

**Stage One Report
2009**

NASDP

National Alcohol Sales Data Project



DRUG AND ALCOHOL OFFICE, WESTERN AUSTRALIA
NATIONAL DRUG RESEARCH INSTITUTE, CURTIN UNIVERSITY

NATIONAL ALCOHOL SALES DATA PROJECT
FINAL REPORT, 2009

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ACRONYMS

Advisory Committee	AC
(Population) aged 15 and older	15 plus
Australian Bureau of Statistics	ABS
Australian Standard Geographical Classification	ASGC
Census Collection District	CCD
Department of Racing, Gaming and Liquor	DRGL
Distilled Spirits Industry Council of Australia	DSICA
Drug and Alcohol Office	DAO
Estimated Residential Population	ERP
Liquor Licensing	LL
Liquor Merchants Association of Australia	LMAA
Local Government Area	LGA
National Alcohol Indicators Project	NAIP
National Alcohol Sales Data Project	NASDP
National Drug Research Institute	NDRI
Office of Liquor and Gaming Regulation	OLGR
Organisation for Economic Co-operation and Development	OECD
<i>Per capita</i> consumption	pcc
Ready to drink	RTD
Statistical Local Area	SLA
Statistical Subdivision	SSD

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GLOSSARY

Australian Standard Geographical Classification	ABS coding structure for Australian geographical information into pre-established categories, including Statistical Divisions, Statistical Subdivisions and Statistical Local Areas.
Alcohol sales data	Information obtained from wholesalers regarding volumes of alcohol purchased from them by individual licensed retailers, or licensed retailer records of volumes of alcohol sold to the general public.
Estimated Residential Population	ABS measure of Australian population. Based on Census data adjusted for population change since the most recent Census year; and net overseas migration; estimated interstate movements. Overseas visitors are excluded.
Mead	Brewed honey-based beverage with an average alcohol content of around 12.5%.
<i>Per capita</i> consumption	Litres of absolute (pure) alcohol consumed, divided by population aged 15 years and over.
Ready to drink Alcohol supply	Pre-mixed spirit-based drinks with an alcohol content less than 10%. Purchase of wholesale alcohol by other licensed alcohol wholesalers or producers.
Tourists	Persons travelling to a place other than that of his/her usual environment for less than twelve months (ABS, 2000).

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EXECUTIVE SUMMARY

The national ongoing collection of wholesale alcohol sales data is supported by the Ministerial Council on Drug Strategy. The Commonwealth Government has funded the Drug and Alcohol Office of Western Australia and the National Drug Research Institute (NDRI) at Curtin University of Technology, to develop the National Alcohol Sales Data Project (NASDP). It is anticipated that the NASDP will be ongoing, subject to review.

The importance of alcohol consumption as an indicator of community alcohol use and harm can hardly be overstated. Trends in the extent and patterns of alcohol consumption demonstrate the effectiveness of jurisdictional changes in policy. Additionally, there are strong relationships between *per capita* consumption (pcc) and alcohol-related harms such as road crashes, accidental falls and other accidents, illnesses, assaults and other crimes.

Information about volumes of alcohol sold is a basic requirement for estimating how much alcohol is consumed within a region, within a community or per person. Adjusted for population size, alcohol sales data allow comparisons of consumption levels between regions and constitute top-level indicators for monitoring and evaluating policy changes and interventions.

The Australian Bureau of Statistics publishes national estimates of alcohol pcc based on import clearance, excise and domestic alcohol sales data. The latest estimates for Australians over the age of 15 years taken at 30th June 2006, 2007 and 2008, were, respectively, 9.84, 10.00 and 9.95 litres of absolute alcohol.

Until 1996, the ABS estimates were complemented by state and territory alcohol sales data collected by liquor licensing authorities. In 1996, however, the High Court of Australia ruled that liquor licensing fees and levies were, in fact, excise duties and as such illegal under the terms of the Australian Constitution. The ruling did not preclude the collection of wholesale alcohol purchase data by liquor licensing authorities but, for most jurisdictions, the incentive for continued collection was lost. Only Western Australia and Northern Territory and, latterly, Queensland, continued to collect this information.

The overall objective of the NASDP is to construct an ongoing, regularly updated, national database of standardised alcohol sales data, which includes all Australian states/territories.

In 2009, the Northern Territory, Queensland and Western Australia made alcohol sales data available to the NASDP. *Per capita* consumption was calculated by relating litres of absolute

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alcohol consumed to the population aged 15 and older. All jurisdictions contributing alcohol sales data were consulted in relation to appropriate functional levels of reporting. Australian Standard Geographical Classification (ASGC) units were used in most cases. The ABS Estimated Residential Population (ERP) was selected as the measure of Australian population.

Alcohol sales data were made available by the Northern Territory Department of Justice for the years 2005/06, 2006/07 and 2007/08. The Department of Justice also supplied information which allowed Statistical Local Areas (SLAs) to be aggregated into 6 Urban Centres and the remainder of Northern Territory, which is its usual mode of presenting geographical information on alcohol sales; population details for Northern Territory for the years 2000/01 to 2007/08; and Department of Tourism estimates of the number of interstate and overseas tourists aged 15 and older ('15 plus') to the whole of the Northern Territory for the same years. The NASDP was requested to report pcc for the jurisdiction as a whole, and not for regional units where tourist estimations were not as reliable. It was agreed that volumes of alcohol sold would be reported for Urban Centres and the remainder of Northern Territory, and that pcc for Northern Territory as a whole would be calculated primarily with the tourism estimate. Estimates of pcc excluding estimated numbers of tourists can be found in Appendix 1.

Alcohol sales data were made available by the Queensland Office of Liquor and Gaming Regulation for the year 2007/08. Wine Industry returns constituted a second source of Queensland data and these volumes added to the total volumes sold to retail licensees by wholesalers. Postcodes were aggregated into Statistical Local Areas (SLAs) and further aggregation to Statistical Subdivisions (SSDs) was undertaken to provide regional units of an appropriate size for mapping

Alcohol sales data were made available through the Western Australia Drug and Alcohol Office. Three years of data were available: 2005/06, 2006/07 and 2007/08, aggregated into Local Government Areas (LGAs). It was decided to use the same regional units to calculate pcc as had been used in Queensland, to allow comparability. LGAs were therefore transformed into SLAs and SLAs were aggregated into SSDs for mapping.

Alcohol conversion factors are required to convert volumes of different alcohol-based beverages to volumes of absolute or 'pure' alcohol content. In NASDP national alcohol

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conversion factors were used to derive standardised rates which were in turn used to compare pcc across different regions and jurisdictions.

Per capita consumption and volumes of pure alcohol sold were mapped for Queensland and Western Australia SSDs using the software ArcGIS 9.3 and ABS SSD files. These measures could not be mapped for the Northern Territory as regions were not aggregated into ASGC standard regions. Data have also been presented in figures and tables.

In every jurisdiction, estimated pcc exceeded estimates made by the ABS for the nation as a whole. While this is most likely a reflection of actual higher levels of consumption in those jurisdictions, part of the difference may be due to the fact that the ABS estimates rely on excise tax records and customs duty data collected at a national level. Currently, it is not possible to know whether pcc estimates for the Northern Territory, Queensland and Western Australia are higher or lower than the remaining five jurisdictions for which alcohol sales remain unknown.

Estimated alcohol consumption in the Northern Territory across the three years was between 14.5 – 15.0 litres of pure alcohol per individual aged 15 years and older using population figures which allowed for the influence of tourism. The total pure alcohol volumes sold were generally similar across the period in each of the Urban Centres. Wine sales decreased considerably between 2005/06 and 2006/07 in Alice Springs but beer sales increased, although not to the same extent. In Darwin and Palmerston, beer wine and spirit sales all increased across the three years. Wine sales in Katherine decreased considerably in 2007/08 while spirits sales increased.

The overall estimated alcohol consumption for Queensland for 2007/08 was 11.07 litres of pure alcohol per individual aged 15 plus, which was lower than in the Northern Territory and Western Australia in that year. There were, however, regions of higher alcohol consumption particularly in the Brisbane area, the Gold and Sunshine Coasts, and the North-West. The inner Brisbane area had particularly high alcohol consumption, which was probably due to a combination of relatively low resident populations, its status as an entertainment area and alcohol sales to city workers. The largest amounts of alcohol were generally sold on the eastern seaboard of the State but these did not necessarily translate into high *per capita* consumption. Again, the influence of tourism is likely to be reflected in high alcohol volumes being sold on the Sunshine Coast and the Gold Coast. Individual SSDs with the highest

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consumption tended to be inner Brisbane, the Gold Coast, Sunshine Coast, Rockhampton, Mackay, Townsville, Cairns and the North-West. Many of these are tourist areas and as the Northern Territory example demonstrated, taking tourist numbers into consideration may have made some considerable difference to consumption.

In Western Australia, estimated *per capita* consumption was close to 11.0 litres of pure alcohol per individual aged 15 plus in 2005/06, decreased slightly in 2006/07 and then increased to 12.5 in 2007/08. The volumes of pure alcohol sold were similar across the state except in and around the metropolitan area where volumes were greatest closest to the city. Estimated pcc, on the other hand, generally increased towards the west and north of the State. Estimated pcc in and around the metropolitan area fluctuated a little, with generally higher rates in the latter two years. The central metropolitan area had higher rates than surrounding regions which may have reflected a similar effect to that found in inner Brisbane: i.e. alcohol sales to city workers, entertainment venues, and low residential populations. It seems likely that in Western Australia the influence on alcohol consumption of employment, such as mining in the north-west areas, was greater than was the influence of tourism such as was found in the Northern Territory and Queensland. Some of this may have been related to the influence of fly-in-fly-out workers who are not usually included in the residential population of that region.

Technical developments to improve data estimations are clearly an important way forward for the NASDP. Differences in *per capita* consumption relating to the inclusion of tourist numbers were noted, as were high consumption estimates which may have been related to tourism, entertainment areas, or employment which necessitates a non-residential workforce. Work will continue on 'service populations', which account for mobility of residents across geographic regions (e.g. fly-in-fly-out workers) and the influence of (overseas and domestic) tourism on consumption. Other developments may include further work on alcohol conversion factors.

The importance of alcohol sales data for policy and planning purposes should be apparent and the presentation of 2009 alcohol sales data in this report will suggest to policy makers ways in which their jurisdictions would be able to use the information for their own policy and planning purposes. As the project progresses, ways in which NASDP data can be used to support other research initiatives may also become apparent

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From a national perspective, clearly the more jurisdictions that collect alcohol sales data and make it available to NASDP, the better will be national estimates. Past estimates of alcohol *per capita* consumption have demonstrated the significance of regional influences. With the participation of more jurisdictions the understanding of the nature of these influences, the degree of interstate sales, and their role in determining alcohol consumption will be enhanced. In 2009 data were received from three jurisdictions: Queensland, Northern Territory, and Western Australia and from the latter two states data for the last three years. In 2010 further data from these three states will extend the temporal comparisons that can be made.

Particular thanks are due to the three jurisdictions who supported the NASDP with their data in this inaugural year.

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INTRODUCTION

Alcohol policy and related strategies should be informed and reviewed in the context of the best available evidence about levels and patterns of use. Such information is crucial to intelligence-led policing, to health service responses and to the evaluation of the impact of adopted strategies. Consequently, there has been support for the development of an Australian initiative to ensure alcohol policy, prevention and interventions are informed by the best available data on levels and patterns of consumption. Such information can be provided by alcohol sales data.

In response to a 2007 Ministerial Council on Drug Strategy resolution highlighting the absence of systematic and standardised Australia-wide alcohol sales data collection¹, the Australian Government, via the Intergovernmental Committee on Drug Strategy, has funded the Drug and Alcohol Office of Western Australia and the National Drug Research Institute (NDRI) at Curtin University of Technology, to develop the National Alcohol Sales Data Project (NASDP). It is anticipated that the NASDP will be ongoing, subject to Australian Government review.

This report presents the work of the NASDP during its first year of operation. An interim report was presented to funders in June 2009.

THE SIGNIFICANCE OF ALCOHOL CONSUMPTION DATA

The importance of alcohol consumption as an indicator of community alcohol use and harm can hardly be overstated. Trends in the extent and patterns of alcohol consumption demonstrate the effectiveness of jurisdictional changes in policy. Additionally, there are strong relationships between *per capita* consumption (pcc) and alcohol-related harms such as road crashes, accidental falls and other accidents, illnesses, assaults and other crimes (Catalano, Chikritzhs, Stockwell, Webb, & Dietze, 2001; WHO, 2000).

There are currently two ways to collect data on alcohol consumption within a population: alcohol sales data collected for taxation purposes or in the process of wholesaler or retailer record keeping, and population-based surveys (WHO, 2000). The World Health Organization, however, suggests that survey data should not be used to estimate pcc because

¹ Australian Bureau of Statistics national apparent alcohol consumption estimates are derived from customs and excise data and cannot be disaggregated by state/territory.

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several studies have found substantial discrepancies between consumption estimates based on survey data and those derived from sales data. Survey data tends to be biased towards under-reporting for a variety of reasons, and has been found to underestimate sales data by up to 60% (Stockwell, Jinhui, Chikritzhs, & Greenfield, 2008; WHO, 2000).

The term 'alcohol sales data' refers to information obtained from wholesalers regarding volumes of wholesale alcohol purchased from them by individual licensed retailers, or licensed retailer records of volumes of alcohol sold to the general public. Information about volumes of alcohol sold is a basic requirement for estimating how much alcohol is consumed within a region, within a community or per person. Adjusted for population size (pcc), alcohol sales data allow comparisons of consumption levels between regions and constitute top-level indicators for monitoring and evaluating policy changes and interventions. When collected at the individual licence level, pcc can be estimated at a range of geographic levels as required, including individual suburbs, discrete communities, metropolitan areas and/or regional and remote areas.

For many years, the Australian Bureau of Statistics (ABS) has published national estimates of alcohol pcc based on import clearance, excise and domestic alcohol sales data. The latest estimates for Australians over the age of 15 years taken at 30th June 2006, 2007 and 2008, were 9.84, 10.00 and 9.95 litres of absolute alcohol respectively (Australian Bureau of Statistics, 2009).

Until 1996, the ABS estimates were complemented by state and territory alcohol sales data collected by liquor licensing authorities (Hall, Chikritzhs, d'Abbs, & Room, 2008). From 1990 to 1996 it was possible, in Australia, to access jurisdictional electronic records of alcohol sales data, used by licensing departments to calculate fees. These data enabled estimation of alcohol pcc by beverage type (e.g. beer, wine, spirits): an invaluable indicator (Catalano *et al.*, 2001). In 1996, however, the High Court of Australia ruled that liquor licensing fees and levies (and similar imposts on tobacco and petrol) were, in fact, excise duties and as such illegal under the terms of the Australian Constitution because only the Commonwealth Government was empowered to impose excise duties. The ruling did not preclude the collection of wholesale alcohol purchase data by liquor licensing authorities but, for most jurisdictions, the incentive for continued collection was lost. Only Western Australia and the Northern Territory and, latterly, Queensland, continued to collect this information which means that invaluable data for informing alcohol policy and liquor licensing action

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and evaluating licensing restrictions in Indigenous communities and numerous local, regional and jurisdiction wide monitoring exercises are no longer available (e.g. evaluation of the Northern Territory's Living With Alcohol Program; impact of extended trading hours in Western Australia on assaults and road crashes; and evaluation of the Tennant Creek alcohol restrictions) (Chikritzhs, 2009).

Interestingly, other developed nations are mandating the collection of such information. For example, all Canadian provinces are required to report to Statistics Canada both volume and dollar value of alcohol sold. In Australia, a recent threat to data collection, now fortunately resolved, was an indication by the ABS that it might no longer report on national alcohol consumption estimates derived from sales data. If that had happened, Australia would have been the only OECD (Organisation for Economic Co-operation and Development) country not to collect national alcohol consumption data (Hall *et al.*, 2008).

Alcohol sales data can directly benefit liquor licensing, police, health and governments in a number of ways. These data can be used to:

- enable responsible authorities to closely monitor the sale of a regulated, addictive and psychoactive substance, identify emerging trends in use and harms and support intelligence led policing and health service delivery;
- enable reliable estimates of how much alcohol is actually consumed by a population: without local sales data it is not possible to know whether subjective impressions regarding levels of alcohol consumption in a particular area or by a specific population are accurate or indeed true;
- provide a reliable, independent and objective measure for evaluating the effectiveness of federal, state and local government alcohol policy initiatives. Other administrative data sets which are typically employed for such purposes such as hospital, police or survey data may be affected by internal processes which differ by region or over time. Where sales data have been available, they have been used to evaluate a range of important initiatives providing some of the most valid and reliable assessments of alcohol policy and strategy;
- provide a reliable and equitable basis upon which to construct social impact models for gauging potential impacts of new liquor licenses and changes to existing licenses in local areas;

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- provide evidence to support decision-making processes regarding variations to existing licenses, and assist prosecutions against problematic or unlawful licensees and venue operators where necessary; and
- assist authorities to identify 'hot-spots': communities and regions where alcohol consumption is associated with high levels of violence, crime and disorder and which may require pro-active supply, demand and/or harm reduction strategies to address these.

THE NASDP OBJECTIVES AND AIMS

The overall objective of the NASDP is to construct an ongoing, regularly updated, national database of standardised alcohol sales data, which includes all Australian states/territories. This is progressed by jurisdictions supplying the project with electronic copies of their alcohol sales records conforming to a minimum set of specifications. These data sets are then systematically prepared and analysed by the NASDP staff.

Other project aims include:

- monitoring alcohol consumption trends by regularly estimating *per capita* alcohol consumption for all participating states/territories;
- providing an annual report on consumption by region containing summaries of alcohol sales data and alcohol pcc estimates for all participating states/territories and the Commonwealth; and
- providing standardised alcohol sales data sets for use by jurisdictions.

It is anticipated that the annual report will demonstrate the value of alcohol sales data for policy and services evaluation and encourage jurisdictions not currently collecting these data to closely consider the merits of doing so. An important aspect of the project is its capacity to work directly with relevant personnel in specific jurisdictions to assist in the development of sales data collections.

IMPLEMENTATION AND ESTABLISHMENT OF THE NASDP

The first major task of the NASDP was to establish an Advisory Committee (AC) consisting of senior representatives of Liquor Licensing (LL), Health and Police in every Australian jurisdiction and the Australian Government Department of Health and Ageing. The purpose of the AC is to:

- provide guidance and advice and oversee the use of sales data;

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- communicate representatives' interests and requirements regarding sales data;
- provide comment and suggestions on draft annual reports; and
- support the aims and ongoing functions of the project.

Meetings are held via group teleconference twice a year and provide an opportunity for AC representatives to discuss any data collection issues that may arise and to provide feedback on draft reports.

In the first stage of establishing the AC, senior personnel in relevant agencies in each jurisdiction were contacted and asked to nominate representatives for the AC. A project brief describing the background and aims of NASDP (Appendix 2) was sent to nominated individuals who were asked to participate in the first teleconference or nominate an alternative representative.

The first AC Teleconference was held on April 3 2009.

General points raised in the meeting include:

- alcohol sales data collection was ongoing in Western Australia through the Department of Racing, Gaming and Liquor.
- Alcohol sales data collection was ongoing in the Northern Territory.
- The Queensland sales data collection had been ongoing for some years, but the data had not previously been utilised. 2007/08 data were being prepared for use by the Queensland Office of Liquor and Gaming Regulation at the time of the meeting.
- The South Australian Office of the Liquor and Gambling Commissioner was hoping to restart data collection to support its Alcohol Action Plan.
- There was some discussion about collection costs, with concerns about the impost of data collection and collation on government agencies such as liquor licensing. In Western Australia, however, it had been found that there were sufficient LL resources to deal with collection, and that costs related mainly to set-up rather than to maintenance. Some jurisdictions also expressed concerns about the cost implications of data collection to the wholesalers, particularly smaller producers. Queensland and Western Australia representatives noted that at that time wholesalers in their states had not expressed concerns regarding the cost of data collection to themselves, and that the requested information was already a component of routine record keeping practices.

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- Compliance issues engendered further discussion. In Western Australia compliance problems had been found to be greater with larger producers than with smaller wholesalers, while Queensland had experienced excellent compliance at first request with minimal follow-up required.

DATA TRANSFER ISSUES

A number of general conditions underlay data transfer arrangements in the NASDP.

- Individual state and territory governments are responsible for and retain ownership over collection of electronic alcohol sales data within their own jurisdiction.
- NASDP project staff consult individually with responsible departments on minimum data set specifications, data transfer arrangements, confidentiality requirements and data quality checks.
- The NDRI liaises with participating jurisdictions to ensure confidentiality requirements are satisfied. All NASDP project staff are required to sign a data confidentiality agreement.
- All jurisdictions contributing alcohol sales data are consulted in relation to appropriate functional levels of reporting. Alcohol sales are not reported by liquor licence and minimum sample rules (i.e. by geographic area) have been established to ensure the privacy of individual retailers is protected.

In 2009, Queensland, Western Australia and the Northern Territory made alcohol sales data available to the NASDP. Some of the specifications of these data sets are detailed in Table 1.

Table 1 Alcohol sales data made available to NASDP during 2009

Jurisdiction	Frequency of collection	Years of collection	ASGC² edition
Queensland	Annual	2007 – 2008	2008
Western Australia	Annual	2005 – 2006	2006
		2006 – 2007	2007
Northern Territory	Annual	2007 – 2008	2008
		2005 – 2006	n/a ³
		2006 – 2007	
		2007 – 2008	

² Australian Standard Geographical Classification. See below for further detail

³ See Northern Territory section for details

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METHODS

OVERVIEW

- All analytical work was supervised by senior researchers at the National Drug Research Institute (NDRI) and electronic data were housed on secure servers at NDRI.
- Upon data transfer from jurisdictional collection agencies (e.g. liquor licensing authorities), alcohol sales data were cleaned, standardised and analysed.
- Regional alcohol pcc estimates were made using estimated residential populations (ERP) from the Australian Bureau of Statistics.⁴
- Standardised data sets containing jurisdictional alcohol sales data were made available to nominated jurisdictional representatives.
- Alcohol sales data could not be transferred to third parties without the written consent of the relevant jurisdiction(s).

PER CAPITA CONSUMPTION CALCULATION METHOD

Per capita consumption was calculated by relating litres of absolute alcohol consumed to the population aged 15 plus as described in the following equation (Farah, Unwin, & Codde, 2007)⁵

$$\text{Per capita consumption} = \frac{\text{litres of absolute alcohol}}{\text{population 15+}}$$

- Alcohol sales data were prepared as above.
- Wine producer sales, such as those at cellar doors not included in the above, were added to the data set where volumes, postcodes and details of the nature of the beverages sold were available.
- Volume data were aggregated into relevant regional units using the major geographical information contained within the data sets.
- Volume data were partialled out to regional units and alcohol conversion factors (see below) applied to volumes of different beverages to create total absolute (pure) alcohol volumes.

⁴ A different denominator was used for Northern Territory data. Please see that section for details.

⁵ A different denominator was used for Northern Territory data. Please see that section for details.

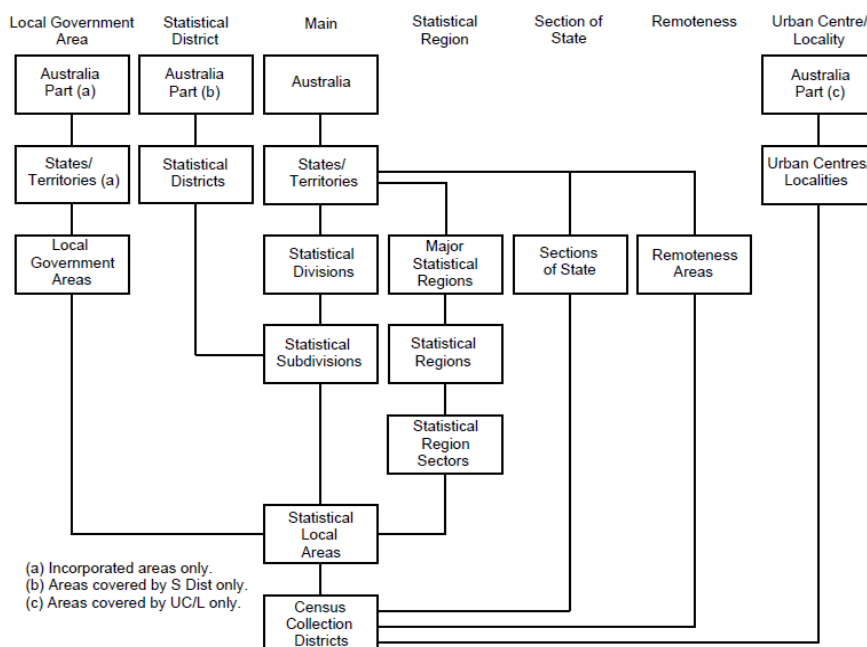
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- Year appropriate ERPs (see below) were adjusted for the 15 plus population, and regional pcc calculated according to the above equation.
- For Western Australia and Queensland, alcohol volumes and pcc were not reported for regions with five or less licensed premises. Alcohol volumes for the Northern Territory were pre-aggregated by the Northern Territory Department of Justice.

ASGC REGIONAL UNITS

The Australian Standard Geographical Classification (ASGC) (Australian Bureau of Statistics, 2008) provides a useful method for organising information into relevant geographical categories. The ASGC essentially allows coding of data into pre-established geographical categories. Figure 1 shows the structure within the classification. Jurisdictions are divided into Statistical Divisions (SDs) which are made up of Statistical Subdivisions (SSDs), which are in turn made up of Census Collection Districts (CCDs) aggregated into Statistical Local Areas (SLAs). Local Government Areas (LGAs) are independent of this structure, but can be converted to SLAs by using appropriate ABS concordances.

Figure 1 Australian Standard Geographical Classification Structure (Australian Bureau of Statistics, 2008)



ASGC units used for pcc analysis could vary with the jurisdiction. As noted above, all jurisdictions contributing alcohol sales data were consulted in relation to appropriate

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functional levels of reporting. In most cases the base units were relatively small (e.g. LGAs or SLAs) and these were amalgamated into larger units such as SSDs to enable visually informative mapping. Larger units (for the most part SSDs) used in each jurisdiction have been presented in this report, either as maps or as tables, and the results from smaller units (primarily SLAs) returned to relevant liquor licensing authorities.

The appropriate year of ASGC publication was also an issue. ASGC editions are published every year, and a number of other ABS measures, such as ERP (see below) depend on the latest issue. Changes to boundaries and unit code numbers and names can occur from year to year. The appropriate ASGC edition used in the NASDP therefore varied from state to state with the dates of data collection (see Table 1).

The ABS has developed a range of concordances which link different elements of the overall structure to other elements. These were used, for example, to convert postcode data to SLAs, and LGAs to SLAs.

ESTIMATED RESIDENTIAL POPULATION (ERP)

The ERP was selected as the measure of Australian population. The ERP is calculated by the ABS and based on Census data adjusted for population change since the most recent Census year, and net overseas migration. Estimated interstate movements are also taken into consideration and overseas visitors are excluded (ABS, 2008). Use of the ERP enabled comparison with the national consumption calculated by the ABS. Use of other possible measures of population have, however, been suggested (Farah *et al.*, 2007) and a discussion of the possible value of these to the NASDP can be found towards the end of this report.

Since ERP is assessed on the 30th June of the year in which it is published, the ERP reflecting the end of the financial year during which the sales data were collected was used in NASDP.

DATA PREPARATION

General considerations for data cleaning and preparation included:

- Anomalies in the data were identified and either corrected or removed.
- Apparent outliers in the data were queried with the relevant authority and appropriate action taken.

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- In some data sets, postcodes were used as the basic geographical identifier. In these cases, a small number of individual sales records which did not contain a purchaser postcode were removed.
- Volumes of alcohol sold (litres) were the base unit of pcc calculation. A small number of individual sales records which did not contain volume data were removed.
- Records were removed if they related to supply to other wholesalers or wine producers as these would otherwise be duplicated in wholesaler to retailer records.

The Northern Territory

The Northern Territory utilises a quarterly return.

At the end of every quarter of each year all licensed Northern Territory wholesalers are emailed, reminding them of their obligations under Section 114 of the Liquor Act which states they have 28 days from the end of the quarter to lodge with the Wholesale Quarterly Return of Liquor Sales, showing details of all purchases and sales of liquor made in the quarter.

Alcohol sales data were made available to the NASDP by the Northern Territory Department of Justice for the years 2005/06, 2006/07 and 2007/08. They were conveyed in an Excel spreadsheet containing all three years' data. The spreadsheet contained details of alcohol purchases, identifying purchaser information, including licence number and address, and Statistical Local Area (SLA) of the purchaser. The Department of Justice supplied information which allowed SLAs to be aggregated into the 6 Urban Centres and remainder of the Northern Territory which is its usual mode of presenting geographical information on alcohol sales. The Department of Justice also supplied whole population and 15 plus population details for the Northern Territory for the years 2000/01 to 2007/08, and Department of Tourism estimates of the number of interstate and overseas tourists aged 15 and older to the whole of the Northern Territory for the same years.

The Department of Justice requested that the NASDP report pcc using ERP plus tourism figures for the jurisdiction as a whole, but not for regional units where tourist estimations were not as reliable. It was agreed that volumes of alcohol sold would be reported for Urban

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Centres and the remainder of the Northern Territory, and that pcc for the Northern Territory as whole would be calculated primarily with the tourism estimate⁶.

Queensland

Queensland utilises two annual returns:

- a) Return of Liquor Sales under the Liquor Act 1992. This return should be completed by every holder of a producer/wholesaler licence
- b) Annual return under the Wine Industry Act 1994. This return should be completed by every holder of a wine producer or wine merchant licence.

Alcohol sales data were made available to the NASDP by the Queensland Office of Liquor and Gaming Regulation (OLGR) for the year 2007/08. Data were conveyed in Excel spreadsheets containing identifying wholesaler information and details of sales made to other licensees. The purchaser postcode was the primary geographical information.

The records were aggregated by wholesaler, and licence numbers of purchasers examined to determine whether supply had been made to other wholesalers (licence numbers commencing with 494 and/or wine producers licence numbers commencing with 481) and wine merchants (licence numbers commencing with 482). As noted above, these purchases were removed from the data set to avoid double counting.

Table 2 shows the percentage of volumes / values of alcohol supply made to other wholesalers and/or wine producers and merchants. About 22% of the volume, and 23% of the value of alcohol purchased from wholesalers, was bought by other wholesalers. Relatively small proportions of all records related to supply to wine producers / merchants⁷

⁶ Estimates of Northern Territory pcc without the influence of tourism can be found in Appendix 1.

⁷ The Queensland Act defines these as follows:

a Wine Producer Licence, wherein the fruit used to produce the wine is grown by the licensee on the premises used to make wine, or; a Wine Merchant Licence, wherein the licensee purchases fruit grown in Queensland and commissions the production of wine by the holder of a Wine Producer licence, or, blends wines produced in the state to create a unique wine.

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Table 2 Percentage of volumes and values of Queensland alcohol sales made to non-retail licensees.

	Total volume (litres)	Total value (\$)	% of total volume	% of total value
Total dataset	731,986,594	4,083,486,939		
Wholesalers	159,143,220	930,690,518	21.741	22.792
Producers/Merchants	22,301	165,164	0.003	0.004

Wine Industry returns constituted the second source of Queensland data. Postcodes of the wine producer / merchants and details of beverages sold (table or fortified wine, cider, brandy or mead) were available, so these data could be added to the total volumes sold to retail licensees by wholesalers. The Wine Industry returns showed that 76% of the value and 70% of the volumes sold by wine producers / merchants⁸ were from the cellar door, with the remainder going to export and interstate (not included in these data).

Postcodes were aggregated into Statistical Local Areas (SLAs) using the 2008 Postcode to Statistical Local Area (SLA) Concordance, prepared by the ABS Regional Population Unit in Adelaide. Further aggregation to Statistical Subdivisions (SSDs) using the same concordance was undertaken to provide regional units of an appropriate size for mapping.

Western Australia

The Government of Western Australia Department of Racing, Gaming and Liquor (DRGL) utilises two annual returns:

- a) Summary of Transaction Under a Wholesale Licence, Liquor Control Act, 1988. This return should be completed by every holder of a Wholesaler's Licence.
- b) Summary of Transaction Under a Producer's Licence, Liquor Control Act, 1988. This return should be completed by every holder of a Producer's Licence.

Alcohol sales data were made available to the NASDP through the Western Australia Drug and Alcohol Office. Three years of data were available: 2005/06; 2006/07; 2007/08. These were conveyed in Excel spreadsheets containing all three years' data. The spreadsheets contained details of alcohol purchases, identifying purchaser information, including licence number and address, and Local Government Area (LGA) of purchaser. LGA was the primary geographical information.

⁸ There were only 2 wine merchants

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The records were aggregated by purchaser, and licence numbers examined to determine whether they were wholesalers (licence numbers commencing with 616) and/or producers (licence numbers commencing with 618). These were removed from the data set to avoid double counting, thus leaving only sales made to retail licensees for further analysis.

Table 3 shows the percentage of volumes / values of alcohol supply to wholesalers and/or producers in 2005/6; 2006/7 and 2007/8. It shows that there was far more supply to wholesalers than to producers in all years; supply to wholesalers reduced in each succeeding year, and the proportions of supply to producers varied across the three years.

Table 3 Percentage of volumes and values of Western Australia alcohol supply to non-retail licensees

	Total volume (litres)	Total value (\$)	% of total volume	% of total value
Total dataset 2005/6	332,109,265	1,692,231,534		
Wholesalers 2005/6	59,006,771	352,199,291	17.767	20.812
Producers 2005/6	1,408,798	2,888,805	0.424	0.171
Total dataset 2006/7	329,860,414	1,797,698,443		
Wholesalers 2006/7	51,686,663	371,385,547	15.670	20.660
Producers 2006/7	2,717,243	5,856,955	0.823	0.326
Total dataset 2007/8	418,586,556	844,077,120		
Wholesalers 2007/8	57,416,491	85,900,693	13.717	10.177
Producers 2007/8	1,020,735	2,011,698	0.244	0.239

Although a summary of Wine Producer information for 2007/08 was made available to the NASDP, it could not be added to the Western Australia data for that year because only values, not volumes, were recorded. Without volume data it was not possible to use these data to assist in the calculation of pcc.

We have, however, been able to estimate the likely contribution of Wine Producers' sales by calculating the volume to value ratio in the 2007/08 alcohol sales data and applying that ratio to the value of wine production in-state sales 'at the cellar door' and some other categories of lawful sale to unlicensed purchasers such as sales to employees. We estimated that around 11,594,111 litres of wine were sold, which would have been around 2.7% of total alcohol sales if they had been included.

The purchaser data were aggregated into LGAs. It was decided to use the same regional units to calculate pcc as had been used in Queensland, to allow comparability. LGAs were therefore transformed into SLAs. Although these units are very similar, there is not a perfect

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one to one correspondence between them, and the Regional Population Unit of the ABS in Adelaide kindly assisted by preparing a specific concordance of Western Australia LGA to SLA using ERPs for 2006, 2007 and 2008. SLAs were later converted into SSDs for mapping.

ALCOHOL CONVERSION FACTORS

Alcohol conversion factors are required to convert volumes of different alcohol-based beverages to volumes of absolute or 'pure' alcohol content. The NASDP has used national alcohol conversion factors in order to derive standardised rates which are used to compare pcc across different regions and jurisdictions.

As an example, the NASDP alcohol conversion factor for mid-strength beer is 0.335. This means that the average mid-strength beer contains 3.35% pure alcohol. In this example, the volume of mid-strength beer sold by retailers was multiplied by 0.335 to obtain the volume of pure alcohol.

Most of the alcohol conversion factors used in NASDP are preliminary estimates based on ongoing review and work by the NDRI to update national alcohol conversion factors. In order to identify current alcohol contents and thereby conversion factors for different beverage types, information was obtained from a range of sources including: on-line liquor guides and liquor sales web sites; reference books; and Euromonitors reports. A comprehensive report is currently in preparation (Chikritzhs *et al.*, in preparation)⁹; the following is an overview of methods used.

Market brand shares for each major beverage type (beer, wine and spirits) were identified using Euromonitors data. Average alcohol contents of the most popular brands were identified using on-line liquor guides and reference books. When alcohol contents could not be identified from these sources, visits were made to local liquor stores. Preliminary conversion factors were estimated for the following groups of beverages:

1. Beer: low (2.5-2.9%) mid (3.0-3.5%) and full strength (>3.5%)¹⁰
2. Bottled wine: red, white, sparkling and fortified
3. Cask wine: red and white
4. Spirits: whisky, bourbon, brandy, rum and white

⁹ Referred to hereafter as 'NDRI review'

¹⁰ 'Light' beer was not included

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5. RTDs: mid strength (3.5% alcohol content); full strength (3.5% to less than 6%) and super strength (6% to 10%)¹¹
6. Cider: in keeping with previous consensus (Catalano *et al.*, 2001) an alcohol content of 5%

The specific alcohol conversion factors derived from the NDRI review and applied in the NASDP are summarised in Table 4. Specific considerations given to each jurisdiction are described below, with final jurisdiction-specific conversion factors also summarised in Table 4.

The Northern Territory

The Northern Territory alcohol sales data contained the following categories:

- full (strength) beer, mid (strength) beer, low (strength) beer;
- cask wine, bottled wine, fortified wine;
- pre-mixed spirits, standard spirits; and
- cider.

Alcohol contents estimated by the NDRI review have been applied to Northern Territory beers, fortified wine, spirits and cider. The definition of full-strength, mid-strength and low-strength used in the Northern Territory 'Wholesaler Return of Liquor Sales' approximated those used in the NDRI review for the same categories. The Northern Territory defines full-strength beer as 3.99% or greater, mid-strength beer as 3.01% to 3.99% and low-strength beer as 1.15% to 3.00%.

The Northern Territory sales data did not differentiate between red, white and sparkling wines. Preliminary estimates of an overall pure alcohol content for table wine indicate 12.3%. This figure was applied to the Northern Territory wine data (Table 4). In other evaluations it has been assumed that cask wine has the same alcohol content as bottled wine (Gray, Chikritzhs, & Stockwell, 1999) and this assumption has been applied to Northern Territory cask wine.

¹¹ Any product with greater alcohol content than 10% was considered full-strength spirit and not included.

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Queensland

Queensland alcohol sales data contained the following alcohol beverage categories:

- heavy beer, medium beer, light beer;
- bottled table wine, bottled fortified wine, bulk table wine, bulk fortified wine;
- regular spirits, pre-mixed spirits; and
- alcoholic sodas and cider.

Alcohol contents estimated by the NDRI have been applied to Queensland beers, fortified wines, spirits, RTDs and cider (see Table 4). The definition of 'heavy', 'medium' and 'light' beer used in the Queensland 'Return of Liquor Sales' approximated those used in the NDRI review for full strength, mid strength and low strength beers. Queensland defines heavy beer as 4% or greater, medium beer as 3% to less than 4% and light beer as less than 3%.

As in the Northern Territory, the Queensland sales data did not differentiate between red, white and sparkling wines, thus an overall conversion figure of 12.3% was applied.

There is also no differentiation in the Queensland data for cask wine. There is, however, a category referred to as 'bulk wine', defined as follows:

Bulk wine is really just a large quantity of wine or fortified wine. Queensland's Liquor Regulation 2002 states:

'... bulk, for an acquisition or supply of wine or fortified wine, means an acquisition or supply of wine—

(a) in a container with a capacity of more than 20L; or

(b) for bottling elsewhere or for blending with another wine.

cask means a container with a capacity of 2L or more but not more than 20L.' (A. Garton. Queensland Office of Liquor, Gaming and Racing, personal communication, 1/7/09).

We have therefore used the same alcohol content for Queensland bulk table and fortified wines as for bottled table and fortified wines respectively.

The alcohol content of alcoholic sodas was established by Catalano *et al.* (2001).

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Some of the Queensland wine producers' data referred to 'mead'. There is a consensus in online data sources that this refers to brewed honey-based beverages with an average alcohol content of around 12.5%¹². This figure has been applied to mead in the Queensland data.

Western Australia

The Western Australian alcohol sales data contained the following beverage categories:

- high (alcohol) beer, low (alcohol) beer;
- high (alcohol) wine, low (alcohol) wine; and
- spirits.

The conversion factors estimated by the NDRI review for full and mid strength beers were applied to Western Australia 'high' and 'low' beers, low beer having previously been defined in Western Australia as having an alcohol content of 0.035 (Catalano *et al.*, 2001).

The Western Australian data, like the Northern Territory and Queensland data, did not differentiate between different kinds of table wine so an overall average alcohol content of 12.3% was assumed. Low alcohol wine in the Western Australian data has been converted with a factor of 3.5% as it was by Catalano *et al.* (2001).

Western Australian alcohol sales data do not distinguish between straight spirits (e.g. bottled vodka) from pre-mixed spirits (e.g. 'vodka cruisers'), as they only record volumes for all spirit-based products combined. Thus, the alcohol content of 'spirits' in Western Australia depends upon the proportion of RTD or pre-mixed spirits in the total volume sold. Information sourced from the Distilled Industry Council of Australia (DSICA) has identified that the proportion of the total spirits market made up of pre-mixed products has been steadily rising since 2001 (Distilled industry Council of Australia, 2006). Using this information, the NDRI has calculated that the average alcohol content of spirits in Western Australia was about 0.108 in 2005/06 and 0.106 in 2006/07. Information about the market share of pre-mixed spirits in subsequent years is not available. In NASDP, therefore, we have used the alcohol conversion factor of 0.108 in 2005/06 and 0.106 in 2006/07 and 2007/08.

¹² <http://www.bartholomewsmeadery.com.au/>

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Summary of alcohol conversion factors

Table 4 Alcohol conversion factors by jurisdiction

Beverage	Source	Terms	Alcohol conversion
Beer	NDRI review	full beer	0.0493
		mid beer	0.0335
		low beer	0.0265
	NT 05/06, 06/07, 07/08	full beer	0.0493
		mid beer	0.0335
		low beer	0.0265
	Queensland 07/08	heavy beer	0.0493
		medium beer	0.0335
		light beer	0.0265
	WA 05/06, 06/07, 07/08	high beer	0.0493
low beer		0.035	
Wine		NDRI review	white wine
	red wine		0.1376
	sparkling		0.122
	fortified		0.181
	NT 05/06, 06/07, 07/08	cask wine	0.123
		bottle wine	0.123
		fortified wine	0.181
	Queensland 07/08	bottle table	0.123
		bulk table	0.123
		bottle fortified	0.181
WA 05/06, 06/07, 07/08	bulk fortified	0.181	
	high wine	0.123	
	low wine	0.035	
Spirits	NDRI review	spirits	0.417
		RTD full	0.0501
		RTD Super	0.0772
	Queensland 07/08	regular spirits	0.417
		premixed spirits	0.0501
	WA 05/06	spirits	0.108
	WA 06/07	spirits	0.106
	WA 07/08	spirits	0.106
	NT 05/06, 06/07, 07/08	premixed spirits	0.0501
		standard spirits	0.417
Other	NDRI review	cider	0.05
	Queensland 07/08	alcoholic soda and	0.05
		cider	0.05
	Queensland 07/08	mead	0.125
NT 05/06, 06/07, 07/08	cider	0.05	

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MAPPING

Per capita consumption was calculated for SSDs and mapped using the software ArcGIS 9.3. ArcGIS is geographical information software which allows the user to input their own information about geographical features. The NASDP downloaded ABS files with Australian SSD information and added pcc for each SSD. The result is more visually informative than tables, and permits rapid comparison of regions.

Geographical information for the Northern Territory was mapped using ArcGIS, but it has not been possible to attach alcohol sales data information to the regions mapped as they were not aggregated into ASGC standard regions.

RESULTS

THE NORTHERN TERRITORY

Per capita pure alcohol consumption (litres of absolute alcohol) was estimated for the whole of the Northern Territory.

Table 5 **Estimated *per capita* pure alcohol consumption, Northern Territory**
2005/06 – 2007/08

	Total pure alcohol (litres)	ERP aged 15 plus + tourism	NT pcc	National pcc¹
2005/06	2,718,152	181,447	14.98	9.84
2006/07	2,720,758	189,127	14.39	10.00
2007/08	2,769,519	189,493	14.62	9.85

¹ National estimate. Does not include alcohol drinks other than beer, wine and spirits (Australian Bureau of Statistics, 2009)

Alcohol sales in the Northern Territory were analysed for Urban Centres and the remainder of the jurisdiction. The location of the Urban Centres can be seen in Figure 2.

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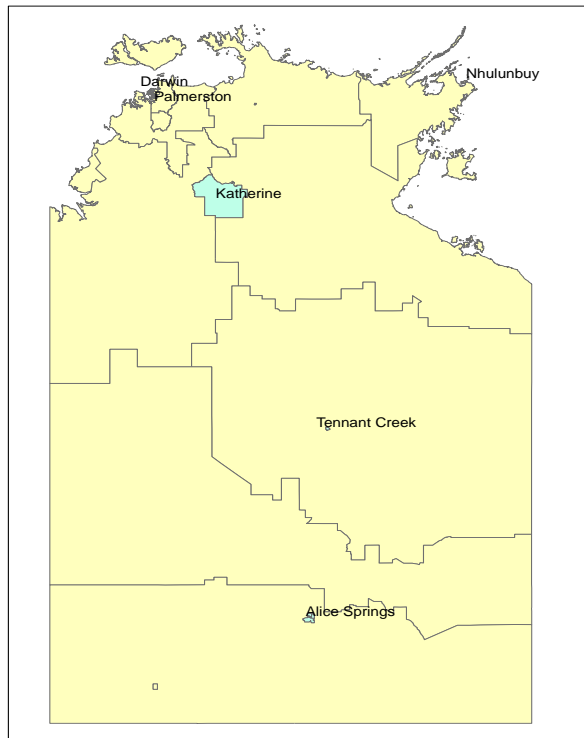


Figure 2 Urban centres of the Northern Territory: Alice Springs, Darwin, Katherine, Nhulunbuy, Palmerston, Tennant Creek,

Detail of the Statistical Local Areas within and in the vicinity of Urban Centres can be seen in Figure 3 to Figure 7.

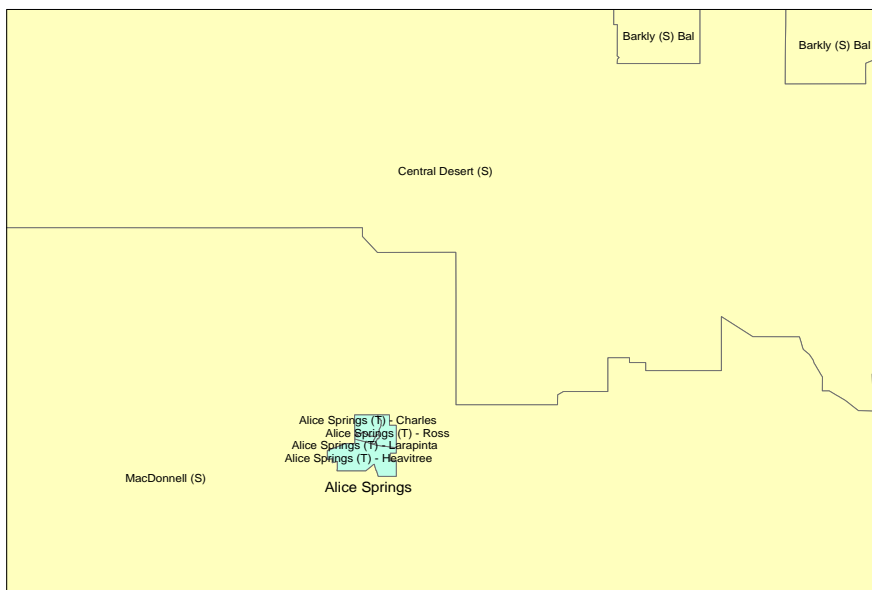


Figure 3 Statistical Local Areas in and around Alice Springs, Northern Territory

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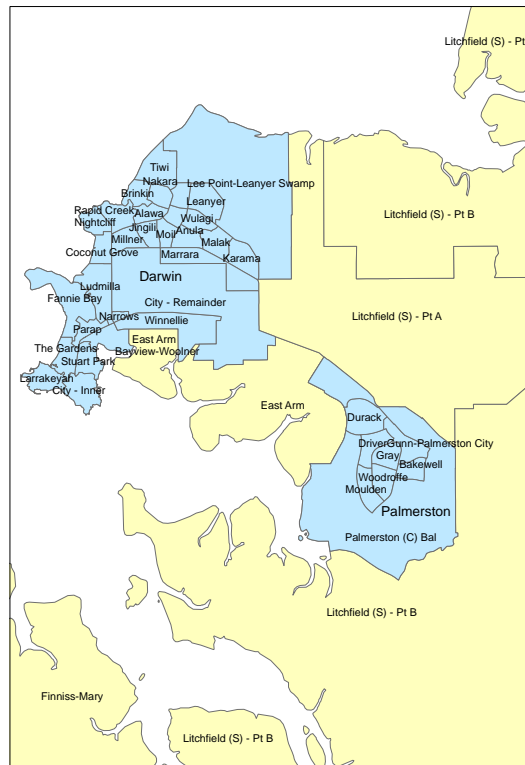


Figure 4 Statistical Local Areas in and around Darwin and Palmerston, Northern Territory

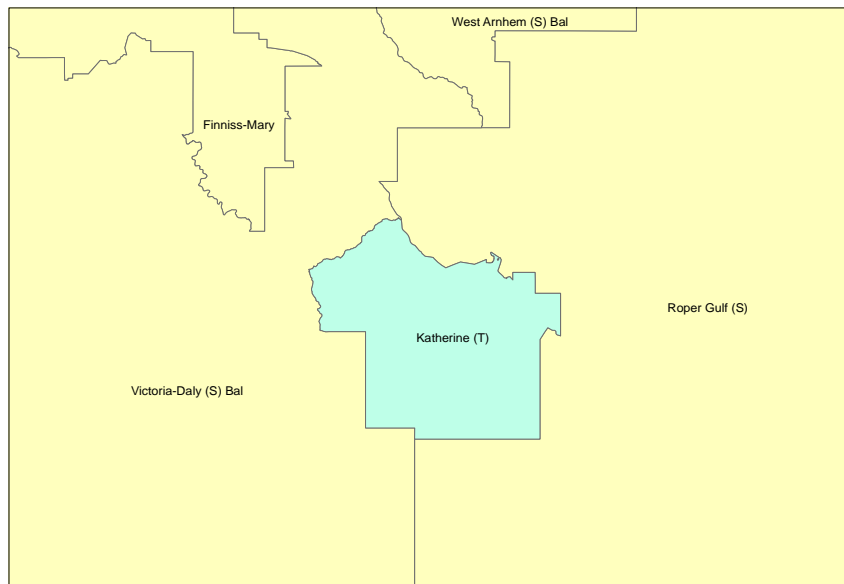


Figure 5 Statistical Local Areas around Katherine, Northern Territory

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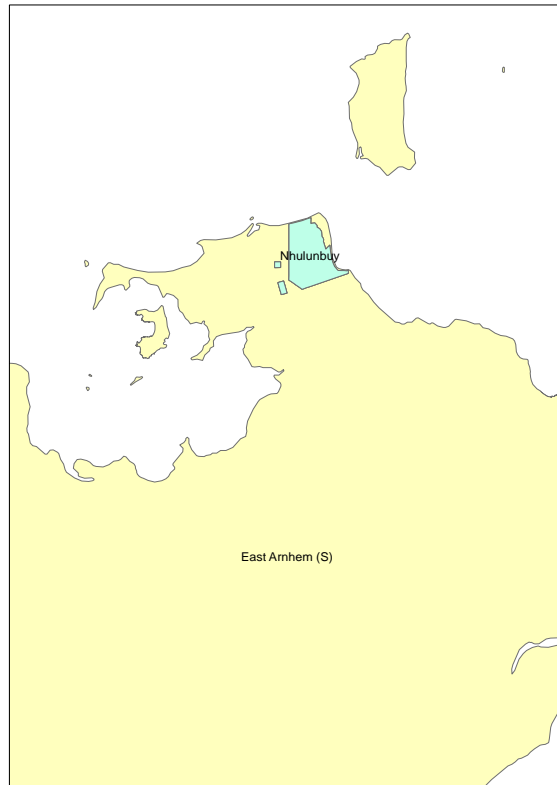


Figure 6 Statistical Local Areas around Nhulunbuy, Northern Territory

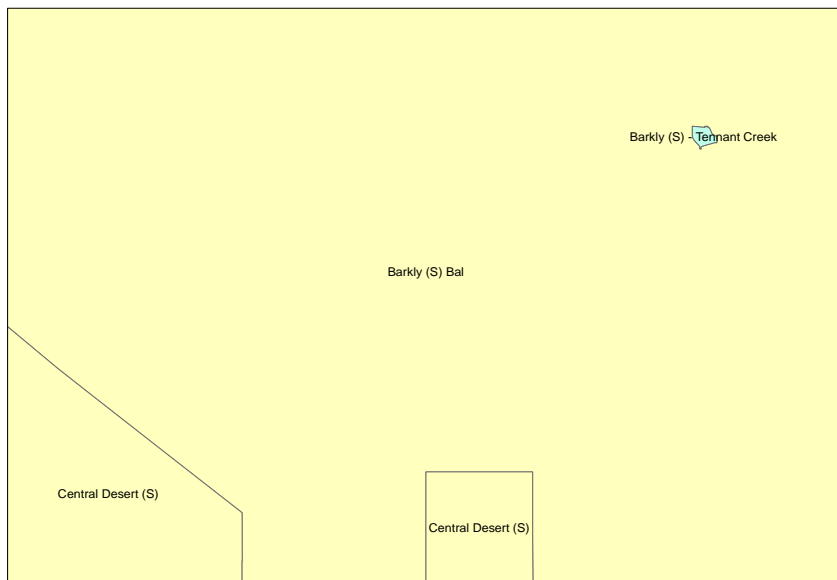


Figure 7 Statistical Local Areas around Tennant Creek, Northern Territory

Volumes of pure alcohol sold in the years 2005/06, 2006/07 and 2007/08 in Urban Centres and the remainder of the Northern Territory can be seen in Figure 8.

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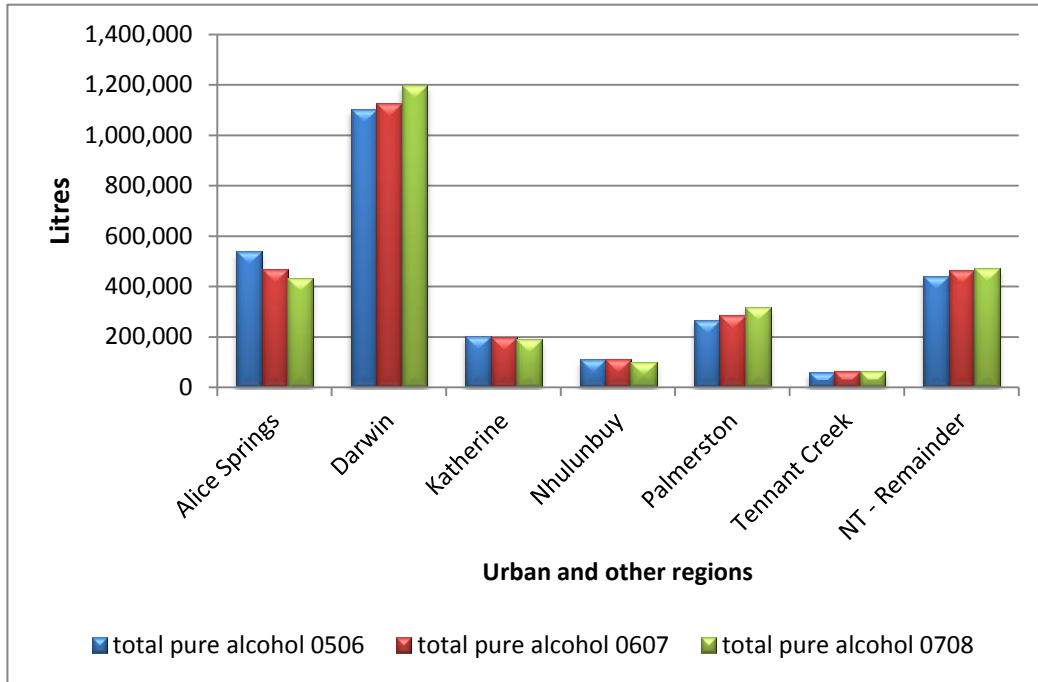


Figure 8 Volumes (litres) of pure alcohol sold in the Northern Territory from 2005/06 to 2007/08

Details of volumes of alcohol sold as different beverages over the three years can be seen in Table 6.

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Table 6 Volumes (litres) of alcohol sold by beverage and pure alcohol in urban and other regions, Northern Territory, 2005/06 – 2007/08

Region	Year	All beer	All wine	All spirits	All cider	All alcohol	All pure alcohol
Alice Springs	2005/06	4,585,659	1,914,809	964,632	102,468	7,567,568	537,950
	2006/07	5,614,803	908,336	996,448	105,715	7,625,302	469,006
	2007/08	5,655,559	612,542	968,536	91,353	7,327,991	433,429
Darwin	2005/06	11,651,194	2,497,219	2,363,741	282,460	16,794,614	1,101,069
	2006/07	11,701,243	2,655,899	2,366,210	278,736	17,002,090	1,125,323
	2007/08	12,538,309	2,768,366	2,605,581	290,965	18,203,221	1,197,241
Katherine	2005/06	2,159,393	616,759	375,691	30,075	3,181,918	202,738
	2006/07	2,149,974	551,747	405,328	28,268	3,135,317	199,897
	2007/08	2,269,625	376,073	470,980	25,461	3,142,138	190,471
Nhulunbuy	2005/06	1,292,201	200,516	303,087	21,423	1,817,227	109,739
	2006/07	1,442,419	115,300	326,480	19,684	1,903,882	111,564
	2007/08	1,224,279	110,291	259,908	17,478	1,611,955	98,398
Palmerston	2005/06	3,133,527	471,526	778,152	86,100	4,469,305	266,129
	2006/07	3,291,274	579,163	796,490	88,486	4,755,413	287,451
	2007/08	3,556,880	628,167	935,323	84,833	5,205,203	316,690
Tennant Creek	2005/06	766,997	123,395	101,327	10,512	1,002,230	59,336
	2006/07	783,302	155,382	111,682	8,571	1,058,936	64,184
	2007/08	748,020	139,259	146,135	9,496	1,042,911	63,037
NT Remainder	2005/06	6,619,057	474,123	907,349	220,459	8,220,988	441,191
	2006/07	6,858,056	581,997	1,024,666	171,958	8,636,678	463,333
	2007/08	6,941,946	614,268	1,121,039	157,459	8,834,712	470,253
Total	2005/06	30,208,028	6,298,346	5,793,979	753,496	43,053,850	2,718,152
Total	2006/07	31,841,070	5,547,824	6,027,304	701,419	44,117,618	2,720,758
Total	2007/08	32,934,619	5,248,966	6,507,502	677,045	45,368,131	2,769,519

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QUEENSLAND

Per capita consumption (litres of absolute alcohol) was estimated for the whole of Queensland as shown in the following table:

Table 7 Estimated *per capita* pure alcohol consumption, Queensland 2007/08

	Total pure alcohol (litres)	ERP aged 15 plus	QLD pcc	National pcc ¹
2007/08	37,955,769	3,429,367	11.07	9.85

¹National estimate. Does not include alcohol drinks other than beer, wine and spirits (Australian Bureau of Statistics, 2009)

Volumes of alcohol sold and *per capita* consumption were estimated for Statistical Subdivisions (SSDs). These estimates can be seen in Figures 9 to 12 with details in Table 8.

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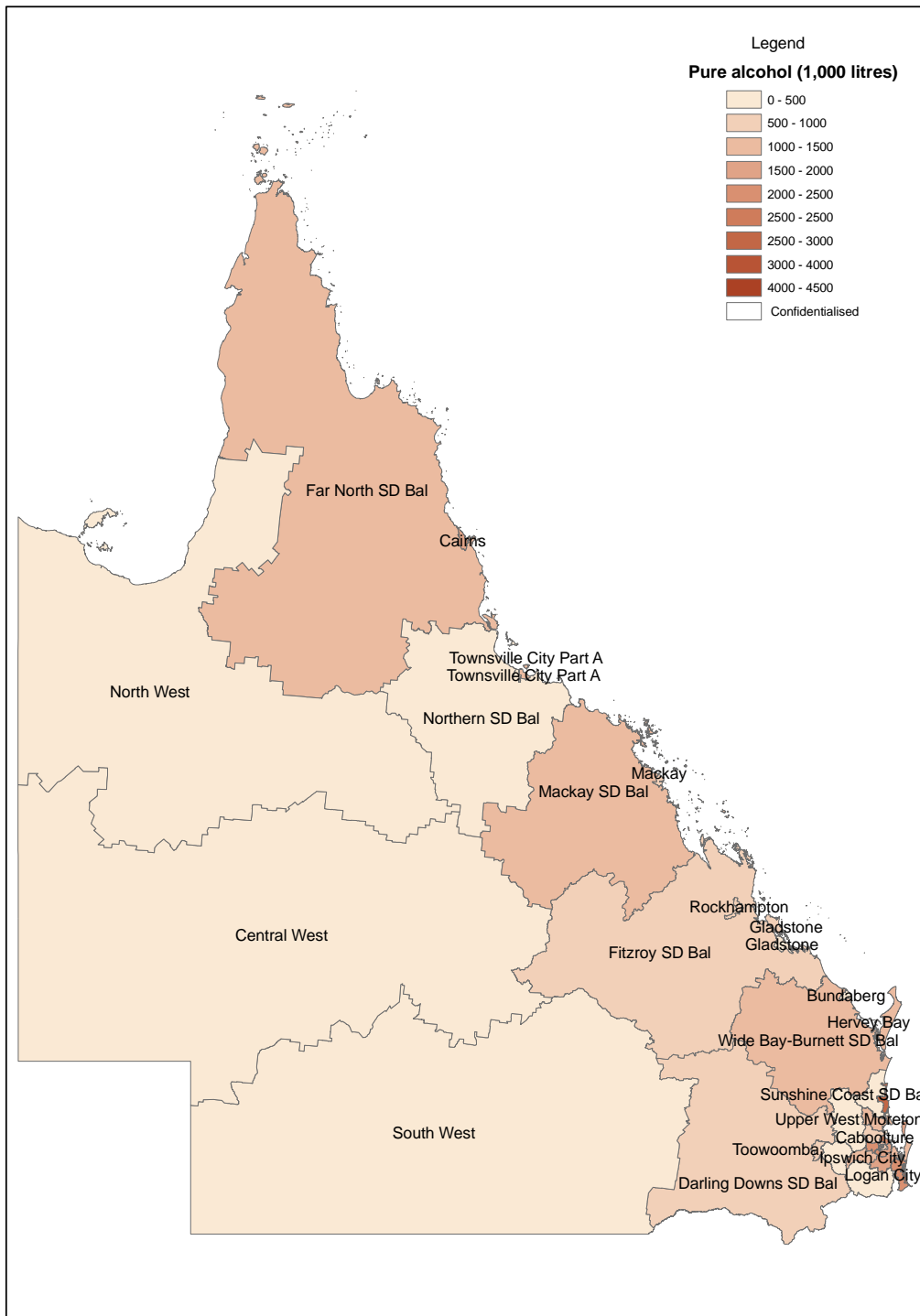


Figure 9 Volumes of pure alcohol sold 2007/08, Queensland

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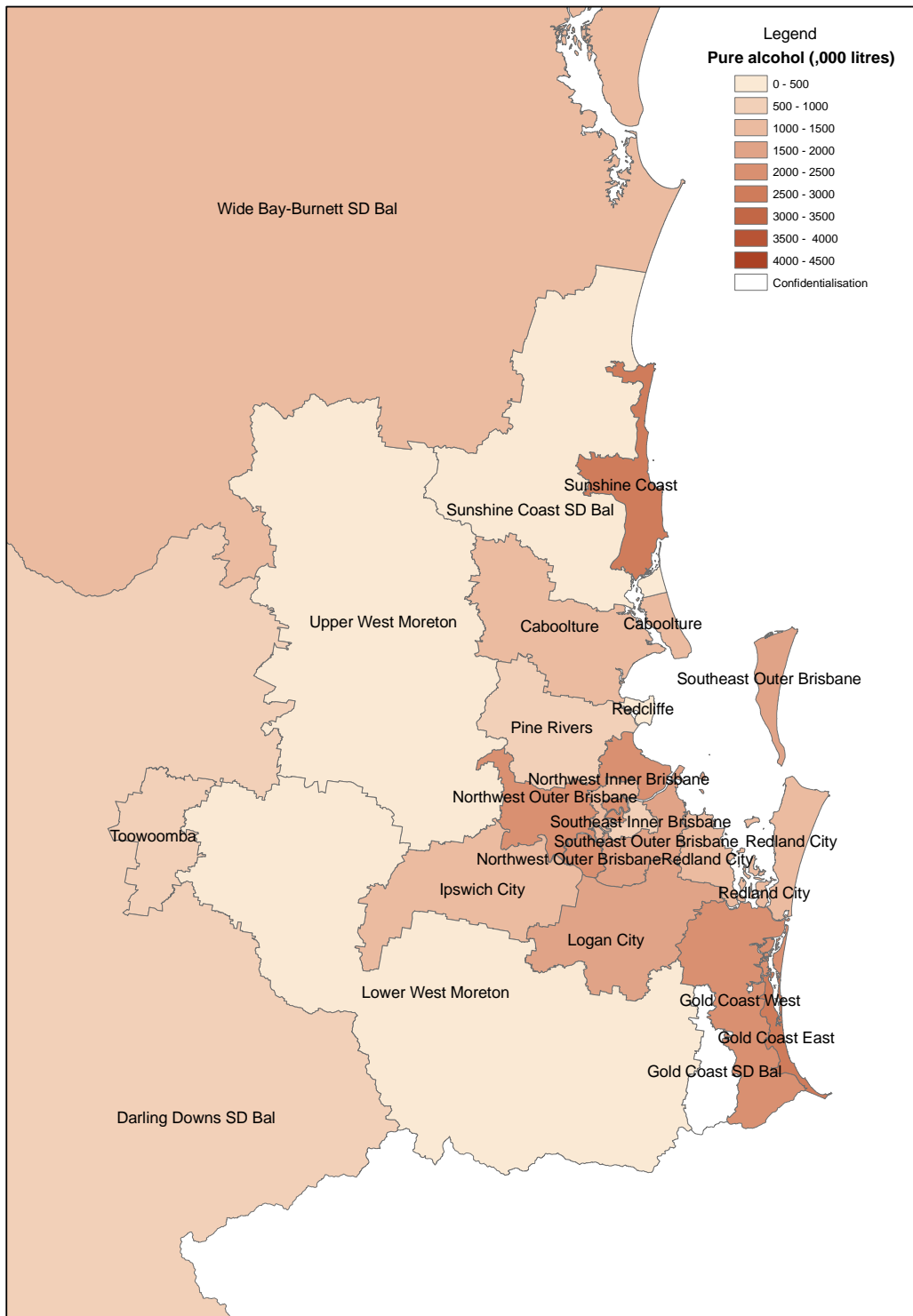


Figure 10 Volumes of pure alcohol sold 2007/08, Brisbane and environs, Queensland

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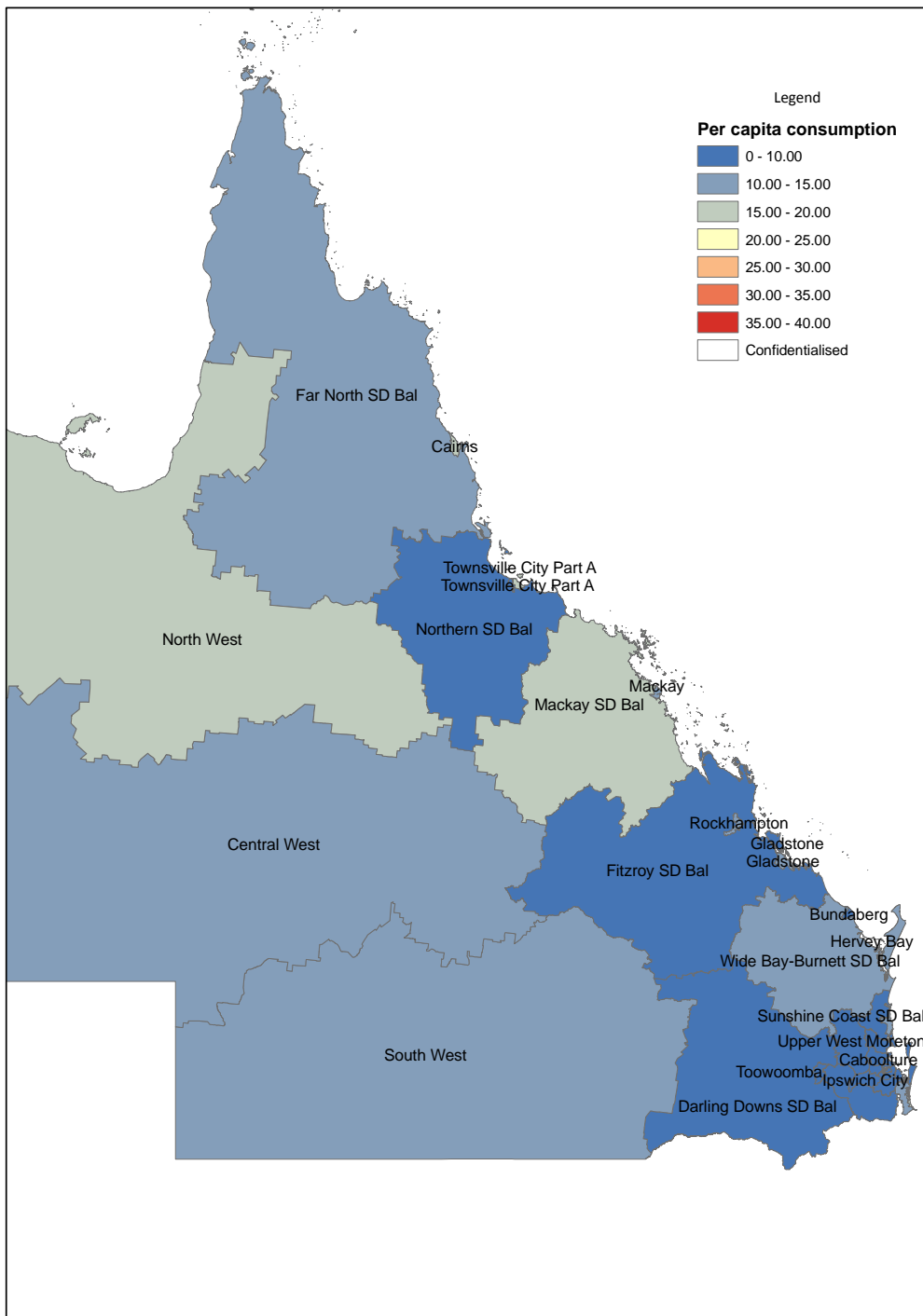


Figure 11 Estimated *per capita* pure alcohol consumption, Queensland 2007/08

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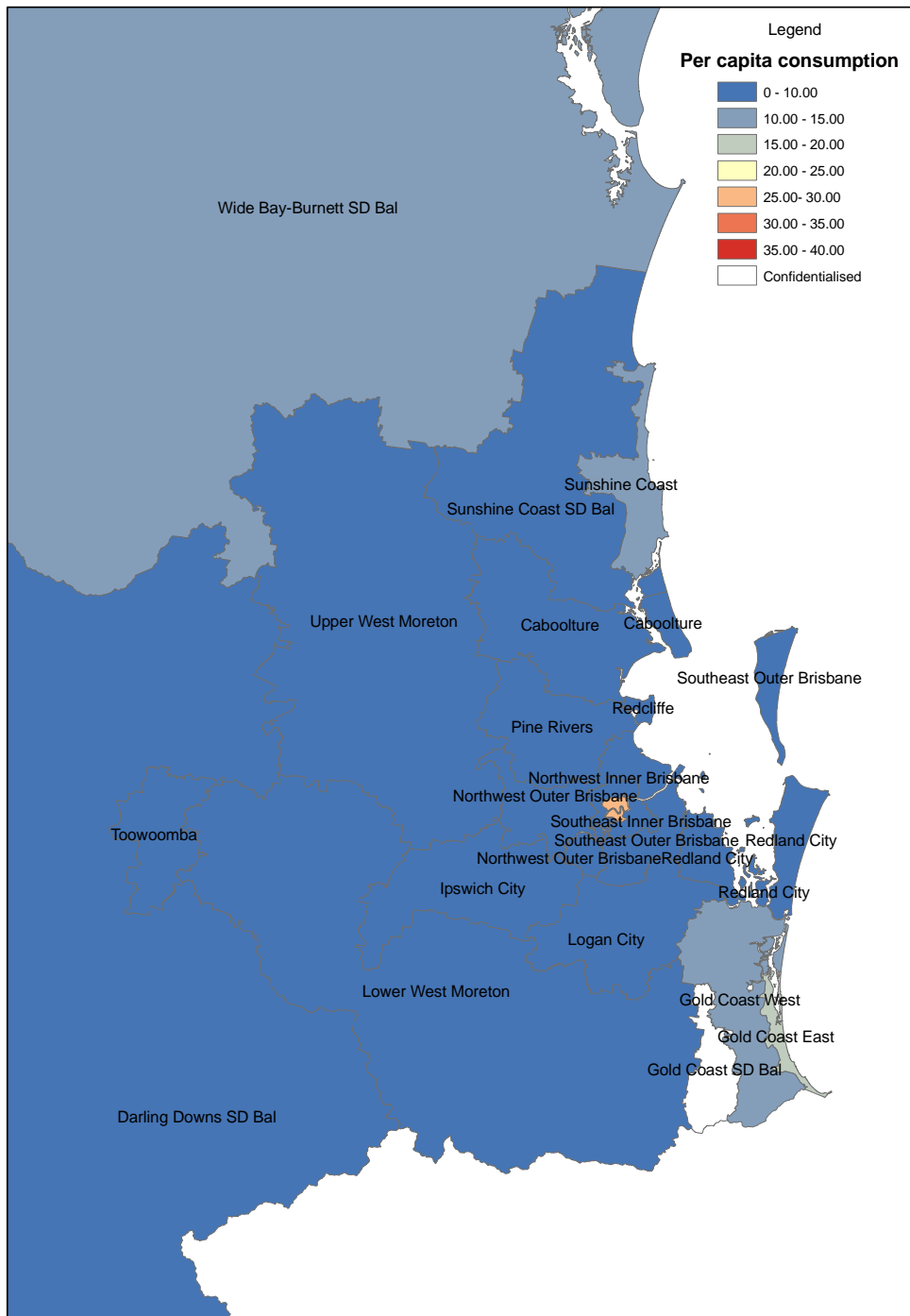


Figure 12 **Estimated *per capita* pure alcohol consumption, Brisbane and environs, Queensland 2007/08**

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Table 8 Volumes (litres) of alcohol sold by beverage, pure alcohol, and pcc in SSDs, Queensland 2007/08 ¹

SSD code	SSD name	All beer	All wine	All spirits	All other ²	All alcohol	All pure alcohol	pcc
30501	Inner Brisbane	20,031,020	6,254,852	4,184,702	275,687	30,746,262	2,290,449	26.93
30503	Northwest Inner Brisbane	11,468,553	4,391,818	2,668,763	117,946	18,647,079	1,388,824	8.77
30507	Northwest Outer Brisbane	19,711,062	6,706,825	4,523,324	190,578	31,131,789	2,140,284	7.94
30509	Southeast Inner Brisbane	8,483,958	2,770,272	1,582,019	89,198	12,925,447	907,922	6.81
30511	Southeast Outer Brisbane	12,108,612	5,856,534	3,368,305	146,451	21,479,902	1,655,400	8.28
30520	Caboolture	11,092,220	2,577,338	3,460,788	136,645	17,266,991	1,084,755	9.56
30525	Ipswich City	10,374,585	2,077,565	3,829,911	129,237	16,411,297	1,024,720	8.71
30530	Logan City	17,704,305	4,300,939	6,697,034	206,638	28,908,916	1,882,451	9.10
30540	Pine Rivers	8,668,196	3,071,068	2,484,311	105,396	14,328,971	990,877	8.26
30545	Redcliffe	3,758,515	1,158,132	1,162,838	55,342	6,134,827	425,363	9.40
30550	Redland City	9,168,065	3,194,018	2,862,317	123,912	15,348,313	1,086,720	9.94
30710	Gold Coast East	23,566,544	9,061,169	6,180,895	269,206	39,077,814	2,904,879	17.24
30715	Gold Coast West	20,421,723	7,860,125	5,702,341	269,656	34,253,845	2,473,181	10.46
30905	Sunshine Coast	22,363,481	10,382,673	5,741,719	271,260	38,759,134	2,881,894	14.85
30910	Sunshine Coast SD Bal	4,359,523	1,362,496	1,359,799	81,678	7,163,497	476,084	7.97
31205	Upper West Moreton	1,476,137	229,452	401,105	15,568	2,122,261	119,364	7.28
31210	Lower West Moreton	4,358,329	915,616	1,225,613	48,785	6,548,342	397,181	7.19
31505	Bundaberg	5,172,629	1,268,950	1,500,257	54,541	7,996,377	497,618	9.42
31510	Wide Bay-Burnett SD Bal	14,863,653	2,913,918	3,656,510	156,839	21,590,919	1,283,418	10.39
32001	Toowoomba	8,398,949	2,561,390	2,690,512	76,340	13,727,191	944,630	9.56
32005	Darling Downs SD Bal	9,776,719	1,591,944	2,269,747	71,525	13,709,935	791,045	9.51
32505	South West	4,260,380	269,058	701,408	9,533	5,240,379	257,687	12.85
33005	Rockhampton	11,302,218	1,408,513	2,841,558	81,041	15,633,330	881,987	14.83
33010	Gladstone	4,779,588	597,240	1,229,470	56,500	6,662,798	376,995	10.15

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SSD code	SSD name	All beer	All wine	All spirits	All other ²	All alcohol	All pure alcohol	pcc
33015	Fitzroy SD Bal	8,390,937	1,274,119	2,255,305	88,767	12,009,128	699,269	9.97
33505	Central West	1,740,883	143,527	290,016	7,096	2,181,522	112,198	11.46
34005	Mackay	11,248,840	1,676,191	2,734,248	117,466	15,776,745	913,507	14.26
34010	Mackay SD Bal	13,100,251	1,829,374	3,102,168	163,996	18,195,790	1,074,703	15.69
34505	Townsville City Part A	15,165,861	3,018,275	3,395,824	199,896	21,779,856	1,331,680	16.01
34510	Townsville City Part B	2,639,622	338,713	761,376	33,474	3,773,186	207,167	4.56
34515	Northern SD Bal	6,255,679	749,521	1,237,735	54,190	8,297,125	444,091	9.82
35005	Cairns	18,319,120	4,196,580	4,287,710	355,827	27,159,238	1,731,593	15.54
35010	Far North SD Bal	13,753,546	2,816,187	3,073,542	201,364	19,844,639	1,188,965	12.75
35505	North West	5,822,305	616,507	1,640,791	42,978	8,122,582	439,398	17.44
Total³	Queensland	370,470,237	101,367,242	96,478,749	4,396,134	572,712,362	37,955,769	11.07

¹ Details for SSDs with fewer than 6 licensed premises have been excluded including Gold Coast SD Bal (30720) and Hervey Bay (31507)

² Alcoholic soda, cider and mead

³ Total includes all SSDs and may not equal the sum of individual SSDs shown

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WESTERN AUSTRALIA

Per capita consumption (litres of absolute alcohol) was estimated for the whole of Western Australia as shown in the following table:

Table 9 **Estimated *per capita* pure alcohol consumption Western Australia 2005/06 – 2007/08**

	Total pure alcohol (litres)	ERP aged 15 plus	WA pcc	National pcc¹
2005/06	18,063,767	1,649,725	10.95	9.84
2006/07	182,46,890	1,695,343	10.76	10.00
2007/08	21,700,026	1,743,344	12.45	9.85

¹National estimate. Does not include alcohol drinks other than beer, wine and spirits (Australian Bureau of Statistics, 2009)

Volumes of alcohol sold and *per capita* pure alcohol consumption were estimated for Statistical Subdivisions (SSDs) for the three years 2005/06, 2006/06, 2007/08. These estimates can be seen in Figures 13 to 24 with details in Table 10.

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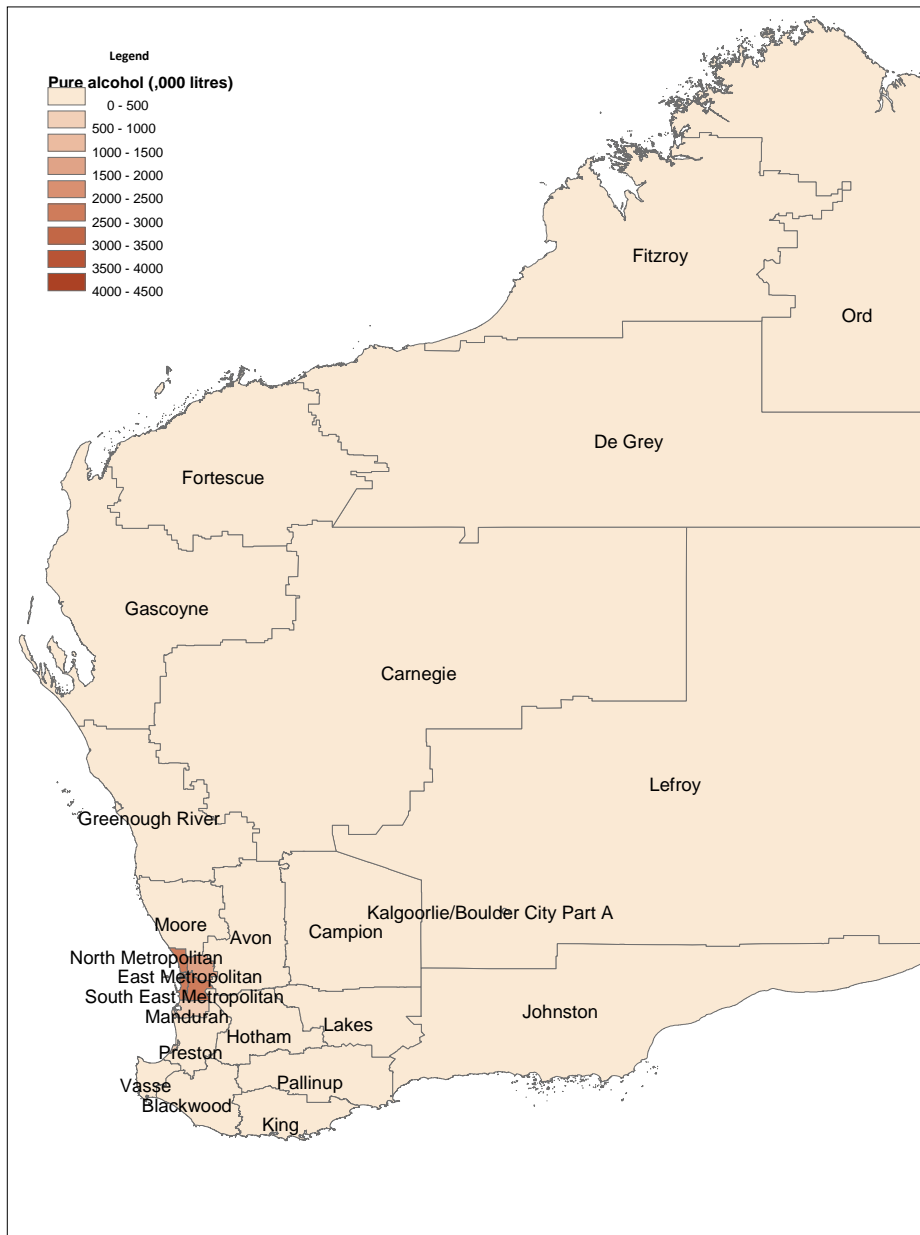


Figure 13 Volumes of pure alcohol sold, Western Australia 2005/06

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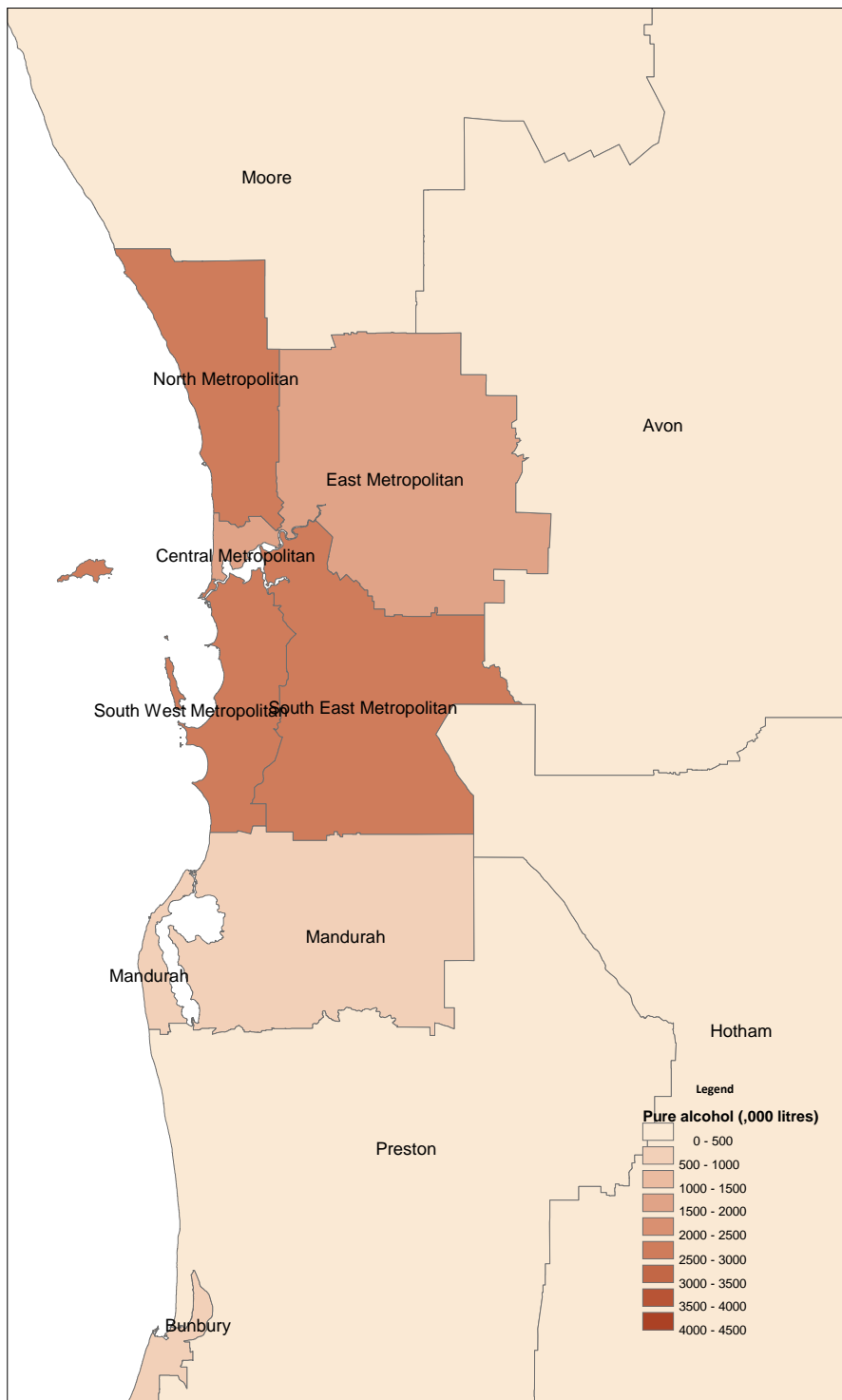


Figure 14 Volumes of pure alcohol sold, Perth and environs,
Western Australia 2005/06

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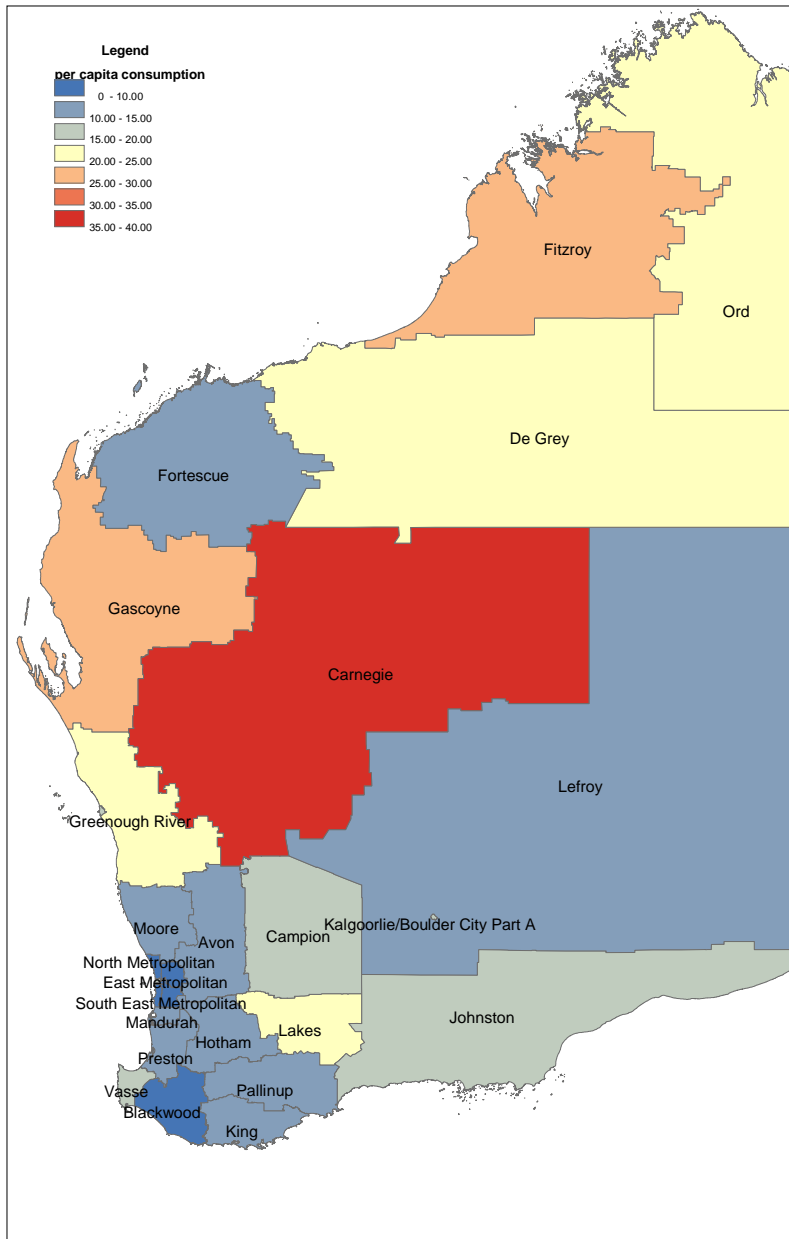


Figure 15 **Estimated *per capita* pure alcohol consumption, Western Australia 2005/06**

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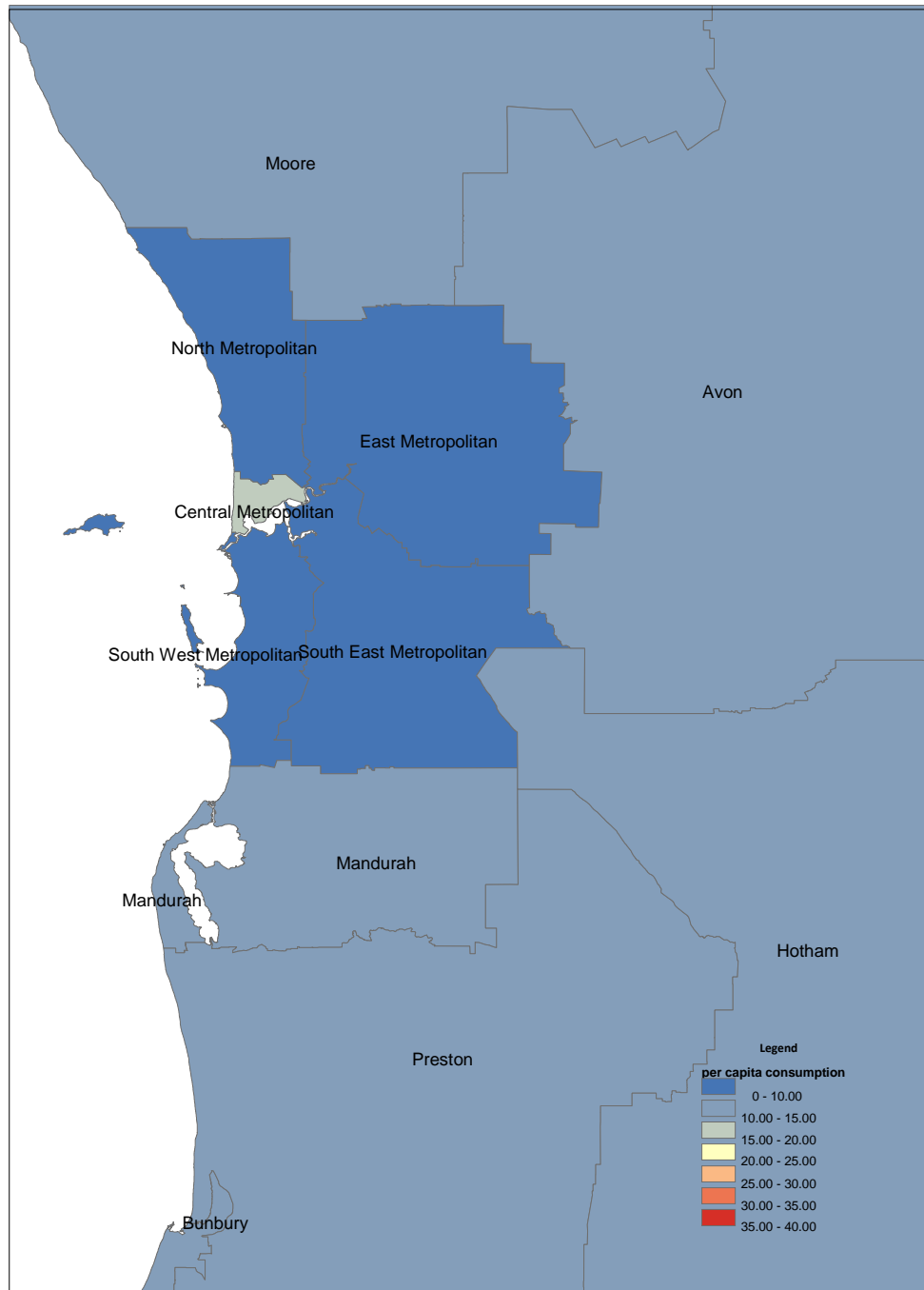


Figure 16 Estimated *per capita* pure alcohol consumption Perth and environs, Western Australia 2005/06

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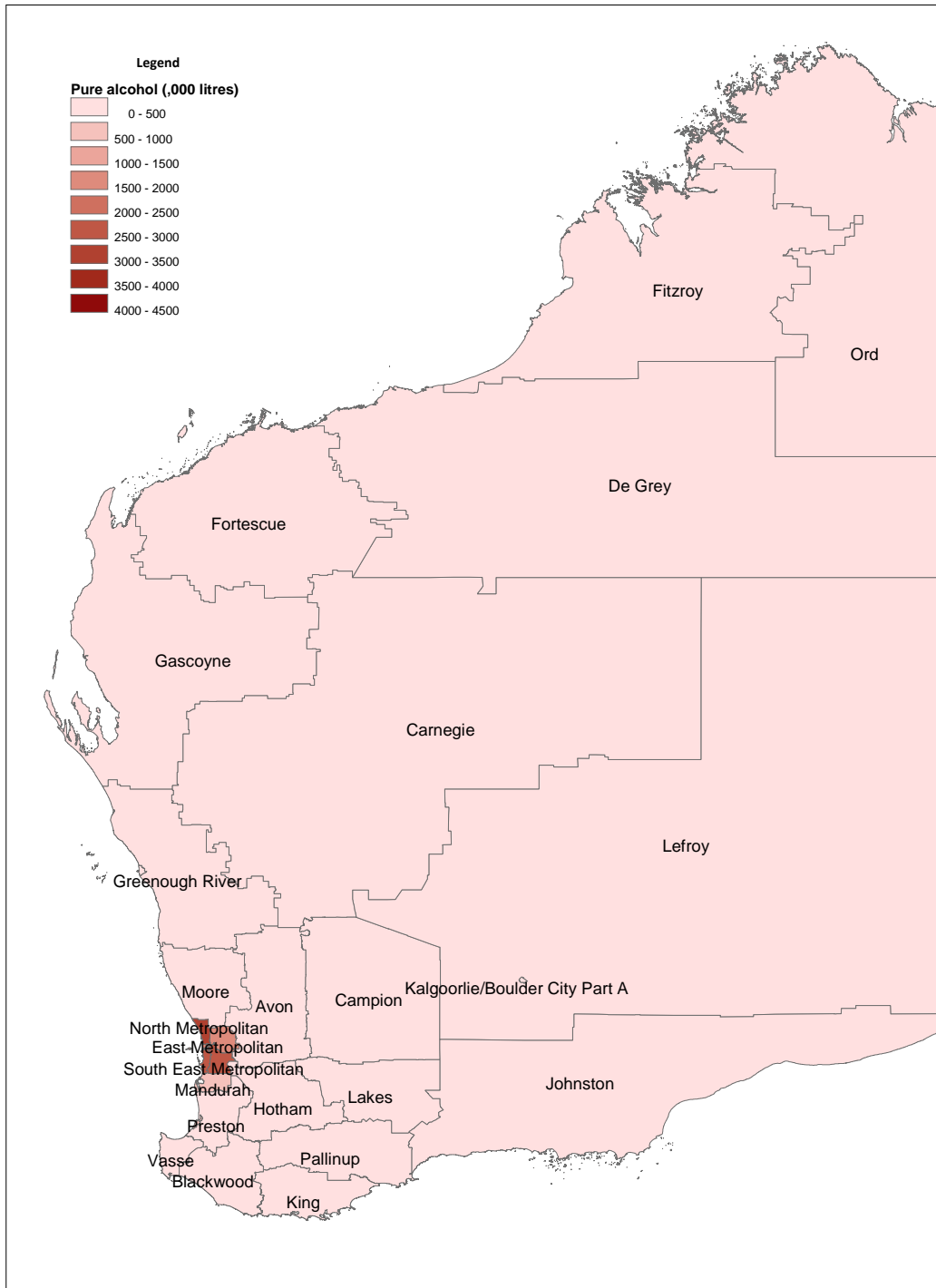


Figure 17 Volumes of pure alcohol sold, Western Australia 2006/07

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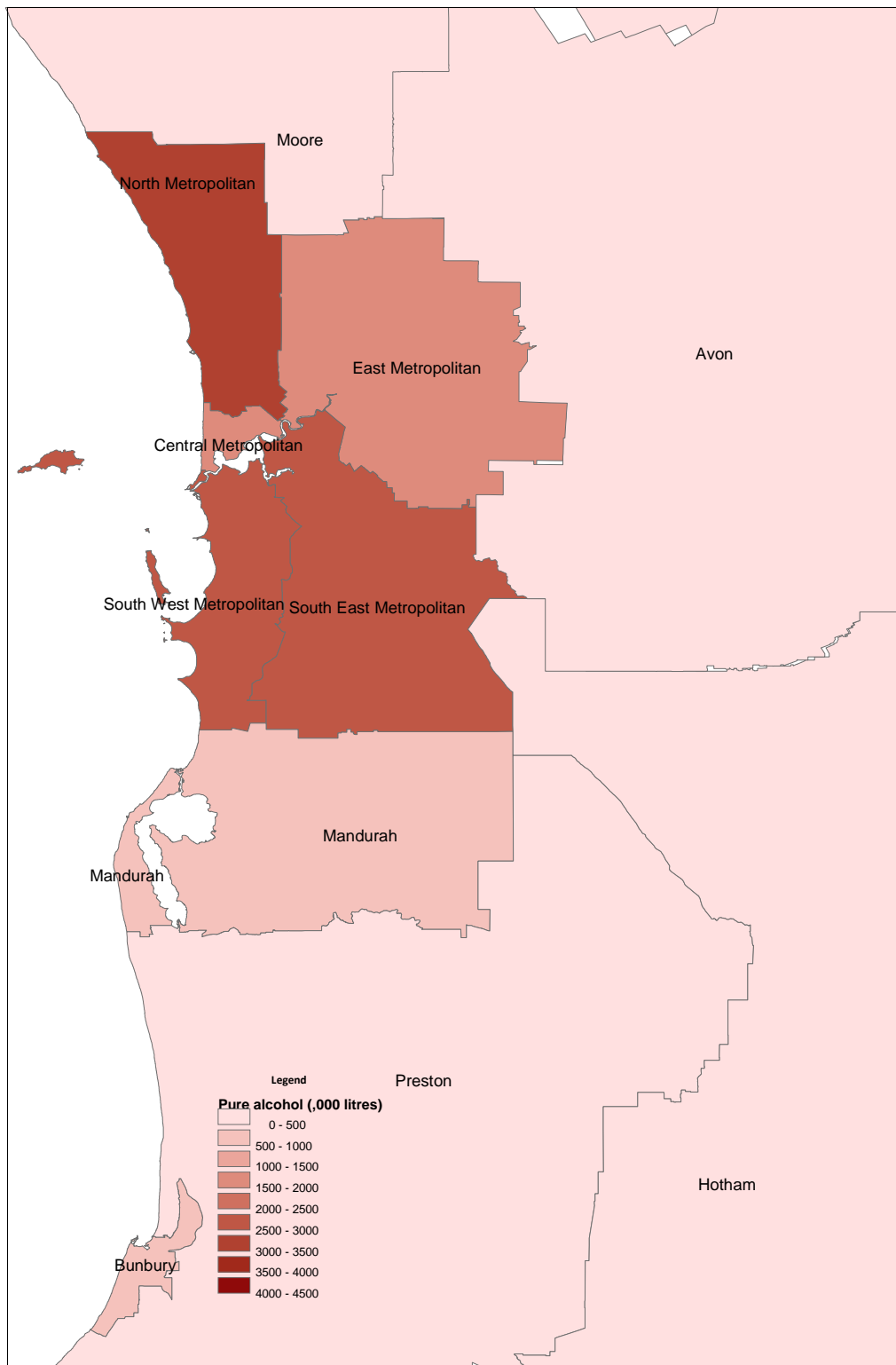


Figure 18 Volumes of pure alcohol sold, Perth and environs, Western Australia
 2006/07

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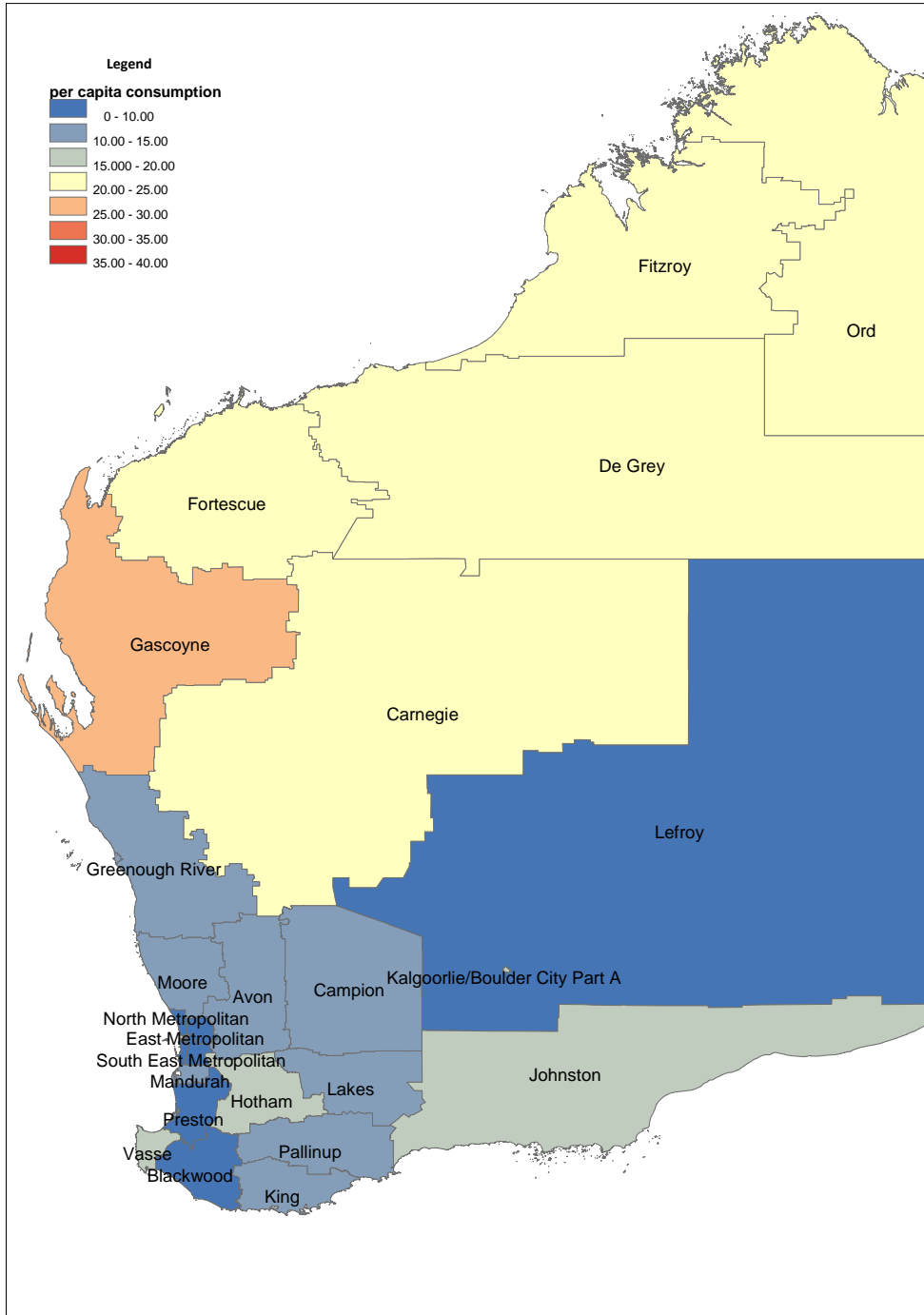


Figure 19 **Estimated *per capita* pure alcohol consumption, Western Australia 2006/07**

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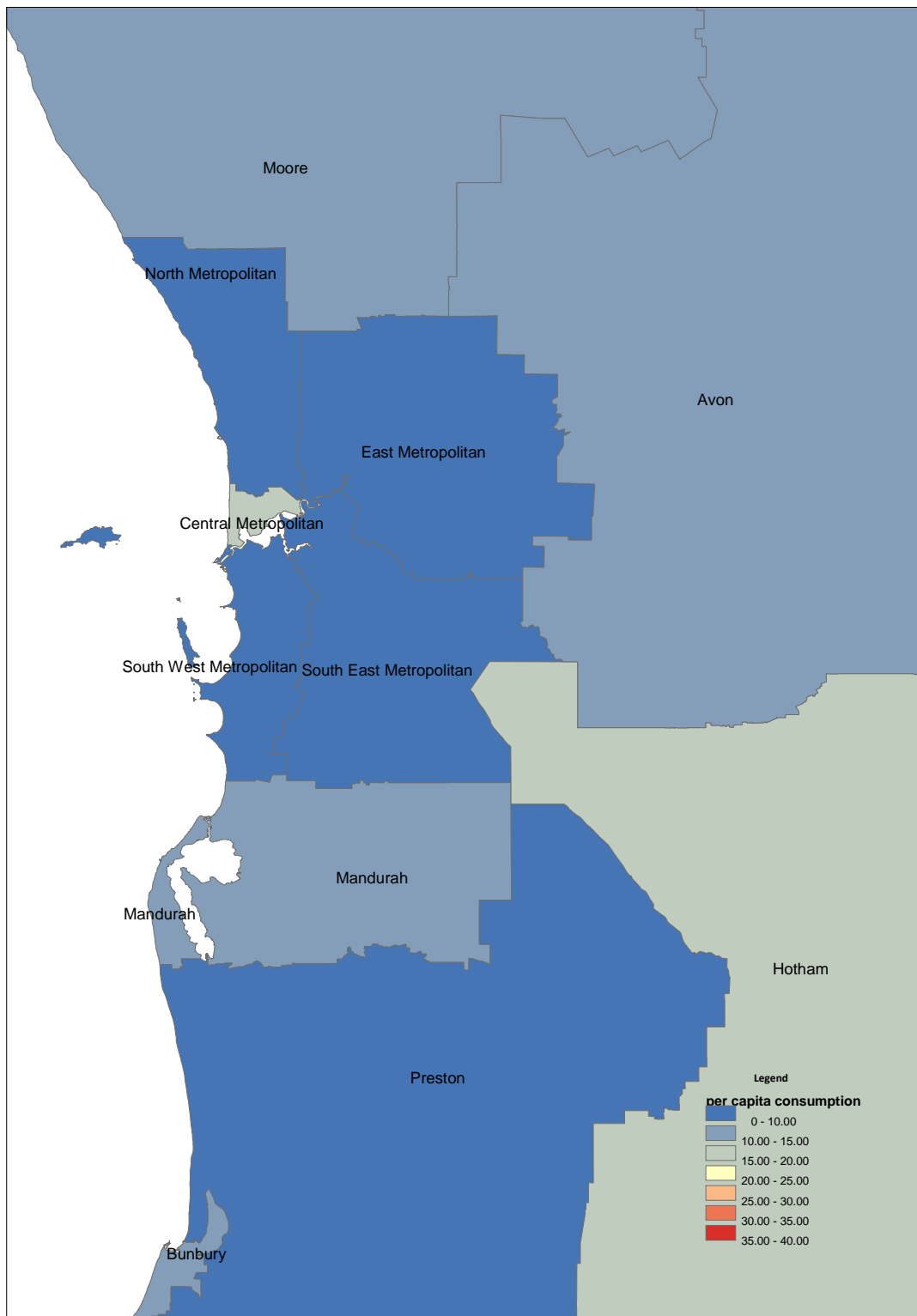


Figure 20 Estimated *per capita* pure alcohol consumption, Perth and environs, Western Australia 2006/07

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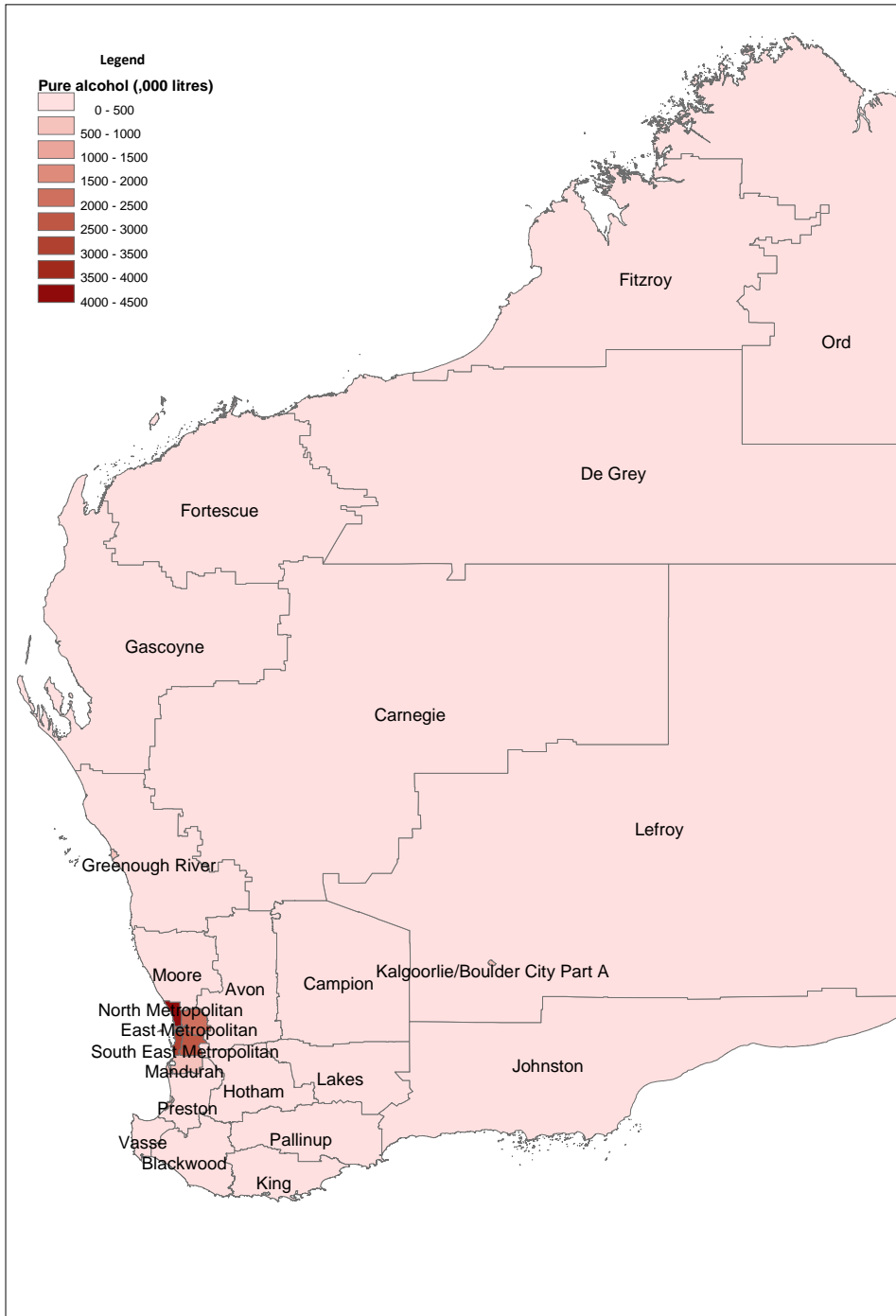


Figure 21 Volumes of pure alcohol sold, Western Australia 2007/08

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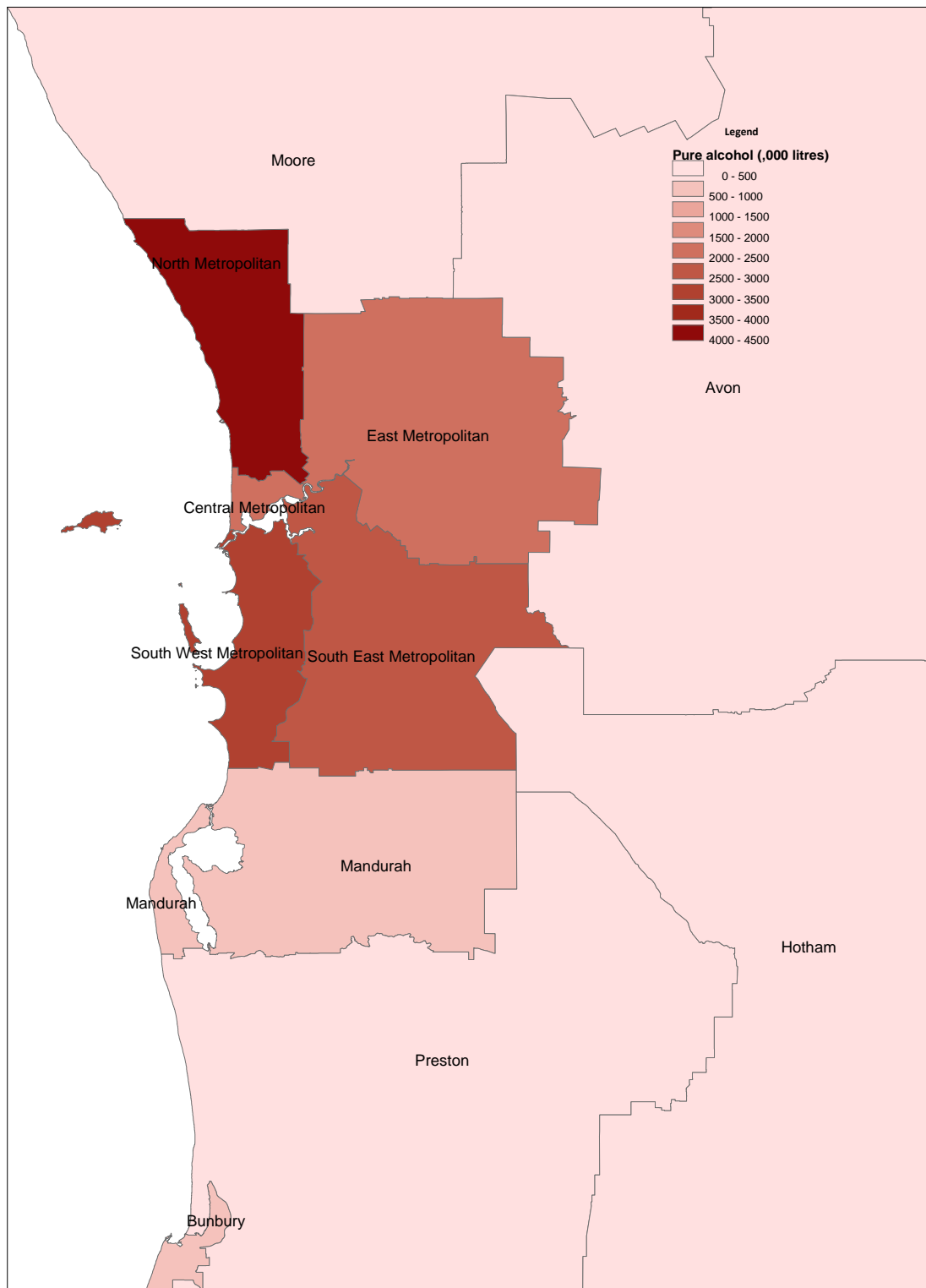


Figure 22 Volumes of pure alcohol sold, Perth and environs, Western Australia 2007/08

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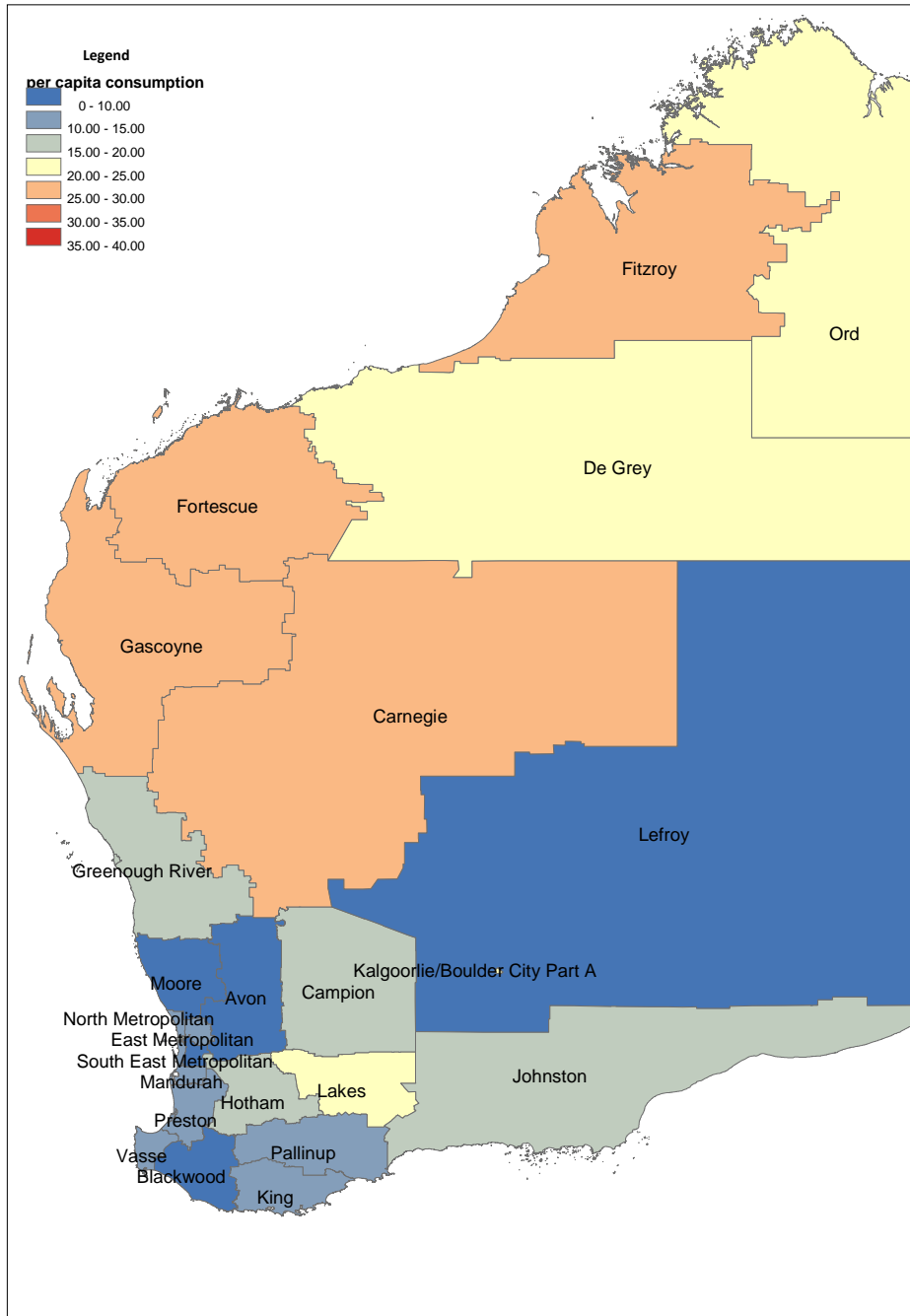


Figure 23 **Estimated *per capita* pure alcohol consumption, Western Australia 2007/08**

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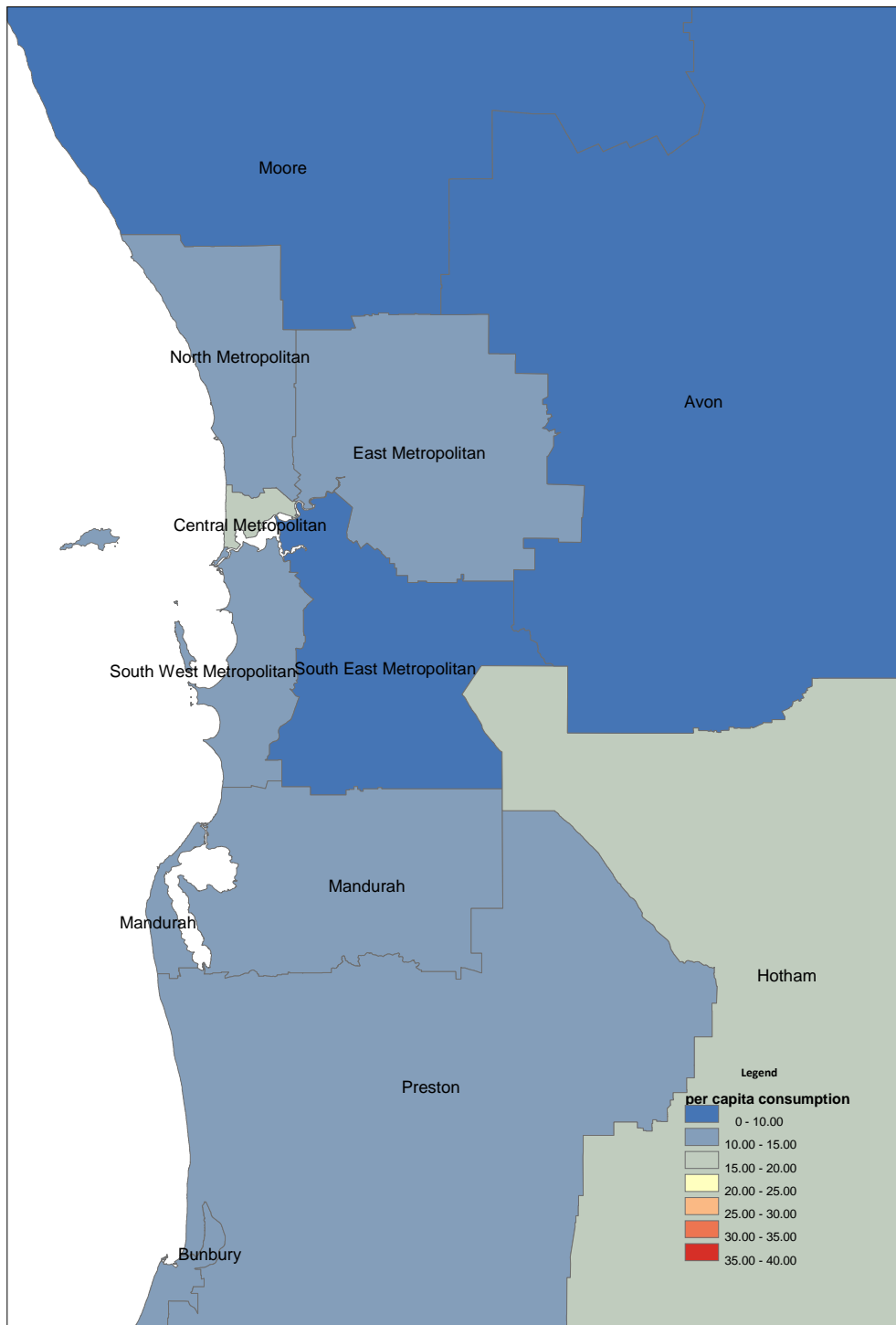


Figure 24 **Estimated *per capita* pure alcohol consumption, Perth and environs, Western Australia 2007/08**

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Table 10 Volumes (litres) of alcohol sold by beverage, pure alcohol, and pcc in SSDs, Western Australia, 2005/06

SSD code	SSD name	All beer	All wine	All spirits	All alcohol	All pure alcohol	pcc
50505	Central Metropolitan	17,248,607	7,258,490	2,035,995	26,543,092	1,919,356	16.85
50510	East Metropolitan	18,692,695	4,243,287	3,647,112	26,583,094	1,785,183	8.66
50515	North Metropolitan	29,365,073	7,994,220	4,961,644	42,320,937	2,899,609	7.85
50520	South West Metropolitan	23,889,339	7,280,395	4,543,175	35,712,909	2,502,686	9.70
50525	South East Metropolitan	25,285,454	7,121,300	4,888,628	37,295,382	2,581,001	9.18
51001	Mandurah	7,403,499	1,598,272	1,241,463	10,243,234	668,307	11.41
51003	Bunbury	6,230,267	990,367	1,279,093	8,499,727	548,846	11.88
51010	Preston	4,288,249	481,717	782,515	5,552,481	342,780	12.82
51015	Vasse	4,286,815	1,469,871	925,286	6,681,972	482,332	16.08
51020	Blackwood	1,213,283	231,718	302,382	1,747,383	117,467	8.93
51505	Pallinup	1,549,939	169,624	296,778	2,016,341	125,670	14.34
51510	King	3,409,659	1,138,254	930,163	5,478,076	399,385	11.36
52005	Hotham	1,865,509	141,939	223,318	2,230,766	130,067	11.86
52010	Lakes	1,227,244	68,923	198,092	1,494,259	88,401	24.26
52505	Moore	1,903,034	213,163	391,801	2,507,998	156,562	13.42
52510	Avon	3,478,411	530,264	669,059	4,677,734	298,424	13.45
52515	Campion	2,121,959	171,462	323,709	2,617,130	154,982	19.39
53001	Kalgoorlie/Boulder City Part A	5,283,787	654,274	646,879	6,584,940	393,816	17.32
53005	Lefroy	1,343,079	37,100	69,835	1,450,013	77,629	12.59
53010	Johnston	2,381,306	378,440	495,627	3,255,373	210,726	16.13
53503	Geraldton	4,617,263	1,086,851	864,328	6,568,442	440,015	17.07
53505	Gascoyne	2,509,911	428,969	489,716	3,428,596	221,204	29.97
53510	Carnegie	1,397,438	123,963	221,776	1,743,177	105,035	37.11
53515	Greenough River	2,975,188	365,517	479,245	3,819,951	235,296	20.56
54005	De Grey	4,316,558	351,769	885,187	5,553,514	341,256	22.64
54010	Fortescue	1,677,077	594,135	950,394	3,221,606	248,244	13.83
54505	Ord	2,435,159	210,364	242,366	2,887,889	165,041	21.79
54510	Fitzroy	5,288,575	704,337	872,040	6,864,952	424,449	26.43
Total	Western Australia	187,684,377	46,038,984	33,857,607	267,580,968	18,063,767	10.95

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Table 11 Volumes (litres) of alcohol sold by beverage, pure alcohol, and pcc in SSDs, Western Australia, 2006/07

SSD code	SSD name	All beer	All wine	All spirits	All alcohol	All pure alcohol	pcc
50505	Central Metropolitan	18,265,400	6,070,811	3,178,137	27,514,348	1,921,566	16.51
50510	East Metropolitan	19,905,179	4,047,972	3,432,631	27,385,782	1,754,588	8.31
50515	North Metropolitan	30,752,196	8,928,726	5,386,876	45,067,798	3,066,792	8.06
50520	South West Metropolitan	26,378,785	7,068,077	5,138,986	38,585,848	2,602,052	9.78
50525	South East Metropolitan	26,628,132	7,547,412	5,700,917	39,876,461	2,730,796	9.48
51001	Mandurah	7,472,082	1,625,707	1,364,667	10,462,456	669,085	10.98
51003	Bunbury	6,199,175	1,255,455	1,681,833	9,136,463	608,045	12.62
51010	Preston	3,394,334	417,386	487,377	4,299,097	252,488	9.29
51015	Vasse	4,609,592	1,204,809	1,038,667	6,853,068	469,772	15.07
51020	Blackwood	1,218,419	224,291	239,624	1,682,334	107,094	8.02
51505	Pallinup	1,253,409	148,293	270,096	1,671,798	103,121	11.86
51510	King	3,501,588	1,009,226	987,792	5,498,606	385,269	10.73
52005	Hotham	3,162,542	253,145	295,480	3,711,167	208,718	18.78
52010	Lakes	768,439	51,626	105,158	925,223	51,817	14.39
52505	Moore	1,863,514	332,467	339,238	2,535,219	157,954	13.24
52510	Avon	2,766,474	446,972	567,541	3,780,987	234,747	10.45
52515	Campion	1,286,476	164,111	212,274	1,662,861	98,139	12.15
53001	Kalgoorlie/Boulder City Part A	5,478,822	651,341	970,955	7,101,118	420,979	18.11
53005	Lefroy	571,906	85,588	137,320	794,814	50,925	7.99
53010	Johnston	2,564,401	404,704	507,046	3,476,151	216,582	15.88
53503	Geraldton	4,420,101	819,332	914,844	6,154,277	389,534	14.71
53505	Gascoyne	2,514,026	439,439	431,294	3,384,759	209,289	28.24
53510	Carnegie	895,929	102,775	151,488	1,150,192	69,202	24.69
53515	Greenough River	2,099,985	304,800	364,796	2,769,580	167,462	14.53
54005	De Grey	4,335,420	333,957	828,163	5,497,540	321,011	20.73
54010	Fortescue	4,970,823	591,263	1,123,433	6,685,519	414,149	22.47
54505	Ord	2,365,639	278,213	250,055	2,893,907	166,798	21.22
54510	Fitzroy	5,144,392	676,047	821,119	6,641,558	398,918	23.48
Total	Western Australia	194,787,180	45,483,945	36,927,807	277,198,931	18,246,890	10.76

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Table 12 Volumes (litres) of alcohol sold by beverage, pure alcohol, and pcc in SSDs, Western Australia, 2007/08

SSD code	SSD name	All beer	All wine	All spirits	All alcohol	All pure alcohol	pcc
50505	Central Metropolitan	28,932,979	4,687,754	2,368,757	35,989,490	2,175,689	18.29
50510	East Metropolitan	30,977,368	4,615,083	4,054,507	39,646,958	2,421,996	11.19
50515	North Metropolitan	60,269,880	7,787,075	4,653,816	72,710,771	4,290,579	10.95
50520	South West Metropolitan	40,947,881	8,515,527	4,346,084	53,809,492	3,411,856	12.47
50525	South East Metropolitan	31,831,646	4,916,426	5,256,687	42,004,759	2,618,040	8.82
51001	Mandurah	10,180,296	1,648,656	1,421,490	13,250,442	808,731	12.58
51003	Bunbury	7,568,656	1,223,668	1,205,603	9,997,927	619,849	12.32
51010	Preston	4,843,193	409,127	495,062	5,747,382	319,792	11.49
51015	Vasse	5,468,754	824,968	556,188	6,849,910	415,496	12.84
51020	Blackwood	1,172,152	132,114	81,587	1,385,853	76,934	5.64
51505	Pallinup	1,581,389	145,028	207,471	1,933,888	110,980	12.68
51510	King	5,305,570	885,786	765,778	6,957,134	434,096	11.77
52005	Hotham	1,438,353	647,762	271,385	2,357,500	172,835	15.43
52010	Lakes	1,330,301	49,514	94,891	1,474,706	77,257	21.51
52505	Moore	1,825,863	116,814	222,467	2,165,144	118,208	9.66
52510	Avon	3,322,239	293,414	309,085	3,924,738	214,793	9.37
52515	Campion	2,236,742	113,975	153,428	2,504,145	130,585	16.20
53001	Kalgoorlie/Boulder City Part A	7,003,119	706,377	1,219,569	8,929,065	527,919	22.19
53005	Lefroy	626,624	10,452	14,214	651,290	31,712	4.91
53010	Johnston	2,776,545	382,061	485,153	3,643,759	221,978	15.79
53503	Geraldton	7,339,747	1,023,493	802,068	9,165,308	540,592	19.87
53505	Gascoyne	3,004,602	266,005	254,444	3,525,051	192,500	25.56
53510	Carnegie	1,365,392	49,914	133,289	1,548,595	81,848	29.45
53515	Greenough River	3,192,533	218,305	215,176	3,626,015	192,362	16.47
54005	De Grey	5,759,766	351,009	909,296	7,020,071	398,308	24.92
54010	Fortescue	6,815,362	521,791	1,013,243	8,350,396	480,637	25.84
54505	Ord	2,420,616	279,928	256,277	2,956,821	170,333	20.95
54510	Fitzroy	6,741,933	653,520	606,178	8,001,631	444,120	25.39
Total	Western Australia	286,279,501	41,475,546	32,373,194	360,128,241	21,700,026	12.45

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DISCUSSION

This first NASDP report includes data on alcohol sales from three Australian jurisdictions – the Northern Territory, Queensland and Western Australia. In every case, estimated pcc exceeded estimates made by the ABS for the nation as a whole. While this is most likely a reflection of actual higher levels of consumption in those jurisdictions, and in keeping with higher levels of alcohol-related problems overall in those jurisdictions (e.g. Chikritzhs *et al.*, 2003; Pascal, Chikritzhs, & Jones, 2009), part of the difference may be due to the fact that the ABS estimates rely on excise tax records and customs duty data collected at a national level (Hall *et al.*, 2008). Currently, it is not possible to know whether pcc estimates for the Northern Territory, Queensland and Western Australia are higher or lower than the remaining five jurisdictions for which alcohol sales remain unknown. Catalano *et al.* (2001) showed that in 1995/96 – the most recent year when sales data were available for all jurisdictions – there was substantial variation among jurisdictions and between metropolitan and non-metropolitan areas. In 1995/96, estimated 15 plus pcc was highest in the Northern Territory (13.6) followed by the ACT (10.2), Western Australia (10.0), Queensland (9.7), New South Wales (9.5), Tasmania (8.7), South Australia (8.5) and Victoria (7.5). Given substantial changes in liquor licensing policy and apparent rapid increases in alcohol-attributable hospitalisations for some jurisdictions, indications are that it is unlikely that the 1995/96 rankings remain applicable in 2009.

REGIONAL COMPARISONS

The Northern Territory

The estimated alcohol consumption in the Northern Territory from 2005/06 to 2007/08 was between 14.5 – 15.0 litres of pure alcohol per individual aged 15 plus using population figures which allowed for the influence of tourism. The total pure alcohol volumes sold were generally similar across the period in each of the Urban Centres. Volumes sold increased in Darwin and Palmerston but decreased in Alice Springs. They were very similar in the other centres. Table 6 shows that wine sales decreased considerably between 2005/06 and 2006/07 in Alice Springs but beer sales increased, although not to the same extent. Spirit sales remained relatively stable. In Darwin and Palmerston, beer wine and spirit sales all increased across the three years. Wine sales in Katherine decreased considerably in 2007/08 while spirits sales increased. In Tennant Creek, there were no outstanding differences in individual

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beverage sales, while sales of wine and spirits increased across the period in the remainder of the Territory, although not to any great extent.

Queensland

The overall estimated alcohol consumption for Queensland for 2007/08 was 11.07 litres of pure alcohol per individual aged 15 plus, which was lower than in the Northern Territory and Western Australia in that year. There were, however, regions of higher alcohol consumption particularly in the Brisbane area, the Gold and Sunshine Coasts, and the North-West. The inner Brisbane area had particularly high alcohol consumption, which was probably due to a combination of relatively low resident populations, its status as an entertainment area and alcohol sales to city workers. Some of the regions with higher alcohol consumption such as those north of Brisbane might also have relatively high levels of tourism.

The volume maps show that the largest amounts of alcohol were generally sold on the eastern seaboard of the State but these did not necessarily translate into high *per capita* consumption. Again, the influence of tourism is likely to be reflected in high alcohol volumes being sold on the Sunshine Coast and the Gold Coast.

Table 8 shows consumption in individual SSDs. Those with the highest consumption tended to be inner Brisbane, the Gold Coast, Sunshine Coast, Rockhampton, Mackay, Townsville, Cairns and the North-West. Many of these are tourist areas and the Northern Territory example above shows that taking tourist numbers into consideration can make some considerable difference to consumption.

Western Australia

In Western Australia, the estimated *per capita* consumption was close to 11.0 litres of pure alcohol per individual aged 15 plus in 2005/06, decreased slightly in 2006/07 and then increased to 12.5 in 2007/08. The volumes of pure alcohol sold were similar across the state except in and around the metropolitan area. Here, volumes were greatest closest to the city. Estimated pcc, on the other hand, generally increased towards the west and north of the State although there was particularly high consumption in Carnegie in the mid-north-west in 2005/06. This effect was not apparent in 2006/07 with a relatively stable high consumption level across the northern half of the state. In 2007/08, the highest consumption was again in the north and west with consumption in the Carnegie, Fortescue and Fitzroy subdivisions higher than in the previous year.

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Alcohol consumption in and around the metropolitan area fluctuated a little, with generally higher rates in the latter two years. The central metropolitan area had higher rates than surrounding regions which may well reflect a similar effect to that found in inner Brisbane: i.e. alcohol sales to non-resident city workers, entertainment venues, and low residential populations.

It seems likely that in Western Australia the influence on alcohol consumption of employment, such as mining in the north-west areas, was greater than was the influence of tourism such as was found in the Northern Territory and Queensland. Some of this may be related to the influence of fly-in-fly-out workers who are not usually included in the residential population of that region.

REFINING THE NASDP METHODS

Use of ERP in the calculation of pcc

Possible concerns with the use of ERP as the denominator in the calculation of *per capita* consumption have been noted. For example, Catalano *et al.* (2001) used a 'service population' to estimate the number of likely consumers of alcohol in a given region. This included estimates of tourists and visitors, and made allowances for residents who spent time away from their homes. They believed that this was a significant improvement to standard *per capita* estimates as the resident population alone did not allow for the consumption of significant proportions of alcohol by visitors and tourists. In their estimates of state-based *per capita* consumption, Catalano *et al.* found that use of either the service population or ERP provided differences in pcc estimates ranging from -1% to 14%.

Farah *et al.* (2007) noted that the importance of accurate population figures was particularly acute for some regional consumption levels, as estimates for small areas were sensitive to fluctuations in population size. Areas that were subject to high levels of tourism, entertainment areas and employment areas such as mining towns with fly-in-fly-out workers were particularly likely to have high fluctuations in their population at various times of the year. They investigated the issue empirically by calculating alcohol consumption using four different population estimation methods including that used by Catalano *et al.* (2001) but found no significant differences between the results. For that reason they decided to use ERP aged 15 plus as the denominator in their calculations. They noted that the use of ERP had the

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advantage of enabling comparisons with national consumption data which were calculated by the ABS using ERP, and ease of computation.

In this report, consumption estimates, which may to some extent be related to tourism, entertainment areas, or employment which necessitates a non-residential workforce, have been noted. It is beyond the scope of NASDP in 2009 to investigate these differences in more detail.

Future iterations of the NASDP will continue work begun by the National Drug Research Institute on 'service populations' which account for mobility of residents across geographic regions (e.g. fly-in-fly-out workers) and the influence of (overseas and domestic) tourism on consumption (see Catalano *et al.*, 2001).

Volume as the major measure of pcc

Volume of alcohol sold is a proxy measure for actual consumer consumption of alcoholic beverages. The accuracy of alcohol sales data as a measure of consumption is likely to be affected by alcohol stockpiled from year to year, homebrew production, on-line ordering across state lines, duty free consumption and other unrecorded alcoholic beverages. For the most part these are likely to make only a small contribution to overall consumption in the Australian population (Australian Bureau of Statistics, 1994; WHO, 2000). Until further data can be gathered on the magnitude and geographic distribution of these sources of error (mostly likely under-estimation), sales data should be considered a reliable *approximate* estimate of actual consumption (WHO, 2000). Despite the potential for relatively minor error, *per capita* consumption estimates made from sales data nevertheless remain the most accurate measure of alcohol consumption available and as such are far superior to consumption estimates based on surveys of drinkers (WHO, 2000).

Quality of the data

The data sets in the NASDP will vary according to collection approaches and jurisdictional experience with collecting them. The NASDP anticipates that quality will improve with experience and that project feedback will support those processes. For example, some suggestions have been offered to Queensland to support a possible move from paper to electronic data collection.

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Alcohol conversion factors

In the main, nationally-based alcohol conversion factors have been used. In some cases, however, state-based factors are needed, such as in Western Australia where the mix of pre-mixed and standard spirits is not indicated in the data and has to be estimated. This estimation relies on local data about the relative market shares of RTDs and straight spirits. The most recent data available about these market shares was from 2006/07. It is intended to undertake further investigation in 2010 to establish whether more contemporary information can be used.

DEVELOPMENT OF WHOLESALER LIST

It was agreed at the first teleconference that NASDP should compile a list of wholesalers in each jurisdiction so that trading across multiple jurisdictions could be investigated, and the extent of out-of state sales assessed. Initial investigation demonstrated that definitions of 'wholesaler' and 'producer' varied from jurisdiction to jurisdiction. A spreadsheet was circulated to all LL authorities with a request to append wholesaler details and precise licensing definitions of wholesaler and producer in that jurisdiction. Four authorities completed the list. It proved difficult to estimate the extent of business these companies undertook in other jurisdictions or overseas. The information has been made available to all members of the Advisory Committee.

FUTURE DEVELOPMENTS IN NASDP

Technical development to improve data estimations, as detailed above, are clearly one of the project's important pursuits. Other developments will include demonstrating the importance of these data for policy and planning purpose. A paper developed by the WA Drug and Alcohol Office (DAO) presented to the Advisory Committee at the first NASDP teleconference in March, 2009, outlined a range of possibilities. Western Australia has had alcohol sales data for some years which is regularly used to:

- Measure and monitor total consumption of different types of alcohol. The data have been used to show the clear relationship between the levels of consumption of beer and cask wine and levels of alcohol-related harm.
- Monitor consumption of different types of beverages both over time and in particular areas of the state.

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- Plan and allocate resources and funding for public health and treatment programs through the identification of at risk populations and regions.
- Justify or argue cases in relation to liquor licensing applications. These data have been crucial in successful submissions and cases in the past.
- Evaluate the success of liquor licensing restrictions or other interventions in remote areas and Aboriginal communities, such as Derby and Hall's Creek, Port Hedland. The ability to monitor different types of beverages (e.g. low strength, full strength, beer, wine, spirits) is particularly valuable in this context.

A number of case studies and examples were given (see Appendix 3 for full paper).

The current presentation of alcohol sales data provides policy makers with ways in which their jurisdiction would be able to use the information for their own policy and planning purposes. As the project progresses, ways in which NASDP data can be used to support other research initiatives will also become apparent.

From a national perspective, clearly the more jurisdictions that collect alcohol sales data and make it available to NASDP, the better will be national estimates. Past estimates of alcohol *per capita* consumption demonstrate the significance of regional influences (Catalano *et al.*, 2001). With the participation of more jurisdictions the understanding of the nature of these influences, the degree of interstate sales, and their role in determining alcohol consumption will be enhanced.

In 2009 data was received from three jurisdictions: Queensland, the Northern Territory, and Western Australia and from the latter two states data for the last three years. In 2010 with the support of these jurisdictions, and continued provision of data, NASDP will extend the temporal comparisons that can be made. Other jurisdictions may also be able to provide alcohol sales data. South Australia, for example, has been investigating the possibility of collecting alcohol sales data to support its Alcohol Action Plan, and conceivably other jurisdictions may be encouraged by the positive actions of others.

Our data analysis in 2010 will be informed by the experience of 2009 and should encompass improved methods as well as giving more attention to possible uses of the data.

Thanks are extended to the three jurisdictions who supported the NASDP with their data in this inaugural year. They have been trail blazers and we trust that they have found the experience positive and practical. They have worked closely with the project, and been

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responsive to project-related requests and suggestions as well as undertaking specific investigations into particular aspects of their data. We look forward to working with them again in 2010.

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APPENDIX 1. ESTIMATES OF NORTHERN TERRITORY PER CAPITA CONSUMPTION EXCLUDING CONSUMPTION BY TOURISTS

Per capita consumption estimates for Queensland and Western Australia did not allow for the influence of tourism, as they did in the Northern Territory. In the interests of comparison, we have therefore presented consumption estimates for the Northern Territory using a similar method to that used in the other two jurisdictions. Table 13 shows that the Northern Territory consumption figure which included tourists was between 11% and 14% lower than the ERP alone figure across the three years. The latter showed a reduction in consumption between 2005/06 and 2006/07 but this disappeared when tourists were included.

We recommend that readers use the Northern Territory estimates given in the main text.

**Table 13 Estimated *per capita* pure alcohol consumption, Northern Territory
2005/06 – 2007/08**

	Total pure alcohol (litres)	ERP aged 15 plus	NT pcc 1¹	ERP aged 15 plus + tourism	NT pcc²	National pcc³
2005/06	2,718,181	159,101	17.08	181,447	14.98	9.84
2006/07	2,720,760	162,967	16.70	189,127	14.39	10.00
2007/08	2,769,519	167,519	16.53	189,493	14.62	9.85

¹ Total pure alcohol divided by ERP aged 15 plus

² Total pure alcohol divided by ERP aged 15 plus + estimated tourism.

³ National estimate. Does not include alcohol drinks other than beer, wine and spirits (Australian Bureau of Statistics, 2009)

APPENDIX 2. NASDP PROJECT BRIEF

BACKGROUND

It is well recognised that policy decisions about drug use, and related strategies should be informed and reviewed in the context of the best available evidence about levels and patterns of use. This is why significant funds are invested in assessing patterns of illicit drug use. Such information is crucial to intelligence-led policing, to health service responses and to evaluate the impact of adopted strategies. It is equally important to ensure that we have good data about patterns of alcohol use. While such data were once available, currently most jurisdictions rely on self-reported alcohol consumption data which do not allow quality planning and service delivery. In addition, current data only allow a proportion of consumed alcohol to be identified. Consequently, the Ministerial Council on Drug Strategy has supported the development of a initiative to ensure alcohol policy, prevention and interventions are informed by the best available data on levels and patterns of consumption. Such information can be provided by alcohol sales data.

The term ‘alcohol sales data’ may refer to: i) information obtained from wholesalers regarding volumes of wholesale alcohol purchased from them by individual licensed retailers (i.e. all types of liquor licenses including hotels, restaurants, liquor stores and so on), or ii) licensed retailer records on volumes of alcohol sold to the general public. Information about volumes of alcohol sold is a basic requirement for estimating how much alcohol is consumed within a region, within a community or per person. Adjusted for population size (*per capita* consumption), alcohol sales data allow comparisons of consumption levels between regions and is a top-level indicator for monitoring and evaluating policy changes and interventions. When collected at the individual licence level, *per capita* consumption can be estimated at a range of geographic levels as required, e.g. individual suburbs, discrete communities, metropolitan area, regional and remote areas.

Up to 1996, as a basis for calculating licensing fees (tax), alcohol sales data were routinely collected by liquor licensing authorities in all jurisdictions. However, in 1996 the High Court of Australia ruled that liquor licensing fees and levies (and similar imposts on tobacco and petrol) were, in fact, excise duties and as such illegal under the terms of the Australian Constitution. Only the Commonwealth Government is empowered to impose excise duties. Although the ruling did not preclude the collection of alcohol sales data by liquor licensing

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authorities, only WA, Queensland and the Northern Territory continued to maintain alcohol sales data collections. It is interesting to note that, increasingly, other developed nations are mandating the collection of such information. For example, all Canadian provinces are required to report both volume and dollar value of alcohol sold to Statistics Canada.

Some of the major benefits of collecting alcohol sales data

Alcohol sales data can directly benefit liquor licensing, police, health and governments in a number of ways including the following:

1. Enable responsible authorities to closely monitor the sale and supply of a regulated, addictive and psychoactive substance, identify emerging trends in use and harms and thereby support intelligence led policing and health service delivery.
2. Enable reliable estimates of how much alcohol is actually consumed by a population – without local sales data it is not possible to know whether subjective impressions regarding levels of alcohol consumption in a particular area or by a specific population are accurate or indeed true (e.g. where local residents claim that alcohol consumption and harms are excessively high in Region X, alcohol sales data can confirm whether local consumption is equivalent to, below, or above the state average).
3. Provide a reliable and equitable basis upon which to construct social impact models for gauging potential impacts of new liquor licenses and changes to existing licenses in local areas (e.g. given what is known about current levels of alcohol sales and harms, will a new off-premise liquor licence in Region X potentially facilitate levels of consumption and harms exceeding that acceptable to the liquor authority, local council, local business, police and community?).
4. Provide a reliable, independent and objective measure for evaluating the effectiveness of federal, state and local government alcohol policy initiatives (e.g. the impact of Commonwealth RTD taxation/price changes on alcohol consumption of specific beverages in local areas; measure the impact of restrictions to trading hours on licensee alcohol sales and local community consumption levels). Other administrative data sets which are typically employed for such purposes (e.g. hospital, police data, self-report survey data) may be affected by internal process (e.g. recording practices, survey method) which differ by region or over time. Where sales data have been available, they have been used to evaluate a range of important initiatives providing some of the most valid and

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reliable assessments of alcohol policy and strategy (e.g. evaluation of the Northern Territory's Living With Alcohol Program; impact of extended trading hours in WA on assaults and road crashes; and evaluation of the Tennant Creek alcohol restrictions).

5. Provide evidence to support the decision making process regarding variations to existing licenses (e.g. given what is known about existing levels of consumption and harms in Region X, would granting a 24-hr trading licence to an existing premise with high sales volume be likely to unduly affect local levels of consumption and related harms?)
6. Assist prosecutions against problematic or unlawful licensees and venue operators where necessary.
7. Assist authorities to identify 'hot-spots' – communities and regions where alcohol consumption is associated with high levels of violence, crime and disorder and which may require pro-active supply, demand and/or harm reduction strategies to address this.

PROJECT FUNDING

In response to a 2007 Ministerial Council on Drug Strategy resolution highlighting the absence of systematic and standardised Australia-wide alcohol sales data collection¹³, the Commonwealth Government, via the Intergovernmental Committee on Drug Strategy, has funded the Drug and Alcohol Office of WA and the National Drug Research Institute (NDRI) to develop the National Alcohol Sales Data Project (NASDP). It is anticipated that the NASDP will be ongoing, subject to Commonwealth review.

ADVISORY COMMITTEE

Senior representatives from liquor licensing, health and police departments in each jurisdiction and the Australian Government Department of Health and Ageing were invited to join the NASDP Advisory Committee. As a nationally focussed project, it is hoped that full representation of all states/territories will be achieved. The Advisory Committee will: provide guidance and advice and oversee the use of sales data; communicate representatives' interests and requirements regarding sales data; provide comment and suggestions on report draft annual reports; and support the aims and ongoing functions of the project. Meetings will provide an opportunity for Advisory Committee representatives to discuss any data collection

¹³ Australian Bureau of Statistics national apparent alcohol consumption estimates are derived from customs and excise data and cannot be disaggregated by state/territory.

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issues that may arise with the working group and to provide feedback on draft reports. Meetings will be held via group teleconference twice a year.

ALCOHOL SALES DATA SPECIFICATIONS

All state and territory governments will be encouraged and supported to collect the following information on alcohol sales within their jurisdiction. These electronic data may be collected: a) directly from all individual licensed retailers via records of sales to the public or alternatively, b) from liquor wholesaler records of purchases made by licensed retailers (i.e. as is currently the process in WA). Importantly, the data should be collected at the level of the individual licence, any prior aggregation by region or other common characteristic will limit the collection's utility and application. As listed below, all states and territories will be encouraged to collect at least annual volumes of alcohol sales data. However, quarterly (e.g. currently collected in the NT), monthly or more frequent data collection as well as dollar value of purchases by beverage type would further enhance the utility and timeliness of these data.

Minimum data collection specifications:

- Trading name of premise licensed for retail sale;
- Type of licensed premise (e.g. hotel, cabaret, restaurant, packaged liquor, liquor store, winery, social club, canteen);
- Street address of licensed premise;
- Postcode of licensed premise;
- Geographic coordinates of licensed premise (where possible);
- Local Government Area (LGA) or Statistical Local Area (SLA) of premise;
- Annual volume (litres) of regular strength beer purchases;
- Annual volume (litres) of mid strength beer purchases;
- Annual volume (litres) of low strength beer purchases;
- Annual volume (litres) of regular strength bottled wine purchases;
- Annual volume (litres) of regular strength cask wine purchases;
- Annual volume (litres) of low strength wine purchases;
- Annual volume (litres) of fortified wine purchases;
- Annual volume (litres) of straight spirit purchases; and
- Annual volume (litres) of pre-mixed spirit purchases.

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NASDP AIMS

1. To construct an ongoing, regularly updated, national database of standardised alcohol sales data, containing a minimum set of specifications described above for all Australian states/territories.
2. To monitor alcohol consumption trends by regularly estimating *per capita* alcohol consumption for all participating states/territories.
3. To provide an annual report on consumption by region (e.g. LGA) containing summaries of alcohol sales data and *per capita* alcohol consumption estimates for all participating states/territories and the Commonwealth.
4. To provide standardised alcohol sales data sets for use by jurisdictions.

METHOD

1. Individual state and territory governments will remain responsible for and retain ownership over collection of electronic alcohol sales data within their own jurisdiction (i.e. as is currently the case for WA, the NT and QLD).
2. During the project development phase, as jurisdictions assent to data collection, NASDP project staff will consult individually with responsible departments on minimum data set specifications, data transfer arrangements, confidentiality requirements and data quality checks.
3. All jurisdictions contributing alcohol sales data will be consulted in relation to appropriate functional levels of reporting (e.g. LGA). Alcohol sales will not be reported by liquor licence and minimum sample rules (i.e. by geographic area) will be established to ensure privacy of individual retailers.
4. Work will be supervised by senior researchers at the National Drug Research Institute (NDRI) and electronic data will be securely housed within the password protected Alcohol Policy Research Team's database.
5. The NDRI will liaise with participating jurisdictions to ensure confidentiality requirements are satisfied. All NASDP project staff will be required to sign a data confidentiality agreement.
6. Alcohol sales data will be cleaned, standardised and analysed upon data transfer from state/territory collection agencies (e.g. liquor licensing departments).

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7. Regional (e.g. LGA) state/territory *per capita* alcohol consumption estimates will be made using estimated residential population (ERP) from the Australian Bureau of Statistics.
8. Trends in state/territory *per capita* alcohol consumption by region (e.g. LGA) will be documented annually in formal reports.
9. Standardised data sets containing state/territory specific alcohol sales data will be made available to nominated jurisdictional representatives.
10. Alcohol sales data will not be transferred to third parties without the written consent of the relevant jurisdiction(s).

FURTHER INFORMATION:

Please contact Associate Professor Tanya Chikritzhs at the National Drug Research Institute on 08 92661609 or T.N.Chikritzhs@curtin.edu.au.

APPENDIX 3. BENEFITS OF COLLECTING ALCOHOL SALES

DATA: THE WESTERN AUSTRALIA EXPERIENCE

The collection of the sales data has significant public health benefits and uses, particularly if available at State, regional and small area levels. In WA sales data is regularly used to:

- Measure and monitor total consumption of different types of alcohol. The data have been used to show the clear relationship between the levels of consumption of beer and cask wine and levels of alcohol-related harm.
- Monitor consumption of different types of beverages both over time and in particular areas of the state.
- Plan and allocate resources and funding for public health and treatment programs through the identification of at risk populations and regions.
- Justify or argue cases in relation to liquor licensing applications (see Case Study 1 (regional example and Case Study 2 metropolitan example). These data have been crucial in successful submissions and cases in the past.
- Evaluate the success of liquor licensing restrictions or other interventions in remote areas and Aboriginal communities, such as Derby and Hall's Creek, Port Hedland (see Case Study 3). The ability to monitor different types of beverages (eg low strength, full strength, beer, wine, spirits) is particularly valuable in this context. For example,

Table 1: *Per capita* alcohol consumption data (in litres) for the population aged 15 yrs and over in Halls Creek LGA

	2003/04
High alcohol beer	9.71
Low alcohol beer	0.81
High alcohol wine	1.18
Low-alcohol wine	0.04
Spirits	3.35
Total	15.09

(National Drug Research Institute, 2007 unpublished)

The high *per capita* consumption in Halls Creek is reflected in the unacceptable amount of alcohol-related harm in the Halls Creek community. Table 1 provides an indication of how sales data can be used to identify what beverage types are being consumed within a community. This can support decision makers to determine what interventions will be most effective (i.e. limitations/quantity limits on particular high risk products) in addressing the harm occurring in a community.

Western Australian examples of the benefits of collecting Alcohol Sales Data

Case Study 1: Use of wholesale sales data – A regional WA Liquor Licensing example

Case study 1 provides a practical example of how wholesale sales data has been used in Western Australia in a liquor licensing context. This case study provides an example of how wholesale sales data was used by the Executive Director of Public Health to object to an

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application by a Liquor store to trade on Sundays. It is of note that the WA Director of Liquor Licensing refused the application.

Excerpt from Executive Director of Public Health's submission to the Licensing Authority:

- People in X community are consuming alcohol at a level higher than the state average, people are engaging in high risk drinking behaviour (i.e. binge drinking), and people are consuming most of their alcohol at home which indicates packaged liquor is contributing to the levels of alcohol-related harm in the X community.
- According to a recent feasibility study: *Predicting alcohol-related harms from licensed outlet density 2007*, the greatest driving force for alcohol related harm is sales of regular strength beer (Chikritzhs *et al.* 2007). The models suggest that on average in Western Australia, the additional sales of 81,000 litres of regular strength beer at a retail bottle shop in a particular LGA will lead to an additional 8 assaults in that LGA (P Catalano 2008, pers. comm., 14 August).
- The applicant states that a weekly turnover of approximately \$60,000 is anticipated from the liquor store. Most of which is anticipated will be regular strength beer and/or spirits.
- Liquor Stores in the X community had the highest volume of high beer purchases when compared to other licence types in the X community (National Drug Research Institute, unpublished, 2008).
- In 2000/2001 Liquor Stores in X community sold 204,996 litres of pure alcohol, which was 44% of the total amount (n= 456,768 litres) of pure alcohol sold in X community in 2000/2001.
- In addition, Liquor Stores sold 2,48,603 litres of high beer in 2000/2001 which was 48% of the total volume of high beer sold in X community in 2000/2001 (National Drug Research Institute, unpublished, 2008).
- It is clear that the introduction of a Sunday ETP to the liquor store is not simply a matter of increased convenience for patrons, but has implications relating to consumption and associated harm that put into question whether this application is in the public interest.
- Should X Liquor Store application for a Sunday ETP be granted the physical availability of alcohol on Sundays will increase. Research has shown that, '*changes in the physical availability of alcohol can be influential in affecting local, regional and state levels of alcohol-related use and problems*' (Stockwell and Gruenewald, cited in Heather, Peters and Stockwell, 2001).
- The granting of a Sunday ETP to a liquor store in X community is likely to further exacerbate the existing levels of harm associated with packaged liquor in X community.
- A study on the relationship between different types of licences premises and various indicators of alcohol related harm across local areas of Western Australia showed that *per capita* alcohol sales made by liquor stores were closely and positively related to levels of assaults, road crashes, breath alcohol levels of drink drivers and alcohol-attributable hospitalisations (Stockwell *et al.* 1995). Thus the greater the *per capita* alcohol sales made by liquor stores, the greater the levels of alcohol-related harms.
- Given per licence, liquor stores sell more alcohol than any other type of liquor licence, including high risk beverages, even a small percentage change in availability and access to alcohol via such a licence is likely to have a measureable impact on alcohol-related harm in the local community (Chikritzhs & Hawkes, unpublished 2004).

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- The relationship between alcohol availability, consumption and related harms has been the subject of several comprehensive reviews in recent years (e.g. Babor *et al.*, 2003, Heather, Peters & Stockwell, 2001, Loxley *et al.* 2004). These reviews cite many studies over thirty years which demonstrate a positive relationship between levels of alcohol consumption within populations and frequency and range of social and health problems experienced by those populations. These include acute harms, which tend to arise from episodic bouts of intoxication (e.g. violent assault, drink driver road crashes and pedestrian fatalities) and long term or chronic harms that arise from many years of problem drinking (e.g. alcoholic liver cirrhosis, various cancers, alcohol dependence) (Chikritzhs *et al.* 2001).
- For the general population, an increase in the availability of alcohol in X community on a Sunday is likely to lead to increased levels of both acute and chronic harms. For especially vulnerable populations such as Indigenous people and under-aged drinkers, the impacts of increased availability may be particularly damaging (Chikritzhs & Hawkes, unpublished 2004).

Case Study 2: Use of wholesale sales data – A metropolitan WA Liquor Licensing example

Case study 2 provides an example of how wholesale sales data was used by the Executive Director of Public Health to object to an application by a metropolitan liquor store to trade on Sundays.

Excerpt from Executive Director of Public Health's submission to the Licensing Authority:

2.3 Western Australian liquor stores and alcohol consumption

Western Australia has one of the highest levels of *per capita* alcohol consumption amongst individuals aged 15 or over in the nation (Catalano *et al.*, 2001).

Compared to all other states and territories, Western Australia also has the second highest rate of hospitalisations due to alcohol-attributable assault and these rates have increased in recent years (Matthews *et al.*, 2002).

Western Australia also has the second highest rate of alcohol-related serious driver and pedestrian road injuries in the nation and is the only jurisdiction where alcohol related road crashes have not declined (Chikritzhs *et al.*, 2000). In 2001 in Western Australia, there were 151 fatal road crashes. Fifty eight percent (58%) occurred in rural areas and 42% in the metropolitan area. In 39 (26%) of these fatal road crashes, at least one driver or rider had a BAC level of 0.05% or above, with 20 (51%) of these involving a BAC of at least 0.15%. Fatal crashes in rural areas with a driver or rider with a BAC level of 0.15% or over were three times as common as fatal crashes in the metropolitan area (Legge, et al, 2004).

According to data received from the Liquor Licensing Division, Racing Gaming and Liquor, there were 464 liquor stores in operation at some time in Western Australia in 2000/01 making-up about 18% of all licensed premises in Western Australia. In the metropolitan area alone, there were 268 liquor stores in 2000/01. Despite the fact that liquor stores make up only a minority of all licensed premises in the metropolitan area, their combined purchases of wholesale alcohol contributed to about 45% of all alcohol purchased by licensed premises. By comparison, hotels and taverns – although making up 23% of all licensed venues – only accounted for 34% of all alcohol purchases. The proportion of all 'high alcohol content

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beverages' (i.e. regular strength beer, wine and spirits as opposed to low strength beers) that were made by the various licence types were similar to the proportions for total purchases shown in Table 1. Full strength beer, cask wine and spirits have been identified as 'high risk' beverages for alcohol related harms (Stockwell *et al.*, 1998).

Table 1

Number of licensed premises by licence type and volume of wholesale alcohol purchases, metropolitan and non-metropolitan areas, Western Australia, 2000/01

	Count of licensed premises		Total volume of wholesale purchases (10,000 ltrs)	
	N	%	N	%
Metropolitan				
liquor stores	267	18	7941	43
hotels and taverns	243	16	5588	30
social clubs	186	12	448	2
restaurants and cafes	456	30	247	1
nightclubs	37	2	146	1
other	321	21	4058	22
Total	1510	100	18428	100
Non-metropolitan				
liquor stores	197	18	4226	49
hotels and taverns	347	33	3603	42
social clubs	192	18	383	4
restaurants and cafes	150	14	33	0
nightclubs	12	1	15	0
other	168	16	302	4
Total	1066	100	8562	100
Total				
liquor stores	464	18	12167	45
hotels and taverns	590	23	9191	34
social clubs	378	15	831	3
restaurants and cafes	606	24	280	1
nightclubs	49	2	161	1
other	489	19	4360	16
Total	2576	100	26990	100

Note: For 2 licensed premises, area was unable to be determined

2.4 Conclusions: the potential impacts of granting the application

It is our opinion, based on the matters referred to in this statement, that the following can be said in relation to the implications of the grant of Sunday ETPs to liquor stores (including the X Liquor Store) assuming the 'precedent' effect which was our starting assumption:

- (i) Western Australia already has some of the highest levels of alcohol consumption and related harms in the nation, and there is no indication that this likely to change in the near future.
- (ii) Alcohol purchases made by liquor stores make the single largest contribution to alcohol purchases out of all license premises in Western Australia (45%); despite making up only 18% of all licenses. Thus, given that per licence, liquor stores sell more alcohol than any other type of liquor licence – including more 'high risk' beverages – even a small percentage change in the availability and access to

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alcohol via such licenses is likely to have a measurable impact on levels of alcohol consumption in this state.

- (iii) An increase in the outlet density of liquor stores that are able to trade on Sundays represents an increase in the availability of alcohol for consumers.
- (iv) Having regard to the maps prepared on behalf of the Executive Director, Public Health for the purposes of this proceeding, the potential increase in 'outlet density' in X suburb and the Metropolitan Area as a result of the assumed 'precedent' effect manifesting is very significant.
- (v) For the general population, any increase in the availability of alcohol is likely to lead to increased levels of both acute (e.g. road injury and violence) and chronic (e.g. alcoholic liver cirrhosis, alcohol dependence) alcohol related harms. For especially vulnerable populations such as Indigenous people and under-aged drinkers, the impacts of increased availability may be particularly damaging.
- (vi) Liquor stores are the most common source of alcohol for under-aged drinkers who purchase their own alcohol. Any substantial increase in the trading hours for such licenses will further increase the availability and opportunity for young people to obtain alcohol.

Case Study 3: Use of Alcohol Sales Data as part of an assessment of the impact of Fitzroy Crossing Liquor Restrictions

Case Study 3 provides an example of how sales data was used to assess the impact of liquor restrictions in a community in Western Australia.

On the 27th September 2007, the WA Director of Liquor Licensing made the decision that the following restriction would be imposed in the Fitzroy Crossing community for a period of six months:

The sale of packaged liquor, exceeding a concentration of ethanol in liquor of 2.7 per cent at 20 degrees Celsius, is prohibited to any person, other than a lodger.

There are two liquor licences in Fitzroy Crossing; The Fitzroy Crossing Inn and the Fitzroy River Lodge. The restriction limits the Fitzroy Crossing Inn to selling only low strength alcohol for consumption off the premises. It does not restrict the sale of alcohol to be consumed on the premises, nor does it impact on the sale of alcohol to guests staying at the Fitzroy Crossing Inn. The Fitzroy River Lodge has a public bar and only sells alcohol to bar patrons and packaged liquor to house guests for personal consumption in limited amounts.

An evaluation of the impact of a six month restriction on take-away alcohol was prepared by The University of Notre Dame Australia. As part of the evaluation report the Fitzroy Crossing Inn provided monthly sales data for July 2007 through to December 2007 in the form of litres of alcoholic beverage sold by type (beer, wine and spirits) and by means (take-away or over the bar).

Excerpt from the Fitzroy Crossing Liquor Restrictions Report, prepared by The University of Notre Dame Australia:

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In order to show the amounts of pure alcohol (as opposed to the total amount of the beverage) being sold from the venues, the figures provided were converted into pure alcohol amounts using the National Health and Medical Research Council (NHMRC) standards.

Table 6: % Alcohol by Volume for Beverage Type

Alcohol Type	% Alcohol Volume	Alcohol Type	% Alcohol Volume
Full strength beer	5%	Wine	12.5%
Mid strength beer	3.5%	Spirits	40%
Light strength beer	2.7%	UDL Cans	5%

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The Fitzroy Crossing Inn

Volume of packaged pure alcohol sold from the Fitzroy Crossing Inn, by the type of alcohol sold for the period July 2007 to December 2007.

Table 7: Fitzroy Crossing Inn Take-away Liquor Sales Data – Pure Alcohol

	3 month period prior to the restriction Jul 07-Sep 07	3 month period of Restriction Oct 07-Dec 07	Difference in pure alcohol sold	% difference in pure alcohol sold
Full Strength Beer	6685 L	59.65L	- 6625.35 L	- 99 %
Mid Strength Beer	642 L	28.74 L	- 613.26 L	- 95 %
Light Beer	55 L	864.61 L	+ 809.61 L	+ 1472 %
Spirits	1044 L	12.80 L	- 1031.2 L	- 98 %
UDL cans	111 L	1.45 L	- 109.55 L	- 98 %
Wine	4 L	-	- 4 L	-100 %
TOTAL	8541 L	949.25 L	-7591.75 L	- 88 %

There has been an 88% reduction in the amount of pure alcohol being purchased in packaged form from the Fitzroy Crossing Inn when comparing the three month period prior to the restriction with the first three months of the restriction.

- 8541 litres of pure alcohol was purchased for the period of July 2007 to September 2007, which reduced to 949.25 litres for the period of October 2007 to December 2007.
- Light beer, being the only available packaged alcohol under the current restriction, has increased in sales from 55 litres of pure alcohol for the period of July 2007 to September 2007 to 864.61 litres for the period of October 2007 to December 2007.

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Table 8: Volume of Pure Alcohol Purchased from the Fitzroy Crossing Inn, across the bar, for the type of alcohol sold and the period of sale

<i>Fitzroy Crossing Inn Bar Sales Data</i>				
	3 month period prior to the restriction Jul 07-Sep 07	3 month period of Restriction Oct 07-Dec 07	Difference in pure alcohol sold	% difference in pure alcohol sold
Full Strength Beer	653L	867.35 L	+ 214.35 L	+ 32 %
Mid Strength Beer	65 L	167.86 L	+ 102.86 L	+ 158 %
Light Beer	6 L	2.73 L	- 3.27 L	- 54.5 %
Spirits	22 L	14.80 L	- 7.2 L	- 32 %
UDL cans	56 L	116.80 L	+ 60.8 L	+ 108.5 %
Wine	17 L	10.63 L	- 6.37L	- 37 %
TOTAL	819 L	1180.16 L	+ 361.16L	+ 44 %

There has been an overall increase of 361.16 litres of pure alcohol purchased across the Fitzroy Crossing Inn bar from July 2007 - August 2007 to October 2007 – December 2007.

Table 9: Total Volume of Pure Alcohol Purchased from the Fitzroy Crossing Inn, including both Packaged Liquor and Bar Sales

<i>Fitzroy Crossing Inn Total Sales Data</i>				
	3 month period prior to the restriction Jul 07-Sep 07	3 month period of Restriction Oct 07-Dec 07	Difference in pure alcohol sold	% difference in pure alcohol sold
Volume of pure alcohol purchased (packaged+ bar sales)	9360 L	2129 L	- 7231 L	- 77 %

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There has been a reduction in the total quantity of pure alcohol being purchased from the Fitzroy Crossing Inn since the introduction of the liquor restriction.

- For the period of July 2007 to September 2007, 9,360 litres of pure alcohol was sold. This reduced to 2,129 litres of pure alcohol during the first three months of the restricted period.

A comparison between purchased alcohol, for the three months prior to the introduction of the liquor restriction and a five month period following the restriction, from October 2007 to February 2008.

The Interim Report released by the DAO in January 2008 and this report released in March 2008, necessitated the collection of data for two separate time periods:

1. October 2007 to December 2007 and comparative periods prior; and
2. January 2008 and February 2008.

To make comparisons between the two data sets, the total amount of pure alcohol purchased during these periods has been averaged to a daily purchase figure for the three month period pre-restriction and the five month period of the restriction.

Fitzroy Crossing Inn Take-Away Sales

July 2007 to September 2007 – 92.83 litres of pure alcohol purchased per day.

October 2007 to February 2008 – 9.65 litres of pure alcohol purchased per day.

Bar Sales

July to September 2007 – 8.90 litres of pure alcohol purchased per day.

October 2007 to February 2008 – 13.63 litres of pure alcohol purchased per day.

Total Sales

There has been a 78.45 litre per day decrease in the amount of pure alcohol being purchased from the Fitzroy Crossing Inn during the five months of the restriction, when compared to the three months immediately prior to the restriction. From July 2007 to September 2007, a total of 101.73 litres of pure alcohol was purchased per day, which was reduced to 23.28 litres of pure alcohol per day during the restriction.

It is of note that as a result of reviewing such things as the Fitzroy Valley Liquor Restrictions Report, on the 16 May 2008 the WA Director of Liquor Licensing, decided to indefinitely impose the above restriction on the Fitzroy Crossing Inn licence.