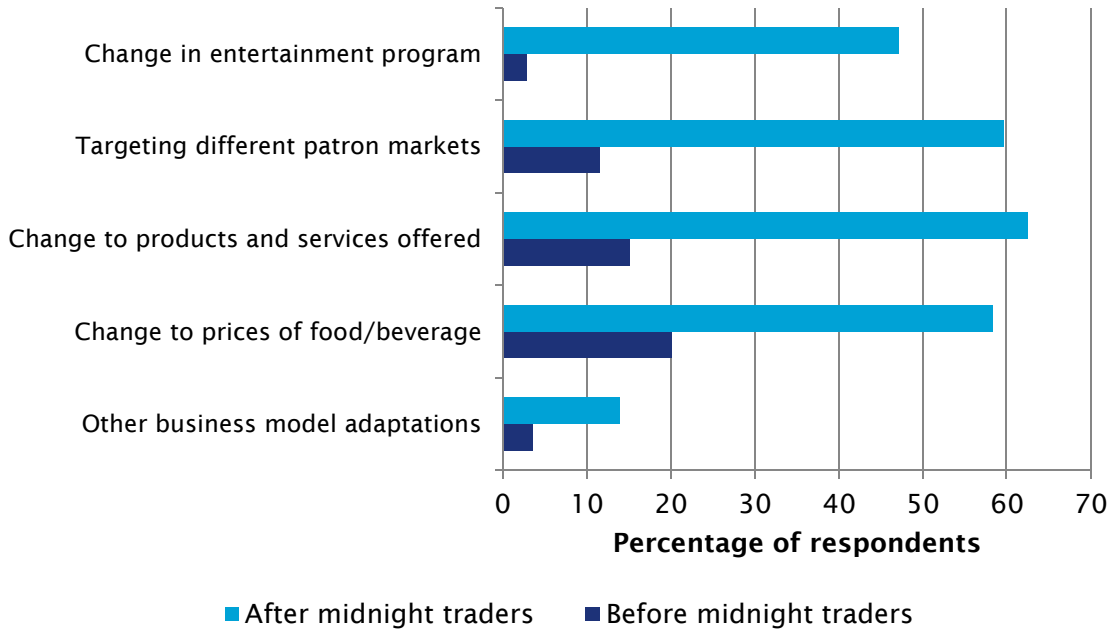
In consultations, some stakeholders indicated that declines in trading hours and patronage, and the subsequent reduction in turnover, have been key factors that have led to reduced total staff hours. Some respondents indicated more staff were being employed on a casual basis at peak trading times earlier in the evening (6:00pm and 9:00pm). However, this shift in demand for staff has not fully offset reductions in total employee hours that have occurred later in the evening.

9.5 Business adaptation

Licensed venues reported in consultations and the survey that they have taken steps to adjust their business models. Specifically, 45.5% of survey respondents indicated that they have adapted their business practice in response to the Plan. This varied by before and after midnight traders—only 25.2% of before midnight traders reported they had adapted their business practices compared with 84.7% of after midnight traders.

Business adaptation strategies included changing food and beverage prices, modifying operating hours, diversifying the products offered and targeting different patron markets (see Figure 9.5).

Figure 9.5: Reported business modification by licensed premises



Data source: Licensed premises survey (CBD precinct) (2016)

Note: Percentage is based on the before midnight trading survey population (n = 139) and after midnight trading survey population (n=72). Respondents could select multiple responses so the total will not sum to 100%. Other business adaptations included improving security, increasing staff training, and providing additional signage.

Venues and Liquor Accord representatives noted that after midnight traders have proactively targeted daytime trade and other markets (e.g. tourism) using aggressive marketing strategies to offset reductions in trade. However, some business models have been better placed to adapt than others.

Consultations with industry groups highlighted that licensed venues that have been less able to adapt their business model are nightclubs and hotels/pubs, and specialist bars and restaurants that have ordinarily catered for entertainers, shift workers and hospitality staff who are employed at night. The introduction of the 1:30am lock out is reported to be a barrier to entry for these potential patrons and consequently, licensed premises that have historically targeted this market reported considerable reductions in sales. The perceived business impacts to different categories of late night venues are summarised in Box 9.1 below.

Box 9.1: Segmentation of perceived business impacts to venues that trade after midnight

Stakeholder consultations indicated that the ability to successfully access alternative markets and offset any downturn in late night trade has been varied across venue licence types. Perceived business impacts to late night venues can be summarised as follows:

- hotels and nightclubs reported decreased turnover after midnight
- specialist whisky and cocktail bars reported minimal to no change to revenues. Exemptions have been granted for some of these bars that operate after midnight, which has allowed them to continue serving neat spirits
- small bars have reported variable changes to turnover
- NSW clubs reported no changes to turnover
- specialist bars and restaurants that target the hospitality industry, entertainers and late night workers reported decreased turnover after midnight
- entertainment and live music venues reported decreased turnover.

Business resilience may also be influenced by the geographic location within the CBD precinct. For example, consultations indicated that Darlinghurst licensed premises have access to smaller daytime or tourism markets than businesses located in the heart of the CBD commercial and transport hubs. Consequently, Darlinghurst businesses are reportedly less able to offset reductions in trade.

Overall, licensed venues trading after midnight indicated that the principles of the Plan are widely supported. However, many objected to the 'blanket approach' taken by the Plan. Venues felt that they were hampered by the additional layer of regulation imposed by the Plan. There was also resistance to the 'high-risk' classification, particularly for venues that have a historically good reputation, high levels of compliance and have had no incidents of violence.[46] Venues felt it was unfair to be labelled 'high-risk' based on size and trading hours, rather than track record in relation to the management of patrons and antisocial behaviour.

Licensed venues that trade after midnight also expressed frustration regarding competition from venues located just outside the CBD precinct. There were consistent suggestions that venues not subject to lock outs and cease of service have used this as a marketing tool for attracting patrons. Venues in the CBD precinct suggested the Plan had created an uneven playing field, which had unintentionally resulted in a shift of patron spending from CBD precinct venues to venues located outside the precinct boundary.

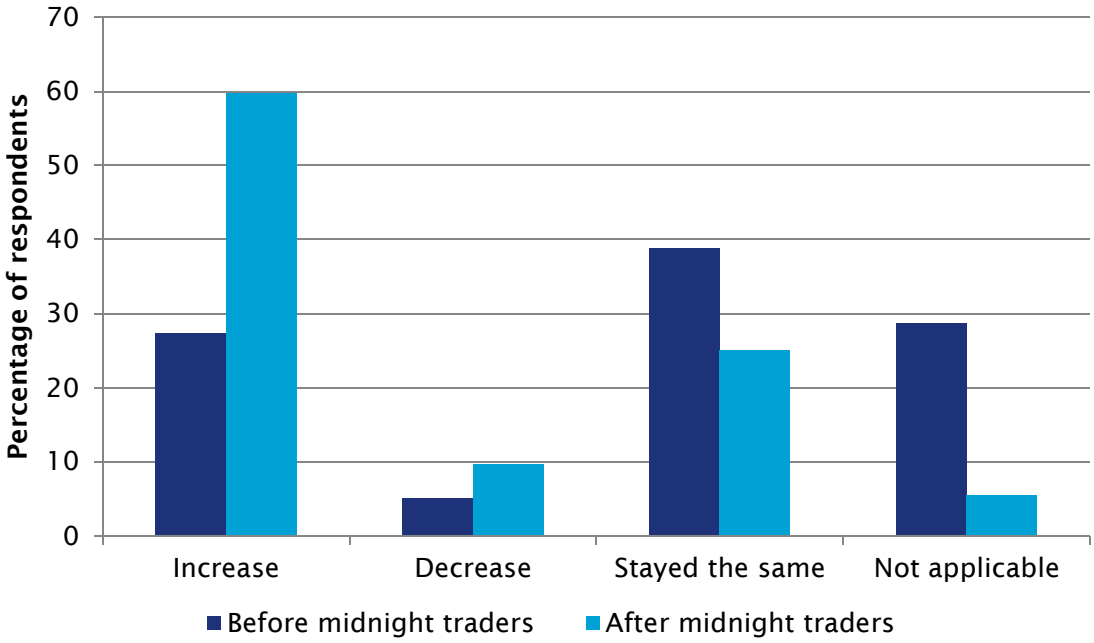
9.6 Other operating costs

Survey respondents were asked to assess the impact of the Plan on their general operating expenses. As shown in Figure 9.6, 59.7% of respondents that trade after midnight indicated an increase in general operating costs since the Plan came into effect, while 25% indicated costs had stayed the same and 9.7% experienced a reduction in operating costs.

This contrasted with before midnight traders, whereby a larger proportion (38.8%) indicated that their operating costs had remained relatively unchanged, and a smaller proportion (27.3%) reported increased costs.

[46] High-risk venues are defined as those with a licence to operate after midnight and with a patron capacity of over 120 persons, and are listed at Schedule 1B of the *Liquor Regulation 2008.*

Figure 9.6: Reported other operating costs of licensed premises in the CBD precinct



Data source: Licensed premises survey (CBD precinct) (2016)

Note: Percentage is based on the before midnight trading survey population (n = 139) or after midnight trading survey population (n=72).

Key factors driving increasing operating costs, particularly for after midnight traders, were identified by respondents in consultations and the survey as:

- additional compliance costs, such as
  - increased staff training to ensure bar staff understand the various licence conditions
  - additional investment by venues in closed-circuit television (CCTV) to assist with monitoring venues -
  - increased security for venues to successfully enforce the 1:30am lock out. -
- increased advertising investment by venues to attract patrons to venues in light of reductions in patronage to the precinct during night time hours
- introduction of the Periodic Licence Fee Scheme (see Box 9.2) that has increased fees for venues that trade after midnight by an additional $2,500 - $5,000 per annum for club and hotel licences
- growth in utility costs and CBD rents
- wages growth
- general increases to other input costs (e.g. food and beverages).

Box 9.2 Cost recovery and the Periodic Licence Fee Scheme

In April 2015, a new annual liquor licence fee scheme was introduced in New South Wales. The Periodic Licence Fee Scheme is a cost-recovery based scheme, designed to link fees charged with the level of resources L&GNSW requires to manage its regulatory responsibilities.

Under the scheme, every liquor licence holder in New South Wales is required to pay a base fee plus risk-based loadings that reflect the risks posed by that venue. Currently, risk-based loadings are based solely on a venue's trading hours. Other risk-based loadings that depend upon compliance history, patron capacity and venue location have been deferred until 2017. The scheme is designed to 'ensure that industry makes a fair and reasonable contribution towards regulatory costs, with high-risk premises paying higher fees' (L&GNSW, 2016f).

The trading hours loading increases annual fees by $2,500 per annum for venues that trade after midnight and $5,000 per annum for venues that trade beyond 1:30am. However, there are exemptions in place for regional and remote venues in small communities and the loading does not apply to restaurants without a primary service authorisation, small bars, accommodation venues or caterers.

9.7 Live music and entertainment industry

Live music and entertainment is primarily used by venue operators to attract patrons and invigorate a venue's food and beverage sales by adding to the general ambience or 'vibe' of a venue.

In stakeholder consultations, music industry representatives indicated that since the introduction of the Plan, the venue-based live music and entertainment industry has experienced:

- reductions in spending on live music by licensed venues such as hotels/pubs and nightclubs
- changes to the times and types of entertainment resulting from venues reducing or shifting forward hours of trade, impacting:
  - typical late evening genres (i.e. DJs and jazz) -
  - emerging artists and lesser known local artists. -
- restricted access to late night music sessions due to the introduction of the 1:30am lock out which has:
  - prevented patrons from accessing late night sessions (unless already located in the venue), thereby impacting the viability of late night programming
  - impacted the 'drop-in' culture of genre-musicians on gigs after 1:30am, thereby restricting opportunities for collaboration and the income of artists. [47]

In addition to information provided in stakeholder consultations, the potential impact of the Plan on the live music and entertainment industry was explored in this evaluation through Treasury's 2016 licensed premises survey and through the analysis of data provided by APRA.

[47] Often musicians move between venues and join in (or 'drop-in') on gigs as the night progresses. This is a way of building connections and increasing exposure and is not always a planned activity.

9.7.1 Survey findings

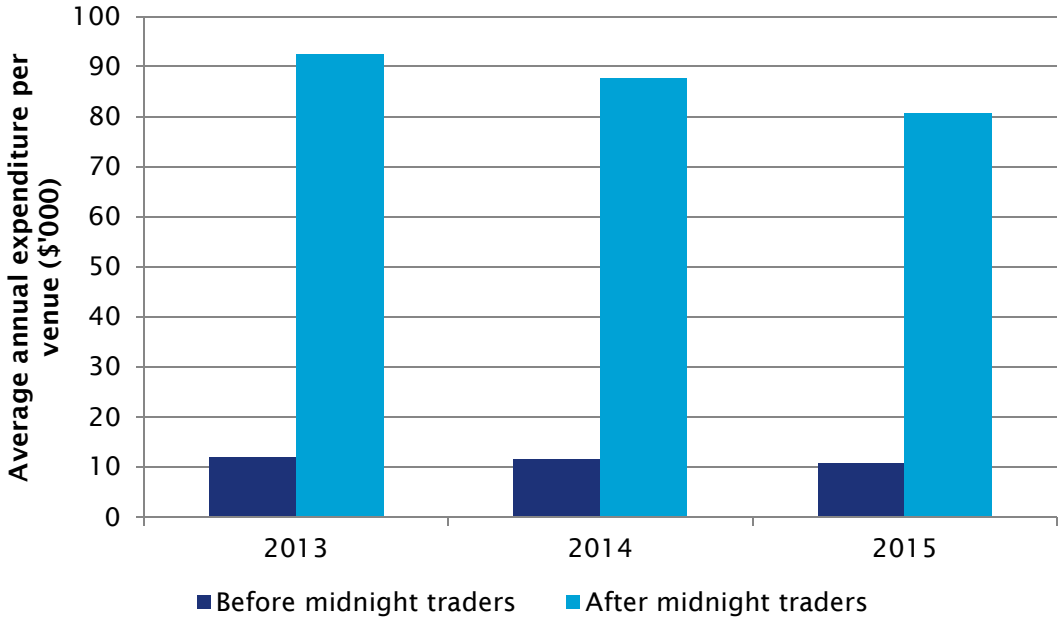
In Treasury's 2016 licensed premises survey (CBD precinct), 51.2% of respondents reported spending on live music and entertainment for their venue in 2015. As shown in Figure 9.7, after midnight traders had a reported higher average spend (of about $80,000) than before midnight traders (of about $10,000) in 2015.

The survey indicated that between 2013 and 2015, reported expenditure of respondents on live music and entertainment declined by an average of 4.7% for before midnight traders and 12.8% for after midnight traders.

Stakeholder consultations indicated that business decisions to reduce expenditure on live music and entertainment were primarily a response to reductions in general patronage and night time trading hours. In particular, the restriction on entry for new patrons after 1:30am (through the lock out) and the decrease in patron spending on alcoholic beverages (through drinks restrictions) played a key role in these declines.

Nevertheless, the survey respondents indicated that expenditure on venue-based live music and entertainment as a proportion of turnover has increased on average across after midnight traders (as shown in Figure 9.8), suggesting that expenditure on venue-based live music has not been fully adjusted to match the decline in turnover.

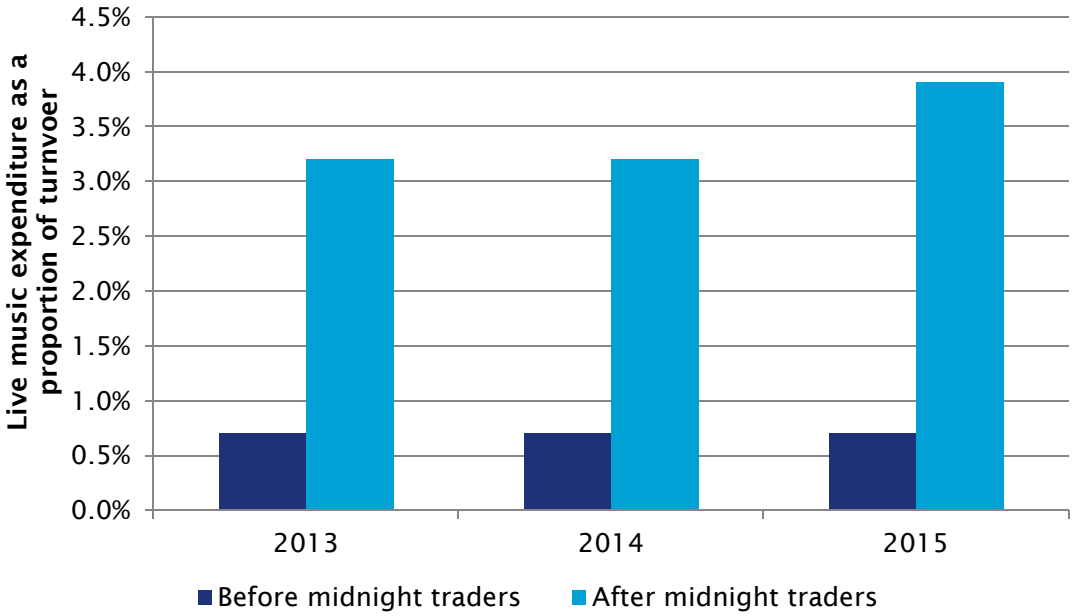
Figure 9.7: Reported expenditure on venue-based live music and entertainment



Data source: Licensed premises survey (CBD precinct) (2016)

Note: (a) Venues that close before or at midnight (n= 139); Venues that close after midnight (n=72). (b) The above averages are for the entire responding population (including those which have nil spending on music and entertainment).

Figure 9.8: Average reported expenditure on venue-based lived music and entertainment as a proportion of turnover



Data source: Licensed premises survey (CBD precinct) (2016)

Note: (a) Venues that close before or at midnight (n= 139); Venues that close after midnight (n=72). (b) The above averages are for the entire responding population (including those which have nil spending on music and entertainment). As some venues did not answer the turnover questions, the number of valid responses for before midnight traders was 98, 102 and 111 for 2013, 2014 and 2015 respectively. The number of valid responses for after midnight traders was 53, 53 and 54 for 2013, 2014 and 2015 respectively.

9.7.2 Australasian Performing Right Association data

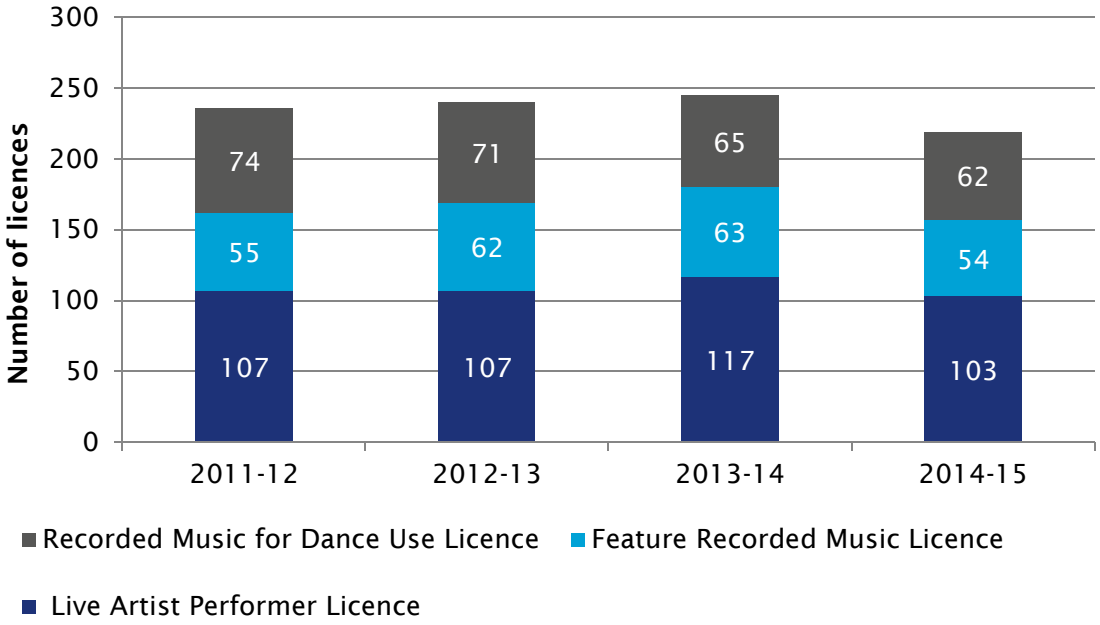
APRA manages performance and communication rights of its members and collects data on the music rights licences issued and expenditure/admissions takings for the industry. In 2015, the APRA data showed there were 103 live artist performance licences, 54 feature recorded licences and 62 licences to play recorded music for dance use in the CBD precinct catchment. [48]

The APRA data show that the number of music licences held by venues increased modestly between 2011-12 and 2013-14, however in 2014-15 the number of music licences held declined to below 2011-12 levels (see Figure 9.9). These declines in music licences have been experienced across all licence types. This is in contrast to the rest of the inner Sydney area that experienced marginal growth in the number of feature recorded licences and licences to play recorded music for dance use (see Table 9.4). [49] The APRA data indicates the number of live artist performance licences declined in areas outside the precinct; however this decline was less pronounced than that observed within the CBD precinct catchment.

[48] - Includes the post code areas: 2000, 2010, 2011.

[49] - Rest of inner Sydney area includes post code areas: 2006, 2007, 2008, 2009, 2015, 2016, 2017, 2018, 2021, 2033, 2037, 2038, 2042, 2043, 2044, 2050

Figure 9.9: Music licences by type in the CBD precinct catchment



Data source: Australasian Performing Right Association (2016)
Note: The above data is for the CBD precinct catchment comprising the post codes: 2000, 2010, 2011 and does not directly align with the CBD Entertainment precinct as prescribed under the Plan.

Table 9.4: Music licences by type in the CBD precinct and Inner Sydney catchments

	Licence type		
	Live Artist Performer	Featured Recorded Music	Recorded Music for Dance Use
CBD precinct catchment [(a)]			
2012-13 (n)	107	62	71
2013-14 (n)	117	63	65
2014-15 (n)	103	54	62
2012-13 to 2014-15 (% change)	-3.7	-12.9	-12.7
Rest of Inner Sydney catchment [(b)]			
2012-13	59	18	10
2013-14	63	18	11
2014-15	58	19	11
2012-13 to 2014-15 (% change)	-1.7	5.6	10

Data source: Australasian Performing Right Association (2016)
Note: (a) CBD precinct catchment includes post code areas: 2000, 2010 and 2011. (b) Rest of inner Sydney area includes post code areas: 2006, 2007, 2008, 2009, 2015, 2016, 2017, 2018, 2021, 2033, 2037, 2038, 2042, 2043, 2044, 2050.

Comparing the venue admission, expenditure and receipt data for the CBD precinct catchment between 2012-13 (pre-Plan) and 2014-15 (post-Plan) (see Table 9.5):

- admissions and the gross value of receipts taken for feature recorded music declined by 13.6% and 71.7%, respectively
- expenditure on recorded music for dance use declined by 17%; however the gross value of receipts increased by 4.6%
- admissions to live artist performances in the CBD precinct catchment declined by 12%.

Table 9.5: Music venue admissions, expenditure and receipts

Licence type	Live Artist Performer	Featured Recorded Music		Recorded Music for Dance Use	
	Admissions number	Admissions number	Value of Receipts[a]	Expenditure[b]	Value of Receipts[a]
	% change (2012-13 to 2014-15)				
CBD precinct catchment [c]	-12	-13.6	-71.7	-17	4.6
Rest of Inner Sydney catchment [d]	86.9	17.8	-35	42.4	-32.5

Data source: Australasian Performing Right Association (2016)

Note: Data on receipts or expenditure for Live Artist Performance (Licence GLA) was not available

(a) Receipts is the Gross Sums Paid for Admission.

(b) Expenditure is the Gross Expenditure on performers and includes all monies and the monetary value of all benefits receivable directly or indirectly by the Performer including all wages, salaries, profit shares, allowances, accommodation, travelling and other expenses.

(c) CBD precinct catchment includes post code areas: 2000, 2010 and 2011.

(d) Rest of inner Sydney area includes post code areas: 2006, 2007, 2008, 2009, 2015, 2016, 2017, 2018, 2021, 2033, 2037, 2038, 2042, 2043, 2044, 2050.

The above CBD precinct catchment trends in the APRA data are contrary to general trends of the rest of the inner Sydney catchment, which experienced increases in live music performance admissions (up 86.9%), feature recorded performance admissions (up 17.8%) and expenditure on recorded music for dance use (up 42.4%). The gross value of receipts on feature recorded music declined by 35% across the rest of the inner Sydney catchment; however these declines were less pronounced than the declines experienced in the CBD precinct catchment (down 71.7%).

Overall, the increases in admissions and expenditure/receipts observed outside the CBD precinct catchment (in the rest of the Inner Sydney catchment area) have not offset the declines in music industry revenues within the CBD precinct catchment.

In consultations, music industry stakeholders highlighted that even though expenditure on music by venues over the medium term has been trending downwards across the Sydney Region, the industry has actively worked to develop strategies to support its growth. Consultations idicate the introduction of the Plan is perceived to have produced a reduction in venue-based music activity and resulted in:

- a loss of creative jobs, particularly for part-time musicians, as well as technical and promotional staff employed at venues to support on-site programming
- a reduction in the number of medium-sized rooms available for live music performances (with capacity of 60 to 300 persons)
- a reduction in live music career opportunities for performers, particularly for local and emerging artists.

Whilst there has been some growth in performance opportunities within Sydney's inner west (i.e. Marrickville, Newtown), it was suggested that performers are looking outside of New South Wales to locations such as Melbourne to gain the relevant performance experience. This gap in the development lifecycle for performers in Sydney might have a longer term impact on the strength of the local music industry and its ability to produce internationally competitive talent. As a result, venue-based live music industry stakeholders felt that the reputation of the CBD as a cultural hub for local artists has been diminished since the introduction of the Plan and expressed concerns for the cultural vibrancy of Sydney's CBD.

Consultations indicate that while it is perceived that the Plan has contributed to the challenges of the venue-based live music industry, it is also acknowledged that the Plan is not the sole contributor and there are a wide range of factors that influence decisions to purchase venue-based live music including other key business costs and changes in consumer sentiment and preferences.

9.7.3 Music venues and the exemption mechanism

There are two types of venues that purchase live music. These are:

- venues that purchase live music as supplementary to food and drink sales. Live music and entertainment for these venues is provided to attract patronage and invigorate food and beverage sales by adding to the ambience of a venue. These venues form the majority located in the CBD precinct
- venues whose primary purpose is to provide live music and entertainment.

For the latter, food and drink sales act as a supplementary income with the business model centred on the scheduling of gigs and ticket sales. These venues work to maximise scheduling to which the 1:30am lock out was cited as a significant barrier to the later sessions.

The exemption mechanism is available to primary purpose music venues (as it is to all venues in the CBD). As discussed in Chapter 3, for an exemption to be granted venues would be required to adopt alternative mitigating measures and demonstrate that the granting of the exemption would not contribute to an increase in violence and antisocial behaviour in the precinct area.

9.8 Gaming industry

In 2015, 11 clubs and 118 hotels in the CBD precinct held electronic gaming machine licences (as well as a licence to serve alcohol). With the introduction of the Plan, some venues reported immediate impacts to gaming profits due to lock outs, which limited patrons from entering the venue for gambling purposes after 1:30am. As at June 2016, 13 gaming venues had been granted an exemption from the 1:30am lock out on the condition that the cease of alcohol service would come into effect at 1:30am (instead of 3:00am).[50]

Quarterly gaming revenue data collected by L&GNSW for venues in the CBD precinct showed that:

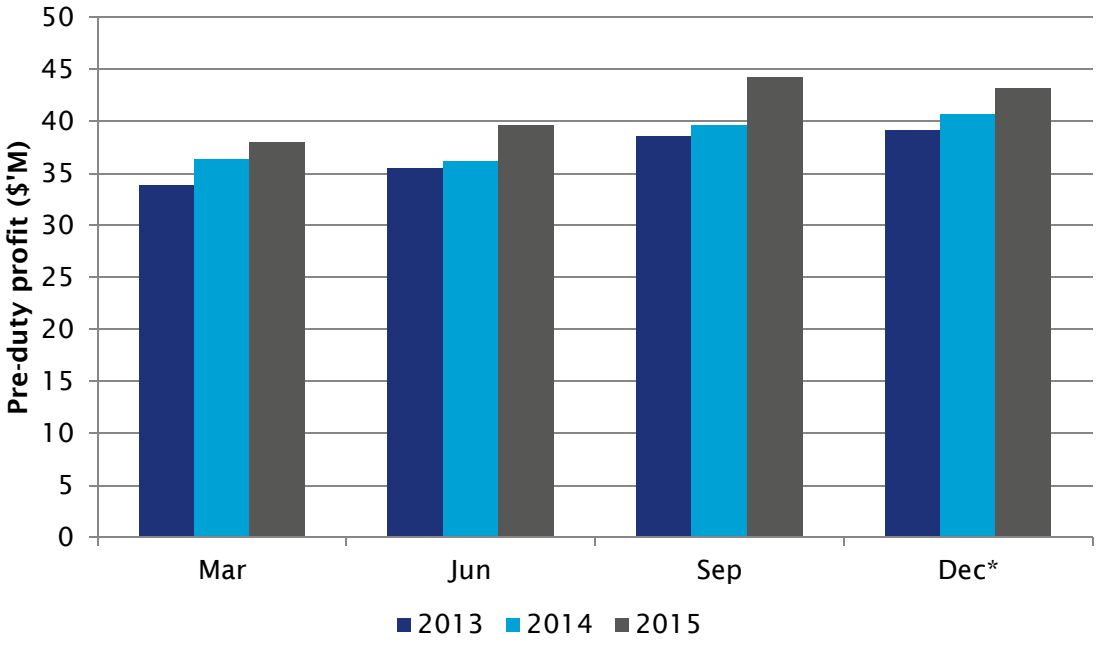
- hotels have experienced annual growth in gaming pre-duty profits between 2013 and 2015 (see Figure 9.10)
- clubs have experienced year-on-year growth in gaming pre-duty profits between 2013 and 2015, for February, May and August Quarters (see Figure 9.11).[51]

Overall venues with gaming licences have experienced marginal to modest growth in annual pre-duty profits of 1.3% and 5.9% for clubs and hotels located in the precinct, respectively, between 2013 and 2015. Consultation with licensed premises highlighted that growth in gaming pre-duty profits has been important for hotels in offsetting impacts of the Plan to their business from reduced alcohol sales after midnight.

[50] - Some gaming venues only have exemptions on weekdays.

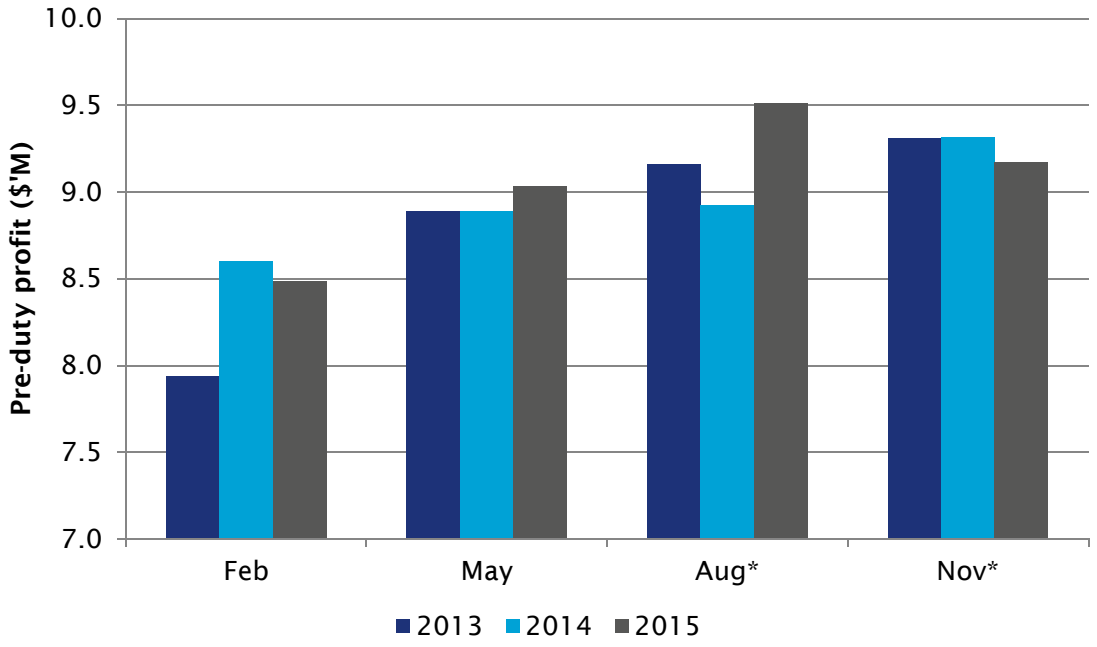
[51] - December Quarter 2015 data is preliminary and may underestimate actual profits. Club and hotels gaming duty periods do not align to the same quarterly data. Club profits are reported as February, May, August and November duty periods and hotel profits are reported as March, June, September and December duty periods.

Figure 9.10: Gaming profits in hotels in the CBD precinct



Data source: L&GNSW (2016g)

Figure 9.11: Gaming profits in clubs in the CBD precinct



Data source: L&GNSW (2016g)

With a number of exemptions being granted for gaming venues, some stakeholders expressed concerns that the attempt to tackle issues related to alcohol consumption in the CBD has exacerbated other social problems.

It should be noted that the provisions for exemption are generic and are not specific to gaming venues. Applications for exemptions can be made for a range of activities as long as appropriate risk mitigation can be demonstrated by the venue applying for the exemption (in agreement with L&GNSW).

9.9 Accommodation providers in the CBD precinct

In 2014, there were 72 accommodation establishments in the Sydney CBD (ABS, 2013).[52] While the primary purpose of these venues is the provision of accommodation, the majority also operate a licensed bar or restaurant for the service of their guests and often general members of the public. These venues operate under an on-premises, hotel or club licence, similar to other non-accommodation venues such as pubs and nightclubs.

Consultation with accommodation industry stakeholders highlighted that bars and restaurants provided within tourism accommodation establishments (particularly those in four- and five-star hotels) have a different role and function than pubs and clubs. These establishments are governed by strict codes of conduct, have high levels of staff training and security and provide restaurant and bar services for the benefit of hotel guests and their visitors.

The *Liquor Amendment Bill 2014* was intended to exempt tourism accommodation establishments from the 1:30am lock outs and 3:00am cessation of alcohol service. These establishments are defined in Schedule 2 of the legislation as follows.

Tourist accommodation establishment means:

a) - premises operating under an on-premises, hotel or club licence that relates to accommodation premises,

b) - that provides accommodation in at least 20 rooms or self-contained suites (other than accommodation on a bed or dormitory-style basis rather than in separate rooms),

c) - that provides beverages, meals and other associated services to temporary residents and their guests.

The Liquor Amendment Bill 2014 states that this definition 'does not include any tourist accommodation establishment bar area on the premises that permits entry or exit (including by way of vestibule) directly to a public street'.

Consultations with accommodation providers and peak industry bodies indicated that while the legislation was intended to exclude licensed venues managed by tourism accommodation establishments from the regulations, in practice a small number of accommodation providers in the CBD operate licensed venues with street or vestibule access (and so have been subject to the lock outs). One accommodation provider explained that the bar attached to their hotel had been specifically designed to enable access by the general public (via a development approval that was lodged three years prior to the introduction of the Plan). This was part of the business model that aimed to ensure the bar accessed the maximum number of local and visiting patrons. However, having street access (that could not be closed off due to fire safety) also meant that this venue was required to comply with the lock outs, cease of alcohol service and other measures introduced via the Plan. It is understood that a small number of other similar venues have experienced the same issue.

Consultations with venue operators and peak industry bodies indicated that the Plan is having an impact on these establishments, particularly those not exempt from the regulations due to the presence of external entrances and vestibules. Accommodation operators reported specific challenges in explaining the restrictions to patrons, who are largely interstate and international visitors and many of whom are from non-English speaking backgrounds.

[52] The ABS classifies the Sydney CBD as consisting of: Sydney, Haymarket and the Rocks. Total accommodation establishments reported are for those with 15 or more rooms.

Particular issues have arisen around the enforcement of the 1:30am lock outs for hotel guests, who can access hotel bars and restaurants internally. For this reason, some venues have chosen to cease trading prior to the 1:30am lock out period as a way of avoiding costs associated with the extra security that would be required to monitor internal and external entrances after the lock out is imposed. Venues reported that these changes to operation have resulted in a reduction in revenue from food and drink sales.

There were also concerns raised by accommodation providers that the reduced trading hours of licensed venues in accommodation establishments may shift consumption of alcohol from accommodation bars to the private rooms of hotel guests.

9.10 The liquor licence freeze

A liquor licence freeze has operated in the Oxford Street/Darlinghurst area since 2009 as well as parts of the CBD South. A liquor licence freeze was applied to the entire precinct with the implementation of the Plan in February 2014. In consultations, Liquor Accord representatives highlighted that there have been challenges for venues in gaining development approval for refurbishment.

Industry representatives indicated that since the introduction of the Plan, there has been an increase in 'red-tape' associated with obtaining development approval from local council for the refurbishment of licensed venues, with many venues not being approved to undertake refurbishment.

This has arisen from the legislative wording relating to the liquor freeze in Division 1A, Section 47A-J of the *Liquor Act 2007.* As per the Act, development consent is only granted to those venues that can demonstrate the development will not result in:

a) - an increase in the number of people who enter the freeze precinct in which the subject premises are situated principally to consume alcohol, or

b) - an increase in patron capacity of the subject premises.

This legislative wording was deemed to be restrictive when applied to planning consents. Stakeholders highlighted that development consent for general refurbishment of premises is frequently not granted on the principle that refurbished premises are more attractive for patrons to visit and investment in building infrastructure therefore has the potential to increase visitation to the precinct.

In addition, the assessment of development applications for licensed premises is complex as it requires consideration of a number of factors including: whether the building is heritage listed, compliance with Building Code of Australia standards, anti-smoking legislation and an assessment of acoustic impact particularly with regard to nearby residents.

However, these factors combined with the restrictive wording pertaining to the liquor licence freeze in the *Liquor Act 2007* have precluded many venues (particularly hotels and pubs) from undertaking basic renovations. This has reduced the level of investment in venue infrastructure in the CBD precinct. Consultation with L&GNSW made clear that preventing the refurbishment and investment of venues in their infrastructure was not the intention of the legislation.

9.11 Impact to other night-time businesses in the CBD precinct

As noted in Chapter 1, in an attempt to capture information on changes to other night-time businesses in the CBD precinct, Treasury administered an online survey to a sample of general businesses (e.g. convenience shops) in the CBD precinct in early 2016. Unfortunately, the survey returned a very low response rate and so this data could not be used as part of the evaluation. Information on the impact of the Plan on other night-time businesses relied primarily on feedback with peak industry bodies and stakeholders in consultations, as presented in the following sections.

9.11.1 Destination venues

Stakeholder consultations suggested that certain destination venues whose primary focus is on providing entertainment activities such as major performing arts, cultural venues and cinemas have not been directly affected by the Plan (e.g. the Opera House). Attendance at these types of venues may be influenced by a wide variety of factors that are independent of alcohol consumption regulations.

However, some large music based venues have identified that the potential to supplement admission sales with alcohol sales has been reduced as a result of the Plan.

9.11.2 Packaged liquor outlets

There are 64 packaged liquor stores located in the CBD precinct and 20 of these have a 'no-walk up' condition (online supplier only). Liquor store industry representatives indicated the Plan has had no direct impacts on liquor stores in the CBD. However, state-wide legislation that introduced mandatory 10:00pm closures of liquor retailers in February 2014 has resulted in some impacts to liquor retailers both in the CBD and across the State. [53]

9.11.3 Non-alcohol-related small businesses

Reduced late night foot traffic to the CBD (see Chapter 7) may have some impact on other late night businesses such as takeaway food and convenience stores. However, it is unclear to what extent other small businesses are indirectly impacted by the Plan. The impact to other night time businesses is likely to have been influenced by many factors.

Small businesses in the CBD have a wide range of challenges such as accessing finance, adopting technology, navigating regulatory environments, and responding to competitive markets. High levels of construction in the CBD precinct and the George Street Light Rail project are currently changing the streetscape of the CBD and also temporarily impacting the amount of ground level retail space available.

Consultations with some peak business bodies suggest there has been limited, if any, representations made to them by non-licensed small businesses regarding the Plan. This might reflect that it is not a matter of significant concern, or that there are more pressing concerns for small businesses located in the CBD. However, further information would be required to adequately assess the impacts on non-alcohol related small businesses in the CBD precinct.

[53] A review of the mandatory 10:00pm liquor store close time is currently being undertaken as part of the Independent Liquor Law Review the Hon Ian Callinan AC QC.

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Appendix A: Policy background

Historical alcohol-related violence trends

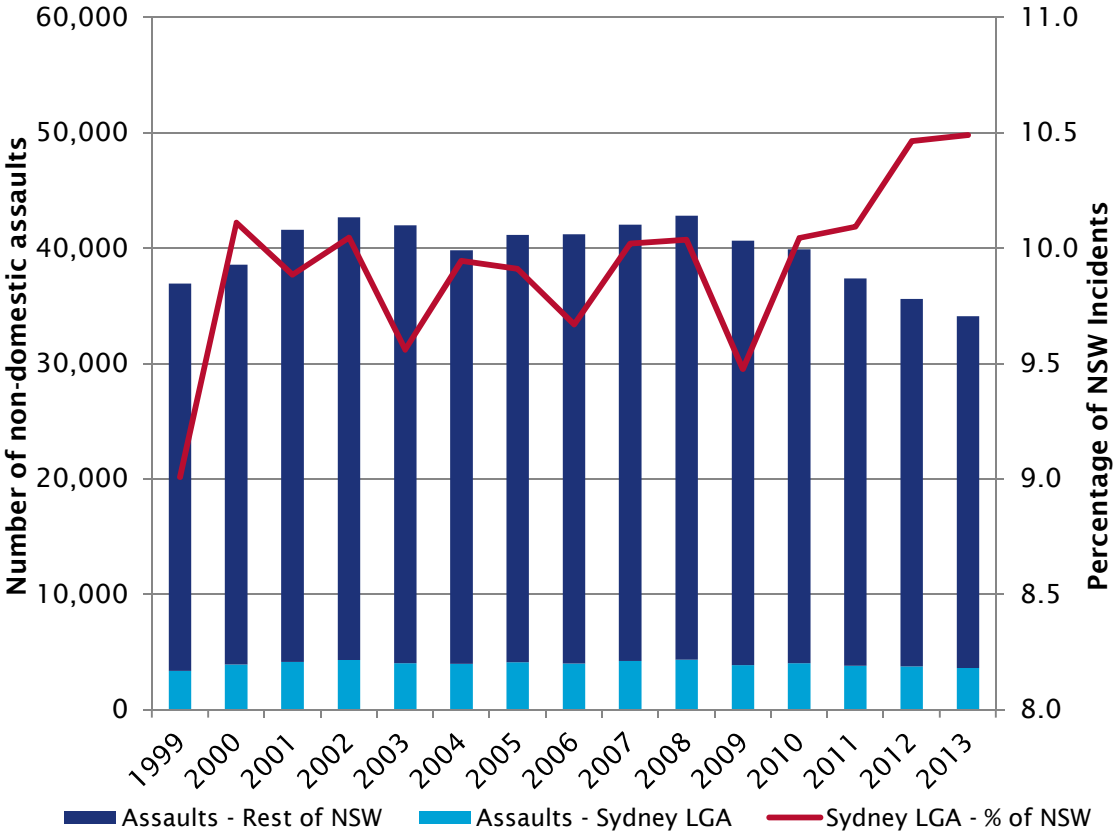
Non-domestic assault trends in the Sydney Local Government Area and the rest of New South Wales prior to 2014

Between 1999 and 2013, the number of recorded non-domestic assault incidents in New South Wales fluctuated. A prominent decline occurred between 2008 and 2013; 42,816 assaults in 2008 to 30,515 assaults in 2013 (see Figure A.1). Over this period, non-domestic assaults in the Sydney LGA declined from 4,297 assaults in 2008 to 3,576 assaults in 2013.

From 2008 a number of initiatives were implemented by the NSW Government targeted at reducing alcohol-related violence including the State-wide Violent Venues Scheme and the Liquor Licence Freeze in particular parts of the State.

Overall, the Sydney LGA share of New South Wales non-domestic violent assaults has increased from 9% in 1999 to 10.5% in 2013.

Figure A.1: Non-domestic assaults in New South Wales



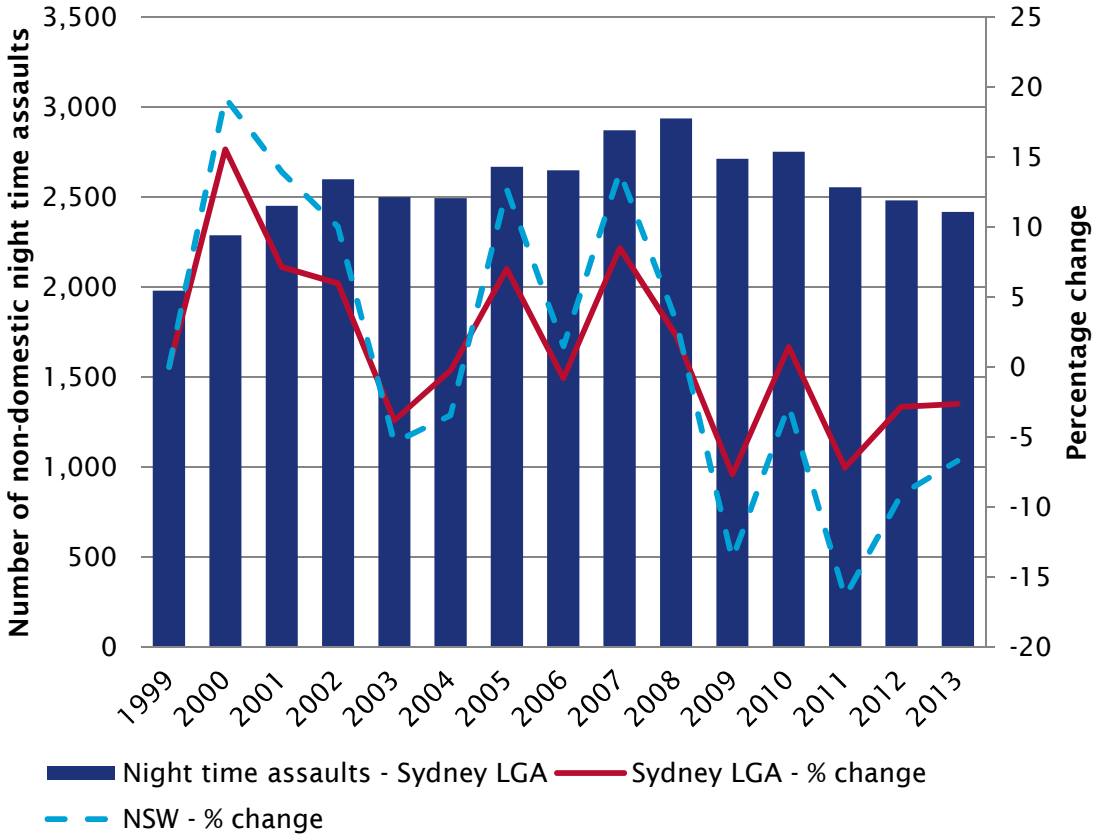
Data source: BOCSAR (2015).
Note: Data provided is year ended December.

Night time non-domestic assault trends in the Sydney Local Government Area and rest of New South Wales prior to 2014

In 2013, 67.6% of non-domestic assaults in the Sydney LGA occurred during night time hours, compared with 51.6% in New South Wales. This highlights that the occurrence of night time assaults poses a greater problem to the Sydney LGA compared with New South Wales as a whole. It is also likely to reflect the size and diverse nature of the late night Entertainment precincts in the Sydney LGA (which includes the CBD, Surry Hills, Kings Cross, Newtown and Pyrmont).

Figure A.2 shows that the annual number of night time non-domestic assaults in the Sydney LGA peaked in 2008 at 2,938 assaults before declining to 2,417 incidents in 2013. In the rest of New South Wales, there was a greater decline between 2008 and 2013, from 21,785 incidents, to 15,756 incidents respectively.

Figure A.2: Non-domestic night time assaults in the Sydney Local Government Area



Data source: BOCSAR (2015).
Note: Data provided is year ended December.

Thus, despite a declining trend in the incidence of non-domestic assaults across New South Wales since 2008, the decline in night time non-domestic assaults in the Sydney LGA was more modest than for the rest of New South Wales.

Background to the 2014 measures

Alcohol-related violence and antisocial behaviour have been on the agenda for health and social policy makers for a considerable time. The publication of a photo of a teenage boy injecting an illicit drug in a laneway in Redfern in late January 1999 sparked debate that provided a catalyst for the NSW Drug Summit later that year. While this event drew attention to some key issues associated with illicit drug use in New South Wales, less attention was given to the negative impacts associated with alcohol consumption.

Following the 1999 NSW Drug Summit there was increasing public debate about the role of government in addressing the harms associated with alcohol consumption including alcohol abuse issues and alcohol-related crime. This culminated in the NSW Summit on Alcohol Abuse in 2003 (hereafter 'the Summit'), which brought together government agencies, academic experts and industry and community representatives. The Summit produced 318 recommendations including primary and secondary prevention strategies to address the problem. It resulted in a 4-year plan to target particular services and programs, as well as a long-term goal to change the way the community consumes and perceives alcohol.

Following the Summit, legislative changes were made to the *Liquor Amendment (Special Events Hotel Trading) Act 2002*. From 2005, Liquor Accords were established in the Sydney CBD; steps were taken to further develop Responsible Service of Alcohol (RSA) standards; and awareness campaigns were launched to complement the operation of newly created campaigns such as Drinkwise.[54] [55]

In 2007, formal complaints by the NSW Police Force and members of the community were made about intoxicated patrons behaving violently and causing damage to property in the Newcastle Entertainment precinct. In response, the NSW Liquor Administration Board imposed trading hour restrictions and 1:30am lock out provisions for 14 pubs in the Newcastle CBD. In 2008, additional legislative amendments also commenced in Newcastle including increased penalties for violating the conditions of alcohol-free zones and restricted drink services after midnight.

Further legislative amendments were also made on a State-wide basis. In October 2008 the Declared Premises Scheme (now the Violent Venues Scheme) was introduced via Schedule 4 of the *Liquor Act 2007* to impose special conditions on venues with high levels of violent incidents. This impacted a number of localities, in particular licensed premises in Kings Cross, the CBD and Manly. In June 2009, the NSW Government announced an initial 12-month freeze on the issuing of new liquor licences in parts of New South Wales, which included Kings Cross, Oxford Street and Darlinghurst, and southern parts of the CBD. In 2010, Precinct Liquor Accords were established to help reduce alcohol-related violence in the most popular New South Wales entertainment districts in Central Sydney, Manly, Parramatta, Newcastle/Hamilton and Wollongong. [56] In 2012, the Government introduced the Three Strikes Disciplinary Scheme: a measure aimed at improving compliance with liquor laws by imposing additional sanctions on licensees for serious breaches of the *Liquor Act 2007*.

[54] - Liquor Accords are an agreement by licensees and other stakeholders to take certain actions in local communities which aim to improve safety in entertainment areas and reduce alcohol-related antisocial behaviour, offences and violence (L&GNSW, 2016i).

[55] - Drinkwise was developed by the liquor industry and involved allocating a proportion of their advertising budget to programs aimed at minimising the harm associated with alcohol consumption.

[56] - Precinct Liquor Accords differ from local Liquor Accords in that they provide a more targeted approach to a defined area, generally with a focus on an Entertainment precinct (L&GNSW, 2016i).

The highly publicised death of Thomas Kelly in an alcohol-fuelled attack in Kings Cross in July 2012, led to the NSW Government's development and implementation of the Kings Cross Plan of Management in two tranches in December 2012 and December 2013. These associated measures were introduced through the *Liquor Amendment (Kings Cross Plan of Management) Act 2012* and included (but were not limited to) restrictions on the quantity of drinks sold per patron, the sale of certain drinks and use of glass after midnight and cease of alcohol service an hour before closing (Parliament of New South Wales, 2014). The Act also provided a new category of 'small venue' liquor licence in the Kings Cross area, with a maximum limit of 60 patrons (Gallacher, 2013). These venues were exempted from the liquor freeze, as a way of encouraging the take up of these licences. Smaller venues were seen to 'provide an alternative to patrons wanting a quiet night out in a smaller and more intimate setting' (Gallacher, 2013). In 2013, the *Liquor Amendment (Small Bars) Bill 2013* extended this new category of liquor licence for small bars across the State.

Almost 18 months after the death of Thomas Kelly, Michael McEwen was placed in an induced coma for eight days after being grievously injured in an alcohol-related assault in Bondi on 14 December 2013. Then on New Year's Eve 2013, Daniel Christie was the victim of a one-punch assault in Kings Cross and died in hospital in January 2014. These serious and violent events, coupled with existing concerns that the alcohol-related night time assaults were unacceptably high in the Sydney LGA compared with the rest of the State, prompted further response from the NSW Government in relation to alcohol-related violence in New South Wales, and the CBD and Kings Cross precincts specifically.

Appendix B.1: Licensed premises survey 2015

Introductory page

If you are accessing this survey, you are one of the licensed premises in the Sydney CBD Entertainment Precinct where the Plan of Management (hereafter the Plan) is operating. The Plan was introduced by the NSW Government in February 2014 and includes regulatory changes and restrictions to liquor licensing.

The Centre for Program Evaluation (CPE) is conducting an evaluation to assess the implementation and impact of the Plan. As part of this evaluation we are seeking the views of ALL licensed premises in the Sydney CBD Entertainment Precinct. Your input will help to ensure the evaluation considers a range of perspectives and experiences.

If your venue is located within the Sydney CBD Entertainment Precinct, a representative from your venue is invited to participate in this survey. Before you do, please read the following key points:

- Only one survey should be completed per venue. The person with the most knowledge of your venue since the Plan was implemented in February 2014 should complete the survey. The survey allows you to save your responses and return to complete the remaining questions at a later time. This means you can collaborate with others in your organisation where necessary.
- The survey includes a combination of fixed response and open answer questions that may take around 20 minutes to complete.
- The survey asks you questions about the implementation and impact of the Plan.
- Your participation is completely voluntary.
- Your answers will be kept completely confidential and no answers will be linked back to individual venues. Data will be presented in an aggregate form in any reports.
- If you work in a licensed venue outside the Sydney CBD (such as in Kings Cross), you should NOT complete this survey. The evaluation is only focusing on the Sydney CBD Entertainment Precinct.

If you have any questions about the survey, please contact XX on (phone) 02 XXX or (email).

Once you have read the information above, click NEXT to begin the survey.

Your venue

What is the licence number or name of your venue? These details will be used to determine characteristics of your venue such as type and size, however all survey findings will be reported in an aggregate form and your venue will not be identifiable.

Please note: Only one survey should be completed per venue. If you are completing this survey on behalf of multiple venues within the Sydney CBD Entertainment Precinct, please select the venue that you are most familiar with.

If your venue is outside the Sydney CBD Entertainment Precinct, you are not eligible to complete this survey.

Implementation of the Plan of Management

The following questions are about the implementation of the Plan of Management.

1. **In your opinion, what have been the main impacts (positive or negative) of the Plan of Management for your venue?**

   _____

   _____

   _____

   _____

2. **Which sources has your venue relied upon for information about the implementation of the Plan (*select all that apply*)?**
   - a. - Liquor Accord(s)
   - b. - Peak industry body
   - c. - Office of Liquor, Gaming and Racing (OLGR)
   - d. - NSW Police
   - e. - Other State Government agency (please specify): _____
   - f. - Local Government
   - g. - Other licensed premises
   - h. - The media
   - i. - Other (please specify): _____

3. **How satisfied were you with the information provided or made available to you in relation to:**

   a. - The regulatory changes and licensing restrictions to be introduced under the Plan?

Very satisfied	Satisfied	Unsure	Dissatisfied	Very dissatisfied
□	□	□	□	□

   b. The actions required of your venue to implement the changes associated with the Plan?

Very satisfied	Satisfied	Unsure	Dissatisfied	Very dissatisfied
□	□	□	□	□

4. **What were the reasons for your answer to Question 3?**

_____

_____

_____

_____

5. **- Since the Plan was introduced, has your venue faced challenges in complying with any of the regulations?** Remember: Results will be presented in aggregate form so that no venues can be identified.
   a. - Yes
   b. - No → Go to Q8

6. **- Which of the regulations have been challenging to comply with *(select all that apply)*?**
   Please note: Some of these regulations may not be relevant to your venue.
   a. - 1:30am lockouts
   b. - 3:00am cease of service
   c. - Drink restrictions (e.g. no shots)
   d. - Restrictions on drink promotions
   e. - Round the clock incident registers
   f. - Crime scene preservation
   g. - No glass after midnight
   h. - RSA competency cards
   i. - RSA marshals
   j. - Ban on outlaw motorcycle gang colours
   k. - Ban on people seen drinking in alcohol free zones
   l. - Prohibiting intoxicated patrons on premise
   m. -No takeaway sales after 10pm
   n. - Other (please specify): _____

7. **How have these regulations been challenging to comply with?**

_____

_____

_____

_____

Impact of the Plan of Management

8. Since the Plan was introduced in February 2014, have you noticed a change in the:

a. Incidence of violence between patrons?

Increase	Decrease	Stayed the same
□	□	□

b. Incidence of violence between patrons and staff?

Increase	Decrease	Stayed the same
□	□	□

c. Number of patrons removed from your venue due to intoxication?

Increase	Decrease	Stayed the same
□	□	□

d. Levels of patronage?

Increase	Decrease	Stayed the same
□	□	□

Impact on business

9. Please provide an estimate in the categories below, the turnover of your business for the 2013 and 2014 calendar years.

Turnover Range	A	B
	2013	2014
Less than $250,000	□	□
$250,000 - $500,000	□	□
$500,000-$750,000	□	□
$750,000- $1.0m	□	□
$1.0m - $1.25m	□	□
$1.25 m - $1.5 m	□	□
$1.5 m - $1.75 m	□	□
$1.75 m - $2.0 m	□	□
$2.0 m - $2.25 m	□	□
$2.25 m - $2.5 m	□	□
$2.5 m - $2.75 m	□	□
$2.75 m - $3.0 m	□	□
$3.0 m - $3.25 m	□	□
$3.25 m - $3.5m	□	□
$3.5m - $3.75m	□	□
$3.75m - $4.0m	□	□
$4.0m - $4.5m	□	□
$4.5m - $5.0m	□	□
$5.0m - $10.0m	□	□
>$10m	□	□

10. **In the 12 months following the implementation of the Plan (2014), how much has your business' annual turnover changed compared to the previous 12 month period (2013)?** ***(Please provide an estimate based on the 2013 and 2014 calendar years).***
    a. Increased: _____%
    b. Decreased: _____%
    c. No change

11. **Please indicate how many people are currently employed at your venue:**
    a. Full time: _____
    b. Part time & casual: _____

12. **Since February 2014, has there been a change in the:**

a. **Number of security personnel employed at your venue?**

Increase	Decrease	Stayed the same (go to q12b)	Please indicate change in the number of security personnel employed (e.g. 4).
□	□	□	

b. **Number of other staff employed at your venue?**

Increase	Decrease	Stayed the same (go to q12c)	Please indicate change in the number of other staff employed (e.g. 8).
□	□	□	

c. **Number of staff who are RSA approved employed at your venue?**

Increase	Decrease	Stayed the same (go to q12d)	Please indicate change in the number of staff who are RSA approved (e.g. 8).
□	□	□	

d. **Costs associated with property damage?**

Increase	Decrease	Stayed the same (go to q12e)	Please indicate change in annual costs of property damage (e.g. $7000 per annum).
□	□	□	

e. **Insurance costs for your venue?**

Increase	Decrease	Stayed the same (go to q12f)	Please indicate change in annual insurance cost (e.g. $1,000 per annum)
□	□	□	□

f. **Other operating costs for your venue?**

Increase (go to q13)	Decrease (go to q13)	Stayed the same (go to q14)	Please indicate change in annual operating costs (e.g. $5,000 per annum)
□	□	□	□

13. **Please specify in what ways the operating costs for your venue have changed.**

_____

_____

14. **Have you modified your business practice in response to the introduction of the Plan in February 2014?**
    a. Yes → Go to q15
    b. No → Go to exit
15. **Have you changed the price of your food and/or beverage services since the Plan was introduced in February 2014?**
    a. Yes
    b. No → Go to q16

    Please indicate how you have changed the prices of your food and/or beverage services since the Plan was introduced in February 2014.

	Increased	Decreased	No change
Price of food	□	□	□
Price of beverages	□	□	□
Price of entry / cover charge	□	□	□

16. **Have you changed the product and/or services offered by your venue since the Plan was introduced in February 2014?**
    a. Yes
    b. No → Go to q17

    Please indicate how the product and/or services offered have changed. *Select all that apply.*
    c. Change in types of food offered (please specify):_____
    d. Change in types of beverages offered (please specify): _____
    e. Change in entertainment program (please specify):_____
    f. Other (please specify): _____

17. **Have you changed the operating hours since the Plan was introduced in February 2014?**
    a. Yes
    b. No → Go to q18

    Please indicate how the operating hours of your venue has changed. *Select all that apply.*
    c. Longer operating hours
    d. Shorter operating hours
    e. Shift in operating hours

18. **Have you changed your business practice by actively targeting different patron markets since the Plan was introduced in February 2014?**
    a. Yes
    b. No----------

The survey is now complete.

Appendix B.2: Licensed premises survey 2016 (CBD Precinct)

Introductory page

The Centre for Program Evaluation (CPE) in NSW Treasury is conducting an evaluation of the Sydney CBD Entertainment precinct Plan of Management. 'The Plan' (colloquially referred to as the 'lock out laws') was introduced by the NSW Government in February 2014 and covers a range of measures including changes to licence conditions.

Treasury is now in the second and final stage of its evaluation, and invites a representative from your venue to participate in this survey. The survey asks questions about the implementation and impacts of the Plan on your business. Your involvement would be greatly appreciated as it will help to inform Treasury's final evaluation report.

Before completing the survey, please note that:

- The closing date of the survey is **midnight on Tuesday 1 March 2016.**
- Your participation is completely voluntary.
- **Only one survey should be completed per venue.** The person with the most knowledge of your venue since the Plan was implemented in February 2014 should complete the survey. The survey allows you to save your responses and return to complete the remaining questions at a later time. This means you can collaborate with others in your organisation where necessary.
- If you represent a licensed venue outside the Sydney CBD Entertainment precinct (such as in Kings Cross, Newtown etc.), **DO NOT** complete this survey. However, you may be eligible to complete another survey. Please email XX for further information.
- The survey asks questions about the implementation and impact of the Plan on your business.
- Your answers will be kept completely confidential and the presentation of survey results will not refer to individual venues.
- The survey includes a combination of fixed response and open answer questions that may take around 20 minutes to complete.

If you have any questions about the survey, please contact XX or call XX.

Once you have read the information above, click NEXT to begin the survey.

Business operations

1. **Please indicate in the table below, the operating hours of your venue in a typical working week in the 2015 calendar year.**

	Opening time	Closing time
Monday	Choose an item.	Choose an item.
Tuesday	Choose an item.	Choose an item.
Wednesday	Choose an item.	Choose an item.
Thursday	Choose an item.	Choose an item.
Friday	Choose an item.	Choose an item.
Saturday	Choose an item.	Choose an item.
Sunday	Choose an item.	Choose an item.

2. **Are these operating hours different to prior to the Plan being introduced in February 2014?**

   c. Yes
   d. No → Go to Q4

3. **Please indicate in the table below, the operating hours of your venue in a typical working week in the 2013 calendar year.**

	Opening time	Closing time
Monday	Choose an item.	Choose an item.
Tuesday	Choose an item.	Choose an item.
Wednesday	Choose an item.	Choose an item.
Thursday	Choose an item.	Choose an item.
Friday	Choose an item.	Choose an item.
Saturday	Choose an item.	Choose an item.
Sunday	Choose an item.	Choose an item.

4. **Have you modified your business practice in any way in response to the introduction of the Plan?**

   a. Yes
   b. No → Go to Q8

5. **Over the past 12 months, have you changed the product and/or services offered by your venue?**

   a. Yes
   b. No → Go to Q6

   Please indicate how you have changed the product and/or services offered at your venue. *(Select all that apply).*

   a. Change in types of food offered (please specify):_____
   b. Change in types of beverages offered (please specify): _____
   c. Change in entertainment program (please specify):_____
   d. Other (please specify): _____

6. **Over the past 12 months, have you changed your business practice by actively targeting different patron markets?**

   a. Yes
   b. No

7. **Over the past 12 months, have you changed the prices of the products and/or services offered at your venue?**

   a. Yes
   b. No → Go to Q8

   Please indicate how you have changed the prices of the products and/or services offered at your venue.

	Increased	Decreased	No change
Price of food	□	□	□
Price of beverages	□	□	□
Price of entry / cover charge	□	□	□

Live music and entertainment

8. **How much did your venue spend on live music and entertainment in the 2013, 2014 and 2015 calendar years?**

Live music and entertainment spending		
2013	2014	2015
[57]See footnote for spending categories		

Patronage

9. **Comparing 2015 with 2013, have you noticed a change in patronage to your venue?**

   a. Yes
   b. No → Go to Q12

[57] Live music and entertainment spending categories were provided in increments of $5,000 up to $100,000, and $10,000 increments up to $250,000. Categories of '$0', 'More than $250,000' and a 'not applicable' were also provided.

10. **Comparing 2015 with 2013, has patronage to your venue increased, decreased or stayed the same for the time periods indicated below?** ***(Select increased, decreased or no change for each time period).***

Time periods	**Change in patronage**
Day time (6am – 6pm)	Choose an item.
Night time (6pm – midnight)	Choose an item.
After midnight (Midnight – 6am)	Choose an item.

11. **What factors do you believe are influencing changes in patronage?**

Employment

12. **Please indicate how many people were employed at your venue in a typical working week in the 2013, 2014 and 2015 calendar years.**
(Note: Full-time workers are classified as those who work a minimum of 35 hours per week. Part-time workers are classified as those who work less than 35 hours per week).

	Number of employees		
	Full-time	Part-time	Not applicable
2013	___	___	☐
2014	___	___	☐
2015	___	___	☐

13. **Comparing 2015 with 2013, has there been a change in staffing requirements for your venue?**
    a. Yes
    b. No → Go to Q15
    c. Not applicable → Go to Q15
14. **On a scale of 1 to 10 (where 1 = not at all responsible and 10 = completely responsible), to what extent do you believe that the Plan has been responsible for this change?**

(Not at all responsible) (Completely responsible)
1——————2——————3——————4——————5——————6——————7——————8——————9——————10

Please explain the reason(s) for your answer to Question 14, including any other factors that you believe may have influenced changes in the staffing requirements for your venue:

Business turnover

15. Please provide an estimate of the turnover of your venue in the 2013, 2014 and 2015 calendar years.

Turnover range		
2013	2014	2015
See footnote for categories[58]		

16. Comparing 2015 with 2013, has there been a change in the annual turnover of your venue?

a. Yes
b. No → Go to Q18
c. Not applicable → Go to Q18

17. On a scale of 1 to 10 (where 1 = not at all responsible and 10 = completely responsible), to what extent do you believe that the Plan has been responsible for this change in turnover?

(Not at all responsible) (Completely responsible)

1——2——3——4——5——6——7——8——9——10

Please explain the reason(s) for your answer to Question 17, including any other factors that you believe may have influenced changes in the turnover of your business:

Non-labour costs

18. Comparing your venue in 2015 with 2013, please indicate whether there has been a change in costs associated with property damage (e.g. from disorderly behaviour) for your venue:

a. Increase in costs
b. Decrease in costs
c. Stayed the same
d. Not applicable

Please indicate the annual changes in costs associated with property damage (e.g. $7,000 per annum) for your venue.

[58] Turnover ranges were provided in increments of $50,000 up to $1.0 million, and $100,000 increments up to $10.0 million. An option of 'Greater than $10.0 million' was also provided.

19. **Comparing your business in 2015 with 2013, please indicate whether there has been a change in other operating costs for your venue:**
    a. Increase in costs
    b. Decrease in costs
    c. Stayed the same
    d. Not applicable

Please indicate the annual change in venue operating costs (e.g. $5,000 per annum).

Please specify in what ways the operating costs for your venue have changed.

Implementation of the Plan of Management

20. **Over the past 12 months, has your venue faced any challenges in complying with the regulations that were introduced as part of the Plan of Management in February 2014?**
    (Remember: The presentation of survey results will not refer to individual venues to ensure confidentiality).
    a. Yes
    b. No → Go to Q23

21. **Over the past 12 months, which of the regulations has been challenging to comply with? (*Select all that apply*)** *(Please note: Some of these regulations may not be relevant to your venue).*
    a. 1:30am lock outs
    b. 3:00am cease of service
    c. Drink restrictions (e.g. no shots)
    d. Restrictions on drink promotions
    e. Round the clock incident registers
    f. Crime scene preservation
    g. No glass after midnight
    h. RSA competency cards
    i. RSA marshals
    j. Ban on outlaw motorcycle gang colours
    k. Ban on people seen drinking in alcohol free zones
    l. No takeaway sales after 10pm
    m. Other (please specify): _____

22. **Over the past 12 months, in what ways have these regulations been challenging to comply with?**

23. Please select the regulations that, in your view, have assisted you and your staff MOST in promoting a safer drinking environment (*Select a maximum of three regulations*).

a. 1:30am lock outs
b. 3:00am cease of service
c. Drink restrictions (e.g. no shots)
d. Restrictions on drink promotions
e. Round the clock incident registers
f. Crime scene preservation
g. No glass after midnight
h. RSA competency cards
i. RSA marshals
j. Ban on outlaw motorcycle gang colours
k. Ban on people seen drinking in alcohol free zones
l. No takeaway sales after 10pm
m. None of the above

24. Has your venue adopted any other measures to help promote a safer drinking environment?

a. Yes
b. No → Go to Q25

What other measures has your venue adopted?

Comments

25. Do you have any further comments about the CBD Plan of Management since its introduction in February 2014?

Appendix C: Licensed premises survey 2016 (Broader Sydney Catchment Area)

Introductory page

The Centre for Program Evaluation (CPE) in NSW Treasury is conducting an evaluation of the Sydney CBD Entertainment precinct Plan of Management (colloquially referred to as the 'lock out laws'). 'The Plan' was introduced by the NSW Government in February 2014 to reduce alcohol-related violence and antisocial behaviour and comprises a range of measures including changes to licence conditions for venues in the prescribed CBD Entertainment precinct.

As part of this evaluation, we are seeking to capture the views and experiences of licensed venues both inside and outside the CBD Entertainment precinct. You have received this survey because your venue is outside the CBD Entertainment precinct, but located in an immediately surrounding area or nearby suburb.

A representative from your venue is invited to participate in this survey and your input is greatly appreciated.

Before you do, please read the following key points:

- The closing date of the survey is **midnight on Wednesday 2 March 2016.**
- Your participation is completely voluntary. The survey asks you questions about your business operations. However, if you do not wish to answer any of the questions you do not have to.
- **Only one survey should be completed per venue.** The person with the most knowledge of your venue's operations should complete the survey. The survey allows you to save your responses and return to complete the remaining questions at a later time. This means you can collaborate with others in your organisation where necessary.
- If your venue is located inside the prescribed Sydney CBD Entertainment precinct or Kings Cross precinct, you should **NOT** complete this survey. Please email XX to request access to the specific CBD precinct or Kings Cross precinct survey currently being conducted.
- Your answers will be kept completely confidential and the presentation of survey results will not refer to individual venues.
- The survey includes a combination of fixed response and open answer questions that may take around 15 minutes to complete.

If you have any questions about the survey, please email XX or call XX.

Once you have read the information above, click NEXT to begin the survey.

Employment

1. **Please indicate in the table below how many people were employed at your venue in a typical working week in the 2013, 2014 and 2015 calendar years.**
   (Note: Full-time workers are classified as those who work a minimum of 35 hours per week. Part-time workers are classified as those who work less than 35 hours per week).

	Number of employees		
	2013	2014	2015
Full time	___	___	___
Part time	___	___	___
Not applicable	□	□	□

Operating hours

2. **Please indicate in the table below, the operating hours of your venue in a typical working week in 2015.**

	Opening time	Closing time
Monday	Choose an item.	Choose an item.
Tuesday	Choose an item.	Choose an item.
Wednesday	Choose an item.	Choose an item.
Thursday	Choose an item.	Choose an item.
Friday	Choose an item.	Choose an item.
Saturday	Choose an item.	Choose an item.
Sunday	Choose an item.	Choose an item.

3. **Are these operating hours different to the operating hours of your venue in 2013?**
   a. Yes
   b. No → Go to Q5

4. **Please indicate in the table below, the operating hours of your venue in a typical working week in 2013.**

	Opening time	Closing time
Monday	Choose an item.	Choose an item.
Tuesday	Choose an item.	Choose an item.
Wednesday	Choose an item.	Choose an item.
Thursday	Choose an item.	Choose an item.
Friday	Choose an item.	Choose an item.
Saturday	Choose an item.	Choose an item.
Sunday	Choose an item.	Choose an item.

Turnover and business performance

5. Please provide an estimate of the turnover of your business in the 2013, 2014 and 2015 calendar years.

Turnover range		
2013	2014	2015
See footnote for categories[59]		

Visitors and patronage

6. Since the beginning of 2014, have you noticed a change in the number of people visiting your local area?

a. Yes
b. No → Go to Q9

7. Since the beginning of 2014, has the number of visitors to your local area increased, decreased or stayed the same for the time periods indicated below? *(Select increased, decreased or no change for each time period).*

Time of day	Increase in visitor numbers	Decrease in visitor numbers	No change in visitor numbers	Not sure / not applicable
Day time (6am – 6pm)	☐	☐	☐	☐
Night time (6pm – midnight)	☐	☐	☐	☐
After midnight (Midnight – 6am)	☐	☐	☐	☐

8. What factors do you believe are influencing the change in visitor numbers at these times?

9. Since the beginning of 2014, have you noticed a change in patronage to your venue?

a. Yes
b. No → Go to Q12

[59] Turnover ranges were provided in increments of $50,000 up to $1.0million, and $100,000 up to $10.0million.

10. Since the beginning of 2014, has patronage to your venue increased, decreased or stayed the same for the time periods indicated below? *(Select increased, decreased or no change for each time period).*

Time of day	Increase in patronage	Decrease in patronage	No change in patronage	Not sure / not applicable
Day time (6am – 6pm)	☐	☐	☐	☐
Night time (6pm – midnight)	☐	☐	☐	☐
After midnight (Midnight – 6am)	☐	☐	☐	☐

11. What factors do you believe are influencing changes in patronage?

Live music and entertainment

12. How much did your venue spend on live music and entertainment in the 2013, 2014 and 2015 calendar years?

Live music and entertainment spending		
2013	2014	2015
[60]See footnote for spending categories		

Other business practices

13. Is your venue a member of a local Liquor Accord?

a. Yes
b. No

14. Has your venue adopted any measures to help promote a safer drinking environment?

a. Yes
b. No → Go to Q16

[60] Live music and entertainment spending categories were provided in increments of $5,000 up to $100,000, and $10,000 increments up to $250,000. A '$0', 'More than $250,000' and a 'not applicable' category was also provided.

15. Please indicate in the table below, which measures your venue has adopted and whether these were voluntary / self-imposed or non-voluntary / mandated? *(Select all that apply)*

	Has your venue adopted this measure? [Yes OR No]	What was the nature of this measure? [Voluntary / self-imposed OR non-voluntary / mandated]
Lock outs	Choose an item.	Choose an item.
Cease of alcohol service	Choose an item.	Choose an item.
Earlier closing time	Choose an item.	Choose an item.
Drink restrictions (e.g. no shots)	Choose an item.	Choose an item.
Limited / no use of glassware	Choose an item.	Choose an item.
Restrictions on drink promotions	Choose an item.	Choose an item.
ID scanners	Choose an item.	Choose an item.
CCTV	Choose an item.	Choose an item.
Incident registers	Choose an item.	Choose an item.
Ban on entry for people seen drinking in alcohol free zones	Choose an item.	Choose an item.
RSA marshals	Choose an item.	Choose an item.
Other (please specify):	Choose an item.	Choose an item.

Safety

16. Since the beginning of 2014, have you noticed a change in the:

e. Incidence of violence between patrons at your venue?

Increase	Decrease	Stayed the same	Not applicable
□	□	□	□

f. Incidence of violence between patrons and staff at your venue?

Increase	Decrease	Stayed the same	Not applicable
□	□	□	□

g. Number of patrons removed from your venue due to intoxication?

Increase	Decrease	Stayed the same	Not applicable
□	□	□	□

General comments

17. Do you have any further comments about liquor licensing arrangements at the venue, local or State level?

Appendix D: Stakeholder organisations consulted

2015 consultation list

State and local government agencies

- Department of Justice
- Department of Premier and Cabinet
- NSW Police Force
- Office of Liquor Gaming and Racing
- Transport for NSW
- City of Sydney

Other government services

- Ambulance NSW
- Destination NSW
- St Vincent's Hospital

Community organisations

- Foundation for Alcohol Research and Education (FARE)
- Salvation Army
- Shop Front Youth Legal Centre
- Wake Up

Peak industry bodies

- Australian Hotels Association (NSW)
- Australian Security Industry Association Limited
- Clubs NSW
- Darlinghurst Business Partnership
- Distilled Spirits Industry Council of Australia
- Diageo
- Liquor Stores Association NSW
- Live Music Office
- Music NSW
- NSW Taxi Council
- Restaurant and Catering Industry Association
- Sydney Business Chamber
- Sydney Liquor Accords
    - City Central Liquor Accord
    - City North Liquor Accord
    - Darling Harbour Liquor Accord
    - Surry Hills Liquor Accord
    - Sydney Harbour Charter Vessel Liquor Accord
- Tourism Accommodation Australia

Outside CBD precinct

- The Star

Licensed premises

Consultations were also undertaken with a selection of individual licensed premises. The names of these businesses have not been included here to due to confidentiality.

2016 consultation list

State and local government agencies
• Department of Justice • Department of Premier and Cabinet • Small Business Commissioner • Sydney Local Area Command (NSW Police Force) • Liquor & Gaming NSW • Transport for NSW • Transport for NSW (CBD Coordination Office) • City of Sydney
Other government services
• Ambulance NSW • St Vincent's Hospital • Sydney Harbour Foreshore Authority
Community organisations
• 2011 Residents Association • Darlinghurst Residents Association Group • Foundation for Alcohol Research and Education (FARE) • Salvation Army • Walsh Bay Residents Group
Peak industry bodies

• Australasian Performing Right Association
• Australian Hotels Association (NSW)
• Australian Security Industry Association Limited
• Clubs NSW
• Darlinghurst Business Partnership
• Diageo
• Liquor Stores Association NSW
• Live Music Office
• Music NSW
• NSW Taxi Council
• Small Bars Association
• Sydney Liquor Accords
  o City North Liquor Accord
  o Darling Harbour Liquor Accord
  o Surry Hills Liquor Accord
  o Kings Cross Liquor Accord
• Tourism Accommodation Australia

Outside CBD precinct
• Woollahra Council • Marrickville Council • Rose Bay Local Area Command (NSW Police Force) • Surry Hills Local Area Command (NSW Police Force) • Kings Cross Local Area Command (NSW Police Force) • The Star
Licensed Premises Consultations were held with a small number of licensed premises/live music venues.

Appendix E: Department of Justice pedestrian intercept survey

February 2014 and 2015, March 2016[61]

Hi I'm doing a very quick survey on late night behavior for the NSW Government. It will only take a few minutes. Can I ask you some questions please?

All the information you give will remain anonymous and will be used for late night transport planning and management in the City.

PURPOSE & ACTIVITIES

Q1. Why are you in [insert precinct] this evening?

1 Returning home
2 Going to or from work/business in this area
3 Going out/socialising in this areas – pub or club
4 Going out socialising in this areas – café or restaurant
5 Passing through
6 Attending a buck/hens party; going on a pub crawl
7 Entertainment facility (e.g. cinema, entertainment centre, theatre)
8 Other (note).....
99 Can't say
66 Refused

Q1b) How many people are you here with, or meeting up with, tonight? (Don't read the options, just circle the person's response)

1 1 other person
2 2-5 people
3 6-10 people
4 11+ people

Q1c) Have you had, or will you have, an alcoholic drink at any time tonight?

1 Yes
2 No
3 Maybe
99 Can't say
66 Refused

ORIGIN

Q2a) *Before you came to [insert precinct], have you been out/working/socialising in any other areas? Or did you come straight from home?*

1	Yes	=> go to Q2b
2	No - came straight from home	=> go to Q2b
99	Can't say	=> go to Q 3a
66	Refused	=> go to Q 3a

Q2b *Where was that?*

[61] Note Question 10 in 2014 and 2015/2016 were different, as shown.

DESTINATION

INTERMEDIATE

Q3a) Before you go home tonight, do you plan to go to out eating, drinking or socialising, in any other areas? e.g. Surry Hills, The City, The Rocks. Or are you heading home?

1	Yes	=> go to Q 3b
2	Can't say – probably go out	=> go to Q 3b
3	Can't say - probably go home	=> go to Q 4
4	No - heading home	=> go to Q 4
99	Can't say	=> go to Q 4
66	Refused	=> go to Q 4

Q3b) Where to?

Q3c) How will you get there?

1	Rail	6	By bike
2	On foot	7	By Ferry/boat
3	By private car	99	Can't say
4	By taxi	66	Refused
5	By bus		

Q4) *What is the name of your home suburb/postcode?* -

Q5) And how will you get home or to where you are staying tonight? -

1	Rail	6	By bike
2	On foot	7	by ferry/boat
3	By private car	99	Can't say
4	By taxi	66	refused
5	By bus		

Q6) *What time are you planning on going home or to where you are staying?*

1	Before midnight
2	Around midnight-1am
3	1am to 2am
4	2am to 3am
5	3am to 4am
6	4am – 5am
7	Later than 5am
99	Can't say
66	refused

Q7) W*hat will influence the time you decide to go home or to where you are staying?*

8	When I get bored
9	When my friends want to leave
10	When the venue I am at closes
11	When the last bus / train leaves
12	When I run out of money
13	When I'm drunk
14	If I pick up
15	Other _____
99	Can't say
66	refused

SAFETY

Q8) How safe or unsafe do you feel in (insert precinct) late at night?
Note – no skips for this question, ask all participants Q9a

1 Very safe
2 Safe
3 Unconcerned
4 Unsafe
99 Can't say
66 Refused

Q9a) What do you think would reduce crime and / or increase your feelings of safety?

1 More people/activity
2 Longer shopping hours
3 Security guards
4 More police
5 Better lighting
6 Other, please state_____

Q9b) Have you ever been the victim of an assault or other violent crime in the Sydney CBD?

1 yes (Go to Q9 c)
2 no (Go to Q9 d)

Q9c) What type of assault or other violent crime? Were you:

1 Pushed
2 Punched
3 involved in a brawl
4 robbed
5 sexually harassed in a physical way (e.g. unwanted physical contact)

Q9 d) Have you ever witnessed an assault or other violent crime in the Sydney CBD?

1 yes (Go to Q9 e)
2 no (Go to Q10)

Q9 e) What type of assault or other violent crime have you witnessed? Someone being:

1 Pushed
2 Punched
3 involved in a brawl
4 robbed
5 sexually harassed in a physical way (e.g.: unwanted physical contact)

COMMUICATION

Q10 (2014) Are you aware of the changes that will come into force next week relating to venue lock outs and closing times?

1 Yes
2 No
99 Can't say
66 Refused

Q10 (2015 & 2016) Do you think the lock-out implemented last year has improved overall public safety?

1 Yes
2 No
99 Can't say
66 Refused

Demographics

Record sex

1 Male
2 Female
3 Transgender

Record age group

1 <18;
2 18-19;
3 20-24;
4 25-29;
5 30-34;
6 35-39;
7 40-49;
8 50-59;
9 60+

Record Intoxication level of respondent:

1 not intoxicated
2 slightly intoxicated
3 moderately intoxicated
4 severely intoxicated

Record time and location of survey -

Time of survey: <<interviewer to write in>> -
Location of survey: <<interviewer to write in>> -

Appendix F: Late night transport in the CBD

There is limited data available on the availability and usage of public and private transport in the CBD precinct. To fill this data gap and to inform the ongoing implementation of the Plan and late night transport services in the CBD, TfNSW was provided with funding in 2014 to undertake data collection and research on late night transport usage. This Appendix presents the findings of this research, with some additional data presented from the Opal card database.

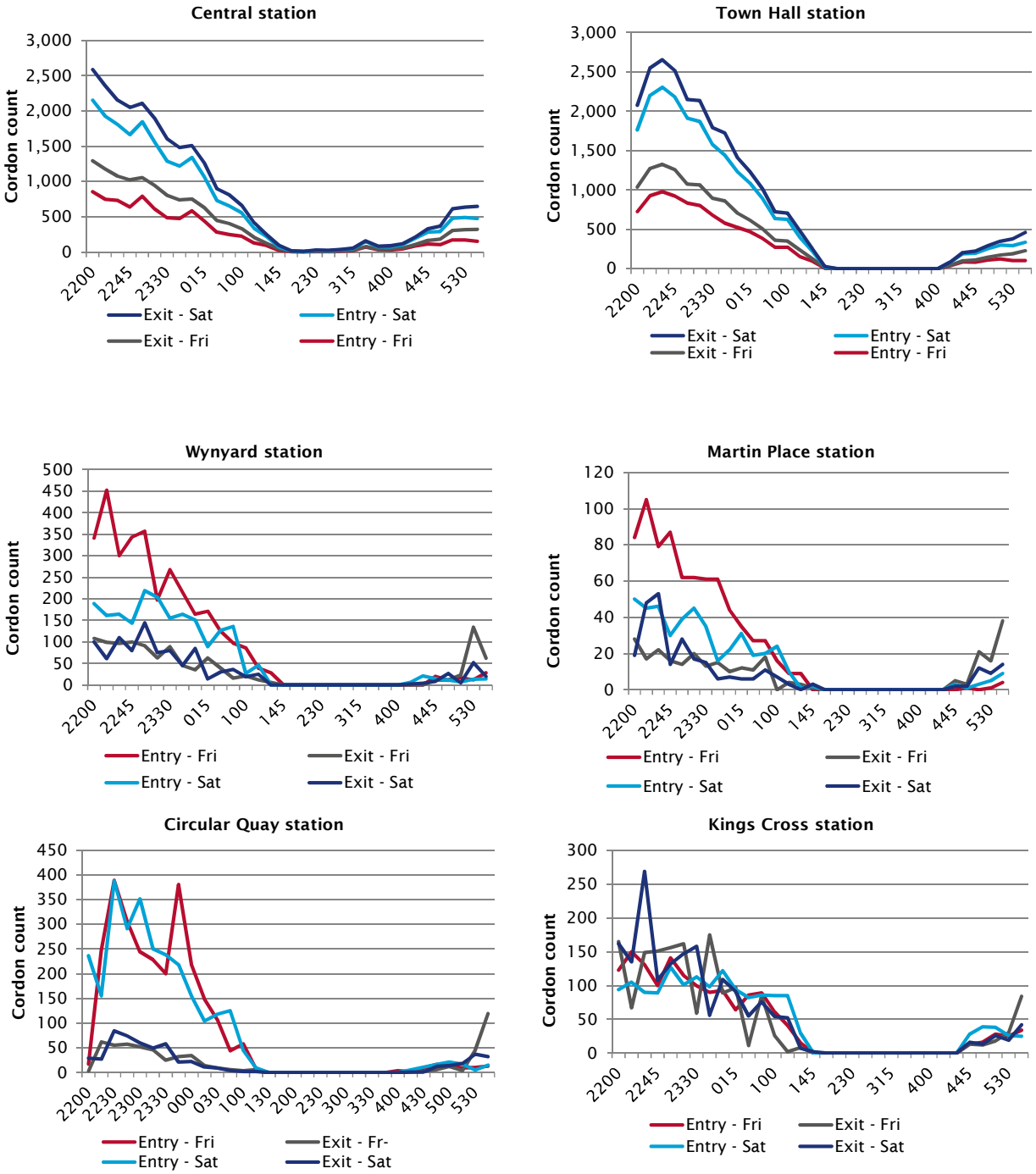
Trains and buses

In the CBD precinct, trains and buses are the main forms of public transport available to individuals, although their frequency and availability of services is limited at night. In general, Sydney trains do not operate between 1:45am and 4:30am, with limited services after midnight. The NightRide bus services operate to replace trains between these late night hours, with extra services on weekends. They are in addition to regular late night bus services. There are 12 NightRide bus services that operate from Town Hall (Park Street), Central (George Street) and Kings Cross (Bayswater Road) to various locations (NSW Government, 2014a).

In 2014, research was undertaken by TfNSW to ascertain whether there was demand to provide additional transport options for people exiting the CBD late at night. This included the collection of patronage data for all services operating in the CBD including light rail, buses (including NightRide services), ferries and trains. The research was conducted over a weekend in October 2014 when there were no major events or unusual circumstances impacting on transport in Sydney. Phase 1 and the majority of Phase 2 of the Plan had been implemented at this time.

Cordon count data of entries and exits to metro stations in the CBD show that Central Station and Town Hall Station had the highest volumes of night time passengers, particularly on Saturday nights (see Figure F.1). Time of evening data show that at Central, Town Hall, Wynyard and Martin Place stations the peak in demand occurs well before midnight, with a continued downward trend in the usage of train services until services cease around 1:45am. In contrast, Circular Quay and Kings Cross stations experience greater demand later into the evening compared with the other CBD train stations, with Circular Quay having a significant spike in activity on Friday nights around midnight.

Figure F.1: Cordon count of entries and exits at train stations



Data source: TfNSW (2015d).
Note: Data collected on a Friday and Saturday night in October 2014.

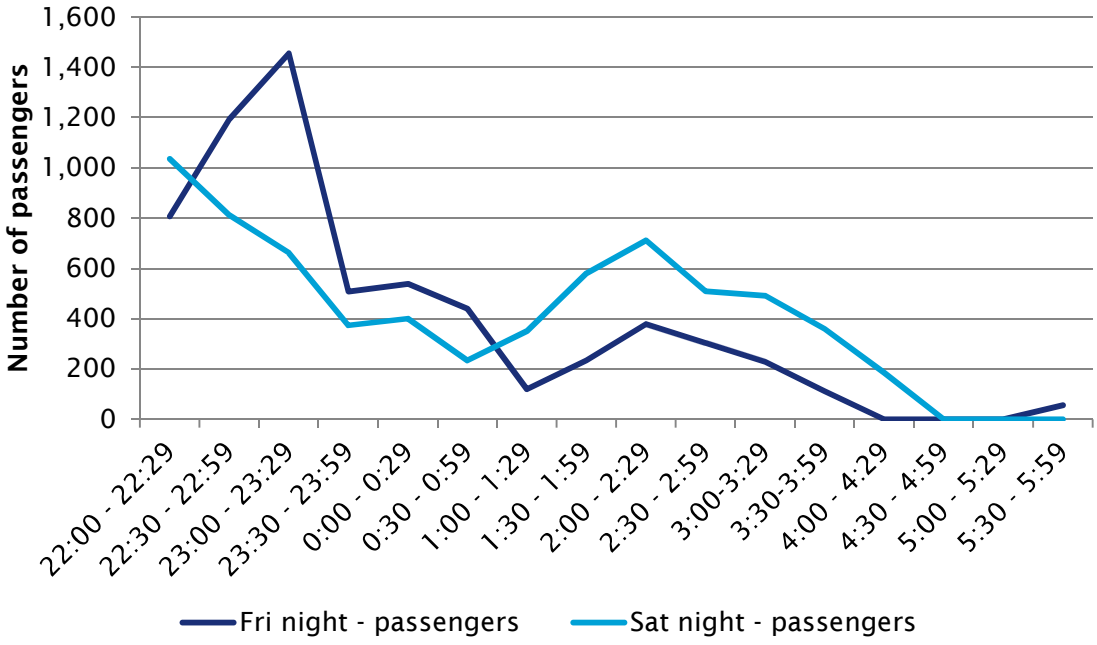
Stakeholders highlighted that the timing of trains ceasing service has been problematic with the introduction of the lock out as transport decisions made around 1:30am are too late in the context of train services. In addition, many of the train services cease to operate prior to the 1:30am lock out.

After 1:30am the main public transport option available is the bus service (both the NightRide and regular night time services). However, stakeholders highlighted the night time services, particularly the NightRide bus (which operate to replace trains), have been generally unpopular. It is believed that the presence of security guards on NightRide buses may act as a deterrent to individuals who are intoxicated and/or drug affected.

In addition, stakeholders highlighted that buses are not a direct substitute for trains when it comes to the consumer experience. In particular, longer end-to-end journey times for those travelling late at night makes the NightRide bus service a less appealing transport option, particularly for those travelling beyond the inner Sydney ring. This in itself may also influence consumer decisions to travel to the CBD. These findings are similar to the experience of the NightRide bus service that operates in Melbourne, as discussed by Scott et al. (2016).

Analysis of patronage for night time bus services shows that on a Friday and Saturday night in 2014, bus patronage peaked before midnight. A second smaller peak in patronage can be observed for buses departing between 2:00am and 2:30am. This second peak occurs after the 1:30am lock out. Patronage then declines for the remainder of the early morning till 5:00am, in line with declines in the number of services operating.

Figure F.2: Night time bus passengers on a Friday and Saturday night for at capacity services



Data source: TfNSW (2015d).
Note: (a) This include passengers on NightRide buses and regular night time services with 50 or more passengers.

The TfNSW research found that regular and NightRide bus services operating in the CBD were not operating at capacity in 2014 (see Table F.1) with only 13.2% of all bus services exiting the CBD between 11:00pm and 6:00am exceeding 85% capacity (or carrying more than 50 patrons). Transport representatives considered these overall patronage levels to be very low. [62]

Table F.1: Patronage of late night bus services exiting the CBD

	Total bus services exiting the CBD (N)	Bus services exceeding 85% capacity (n)		Proportion of services exceeding 85% capacity (%)
		Regular services	NightRide services	
Friday	809	93	9	12.6
Saturday	795	80	30	13.8
Total	**1,604**	**173**	**39**	**13.2**

Data source: TfNSW (2015d)

Note: Regular service counts may include some services departing from or passing through the Kings Cross precinct. Disaggregated data was not available on total regular and NightRide bus services exiting the CBD.

Existing demand for public transport services

The Opal card was fully rolled out in Sydney by December 2014 and can be used on buses, trains, ferries and light rail across the Sydney region. [63]

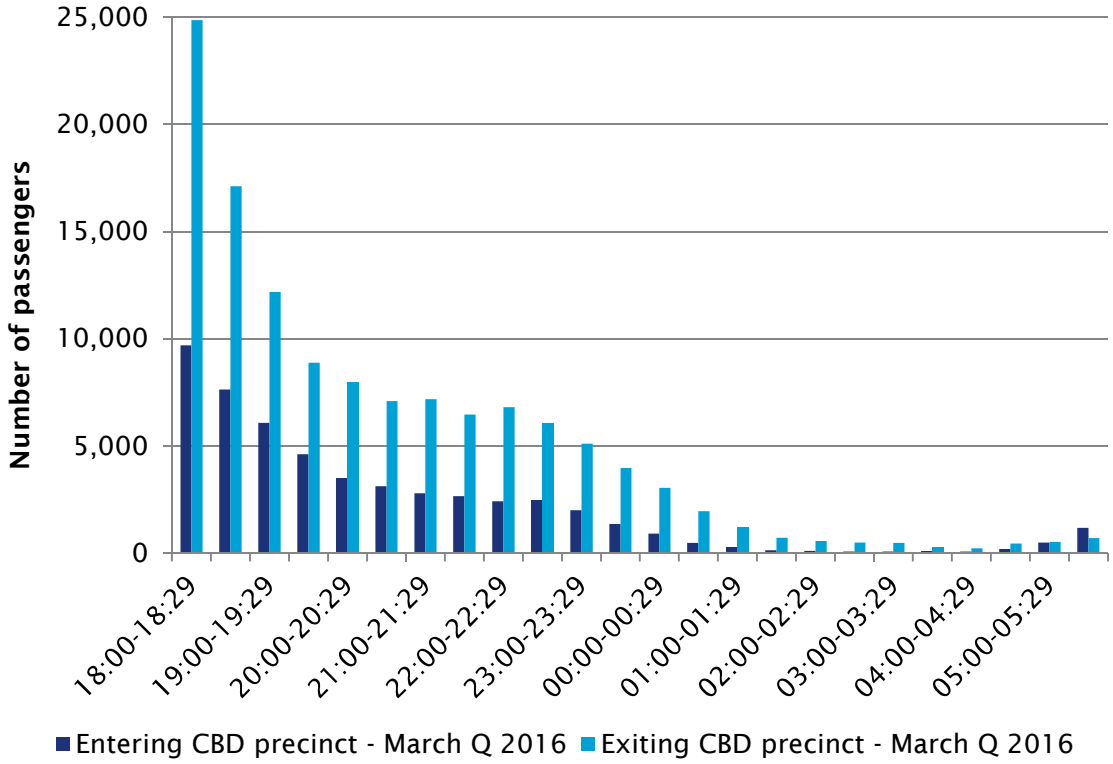
Figure F.3 and Figure F.4 show the average number of Opal card passengers entering and exiting the CBD precinct on Friday and Saturday nights in the March Quarter 2016, respectively. These figures illustrate average Opal passengers entering and exiting the CBD precinct by half hourly time periods from 6:00pm to 6:00am.

Figure F.3 indicates that exits from the CBD precinct are high on Friday nights, with over 63,000 passengers exiting the CBD between 6:00pm and 8:00pm. This is primarily due to the working population leaving the precinct on a Friday night. Conversely, approximately 28,000 passengers enter the CBD precinct between 6:00pm and 8:00pm on a Friday night. After 8:00pm Opal passenger entries to the precinct drop off to an average of 2,539 passengers every half hour before midnight and 341 passengers every half hour after midnight.

62 - Data for light rail and ferry patronage was not provided.

63 - The Opal card is a re-useable smart card ticket that allows users to easily pay for travel on public transport. Paper tickets have continued to remain in use across the network since the introduction of the system but the majority of paper tickets have been retired by TfNSW as of mid 2016. Take up of Opal has increased significantly since December 2014 and at March 2016 was at approximately 93% across all public transport modes.

Figure F.3: Passengers entering and exiting the CBD precinct on Friday nights

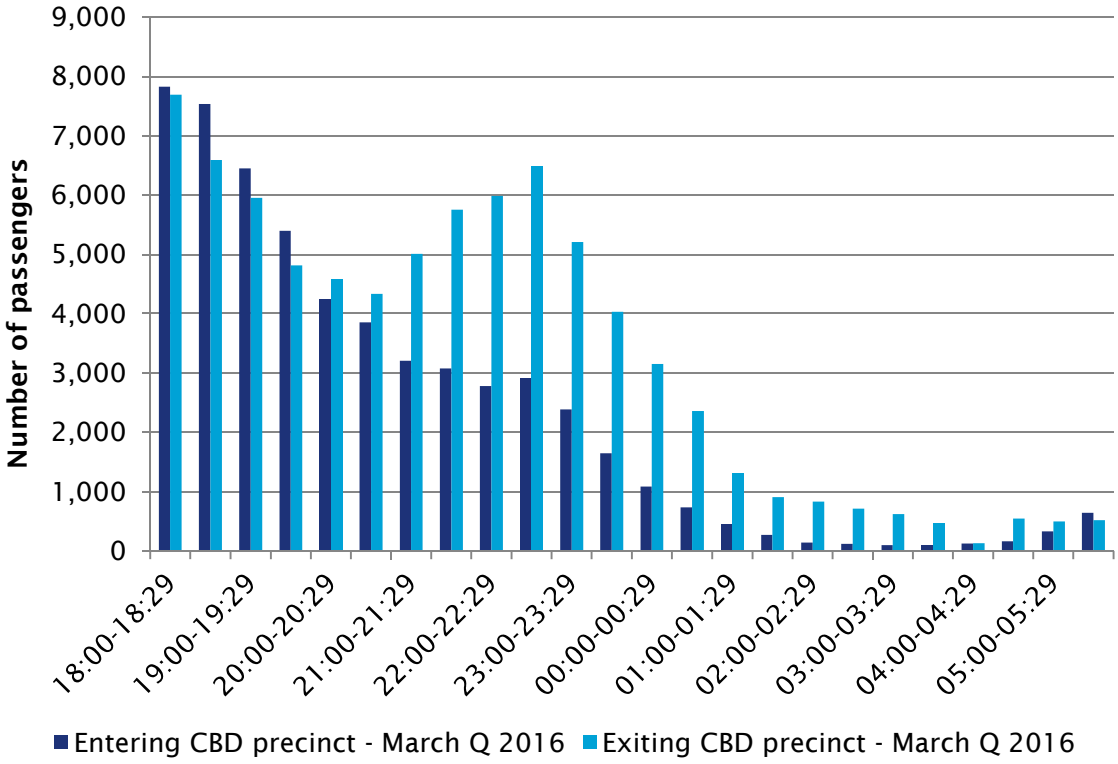


Data source: TfNSW (2016e).

Note: The above data shows the average nightly entries and exits to and from the CBD precinct over13 Friday nights in the period January to March 2016. This data excludes intra-CBD transfers.

Figure F.4 shows that approximately 27,000 Opal passengers enter the precinct between 6:00pm and 8:00pm on a Saturday. Entries to the precinct average 3,000 every half hour period between 8:00pm and midnight. After this time the average number of passengers entering the precinct drops off to an average of 352 passengers every half hour.

Figure F.4: Passengers entering and exiting the CBD precinct on Saturday nights



Data source: TfNSW (2016e).

Note: The above data shows the average nightly entries and exits to and from the CBD precinct over 13 Saturday nights in the period January to March 2016. This data excludes intra-CBD transfers.

Overall, passenger trends generally decline over the course of an evening, similar to the majority of 2014 train passenger counts described in Figure F.1. Total average passenger demand for public transport services (bus and train only) after midnight on Friday and Saturday nights (based on Opal card data) was:

- Between 4,100 and 4,200 passengers travelling to the CBD precinct each night.
- Between 10,700 and 12,000 passengers travelling from the CBD precinct each night.

Taxis

As at June 2016, there were nine secure taxi ranks operating in the CBD from 10:00pm to 5:00am on Friday and Saturday nights. The implementation and operation of secure taxi ranks was discussed previously in Chapter 3 of this report.

Representatives from TfNSW and the Taxi Council NSW identified that demand for taxis has shifted to peak around 1:30am and 3:00am coinciding with the lock outs and cease of service and generally reduces rapidly after 3:00am.

As shown in Table F.2 the usage of secure taxi ranks grew between 2015 and 2016. There was a 20.9% increase in the number of taxis booked at taxi ranks within the CBD precinct between the March Quarter 2015 and the March Quarter 2016. Over the same period, there was a 41% increase in the number of passengers. This was primarily due to the introduction of several new taxi ranks. There were modest reductions in usage at World Square and Alfred Street and this may have been influenced by the increased usage of ridesharing services such as Uber (discussed further below). The average number of passengers per taxi increased from 1.4 to 1.7 passengers.

Table F.2: Secure taxi rank usage by rank location (March Q 2015 and March Q 2016)

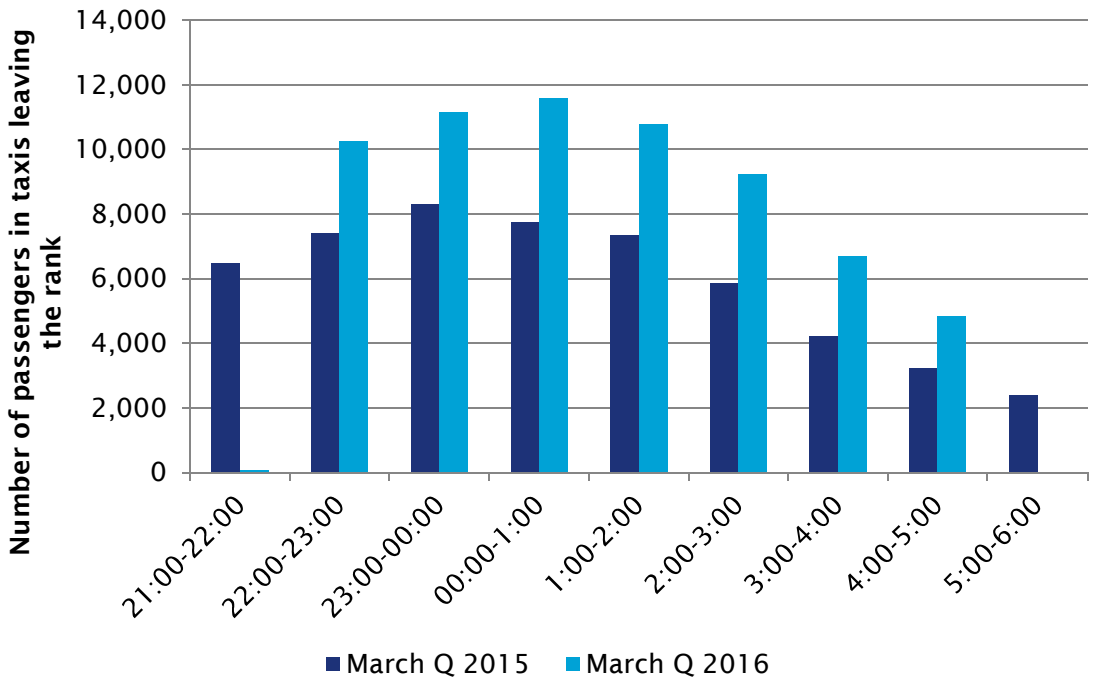
Location of rank	No. of taxis leaving the ranks			No. of passengers		
	March Q 2015	March Q 2016	Change (%)	March Q 2015	March Q 2016	Change (%)
Alfred Street	8,206	6,995	-14.8	11,332	11,133	-1.8
Bathurst Street	-	3,299	N/A	-	5,503	N/A
Chifley Square	757	1,340	77	1,176	2,276	93.5
Darling Harbour	5,932	5,932	0	8,556	10,032	17.3
Four Seasons	3,067	3,985	29.9	4,612	6,934	50.3
Park Street	4,373	-	N/A	6,642	-	N/A
Pitt Street	-	4,101	N/A	-	6,759	N/A
Surry Hills	4,084	3,830	-6.2	5,256	6,470	23.1
Wheat Road	-	5,638	N/A	-	9,734	N/A
World Square	5,468	3,432	-37.2	8,288	5,829	-29.7
Total	**31,887**	**38,552**	**20.9**	**45,862**	**64,670**	**41.0**

Source: Data provided by TfNSW (2016f).

Note: Includes the number of taxis and passengers leaving the ranks between 9:00pm and 6:00am during the March Quarter across both years. There were seven taxis ranks operating in the 2015 compared to nine in the 2016 period. This was due to three additional taxi ranks in operation in the March Quarter 2016 period (Bathurst St, Pitt St and Wheat Rd), and one closed taxi rank (Park St). For Surry Hills, the March Q 2015 was estimated using the actuals from August to October, adjusting for seasonality due to issues in the data collection

Figure F.5 shows the distribution of patrons at secure taxi ranks throughout the night. The number of taxis booked at secure taxi ranks peaked around midnight (as the availability of public transport options became limited), but then fell throughout the early morning, with a particularly sharp drop (-27.7%) after 3:00am, following the cessation of alcohol service.

Figure F.5: Secure taxi rank usage (passengers) by time of night (March Q 2015 and March Q 2016)



Source: Data provided by TfNSW (2016f).

Note: Taxi rank hours in 2016 were reduced from 9:00pm to 6:00am (in 2015) to 10:00pm to 5:00am.

Ridesharing services

In December 2015 the NSW Government made amendments to the *Passenger Transport Regulation (2007)* that legalised ridesharing services subject to certain safety requirements. As with taxis, ridesharing services such as Uber and Lyft operate at all times and complement licensed taxi services and the public transport system.

It is understood that the demand for ridesharing peaks around midnight on Friday and Saturday nights, when public transport out of the entertainment precinct becomes infrequent or unavailable. The growth of Uber was acknowledged in stakeholder consultations as a positive development that assists in getting people home safely from the CBD late at night.

Private car or walking

In 2016 the DoJ pedestrian intercept survey (introduced in Chapter 8), asked respondents how they would be getting home. The survey found 14% of all respondents would travel home by car from the CBD, whilst 16% indicated that they would walk. Around half (53.7 %) of respondents living in the CBD indicated they were walking home, whereas rail was the most preferred method of travelling home (43.2%) for respondents living more than 5km from the CBD. Factors that may influence an individual to drive and/or walk include proximity to the city, their level of intoxication, arrangement of a designated driver, weather conditions and perceptions of safety.

Appendix G: Model estimate explanations

The Model

The assault or injury analysis was undertaken using a GLARMA model as outlined by Dunsmuir and Scott (2014). In general terms, this state-space model is written as:

$$f(y_t|W_t) = \exp\{y_t W_t - a_t b(W_t) + c_t\} \qquad (1)$$

As it is assumed that the monthly count of assaults or injury (y_t) follow a Poisson distribution, equation (1) can be written as

$$f(y_t|W_t) = \exp\{y_t W_t - exp(W_t) - logy_t\}, \text{ t = 1,..., n} \qquad (2)$$

The aim is to estimate the state variable (W_t) while accounting for the trend, seasonality, the intervention and a linear combination of past predictive residuals. The variable of interest (W_t) can be written as:

$$W_t = x_t\beta + S_t + Z_t \qquad (3)$$

Where:

x_t is the intervention variable that takes the form of (4), (5), (6), or a combination of (4) and (6) depending on the intervention scenario modelled

The intervention scenarios are:

Smooth

$$x_t = \begin{cases} 0 \; if \; t \leq \tau_1 \\ \frac{t-\tau_1}{\tau_2-\tau_1} if \; t \in (\tau_1, \tau_2) \\ 1 \; if \; t \geq \tau_2 \end{cases} \qquad (4)$$

Step

$$x_t = \begin{cases} 0 \; if \; t < \tau_1 \\ 1 \; if \; t \geq \tau_1 \end{cases} \qquad (5)$$

Pulse

$$x_t = \begin{cases} 0 \; if \; t \neq \tau_1 \\ 1 \; if \; t = \tau_1 \end{cases} \qquad (6)$$

where τ_1 = start of intervention effect and τ_2 = end of intervention effect

β is the coefficient associated with the intervention, which shows the impact of the Plan on assaults or injury.

S represents the seasonality component, which is made up of dummy variables for every month of the year except June (the reference month) as shown below:

$$S_t = \alpha_1 s_{1t} + \alpha_2 s_{2t} + \alpha_3 s_{3t} + \alpha_4 s_{4t} + \alpha_5 s_{5t} + \alpha_7 s_{7t} + \alpha_8 s_{8t} + \alpha_9 s_{9t} + \alpha_{10} s_{10t} + \alpha_{11} s_{11t} + \alpha_{12} s_{12t}$$

where $_{1V}$ is the dummy variable for January for the t-th observation and α_{1V} is the coefficient, $_{2V}$ and α_{2V} are for February, and so on.

ZV is a linear combination of past predictive residuals and is introduced in the state process to account for the serial dependence (trend component) in the response process. It can be written as:

$$Z_t = \sum_{i=1}^{p} \emptyset_i (Z_{t-i} + e_{t-i}) + \sum_{i=1}^{q} \theta_i e_{t-i} \quad (7)$$

Where $e_t = \frac{Y_t - \mu_t}{v_t}$ and $\mu_t = \exp(W_t)$

$\emptyset_i$ are the parameters for the autoregressive component

θ_i are the parameters for the moving average component

e_t and v_t have a zero mean and are uncorrelated. Further, when v_t is set to the conditional deviation of y_t , the e_t are also unit variance, and so are weakly stationary white noise.

The change in assaults or injury that can be attributed to the Plan, with some level of confidence, is calculated using the β as specified by (8)

Attributed change = $\exp(\beta) - 1$ (8)

Intervention scenarios

In separate models, four sets of scenarios were tested to evaluate the impact of the Plan on the monthly count of assaults in the CBD precinct and displacement areas. Additionally, each intervention scenario was modelled for the separate categorical break-up of assaults in the CBD precinct. These four scenarios (Figure G.1) are:

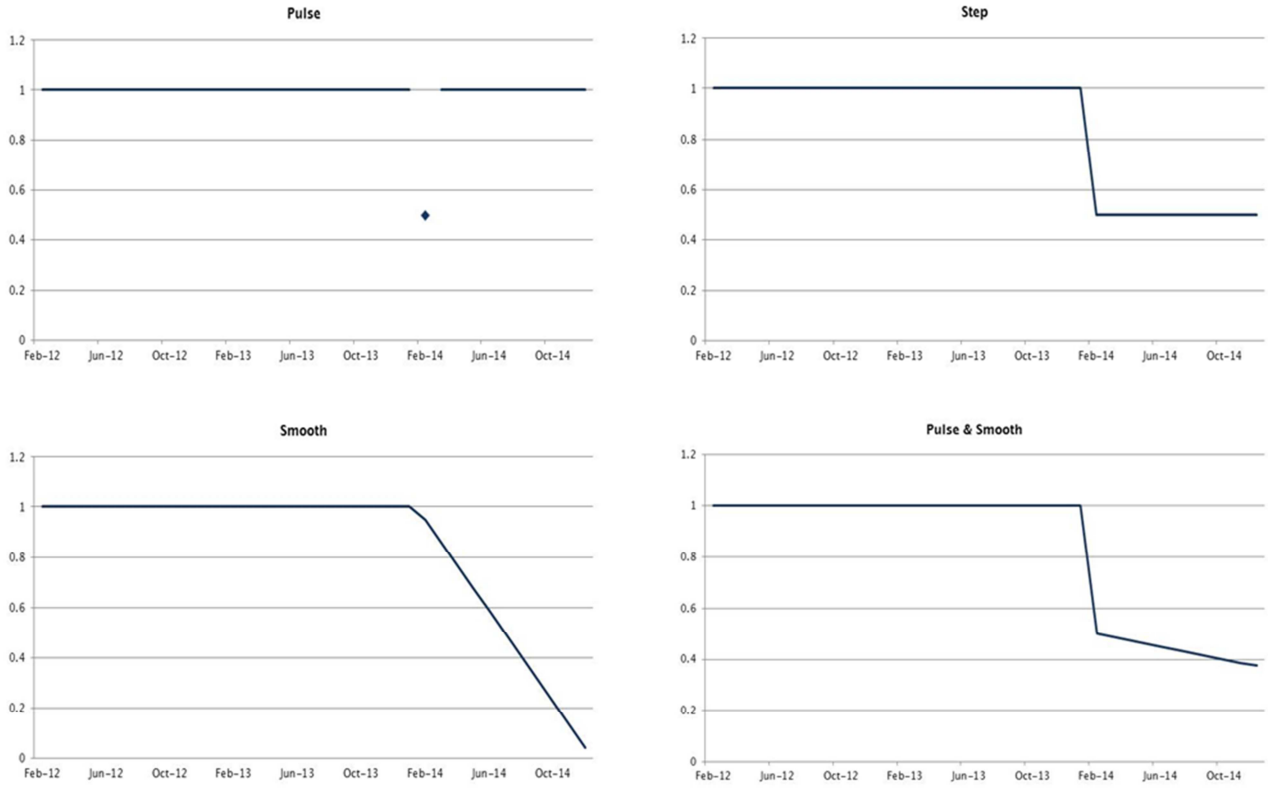
(1) -smooth scenario —a slow change in monthly assaults over time following the implementation of the Plan

(2) -step scenario —a sudden and permanent change in the number of monthly assaults

(3) -pulse scenario—a sudden change in monthly assaults at the introduction of the Plan followed by a reversion back to prior monthly assault counts

(4) -combination of a pulse and smooth scenario —a sudden transition followed by a slow change over time of monthly assaults following the introduction of the Plan.

Figure G.1: Policy scenarios



Model estimate explanations

- The ß show the estimated impact of the CBD precinct Plan.
- The 95% confidence interval indicates that with 95% confidence, the true estimated parameter is between the two interval points.
- The p-value is the result of a two-tailed t-test with a null hypothesis (H_0) that ß = 0. Unless otherwise stated, if the p-value is less than 0.05, we reject the null hypothesis and conclude that the coefficient estimate (ß) is statistically different from 0.
- The Ljung- Box test is a diagnostic tool used to test the lack of fit of a time series model and is applied to the residuals of the fitted series. The null hypothesis (H_0) of the test is that the residuals are random and so the model does not exhibit lack of fit and the alternative (H_1) is that the residuals are not random and the model exhibits lack of fit.
- LogLik – log likelihood associated with each model. The LogLik is generated at the conclusion of model iterations when the model has converged. The iterations are aimed at maximising the likelihood of the model. The final number presented does not imply any meaning in itself but can be used to compare nested models.
- AIC – Akaike Information Criterion, which is used as a measure of relative quality of statistical models, given a set of data. This measure is used to compare models and the lowest AIC indicates the most appropriate model for the dataset.
- Intervention – the intervention scenario modelled which could be a smooth, step, pulse, or a combination of a smooth and pulse intervention.

Appendix H: Benefit-cost analysis methodology

Benefit-cost Analysis (BCA) quantifies in monetary terms the major costs and benefits of a program or project, including economic, environmental and social effects for a designated community (NSW Treasury, 2007). The aim is to show the net public benefit to NSW by determining whether the benefits of a project or program exceed the costs, and which option among a range of options will result in the highest net public benefit (NSW Treasury, 2007).

BCA is a useful analytical tool as it attempts to convert available data into manageable and comparable information units (e.g. to dollar terms). BCA applies discounted cash flows (DCF) across the entire range of benefits and costs that may accrue as the result of a program to determine the Present Value (PV) of benefits and costs. The primary decision criteria of BCA are the Net Present Value (NPV) and Benefit-cost Ratio (BCR). The NPV expresses the difference between the PV of future benefits and PV of future costs of the Plan. The BCR is the ratio of the PV of benefits to the PV of costs.

The strength of BCA is that it provides a method for analysing complex information in a logical and consistent way. BCA is limited by the availability and robustness of data and information to inform the model; and also by the ease of valuing specific costs and benefits.

BCA is used in this evaluation to identify if the benefits delivered by the CBD Plan of Management outweigh the costs. That is, if the estimated value of benefits of avoiding alcohol-related assault and injury outweigh the costs of implementing the Plan. The analysis is conducted ex-post for the February 2014 to December 2015 period. Impacts are determined from the perspective of the state of New South Wales.

This section provides an overview of the key steps involved for developing the BCA model including:

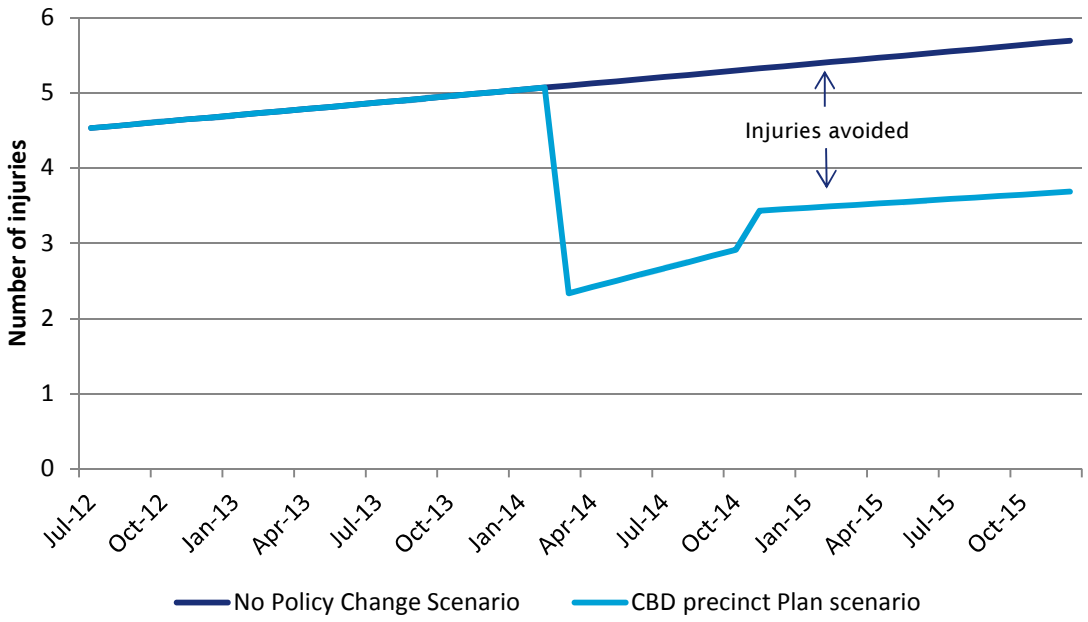
- defining the scenarios to be examined
- quantifying and valuing benefits and costs
- determining the present value of benefits and costs
- calculating the net present value (NPV) and benefit-cost ratio (BCR)
- undertaking sensitivity analysis.

This information is provided below and consistent with NSW Treasury's Economic Appraisal Guidelines (2007).

Defining the scenarios to be examined

To enable a robust determination of the net benefits of a given program, it is necessary to define the base case and alternative case scenarios. The base case scenario represents the "No Policy Change" scenario and the alternative scenario "CBD Precinct Plan" provides the platform to examine the impact of the Plan. Figure H.1 illustrates this concept using the case of severe and critical alcohol-related injuries. The base case (no policy change) scenario is represented by dark blue line in the figure below. The "CBD Precinct Plan" scenario is represented by the light blue line. The net benefit of the program is identified by calculating the area between the "no policy change" scenario and the "CBD Precinct Plan" scenario.

Figure H.1: Severe and critical alcohol-related injuries during HAT periods in the CBD precinct



Data source: NSW Ambulance (2016b), Turning Point and NSW Health.

Note: The No Policy Change Scenario is a projection based on historical trends.

Quantifying and valuing benefits and costs

BCA uses quantitative analysis to determine the magnitude of impacts and then attempts to value these impacts in economic terms. This includes estimating the value of costs and benefits that are not the subject of normal market transactions but which nevertheless entail the use of real resources. These attributes are referred to as non-market goods or impacts.

Valuation of impacts in monetary terms is an important part of any evaluation. However, programs frequently offer non-market benefits and costs that can be difficult to value. Where the impact does not have a readily identifiable dollar value, proxies and other measures are developed as these issues represent real costs and benefits. An example of how non-market valuation has been used in this BCA is described in Box H.1.

Where possible all impacts should be valued, however in some cases impacts that are difficult to quantify and/or value can be examined qualitatively for consideration in the overall analysis. Quantifiable impacts—both positive and negative—are tabulated as benefit-cost streams for the period being examined.

In this particular case, a comprehensive quantitative analysis of the impacts of the Plan on the incidence of assault and injury was undertaken to support estimation of the magnitude of benefits (costs avoided). The value of these benefits is determined using predominantly NSW data or published benchmarks. These were compared to the value of implementation costs. A range of impacts difficult to accurately quantify are discussed qualitatively.

Box H.1: Example of non-market valuation

For this evaluation, benefits to individuals of avoiding injury were less easily valued as they represent a non-market impact. However, as costs avoided to individuals are a real benefit it was important to factor these benefits into the study. To do this, a benefit transfer method was used for approximating non-market impacts, drawing upon already calculated values from previously conducted studies. This method is frequently used by policy analysts as it provides an adequate solution to filling an information gap that would usually require significant technical skills, time and/ or come at a significant cost.

The consideration of context is important when deciding which values to transfer. Benefit transfer estimates should be regarded as an approximation. In the case of valuing the impact of the Plan to individuals in terms of avoiding harm, two valuation methods are compared.

Calculating the Present Value of benefits and costs in dollar terms

As costs and benefits are specified over time it is necessary to convert the stream of benefits and costs to present values. The present value concept is based on the time preference of money – the idea that a dollar received today is worth more than a dollar to be received in the future. The present value of a cash flow is the value today that is equivalent to a cash flow in the future. The time value of money is determined by the given discount rate to enable the comparison of options by a common measure.

The selection of appropriate discount rates is of particular importance as it can influence the results and affect the conclusions. The higher the discount rate, the less weight or importance is placed on future cash flows. For this analysis, a base discount rate of 7.0% has been used. As all values used in the BCA are in real terms (i.e., in 2015 dollar values), the discount rate does not incorporate inflation (i.e., it is a real discount rate, as opposed to a nominal discount rate).

The formula for determining the present value is:

$$PV = \frac{FV_n}{(1+r)^n}$$

Where:

PV = Present value today

FV = Future value n periods from now

r = discount rate per period

n = number of periods

Extending this to a series of cash flows the present value is calculated as:

$$PV = \frac{FV_1}{(1+r)^1} + \frac{FV_2}{(1+r)^2} + \cdots + \frac{FV_n}{(1+r)^n}$$

Calculating the Net Present Value (NPV) and Benefit-Cost Ratio (BCR)

Once the stream of costs and benefits have been reduced to their present values the Net Present Value (NPV) can be calculated as the difference between the present value of benefits and present value of costs.

$$NPV = PV_{benefits} - PV_{costs}$$

If the present value of benefits is greater than the present value of costs then the program would have a net economic benefit.

The Benefit-Cost Ratio (BCR) is a useful measure to use to compare between two different programs. The BCR is calculated by dividing the present value of benefits by the present value of costs.

$$BCR = \frac{PV_{benefits}}{PV_{costs}}$$

If the resulting BCR is greater than one then the program has achieved a net benefit. The higher the BCR the greater the quantified benefits compared to the quantified costs.

As this report is not examining competing programs, the NPV has been used as the primary decision rule on whether the Plan of Management has achieved a positive net benefit. However, BCR is also considered when interpreting the result.

Sensitivity analysis

Sensitivity analysis allows for the testing of the key assumptions and the critical variables within the analysis to gain greater insight into the drivers of the case being examined.

For this project, sensitivity analysis has been conducted by examining the change in NPV and BCR as a result of a variance in key inputs and assumptions, ceteris paribus (i.e., assuming that all other key inputs to the BCA remain as per the base analysis).

To assess the sensitivity of the project to the discount rate used, one discount rate either side of the base discount rate (7%) has also been examined (4% and 10%). These discount rates are selected as per NSW Treasury's Economic Appraisal Guidelines (2007).

Note that as this was an ex-post evaluation the majority of benefits and costs are not incurred in the future (with the exception of correctional costs). As such, for this BCA the results are not sensitive to changes in the discount rate.

Other variables that were tested for their influence on the model result include:

- changes to mandatory minimum sentencing and the impact on correctional costs
- other short-term health services costs for patients who had an alcohol-related injury
- the inclusion of an alternative willingness to pay (WTP) estimate for valuing health and lifestyle benefits to individuals.