

PERTH CITY SNAPSHOT 2016



City of Perth

We acknowledge the Whadjuk Noongar people, the traditional owners and custodians of the lands and waters, where Perth City is today.

Cover image:

Aerial panorama of central Perth
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ALTERNATIVE FORMATS

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VERSION CONTROL

Version Number	Date	Status
Final	13 December 2016	Endorsed by Council

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TERMS EXPLAINED

City of Perth

Refers to the local government organisation.

Perth City

Refers to the new City of Perth local government area which expanded in July 2016 to include parts of Crawley and Nedlands previously within the Cities of Subiaco and Nedlands.

Perth City (pre-July 2016)

Refers to the old City of Perth local government area prior to July 2016.

Perth City (SA 2)

Refers to the Australian Bureau of Statistics Perth City Statistical Area 2. This includes the City of Perth local government area with the exception of Crawley and Nedlands and includes portions of West Perth, Perth, Highgate and East Perth which lie outside the City of Perth local government area.

Greater Perth

Refers to the Australian Bureau of Statistics Greater Capital City Statistical Area – Greater Perth which includes the Perth and Peel metropolitan regions.

Central Sub-Region

Refers to the central planning sub-region within Greater Perth as defined by the Western Australian Planning Commission. It includes 19 local government areas including Stirling, Bayswater, Bassendean, Cambridge, Vincent, Nedlands, Subiaco, Perth, Cottesloe, Claremont, Peppermint Grove, Mosman Park, Fremantle, East Fremantle, Melville, Canning, South Perth, Victoria Park and Belmont.

Central Perth

Refer to a nominal 12km by 12km or 144km² area in the middle of the Central Sub-Region which includes Perth City and its frame as defined by the Western Australian Planning Commission.

Maps of the above geographic areas can be found in Appendix 1 – Geographical Areas.

LORD MAYOR'S FOREWORD



Our Capital City is experiencing a period of rapid growth and development, and it is essential that we capture that progress for future generations.

Cities are complex and intricate as they embody the myriad of decisions and actions made by a wide range of stakeholders on a daily basis. They are impacted by the economy and given globalisation, susceptible to World trends.

Having a thorough understanding of the many elements of city life is essential to making educated decisions for our future. This enables us to plan as best we can for a robust future through good strategy and collaboration.

By 2050, we estimate Perth City will be home to 50,000 people, provide 180,000 jobs and will welcome an increasingly diverse array of visitors, as our liveability and attraction becomes more widely known.

Under the City of Perth Act 2016, my elected colleagues and I have a responsibility to ensure that Perth City, as the Capital City of Western Australia, is a productive, vibrant, and sustainable place for all people.

The Perth City Snapshot 2016 is a comprehensive analysis of the City of Perth, last undertaken in the mid-1980s. It provides a foundation of information about the character, condition and key trends affecting our City.

I encourage you to set aside time to read and consider the Snapshot 2016 and contribute to the growing body of knowledge you have about our Capital City.

A handwritten signature in black ink, reading 'Lisa-M. Scaffidi'.

LISA-M. SCAFFIDI

The Right Honourable the Lord Mayor
December 2016

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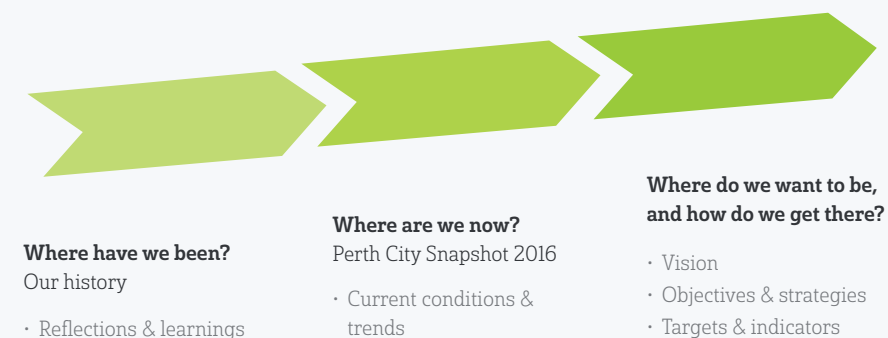
CHAPTER 1

INTRODUCTION

The *Perth City Snapshot 2016* provides a high level picture of Perth City as a place across six strategic themes: People, Culture, Natural Environment, Economy, City Form and Movement.

The Snapshot gathers and analyses a selected range of data and information to identify and better understand the current state of Perth City in 2016. It aims to assist the community to consider “*where are we now*” and “*where do we want to be*”? And it identifies key gaps in data and information about Perth City that may inform future strategic research for the City.

The Snapshot contributes to an evidence-based approach to planning and decision-making as acknowledged in the Australian’s Government’s *Smart Cities Plan* and the City of Perth’s Strategic *Community Plan – Vision 2029+*. It will inform the development of future city indicators and targets and provides a baseline for measuring progress towards these.

Figure 1 - Strategic Planning Process

SCOPE

The Snapshot is structured as follows:

- **Introduction:** purpose, scope and methodology.
- **Context:** geographical location and context, and key information about people and place.
- **Strategic Themes:** key sustainability focus areas which are broken down into:
 - **Elements and Sub-Elements:** essential characteristics which collectively provide a holistic understanding of the critical parts of the Theme.
 - **Measures:** quantitative and qualitative data or information and analysis which collectively indicate the current state of the Element.
 - **Findings:** findings of the analysis of the measures and identification of key gaps.
- **Conclusion:** summary of the key findings and considerations moving forward.

METHODOLOGY & LIMITATIONS

Formal community or city indicators for local government do not currently exist in Western Australia. As such, the *Snapshot* has developed a framework of Strategic Themes, Elements, Sub-Elements / Measures to capture and organise data and ensure a holistic assessment of the social, economic and environmental state of Perth City. This approach was developed following a review of city indicator and state of the city reports from elsewhere.

The *Snapshot* focuses on city-wide data and information, with limited information at the neighbourhood scale. Where relevant, data and information at geographic scales that extend beyond Perth City's boundaries has been included to address the capital city's relationship to a wider catchment of workers, visitors and investors, for example, as required under the City of Perth Act.

The *Snapshot* primarily draws on existing data (secondary data) sourced from an array of local stakeholders and other organisations that monitor particular aspects of community (for example, WA Police crime statistics, Australian Bureau of Statistics Census).

Where possible, data for those parts of Crawley and Nedlands which recently joined the City of Perth on 1 July 2016 has been sought, although it is not always available. These gaps will be addressed in future versions of the *Snapshot*.

Where possible, the quality of data has been verified and any known limitations noted in the report. Recent data is used where available, although some data may be dated (for example, the Census 2011) and may not be entirely accurate or reflective of current conditions.

The *Snapshot* provides limited benchmarking (i.e. comparison) of the state or performance of Perth City with other Australian Capital Cities. More comprehensive benchmarking will be investigated for future editions.

CHAPTER 2

CONTEXT

OUR GLOBAL POSITION

Perth City is located on the edge of the Indian Ocean and shares an approximate time zone with 60% of the world's population,¹ in the rapidly growing and maturing economies of South East Asia, including global centres of business such as Beijing, Singapore, Hong Kong, Kuala Lumpur and Taipei. It also shares a small part of the business day with London (i.e. 3pm Perth time is 8am London time).

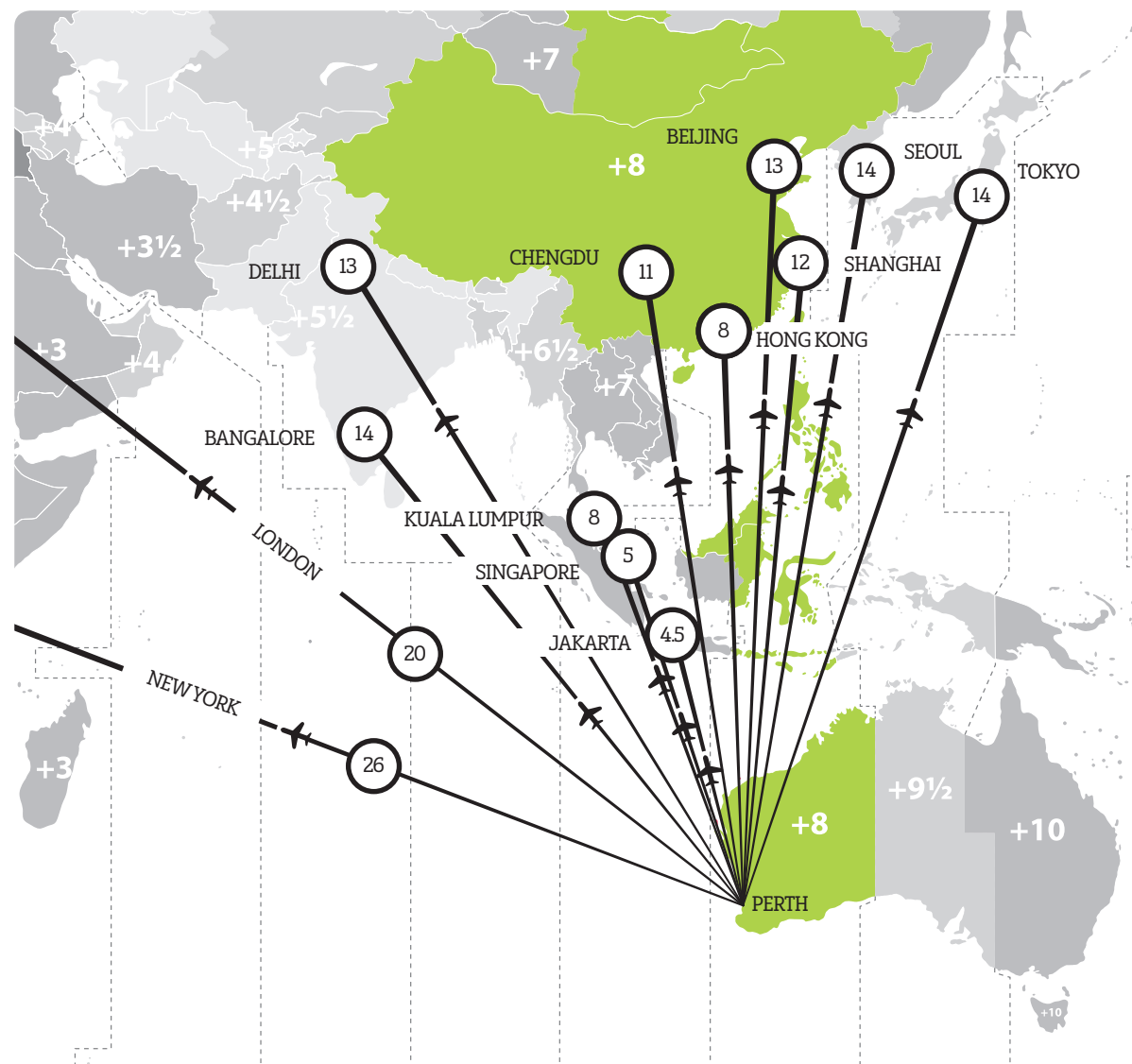
Western Australia's rich resource base has helped fuel the growth of our neighbours with over 82% of Western Australia's major goods exported to the Asia Pacific region in 2014-15.²

Perth's favourable climate and quality of life underpins its global reputation as a highly liveable city. The ability to attract transient global talent in the knowledge economy is critical and depends on Perth City being *"both a great city in which to do business and a great city in which to live"*.³

THE CAPITAL OF WESTERN AUSTRALIA

Perth City is the capital city of Western Australia which is home to 2.6 million people⁴ and attracts an estimated 2.24 million visitors from interstate and overseas each year (March 2016).⁵

Figure 2 - Time Zones and Flight Hours from Perth



Perth City lies at the heart of Greater Perth which is home to just over 2 million people⁶ or 77% of the State's population. This is forecast to grow to 2.9 million people by 2031 and 3.5 million people by 2050⁷ becoming the 3rd largest city in Australia after Sydney and Melbourne.

Central Sub-Region

Perth City forms part of the Central Sub-Region of Greater Perth (refer to Appendix 1 – Geographic Areas). The Central Sub-Region has a high level of amenity with the largest concentration of jobs and people and abundant opportunities to access community, education and cultural facilities, commercial and health services and public transport, as well as a significant network of green spaces and parks including access to the Swan River.

The Central Sub-Region is currently home to around 785,000 people or 43% of the Greater Perth population and is forecast to grow to nearly 1.2 million people by 2050 (32% of Greater Perth).⁸ The additional 415,000 people will be housed in an additional 215,000 dwellings being planned by the State Government through the Draft Central Sub-Regional Planning Framework (May 2015). This represents 57% of all additional dwellings required to accommodate the growth of Greater Perth to 3.5 million people by 2050.

The Central Sub-Region currently provides 546,000 jobs or 64% of all jobs in Greater Perth and is forecast to grow to around 786,000 jobs by 2050.⁹ Around 42% of Perth City's workers currently live in the Central Sub-Region.

Perth City

Perth City is just under 14 square kilometres in area (land only) and located on the northern banks of the Swan River with over 11 kilometres of river frontage. It includes the suburbs or parts thereof of Crawley, East Perth, Nedlands, Northbridge, Perth and West Perth.

On the 1 July 2016, the City of Perth local government area expanded to include Kings Park (400 hectares), the University of Western Australia, Queen Elizabeth II Medical Centre, residential and commercial areas around Hampden Road and Broadway, and the Matilda Bay foreshore in Crawley and Nedlands.

Perth City houses international consulates, the State Parliament of Western Australia and key Federal and State judicial institutions, and has the largest concentration of jobs, services, education and cultural and leisure activities in Greater Perth.



Kings Park (Credit WA Tourism)

Figure 3 – Perth City Suburbs

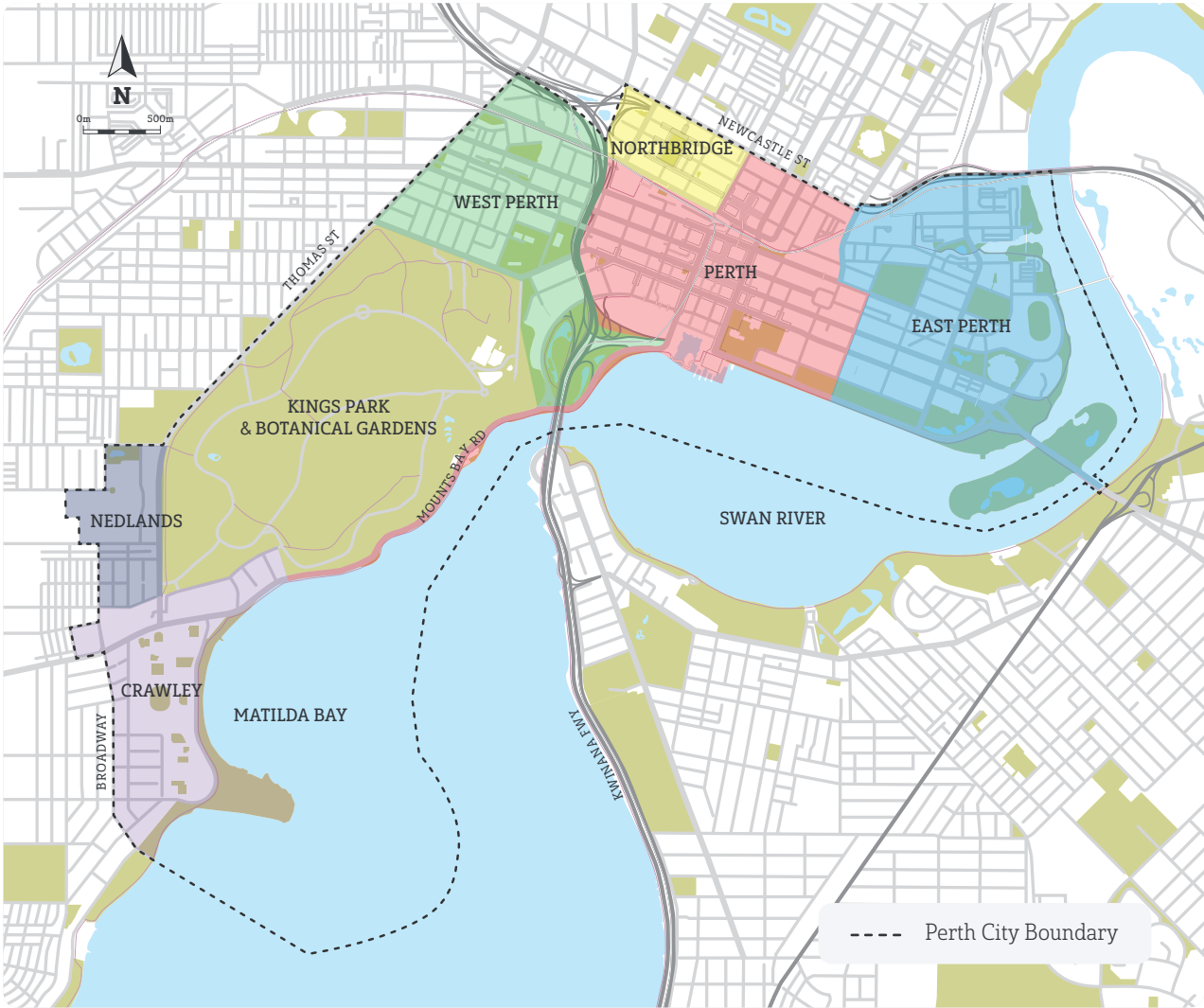


Figure 4 – Regional Institutions and Facilities, Perth City, 2016.



Perth City:

- generates \$41.8 billion or 26% of Greater Perth's Gross Regional Product (2013-14).¹⁰
- contains 5.6 million square metres of business and institutional floorspace, compared with a total of 1.7 million square metres across all other Strategic Regional Centres in Greater Perth (2015).¹¹
- is home to around 14,000 registered businesses with 5,500 providing employment for 134,500 workers, with 53% of workers are 25 to 44 years of age (2015).¹²
- attracts around 205,750 workers and visitors to the CBD and over 25,000 to the University of Western Australia and Queen Elizabeth II precinct during a typical week day (2015).^{13 14}
- is home to 24,244 residents (2015 Estimated Resident Population)¹⁵ and is forecast to grow to 50,000 residents by 2050, representing an additional 25,800 residents in 16,000 additional dwellings over the next 34 years.¹⁶
- has a median resident age of 31 years (2011).¹⁷
- has 1.83 people per household (average) with 33% of households being lone persons and 26% being couples with no children (2011).¹⁸
- has 21.5% of households who do not own a vehicle (2011).¹⁹
- has 53% of residents born overseas, from 54 countries and 33% who can speak another language other than English (2011).²⁰
- has 29% of dwellings either owned or being purchased and 56% being private rentals (2011).²¹
- has an estimated 38,000 students enrolled in 108 education organisations, with an estimated 13,800 students attending the CBD on a daily basis (2015).²²
- has just over 3,551 tertiary students living in the City (or 18% of total residents) (2011).²³

Further information on Perth City can be found in Appendix 2 – People and Place Profile.

For these and many other factors Perth City plays a unique and important role in contributing to the economic prosperity and quality of life of many Western Australians.



iCity Kiosk Volunteers

HISTORY

We are not makers of history. We are made by history. Martin Luther King, Jr.

A brief overview of the history of the land and the people that have been or are located in Perth City highlights the diversity of influences, values and circumstances that have contributed to Perth City's unique social, economic and landscape character and identity.

c40,000 BC	First archaeological evidence of human activity along the Swan River.
1829	James Stirling officially proclaims the territory of Western Australia, Perth is founded.
1832	Kings Park set aside for public amenity.
1833	The first Town Plan for Perth is published by John Septimus Roe.
1843	Causeway and bridge first spans the Swan River.
1854	Wetlands are drained in Northbridge.
1855	WA's first custom-built hospital, Colonial Hospital, opens in Murray Street.
1869	First telegraph line opens between Perth and Fremantle.
1870	Perth Town Hall opens.
1872	First street light (kerosene) erected outside Perth Town Hall.
1873	Swan River reclamation begins to form the Esplanade Reserve.
1881	Perth to Guildford and Fremantle Railway complete.
1893	WACA Cricket Ground was officially opened.
1894	Perth's first shopping arcade, the Busy Bee Arcade cnr William and James Street opens.

1898	First motor car arrives in Perth.
1899	First electric tram operates in Hay Street, Perth.
1900	Perth Observatory opens, enabling the first accurate time calculation be made for Perth.
1901	Western Australia joins the Commonwealth of Australia.
1907	Parliament House opened.
1912	University of W.A. commences operation in Irwin Street.
1922	Australia's first subsidised air service "Western Australian Airways" established and initially uses Langley Park as airstrip.
1929	Gloucester Park trotting track officially opened.
1933	The first trolleybus route commenced operating between East Perth and West Leederville station.
1953	Perth International Arts Festival first opens.
1958	Tram services finish in Perth.
1959	Narrows bridge opens to traffic.
1974	Hay Street becomes the first major central city street in Australia to become 'pedestrianized'.
1979	Perth to Fremantle railway line is closed.
1983	Fremantle to Midland train line re-opens.
1992	Perth - Joondalup railway line opened, the first new railway line in 100 years.
2013	Perth's first underground station opens.
2016	Elizabeth Quay is officially opened.

A PLACE OF SIGNIFICANCE | BEFORE 1828

The area that is now Perth City was occupied some 40,000 years ago by the Noongar people, living in harmony with their natural environment. The Noongar peoples' key meeting place, included Gargatup – the place by the hillside (Kings Park), Matagarup – the place of the leg holes (Heirisson Island), Pinjar (the lakes - location of the Perth train station and surrounds) and Byerbrup (ridge line linking Gargatup and Matagarup).

Food was sourced from the ocean, the Swan River (Derbarl Yerrigan) and the extensive system of freshwater lakes linking the coast with the escarpment (Kaata Moornda), ensuring Perth played an important role for meeting, travel and trade.

A COLONIAL CITY | 1829 – 1890

The Swan River Colony was established by the Crown (the British government) in 1829. Almost immediately, Kings Park was set aside for public enjoyment and John Septimus Roe drew up a plan for Perth City's lasting street grid layout. The City's development was slow but expedited through the arrival of convicts, who assisted in the construction of bridges, roads and buildings, including the Colonial Hospital, Perth Town Hall, Cloisters and the Pensioner Barracks.

Lakes to the north of the city were drained and allotments created for new cottages.

Telegraphs to Fremantle, Guildford, Albany, Bunbury and York signified a City with a regional importance.

A GOLDEN CITY 1890 – 1914

Gold was found in Western Australia in places such as Coolgardie, Mount Charlotte and Kalgoorlie which brought wealth and people to Perth. In a six year period, the population of Perth tripled, with many interstate and international arrivals trying their luck in the gold rush.

People lived in the growing inner city neighbourhoods such as North Perth, Mount Lawley and Leederville.

Perth City benefitted from major infrastructure projects including reticulated gas, water, and electricity supplies and an electric tram system. The City became more cosmopolitan with the development of His Majesty's Theatre, Theatre Royal and inner city department stores.



Crawley Baths Opening 1914 (Credit City of Perth History Centre)

A CITY AT WAR 1914 - 1945

With the advent of the two World Wars, 10% of the population, including many tradesmen and labourers, left Greater Perth for the front line on foreign land. The burden to keep Perth going was placed on those that were left behind, with much of the mining industry and building works coming to a halt.

This was an important time for a young nation to prove itself on the world stage, as well as a time of self-reflection, comradeship and community development for those remaining at home. With the labour and resources constraints affecting new development during the periods of war and during the Great Depression, Perth City's existing building stock was adapted for different purposes, including the Town Hall being handed over to the Citizen's Reception Council and volunteer organizations.

A MODERN CITY 1945 - 1990

With economic recovery, increasing birth rate and immigration after WWII, as well as discoveries of natural resources including iron ore, natural gas, bauxite and gold in the State's north, Greater Perth was once again in a period of growth.

The age of the mass market automobile enabled new suburbs on the outskirts of Greater Perth to be reached through a system of freeways and highways. Many of our urban advances from previous eras were deemed out-dated, with the tram system removed in favour of trolleybuses and many gold boom era buildings on St George's Terrace being replaced with modern, minimalist towers and offices.

By the 1980's, Perth City's population had decreased from 16,000 to 5,000 residents, while the population of Greater Perth's outer suburbs grew rapidly. The changing nature of Perth City saw an influx of investment in entertainment facilities and modernisation, including the pedestrianising of Hay and Murray Streets into Malls, development of the Entertainment Centre, Perth Concert Hall and significant retail facilities such as Forrest Chase.

THE REMAKING OF A LIVEABLE CITY 1990 ON WARDS

With the continued growth of Greater Perth's population in expanding suburban areas, coupled with the restructuring of the WA economy away from manufacturing towards more services, land within the Perth City became available for redevelopment.

Since the 1990s redevelopments such as East Perth and New Northbridge have reinvigorated the popularity of inner city living and as a result, Perth City's population has more than doubled during the period 2001 to 2015, assisted by the influx of people moving to Western Australia attracted by strong economic growth from the resources boom.

Significant government investment into Perth City has provided opportunities for city shaping projects to breathe new life into the City, such as undergrounding train services, a new bus port, development of Elizabeth Quay, Perth City Link, redevelopment of the Cultural Centre, Western Australian Museum and Perth Arena as well as investment and support for a host of major festivals and cultural events.



East Perth Markets (Credit Tourism WA)

REFERENCES

- ¹ Department of State Development, WA (2016) *Key Facts*. Available from <http://www.dsd.wa.gov.au/invest-in-wa/key-facts/shared-time-zone>
- ² Department of Foreign Affairs and Trade (2016) Western Australia fact sheet. Available from www.dfat.gov.au
- ³ Committee for Sydney (2016) *First amongst Equals? Benchmarking Sydney's Performance*. Available from <http://www.sydney.org.au/professor-greg-clark-cbe-on-the-new-world-of-cities/>
- ⁴ Australian Bureau of Statistics (2016) 3218.0 - *Regional Population Growth, Australia, 2014-15*.
- ⁵ Tourism Western Australia (2016) *Tourism Western Australia Fast Facts Year Ending March 2016*. Prepared by the Research Team. Available from www.tourism.wa.gov.au
- ⁶ Op cit Australian Bureau of Statistics (2016).
- ⁷ Department of Planning (2015) *Perth and Peel@3.5million draft*. Available from <http://www.planning.wa.gov.au/publications/3.5million.asp>
- ⁸ Department of Planning (2015) *Draft Central Sub-Regional Planning Framework - Towards Perth and Peel@3.5million*. Available from <http://www.planning.wa.gov.au/publications/7701.asp>
- ⁹ Ibid.
- ¹⁰ REMPLAN (2016) *City of Perth Economic Profile*. Available from <http://www.economicprofile.com.au/perth>
- ¹¹ Department of Planning (2016) *2015 Land Use and Employment Survey, preliminary results* (unpublished).
- ¹² Op cit REMPLAN (2016).
- ¹³ Pers comms O'Brien, D (August 2016) University of Western Australia.
- ¹⁴ Martin, J (2014) *Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study*, Presented at the Australian Institute of Traffic Planning and Management Incorporated 2014 Conference
- ¹⁵ Op cit Australian Bureau of Statistics (2016).
- ¹⁶ Profile ID (2016) *City of Perth Residential Forecast*. Available from <http://forecast.id.com.au/perth>
- ¹⁷ Profile ID (2016) *City of Perth Community Profile*. Available from <http://profile.id.com.au/perth>
- ¹⁸ Ibid.
- ¹⁹ Ibid.
- ²⁰ Ibid.
- ²¹ Ibid.
- ²² Arup (2015) *City of Perth Daytime Visitor Estimate* (unpublished).
- ²³ Op cit Profile ID (2016).

CHAPTER 3

PEOPLE

The People Theme looks at the character and needs of Perth City people, those who visit, live and work in Perth City now and into the future.

Perth City attracts the largest concentration of people in Greater Perth on any day reflecting its capital city status and the wide variety of opportunities for work, services and social and cultural activities. Around 205,750 workers and visitors are estimated to visit the CBD on a typical weekday¹ and around 25,000 students, workers and visitor attend the University of Western Australia (UWA)² and the Queen Elizabeth II Medical Centre on a daily basis.³

Perth City has experienced rapid residential population growth over the last decade, growing from 13,972 residents in 2005 to 24,244 residents in 2015 (housed), a growth rate of 5.7% per year (annual average) not dissimilar the high rates of population growth experienced on the fringes of

Greater Perth.⁴ Over 300 people are estimated to be sleeping rough in Perth City each night⁵ and the 2011 Census counted over 700 people as being homeless in the wider inner city region.⁶ ^aOver the next 20 years, an additional 15,500 people are expected to make Perth City their home, with the residential population reaching over 39,500 people by 2036 and 50,000 residents by 2050.⁷

Perth City is the capital of Western Australia and a place for all people to meet and connect for work, entertainment, education, services, shopping, recreation, tourism and culture. Perth City attracts a diversity of people and as such, their needs and aspirations are diverse and vary according to a range of factors such as age and life stage, education levels, where they live, occupation and income, level of disability and health, cultural and linguistic background, sexual orientation and gender and so forth.

*This figure related to for the Australian Bureau of Statistics (ABS) 'Perth City SA2' that includes parts of the City of Vincent as well as Perth City, although it's assumed a high proportion of these people would be living in the City of Perth local government area. Also note that the ABS's definition of 'homeless' includes rough sleeping, living in unsuitable accommodation (eg overcrowded houses) and in short-term tenure accommodation (eg boarding houses).

P1 COMMUNITY IDENTITY

- P1.1** Resident and Household Characteristics
- P1.2** Workers and Visitors
- P1.3** Identifying Needs
- P1.4** Community Stability and Pride
- P1.5** Being Involved

P2 QUALITY OF LIFE

- P2.1** Affordability
- P2.2** Basic and Acute Needs
- P2.3** Accessing Services

P3 HEALTH AND WELLBEING

- P3.1** Health and Lifestyles
- P3.2** Safety

FINDINGS

REFERENCES

P1 COMMUNITY IDENTITY

Community identity looks at the composition of people who live in and visit Perth City. Residents of Perth City are those people who usually reside in Perth City, whether on a temporary or permanent basis. Visitors to Perth City include those who arrive here on a daily basis to access services, work or study, those on recreational day trips from other parts of Greater Perth and those visiting from other parts of Western Australia, Australia and overseas.

Community identity is informed by demographic (such as age, sex, income, education and place of residence) and household characteristics.

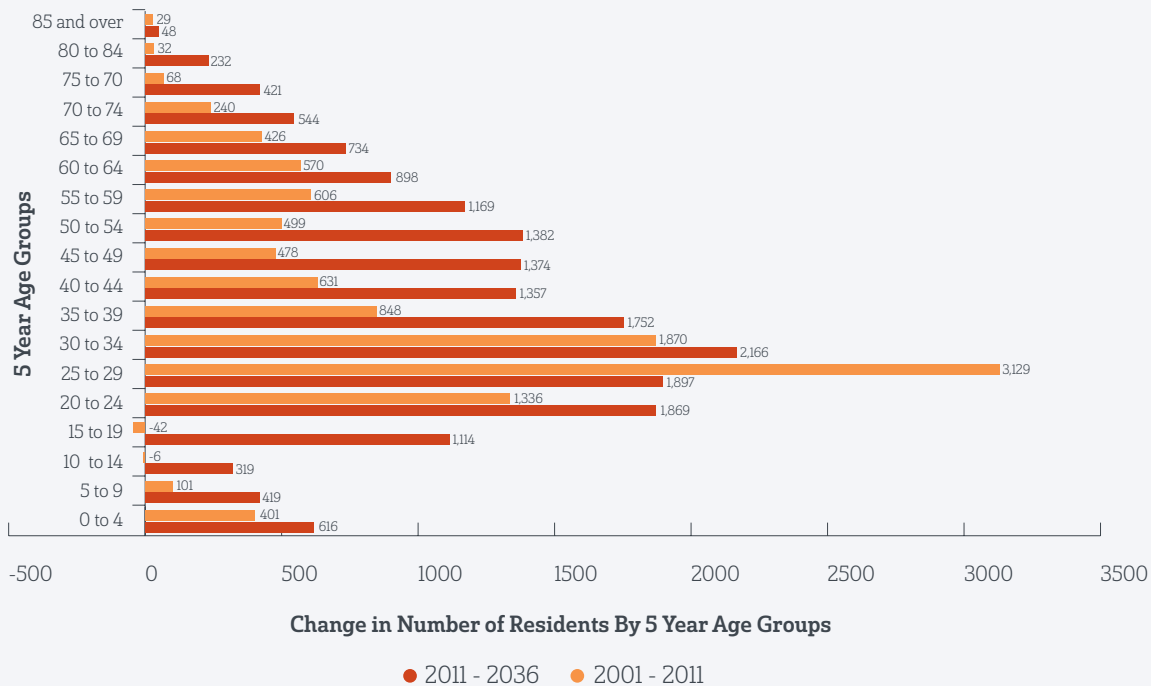
Further information on the demographic character of people who live, work and visit Perth City is also outlined in the Culture Chapter and the Appendices. In addition, further information is available on the City of Perth's Community Profile website <http://profile.id.com.au/perth/home>.

P1.1 RESIDENT AND HOUSEHOLD CHARACTERISTICS

The 2011 Census captures some key characteristics of the Perth City community which differentiates it from the suburban communities of Greater Perth but reveals similarities to other Australian capitals such as Melbourne and Sydney:

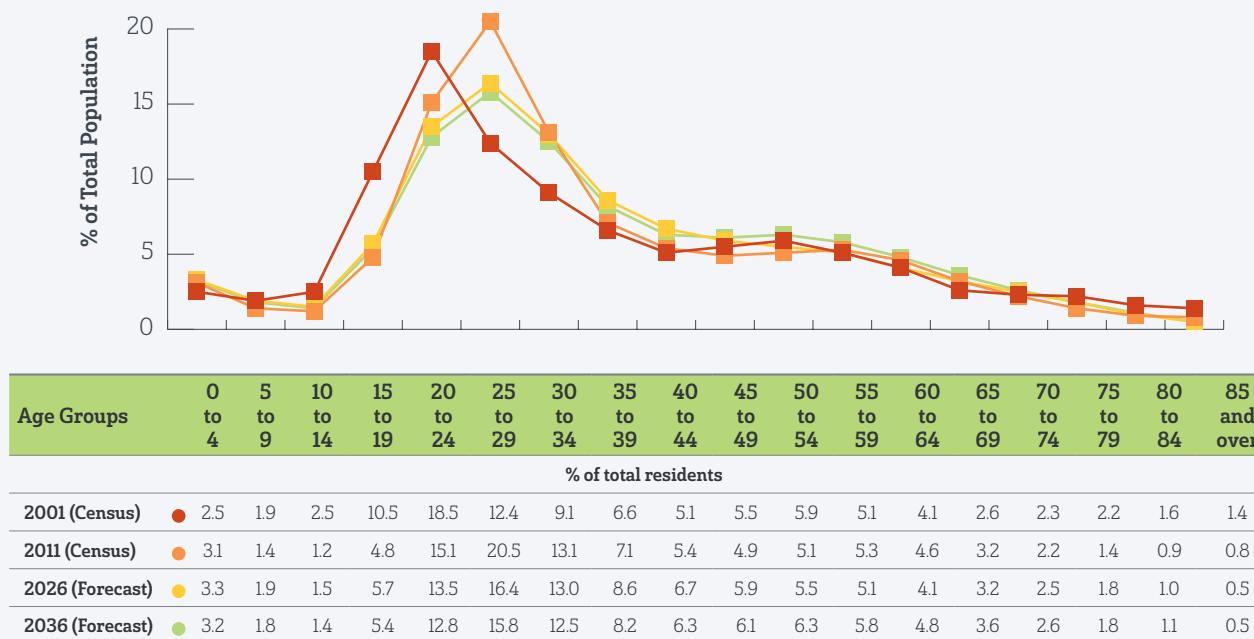
- The resident population is relatively young with over 55% aged between 20 and 39 years.
- The largest growth in population between 2001 to 2011 Census was in the 25 to 29 year age group (+3,129 people) and the 30 to 34 year age group (+1,870 people).
- One third of the 10,350 households consist of lone households (ie people living alone); a proportion which is comparable to the Cities of Melbourne and Sydney. A further 25% are couples without children. Over the period 2001-2011, the largest growth was couple without children (+34%) and lone households (+27%).

Figure 1 - Growth in Residents, Perth City 2001 to 2011, 2011 to 2036



- There are 1,345 children (under 17 years) living in just over 1,000 households.
- Over 52% of residents were born overseas and over half of those had arrived in Australia in the five years preceding the 2011 Census. Furthermore, 32.9% of the resident population speak a language other than English at home.
- 0.8% of residents are Aboriginal or Torres Strait Islander compared with 1.6% across Greater Perth.
- There are 3,551 university and TAFE students living in Perth City or 18% of residents.
- Of those residents in the labour force, over 52% are managers or professionals. A further 27% are employed in the service industry, administration or sales.
- As at August 2016, the unemployment rate for 'Perth Inner'^b was 4.5% which is lower than the WA average (6.3%) but higher than Sydney (Capital – 3.3%) and Melbourne (Inner – 3.9%).^c
- The labour force participation rate for Perth City residents aged 18-24 years was 57.6% significantly lower than the Western Australian average of 74.8%.
- Most Perth City people live in medium and high density homes such as apartments and townhouses, with pockets of older, single dwellings, particularly in Northbridge, West Perth and Crawley-Nedlands. Over 63% of Perth City's dwelling stock has two bedrooms or less.
- Over 21% of households do not own a car, a rate which is much higher than the rest of Greater Perth (6%) but much lower than the Cities of Melbourne (37%) and Sydney (34%).
- Approximately 4% of households live in social housing with the highest proportions in West and East Perth.⁹ Since the 2011 Census there has been growth in the availability of crisis, transitional (temporary, supported accommodation for homeless people), key worker and subsidised rental accommodation due to major developments completed by organisations such as the Foundation Housing, St Bartholomew's and City of Perth.

Figure 2 - Age Structure By 5 Year Age Groups As Proportion of Total Residents, Perth City, 2001 and 2011 (Census / Actual), 2026 and 2036 (Forecast)



^b 'Perth Inner' includes suburbs to the north and west of the City of Perth 2016 boundaries

^c Social housing is categorised by the ABS as housing provided by the WA Housing Authority.

Population Growth Forecasts

New residential developments in Perth City have spurred population growth over the last 15 years. This growth is forecast to continue, particularly in East Perth and the CBD. Figure 2 shows the population projections to 2036 for local areas within Perth City. Further information is available at the City of Perth’s population growth forecast website <http://forecast.id.com.au/perth>.

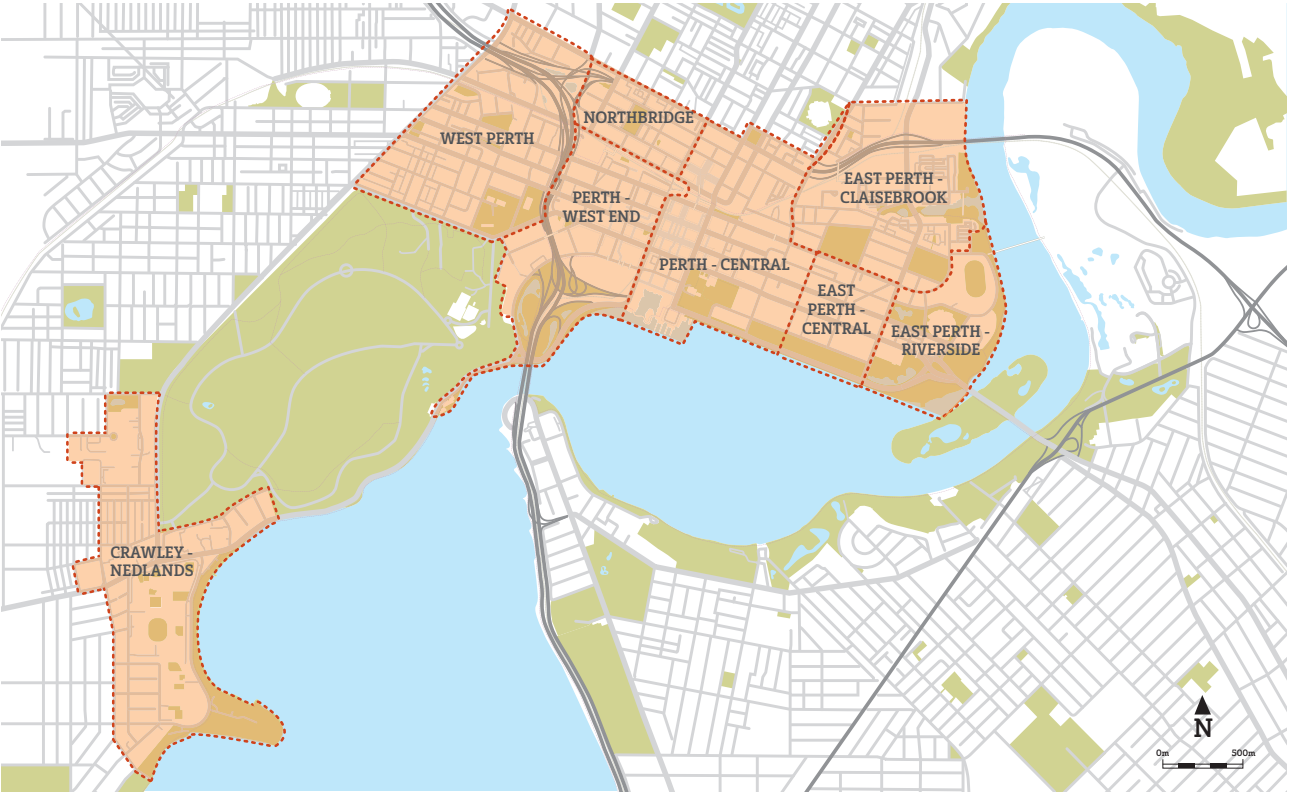


Path to Success (Credit Trinity College, East Perth)

Figure 3 - Population Forecasts to 2036, Perth City

Area	Population 2011	Population 2036	Forecast Change in Population 2011 - 2036
Crawley - Nedlands	4,087	5,183	+ 1,096
East Perth - Central	5,016	6,636	+ 1,620
East Perth - Claisebrook	3,346	5,492	+ 2,146
East Perth - Riverside	286	6,182	+ 5,896
Northbridge	1,108	1,760	+ 652
Perth - Central	2,473	6,253	+ 3,780
Perth - West End	1,962	3,842	+ 1,880
West Perth	3,075	4,316	+ 1,241

Population and household forecasts, 2011 to 2036, prepared by .id, the population experts, June 2016. <http://www.id.com.au>



^cThis is according to the Hachman economic diversity index used by Regional measures the economic diversity of a region in comparison to another economic region. Values closer to one would mean that the region's economic structure is very diverse. Values closer to zero mean that the region does not have a diversity of industry sectors as compared to the other economic region (Regional Australia Institute – Guide to Understanding Australia's Regional Competitiveness 2014).

P1.2 WORKERS AND VISITORS

In 2015, an estimated 205,750 people came into Perth City CBD on a typical weekday (midday), comprising:¹⁰

- workers (who live outside Perth City) 65% of visitors.
- workers (who live and work live in Perth City) 3% of visitors.
- students 7% of visitors.
- intrastate visitors 24% of visitors (ie accessing services, shopping etc. mostly people from Greater Perth)
- interstate and international visitors 3% of visitors (assuming mostly leisure and business tourists).

The highest proportions of City workers are in the 25-34 and 35-44 year age groups, representing 52.8% of total workers.

'Mining' accounts for 8.9% of jobs and only 3.5% of jobs are in the retail trade sector.

City jobs are largely office based. Forty per cent of workers are classed as professionals and a further 23.9% are clerical and administrative workers. Managers comprise 14.3% of the workforce. Just over 50% of the workforce has a Bachelor Degree or higher.

Students comprise a growing segment of the visitor population, particularly with the addition of the University of Western Australia to the City of Perth boundaries. Perth City hosts numerous private and public education institutions.

P1.3 IDENTIFYING NEEDS

From a community sustainability perspective it is essential that all members of the Perth City community are able to meet their basic needs (eg food, shelter etc), access essential support services, feel safe and secure and be in good health so they are able to look after themselves, assist others where necessary and achieve a desirable standard of living and quality of life.¹¹

On a daily basis, the wellbeing of Perth City people, their needs and aspirations will be influenced by a multiplicity of complex and interconnected factors such as individual income and debt levels, the cost of living and access to secure housing and services. Furthermore, the resilience of individuals may be compromised at different stages of their life experience by social network or family breakdown, health issues and destabilising events such as the loss of employment, income or the death of loved ones.

Data on the current needs of Perth City people or their aspirations, and any forecasting of potential future needs is limited and fragmented. There is no comprehensive set of data or study available

that identifies, quantifies or analyses the social needs of Perth City people. Current known and available data is very high level data eg usually ABS Census data, is not fit-for-purpose or specific to particular needs or cohorts of people, and has limited currency (ie value) given the social and cultural diversity of Perth City people (residents, workers, visitors) and the relatively rapid turn-over or churn of people through the City (ie length of residential stay is very short, and length of worker stay is unknown).

As such, the following section highlights potential groups in the community that may have particular needs which warrant further investigation.

Aboriginal people: The land and stretch of the Swan River that encompasses Perth City contains many important places for the Whadjuk Noongar^d people and continues to be a meeting place for Aboriginal people from all over WA to connect with each other. A disproportionately high level of Aboriginal and Torres Strait Islanders experience homelessness in Perth City (46% of homeless people surveyed¹²) compared to the overall proportion recorded at a residential address in the Perth City (0.8%).

^dNoongar (Koorah, Nitja, Boordahwan) (Past, Present, Future) Recognition Act 2016 recognises the important relationship the Noongar people have with the Noongar lands, and the significant and unique contribution of Noongar people to the heritage, cultural identity, community and economy of WA.

Families with Young Children: Currently, around 20 babies are born each month in Perth City (pre-July 2016)¹³ and an estimated population of children aged under four in 2015 of 740.¹⁴ However, there appears to be a smaller proportion in the number of older children (over 4 years) living in the City. As the numbers drop off in subsequent age groups it needs to be determined whether:

1. families are choosing to leave the City as children grow older to be closer to schools and other services, in detached/semi-detached dwellings with more private open space; or
2. this is an emerging source of population growth with new families in new residences intending to stay in Perth as children mature.

Families, particularly with children in the early years generate, considerable demand for services. At the same time, children's activities in early years education or school community environments generate opportunities for community connectivity.

Students and young workers: The City's residential and worker population is dominated by those in the 20-39 age group.¹⁵ Furthermore, most of those are working professionals taking advantage of the availability of apartments for rent, close to their places of work and the entertainment and cultural offerings of the City. This group is mainly living in couple, group or lone households.

Migrants and new arrivals: In recent years, Perth City has been the destination for young migrant workers meeting the labour demands generated by the resources boom. Over 52% of residents were born overseas and over half of those being recent arrivals to Australia, having arrived since 2006.¹⁶

Over 48% of residents moved house in the period between 2006 and 2011^e and overall there were more people arriving from other parts of Australia and overseas than there were departing. This, in part is accounted for by the high influx of new residents due to growth in the available dwelling stock, however, there is also a lot of transience due to the high rate of private apartment rental accommodation. With high rates of transience, there is potentially lower community stability and lower personal investment in the local area by individuals. Community stability heavily influences residential satisfaction levels and the liveability of a local area.¹⁷

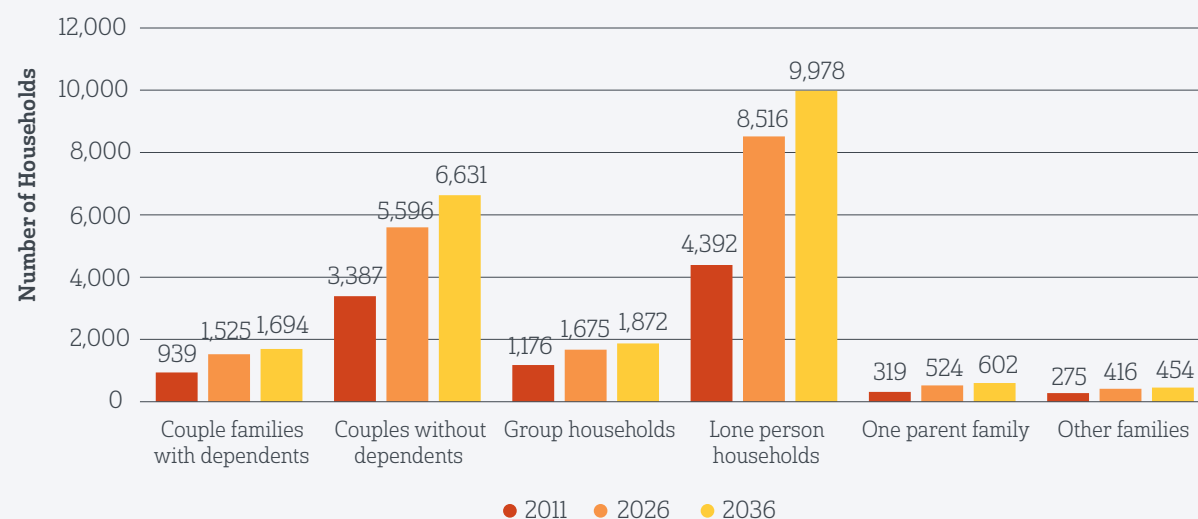
Women: 48.6% of workers in Perth City are female.¹⁸ Australia's ranking in the Global Gender Gap Index has fallen from 15th in 2006 to 24th in 2013 and 36th in 2015.^{19 20} A major indicator of gender equality is the proportion of women in senior leadership roles. The Committee for Perth's 2015 *Filling the Pool* report found that WA compares poorly to other Australian states in terms of female representation in leadership roles with 'half the national average of female directors, less than half the number of female CEOs and less than one third the number of female board chairs.'²¹

The WA and national gender pay gap has been widening over last 20 years and furthermore, in 2014, the gender pay gap for full time employees in WA was 25.4% compared with 18.5% nationally.²² Lower pay rates spanning a career have long term impacts for women, culminating in significantly lower superannuation savings. In 2013-14, women's average superannuation balances were 38% less than men's.²³

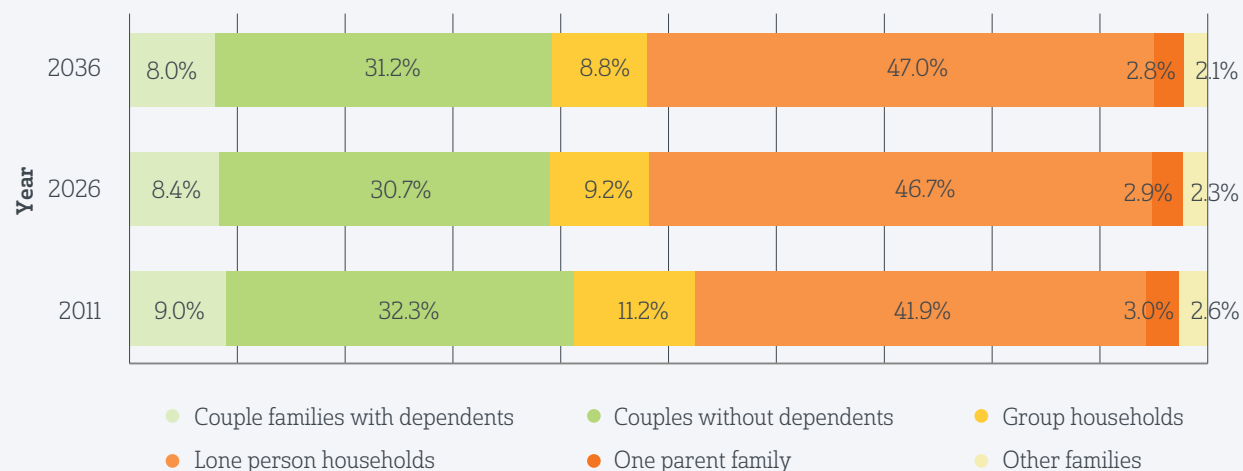
The WA *Women's Report Card 2015* also identified that the number of reported incidents of family and domestic violence against a female in WA rose from 3,600 in 2008-09 to 11,374 in 2014-15 and the proportion of female victims remained relatively constant at around 75%. Furthermore, in 2014, the proportion of sexual assaults committed against females was 92.2%.

Lone households: Figure 3 shows the profile of household types in Perth City in 2011 as well as the forecast household types in 2026 and 2036. The two dominant household types in 2011 were lone households (i.e. people living alone) (42%) followed by couples without dependents (32%). Lone households are forecast to increase to 47% of all households by 2036 while the proportion of couple without dependents is expected to remain relatively stable.

^e Includes those moving within the City of Perth, coming from elsewhere and moving outside Perth City.

Figure 4 - Number of Households by Type, Perth City, 2011, 2026 and 2036

The high proportion of lone households in Perth City is in line with trends in other capital cities and is a key factor in the changing composition of households nationally. Accordingly, it is likely that a growing proportion of workers and visitors also live alone. The needs of people living alone may transpire into a greater need for community connections to maintain levels of contact with others that benefit personal wellbeing, as well as a greater need for health, caring and support services for older residents.²⁴ The experience of Perth City people living alone, their needs and aspirations for connection and support are not currently well understood.

Figure 5 - Proportion of Households by Type, Perth City 2011, 2026 and 2036

[†] The World Economic Forum's Global Gender Gap Report quantifies the magnitude of gender disparities and relative gaps between women and men across four key areas: health, education, economy and politics, covering 144 countries (Source: <http://reports.weforum.org/global-gender-gap-report-2016/>).

Disability access and inclusion: Disability access and inclusion in Perth City is an equity issue requiring ongoing attention and monitoring, particularly as the City's residential population grows and the population of Greater Perth increases to 3.5 million people by 2050, and there will be significantly more people living, visiting and working in Perth City. Based on current population figures and national disability prevalence rates, there was an estimated 4,476 people with a disability living in Perth City (in 2015). This figure does not include their families, friends and carers affected by access and inclusion issues.²⁵ The number of Perth City workers with some form of disability is unknown.



Access for All (Credit J Wyld)

Social inclusion: Social inclusion in this sense relates to the structures in place to ensure that the full diversity of the population is able to freely participate, regardless of age, race, ethnicity, gender identification, sexual orientation or religion. In addition to these cultural identifiers, social exclusion occurs as the result of a combination of linked and mutually reinforcing problems which prevent full participation by individuals in society. These include people facing disadvantage on a day-to-day basis due to varying risk factors such as very low income, unemployment, lack of internet connection, low levels of education, health conditions and disability and overcrowding. These types of risk factors are often shown to be associated with a range of poor social outcomes.^{26 g}

Relative to other Local Government Areas, Perth City residents have low levels of disadvantage with an ABS SEIFA index rating (1,082) in the top 10% of all Local Government Areas in Western Australia and Australia.²⁷ Perth city also exhibits a higher score compared to the Cities of Sydney and Melbourne (each scored 1,051, in the 9th decile ranking).

There are, however small pockets of disadvantage within the Perth City where there are higher populations of students (Crawley), transient residents (such as rough sleeping homeless in the CBD) and those in social housing (such as East Perth).

P1.4 COMMUNITY STABILITY AND PRIDE

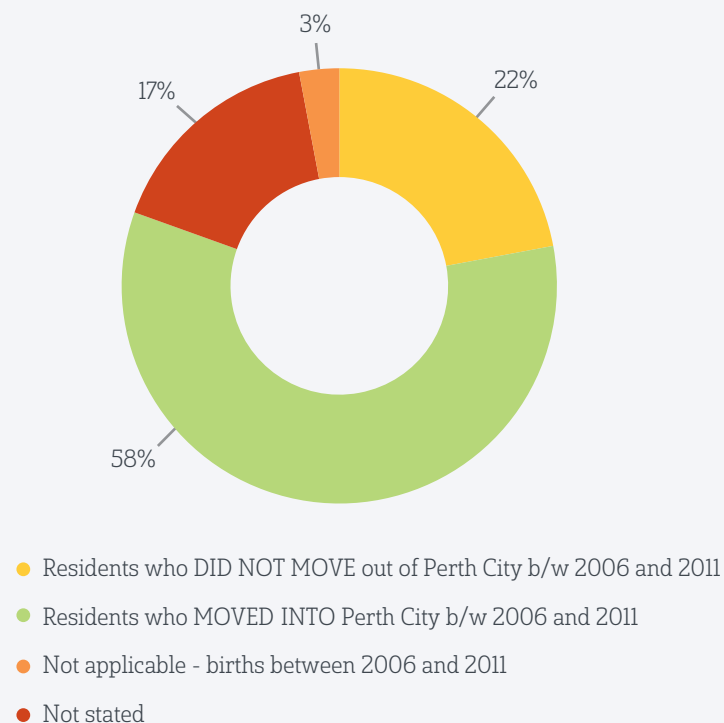
Community stability refers to the amount of change the community experiences and how capable the community is to manage the change.²⁸ A stable community provides a strong foundation for social networks, community groups and organisations to develop and flourish. Understanding the length of time residents have lived in the same location gives an insight into the stability of the community.

Perth City residents' length of stay is relatively short compared with Greater Perth. Only 19% of Perth City residents lived at the same address 5 years earlier compared with 51% of Greater Perth residents and only 50% of Perth City residents lived at the same address one year earlier, compared with 78% of Greater Perth residents.²⁹ This is due to the high rates of population growth and high proportion of rental accommodation in Perth City.

During the 10 year period 2005 to 2015, Perth City grew from 13,972 residents³⁰ to 24,244 residents, which is an average growth rate of 5.7% per year or a total increase of 73.5%. In Perth City, 62% of dwellings are rentals compared with 28% average across Greater Perth.³¹ As such, there are high levels of in-migration and new residents. There is no data available that outlines the reasons why residents move out of Perth City or why the rates of re-location are so high.

^g Low income is a barrier to accessing goods and services, unemployment is an inability to participate in the labour market, and poor health can be a barrier to social and economic participation. Further, these factors are mutually reinforcing, for example unemployment can lead to low income which reduces access to quality housing

Figure 6 - Change of Address (Migration) Between 2006 and 2011, Perth City (pre-July 2016)



When people engage with their community it enhances their feeling of wellbeing and fosters community spirit, this participation can be through a wide range of interactions and activities such as sports clubs, community groups and attendance at events (Australian Bureau of Statistics, 2006).

In 2015, a survey of Greater Perth residents found 94% were satisfied with life in Perth.³² Furthermore, Greater Perth residents have consistently identified higher levels of pride in the Australian way of life and culture and a sense of belonging in Australia, compared to other capital cities. Between 2008 and 2015, 57.6% of Greater Perth residents indicated feeling pride to a great extent, compared to 50% of Melbourne residents. Seventy four per cent felt a sense of belonging, compared to 65.5% of Melbourne residents and 67.5% of Sydney residents.^{33 h}

P1.5 BEING INVOLVED

'Being involved' refers to the level of engagement of people in the Perth City community which can enhance wellbeing and foster community spirit. Participation can be through a wide range of interactions and activities such as sports clubs, community groups and attendance at events.³⁴ Ability to participate in community more broadly can be influenced by a range of factors, such as disability or health issues, physical access and transport, ability to communicate, access to information, culture and gender identity, trust in community institutions and income.³⁵

Rate of volunteering and membership in clubs, organisations or associations are often used as indicators for community participation and connection.³⁶ In 2011, 13.5% of Perth City residents did unpaid voluntary work through an organisation or group in the twelve months prior to Census night, compared with 15.6% average across Greater Perth.³⁷

Twenty sport clubs and associations are registered with the Department of Sport and Recreation in Perth City. Among these, three are based around the Perth and Tattersalls Bowling Club in East Perth, six at UWA and four are rowing or sailing clubs with activities focussed on the stretch of the Swan River adjoining the City. There are also two privately run self-defence associations and a cricket club and swimming club. These clubs and associations have regional membership catchments and benefit from being centrally located in the City. There is no data available on the level of membership among residents of these clubs and associations inside or outside of Perth City.

^h The Scanlon Foundation Surveys 2008-2015 posed the following questions to survey respondents over consecutive years between 2008 and 2015: "To what extent do you take pride in the Australian way of life and culture?" and "To what extent do you have a sense of belonging in Australia?"

P2 QUALITY OF LIFE

The quality of life of residents and the experience of workers and visitors to Perth City is influenced by the overarching way of life that culturally defines Australia. This way of life is constantly evolving, according to the conditions of the local and national economy, the political environment and the reforms of the government of the day and the influences of the global social landscape.

Given Australia’s prosperity, it is reasonable for Perth City people to expect to enjoy a good quality of life, in good health and comfortable living and working conditions.^{38 i} There is also an expectation that we should be free to go about our daily lives feeling safe and secure and that each individual should generally feel as connected and close to others as they’d like to be.

The three tiers of Australian government, community and private sector organisations work to ensure that the community enjoys acceptable standards of living and quality of life.³⁹ There is a generally accepted understanding that vulnerable people in our community will be supported in terms of accessing essential opportunities and support services to enjoy a good quality of life, such as housing, employment, education and health care.

P2.1 AFFORDABILITY

Cost of Living

In 2011, over 43% of Perth City households earned incomes in the top 25% income quartile.^{40 j}

The cost of housing is a significant component of the cost of living, however, it is likely that residents of Perth City benefit from the reduced costs of other factors, such as transport, although this has not been researched to-date. The availability of regional level services and facilities such as cultural institutions, education and hospitals that serve Greater Perth and the state of WA in Perth City, in addition to its function as the destination focus of the public transport network, the highest generator of jobs, the focus of services and the location of choice for major high profile events and festivals, results in monetary and non-monetary benefits for residents, workers and visitors.

The cost of living in Greater Perth reduced slightly in the first quarter of 2016 and rose by only 0.3% in the second quarter, a cost increase on par with Darwin and Canberra but less than the other capital cities. However, compared with 2011-12, the cost of living is over 8% higher. Reduction in rents due to high vacancy rates in the second quarter of 2016 contributed -0.7% to the index steadying growth in the overall cost of living compared to other capitals.⁴¹

Figure 7 - Consumer Price Index, Capital City comparison of Index numbers and percentage change, June Qtr 2016

Greater Metropolitan Areas	Index number(a) Jun Qtr 2016	% change Jun Qtr 2015 to Jun Qtr 2016
Sydney	109.3	0.9
Melbourne	108.6	1.4
Brisbane	109.0	1.5
Adelaide	107.5	0.7
Perth	108.2	0.5
Hobart	106.4	1.2
Darwin	108.3	0.0
Canberra	106.4	0.8
Weighted average of eight capital cities (a) Index reference period: 2011-12 = 100.0.	108.6	1.0

Source: Australian Bureau of Statistics, Consumer Price Index, 2016

ⁱ Australia ranks 2nd according to the 'How's Life? Measuring Wellbeing' data collected by the OECD (Source <http://www.oecdbetterlifeindex.org/countries/australia/>)

^j Income quoted is 'Equivalent Household Income' which households on an equal footing independent of household size and composition to enable a true comparison between areas and over time (Source ID Profile, 2016).

Given differing income levels across the population, it is important to consider the cost of living in relation to different household types.

WACOSS' Cost of Living Report⁴² models expenditure and income for a working family, single parent family and unemployed single. As the study area is Greater Perth, findings can be considered indicative, but not representative of the Perth City residents and workers.

The WACOSS 2014/15 and 2015/16 financial year key findings have been described as follows:

*Our three model households demonstrate that those who are able to secure two income streams through employment have seen a reasonable improvement in their cost of living, with only a marginal improvement for the single parent family. For those without employment, however, their cost of living remains well beyond their income*⁴³.

*Without adequate support, living costs place significant pressure on a household's financial resilience. Poor financial resilience for low income households can mean that just one emergency or crisis, such as crises related to their health, employment or living situation, could find them facing severe financial shock and becoming over-indebted.*⁴⁴

Figure 8 - Income and Expenditure of Three Model Households

	Income		Expenditure		Net Position	
	2014-15	2015-16	2014-15	2015-16	2014-15	2015-16
Single Parent Family	\$944.12	\$978.00	\$938.17	\$905.12	\$5.95	\$72.08
Working Family	\$1,397.49	\$1,425.59	\$1,321.44	\$1,294.62	\$76.05	\$130.97
Unemployed Single	\$304.65	\$310.46	\$353.49	\$343.67	-\$48.83	-\$33.21

Source: WACOSS, 2015 and 2016

Perth City has a high proportion of lone person households, at almost double that of Greater Perth, but has a lower proportion of households with single parents and working families. Seventy per cent of Perth City's low income households (741 households) are lone person households^k compared to 59.5% of Greater Perth low income households. The WACOSS data suggests that even with softening of the rental market, these households may be financially vulnerable.



City of Perth Library (Credit Frances Andrijich)

^k This is households in the lowest 40% of incomes and is adjusted each year by wage CPI as per the Housing Authority's formula for calculating affordable housing.

Affordability of Housing

Housing is the largest component of the cost of living, and the supply of affordable housing in Perth City influences the socio-economic diversity of its residents and levels of social equity amongst residents of Greater Perth.¹

Affordable housing is generally defined as housing that costs no more than 30% of gross household income for households in the low and moderate income ranges^m. Households in these ranges paying more than 30% on housing costs are considered to be in “housing stress”, although as described earlier, there may be some opportunity for households living in Perth to potentially offset some of their living costs due to increased accessibility to jobs and services.

In 2011, median weekly rent and mortgage repayments were considerably higher for residents of Perth City (\$440 and \$2,496 respectively) compared to Greater Perth (\$320 and \$2,000 respectively).⁴⁵

Housing Stress

In 2011, 10.2% of households in Perth City (1,054 households) were experiencing housing stress compared to an average of 9% across Greater Perth, with variation being experienced in different areas across the City.ⁿ

However recent data shows that while the cost to purchase a house in Perth City remains well above the median for Greater Perth, the cost of purchasing a unit is only slightly higher (\$524,500 in Perth City compared to \$436,000 for Perth as at March 2016).⁴⁶

Figure 9 - Households in Housing Stress, Perth City, 2011	
	% of Households
Crawley-Nedlands	31.9%
East Perth (North)	7.8%
East Perth (South)	9.6%
Northbridge	11.3%
Perth	6.6%
West Perth	6.4%
TOTAL	10.2%



Dwellings (Credit J Wyld)

¹ WACOSS describes diversity and social equity as two of the principles of social sustainability (WACOSS, 2008). Equity refers to the quality of fairness and impartiality between members of society, while diversity refers to the range of different people such as socio-economic or cultural groups.

^m Affordable housing should not be confused with the concept of ‘housing affordability’ which indicates relative affordability across the whole housing market

ⁿ Note – ID Atlas using NATSEM (National Centre for Social and Economic Modelling) model as households in the lowest 40% of equivalised incomes (income adjusted using equivalence factors to remove the effect of household size and composition) across Australia.

Affordable Purchases

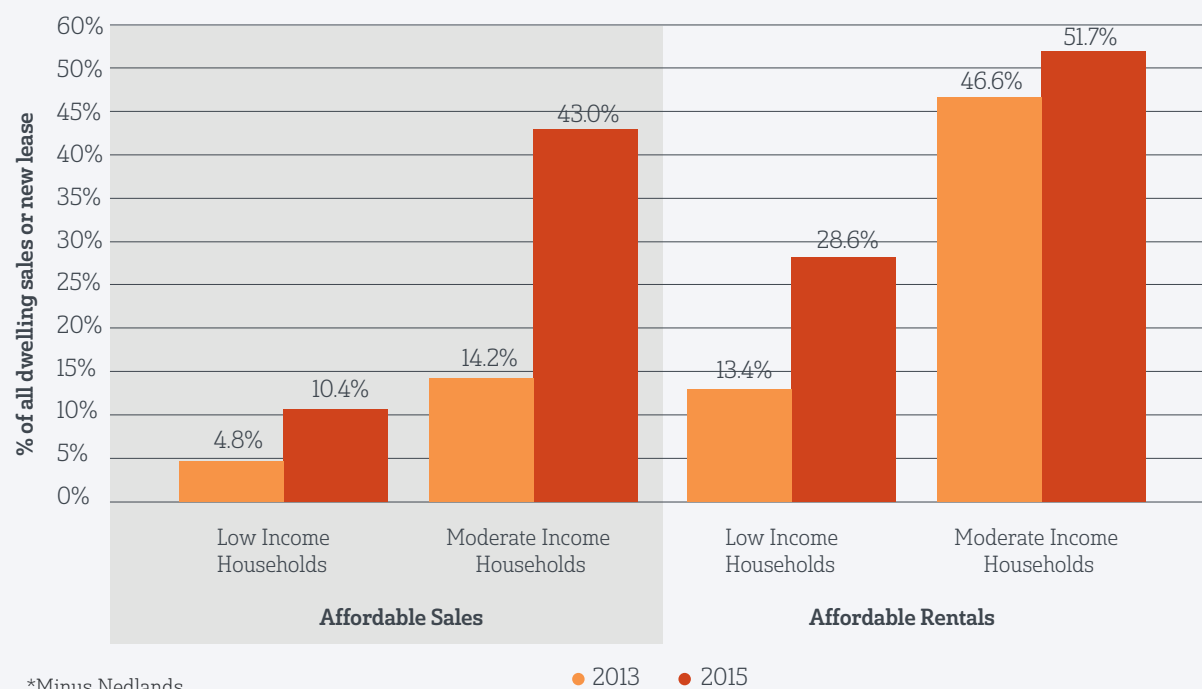
Between 2013 and 2015, the affordability of purchasing dwellings in Perth City (pre-July 2016) increased by 5.5% for low income households and 28.8% for moderate income households.^o

Affordable Rents

Between 2013 and 2015, the affordability of rentals in Perth City (pre-July 2016) increased 15.2% for low income households and 5.1% for moderate income households.^p

A 2016 report on rental affordability by Shelter Australia, Community Sector Banking and SGS Economics and Planning found improvements in rental affordability within the Inner Perth region due to increases in average household income of 6.6% between 2013 and 2015 across Greater Perth and a decline in median rents of 9.8% during the same period.⁴⁷

Figure 10 - Proportion of Affordable Dwelling Purchase & Rentals for Low and Moderate Income Households, Perth City, 2013 and 2015*



^o Calculations based on actual sales data and an assumption of 10% deposit and a interest rate of 4.63% over a 30 year loan).

^p Calculations based on actual rent price data from the Department of Commerce bond lodgements.

P2.2 BASIC AND ACUTE NEEDS

Having a home or safe place to live is a basic human need. Being homeless has numerous negative impacts such as making it harder to secure employment, maintain good physical and mental health and connect with others in the community.^{48 49}

The Australian Bureau of Statistics estimates a homelessness^a rate of 42.8 per 10,000 people in WA, slightly higher than both NSW (40.8) and Victoria (42.6).⁵⁰

In 2011, the ABS counted 783 people as homeless in Perth City SA2 (which includes adjacent suburbs in the City of Vincent but excludes Nedlands and Crawley).

In 2016, Ruah Community Services identified 319 rough sleepers in Perth City during their annual Perth Registry Week survey (76% of the total number identified across Greater Perth). Three-quarters of those counted as homeless agreed to be interviewed and it was found that 73% were men and the average age was 40 years old.⁵¹ Just as workers and visitors are drawn to the city, so are those experiencing homelessness.

Across Greater Perth the average duration of homelessness for youth participants in the Ruah Registry survey was 3 years, while for adults it was nearly 5 years^r. This result is influenced by the survey approach, which only includes those who are currently homeless.

The 2014 ABS Australia wide General Social Survey which included those who had experienced homelessness in the past (but were no longer homeless), found that only 28% had been homeless for six months or more.⁵²

In 2011, 416 households (4.0% of total households) in Perth City were living in public housing, compared with an average of 3.6% across Greater Perth. Over the last five years, a number of social housing dwellings have been built for people who were previously homeless and low income households such as St Bartholomew's Lime Street development (148 units), Foundation Housing's Bennett St development (70 units) and the City of Perth's Penny Lane apartments (48 units).

However, there is currently no data that provides a comprehensive picture of current or forecast demand and current and future supply of social and community housing, crisis or temporary accommodation in Perth City, or other infrastructure such as homeless day centres, facilities for storage of possessions and so forth.



Heirisson Skyline (Credit J Wyld)

^a The ABS defines a person as being homeless when they live in a dwelling that is inadequate or have no tenure, or if their initial tenure is short and not extendable or does not allow them to have control of, and access to space for social relations.

^r Mean average duration of homelessness. Median duration is slightly shorter.

P2.3 ACCESSING SERVICES

The ability to access local services which meet our needs is essential to our quality of life and the sustainability of our community.⁵³

Fair and equitable universal access to health and education services is generally regarded as fundamentally important in contemporary Australian society.

Given its important function as a capital city, Perth City has a broad range of health and community care support services, including those that cater for vulnerable and disadvantaged groups. Residents may benefit from easy access to these regional services.

A desktop survey identified the following community services in Perth City:

Figure 11 - Community Services, Perth City, 2016

Service	Number
Private hospitals	3
Public hospitals	1
General practice clinics	20
Crisis support (including homelessness and youth support) services	18
Counselling services	28
Mental health services	35
Drug and alcohol support services	16
Aboriginal health services	4
Women's health services	10
Disability support services	14
Disability supported accommodation services for people with disabilities	2
Job seeker support services [†]	9
Aged residential care facilities	2
Out of school hours care	1
Child care centres [‡]	5



Citiplace Child Care (Credit J Wyld)

There are three private secondary school colleges[‡] in Perth City, but currently no public schools offering kindergarten, primary or secondary education. Perth CBD is in the catchment of Highgate and West Leederville Kindergarten and Primary Schools, while the new areas of Crawley-Nedlands are serviced by Hollywood, Rosalie, Nedlands and Loreto-Nedlands Kindergarten and Primary Schools.

The City has two North Metropolitan TAFE campuses, the University of Western Australia main campus, Curtin University schools, and around 55 private training businesses offering a range of courses and education opportunities. In 2017, Central Queensland University will begin operation in the CBD.

[†] Note that this only includes those providers available via the Australian Governments Job Services Australia, referral and eligibility to access these services is via the Department of Human Services and is generally for those who receive income support payments due to unemployment.

[‡] There are no before or after school care or vacation care services for children in Perth City.

[‡] Trinity College offers primary education for boys from Year 4.

P3 HEALTH AND WELLBEING

The World Health Organisation defines health as *"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"*.⁵⁴

Individual wellbeing can be measured using people's subjective evaluation of themselves, based on their feelings, or by collating any number of observable attributes that reflect on their wellbeing.⁵⁵ Being in a state of good health and wellbeing assists an individual to engage with others and contribute to the sustainability of a community.

Examining the potential health and wellbeing of Perth City people is important because it enables us to gain an understanding of how well Perth is functioning, as a capital city. Wellbeing can be examined by looking at a set of characteristics which determine whether people are safe and secure, are included in city life and able to access the services they need, have the capacity to enjoy a healthy way of life and enjoy a long lasting connection to the City itself and the people they share the City with.

P3.1 HEALTH AND LIFESTYLES

Government health data is compiled by the place of a person's usual residence. Therefore, the data presented in this section represents the health of residents of Perth City and excludes the homeless community who are vulnerable to issues relating to physical and mental health (refer to the 'Basic and Acute Needs' section earlier).

Furthermore it is relative to the former boundaries of the City, before the inclusion of Crawley and Nedlands in July 2016. Perth City contains a number of regional health facilities (across a broad spectrum from hospitals, to general practice clinics to gyms) and places and spaces to engage in healthy activities, which are accessed by the daily visitor and worker population. However, the extent to which these factors influence the health and wellbeing of those individuals represents a gap in available data.

Individual health and wellbeing is impacted by a range of lifestyle factors, such as diet, drug and alcohol consumption and physical activity.

In 2012, residents and workers in Perth City were surveyed and the following key indicators of health behaviour were collected:⁵⁶

- 63.7% of respondents ranked their overall health as 'excellent' or 'very good'.

- 32.5% of respondents ranked their overall health as 'good' or 'fair'.^w
- 58.5% of respondents consume at least two serves of fruit per day.
- 9.1% of respondents consumed over 5 serves of vegetables per day.
- 30.2% eat takeaway food at least once per week.
- 3.5% smoke daily and 3.2% smoke occasionally.
- 12.9% of respondents never drink alcohol, while 25% did less than once a week. 28.7% of respondents drank alcohol on three or more nights per week.
- 53% of residents participated in more than 150 minutes of moderate physical activity in a typical week.

The rates of obesity, being overweight (but not obese) and hypertension (high blood pressure) are lower among Perth City residents compared to Greater Perth residents. The rates of individuals with high cholesterol are relatively consistent across the three comparison regions of Perth City, Greater Perth and other Greater Capital Cities.⁵⁷

Figure 12 - Prevalence of health risk factors, 18 years and over, Perth City (pre-July 2016)

	Perth City	Greater Perth	Greater Capital Cities
	<i>ASR* per 100*</i>	<i>ASR* per 100*</i>	<i>ASR* per 100*</i>
Obese	19.4	27.4	25.8
Overweight	35.0	37.2	35.3
Current high blood pressure	8.9	9.2	10.2
Current high cholesterol	34.7	34.7	32.8

* ASR refers to indirectly age-standardised rate

The rate of Perth City residents estimated to experience mental health issues is slightly higher than Greater Perth residents. From 2009 to 2012, there was a higher annual rate of avoidable deaths from suicide and self-inflicted injuries in Perth City and Greater Perth compared to other Greater Capital Cities. The rate of Perth City residents who are estimated to experience psychological distress from 2011-2013 was also comparable to Greater Perth and other Greater Capital Cities.⁵⁸

Figure 13 - Mental health indicators, Perth City (pre-July 2016)

	Perth City	Greater Perth	Greater Capital Cities
Estimated population with mental health issues ASR* per 100	15.7	14.0	13.1
Estimated population, aged 18 years and over, with high or very high psychological distress based on the Kessler 10 Scale (K10) ASR* per 100	10.3	10.5	10.6
Avoidable deaths from suicide and self-inflicted injuries, persons aged 0 to 74 years Average annual ASR* per 100,000	15.7	12.2	10.1

* ASR refers to indirectly age-standardised rate

P3.2 SAFETY

Personal security is a human right.⁵⁹ A safe and secure environment enables individuals to come together as a community and local businesses, shops, restaurants and services to function effectively. It enables children, older people, visitors and people with disabilities to move around freely.

Safety can be measured by the prevalence of violence, reported crime rates and perceptions of safety.

Violence

The Australian Bureau of Statistics (ABS) collects data on the prevalence of violence* in the community through the Personal Safety Survey (2012), although data is only available at State level. The Survey found that 93.2% of women and 91.4% of men did not experience violence in the last 12 months.⁶⁰ Although there is no valid data at the local level, it could be assumed that there may also be very low levels of violence in the Perth City community.

Reported Crimes

Reported crimes are violations of the laws that have been put in place to ensure individuals and the community are safe and secure. As such, levels of reported crime can be used as a proxy for

measuring safety. However, crime statistics are inherently difficult to analyse and should be used with caution - for example an increase in reported crimes may actually indicate increased policing rather an actual increase in criminal activity. This has been evidenced in the Perth Police Sub-District in 2016 with the introduction of police officer bike patrols in the City and surrounding suburbs allowing for faster response times and greater agility through city streets by police officers.^y

The rate of reported crimes appears to have peaked in 2014 at 9.6 reports per 1,000 residents followed by a 2015 rate of 7.7 per 1,000 residents (refer to Figure 14).

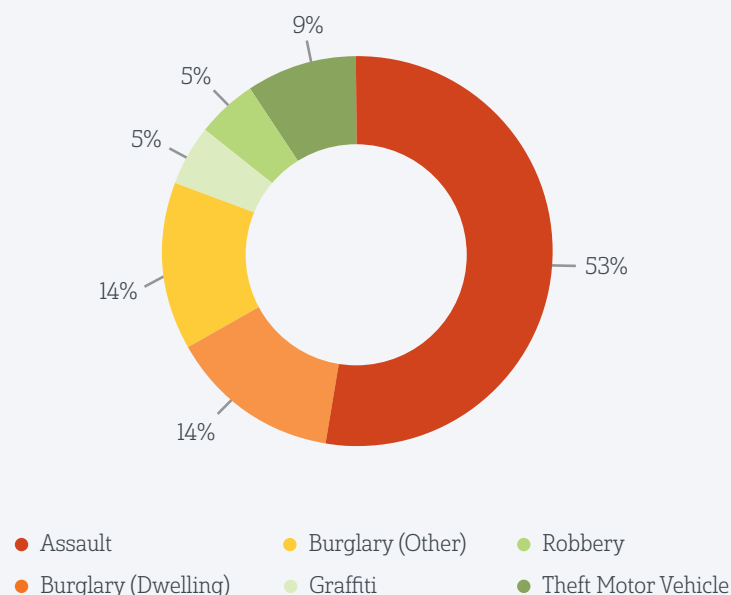
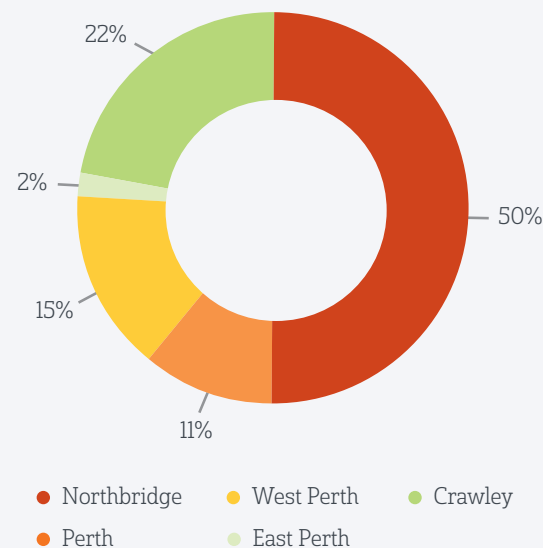
Figure 14 - Reported Crime Rate per 1,000 Residents, Perth City (pre-July 2016), 2011 to 2015

	Total Reported Crimes	Resident Population*	Rate Per 1000 Residents
2011	2,363	16,720	7.1
2012	2,330	19,366	8.3
2013	2,356	20,253	8.6
2014	2,152	20,629	9.6
2015	2,741	21,092	7.7



Northbridge (Credit J Wyld)

* The ABS define violence “as any incident involving the occurrence, attempt or threat of either physical or sexual assault experienced by a person since the age of 15” (Source - Australian Bureau of Statistics (ABS) 4906.0 - Personal Safety, Australia, 2012).
^y WA Police Briefing to East Perth Community Safety Group, July 2016

Figure 15 - Reported Crimes by Type, Perth City (pre-July 2016), 2011 to 2015**Figure 16 - Reported Crimes By Suburb, Perth City (pre-July 2016) 2011 to 2015**

Perceptions of Safety

Community perception of safety in Perth City was surveyed in the City of Perth's Safety City Survey (2014) which found overall the community felt safer during the day and less safe at night.⁶¹

- 78% of residents, 86% of visitors, and 83% of businesses (an average of 82%) felt "safe or very safe" during the day, and
- 38% of residents, 36% of visitors, and 34% of businesses (an average of 36%) felt "safe or very safe" at night.

Whilst respondents overall felt a lower level of safety at night, a higher proportion (28%) provided a neutral response (felt neither unsafe or safe) compared to 13% during the day.

The survey questions were relatively general and did not ask questions relating to perceived safety people felt in their homes, or moving about at night, as are asked in local government community indicator surveys in Victoria, for example.⁶²

Safety at Events

In 2015-16, there were no complaints received by the City of Perth regarding public health and safety at over 400 public events during the year, although one prosecution was launched due to a perceived breach of public safety in a public building, however it did not proceed.⁶³

FINDINGS

S1 COMMUNITY IDENTITY

1. The daily life of Perth City people is influenced by numerous interconnected factors such as individual income and debt levels, the cost of living and access to secure housing.
2. The resilience of individuals may be compromised at different stages of their life experience. We need a better understanding of Aboriginal people in the city, families with children, students and young workers, migrants and new arrivals, gender issues and the experience of people living alone and those facing disadvantage.
3. There is also a need to examine inclusion in the broadest sense to ensure that all people can freely participate in the City, regardless of age, race, ethnicity, gender identification, sexual orientation or religion.
4. Our adult population is relatively young; over 55% of the population is aged between 20 and 39 years.
5. One-third of the 10,350 households in the City of Perth consist of people living alone; a proportion which is comparable to the Cities of Melbourne and Sydney. A further 25% are couples without children. Over the period 2001-2011, the highest growth in households was couples without children (+34%) and lone person households (+27%).
6. A slightly lower proportion of residents volunteer in community groups or organisations relative to Greater Perth.
7. A low proportion of residents have lived in Perth for five years or more, which is a factor of population growth and the high turnover of residents due to the high proportion of rental accommodation. There is no data identifying the reasons why residents move out of Perth City.

S2 QUALITY OF LIFE

8. Perth City has a relatively low level of socio-economic disadvantage among residents. Many residents are high income earning and can afford to pay higher than average rents and mortgages. However, there is also a low income segment of the population and over 400 households in social housing.
9. The cost of living city is influenced heavily by the cost of housing, although some costs, such as transport, might be offset by living in the City where residents live and work locally, thus contributing to affordability.
10. In 2011, approximately 10% of households were considered to be experiencing housing stress (ie households in the lowest 40% of incomes paying more than 30% of their usual gross weekly income on housing costs). However, between 2013 and 2015 the affordability of housing for renting and purchasing for low and moderate income households improved.
11. Perth City has a large concentration of essential services that residents and visitors can access. Beyond essential services, the needs of residents require further investigation due to a lack of existing data.
12. Perth City has a homeless (rough sleeper) population who have acute / basic needs.

S3 HEALTH AND WELLBEING

13. The health and wellbeing of Perth City residents is generally in line with the Greater Perth population and the population of other Australian capital cities, however, mental health was poorer according to 2009-2012 data.
14. Perth City contains a number of regional health facilities (across a broad spectrum from hospitals, to general practice clinics to gyms) and places and spaces to engage in healthy activities, which are accessed by the daily visitor and worker population. However, the extent to which these factors influence the health and wellbeing of those individuals represents a gap in available data.
15. Crime and safety in Perth City is a focus of a number of City agencies and organisations. Increases in reported crimes can occur in response to increased police presence and activity. 78% of residents, 86% of visitors, and 83% of businesses felt safe during the day, while 38% of residents, 36% of visitors, and 34% of businesses felt safe at night.

REFERENCES

- ¹ Arup (2015) City of Perth Daytime Visitor Estimates (unpublished).
- ² Pers comms O'Brien, D August 2016
- ³ Martin, J (2014) Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study.
- ⁴ Profile.ID (2016) City of Perth Estimated Resident Population 2015. Available from <http://profile.id.com.au/perth>
- ⁵ Ruah Community Services (2016). Registry Week 2016 Report, Perth: s.n.
- ⁶ Australian Bureau of Statistics (2011) 2049.0 - Census of Population and Housing: Estimating homelessness, 2011 Available at www.abs.gov.au
- ⁷ Profile.ID (2016) City of Perth Population Forecast. Available from <http://forecast.id.com.au/perth>
- ⁸ Department of Employment (2016) Labour Market Information Portal. Available from <http://lmip.gov.au>
- ⁹ Profile.ID (2016), City of Perth Households renting social housing. Available from <http://atlas.id.com.au/perth>
- ¹⁰ Op cit Arup (2015).
- ¹¹ Op cit Richard Silburn, D. L. R. P. L. H., (1999) Neighbourhood Images in Nottingham: Social Cohesion and Neighbourhood Change, New York: Joseph Rowntree Foundation.
- ¹² Op cit Ruah Community Services (2016).
- ¹³ Department of Health (2016) Midwives Notification System. Extracted by: Epidemiology Branch, Department of Health.
- ¹⁴ Op cit Profile.ID (2016).
- ¹⁵ REMPLAN (2016) Economy, Output, Employment, From REMPLAN Data Available From: <http://www.remplanlogin.com.au/Economy>.
- ¹⁶ Australian Bureau of Statistics (2011 Census of Population and Housing. Available at www.abs.gov.au
- ¹⁷ Op cit Richard Silburn, D. L. R. P. L. H., (1999)
- ¹⁸ Australian Bureau of Statistics (2012) 2011 Census of Population and Housing - Working Population Profile (Catalogue number 2006.0).
- ¹⁹ Committee for Perth (2015) Filling the Pool. Available from <https://www.committeeforperth.com.au/assets/documents/CFP-Filling-the-Pool-Report.pdf>
- ²⁰ World Economic Forum (2015) Global Gender Gap Report 2015. Available from <https://www.weforum.org/reports/global-gender-gap-report-2015/>
- ²¹ Committee for Perth (2015) Filling the Pool. Available from <https://www.committeeforperth.com.au/assets/documents/CFP-Filling-the-Pool-Report.pdf>
- ²² Department of Local Government and Communities (2016) Women's Report Card 2015. Available from <https://www.dlhc.wa.gov.au/Publications/Pages/Womens-Report-Card-2015.aspx>
- ²³ Ibid.
- ²⁴ Australian Bureau of Statistics (2010) 4102.0 - Australian Social Trends, Dec 2010: Australian Households; The Future. Available from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20Dec+2010>
- ²⁵ City of Perth (2016) Disability Access & Inclusion Plan 2016 – 2020 (draft).
- ²⁶ Office of the Deputy Prime Minister (2004) The drivers of social exclusion: A review of the literature for the Social Exclusion Unit in the Breaking the Cycle series. London: ODPM Publications.

²⁷ Profile. ID (2016) City of Perth SEIFA - disadvantage by small area. Available from <http://profile.id.com.au/perth/seifa-disadvantage-small-area>

²⁸ Op. cit. Richard Silburn, D. L. R. P. L. H., 1999.

²⁹ Profile.ID (2016) City of Perth Migration Summary Available from <http://profile.id.com.au/perth/migration>

³⁰ Profile.ID (2016) City of Perth Estimated Resident Population 2015 (based on July 2016 boundaries) Available from <http://profile.id.com.au/perth/language?WebId=10>

³¹ Ibid.

³² Ipsos (2015) Perth Perception Survey, s.l.: Committee for Perth. Available from <https://www.committeeforperth.com.au/assets/documents/Perth-perceptions-survery-presentation.pdf>

³³ Scanlon Foundation Surveys (2015) Mapping Social Cohesion 2015 Available at <http://monash.edu/mapping-population/>

³⁴ Australian Bureau of Statistics (2006) 4102.0 Australian Social Trends 2006, Community Participation of People with a Disability Available at: www.abs.gov.au

³⁵ Ibid.

³⁶ Australian Bureau of Statistics (2004) Measuring Social Capital: An Australian Framework and Indicators. Available from [http://www.ausstats.abs.gov.au/Ausstats/free.nsf/Lookup/13C0688F6B98DD45CA256E360077D526/\\$File/13780_2004.pdf](http://www.ausstats.abs.gov.au/Ausstats/free.nsf/Lookup/13C0688F6B98DD45CA256E360077D526/$File/13780_2004.pdf)

³⁷ Profile.ID (2016) City of Perth Volunteer work. Available from <http://profile.id.com.au/perth/volunteering>

³⁸ OECD (2015) How's Life? Measuring Wellbeing Available from <http://www.oecd.org/australia/>

³⁹ Australian Bureau of Statistics (2013) 1370.0 Measures of Australia's Progress, 2013 Available from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/1370.0>

⁴⁰ Profile.ID (2016) City of Perth Equivalised household income. Available from <http://profile.id.com.au/perth/equivalised-household-income-quartiles>

⁴¹ Australian Bureau of Statistics (2016) Consumer Price Index June 2016: Capital Cities Comparison. Available from <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/6401.0Main%20Features3Jun%202016?opendocument&tabname=Summary&prodno=6401.0&issue=Jun%202016&num=&view=>

⁴² WACOSS (2015) Cost of Living Report. Available from http://www.wacoss.org.au/Libraries/P_A_Cost_of_Living_Cost_of_Living_in_WA_Papers/WACOSS_Cost_of_Living_Report_2015.sflb.ashx

⁴³ Ibid.

⁴⁴ WACOSS (2016) Cost of Living Report. Available from http://www.wacoss.org.au/Libraries/P_A_Cost_of_Living_Cost_of_Living_in_WA_Papers/WACOSS_Cost_of_Living_Report_2016.sflb.ashx

⁴⁵ Profile.ID (2016) City of Perth Housing Loan Repayments, 2011 and Housing Rental Payments, 2011. Available from <http://profile.id.com.au/perth>.

⁴⁶ REIWA (2016) Suburb Profile – Interactive map Available from <http://maps.reiwa.com.au>

⁴⁷ SGS Economics and Planning, National Shelter and Community Banking Sector (2016) Rental Affordability Index June 2016.

⁴⁸ Homeless Link UK (2016) Impact of Homelessness. Available from <http://www.homeless.org.uk/facts/understanding-homelessness/impact-of-homelessness>

⁴⁹ Homelessness Australia (2012) Keeping a home among the gum trees: Exploring risk of homelessness in 21st Century Australia. Available from http://www.homelessnessaustralia.org.au/images/Keeping_a_home_among_the_gum_trees_Risk_of_homelessness_policy_paper.pdf.

⁵⁰ Australian Bureau of Statistics (2012) 2049.0 Census of Population and Housing: Estimating homelessness, 2011

⁵¹ Ruah Community Services (2016) Registry Week 2016 Report Available from <http://www.ruah.com.au/registry-week-perth-2016-2/>

⁵² Australian Bureau of Statistics (2014) 4159.0 - General Social Survey: Summary Results, Australia.

⁵³ WACOSS (2008) WACOSS Model of Social Sustainability, Perth: s.n.

⁵⁴ World Health Organization (1946) Constitution of the World Health Organisation. New York:

⁵⁵ Australian Bureau of Statistics (2013) 1370.0 Measures of Australia's Progress

⁵⁶ City of Perth (2014) Public Health and Wellbeing Plan 2014-16 Community Consultation Report

⁵⁷ PHIDU Torrens University Australia (2015) Social Health Atlas of Australia, Western Australia, Data by Local Government Area available from <http://phidu.torrens.edu.au/social-health-atlases>

⁵⁸ Ibid.

⁵⁹ UN General Assembly (1948) Universal Declaration of Human Rights. s.l.:s.n.

⁶⁰ Australian Bureau of Statistics (2012) 4906.0 - Personal Safety, Australia, 2012. Available at <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4906.0Main%20eatures12012?opendocument&tabname=Summary&prodno=4906.0&issue=2012&num=&view=>

⁶¹ Knowledge Solutions (2014) Perth SafeCity Research Report for the City of Perth.

⁶² Community Indicators Victoria (2011) Perceptions of Safety Available from http://www.communityindicators.net.au/metadata_items/perceptions_of_safety

⁶³ City of Perth (2016) Public health data, unpublished

CHAPTER 4

CULTURE

UNESCO define culture as *"the set of distinctive spiritual, material, intellectual and emotional features of society or a social group, and that it encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs"*.¹

In its broadest sense, culture is the lens through which we view the world, framing our perceptions and interpretations. Cultural values are manifest in the actions, communications, exchanges and expressions of the community. In this way, culture is the key to understanding the contemporary context of Perth City and our capacity to influence and shape the future.

Culture has been identified as an essential pillar of sustainability,² because it is necessary to instigate change in the values that people hold, share and defend in order to achieve lasting changes in actions and behaviours. Consequently, cultural factors have a role to play in all areas of Perth City's development including economic growth, environmental sustainability, social cohesion and harmony, human freedoms and political stability.³

Despite its fundamental role in all that we do, our own culture is typically something that we are not aware of until we encounter cultural difference. This explains why our thinking about culture can often focus on "other" cultures, and is often associated with ethnicity and race. It also explains why some of our thinking about culture focuses on specialised cultural practices, such as traditional and religious practices, or the arts.

While these are important and highly visible aspects of culture, it is also vitally important to understand the everyday culture of Perth City. This is a key part of local identity, the image of Perth and the experience of our City, as perceived by visitors and the world at large.

In Australia cultural data collection has focused on the arts, and there is more limited access to good qualitative and quantitative data about everyday culture specific to Perth City.

C1 CULTURAL INHERITANCE

- C1.1** Indigenous Culture
- C1.2** Ancestry
- C1.3** Cultural Landscape

C2 CULTURAL DIVERSITY

- C2.1** Cultural Identities
- C2.2** Religious Affiliations and Beliefs
- C2.3** Everyday City Culture

C3 CULTURAL VITALITY

- C3.1** Presence and Visibility of Cultural Activity
- C3.2** Attendance and Participation in Cultural Activities
- C3.3** Cultural Production

FINDINGS

REFERENCES

C1 CULTURAL INHERITANCE

Cultural inheritance refers to the *“circumstances, cultural practices, and surroundings into which a human being is born. This can include customs, beliefs, traditions and values. Each person’s cultural inheritance varies greatly depending upon, among others, the era, the geographical location, as well as the socio-economic situation of one’s family.”*⁴ These things play a role in “shaping the quality, opportunities and direction of a person’s life.”⁵

Cultural inheritance can take **intangible** forms such as language, traditions and customs, spirituality, and everyday practices, such as cooking. Cultural inheritance is transmitted between generations and helps to maintain bonds within families and communities – and may include connections to other places. Intangible cultural inheritance is maintained and transformed through the everyday practices, some parts lost through disuse or altered through adaptation to changing environments and influences.

Cultural heritage refers to more **tangible** dimensions of cultural inheritance such as artefacts, buildings, monuments, landmarks and other places in the built or natural environment. *“Memory is transmitted and renewed by pointing to the features of the landscape. Thus*

*social memory is essential to creating a feeling of belonging to a place, and place in turn is essential in transmitting social memory”*⁶ Rapid, large-scale transformation like that occurring in Perth City can alter or diminish points of reference and connection to place for some in the community. It can also renew or create new places with social meaning that contribute to the ongoing evolution of culture and form cultural inheritance of the future.

While cultural inheritance references the past, it gives people in the present their bearings and sense of belonging and identity, and can serve as a resource for creativity and sustainability. Understanding how cultural inheritance is embraced, interpreted and conserved in Perth City, tells us important things about the cultural wealth of the City that we are looking after for future generations.



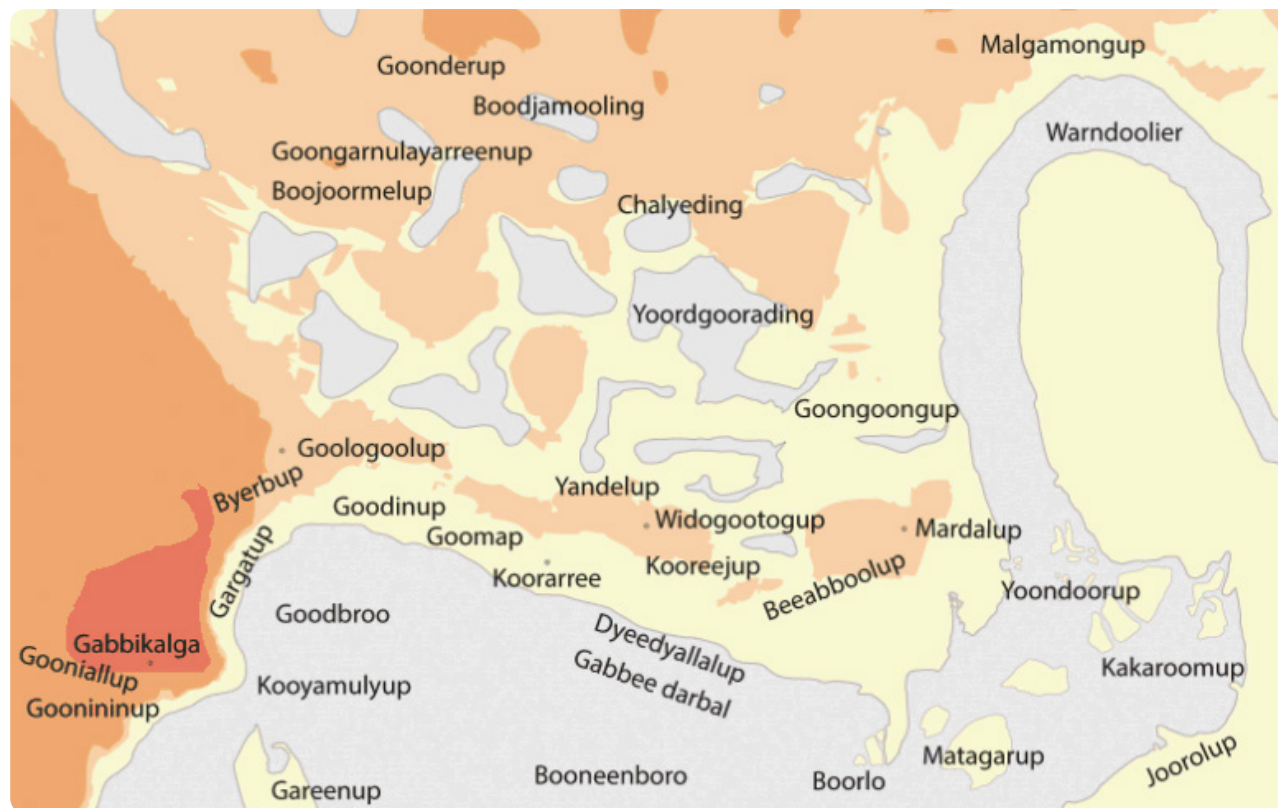
Kings Park (Credit Perth Convention Bureau)

C1.1 INDIGENOUS CULTURE

Perth City is located in the ancient country of the Whadjuk Noongar people, who have been the traditional custodians of the south west of Western Australia for at least 45,000 years.⁷ The geographical features and natural environment that was fundamental to Noongar culture and sustenance, has been substantially transformed by development of Perth City over the last 200 years.

*At the time of European settlement in 1829, areas surrounding what is now central Perth were known as Mooro, Beeloo and Beeliar by the Nyoongar nation – the indigenous people of the south-west of Western Australia. The Whadjuk Nyoongar, as the traditional owners of these lands, overlaid a rich culture into these places, which provided for everyday life.*⁸

Figure 1 – The Original Landscape and Noongar Place Names⁹



Note – place names are provisional and subject to further investigation from the South West Aboriginal Land and Sea Council (Source: Western Australian Planning Commission, 2016)

In 2016, the Noongar (Koorah, Nitja, Boordahwan) (Past, Present, Future) Recognition Act formally recognised the Noongar people as traditional owners of the south-west of Western Australia and:¹⁰

- *the living cultural, spiritual, familial and social relationship that the Noongar people have with the Noongar lands; and*
- *the significant and unique contribution that the Noongar people have made, are making, and will continue to make, to the heritage, cultural identity, community and economy of the State.*

The simultaneous proclamation of the Land Administration (South West Native Title Settlement) Act, the largest in Australian history, is the only one to include an Australian capital city.

Recognising, understanding and valuing Aboriginal histories and cultures form part of our shared identity and plays a fundamental role in reconciliation, and in 2016, the Council for Aboriginal Reconciliation's State of the Reconciliation in Australia report found:¹¹

- *Most Australians (72 per cent) believe Aboriginal and Torres Strait Islander cultures are important to Australia's national identity and agree that Aboriginal and Torres Strait Islander peoples hold a unique place as the First Australians (71 per cent).*

- *Australians’ knowledge of Aboriginal and Torres Strait Islander histories and cultures is limited (only 30 per cent are knowledgeable) but most Australians (83 per cent) believe it is important to know more.*

Aboriginal Heritage Sites

In 2016, there were 17 sites registered under the Aboriginal Heritage Act 1972 in Perth City. These are places of cultural and spiritual significance, linking the past and the present, where Wadjuk Noongar people met, camped, hunted and performed ceremonies.¹²

Place Recognition and Interpretation

In 2016, place recognition and interpretation of Aboriginal culture heritage in Perth City entailed:

- Yagan Square – naming of a major new cultural square in the heart of Perth City, designed in consultation with the Noongar community.
- Point Fraser – interpretation.
- Elizabeth Quay – interpretation, public art.
- Kings Park and the CBD - self-guided tours.
- Victoria Gardens – public art.
- Cathedral Square – public art.

Overall, there are limited tangible and visible references to Aboriginal cultural inheritance and connection to country in Perth City.

C1.2 ANCESTRY

Ancestry describes the ethnic origin or cultural heritage to which a person identifies and/or to which a person's forebears are/were attached. Ancestry therefore involves measures of self-identification of ethnic origin or cultural group affiliation or nationality as well as of descent from one or more particular groups.^{13 a}

Perth City’s diverse ancestry is fundamental to understanding our cultural inheritance. Since the early 19th century, Perth City has been shaped by exchanges between imported and ‘indigenous’ cultures. Our settlement as a British Colony has profoundly influenced contemporary culture and society, and forms a significant part of Perth City’s cultural inheritance. Subsequent patterns of migration, often influenced by global conflicts and economic conditions, have attracted European migrants such as the Netherlands, Italy, Greece and Germany, and recently larger proportions of migrants South East and East Asia.¹⁴

Residents

In 2011, 68 ethnic^b groups were identified by Perth City residents as forming part of their ancestry. The top 5 ancestries were English (23.9%), Australian (12.8%), Chinese (11.2%), Irish (8.8%) and Scottish (6.4%) and were identified in 63.7% of responses, forming the bulk of the resident population’s ancestry. There was little change in ancestry over the ten year period since 2001.¹⁵

Figure 2 – Ancestry As Identified by Residents, Perth City, Compared with Other Places, 2011 and 2011

Perth City (2001)	English (25.7%) Australian (18.0%) Chinese (14.4%) Irish (8.2%) Italian (3.3%)
Perth City (2011)	English (23.9%), Australian (12.8%), Chinese (11.2%), Irish (8.8%) and Scottish (6.4%)
Greater Perth (2011)	English (37.6%) Australian (30.1%) Irish & Scottish (8.3% ea)
City of Adelaide (2011)	English (27.4%) Australian (18.7%) Chinese (16.6%)
City of Melbourne (2011)	Chinese (21.3%) English (20.9%) Australian (15.8%)
City of Sydney (2011)	English (24.6%) Chinese (12.3%) Australian (17.7%)
Darwin metropolitan area (2011)	English (27.2%) Australian (21.9%) Irish (11.2%)

Data excludes ancestries with fewer than 20 responses, or less than 0.1% of the total population

^aThe Australian Bureau of Census (ABS) captures self-identified data about people's ancestry, asking for at least one, but not more than two generations (ie your parents and grandparents) (Source <http://www.abs.gov.au/websitedbs/censushome.nsf/4a256353001af3ed4b2562bb00121564/f31b4ddd4a48a2a8ca257a75002adec81OpenDocument>).

^bEthnicity refers to the shared identity or similarity of a group of people on the basis of one or more factors. The ABS use the Australian Standard Classification of Cultural and Ethnic Groups to classify ethnic groups (Source - <http://www.abs.gov.au/ausstats/abs@nsf/mf/1249.0>)

Workers & Visitors

Perth City attracts a large number of people into the City each day. On a typical weekday, there are an estimated 205,750 (including around 134,000 workers), students and visitors in the Perth CBD and over 25,000 staff, students and visitors at UWA and QEII Medical Centre.^{17 18 19} As such, the ancestry of Perth City's visitor community forms a substantial part the City's cultural inheritance.

The ancestry of all visitors is not known, however data is available on the ancestry of the City's workforce.

In 2011, Perth City workers identified 196 ethnic groups as part of their ancestry.²⁰ The top 3 ancestries were English (38.4%), Chinese (6.5%) and Irish (6.3%) and these were identified by 69,500 workers (or 52% of the workforce). Australian ancestry was nominated by 15.2% of the workforce.

C1.3 CULTURAL LANDSCAPE

The cultural landscape refers to the tangible aspects of Perth City's cultural inheritance. Heritage places form the most obvious and visible component, although other aspects of the City's urban fabric contribute such as places of commemoration, places named after people or events and historical / heritage archives/records and collections.

There is a balance to be struck in conserving Perth City's cultural heritage.

The loss of cultural heritage is largely irreversible, as the unique characteristics of a place and the connections that it has for people are reliant on that place maintaining a presence in living memory and in the present day. But conservation must be balanced with the recognition that contemporary culture is a living and evolving thing and should be provided with room to grow and develop, as this too, is a part of the cultural heritage we leave for future generations.

Places of Cultural Heritage Significance

Cultural heritage significance means the relative value which that place has in terms of its aesthetic, historic, scientific, or social significance, for the present community and future generations". Significance and special interest can be associated with distinctiveness, scarcity, landscape, cityscape, historic people, events, discoveries or cultural phases, notable examples for educational, architectural or archaeological reasons, intrinsic artistic enrichment, held in high public esteem or sentiment, or contribution to knowledge and research.

"Places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to the lived experiences. These are historical records that are important as tangible expressions of Australian identity and experience. Places of cultural significance reflect the diversity of our communities,

telling us about who we are and the past that has formed us and the Australian landscape".²¹

The Heritage of Western Australia Act 1990 guides assessment and conservation of places with cultural heritage significance through registration (ie listing) on the State Register of Heritage Places

The Planning and Development (Local Planning Schemes) Regulations 2015 (Deemed Provisions) guides assessment and conservation of places of local significance and/or a Local Government Planning Scheme Heritage List.

Registered Places

In 2016 in Perth City, there were:

- 467 heritage places and 3 heritage areas (ie precincts, containing 97 places of significance) on local heritage lists under the control of the City of Perth.
- 64 heritage places on local heritage lists under the control of the Metropolitan Redevelopment Authority (Perth City area only).
- 151 heritage places on the State heritage list.

Note - a heritage place may appear on more than one list (ie there is some overlap in the numbers).^{d 22}

^c "Place" is defined as "means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions" (source - The Burra Charter – Australian ICOMOS 2013).

^d Note the City of Perth is currently auditing and clarifying the accuracy of registered places, and transferring all data to an on-line heritage portal (database). As such, at this point in time, the number of registered places is a best estimate but considered reasonably reliable.

^e Yagan was a Noongar leader and resistance fighter during the early years of the Swan River Colony (Source - <http://www.noongarculture.org.au/yagan/>)

In addition to buildings dating from the Swan River settlement such as the Perth Gaol (built 1853-54 and part of the WA Museum complex), Government House (1860) and the Perth Town Hall (1867-1870), there is a diversity of heritage places listed including a statue of Yagan^e, Jacobs Ladder, the Workers' Embassy adjacent Parliament House, former tram stop poles, sewer vents and electrical sub-stations, Gloucester Park, city parks including Stirling Gardens (1836) and Victoria Gardens (1876) and significant street trees.

As noted early in Cl.1 there are 17 registered places of Aboriginal significance in Perth City.

Heritage Demolition / De-Listing

In the 15 year period from 2001 to 2016, only 2 registered places (on the City of Perth's Heritage List) were demolished in their entirety. At present, information relating to demolitions on other heritage lists (ie Metropolitan Redevelopment Authority, or State Register) is unknown.²³

There have been no de-listings.

Potential Cultural Heritage Significance

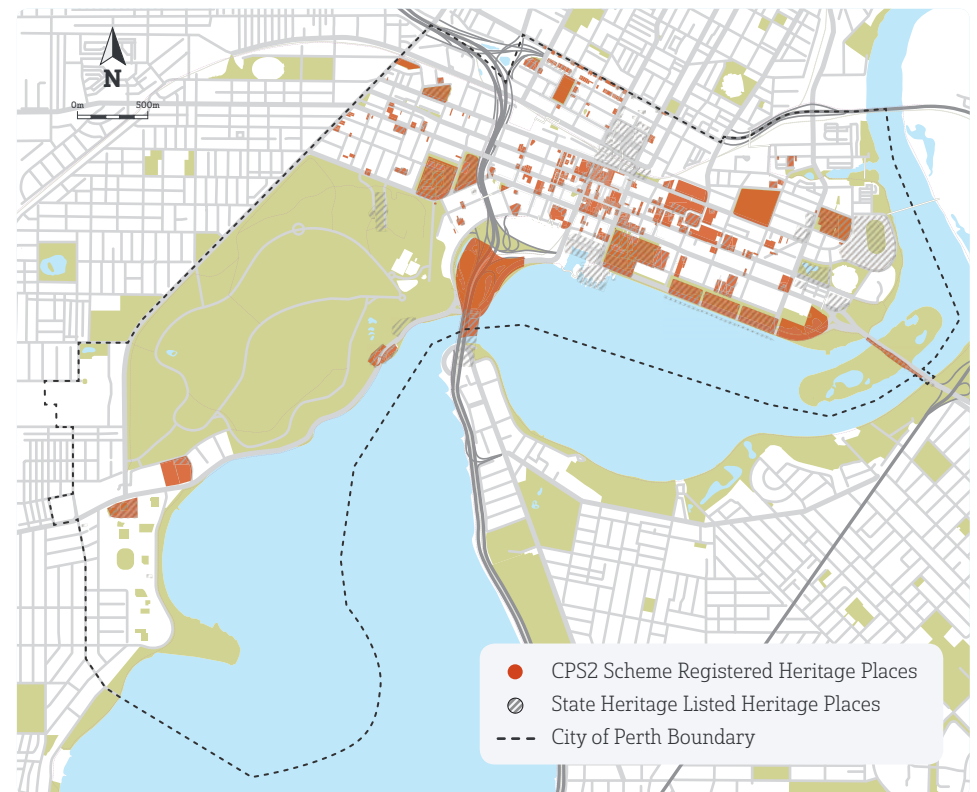
In 2016, there are over 300 places in Perth City being progressively assessed for cultural heritage significance.²⁴ These places were identified on the City of Perth's 2001 draft heritage inventory^f which originally contained 867 places.

Heritage Building Condition

There is no data or information that provides a comprehensive picture of the condition of Perth City's registered cultural heritage places, although an external building condition survey was carried out in 2015 which provides some insight.

In 2015, 302 buildings that are registered places (comprising the total of all actual buildings registered, with the balance of heritage places being non-building features) were inspected and 294 'passed' ie the exterior condition met the maintenance expectations of the City of Perth to maintain the cultural heritage integrity of the exterior, which is around 45% of total registered heritage places.^{25 g}

Figure – 3 – Indicative Location of Registered Cultural Heritage Places, Perth City, 2016.



^f Note, the draft heritage list does not possess any statutory control over development, however it is made under Section 45 of the Heritage of WA Act which requires "A local government shall compile and maintain an inventory of buildings within its district which in its opinion are, or may become, of cultural heritage significance".

^g Note - The survey was mainly conducted for compliance with heritage agreements made under the City of Perth's heritage concession rate scheme and involved an external visual examination only.

Commemorative Works

More intangible aspects of Perth City's cultural inheritance have been given a physical presence in Perth City in the form of memorials, monuments and plaques.

In 2016, there were 477 memorials, monuments and plaques in Perth City (pre-July 2016) comprising:²⁶

- 53% (252) commemorate sites, events, and social developments of significance to Perth City
- 47% (225) commemorate people recognising their contributions to an aspect of Perth City's history
- 2% (10) commemorate Indigenous subjects, and
- 4% (18) commemorate Culturally and Linguistically Diverse (CALD) subjects.

Relatively few of Perth City's commemorative works are themselves historical items. Most have only been placed in the City since the late 1970s, yet despite this relatively recent commemoration, recognition is not necessarily evenly distributed across cultural themes.

Figure 4 - Commemorative Works Celebrating People by Subject Area, Perth City (pre-July 2016, including Kings Park), 2016

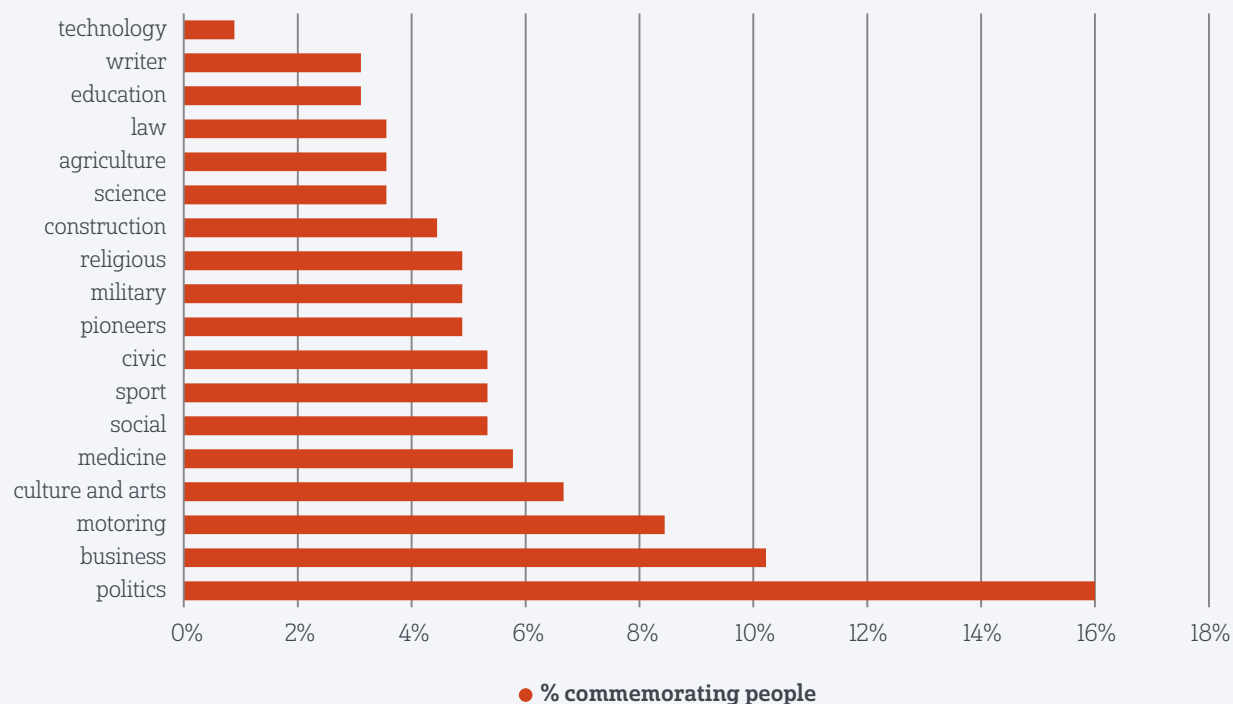
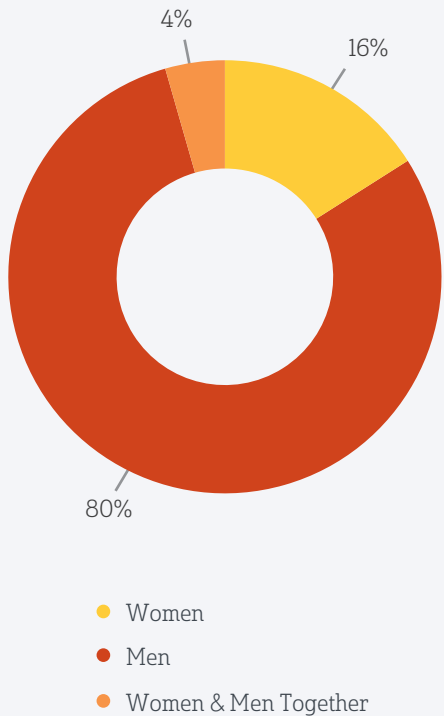


Figure 5 - Works Commemorating People by Gender, Perth City (pre-July 2016), 2016



Historical Archives and Collections

The cultural inheritance of Perth City, Greater Perth and Western Australia is preserved and made accessible to the community, visitors or researchers through archives and collections of documentary and archival records, artefacts, scientific specimens and works of art.

Perth City is home to a number of institutions involved in managing this cultural inheritance, although a full audit of institutions and collections has not been carried out.

Such places include (not an exhaustive list):

- State Records Office of Western Australia
- State Library of Western Australia - Alexander and Battye Libraries
- Western Australian Museum
- Berndt Museum of Anthropology and Edward de Courcy Clarke Earth Science Museum at UWA
- Museum of Performing Arts
- Art Gallery of Western Australia
- Perth Observatory & National Trust
- Royal Perth Hospital museum, art collection and Emeritus Consultant biographies
- City of Perth History Centre and Art Collection

Place Names, Landmarks and Interpretation

Perth City’s cultural inheritance is also visible through place facility names, iconic landmarks and interpretive materials/trails. There is currently no data or information that provides a comprehensive picture of these items.



State War Memorial, Kings Park 2016 (Credit Graham Miller)

C2 CULTURAL DIVERSITY

The United Nations Educational, Scientific and Cultural Organization World Report on Cultural Diversity (UNESCO 2009) outlines the following key points about cultural diversity:²⁷

- Cultural diversity is a fact in the contemporary world, where **a whole range of distinctive cultures coexist**.
- Cultural diversity can be viewed positively, **connecting all humanity** through enriching processes of exchange.
- **Cultural diversity can also play a divisive role** through a focus on the difference between peoples, and assertions of identity and perceived threats to communities, leading to conflict.
- **Cultural diversity is inclusive of change**, and identities, communities and societies can be **understood as works in progress** in the process of accommodating diversity.

These ideas are important touchstones for understanding the cultural diversity of Perth City.

Understanding the character of cultural diversity represented in Perth City's residents, workers and visitors is the first step in looking for signs that this diversity is 'at home' in Perth City. Information that tells us about places where cultural diversity is accommodated in the built environment, or about the activities that culturally diverse people engage in, helps to illustrate the extent to which there is equality and freedom amongst diverse cultures.

C2.1 CULTURAL IDENTITIES

The extent and diversity of cultural identity can be examined through the proportion of migrants (ie overseas born) residing and working within Perth City, the diversity of birthplaces (other than Australia) and the extent and diversity of languages spoken in the community.

Overseas Born

Residents

In 2011, 52.6% of Perth City residents (or 10, 290 people) were born overseas (from 54 countries), in comparison to an average of 34.4% across Greater Perth which is a higher proportion of overseas born than the Cities of Melbourne (47.5%), Sydney (42.4%) and Adelaide (40.7%).²⁸

In 2011, 47.5% of Perth City's residents were born in English speaking countries including Australia.

In 2011, four suburbs in Perth City were in the top 10 suburbs in Greater Perth with high proportions of overseas born - Northbridge (67.7% of residents in suburb), Crawley (61.6%), East Perth (60.9%) and Perth (57.3%), reflecting a national trend of overseas born preferring to live in or close to the inner city or close to universities.²⁹

Between 2001 and 2011, Perth City attracted an additional 5,762 overseas born residents, an increase of 127%, reflecting strong in-migration and population growth across Greater Perth, resulting from increased economic activity and jobs growth associated with the mining and energy sectors. During this period, the number of overseas born across Greater Perth increased by 51%.

Figure 6 – Overseas Born and Birthplace, Residents, Perth City Compared with Other Places, 2011*

	Australian Born %	Overseas Born %	Top 3 Places of Birth (Excluding Australia)		
Perth City	32.3%	52.6%	United Kingdom: 8.3%	Malaysia: 4.3%	China: 3.8%
Greater Perth	59.7%	34.4%	United Kingdom: 11.4%	New Zealand: 3.1%	South Africa: 1.7%
City of Adelaide	49.8%	40.7%	China: 8.4%	United Kingdom: 5.5%	Malaysia: 4.7%
City of Melbourne	41.1%	47.5%	China: 8%	Malaysia: 5.5%	United Kingdom: 3.6%
City of Sydney	44.0%	42.4%	United Kingdom: 5.7%	China: 5.5%	New Zealand: 3.3%

* Note – countries registering less than 20 responses are not included.



Northbridge Piazza

Workers

In 2011, 44.4% of Perth City workers (or 74,608 people) were born overseas (from 173 countries). A total of 76.9% of Perth City workers are born in English speaking countries (including Australia).³⁰

Figure 7 - Overseas Born by Year of Arrival in Australia, Perth City (pre-July 2016) Compared With Greater Perth, 2011

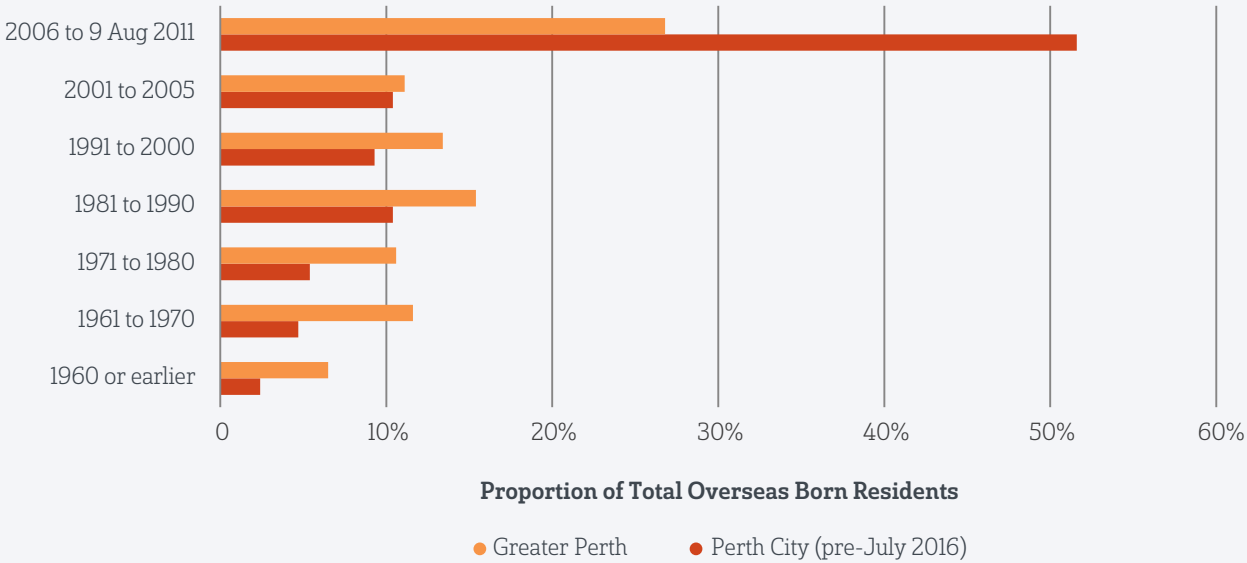


Figure 8 – Overseas Born and Birthplace, Workers, Perth City Compared With Other Places, 2011

	Australian Born %	Overseas Born %	Top 3 Countries of Birth (Excluding Australia)
Perth City	55.0%	44.4%	- England: 11% - New Zealand: 3.1% - Malaysia: 2.8%
Greater Perth	59.7%	39.4%	- England: 11.2% - New Zealand: 3.8% - South Africa: 2.3%

Based on the data above, the cultural diversity of Perth City's residents and workers can be summarised as follows:

- There is a slightly higher proportion of overseas born residents (52.6%) than workers (44.4%), although given there are many more workers in Perth City than residents, the actual number of overseas born workers is higher (74,608 people) and from a much wider diversity of countries of origin than residents.
- There are more residents born overseas (52.6%) than born in Australia (32.3%).
- There are fewer residents born in English-speaking countries, including Australia (47.5%) than non-English speaking countries.
- There is a significantly higher proportion of overseas born residents (52.6%) compared with Greater Perth (34.4%).
- There are fewer workers born overseas (44.4%) than born in Australia (55.0%).
- There are significantly more workers born in English speaking countries, including Australia (76.9%) than non-English speaking countries.
- There is a significantly higher proportion of overseas born workers (44.4%) compared with Greater Perth (39.4%).

Perth City is a city of migrants from a diverse range of cultures.

Speaks A Language Other than English Residents

In 2011, 32.9% of Perth City residents spoke a language other than English (at home), compared with an average of 16.7% across Greater Perth. The proportion increased from 27.7% in 2001 (+5.2%).

The top 3 languages were Mandarin (6.6% of residents), Cantonese (2.7%) and Indonesian (1.6%), in comparison to the top 3 across Greater Perth – Italian (1.6%), Mandarin (1.5%) and Cantonese (1%).

The proportion of residents speaking Mandarin and Cantonese in Perth City was slightly less than other capital cities.

Workers

In 2011, 20.1% of Perth City workers spoke a language other than English (at home).³¹

The top 3 languages were Mandarin (2.4%), Cantonese (1.7%) and Italian (1.2%), in comparison to Greater Perth – Mandarin (1.6%), Italian (1.5%) and Cantonese (1.2%).

Aboriginal and Torres Strait Islanders

In 2011, 0.8% of Perth City (pre-July 2016) residents identified as Aboriginal or Torres Strait Islander, compared with 1.6% across Greater Perth^h, or 3.1% across Western Australia.^{32 h}

Data relating to the proportion of Aboriginal people working in Perth City is not readily available.



City Crowds, Central Park

^h Greater Perth is home to 38.9% of the total population of Aboriginal and Torres Strait Islander people in Western Australia.

C2.2 RELIGIOUS AFFILIATION AND BELIEFS

There are many kinds of cultural traditions that people practise at home, amongst family and friends and at community gatherings and celebrations. At present there is no comprehensive set of data or information that provides a detailed picture of the diverse cultural traditions practiced by the Perth City community (residents, workers or visitors) which underpin Perth City’s cultural diversity.

In the absence of comprehensive data, religious identity has been given special consideration, although it should be noted it only provides a limited insight into the cultural practices of Perth City’s community.



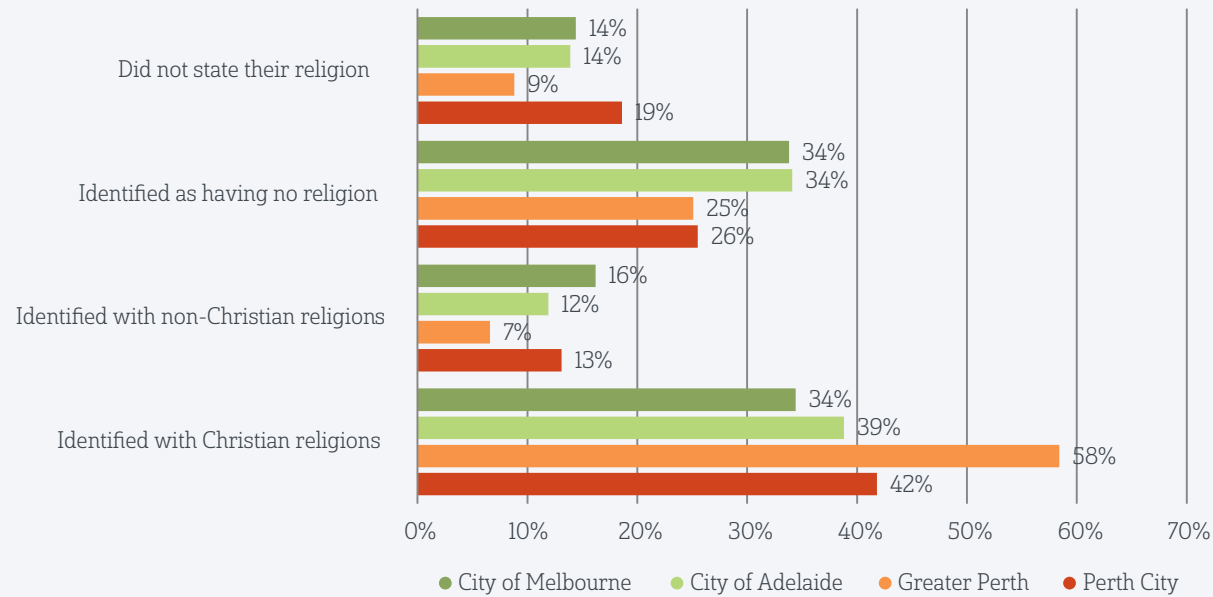
City Crowds

Religious Identity

Between 2001 and 2011, there was a 7.2% shift towards those believing in ‘no religion’, increasing from 19.2% to 26.4% of Perth City residents.³³ Even though this shift is consistent with other capital cities, Perth City has a noticeably lower proportion of those identifying as having ‘no religion’ compared to the Cities of Adelaide and Melbourne. Furthermore, although there are fewer people in Perth believing in ‘no religion’ than in other Australian capital cities, Perth City is considerably more diverse in terms of religious groups.

Data on the religious identity of workers has not been investigated, although it may reflect the religious identity of Greater Perth given the wide catchment of workers attracted to the City.

Figure 9 - Religious Affiliation and Beliefs, Residents, Perth City Compared With Other Places, 2011



Religious and Spiritual Practices

It should be noted however, that religious identification does not necessarily translate into religious practice. At present there is no comprehensive set of data or information that provides a detailed picture of the religious and spiritual practices of the Perth City community (residents, workers or visitors).

Public places of worship

Public places of worship often command an impressive physical presence and location within the City landscape in the form of buildings (and other sites) dedicated as places of worship and community gatherings for people of different faiths.

In 2016, there were 20 dedicated places of religious worship in Perth City, and all are for Christian services of different denominations, some of which are likely to have a regional catchment, such as St Georges Cathedral and St Marys Cathedral.³⁴ There are no purpose-built, non-Christian places of worship in Perth City. However, some institutions in Perth City make formal and informal provision for people of different faiths through chapels, shrines, prayer rooms and other contemplative spaces.

Travel from one's place of residence to a place of worship may be a common feature of belonging to a community of faith, as non-Christian residents of Perth City need to travel to their places of worship, while many Christians, not resident in Perth City, may travel to be a part of congregations in Perth City. Additional data collection and analysis would shed further light on these communities and their practices.

Figure 10 – Religion, Perth City Residents Compared With Other Places, 2011³⁵

	% of Residents	% of Greater Perth Population	Number of Places of Worship in Perth City	Private Education Institutions	Road Distance to Nearest Place of Worship *
Christian (various denominations)	41.3%	24.4%	20	3	-
Buddhism	5.1%	2.5%	0	-	3.3km
Islam	4.3%	2.1%	0	-	2.0km
Hinduism	3.1%	1.1%	0	-	7.0km
Judaism	0.6%	0.3%	0	-	6.3km
Sikhism	0.3%	0.3%	0	-	7.2km
Baha'i	0.2%	0.1%	0	-	13km
Other Non-Christian	0.2%	0.1%	0	-	-

* Distance measured from Council House, 27 St Georges Terrace, Perth.

C2.3 EVERYDAY CITY CULTURE

The ‘everyday culture’ of Perth City is influenced by the people who visit the City on any given day (ie workers, residents, students, tourists, and those accessing services and leisure opportunities). An understanding of Perth City’s everyday culture requires an understanding of the motivations or reasons people visit and live in Perth City and the cultural diversity of all of these people.

At present, there is a key gap in data and information that provides a sufficiently detailed and nuanced profile of visitors and the current and evolving ‘everyday culture’ of Perth City. Data is necessary to fully appreciate, understand and maximise the social and economic benefits derived from the whole range of distinctive cultures and fulfil Perth City’s role as the capital of Western Australia by giving the community the freedom to hold, express and practice their diversity of cultural values.

Despite the absence of comprehensive data, there are a number of sources of information that provide some insight into the ‘everyday culture’ of Perth City.

In 2015, an estimated 205,750 people come to the Perth CBD on a daily basis (weekday, daytime).³⁶ However, since this time, the City of Perth has expanded its boundaries to include the University of Western Australia and the Queen Elizabeth 2 Medical Precinct which together, attract around

25,000 students, staff, patients and visitors during a typical week day.^{37 38}

The 2015 study identified the reasons for being in the City by predominant type of ‘visitor’ :

- workers (who live outside Perth City) comprise 65% of visitors.
- workers (who live and work live in Perth City) comprise 3% of visitors.
- students comprise 7% of visitors.
- intrastate visitors comprise 24% of visitors (ie accessing services, shopping etc. mostly people from Greater Perth)
- interstate and international visitors comprise 3% of visitors (assuming mostly leisure and business tourists).ⁱ

It should be noted, the 2015 study did not estimate the number and profile of people visiting the City at night, on weekends or for special events and times of year (eg Christmas shopping period).

Work and business activities

Despite the absence of accurate estimates of Perth City’s ‘visitor’ population, it is clear the vast majority of people in Perth City during the week come for work. As such, work activities are clearly the dominant cultural practices in Perth City and this forms a key part of the City’s identity from a local, regional and State perspective.

Leisure, entertainment and social /cultural experiences
In 2014, a survey of Greater Perth residents identified activities undertaken by visitors to Perth City (pre-July 2016) in a 3 month period prior to the survey, and their intended future visitation. The survey found:³⁹

Figure 11 – Visitor Activities (Surveyed), 2014		
	Activity UNDERTAKEN in 3 months before survey	Activity LIKELY to undertake in 3 months after survey
Outdoor Spaces	17%	47%
Food and Beverages	11% - 39%	35%
Ticketed Live Events	13%	27%
Shopping	4% - 28%	26%
Galleries, Museums, Libraries	6% - 9%	19%
Tourist Attraction	9%	18%
Accommodation	6%	12%

ⁱ Note – this figure also takes into account the number of people that visit Kings Park

More specifically, the top 4 'intended' future activities to be undertaken in Perth City (pre-July 2016) by survey respondents were:

- casual dining 56%
- use of outdoor space 47% (mainly Kings Park, River foreshore areas vs city squares)
- shopping at a chain outlet 43%
- drinks at bars and pubs 39%

The activities provide an indication of the 'everyday culture' present in Perth City.

Tourists

In 2016, approximately 880,000 international visitors came to Western Australia in the 12 months prior to March 2016 (12.3% of all international visitors to Australia in the same period).⁴⁰

Figure 12 - Visitors of the Top 20 International Markets to Western Australia, Year Ending June 2016

Rank	Country of Residence	% of all International Visitors to WA
1	United Kingdom	17%
2	Singapore	11%
3	Malaysia	10%
4	New Zealand	9%
5	United States of America	8%
6	China	5%
7	Germany	4%
8	Indonesia	3%
9	Japan	3%
10	South Africa	2%



Bocelli's Espresso



Busker, Twilight Hawkers Market

C3 CULTURAL VITALITY

*Cultural vitality is the evidence of creating, disseminating, validating, and supporting arts and culture as a dimension of everyday life in communitiesarts and culture are resources that come out of communities rather than merely resources that are “brought to” communities from the outside.*⁴¹

Cultural vitality is the energy that ensures local culture is active, responding to, and influencing change in Perth City. Present day cultural vitality will enhance the richness of local cultural inheritance for future generations, as well as make Perth City an exciting place to be.

Cultural vitality can be found in:⁴²

- the presence of opportunities for cultural participation
- participation in arts and culture
- support for cultural participation

The presence of opportunities for cultural participation can be seen in the availability and access that people have to cultural infrastructure and to cultural activities within Perth City throughout the year. Participation is evidenced by the information that we have about audiences for cultural activities and

events and also the involvement that people may have in culture as creative practitioners or employees. Signs of support for cultural participation can be seen in the extent of volunteering within the culture and heritage sector, tourist demand for culture and heritage experiences and figures that demonstrate the economic viability of the sector.



City Buskers

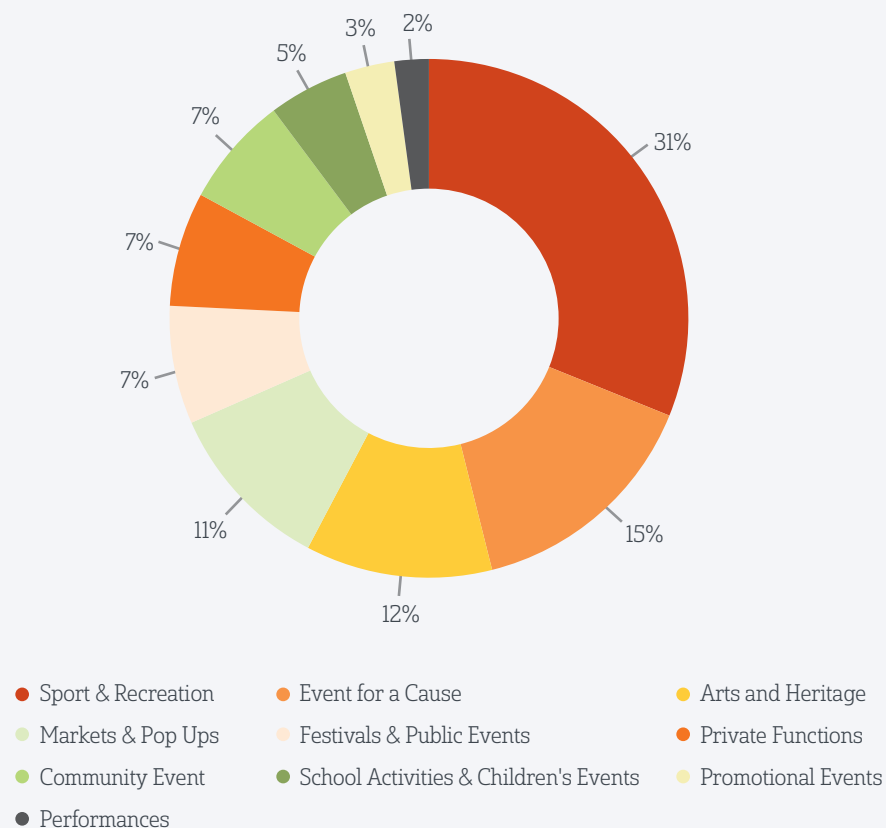
C3.1 PRESENCE AND VISIBILITY OF CULTURAL ACTIVITY

Visible signs of a city's cultural life can be observed in the way that its streets, urban open spaces, and green spaces are occupied and used by the community. Perth City's public open spaces and multipurpose facilities provide important places for events and activities that contribute to the cultural vitality of the city.

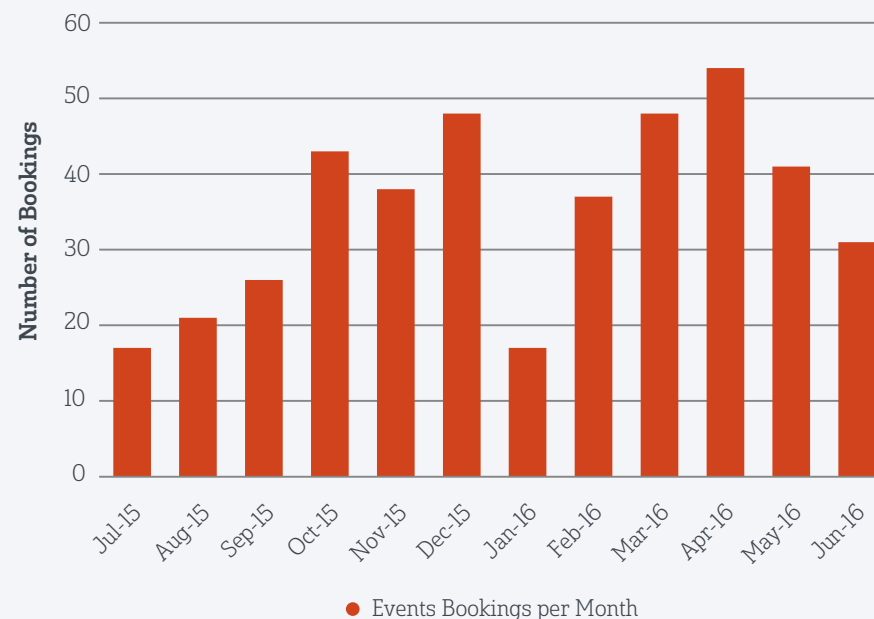
Events in Public Spaces

In the six months prior to 30 June 2016, the Murray Street Mall was booked for 66 events/activities and Forrest Place was booked for 45 events/activities.⁴³

In 2015-16, there were an estimated 421 bookings for various events and activities in Perth City's (pre-July 2016) urban and green open spaces (note – data does not include the Malls or Forrest Place).⁴⁴

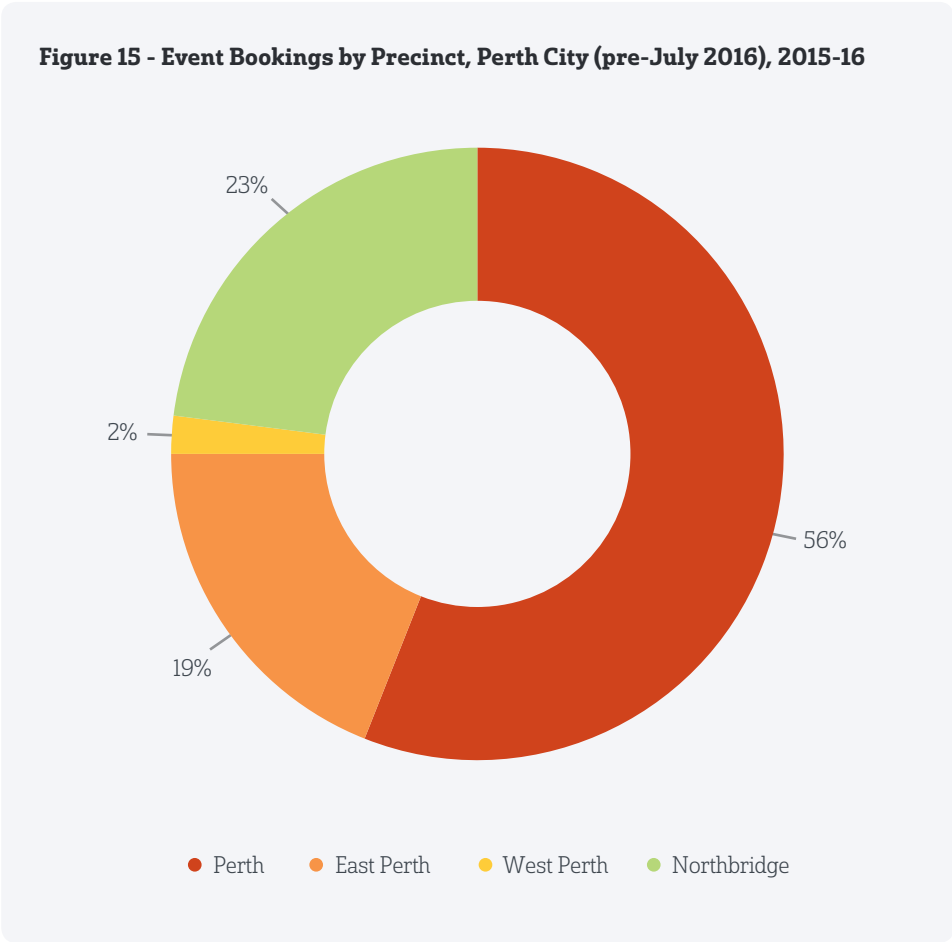
Figure 13 - Events By Type, Public Spaces, Perth City (pre-July 2016), 2015-16

Note that outdoor, sports and recreational activities and events account for more than twice as many bookings in comparison with any other events. Other prominent activities include Events for a Cause (15%), Arts and Heritage Events (12%) and Markets and Pop Ups (11%).

Figure 14 - Event Bookings per Month, Perth City (pre- July 2016), 2015-16

Understandably, event bookings in public open spaces are concentrated in months where Perth City's weather is at its best, with one anomaly being a low point during January. Factors influencing the low point may include the impact of the holiday period after Christmas and the New Year, and possibly a monopoly on bookings for public spaces for events associated with the Fringe World Festival and the Australia Day Sky Works, although the cause of the low point require proper investigation.

The geographical distribution of these events booked in Perth City shows the domination of the CBD for events.



The top ten sites for event bookings are:

Figure 16 – Top Ten Sites in Public Spaces, Perth City (pre-July 2016), 2015-16

	Number of Event Bookings	% of all events bookings
Perth Cultural Centre	77	18%
Langley Park	65	15%
Elizabeth Quay	53	13%
Barrack Square Jetty	27	6%
Wellington Square	27	6%
Stirling Gardens	21	5%
Victoria Gardens	19	5%
Russell Square	15	4%
Central Business District	13	3%
Ozone Reserve	11	3%
All 30+ Other Public Spaces	93	22%
Total	421	100%

Public Art

The presence of public art in public spaces throughout the city is another highly visible sign of creative and cultural activity in Perth City that is accessible to all, and in some instances it is evidence of a commitment to consider and include cultural works as an integral part of development in the city.

At present there is no comprehensive set of data that provides an accurate estimate of the total number of public art works in Perth City. As such, the figures below are estimates only and are highly likely to be under-counts.

In 2016, there was an estimated:

- around 150 works of public art.
- over 130 pieces of street art and murals, mostly concentrated in central Perth including Barrack Square and Elizabeth Quay and in East Perth, with a large number of murals and street art in Northbridge.

C3.2 ATTENDANCE AND PARTICIPATION IN CULTURAL ACTIVITIES

Attendance

In addition to examining everyday cultural activities in public spaces, it is also useful to examine a more limited set of cultural practices that occur in dedicated cultural facilities in Perth City. Perth City is home to many of the State's premier cultural facilities, including the Art Gallery of Western Australia, the Western Australian Museum, the State Theatre Centre, the Perth Concert Hall, His Majesty's Theatre, the Perth Arena and the Perth Convention and Exhibition Centre.

At present, there is no comprehensive set of data that provides a complete picture of the number of events, performances and attendance at cultural venues and facilities in Perth City. Figure 17 provides an indication of the significance of selected cultural venues and facilities, although the data is incomplete.

Figure 17 - Selected Major Cultural Venue/Facility⁴⁵

	Number of Events/ Performances	Total Attendance
Perth Concert Hall (2014-15)(1)	82	107,522
His Majesty's Theatre (2014-15)	112	97,389
State Theatre Centre – Heath Ledger (2014-15)	260	112,592
State Theatre Centre – Studio Underground (2014-15)	173	26,214
Blue Room Theatre (2015 Calendar Year)	n/a	22,000
Perth Institute of Contemporary Art (2015 Calendar Year)	85	273,910
Art Gallery of Western Australia (2014-15)	17	289,413
Western Australian Museum (2014-15)	14	464,505
Perth Convention and Exhibition Centre (2015-16)(2)	85	311,485
Perth Arena (2015-16)	43	250,500
Perth Town Hall (2015-16)	n/a	46,240
TOTAL	871	2,001,770

(1) Data for this venue in 2014/15 PCH Annual Report only until December 2014.

(2) Attendance figure estimates not available for all events, so total is an under-estimate.

Attendance at other major events in Perth City included:

- Fringe World (estimated 370,000 attendees);
- Perth International Arts Festival (estimated 500,000 attendees);
- Australia Day Skyworks (estimated 300,000 attendees); and
- Winter Arts Festival (estimated 500,000 attendees).

Information published by the Department of Culture and the Arts in 2014 states that in 2013-14, 1.7 million people (over the age of 15 years) attended at least one cultural event or venue in Western Australia in that year. The kinds of cultural events they attended are outlined below.⁴⁷

- | | |
|--|---------------------------------|
| • Cinemas 67.7% | • Other performing arts 21.2% |
| • Zoological Parks and Aquariums 38.4% | • Theatre performances 18.1% |
| • Botanic Gardens 36.4% | • Musicals and operas 16.7% |
| • Popular Music concerts 34.5% | • Dance performances 10.1% |
| • Libraries 33.8% | • Classical music concerts 9.5% |
| • Museums 27.7% | • Archives 3.3% |
| • Art galleries 25.9% | |

It is interesting to note that while Perth City has a concentration of key cultural attractions and infrastructure that attracted attendance of nearly 2 million people in 2015-16, more Western Australians attended other kinds of cultural events or venues that aren't so readily available in Perth City, such as cinemas.

Visits tracked at the Western Australian Museum and Art Gallery of Western Australia showed that these facilities attracted around 1.5 million visits per year between 2010 and 2015.⁴⁸ After a period of increasing visitation at the Western Australian Museum, this key cultural attraction is closed until 2020 and the impact on visitor numbers to Perth City is unknown.

Participation

*"People participate in arts and cultural activity in many different ways and at different skill levels—as practitioners (making and doing work), teachers, students, critics, supporters, and consumers. People also engage individually and collectively, sporadically and on a regular basis."*⁴⁶

Attending a cultural event or facility as a spectator or audience member is undeniably a form of cultural participation, and it is clearly an essential component of Perth City's cultural vitality in the cycle of cultural production and consumption. As attendance (as consumers of culture) has been examined above, this section focusses on forms of participation in cultural activity that are more

active, engaging people directly in creative activities themselves.

No detailed information is available about participation in arts and cultural activities within Perth City however in 2013-14 more than 500,000 people over the age of 15 years of age (27.6% of WA's population) actively participated in arts or cultural activities in Western Australia (Department of Culture and the Arts 2014). Western Australia had the fourth highest participation rate in Australia, behind the ACT 38.5%, Victoria 28.7%, and Tasmania 28.1%.

Volunteering

In 2010, around 44,400 Western Australians over the age of 18 years (8% of the adult population) undertook volunteer work within an Arts or Heritage Organisation.⁴⁹

In 2011, 13.5% of Perth City residents did unpaid voluntary work through an organisation or group in the twelve months prior to Census night, compared with 15.6% average across Greater Perth.⁵⁰ However, there is no detailed information on the breakdown of different types of volunteering activities.

C3.3 CULTURAL PRODUCTION

Culture is a living and evolving part of Perth City. The continuation and development of culture involves both production and re-production. By continuing to do things a certain way - following traditions and customs - and continuing to re-present parts of our cultural inheritance in the present, we are actively engaged in re-producing our culture, which ensures that it endures for future generations.

Innovation and creative endeavour can open up new possibilities and change how people perceive, think and act in the world in ways that can shape or redirect our culture, this produces new dimensions to our culture that future generations will know and experience. In this section of the chapter this latter form of cultural production is the focus.

To develop a holistic understanding of cultural production in Perth City requires extensive work to capture new information that is not currently available for the Snapshot 2016. Data that documents the full extent of cultural production in Perth City is not currently collected in any consistent or comprehensive manner.

The economic dimensions of cultural production are comparatively well documented, with some relevant data being collected and available from the ABS. This economic picture of cultural production forms the basis of this part of the chapter, but it is an incomplete representation of cultural production in Perth City.

Cultural production could also be measured in future by collating information about new creative works produced or presented in Perth City and by developing an understanding of what kind of conditions support and encourage cultural production at all levels, and their availability in Perth City.

Cultural and Creative Industries

At present, sufficiently detailed data has not been sourced to undertake a detailed analysis of the economic dimensions of cultural and creative industries in Perth City. In addition, there is no standard approach to classifying and analysing economic data, and a number of organisations approach it in different ways (refer to Box at end of this section for further explanation).

As such, economic and employment data has been extracted from the City of Perth's *Economic Profile* developed by REMPLAN which disaggregates data to a maximum 114 industry sectors, and within these sectors, 9 correspond directly with Australian Bureau of Statistics creative and cultural industry classifications.

In 2011, there was an estimated 6,116 people employed in these 9 cultural and creative industries in Perth City, comprising 4.5% of total jobs in Perth City, and 27.9% of total jobs in the selected cultural and creative industries within Greater Perth.

In comparison to Greater Perth, Perth City has slightly higher proportion of jobs in Computer Systems Design & Related Services at 2.7% of total jobs in Perth City compared with an average of 1.3% jobs within selected industries across Greater Perth.

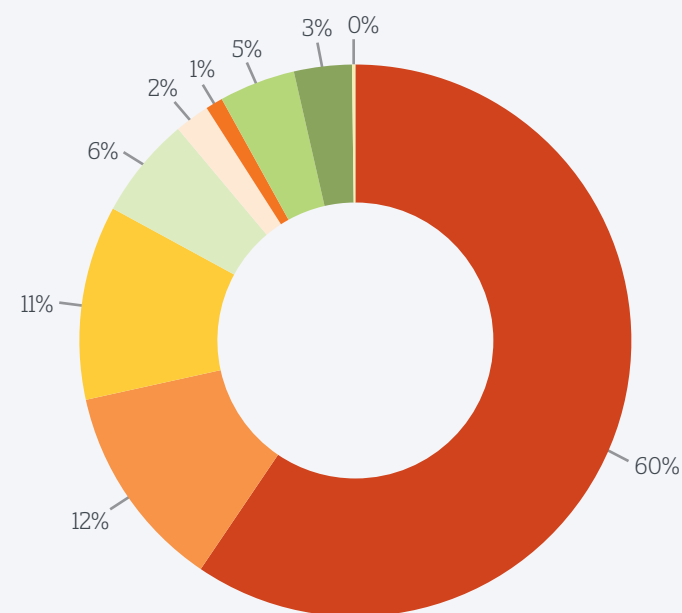
Perth City has high proportions of Library and Other Information Services jobs accounting for nearly 48% of all jobs in Library and Other Information Services across Greater Perth, and Computer System Design and Related Services jobs (37.3% of all Computer System Design jobs across Greater Perth).



WA Symphony Orchestra (Credit: Emma Van Dordrecht)

Figure 19 – Cultural and Creative Industries, Perth City Compared With Greater Perth, 2011⁵¹

	Greater Perth		Perth City		
	# Jobs	% Total Jobs in Greater Perth	# Jobs	% of Total Jobs in Perth City	Perth City Jobs as % of Greater Perth Jobs within selected sectors
Computer Systems Design & Related Services	9,742	1.3%	3,637	2.7%	37.3%
Publishing (except Internet & Music Publishing)	2,845	0.4%	739	0.5%	26.0%
Heritage, Creative & Performing Arts	2,818	0.4%	696	0.5%	24.7%
Printing (inc reproduction of recorded media)	2,525	0.3%	365	0.3%	14.5%
Motion Picture & Sound Recording	1,335	0.2%	125	0.1%	9.4%
Clothing Manufacturing	1,146	0.2%	62	0.0%	5.4%
Broadcasting (except internet)	961	0.1%	273	0.2%	28.4%
Library & Other Information Services	432	0.1%	207	0.2%	47.9%
Footwear Manufacturing	110	0.0%	12	0.0%	10.9%
TOTAL	21,914	3.0%	6,116	4.5%	27.9%

Figure 20 - Employment Breakdown within Total Jobs in Selected Cultural and Creative Industries, Perth City, 2011

- Computer Systems Design & Related Services
- Publishing (except Internet & Music Publishing)
- Heritage, Creative & Performing Arts
- Printing (inc reproduction of recorded media)
- Motion Picture & Sound Recording
- Clothing Manufacturing
- Broadcasting (except internet)
- Library & Other Information Services
- Footwear Manufacturing

This data does not include a further seven industries which may also contain some creative and cultural activity and employment, however disaggregated data has not been sought for these:

- Arts, Sport, Adult, Community & Other Education
- Internet Publishing, Broadcast, Websearch & Data Services
- Professional, Scientific & Technical Services

- Other Manufactured Products
- Wholesale Trade
- Retail Trade
- Rental & Hiring Services (except real estate)

A comparison of the proportionate employment and outputs of these nine cultural and creative industries in Perth City and Greater Perth is outlined in Figure 22:

Figure 22 – Cultural and Creative Industries, Employment and Output (\$), Perth City compared with Greater Perth

	Employment			Output		
	In cultural and creative industries (#jobs)	In whole workforce (#jobs)	% employed in cultural and creative industries	Cultural and creative industries (\$M)	All industries (\$M)	% contributed by cultural and creative industries
Perth City	6,116	134,459	4.5%	2346.957	80095.51	2.9%
Greater Perth	21,914	743,399	2.9%	8629.446	330299.7	2.6%



Perth International Arts Festival

As can be seen, a larger proportion of Perth City's workforce are employed in cultural and creative industries than is the case in Greater Perth. Proportionately, Perth City's cultural and creative industries also generate marginally greater output than the same cultural and creative industries in Greater Perth.

Collectively these nine cultural and creative industries are net regional exporters for Perth City exporting goods and services of an estimated net value of more than \$350 million in July 2016.

Clearly, a more detailed comparative analysis and understanding of the cultural and creative economy of Perth City could be developed in future by obtaining ABS census data corresponding to all creative and cultural industries and occupations as defined by both the ABS and the CCI.

Tourist Expenditure (Cultural and Heritage)

Domestic cultural and heritage tourists spent \$9.6 million in 2009 - average amount per trip was \$1,030. The amount spent is nearly twice what was spent by those not engaged in culture and heritage activities.⁵²

International cultural and heritage tourists spent \$16,292 million on trips to Australia in 2009 - average amount per trip was \$6,280. The amount spent is nearly twice what was spent by those not engaged in culture and heritage activities, but on average these tourists also stayed for longer.

There is limited local and detailed data on the value, contribution and role of culture to Perth City's tourism industry, as most recent data is available at state or even national level. Given the potential contribution of culture to the economic diversity of Perth City, this may warrant a comprehensive investigation.

Differences In Analysing Data For Cultural And Creative Industries

Some of the difficulties arise because of the ways that different research and data analysis approaches have classified the cultural and creative industries. The Australian Bureau of Statistics (ABS) employs a classification system that draws in a broad range of industries, and corresponding occupations within each of them, as being cultural and/or creative. The Centre for Excellence in Creative Industries and Innovation (CCI) admits a more limited range of industries as being "creative industries" and goes a step further to identify "creative occupations" within industries that may not otherwise be creative.

As an example, the ABS classifies Clothing Manufacture (ANSCO 1351) as a creative industry. The CCI does not consider clothing manufacture to be a creative industry, but considers Fashion Designer (ANSCO 232311) to be a creative occupation within that industrial context – as an "embedded creative". As a result of these differences in approach, the same census data has been used to account for employment and other economic dimensions of the cultural and creative industries in two different ways.

In Western Australia, the Department of Culture and the Arts (DCA) has published research using both approaches. The DCA has commissioned and published reports prepared by the CCI (2007, 2013) that provide some detail about the creative industries in WA and in Greater Perth, but not for Perth City specifically. The DCA also publishes regular reports – eg Employment In Culture, Western Australia 2011 – that present information about cultural industries and occupations as defined by the ABS – but not for Perth City specifically.

FINDINGS

C1 CULTURAL INHERITANCE

1. Cultural inheritance is given a presence in Perth City through the registration, preservation and conservation of places of heritage significance (natural, indigenous and built heritage) and in the form of commemorative works (eg memorials, plaques, monuments), interpretation (tours, trails and signs) and public art.
2. The recent Land Administration (South West Native Title Settlement) Act 2016 has formally acknowledged Whadjuk Noongar people's traditional ownership of the Perth region. The landscape which Aboriginal people named, lived in and from, and attached sacred values to, has been transformed by ongoing development since colonial settlement in 1829. Efforts have been made in developments at Point Fraser, Elizabeth Quay, Perth City Link and Cathedral Square to recognise and reference Aboriginal connections to country that have largely been overwritten by the built environment. Despite these recent initiatives, Perth City's Aboriginal cultural inheritance may still be relatively inaccessible to residents and visitors and is worthy of further investigation to explore how it can become an important and visible part of the urban environment
3. In 2016, there were 467 places and 3 heritage precincts on the City of Perth's heritage lists, 64 places on the Metropolitan Redevelopment Authority heritage lists (Perth City area only), and 151 places on the State heritage list. There a number of additional places with potential cultural heritage significance being investigated for potential significance under the City Planning Scheme's Register of Cultural Heritage Significance.
4. Preliminary thematic analysis of the commemorative works in Perth City and chronological consideration of Perth City's remaining built heritage suggests that some people, stories and eras are well represented in Perth, whilst others are represented to a more limited extent. A more thorough audit of this tangible cultural inheritance, including a qualitative and thematic analysis, will be essential to make the most of the wealth of existing items, and to guide decisions about future management of heritage and commemoration.
5. Available demographic data tells us that the Perth City's residents have a culturally diverse ancestry. The importance and influence of this aspect of Perth City's cultural inheritance could be better understood by also capturing data about the ancestry of the City's workforce, and also seeking to document the ways that people may remain connected to diverse cultures and other places whilst living and/or working Perth.
6. Perth City is home to a number of institutions which hold significant collections whose role is to conserve, manage, interpret and make accessible different elements of Western Australia's, and Perth City's, cultural inheritance. These include the WA Museum, Berndt Museum of Anthropology, the Art Gallery of Western Australia, the Alexander and Battye Libraries, among others. There are a wide range of management frameworks and institutions existing within Perth City that capture, conserve and acknowledge various components of the City's cultural inheritance. However, in light of Perth City's diverse cultural inheritance and capital city status, a comprehensive investigation, audit and analysis is warranted to better understand the present day role and importance of this cultural inheritance.

C2 CULTURAL DIVERSITY

7. Perth City has a larger proportion of residents born overseas (eg migrants) (52.6%) compared with the Greater Perth region (34.4%) and four suburbs – Northbridge (67.7%), Crawley (61.6%), East Perth (60.9%) and Perth (57.3%) – which ranked in the top 10 suburbs with the highest proportion of resident migrants in the Greater Perth region. This reflects a trend within Australian capital cities where migrants new to Australia often locate in inner city and close to universities. Residents born in the United Kingdom constitute the largest migrant group in Perth City (8.3%), although a lower proportion when compared with the Greater Perth region (11.4%). Perth City has a larger proportion of residents born in Asian countries and in Ireland when compared with the Greater Perth region. Perth City has experienced an increase in the proportion of residents that speak a language other than English at home, reflecting a trend across Australian capital cities.
8. While Perth City has a very culturally diverse resident population, it is noted that residents make up only 3% of the typical daily population of Perth City. Consequently it is important to understand the cultural diversity of the majority of the other people who visit Perth City on a daily basis for work, study, or leisure in order to gain a complete picture of Perth City's cultural diversity. This approach shows that the cultural diversity of workers in Perth City (65% of people in the city, daily) is more closely aligned to the cultural diversity of the resident population of Greater Perth – so not as culturally diverse as Perth City residents.
9. The majority of residents within Perth City identified with a Christian religion (41.8%), although a lower proportion when compared with the Greater Perth region (58.4%) and a higher proportion identified with a non-Christian religion (13.1%) compared with the Greater Perth region (6.6%). A higher proportion did not state their religion (18.6%) compared with the Greater Perth region (8.8%). Data on the religious identity of workers has not been investigated, although it may reflect the religious identity of the Greater Perth region given the wide catchment of workers attracted to the City. With the exception of Census data on religious identity, there is no data readily available that provides a complete picture of the diversity of religious and spiritual practices and needs of residents, workers or visitors to Perth City.
10. There are no purpose-built, non-Christian places of worship in Perth City. However, some institutions within Perth City make formal and informal provision for people of different faiths through chapels, shrines, prayer rooms and other contemplative spaces. Travel from one's place of residence to a place of worship may be a common feature of belonging to a community of faith, as non-Christian residents of Perth City need to travel to their places of worship, while many Christians, not resident in Perth City, may travel to be a part of congregations in Perth City. Additional data collection and analysis would shed further light on these communities and their practices.
11. The ABS Census provides us with limited access to data about the cultural practices of Perth City's community. Religious identity has been given special consideration in the Snapshot 2016 in absence of readily available data about other kinds of cultural practices that could fill out our understanding of the cultural diversity of Perth City. In future, different forms of data collection could help to fill this gap, and enrich our understanding of the cultural practices that are important to our the community of Perth City.

12. With the exception of Census data, which provides a limited capture and understanding of cultural diversity, there is no comprehensive and detailed set of data or information that provides a complete and sufficient picture of the cultural diversity of Perth City residents, workers and visitors and their needs. This includes community perceptions and attitudes relating to the freedoms and barriers they may experience to hold, express and practice their diversity of cultural values and this represents a significant gap in knowledge given the size and diversity of the Perth City community including residents, workers, students and visitors.

C3 CULTURAL VITALITY

13. The community's use of Perth City's public open spaces is a key part of the cultural vitality of Perth City. Available booking data from the City of Perth and Metropolitan Redevelopment Authority indicates that there were 421 events booked in public open spaces in Perth City in the 2015/16 financial year, not including events booked in the Murray and Hay Street Malls and Forrest Place. The majority of bookings were in the summer and autumn months of the year, peaking in April for spaces in central areas of Perth, with less than half of the events booking spaces in East Perth, West Perth and Northbridge. Bookings for outdoor sports and recreation events were more than twice as numerous as bookings for any other kind of event, and accounted for 31% of all bookings.

The preliminary analysis of the available events booking data for the Snapshot 2016 has shown that this data is incomplete and that there are inconsistencies in the way that it is collected. However, this is a readily available source of good data and its usefulness could be enhanced by working to create a consistent format and approach to collecting data for booking events that would facilitate further detailed analysis in the future.

14. Perth City is home to a great many of the State's major cultural attractions. The data available indicates that in 2015-16 over 2 million people visited or attended 871 events at key cultural venues and institutions in Perth City. Other major cultural events in Perth City, such as Fringe World, Perth International Arts Festival, Australia Day Skyworks and the Winter Arts Festival, attracted 1,670,000 people. With access to more complete and consistent data, a better understanding of the role of Perth City as a key cultural hub for Greater Perth and the State could be developed and monitored over time.
15. In Perth City 4.5% of the workforce is employed in cultural and creative industries (as defined by the Australia Bureau of Statistics), in comparison with 2.9% of the workforce of Greater Perth. Nearly half (48%) of Greater Perth's workforce in the Library and Other Information Services work in Perth City. Of Greater Perth's workforce in Computer Systems Design and Related Services, 37% of jobs are located in Perth City. A more thorough investigation of the creative and cultural economy of Perth City and establishment of a robust system for collecting and analysing data may be warranted to establish a more detailed and accurate understanding of the current extent and trends, especially given the potential contribution to cultural vitality and economic diversity of Perth City.
16. There is limited local and detailed data on the value, contribution and role of culture to Perth City's tourism industry, as most recent data is available at state or even national level. Given the potential contribution of culture to the economic diversity of Perth City, this may warrant a comprehensive investigation.

17. To develop a holistic understanding of cultural production in Perth City requires extensive work to capture new information that is not currently available for the Snapshot 2016. Data that documents the full extent of cultural production in Perth City is not currently collected in any consistent or comprehensive manner. Cultural production could be measured in future by collating information about new creative works produced or presented in Perth City and by developing an understanding of what kind of conditions support and encourage cultural production at all levels, and their availability in Perth City.

REFERENCES

- ¹ UNESCO (2001) UNESCO Universal Declaration on cultural diversity. Paris: UNESCO.
- ² Hawkes, J (2001) The Fourth Pillar of Sustainability: Culture's Essential Role in Public Planning, Cultural Development Network, Victoria. Available from [http://www.culturaldevelopment.net.au/community/Downloads/HawkesJon\(2001\)TheFourthPillarOfSustainability.pdf](http://www.culturaldevelopment.net.au/community/Downloads/HawkesJon(2001)TheFourthPillarOfSustainability.pdf)
- ³ UNESCO (1996) Our Creative Diversity: Report of the World Commission on Culture and Development (Summary Version), UNESCO, Paris; URL <http://unesdoc.unesco.org/images/0010/001055/105586e.pdf>
- ⁴ New World Encyclopaedia (accessed August 2016), entry on "Inheritance (Sociology)", URL: [http://www.newworldencyclopedia.org/entry/Inheritance_\(Sociology\)](http://www.newworldencyclopedia.org/entry/Inheritance_(Sociology))
- ⁵ Ibid.
- ⁶ Tallentire, J (2002). "Strategies of Memory: History, Social Memory, and the Community", 2001, *Histoire Sociale/Social History* Vol 34, Issue 67, pp197-212, URL: <http://pi.library.yorku.ca/ojs/index.php/hssh/article/download/4545/3740>
- ⁷ South West Aboriginal Land and Sea Council (2016) <http://www.noongar.org.au/>
- ⁸ Western Australian Planning Commission (2013) Capital City Planning Framework - a Vision for Central Perth.
- ⁹ Ibid.
- ¹⁰ Department of Premier and Cabinet, WA (2016) An Agreement reached between the Noongar People and the WA Government Fact Sheets. Land, Approvals and Native Title Unit – South West Settlement Implementation Unit – July 2016 The South West Native Title Settlement. Available from <https://www.dpc.wa.gov.au/lantu/south-west-native-title-settlement/Documents/South%20West%20Native%20Title%20Settlement%20-%20Fact%20Sheets%20-%20FINAL%205%20July%202016-for-web.pdf>
- ¹¹ Reconciliation Australia (2016) The State Of Reconciliation In Australia Our History, Our Story, Our Future. Available from <https://www.reconciliation.org.au/the-state-of-reconciliation-in-australia-report/>
- ¹² Department of Aboriginal Affairs (accessed July 2016) Aboriginal Sites and Other Heritage Place Search (Aboriginal Heritage Inquiry System), Department of Aboriginal Affairs, Perth, URL <http://www.daa.wa.gov.au/heritage/place-search/>
- ¹³ Australian Bureau of Statistics (2014) 1200.0.55.009 - Ancestry Standard, 2014, Version 2.1. Available from <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/1200.0.55.009Main%20Features202014,%20Version%20>
- ¹⁴ Australian Bureau of Statistics (2014) 4102.0 – Australian Social Trends, 2014: Where do Migrants Live?URL: <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4102.0main+features102014>
- ¹⁵ Profile.ID (accessed July 2016), City of Perth Community Profile: Ancestry. Available from <http://profile.id.com.au/perth/ancestry?WebId=10>
- ¹⁶ Ibid.
- ¹⁷ Arup (2015) City of Perth Daytime Visitor Estimates (unpublished).
- ¹⁸ Pers comms O'Brien, D (August 2016) University of Western Australia.
- ¹⁹ Martin, J (2014) Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study, Presented at the Australian Institute of Traffic Planning and Management Incorporated 2014 Conference

- ²⁰ REMPLAN (2016) City of Perth Community Profile – Ancestry (Place of Work). Available from <http://www.remplanlogin.com.au/community/>
- ²¹ Australia ICOMOS Incorporated (2013) The Burra Charter – The Australia ICOMOS Charter for Places of Cultural Significance.)
- ²² City of Perth (2016), heritage data (unpublished).
- ²³ City of Perth (2016) heritage data (unpublished).
- ²⁴ City of Perth (2016) Heritage Data (unpublished).
- ²⁵ City of Perth (2016) Heritage Data (unpublished).
- ²⁶ City of Perth (2016) Analysis of the City of Perth's Public Art Collection, 2015 City of Perth Plaques Survey and the King's Park Memorials and Statues Map (unpublished)
- ²⁷ UNESCO (2009) Investing in cultural diversity and intercultural dialogue. UNESCO, Paris. URL: https://www.google.com.au/?gws_
- ²⁸ Profile.ID (2016) City of Perth Community Profile. Available from <http://profile.id.com.au/perth>
- ²⁹ Australian Bureau of Statistics (2014) 4102.0 - Australian Social Trends. Available at <http://www.abs.gov.au/socialtrends>
- ³⁰ REMPLAN (2016) City of Perth Community Profile. Available from <http://www.communityprofile.com.au/perth>
- ³¹ Profile.ID (2016) City of Perth Community Profile.
- ³² Australian Bureau of Statistics (2013) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australian's, June 2011. Available from
- ³³ Profile.ID (2016) City of Perth Community Profile. Available from <http://profile.id.com.au/perth>
- ³⁴ City of Perth (2016) audit of facilities (unpublished).
- ³⁵ Profile.ID (2016) City of Perth Community Profile. Available from <http://profile.id.com.au/perth>
- ³⁶ Arup (2015) City of Perth Daytime Visitor Estimate (unpublished).
- ³⁷ O'Brien, D (2016) pers comm.
- ³⁸ Martin, J (2014) Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study.
- ³⁹ IPSOS (2014) City of Perth Visitation Study (unpublished).
- ⁴⁰ Tourism WA 2016 Fast Facts Year Ending March 2016, Government of Western Australia, Perth URL: <http://www.tourism.wa.gov.au/Publications%20Library/Research%20and%20reports/Fast%20Facts%20YE%20March%202016.pdf>
- ⁴¹ Jackson, M.R, F. Kabwasa-green, J. Herranz, (2006) Cultural Vitality in Communities: Interpretation and Indicators, The Urban Institute, Washington, DC, URL: <http://www.urban.org/sites/default/files/alfresco/publication-pdfs/311392-Cultural-Vitality-in-Communities-Interpretation-and-Indicators.PDF>
- ⁴² Ibid.
- ⁴³ City of Perth (2016) Marketing Malls Booking Data (unpublished).
- ⁴⁴ City of Perth (2016) Event bookings data from Activity Approvals Unit and MRA Event Bookings Information for Financial Year 2015-16 (unpublished).
- ⁴⁵ City of Perth (2016) Table data compiled from published Annual Reports of venues; PCEC and Perth Arena Data from unpublished Activity Approvals Unit Events data.
- ⁴⁶ Ibid.

⁴⁷ Department of Culture and the Arts (2014) Cultural attendance and participation in Western Australia 2013-14, Department of Culture and the Arts, Perth URL: http://www.dca.wa.gov.au/Documents/New%20Research%20Hub/Research%20Documents/Attendance_Participation/WA_Cultural_Attendance_Participation%202014_fact_sheet.pdf

⁴⁸ Data from various Annual Reports from Art Gallery of WA and WA Museum.

⁴⁹ National Centre for Culture and Recreation Statistics (2012) Culture Report 2012 Western Australia, Department of Culture and the Arts, Perth URL: http://www.dca.wa.gov.au/Documents/New%20Research%20Hub/Research%20Documents/Vital%20Statistics/Research%20Hub_Arts%20and%20cult%20stats_Vital%20Statistics%202012_Full%20Report.pdf

⁵⁰ Profile.ID (2016) City of Perth Volunteer work. Available from <http://profile.id.com.au/perth/volunteering>

⁵¹ REMPLAN (2016) City of Perth Economic Profile – Cultural and creative data sources from Australian Bureau of Statistics' (ABS) June 2015 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.

⁵² Department of Resources Energy and Tourism (2009) Snapshots 2009: Cultural and Heritage Tourism in Australia, Canberra URL: https://www.tra.gov.au/documents/Snapshots_2009_Cultural_FINAL.pdf

CHAPTER 5

NATURAL ENVIRONMENT

The Natural Environment Chapter considers the nature, quality and significance of Perth City's natural assets such as land, water, air and vegetation, and the local consumption of resources, which contribute to local and global environmental impacts.

Australia joins a group of seventeen countries described as 'megadiverse' which cover less than 10% of the Earth but support more than 70% of our biological diversity.¹ The South West of Western Australia is identified as one of 30 global biodiversity hotspots around the world.²

Local, national and global environmental assets and resources sustain life, facilitate economic prosperity, contribute to a sense of place and identity and are fundamental to wellbeing and quality of life.

Perth, situated on the ancient island continent of Australia, stretches out along the Swan River that flows from the hills to the Indian Ocean, and up and down the Swan Coastal Plain. There is much to be grateful for here: clean running water and good sanitation systems, relatively clean air, abundant fresh food, clean beaches, and the wide blue Swan River winding its way to the sea at Fremantle.³

Perth City is a highly developed and modified place located adjacent to two iconic Western Australia natural landscapes, Kings Park and the Swan River. As the capital city of Western Australia, Perth City should provide leadership, playing a role in preserving significant natural environments and minimising our environmental impacts for the benefits of current and future generations.

NE1 ENERGY AND CLIMATE CHANGE

- NE1.1** Energy Sources and Consumption
- NE1.2** Greenhouse Gas Emissions and Climate Change

NE2 WATER

- NE2.1** Water Sources and Consumption

NE3 WASTE

- NE3.1** Waste Generation
- NE3.2** Waste Avoidance and Diversion

NE4 LOCAL ECOLOGY

- NE4.1** Hydrology
- NE4.2** Soils
- NE4.3** Open Space, Trees and Vegetation
- NE4.4** Fauna
- NE4.5** Air Quality

FINDINGS

REFERENCES

NE 1 ENERGY AND CLIMATE CHANGE

Greenhouse gas (GHG) emissions and energy demand are high on the global environmental agenda. *“Energy is a major factor for development, required for transport, industrial and commercial activities, buildings and infrastructure, water distribution, and food production which take place in or around cities, which are on average responsible for more than 75% of a country’s Gross Domestic Product (GDP) and therefore the main engines of global economic growth”*.⁴ Additionally, in Western Australia, the extraction and export of natural resources, including energy currently forms an important component of the economy.

As the population of Greater Perth grows to 3.5 million people by 2050 (an additional 1.5 million people) and Perth City grows to 50,000 people by 2050 (an additional 26,000 people), a reliable supply of energy will be required. However, supplies of non-renewable energy resources (such as coal and gas) are not infinite and renewable energy generation as well as consumption levels must be managed in a sustainable manner to prolong supply for future generations as well as minimising local and global impacts such as pollution and climate change.

NE1.1 ENERGY SOURCES AND CONSUMPTION

In Western Australia, the majority of electricity is generated from coal and gas resources, with smaller amounts coming from diesel and renewable sources (wind, solar and biomass) with renewable sources making up 8% of energy and non-renewable 91%.^{a 5}

Renewable Energy

Renewable energy comes from natural resources that can be constantly replenished such as solar, wind, ocean tides and currents, biomass, bio-waste and geothermal heat from the earth. Heat can also be captured and recycled from building air-conditioners district-scale recycling schemes.

Generating energy from renewable sources can directly limit greenhouse gas emissions and can be generated by individual households. In 2016 there were 665 solar photovoltaic (PV) installations in Perth City.⁶

The total quantity of renewable energy being supplied, generated and consumed specifically in Perth City is difficult to determine from the current level of data. However, it is likely renewable energy comprises only a small proportion of the City’s energy profile. Currently, electricity is mostly generated from non-renewable sources.

Non-Renewable Energy

Non-renewable energy comes from fossil fuel resources including coal, diesel and gas.

The total quantity of non-renewable energy consumed specifically in Perth City is also difficult to clearly determine, however it could be argued that non-renewable energy currently forms the bulk of energy consumed in Perth City.

This breakdown of renewable and non-renewable energy generation in the electricity grid is important for determining the emission of GHGs in Perth City.



6kW Windpods at St Bartholomews Centre, East Perth, Invented in Fremantle, WA

^a The primary electricity grid in Western Australia is the South West Interconnected System, supplying the bulk of the South West region including the metropolitan area.

NE1.2 GREENHOUSE GAS (GHG) EMISSIONS & CLIMATE CHANGE

The consumption of energy and burning of fossil fuels is the main source of GHG and responsible for around three-quarters of human induced carbon dioxide emissions into the Earth's atmosphere.⁷ The International scientific community accepts that human activity has increased GHG emissions, resulting in climate change since the mid-20th century and "*many aspects of climate change and associated impacts will continue for centuries, even if human induced emissions of GHG are stopped*".^{8,9} The changes to our climate represent a significant challenge to society.^{10 b c}

GHG Emissions

An inventory of GHG emissions was calculated for Perth City (pre-July 2016) using the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories, an accounting and reporting standard used by the City of Perth as signatory to the Compact of Mayors.^d

In 2014-15, the inventory found 90% of GHG emissions in Perth City (pre-July 2016) were generated by non-residential activity.¹¹ This may reflect the size of the City's economy and the influx of workers from outside the City each day and the generation of GHG through transport.

Looking at the data by sector (ie places where emissions are generated), Buildings generated 63% of emissions and Transport 35%.

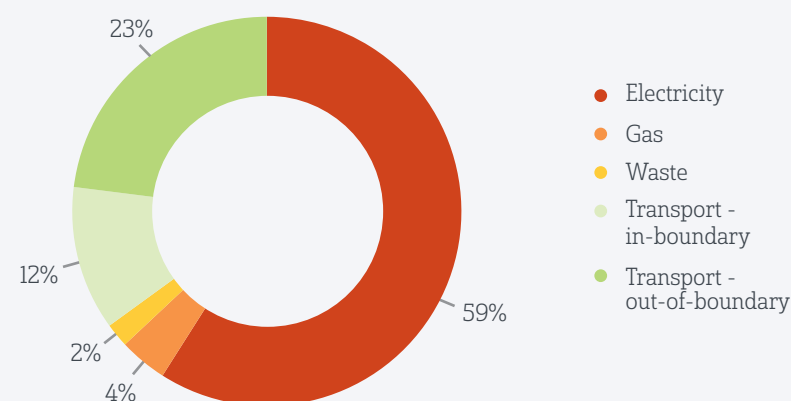
Looking at the data by source, Electricity was by far the largest source of emissions (59%).

Figure 1 – Greenhouse Gas Emissions (GHG) 2014-15, Perth City (pre-July 2016)¹²

	Residential	Non-Residential	TOTAL
Buildings	6%	57%	63%
Transport	3%	32%	35%
Waste	1%	1%	2%
TOTAL	10%	90%	100%

Waste-Water comprises 0.1% between both residential and non-residential.

Figure 2 - Greenhouse Gas Emissions (GHG) by Source, 2014-15, Perth City (pre-July 2016)



Note: "transport in-boundary" includes emissions from transport within Perth City (pre-July 2016) boundary, "transport out-of-boundary" includes emissions from Perth City residents (residential transport emissions) and those commuting to Perth City for work (non-residential emissions) that occur outside of Perth City (pre-July 2016).

^b A greenhouse gas is "any gas (natural or produced by human activities) that absorbs infrared radiation in the atmosphere. Key greenhouse gases include carbon dioxide, water vapour, nitrous oxide, methane and ozone".

^c Climate refers to the long-term behaviour of the Earth's atmosphere (versus local weather) and climate change is "the change in the mean and/or variability properties of the climate for extended periods of time, typically decades or longer".

^d The Compact of Mayors was launched by United Nations under the leadership of the world's global city networks – C40 Cities Climate Leadership Group (C40), ICLEI – Local Governments for Sustainability (ICLEI) and the United Cities and Local Governments (UCLG) –with support from UN-Habitat. The Compact establishes a common platform to capture the impact of cities' collective actions through standardized measurement of emissions and climate risk, and consistent, public reporting of their efforts (Source <http://www.ghgprotocol.org/city-accounting>).

In comparison to the Cities of Melbourne and Sydney, Perth City (pre-July 2016) emits:

- significantly lower proportion of GHG through Buildings.
- significantly higher proportion of GHG through Transport.

It should be noted that due to slight variations in the method used by other cities, the data is not entirely comparable. Although the significantly higher proportion emitted from Transport may reflect higher levels of reliance on private car use and lower levels of public transport use to access employment in Perth City from across Greater Perth, compared with Melbourne and Sydney.

Figure 3 - Comparison of Greenhouse Gas Emissions, Perth City (pre-July 2016) compared with Cities of Melbourne and Sydney¹³

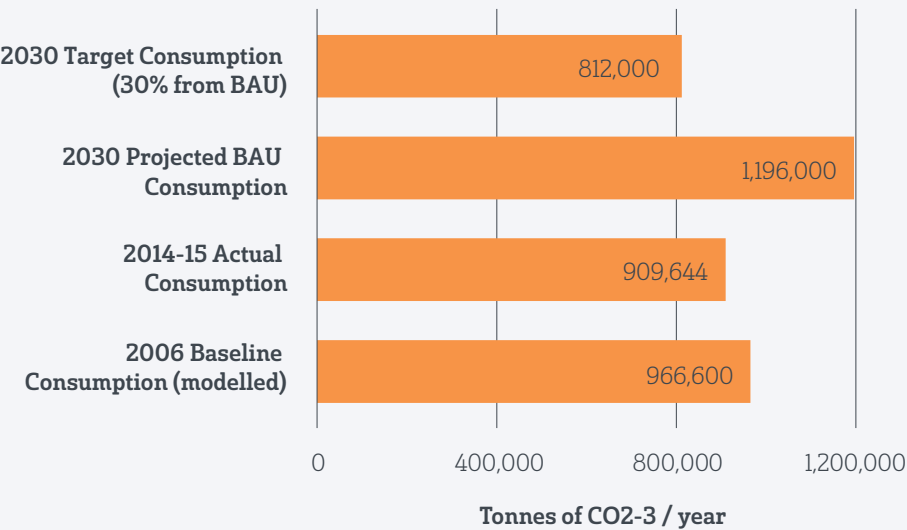
	Perth City	City of Melbourne	City of Sydney
Buildings	63%	86%	87%
Transport	35%	11%	8%
Waste	2%	3%	5%

After consulting with the community, the City of Perth’s *Environment Strategy* (2016) set targets to:

1. Work with the community to achieve a 30% reduction in city-wide greenhouse gas emissions by 2030 from the 2030 Business As Usual projected level.
2. Work with the community to achieve 20% city-wide energy use from renewable or low carbon sources by 2031.

Figure 4 compares GHG emissions across a 2006 baseline year (modelled emissions) with the 2014-15 inventory (actual consumption), projected Business As Usual consumption at 2030 and the City of Perth’s Environment Strategy target for 30% reduction in city-wide greenhouse gas emissions by 2030 from the 2030 Business As Usual consumption level.

Figure 4 - Greenhouse Gas Emissions Targets, Perth City (pre-July 2016)^{14 15}



Climate Change

A number of changes to the climate of the south-west of Western Australia have been projected with either "high or very high confidence".¹⁶

- continued average temperature increases across all seasons, with more hot days, warm spells and fewer frosts.
- continued decreasing winter and spring rainfall.
- increased time spent in drought.
- continued increase in sea level (mean) and increased height of extreme sea-level events.
- harsher fire-weather.

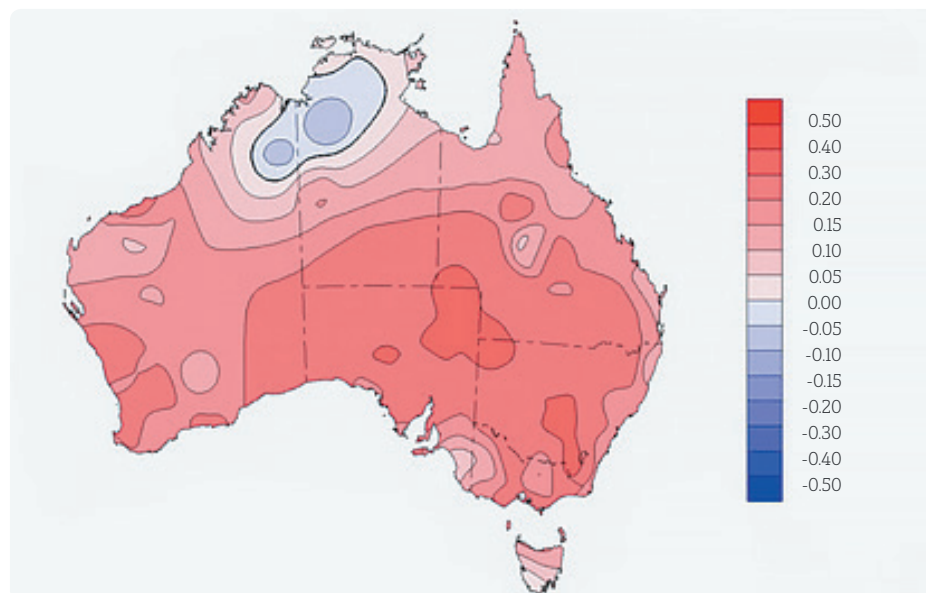
Temperature

The mean surface air temperature for Australia has increased by 0.9°C since 1910.¹⁷ In Greater Perth the number of heatwaves has increased by 50% since the 1950s¹⁸ and the summer of 2015-16 set a new record:

- an increase of 1°C (average) mean daily maximum temperature to a new record of 25.7°C.
- the highest single daily temperature recorded at 44.4°C.¹⁹
- four consecutive days over 40°C, the longest run since 1933.²⁰

It is predicted that by 2090, Greater Perth will experience a 150% increase in days above 35°C or above 40°C.^{16 e}

Figure 5 – Trend in Mean Temperature Annual 1970-2015, Australia²¹



Fraser Point, East Perth

^e From CSIRO predictions under 1. lower emissions scenario and 2. median warming (Source: <http://www.climatechangeinaustralia.gov.au>)

Reduced rainfall, run-off and extreme rainfall events

Rainfall in the south west of Western Australia has reduced by around 15 % since the mid-1970s and will potentially experience 80% more drought-months by 2070 if current trends continue.²² Greater Perth is anticipated to be the “most severely impacted city in Australia through climate change induced water scarcity.”²³ Even though annual mean rainfall is projected to decrease in the region, projections indicate increases in extreme rainfall events.²⁴

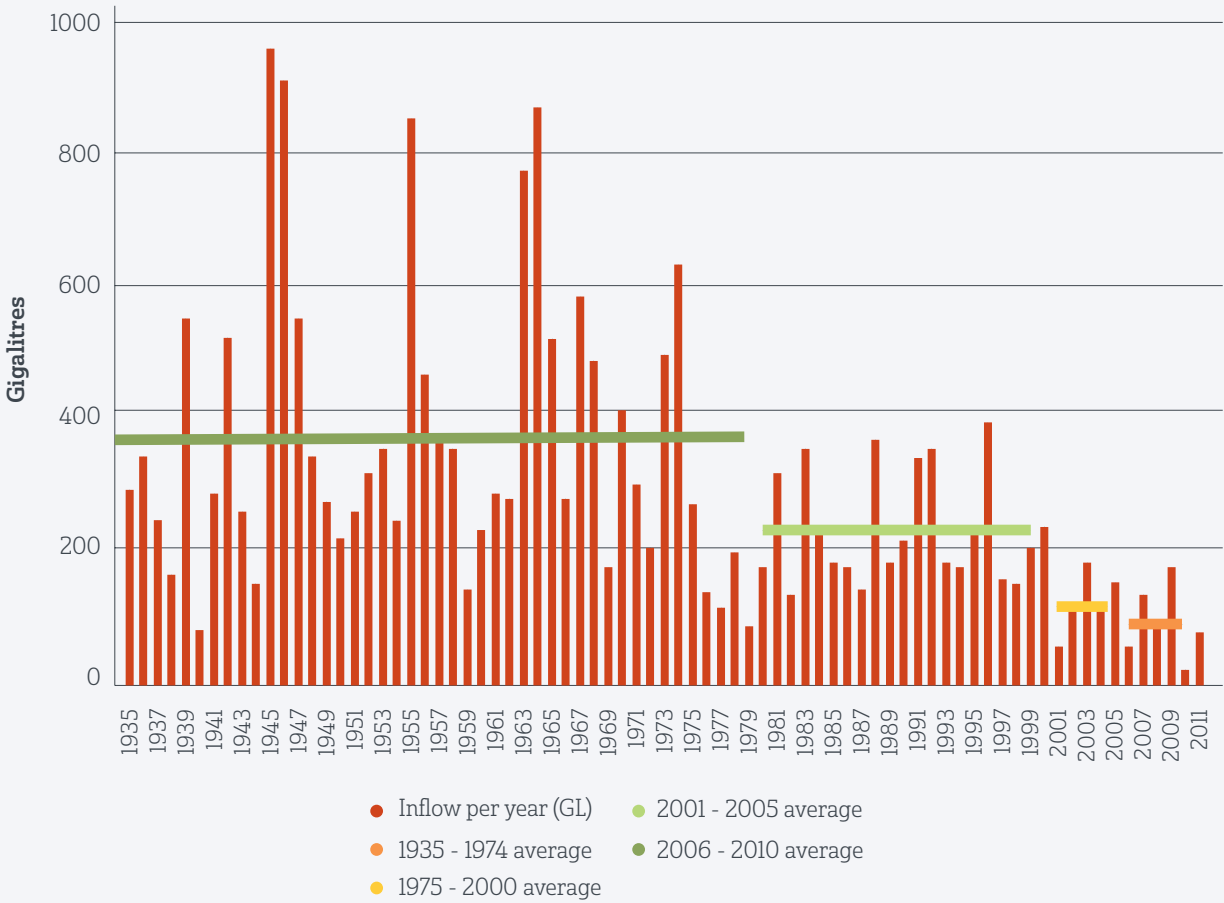
The Water Corporation’s *Water Forever* (2009) adopted a scenario of 20% decline in rainfall by 2030 and a 40% decline in rainfall by 2060, and despite a decrease in average water use per person since 2001, Greater Perth remains one of the highest water using cities in Australia.²⁵

Sea Level Rise

Global mean sea levels have risen over the course of the 20th century and are predicted to continue to rise.²⁶ The water level of the Swan River is influenced by global and local sea increases. Since the early 1990s, the southern coast of Western Australia has experienced increases of up to 4.6 millimetres per year and the western coast has experienced increases of up to 7.4 millimetres per year.²⁷

The State Government endorses the prediction of “a rise of 0.9 metre (m) in mean sea level by 2110 as currently the best for decision making.”²⁸

Figure 6 – Historical annual stream flows into Perth Dams (Source: Water Corporation)



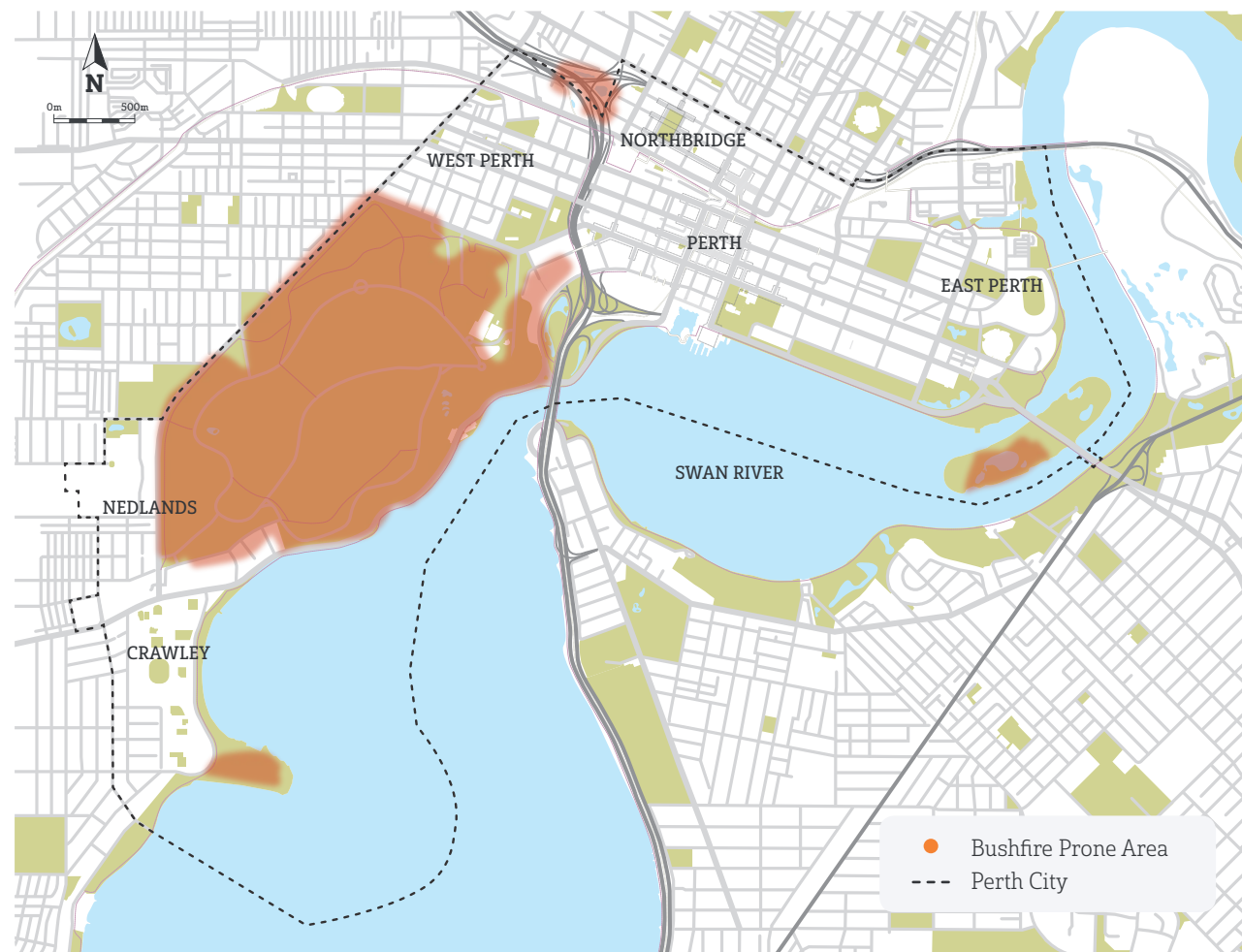
Bushfire Prone Areas

Climate change is projected to result in harsher bushfire weather.²⁹ There are four areas in Perth City considered to be bushfire prone by the Department of Fire and Emergency Services (mapping updated May 2016).³⁰



East Perth Cemetery

Figure 7 – Bushfire Prone Areas, Perth City³¹



NE 2 WATER

*"Water is one of the most important substances on earth. All plants and animals must have water to survive. If there was no water there would be no life on earth".*³² Cities consume large amounts of water due to the concentration of people and economic activity. Greater Perth has the largest potable groundwater supply of all Australian cities,³³ however rainfall is declining and ground water extraction is either fully allocated or in some places over-allocated.³⁴ Sustainable long-term use and management of water resources, including use of alternative sustainable sources, is essential to long-term ecological integrity, economic prosperity and quality of life, especially as the population of Greater Perth grows to 3.5 million by 2050.³⁵



Stormwater Harvest for Irrigation at Harold Boas Gardens, West Perth

NE2.1 WATER SOURCES & CONSUMPTION

Water Supply Sources

Sources of water include surface water, groundwater, stormwater, greywater and blackwater which can be collected and distributed through a number of systems such as scheme water, on-site collection or locally recycled.

The main source of potable water supply to Perth City comes from the Water Corporation's Integrated Water Supply Scheme (IWSS) which is commonly referred to as 'scheme' water.

Scheme water is generated from a number of different sources including surface water (17%), groundwater (42%) and desalinated seawater (41%).³⁶

There is no comprehensive set of data on water use in Perth City and the proportion used from scheme water, groundwater or decentralised sources (ie alternatives to scheme water), however it's assumed the majority of water use in Perth City comes from traditional water sources such as scheme and groundwater.

Water Consumption

Potable / Scheme Water

In 2014-15, a total of 5,345 kilolitres of scheme water was consumed in Perth City (pre-July 2016) from all residential and non-residential activities (including open space irrigation).³⁷

There is no complete picture of water consumption by the different water supply sources (such as bottled water), however it is assumed that the majority of supply is from the scheme water.

In the period 2010-11 to 2014-15, consumption of water by residents ranged between 76 kL per person per year to 74 kL per person for Perth City (pre-July 2016).³⁹

After consulting with the community, the City of Perth's *Environment Strategy (2016)* set a target to:

1. work with the community to reduce residential water use to below 78kL per person per year by 2030.

It appears that the residential community is on-target. The generally lower level of water consumption in Perth City may also reflect a trend of lower water consumption in higher density inner city areas where there is less open space with dwellings (ie gardens around houses).

In comparison to other places:

Figure 8 – Comparison of Water Consumption

Australia	80 kL ⁴⁰
Western Australia	132 kL - (second highest of all states and territories)
Greater Perth Region	126 kL (2014-15) ⁴¹

Groundwater

The extraction of groundwater requires a licence from the Department of Water and there are 78 licences within Perth City which permit extraction from the Perth- Superficial Swan aquifer, although data relating to total consumption compared with total allocation requires further investigation.⁴²

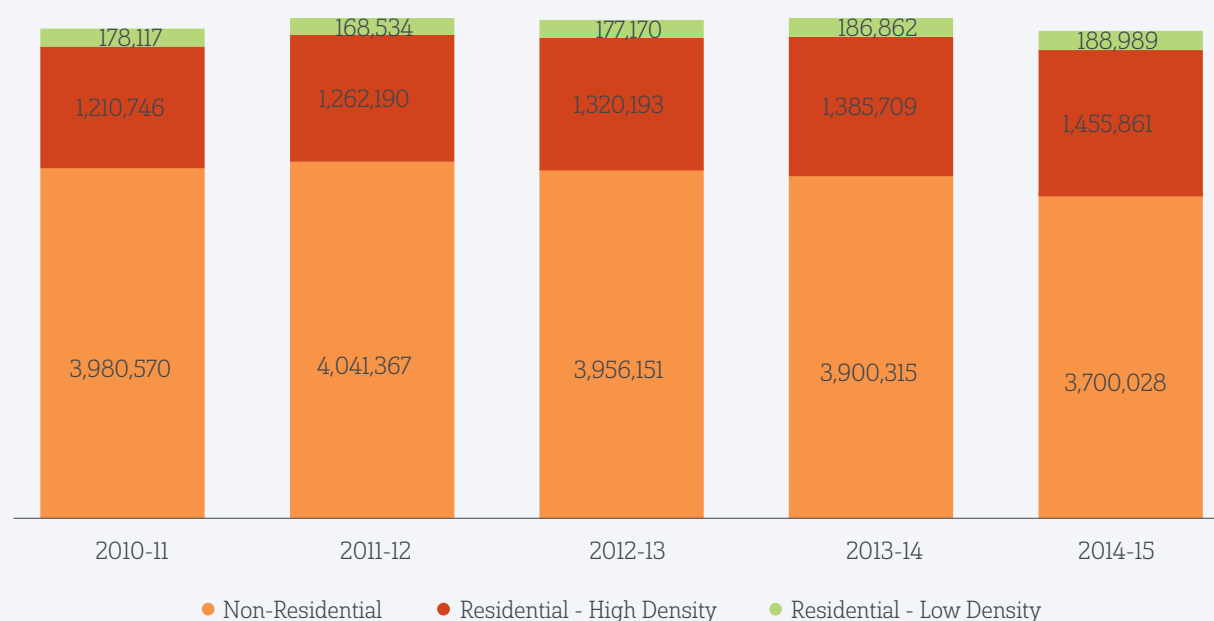
The City of Perth's annual groundwater entitlement is 500,000 kL from the Perth-Leederville aquifer and 239,400 kL from the Superficial Formations aquifer, and the City used 78.5% and 81.8% respectively of the allocation in 2014-15.⁴³

Stormwater

Stormwater is captured, stored and used for open space irrigation purposes at only one location in Perth City in East Perth (Claisebrook Lake). Stormwater is collected from a catchment area extending out to Lake Monger and is pumped from the Water Corporation's Claisebrook main drain into the lake.

A second stormwater fed system is located at Point Fraser in East Perth. Stormwater is captured from an 18 hectare catchment and stored in the constructed wetlands where it undergoes biological treatment to remove contaminants prior to release into the Swan River. The stormwater is not used for irrigation.

Figure 9 - Scheme Water Consumption (Kilolitres kL), Perth City (pre-July 2016), 2010-11 to 2014-15³⁸



NE 3 WASTE

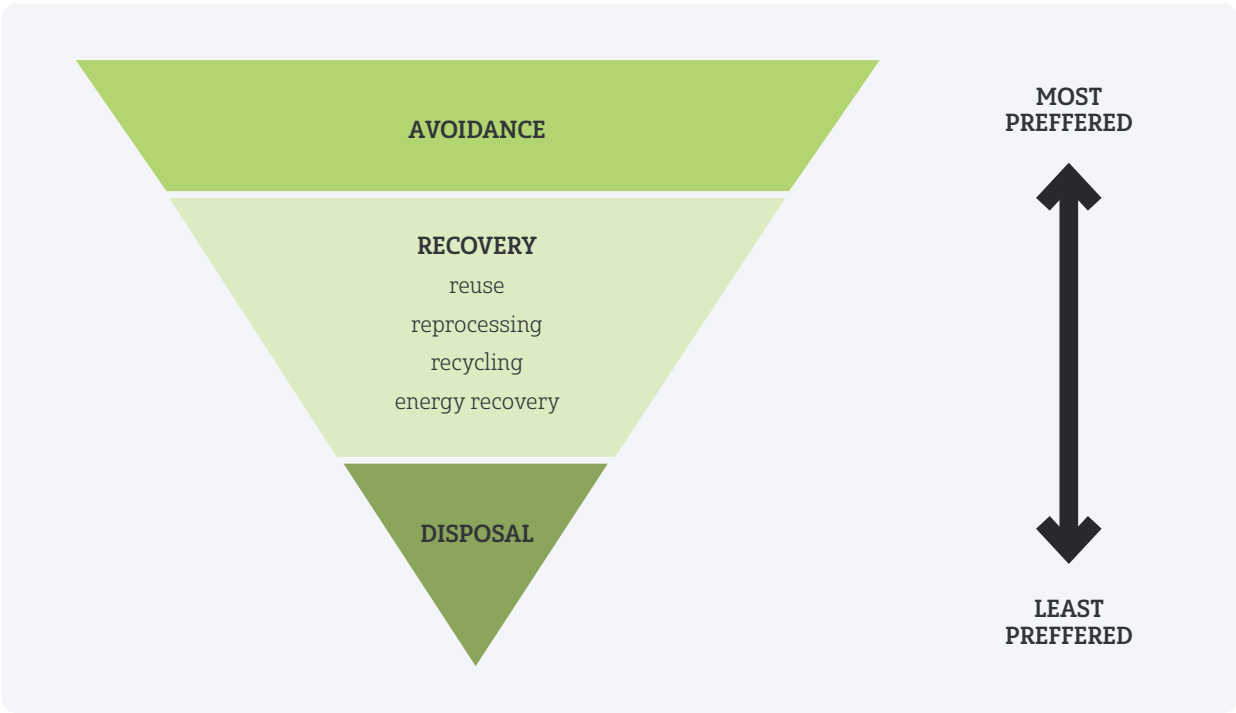
Waste is comprised of solid waste, organic waste (food/oils etc.), e-waste, hazardous materials and construction waste and is categorised as municipal solid waste, commercial and industrial waste and construction and demolition waste.

In Perth City, waste is generated by businesses, facilities (eg hospitals, stadiums), city visitors (eg in public spaces, attending events), residents and infrastructure and building construction, renewal and demolition.

The generation of waste can have an impact on the natural environment at local and regional scale including litter, possible contamination of land and water, generation of greenhouse gas (methane) and energy consumption through collection, processing and disposal.

In Western Australia, the Waste Authority (state government agency) has responsibility for overseeing the move to a “low waste society” through the Western Australian *Waste Strategy Creating the Right Environment* (the “WA Waste Strategy”) and the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act). The Act establishes a waste hierarchy to guide the management of waste and minimise environmental impacts.⁴⁴

Figure 10 – WA Waste Strategy (2012) - Waste Hierarchy



The *WA Waste Strategy (2012)* sets a number of community targets for waste.⁴⁵

- 1. 65% recovery^e of municipal solid waste by 2020 (for Greater Perth).
- 2. 70% recovery of commercial and industrial sector waste by 2020 (for the State).
- 3. 75% recovery of construction and demolition waste by 2020 (for the State).

The City of Perth’s *Waste Strategy 2014-2024+* aims to “be cognisant of and contribute to the achievement of State Government and waste management objectives in terms of quantitative and time based targets” and work towards the State Government target to divert 65% of municipal solid waste from landfill by 2020.⁴⁶

^e Recovery is the term used to describe the diversion of waste away from landfill and to other uses such as recycling or energy generation.

NE3.1 WASTE GENERATION

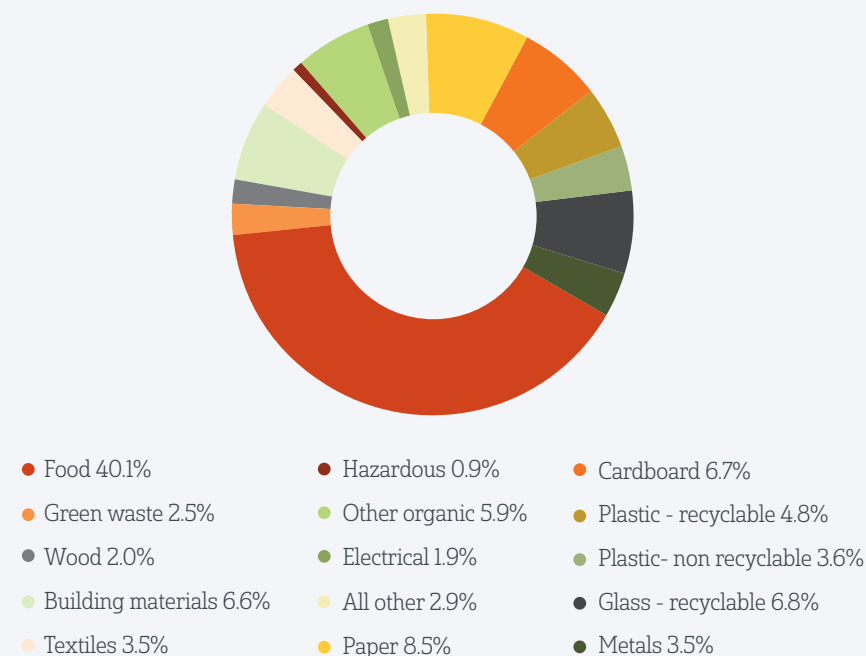
There is no data that provides a complete picture of the total amount of waste generated in Perth City, as there are multiple systems and operators involved in collecting waste.

Figure 11 – Total Waste Generation, Perth City (Pre-July 2016)

Waste Type	Total Waste Generated
Municipal (ie residential and includes public place bins)	<p>Kerbside Waste Collection - The City of Perth, as municipal waste operator, estimates 260 kilograms of waste was generated per resident in the 2014/15 financial year^{47 f} (Perth City pre-July 2016 boundary change).</p> <p>Verge-side Waste Collection - In 2015, the City of Perth collected 88 tonnes of waste and in 2016 collected 107 tonnes with 12 tonnes of metal and 12 tonnes of green waste diverted from landfill.⁴⁸</p>
Industrial and Commercial (includes events)	unknown
Construction and Demolition	unknown

In 2013, an audit of the City of Perth's municipal waste stream, estimated the average composition of household waste to be⁴⁹:

Figure 12 – Municipal Waste Stream Audit, City of Perth, 2013



NE3.2 WASTE AVOIDANCE AND DIVERSION

There is no data that provides a complete picture of the total amount of waste recovered and/or avoided in Perth City.

In 2016, the City of Perth installed 26 public place recycle bins throughout CBD in Hay and Murray Street Malls and Forrest Place. In addition, the City is carrying out the Waste Authority's three-bin system trial with over 1300 residential properties in the Crawley-Nedlands precinct. The trial introduces green waste recycling separation and smaller 120 litre bins in an attempt to reduce the amount of waste produced per household and therefore less waste sent to landfill.

^fThe resident population based on WA Tomorrow Population Report No.8 Band C Population Projections.

NE 4 LOCAL ECOLOGY

Biodiversity, or biological diversity, is the variety of all species on earth. It is the different plants, animals and micro-organisms, their genes, and the terrestrial, marine and freshwater ecosystems of which they are a part. Biodiversity provides the fundamental building blocks for the many goods and services a healthy environment provides that are fundamental to our health, like clean air, fresh water and food products, as well as many other products such as timber and fibre. Humans depend, directly and indirectly, on living systems for our health and well-being.⁵⁰ Biodiversity and ecosystems provide us with opportunities for recreation and leisure and contributes to our local and national sense of identity.^h

Perth City faces the same challenge as other capital cities to find the balance between maintaining and improving the quality of our local biodiversity while accommodating our social, economic and cultural needs, including physical growth and consumption of biodiversity.

As Greater Perth and Perth City continue to grow, it will become increasingly important to achieve an appropriate balance between the natural and the human / built environments through sustainable approaches such as green infrastructure and biophilic design.ⁱ

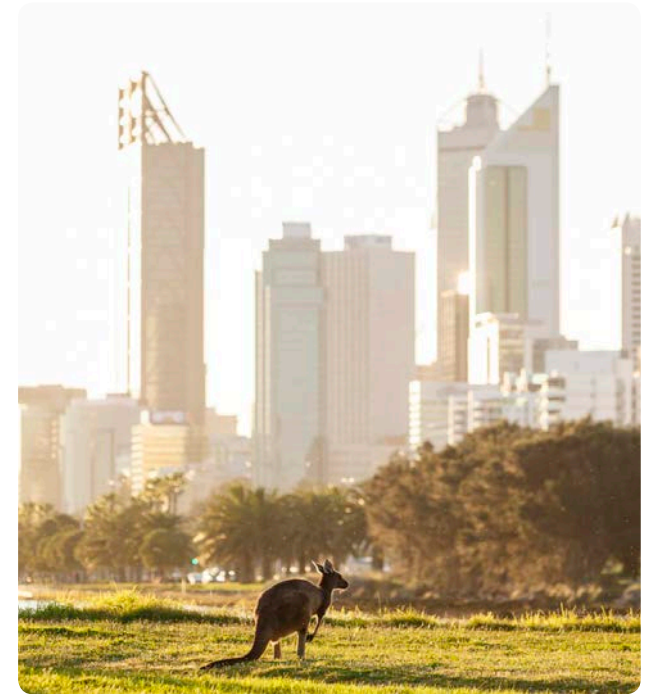
NE4.1HYDROLOGY

Groundwater

There are three types of groundwater aquifers underneath Perth City - the Yarragadee and Leederville aquifers which are contained deep below the surface, and Superficial aquifers which are located closer to the surface, sometimes forming wetlands or lakes.

Around 40% of the water supply for Greater Perth comes from groundwater.⁵¹ The extraction of groundwater from the Yarragadee and Leederville aquifers is restricted and monitored to ensure sustainable use of the resource. Rainfall patterns are important for sustaining groundwater supplies within the superficial aquifer, as it is fed directly through local rainfall infiltration. Unsustainable groundwater abstraction from superficial aquifers can cause changes in water levels and regimes of nearby wetlands.⁵²

The Department of Water is responsible for managing and protecting the State's water resources. The quality of groundwater under Perth City has not been investigated for the Snapshot 2016.



Heirisson Island

^g Ecosystems refer to the interaction between living organisms (including humans) and their environment and biodiversity refers to the variety of living organisms including plants, animals, fungi and microscopic organisms.

^h Urban green infrastructure (GI) refers to all of the vegetation that provides environmental, economic and social benefits such as clean air and water, climate regulation, food provision, erosion control and places for recreation (Source - <http://www.csiro.au/en/Research/LWF/Areas/Resilient-cities-2IC/Green-infrastructure>)

ⁱ Biophilia is the inherent human inclination to affiliate with nature that even in the modern world continues to be critical to people's physical and mental health and wellbeing (Source - Wilson 1986, Kellert and Wilson 1993, Kellert 1997, 2012, quoted in The Practice of Biophilic Design by SR Kellert & EF Calabrese).

Swan River

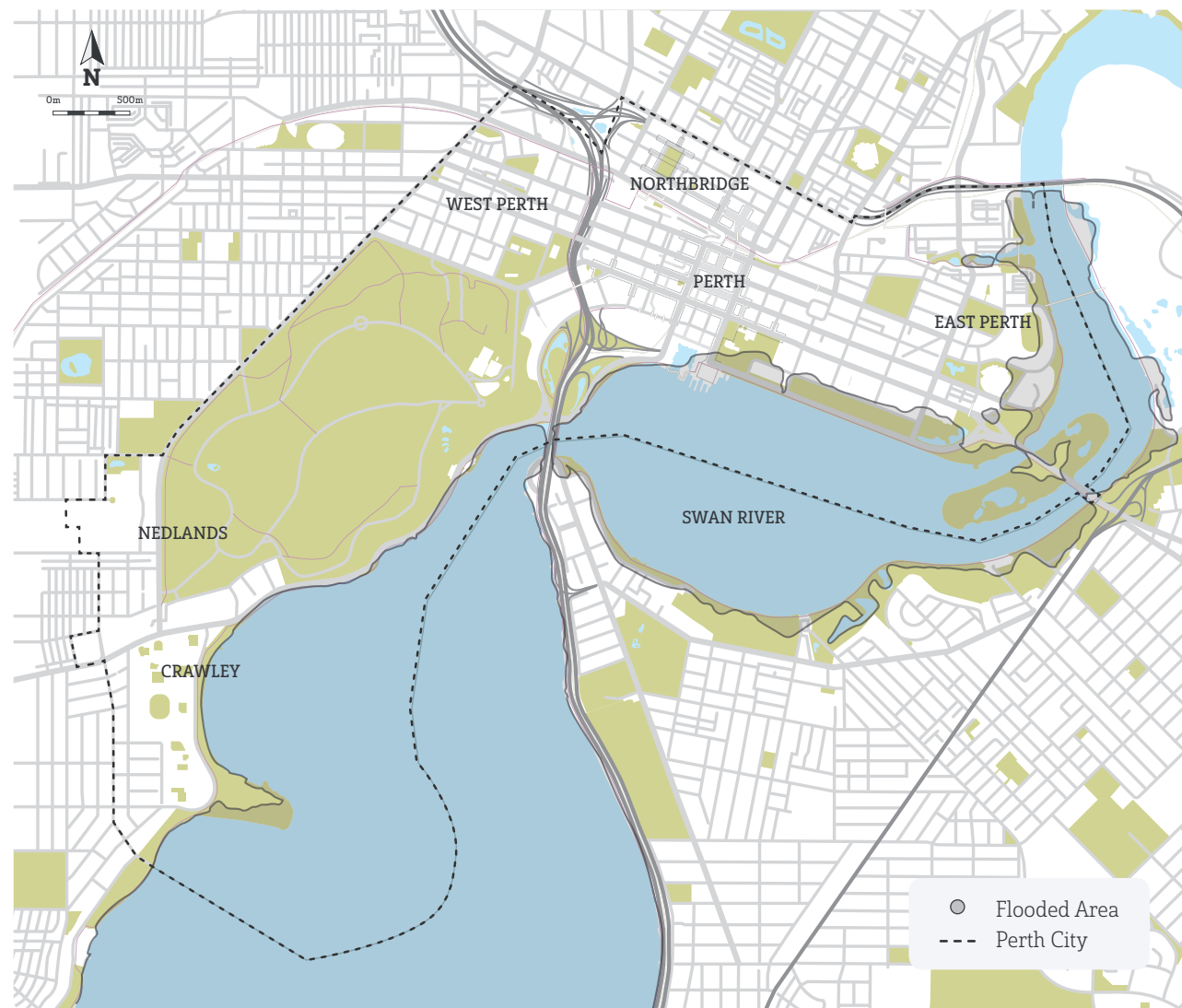
Perth City is situated in the Swan Canning sub-catchment area covering 2,090 square kilometres of the much larger Swan Avon catchment area (approximately 126,000 square kilometres).⁵³

The Swan-Canning Estuary System is identified as a “*water quality hotspot*” by the Federal Department of Agriculture and Water Resources for its “*valuable riparian vegetation and diverse aquatic ecosystems including notable fauna such as bottlenose dolphins, sea horse colonies, sea stars, Perth Herring and Mullaway*” and social and recreational values, being nationally significant (as defined by the Environment Protection and Biodiversity Conservation Act 1999).⁵⁴

Perth City is located on the northern intersection of the Swan River’s lower and middle estuary systems where the water quality ranges from Good (Lower Estuary) to Poor (Middle Estuary).⁵⁵

The Swan River is subject to flooding and the extent of 100 year flooding has been modelled by the Department of Water.

Figure 13 – Floodplain Map (1 in 100 year Average Recurrence Interval (ARI) storm event)⁵⁶



Wetlands

Historically, there was a chain of wetlands extending across the northern area of Perth City (now East Perth and Northbridge) to Lake Monger which shaped the original planning of the Swan River Colony settlement, giving rise to the east-west alignment of roads.

The Museum of Western Australia's Reimaging Perth's Lost Wetlands provides a history of the wetland chains and their importance to Aboriginal people:

The wetlands were places of abundance to Nyoongars who lived off the water birds, frogs, gilgies (freshwater crayfish), turtles and plant foods so prevalent in the swamps.⁵⁷

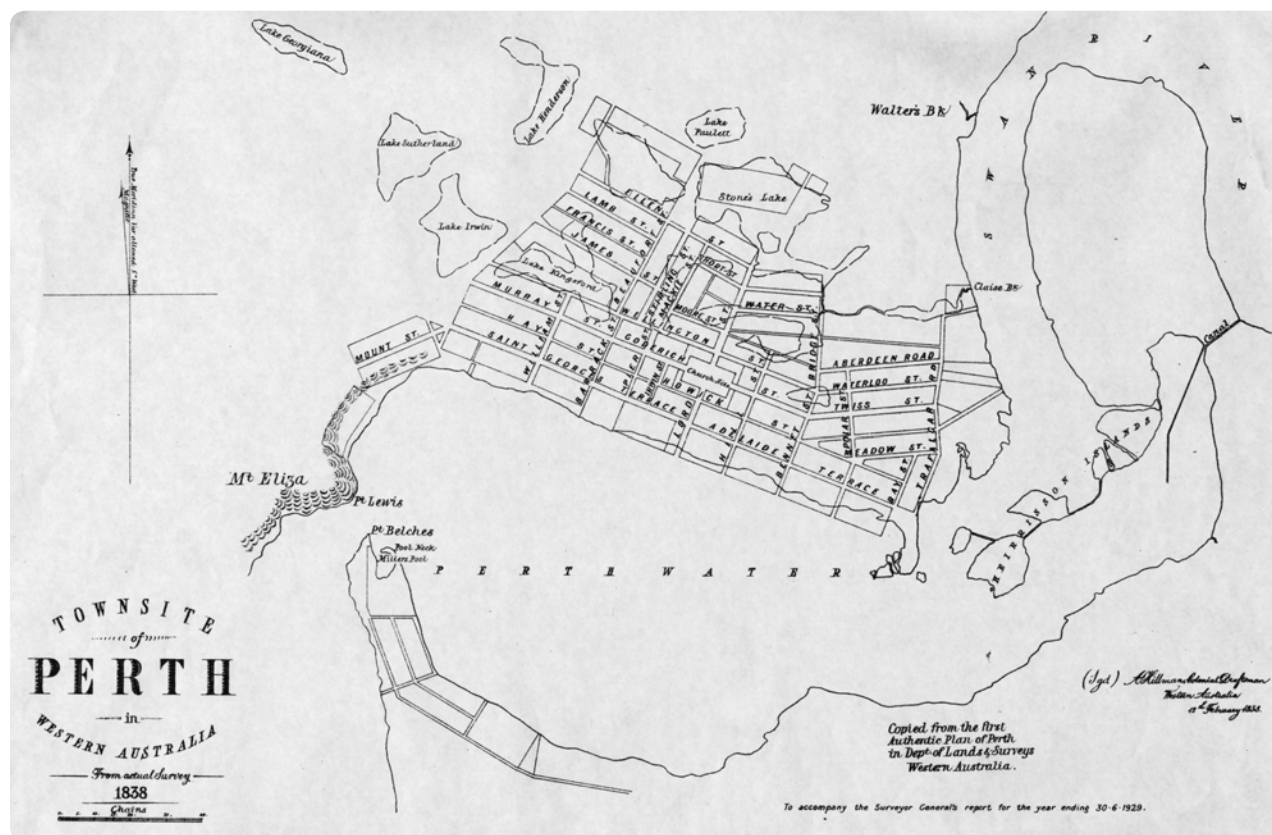
Although the majority of the wetlands have since been filled to make way for development, hints of the original wetland chain are present in Queens Garden and the deepest, Lake Kingsford “is still causing obstacles for city development where the new underground Wellington Street Bus Station was required to install the highest level of watertightness.”⁵⁹

Wetlands located in Perth City are:

Constructed

- Point Fraser – stormwater recycling, restored natural river edge, boardwalks, playground, natural environment information.
- Claisebrook Lake, East Perth – irrigation and ornamental.
- Cultural Centre – stormwater drainage.
- Harold Boas Gardens, West Perth – irrigation and ornamental.
- Ozone Reserve, East Perth – groundwater storage and treatment for irrigation and ornamental.
- Freeway interchanges – Narrows and Malcolm St– stormwater drainage and ornamental.
- Kings Park – multiple for irrigation and ornamental.

Figure 15 – Early Plan of Perth City Showing Wetland Locations⁵⁸



¹ Acid sulfate soils (ASS) are naturally occurring soils and sediments containing iron sulfides, most commonly pyrite. When ASS are exposed to air the iron sulfides in the soil react with oxygen and water to produce a variety of iron compounds and sulfuric acid. The resulting acid can release other substances, including heavy metals, from the soil into groundwater and the surrounding environment (Department of Environment – Acid sulfate soils fact sheet).

Original or Modified

- Heirisson Island – some original lakes filled although some salt marshes remain.
- Queens Garden Lakes – ornamental and spring fed.
- Kennedy Spring – Kings Park – spring.
- East Perth (adjacent Police Station) - spring.

NE4.2 SOILS

There are three naturally occurring types of soil in Perth City - Vasse soils along the river foreshore, Herdsman soils marking the location of the former wetlands, and Karrakatta sands – with some imported soil used to create the Narrows Interchange and dredged material from the bed of the Swan River to shape Heirisson Island and parts of the Foreshore.⁶⁰

There is limited information on the quality of soil as widespread testing is not routine, although there is information on potential contamination from past industrial activities and the presence of potential acid sulfate soils, and both are managed through stringent State government policy.^j

NE4.3 OPEN SPACE, TREES & VEGETATION

There is a total of 564 hectares of open space in Perth City, comprising 114 hectares of parks (predominately grassed areas) and 433 hectares of bushland (including Kings Park at 400 hectares).⁶¹

High Value Spaces

Several open spaces are considered to have high values and are listed under the State Government's BushForever Policy.^{62 k}

- Kings Park escarpment - BushForever Site No.317 - 276 ha of escarpment of Kings Park behind the old Swan Brewery containing remnant vegetation.
- Pelican Point, Crawley- BushForever Site No.402 and pending Threatened Ecological Community classification^l due to temperate coastal saltmarsh.⁶³ Pelican Point is one of three locations in the Swan River forming the Swan Estuary Marine Park where "*internationally protected waders visit every summer coming from far away areas such as Asia, Mongolia and Siberia*".⁶⁴
- Heirisson Island (south-east corner) – shown as BushForever 'Other Native Vegetation', as rehabilitated (replanting commencing 2016) and pending Threatened Ecological Community classification (temperate coastal saltmarsh).

Kings Park

Kings Park is also home to the Western Australia's Botanic Garden and the Biodiversity Conservation Centre including a major native seed bank^m, playing an important role in preserving and displaying the biodiversity of Western Australia.

Kings Park has an estimated 12,000 species of native plants and 306 species of Declared Rare Flora.⁶⁵

Trees (Urban Forest)

There is a total of 14,811 trees in Perth City (pre-July 2016 boundary, excluding Kings Park) with a total canopy cover of 10.7% of the city's land area, and 64% are native.⁶⁶

Natural Heritage

Natural assets and landscapes are sometimes recognised and listed on national and local heritage registers to document and protect their significant values.

There are no places in Perth City listed on any national heritage registers, although the Swan River is listed under the Aboriginal Heritage Act 1972 (WA) for its cultural values.

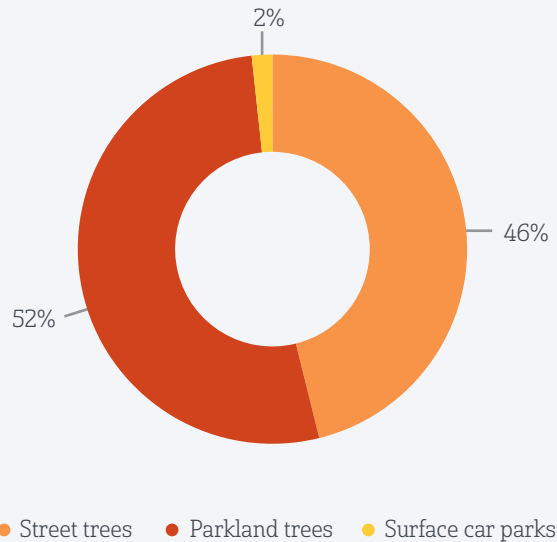
A number of trees and city parks are listed on the City of Perth's Local Heritage List (under the City Planning Scheme No.2) including Stirling Gardens, Supreme Court Gardens, Langley Park, Queens Park and Harold Boas Gardens, and the City of Perth maintains a Significant Tree Register (formally City of Subiaco areas).

^k The aim of the Bush Forever policy is to provide a policy and implementation framework that will ensure bushland protection and management issues in the Perth Metropolitan Region " (Department of Planning "Bushforever").

^l An ecological community is defined as "naturally occurring biological assemblages that occur in a particular type of habitat" which may be assessed as being 'threatened' due to the existence of "threatening processes" (Department of Planning "Bushforever").

^m Seed preservation allows us to save plant species from potential extinction. If a plant is extinct in the wild, seed banks act as a potential back up to reintroduce the species.

Figure 16 - Location of Trees in Perth City (pre-July 2016)



NE4.4 FAUNA

Perth City's green spaces host a range of native and non-native animals.

Significant native fauna includes:

- eight "rare" or "likely to become extinct" species including Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Chuditch (*Dasyurus geoffroii*), and the Quenda (*Isodon obesulus*) which is a Priority 5 species (located in Arden Street Reserve and Victoria Gardens, East Perth).⁶⁸

- five species protected under international agreements; two species of other specially protected fauna; and 21 priority species.
- five semi-captive Western Grey Kangaroos (*Macropus fuliginosus*) on Heirisson Island.

In addition, the Swan River supports a significant level of biodiversity including Rakali (*Hydromys chrysogaster*) or Native Water Rat along foreshore areas and many native birds, although the changes to the foreshore and the dredging of the shallow areas of Perth Water has reduced the feeding and roosting areas for many species including the iconic Black Swan⁷⁰.

There are a number of uncontrolled and controlled non-native animals in Perth City, including stray domestic animals and invasive species such as black rats (*Rattus rattus*), Rainbow Lorikeets (*Trichoglossus haematodus*) and the European Fox (*Vulpes vulpes*)⁷¹ Invasive fauna can pose a number of risks to human health and the environmental values of open space including fouling of outdoor areas, spread of zoonotic disease (diseases of humans acquired from an animal source⁷²) and disturbance to native species.⁷³

There are 101 cats and 266 dogs registered in Perth City (pre-July 2016)⁷⁴ and if well managed, domestic pets can provide multiple health benefits such as an exercise partner, reducing stress, improved mental health and self-esteem from non-judgemental companionship.⁷⁵

NE4.5 AIR QUALITY

Air quality refers to an acceptable condition of air as measured legislation and guidelines⁷⁶. "Air quality issues may be limited to a particular region due to local air pollution sources, or may be more widespread and experienced across one or more jurisdictions, due to common air pollutant sources (such as vehicle emissions) or due to the trans-boundary movement of airborne pollutants".⁷⁷

The quality of air across Greater Perth is monitored and measured by the Department of Environmental Regulation (DER) at eight sites, with the closest station to Perth City in Swanbourne, although a site in Perth City is being investigated and will be managed by DER.⁷⁸

The air quality across Greater Perth is rated as being either "good" or "very good" for 95% of the time and respirable particulate matter "good" or "very good" for 96% of the time, based on analysis of air quality index values, and monitoring stations exceeded standards eight individual times in 2014 due to residual smoke from bushfires or prescribed burning, although there were no exceedances of particulate goals.⁷⁹

There is no data on the quality of local air.

⁷¹ The European Fox is present at Kings Park and surrounding areas. However, they are not found in large numbers and are part of a larger population occurring across the metropolitan region.

FINDINGS

NE1 ENERGY AND CLIMATE CHANGE

1. The total quantity and breakdown of different sources of renewable and non-renewable energy being supplied to and consumed in Perth City is largely unknown as there is no comprehensive set of data. This is with the exception of data showing a total of 665 solar photovoltaic (PV) cells (renewable) and modelling from the GHG emissions inventory which indicates 59% of GHG emissions come from electricity, which is generated from 91% non-renewable sources and 8% renewable sources.
2. The GHG emissions inventory calculates that 90% of emissions in Perth City (pre-July 2016) are generated from non-residential activity which reflects the extent and size of Perth City's economy and the large influx of workers from outside the City everyday.
3. In comparison to other capital cities, Perth City (pre-July 2016) emits lower proportions of GHG from "Buildings" but a greater proportion from "Transport" which may reflect a higher proportion of travel into Perth City by workers via private vehicles (ie an energy intensive transport mode) in proportion to public transport or walking / cycling modes (ie less energy intensive).
4. A thorough understanding of energy generation and consumption are important given the number of changes to the climate of the south-west of Western Australia which have been projected with either "*high or very high confidence*" and the setting of community targets for reduction in GHG emissions and increasing the consumption of energy from renewable or low-carbon sources.

NE2 WATER

5. The majority of potable water consumed in Perth City comes from scheme water which is generated from surface water 17%, groundwater 42% and desalinated seawater 41%. Between 2010-11 to 2014-15, the consumption of water by Perth City (pre-July 2016) residents ranged between 76 kL per person per year to 74 kL per person per year which appears to meet the City of Perth's *Environmental Strategy* community target to "*work with the community to reduce residential water use to below 78kL per person per year by 2030*".
6. There is no data to provide a comprehensive understanding of water use from decentralised water sources (ie alternatives to scheme water). A thorough understanding of Perth City's 'water balance' is important given the number of changes to the climate of the south-west of Western Australia which have been projected with either "*high or very high confidence*" and impacts on the surface and groundwater.
7. Data on the total consumption of local groundwater compared to allocations specified in extraction licences has not been researched for Snapshot 2016.

NE3 WASTE

8. The total quantity of waste generated in Perth City from all activities is unknown as there is no comprehensive set of data to capture this information from different sources ie residential, hospitals, businesses, construction and multiple waste collectors.

9. The total quantity of waste diverted or avoided in Perth City is unknown as there is no comprehensive set of data to capture this information. In 2015, the City of Perth (as a municipal waste operator) estimated a diversion rate of 17% of residential solid waste and 9% of commercial and industrial waste was diverted to waste recovery centres (from their collection). A comprehensive audit and analysis of data may be prudent given community targets set by the City of Perth to achieve *“65% recovery of municipal solid waste, 70% recovery of commercial and industrial waste, and 75% recovery of construction and demolition waste by 2020 and develop new targets set for 2030”*.

NE4 LOCAL ECOLOGY

10. There is no comprehensive set of data on Perth City’s biodiversity, although the City contains some significant and valuable biodiversity assets such as Kings Park, Heirisson Island, Crawley Foreshore and the Swan River, which include a number of valuable species and threatened communities.
11. There is no local data on the quality of air in Perth City, although the installation of a monitoring station in Perth City is being planned by the Department of Environment. Air quality across Greater Perth is considered good.

REFERENCES

- ¹ Commonwealth of Australia Biodiversity Hotspots. Available from <https://www.environment.gov.au/biodiversity/conservation/hotspots>
- ² Ibid.
- ³ Newman, P. & I. Jennings (2008) *Cities as Sustainable Ecosystems, Principles and Practices*. Island Press. Washington D.C.
- ⁴ UN Habitat (2016) *Energy*. <http://unhabitat.org/urban-themes/energy/>
- ⁵ Ibid.
- ⁶ ARENA (2016) *Australian Renewable Energy Mapping Infrastructure*. Available from <http://nationalmap.gov.au/renewables/#share=Gt9qUw>
- ⁷ Australian Bureau of Statistics (2001) *Energy and greenhouse gas emissions accounts, Australia, 1992-93 to 1997-98*. Available online at <http://www.abs.gov.au/ausstats/abs@.nsf/0/7C10C76736F68A5FCA2575DF001CA9A2?OpenDocument>
- ⁸ Intergovernmental Panel on Climate Change (IPCC) (2014) *Climate Change 2014 Synthesis Report Summary for Policymakers*. Available from https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf
- ⁹ IPCC (2014) *Climate Change 2014 Synthesis Report Summary for Policymakers*. Available online https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf
- ¹⁰ CSIRO (2015) *Climate change information for Australia*. <http://www.csiro.au/en/Research/OandA/Areas/Oceans-and-climate/Climate-change-information>
- ¹¹ Kinesis (2016) *City of Perth Greenhouse Gas Inventory for GPC Reporting (version 2)* (unpublished).
- ¹² Kinesis (2016) *City of Perth Greenhouse Gas Inventory for GPC Reporting (version 2)* (unpublished).
- ¹³ Compact of Mayors (2015) *Capital City Climate Data*. Available from <https://www.compactofmayors.org/cities> (July 2016).
- ¹⁴ City of Perth (2014) *Towards An Energy Resilient City – Strategic Directions Paper*.
- ¹⁵ Op cit, Kinesis (2016).
- ¹⁶ CSIRO (2015). *Southern and South-Western Flatlands West Projection Summaries*. Available from <http://www.climatechangeinaustralia.gov.au/en/climate-projections/future-climate/regional-climate-change-explorer/sub-clusters/?current=SSWSW&popup=true&tooltip=true>
- ¹⁷ CSIRO (2014) *State of the Climate*. Available from http://www.bom.gov.au/state-of-the-climate/documents/state-of-the-climate-2014_low-res.pdf?ref=button
- ¹⁸ Climate Council (2015) *The Heat is On: Climate Change, Extreme Heat and Bushfires in WA*. Available from <http://www.climatecouncil.org.au/uploads/7be174fe8c32ee1f3632d44e2cef501a.pdf>
- ¹⁹ Bureau of Meteorology (2015) *Perth in 2015: a very warm year with dry winter and spring*. Available from <http://www.bom.gov.au/climate/current/annual/wa/perth.shtml>
- ²⁰ Climate Council. (2016) *The Heat Marches*. Available from <http://www.climatecouncil.org.au/uploads/8e377bac4cc765bb9df82d41bc9572e2.pdf>
- ²¹ Australian Bureau of Meteorology (2016) *Annual climate statement 2015*. Available from <http://www.bom.gov.au/climate/current/annual/aus/>
- ²² Commonwealth Department of the Environment (2016) *Climate change impacts in Western Australia*. Available from <https://www.environment.gov.au/climate-change/climate-science/impacts/wa>

²³ Ibid.

²⁴ CSIRO (2015) *Climate Change in Australia*. Available from <http://www.climatechangeinaustralia.gov.au/en/climate-projections/future-climate/regional-climate-change-explorer/sub-clusters/?current=SSWSW&popup=true&tooltip=true>

²⁵ Water Corporation (2009) *Water Forever Towards Climate Resilience Summary*. Available from <https://www.watercorporation.com.au/-/media/files/about-us/planning-for-the-future/water-forever-50-year-plan-summary.pdf>

²⁶ Environmental Protection Authority (2012) *Environmental Protection Bulletin No. 18 – Sea Level Rise*. Available from <http://www.epa.wa.gov.au/EPADocLib/EPB%2018%20Sea%20level%20rise%20de%20Ruiter.pdf>

²⁷ Op cit, Commonwealth Department of the Environment (2016).

²⁸ Op cit, Commonwealth Department of the Environment (2016).

²⁹ Commonwealth Department of the Environment (2016).

³⁰ Department of Fire & Emergency Services. (2016) *Map of Bush Fire Prone Areas*. Available from <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>

³¹ Ibid.

³² Government of Western Australia (2010) *Water – its importance and source*. Available from <http://www.health.gov.au/internet/publications/publishing.nsf/Content/ohp-enhealth-manual-atsi-cnt-l-ohp-enhealth-manual-atsi-cnt-l-ch6~ohp-enhealth-manual-atsi-cnt-l-ch6.1>

³³ Commonwealth of Australia (2011) *Australian State of the Environment Report*.

³⁴ Government of WA, Department of Water (2009) *Peel Perth Regional Water Plan 2010-2030 draft*. Available from https://www.water.wa.gov.au/__data/assets/pdf_file/0015/1806/90639.pdf

³⁵ City of Perth (2016) *Environment Strategy*.

³⁶ <http://www.watercorporation.com.au/home/faqs/water-supply-and-services/what-is-the-integrated-water-supply-scheme>

³⁷ City of Perth (2016) *Water Program data (unpublished)*.

³⁸ Ibid.

³⁹ Op cit (City of Perth 2016).

⁴⁰ Australian Bureau of Statistics - 4610.0 - Water Account, Australia, 2013-14.

⁴¹ Water Corporation Available from <http://www.watercorporation.com.au/home/faqs/saving-water/how-many-litres-of-water-do-people-in-perth-use-each-year>

⁴² Government of WA, Department of Water (2016) *Water Licence data (unpublished)*

⁴³ Waterdirect Pty Ltd (2015) City of Perth Groundwater Monitoring Report 2014-15 (unpublished).

⁴⁴ Government of WA, Waste Authority (2013) *Waste Authority Communication on the Waste Hierarchy*.

⁴⁵ Government of WA, Waste Authority (2012) *Western Australian Waste Strategy- Creating the Right Environment*.

⁴⁶ City of Perth (2014) *Waste Strategy 2014 to 2024*.

⁴⁷ City of Perth (2015) *Waste Census (unpublished)*.

⁴⁸ Pers comms, K Howarth 16 September 2016, and N Ahern 6 October 2016.

⁴⁹ Op city City of Perth (2014).

⁵⁰ Department of Sustainability, Environment, Water, Population and Communities (2010) *Australia's Biodiversity Conservation Strategy 2010–2030* Prepared by the National Biodiversity Strategy Review Task Group convened under the Natural Resource Management Ministerial Council. Available at <https://www.environment.gov.au/biodiversity/publications/australias-biodiversity-conservation-strategy>

⁵¹ <http://www.watercorporation.com.au/water-supply-and-services/solutions-to-perths-water-supply/groundwater>

⁵² Department of Environment (2004) Perth Groundwater Atlas.

⁵³ Department of Parks and Wildlife (2015) *Swan Canning River Protection Strategy*.

⁵⁴ <http://www.agriculture.gov.au/water/quality/wqips/hotspots/swan-canning-estuary>

⁵⁵ Government of Western Australia (no date) *Healthy Rivers Action Plan*. Available from <https://www.dpaw.wa.gov.au/images/documents/conservation-management/riverpark/Management/Healthy%20Rivers%20Action%20Plan.pdf>

⁵⁶ Department of Water. Flood Plain mapping

⁵⁷ Museum of Western Australia (2016) *Reimagining Perth's Lost Wetlands*. Available from <http://museum.wa.gov.au/explore/wetlands/aboriginal-context/noongar>

⁵⁸ Plan of townsite of Perth in Western Australia : from actual survey, 1838. City of Perth History Centre Collection

⁵⁹ Ibid.

⁶⁰ Claise Brook Catchment Group Inc (May 2008) *Local Biodiversity Study for the City of Perth*.

⁶¹ City of Perth (2016) *Public open space calculation for Perth City Snapshot* (unpublished).

⁶² Government of Western Australia (2000) *Bush Forever Vol. 1: Policies, Principles and Processes*. Available from http://www.planning.wa.gov.au/dop_pub_pdf/bush_forever_voll.pdf

⁶³ English, Val, (2016) Pers. Comm 29 April 2016.

⁶⁴ Government of WA, Department of Conservation (2016) *Swan Estuary Marine Park*. Accessed from <https://parks.dpaw.wa.gov.au/park/swan-estuary>

⁶⁵ <http://www.friendsofkingspark.com.au/about-us/our-history/>.

⁶⁶ City of Perth (2015) *Draft Urban Forest Plan and Parkland Tree Audit*.

⁶⁷ City of Perth (2016) *draft Urban Forest Strategy*.

⁶⁸ Department of Parks and Wildlife's (DPAW) *Nature Map – Mapping Western Australia's Wildlife*. Available from <https://naturemap.dpaw.wa.gov.au/>

⁶⁹ Ibid.

⁷⁰ Op cit, DPAW Nature Map.

⁷¹ Government of Western Australia (2016) *Botanical Gardens & Parks Authority*. Available from <http://www.bgpa.wa.gov.au/about-us/information/news/2129-kp-foxes0216>

⁷² Western Australian Department of Health. Available from <http://www.health.gov.au/internet/main/publishing.nsf/content/cda-pubs-cdi-2001-cdi2504-cdi2504c17.htm>

⁷³ Commonwealth Department of the Environment (2016) Available from <https://www.environment.gov.au/biodiversity/invasive-species/feral-animals-australia/feral-cats>

⁷⁴ City of Perth (2016) registered animals (unpublished).

⁷⁵ Government of Victoria Better Health Channel. Available from <https://www.betterhealth.vic.gov.au/health/healthyliving/dog-walking-the-health-benefits>

⁷⁶ Perth NRM (2015) *Swan Region Strategy for Natural Resource Management*. Available from <http://www.swanregionstrategy.com.au/wp-content/uploads/Swan-Region-Strategy-for-NRM.pdf>

⁷⁷ Commonwealth of Australia (2015) *National Clean Air Agreement*. Available from <https://www.environment.gov.au/system/files/resources/188756ab-ed94-4a3c-9552-62763ca86a7f/files/national-clean-air-agreement.pdf>

⁷⁸ Lee, E (2016) Pers. Comm. 27 July 2016.

⁷⁹ Government of Western Australia (2015) 2014 *Western Australia Air Monitoring Report*. Available from https://www.der.wa.gov.au/images/documents/your-environment/air/monitoring_reports/2014_WA_Air_Monitoring_Report.pdf

CHAPTER 6

ECONOMY

The Economy Theme looks at the character of Perth City's economy and its contribution to the Greater Perth region economy. Perth City forms the largest concentration of economic activity and employment in Greater Perth and plays a critical role in the economic prosperity of Western Australia.

Understanding the current state of Perth City's economy provides an essential foundation to capitalise on the growth of Greater Perth to 3.5 million people by 2050 and responding to changing global conditions.

Economic indicators such as economic output and diversity, levels of investment, business and employment growth, research capability and innovation, provide a picture of our current levels of diversity, comparative advantage and competitiveness. A sustainable economy underpins the prosperity and quality of life for people in Perth City and Greater Perth and contributes to a place people want to live, visit, work, invest and do business, now and into the future.

E1 ECONOMIC CONTRIBUTION

- E1.1** Economic Output
- E1.2** Economic Diversity
- E1.3** Investment

E2 DOING BUSINESS

- E2.1** Business Attraction and Retention
- E2.2** Employment Growth
- E2.3** Business Costs

E3 RESEARCH AND INNOVATION

- E3.1** Research Capability
- E3.2** New Business Development and Start-Ups
- E3.3** Innovation

E4 EDUCATION AND TRAINING

- E4.1** Education Sector Contribution
- E4.2** Student Attraction

E5 VISITOR ECONOMY

- E5.1** Visitor Numbers and Expenditure
- E5.2** Tourism Jobs and Night Time Economy
- E5.3** Accommodation

FINDINGS**REFERENCES**

E1 ECONOMIC CONTRIBUTION

Economic contribution examines the size and character of economic activity in Perth City through the value of economic output, agglomeration and strength of industry sectors and current levels of investment.

Perth City has benefitted from the growth of the Western Australia economy over the last decade with substantial investment in business and industry and expansion of the mining and energy sectors on the back of strong demand for commodities from Asia.¹ Perth City’s non-mining support services such as scientific and professional services, finance and administration have also benefitted from a flow-on of activity and demand for services.

As the Western Australian economy enters a period of transition to lower growth, it is likely that economic activity will broaden into other sectors of the economy. Understanding and measuring the current value and character of Perth City’s economy will assist in measuring our future change and progress prosperity.

E1.1 ECONOMIC OUTPUT

Gross Regional Product (GRP)^a

In 2015, Perth City’s Gross Regional Product (GRP) was \$42.0 billion or 26% of Greater Perth’s GRP and 3% of the Australian Gross Domestic Product (GDP).²

Perth’s City’s GRP per hectare is substantially higher at \$21.7 million per hectare compared with \$250,000 per hectare for Greater Perth. The GRP at \$313,500 per worker is 45% above the Greater Perth average of \$216,700 per worker.

Perth City’s GRP is larger than some countries including Paraguay, Cambodia and Iceland.³ Although in comparison to other Australia capital cities, the GRP for City of Melbourne is \$90.6 billion, City of Sydney \$106.7 billion and City of Adelaide \$18.1 billion.

Data is only available for Perth City (pre-July 2016) prior to the inclusion of new areas in Crawley and Nedlands to enable direct comparison in GRP over time. Between 2009 and 2015, Perth City’s (pre-July 2016) GRP increased from \$29.1 billion to \$40.4 billion representing an average growth rate of 4.49% per year.⁴

Economic Output^b

In 2015, the total economic output for Perth City was estimated at \$80.1 billion.⁵

962 businesses in Mining produced output of \$32.5 billion or 40.6% of total output.

5,222 businesses in Professional, Scientific & Technical Services and Financial & Insurance Services sectors produced \$18.6 billion or 23.3% of total output.⁶

Figure 1 – Top 3 Industry Sectors by Output, Perth City, 2015

	Perth City (\$ billions)	% of Total Output
Mining	\$32.5	40.6%
Professional, Scientific & Technical Services	\$9.5	11.9%
Financial & Insurance Services	\$9.1	11.4%

^a Gross Regional Product is the net measure of wealth generated by a region, in this case Perth City. It was calculated using the Expenditure method where forms of final expenditure, including consumption by households, consumption by governments, additions or increases to assets (minus disposals) and exports (minus imports), are added (Source: REMPLAN).

^b Economic Output is the total value of goods or services produced in a given time period.

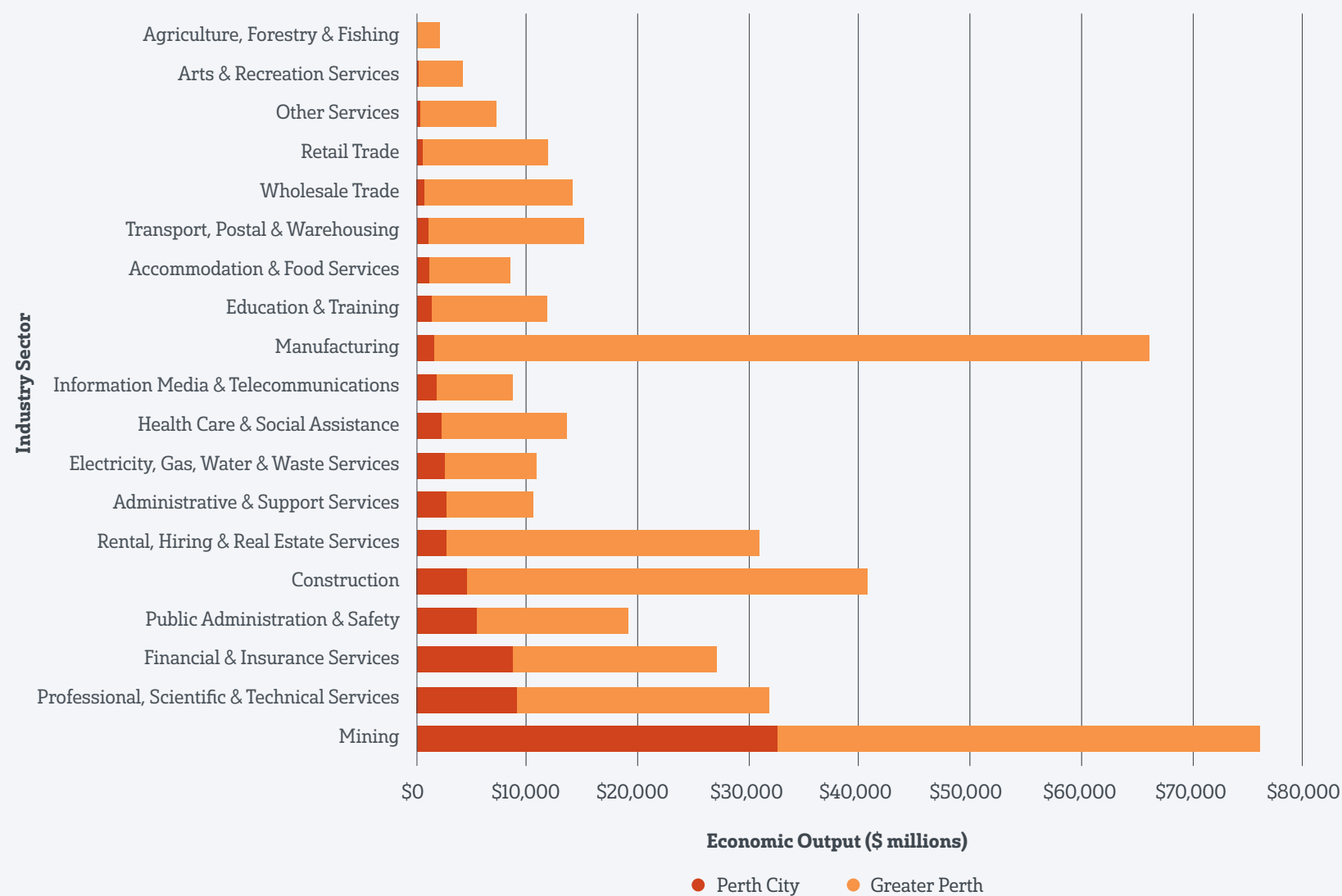
Figure 2 - Economic Output by Industry Sector, Perth City compared with Greater Perth, 2012-13

Figure 2 compares output by industry sector for Perth City and Greater Perth, which again highlighting the contribution of key sectors to the Greater Perth economy.

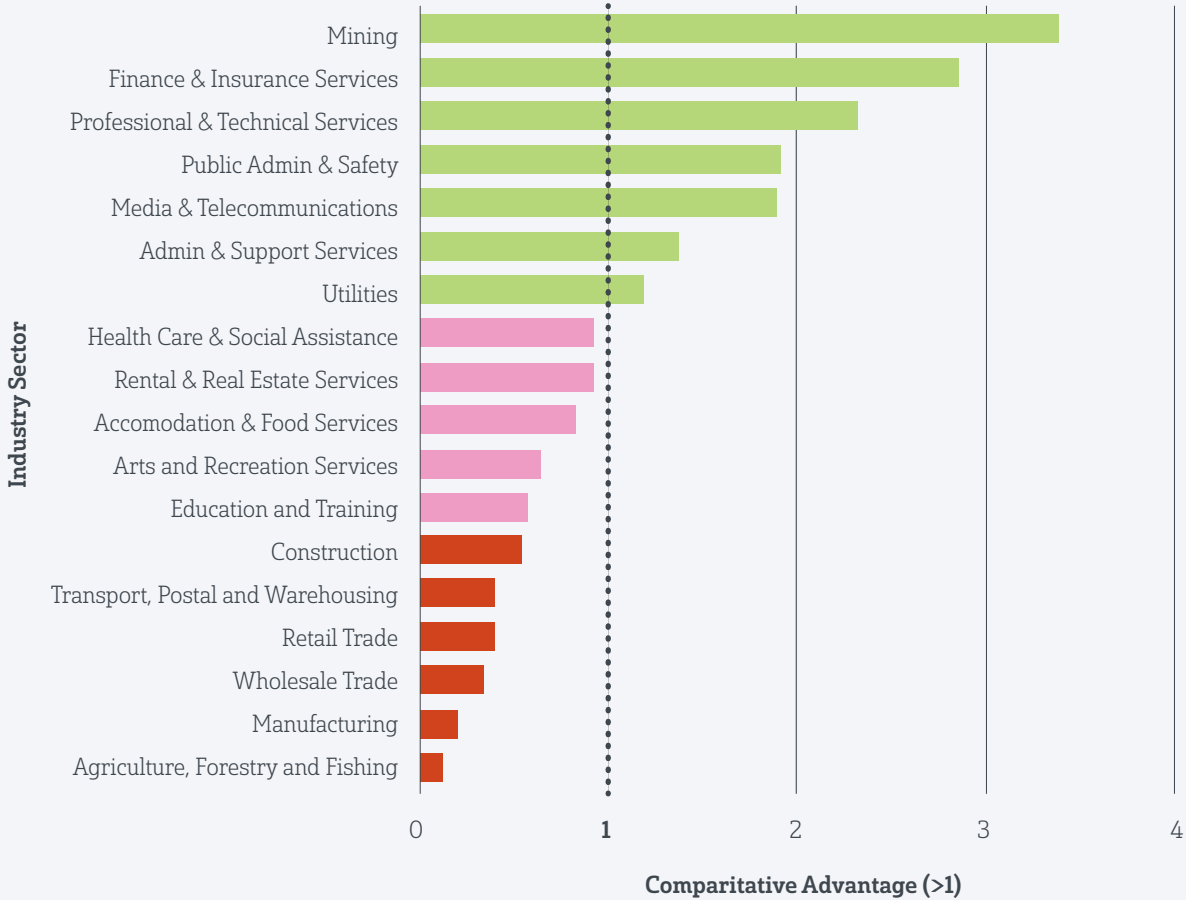
E1.2 ECONOMIC DIVERSITY

Perth City’s economic diversity refers to the mix of industries, sectors, skills and employment levels. Economic diversity is fundamental to economic stability and sustainability. Diverse economies are underpinned by an array of different industries which may provide a ‘cushion’ or buffer against the cyclical downturns in the economy over time or to external shocks such as unexpected or sudden changes in commodity prices.

Perth City has a strong economic base in the Mining and Professional services sectors and these have sustained high wages and employment growth over the past two decades. However, overall Perth City has relatively low economic diversity. Perth City is ranked in the 52nd percentile of Australian local governments for economic diversification which is lower than Adelaide (32nd percentile), Darwin (39th), Melbourne (43rd) and Sydney (46th) (according the Hachman economic diversity index).^{8 c}

Figure 3 highlights prominent industry sectors in Perth City (pre-July 2016) where a value greater than 1 implies a higher representation of workers in Perth City and comparative advantage in the particular industry compared to Greater Perth as a whole, and vice versa.

Figure 3 - Employment Shares Comparison Perth City (pre-July 2016) and Greater Perth, 2011



^c This is according to the Hachman economic diversity index used by Regional measures the economic diversity of a region in comparison to another economic region. Values closer to one would mean that the region’s economic structure is very diverse. Values closer to zero mean that the region does not have a diversity of industry sectors as compared to the other economic region (Regional Australia Institute – Guide to Understanding Australia’s Regional Competitiveness 2014).

E1.3 INVESTMENT

Investment in Perth City comes from a range of sources and is fundamental to maintaining Perth City as an attractive place to do business, access facilities and services and attract visitors for shopping, cultural and social activities.

The World Bank identifies direct investment as a key criteria for city competitiveness.⁹

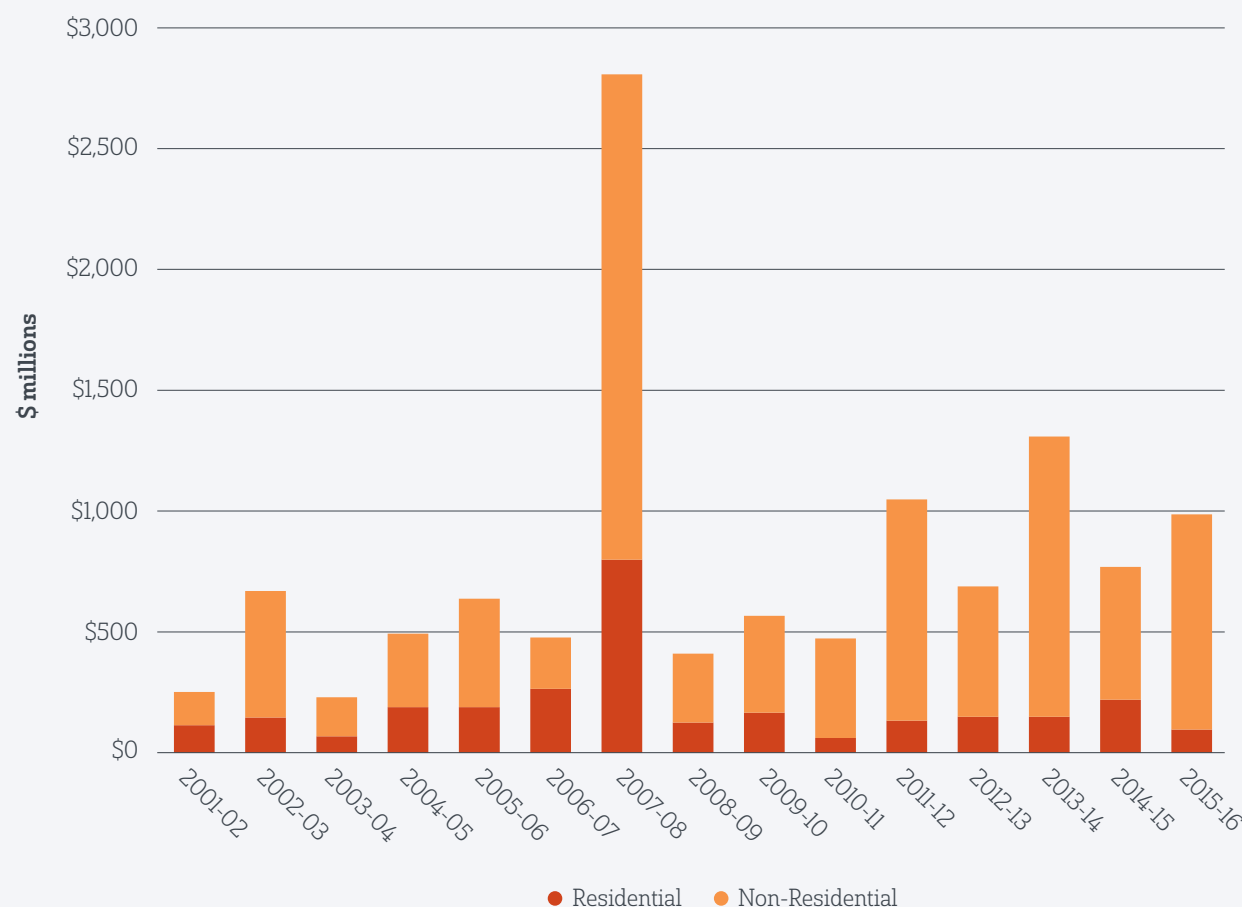
As of June 2016, there were an estimated 315 projects under construction within Perth City worth \$3.8 billion¹⁰ with a considerable portion in property assets which is reflected in the \$3.6 billion worth of building approvals in Perth City (pre-July 2016) between 2010 and 2015.¹¹

Perth City has been at the epicentre of significant public and private sector-led investment over the past five years. All tiers of government, businesses and investors have supported new road and rail projects and development of property assets and civic areas.

The key projects being undertaken in Perth City:

- **Elizabeth Quay:** Estimated investment attraction - \$2.6 billion. Development of a premier Swan River foreshore precinct, including high quality public spaces and a 2.7 hectare inlet connected by 1.5km of boardwalks and promenades, with ferry access to South Perth and Fremantle. The precinct will contain 800 apartments, 400 hotel rooms, and 225,000 square metres of commercial, retail and office space when completed.
- **Riverside (Waterbank):** Estimated investment attraction - \$2 billion. Development a cosmopolitan mixed-use waterfront precinct in the east of Perth City. The precinct will contain 7,000 residents (4000 dwellings) and 94,000 square metres of retail and office space (6,000 workers) when complete.

Figure 4 - Value of Building Approval, Perth City (pre-July 2016), 2001-02 to 2015-16



- **Perth City Link:** Estimated investment attraction - \$5.3 billion (\$4 billion private funds). Development of a 13.5 hectare precinct between the CBD and Northbridge, with 4 hectares of public space and a central city square (Yagan Square), new underground bus station, 3000 residents (1,650 dwellings) and 244,000 square metres of office, retail, hospitality and entertainment businesses (13,500 workers).
- **Cathedral and Treasury Precinct:** The renaissance of a heritage precinct The Old Treasury Building is complete and has transformed old and new buildings into unique hospitality destination with a boutique hotel, numerous bars and restaurants, vibrant public squares, iconic City library and office buildings.
- **Western Australian Museum Redevelopment:** A \$428.3 million project that will transform the existing heritage buildings into a larger, new Museum for WA with 7,000 square metres of galleries, learning studios, 'behind the scene' spaces, retail and cafe spaces by 2020.

- **Perth's Children's Hospital:** The new \$1.2 billion hospital is located in the Queen Elizabeth II Medical Centre and will form part of a centre of excellence for health and research and host major paediatric research and education initiatives led by the Telethon Kids Institute and the University of Western Australia.
- **Commercial Floorspace:** More than 128,000 square metres of new commercial floorspace was constructed in 2015 and there is over 86,000 square metres of commercial floorspace under construction in 2016 and over 209,000 square metres are unconfirmed but possible from 2017 onwards.¹²



New Museum for WA (Credit WA Museum ©)

A number of investments outside of Perth City will have an impact on the local economy:

- **Perth Stadium and Pedestrian Footbridge:** Currently under development, the new 60,000 seat stadium and transport infrastructure are due for completion in 2018. The arena will host a variety of sporting and entertainment events. The project is estimated to cost approximately \$1.28 billion.
- **Forrestfield Airport Train Link:** Currently under development, the airport train link will provide direct and convenient rail access for airport passengers and may lead to increased demand for hospitality and accommodation in Perth City. The project is estimated to cost approximately \$2 billion.
- **Perth Airport Redevelopment:** The 1 billion redevelopment of Perth Airport is nearing completion and consolidates domestic and international terminals, improving traveller convenience.

E2 DOING BUSINESS

With changing economic structures impacting current and future growth sectors, there is an impetus to ensure Perth City remains an attractive destination for businesses and workers, especially given increased competition from Greater Perth, across Australia and around the world. Doing business therefore measures Perth City's economy from the perspective of worker and business attraction. It observes the City's ability to attract a range of business types, including start-ups, and workers.



E2.1 BUSINESS ATTRACTION AND RETENTION

Perth City is home to a mix of global and national businesses complemented by a local business sector.

In 2015, there were a total of 14,000 businesses registered in Inner Perth^d of which 40% (5,531 businesses) employed workers and are a major source of innovation and entrepreneurship.¹³

Of the employing businesses, 99% were small and medium size enterprises employing less than 200 workers, and mostly in the financial and real estate service sectors. Larger organisations are generally within the mining, hospitality and professional service sectors.

The broader business sector has experienced a moderate contraction in Inner Perth with the number of registered businesses decreasing 0.5% between June 2013 and June 2015. Much of this decline was in the small business sector (1-19 employees) particularly the mid-tier mining support and financial service firms, declining 29 and 65 businesses respectively.¹⁴ Despite the decline in businesses, Perth City is a major destination for Perth's largest businesses, with 29.4% of large employers (200+ employees) in Greater Perth locating their major office in the area.¹⁵ In contrast, the hospitality and café/dining sectors experienced the largest growth between 2013 and 2015, with employing businesses in these sectors increasing by 42.

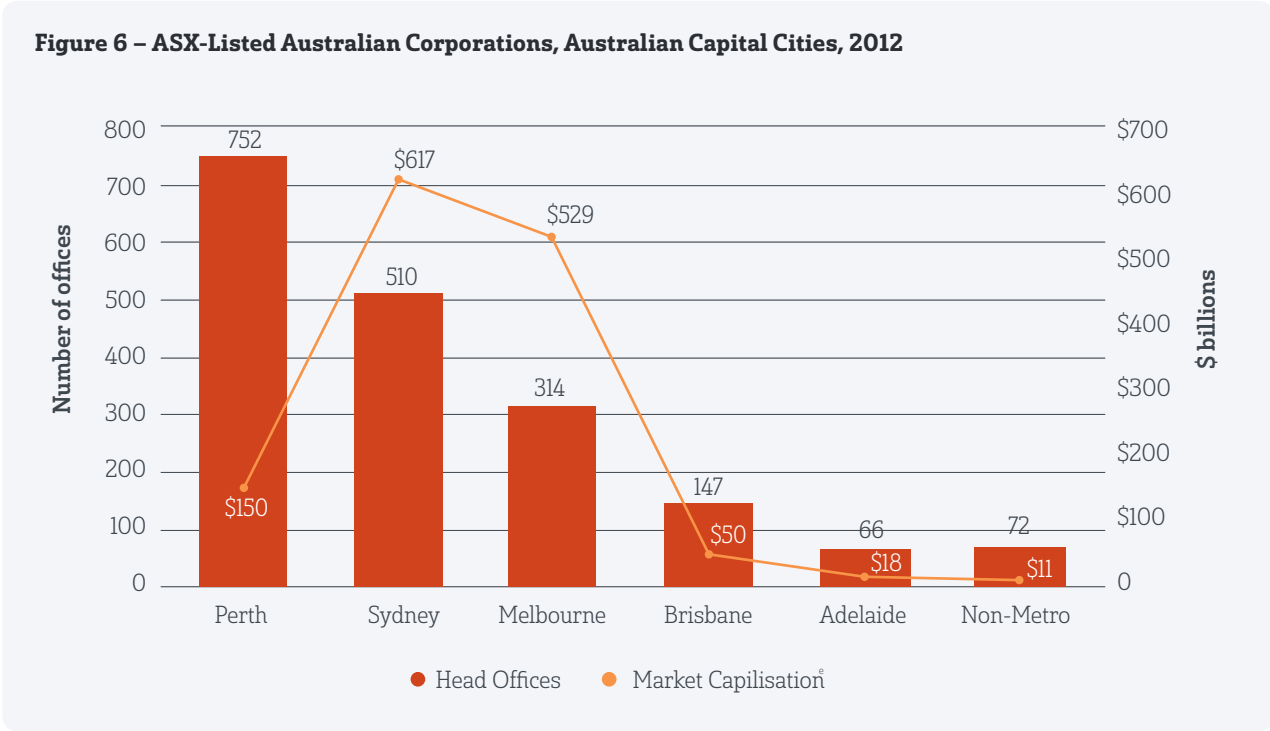
Figure 5 - Business Registrations by Number of Employees, Inner Perth (ABS SA2 Region), 2013 and 2015¹⁶

	Non-Employing Businesses	Employing Businesses				Total Employing Businesses	Total – All
		1-4	5-19	20-199	200+		
Number of Businesses (2015)	8,469	3,231 (58%)	1,588 (29%)	667 (12%)	45 (1%)	5,531	14,000
Change (2013 to 2015)	+90	-60	-96	-12	+10	-22	-68
Proportion of Greater Perth Businesses (2015)	7.8%	7.5%	9.8%	13.3%	29.4%	N/A	8.1%

^d Note – the Inner Perth Region refers to the ABS SA2 area which takes into account Perth City CBD, East and West Perth, Northbridge and parts of Highgate and Leederville. It does not accurately align to the whole of Perth City.

^e ASX300 refers to the 300 largest firms listed on the ASX (Australian Stock Exchange) by market capitalization.

A 2012 study of the business clustering found that Greater Perth had the largest representation of ie company headquarters of ASX300 listed corporations compared to other cities within Australia, with 752 company headquarters, nearly as many as Sydney and Melbourne combined (824 firms), and the Inner Perth region remains the dominant location in Greater Perth for these firms with 411 firms (or 55%) concentrated in the region within three industry sectors - minerals 66.5%, energy 18.5%, and finance 4.1%.^{17 18}



¹⁷ Market capitalisation is an indicator of the relative size and importance of an industry, and refers to the total value of all shares held for a particular company.

¹⁸ The Central Sub-Region is an administrative urban planning area consisting of 19 local government areas (Stirling, Bayswater, Bassendean, Cambridge, Vincent, Nedlands, Subiaco, Perth, Cottesloe, Claremont, Peppermint Grove, Mosman Park, Fremantle, East Fremantle, Melville, Canning, South Perth, Victoria Park and Belmont).

E2.2 EMPLOYMENT GROWTH

The availability of a highly skilled and educated workforce enables businesses and organisations to respond to changing environments, address challenges and pursue commercial opportunities. Conversely, a lack of access to appropriate human capital can constrain the growth of local enterprises and discourage new business creation.

Number of Workers

In 2011 (Census), there were around 134,500 workers employed in Perth City representing 24% of jobs in the Central Sub-Region^f and 18% in Greater Perth.¹⁹ Jobs are generated from an array of private (for profit) businesses, not-for-profit businesses and government agencies and facilities such as hospitals and education institutions.

Figure 7 – Total Jobs by Region, 2011^{20 21}

Perth City	134,459
Central Sub-Region	546,121
Greater Perth Region	743,399

Worker Density

One of the largest concentrations of workers in Perth City is contained in a 41 hectare precinct in the Perth CBD with just under 46,000 workers or 34% of the total city workforce. Other concentrations of workers can be found at Queen Elizabeth II Medical Centre (approx. 8000 workers), University of Western Australia (approx. 6000) and Royal Perth Hospital (approx. 4000).²²

While the number of workers in Perth City represents the largest cluster of employment in Western Australia, Perth City's employment levels and density of jobs is lower than the City of Sydney and Inner Brisbane, but greater than the Cities of Melbourne and Adelaide.

Perth City's lower employment density may be due to a higher proportion of jobs being distributed across Greater Perth in major employment centres, especially in high employing industrial areas and strategic employment centres such as Murdoch, Bentley, Subiaco, Joondalup and Fremantle.

Figure 8 – Concentration of Workers, Perth City, 2011

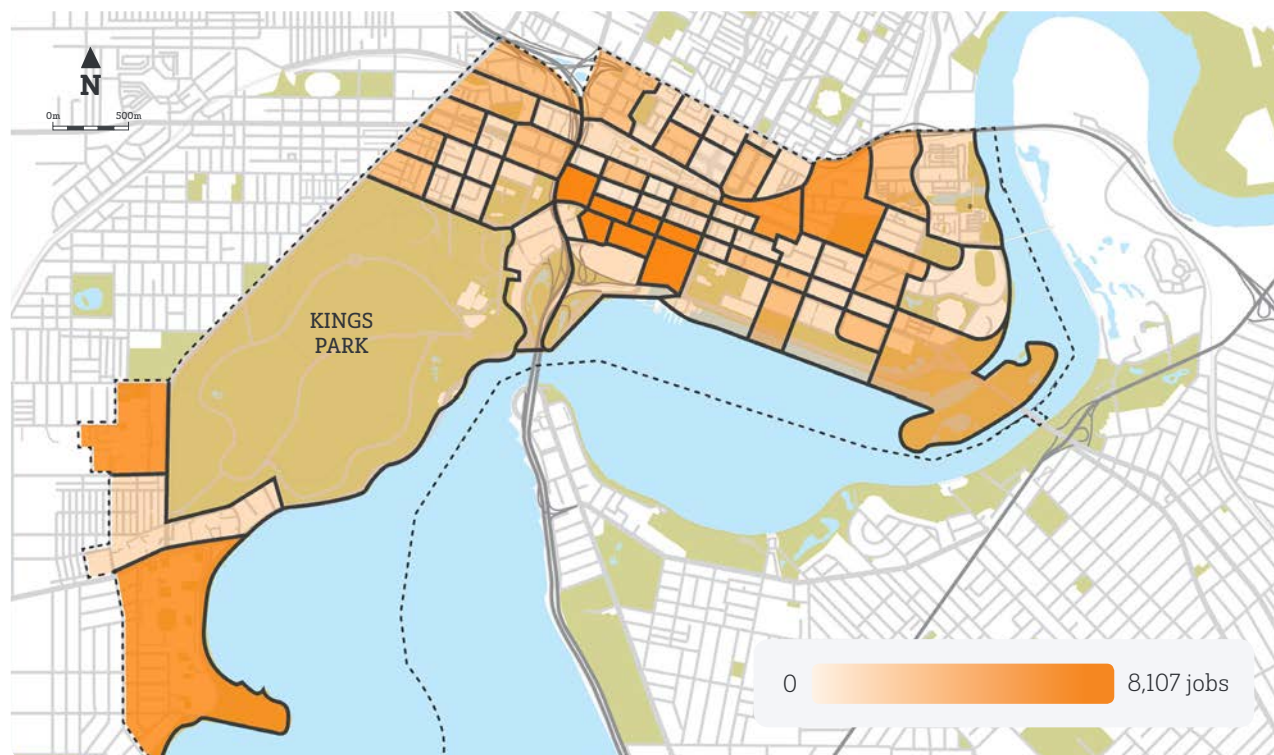


Figure 9 – Jobs and Job Density, Perth City compared with Capital Cities²³

	Land Area (hectares)	Residents (ABS EPR 2015) ^a	Jobs (ABS Census 2011)	% of Greater Metropolitan Area Jobs	Job Density (jobs per hectare)
City of Sydney	2,670	205,339	387,328	21%	145 jobs/ha
Inner Brisbane^b	1,330	67,155	186,375	20%	140 jobs/ha
Perth City	979 ⁱ	24,244	134,459	18%	136 jobs/ha
City of Melbourne	3,740	128,980	353,504	20%	94 jobs/ha
City of Adelaide	1,560	23,169	107,134	20%	69 jobs/ha

^a Estimated Residential Population (EPR).

^b Inner Brisbane refers to the Australian Bureau of Statistics Statistical Area Level 3 Brisbane Inner Available From: [http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+\(ASGS\)](http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS))

ⁱ City of Perth GIS calculation of land area only and not including Kings Park.

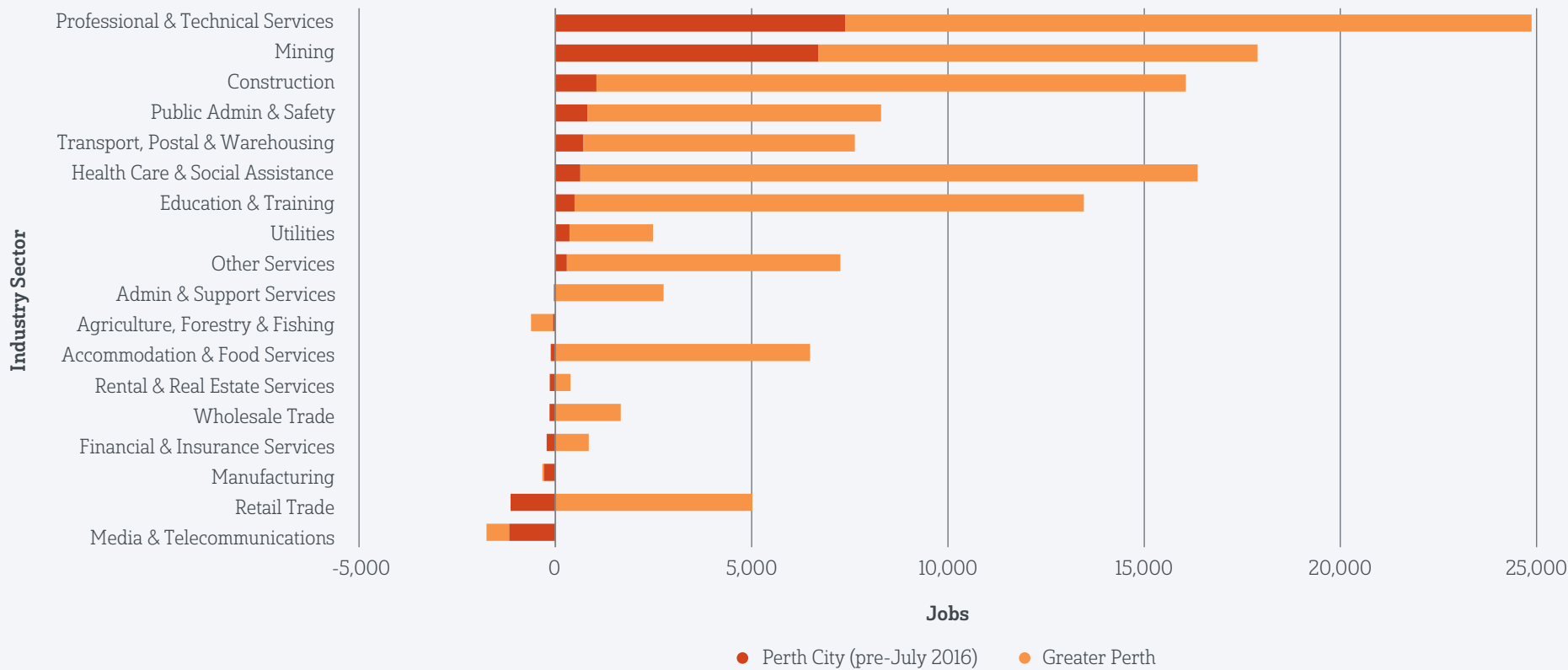
New Job Creation

Between 2006 and 2011 more than 9 out of every 10 new jobs created in Perth City (pre-July 2016) were in the professional services and mining sectors. Jobs in population-based industries such as retail trade declined despite significant population growth in Perth City and Greater Perth during this period.

E2.3 BUSINESS COSTS

The Organisation for Economic Co-operation and Development (OECD) defines a competitive region as one that can attract and maintain successful firms.²⁵ This means that skilled labour and successful firms will gravitate away from uncompetitive regions towards more competitive ones. A key driver of competitiveness is the cost of doing business in a region, with excessively high business costs associated with low growth and productivity, making it difficult for existing and incumbent firms to realise their full potential.²⁶

Figure 10 - Change in Employment - Perth City (pre-July 2016) and Greater Perth Region, 2006 and 2011²⁴



In 2012, the City of Perth conducted a survey of businesses which asked respondents about their business plans and reasons for moving to and from the City. The survey found that parking and leasing cost issues were the most commonly stated reasons for relocating outside of the City's boundaries, although given changes in recent years, it would be prudent to update this survey.²⁷

Cost pressures can be a function of broad economic conditions, the regulatory environment, and access to skilled labour and fixed costs, amongst other things. Of these, commercial rents for office and retail spaces, workshops and other places of business operations can be a substantial cost component for many businesses, particularly those operating in the retail industry.

Retail Floorspace

On a whole, prime retail accommodation in Perth City is more affordable than other CBDs across other Australian capital cities at \$3,780 per square metre, although performance varies between locations and Perth CBD retail rents have moderately declined from 2014 levels of \$3,960 per square metre.²⁸ Though vacancy is fairly stable, lower tenant demand has driven a decline in lease costs.

Historically, Perth City is not considered a prominent retail destination in Greater Perth and this is reflected by relatively low retail employment and levels of retail floorspace. Additionally, Perth City is home to fewer high end retailers and retail

districts (except for locations such as King Street) than inner Melbourne and Sydney. These larger cities also have higher levels of employment density and visitation which support retail patronage.

Retail floorspace costs are being driven down by a combination of factors including the flight of businesses to new spaces, created through the Metropolitan Redevelopment Authority projects and private development projects, combined with the cyclical downturn in the WA economy, which has resulted in a slower take-up of vacant floorspace.

Figure 11 - Prime CBD Retail Rents, Australian Capital Cities, March 2016²⁹

	March 2016 (per square metre)	Year-on-Year Change
Perth CBD (Malls)	\$3,780	-2.8%
Sydney CBD	\$9,250	+5.7%
Melbourne CBD	\$7,500	-3.5%
Brisbane CBD	\$4,400	-2.2%

Office Floorspace

The office accommodation sector has experienced a more dramatic deterioration. During 2004-2007, demand from major resources companies and their suppliers nearly exhausted the existing

supply of office space in Perth City. This drove rents for prime CBD space to figures in excess of \$800 per square metre by early 2008.³⁰ Despite a temporary slowdown due to the global financial crisis, demand for commodities, especially iron ore, oil and gas continued, and rents returned to \$790 per square metre in January 2013. At this time, over 50% of office space in the Perth CBD was estimated to be occupied directly or indirectly by a company involved in the resources sector.³¹

Since this time, falls in major commodity prices have led to a focus on cost reduction which has seen projects delayed or cancelled, major cuts made to staff and a resulting fall in office space requirements. Against this backdrop, new floorspace has been added to market which has resulted in increasing office vacancies to 21.8% in the Perth CBD at August 2016 (an increase of 2.2% over the previous 6 month period).³²

Office rental prices (minus incentives) have declined from the price peaks of 2012 peak to more moderate prices (January 2016):³³

- Average Prime grade net face rent – 2012 peak \$790 per square metre, now \$579/sqm (\$318/sqm net effective), a drop of over \$225/sqm.
- Secondary grade net face rents – 2012 peak \$616/sqm, now just under \$400/sqm (\$219/sqm net effective).

E3 RESEARCH AND INNOVATION

Research and innovation looks at the contribution of Perth City enterprises to technological and productivity advancements and their capacity for innovation. Capitalising innovative potential provides a way to diversify Perth City's economy and is a key driver of competitiveness, productivity growth and job creation, in the face of changing economic conditions.^{34 35}

Developing new business practices and business sectors is reliant on a number of factors, such as investment in research and development, a commitment to innovation, knowledge exchange and interactions between businesses, research centres and universities, focused international collaboration and the effective training and utilisation of an innovation-capable workforce.³⁶

The Regional Australia Institute measures innovation through key indicators:

- the presence of research organisations and proportion of the workforce with research and development capabilities (indicators of 'capacity' for innovation), and
- levels of new business development and patent registrations (indicators of 'actual' innovation).³⁷

E3.1 RESEARCH CAPABILITY

With the recent expansion of Perth City boundaries to include the Queen Elizabeth II Medical Centre (and Harry Perkins Institute of Medical Research) and the University of Western Australia, the contribution of Perth City to national research output has increased dramatically.

There are two organisations in Perth City registered with Innovation Australia for the purpose of conducting research and development:

- **University of Western Australia:** UWA is regarded as one of Australia's top research institutions, attracting researchers of world standing across a range of disciplines with international leaders in many diverse fields. The University is ranked 96th in the world in the prestigious Shanghai Jiao Tong University's Academic Ranking of World Universities, which includes numerous research impact measures.³⁸
- **Harry Perkins Institute of Medical Research:** The Harry Perkins Institute of Medical Research was established in 1998 as the Western Australian Institute for Medical Research (WAIMR) with the vision of creating a multi-site Institute that would enhance collaboration between Western Australian medical researchers. Today it is Western Australia's premier adult medical research centre.



Nobel Laureates Emeritus Professor J. Robin Warren AC (L) and Clinical Professor Barry J. Marshall AC

In addition, a preliminary audit identified 35 research centres and organisations in Perth City, although a thorough audit is recommended to verify the figure.³⁹

Additionally, Perth City (pre-July 2016) was found to have a high number of people employed in research and development manager roles and a high number of science and engineering qualified workers, both are considered indicators of research capability.

Figure 12 - Research Capacity⁴⁰

	Perth City (pre-July 2016)	Australia
Research & Development Managers (per 100 workers)	16.6	9.4
Science & Engineering Qualified (proportion of workers)	22.3%	15.4%

E3.2 NEW BUSINESS DEVELOPMENT & START-UPS

Technology is restructuring the global economy, with technology companies increasingly entering traditional industries such as mining, transportation, insurance and accommodation. A recent study estimated the potential economic impact of disruptive digital technologies on Western Australia's economy in 2025 could be over \$76 billion per annum or approximately 25% of Gross State Product (GSP) based on current economic and technology trends.⁴¹

In response to these challenges and opportunities, Perth City's (pre-July 2016) start-upⁱ scene has grown from 100 digital and internet-based early-stage start-ups in 2013 to 335 by 2015, with growth centred around the West Tech Festival, Spacecubed (a CBD co-working space), meet-ups (an on-line social networking portal) and events such as Start-up Weekend, and entrepreneur-focused education programs like Founder Institute^k.⁴²

More broadly, between 2009 to 2013, Perth City (pre-July 2016) grew an average of 1,232 new businesses, well below levels experienced across Sydney, Melbourne and Adelaide. High commercial lease costs could have contributed partly to this low level of new business development.

Figure 13 - New Business Entries, Australian Capital Cities, 2009-13⁴³

	Non-Employing	Employing
Perth City (pre-July 2016)	4,019	2,140
City of Sydney	30,081	16,048
City of Melbourne	16,046	8,317
City of Adelaide	5,761	2,218



Flux Co-working Space (Credit Spacecubed)

ⁱStartups defined in the reference - There are varied definitions of early stage technology startups. Whilst any type of early stage business can be called a startup, for the purposes of this report the definition used by StartupAus, Google Australia and PwC Australia was adopted: a 'startup' is a company primarily focused on developing innovative digital technology and intellectual property with a high leverage on labour, a scalable business model and capable of rapid growth. This report also defines startups as those companies born in, or after 2010. Thus companies specified as startups in this report are a maximum of five years eleven months old at time of publishing (Boundless in Partnership with StartupWA, WA Dept. Of Commerce, and Perth City 2015 Startup Ecosystem Preliminary Report)

^kThe Founder Institute is the world's premier startup launch program for talented entrepreneurs - <http://fi.co/s/perth>

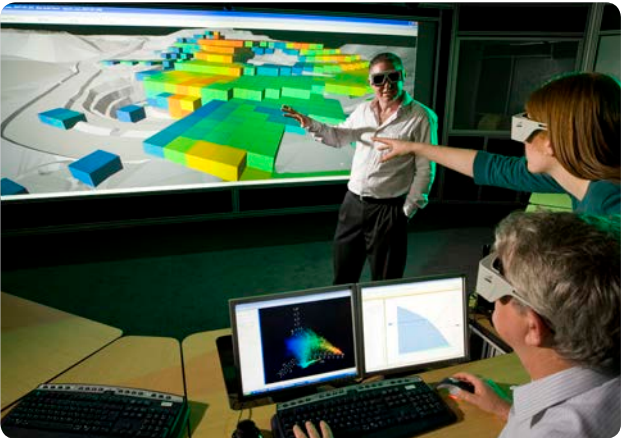
E3.3 INNOVATION

“An innovation is the implementation of a new or significantly improved product (good or service), a new process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.”⁴⁴

Perth City is considered a significant generator of innovation with the mining and energy sectors in particular supporting research and development across the globe.

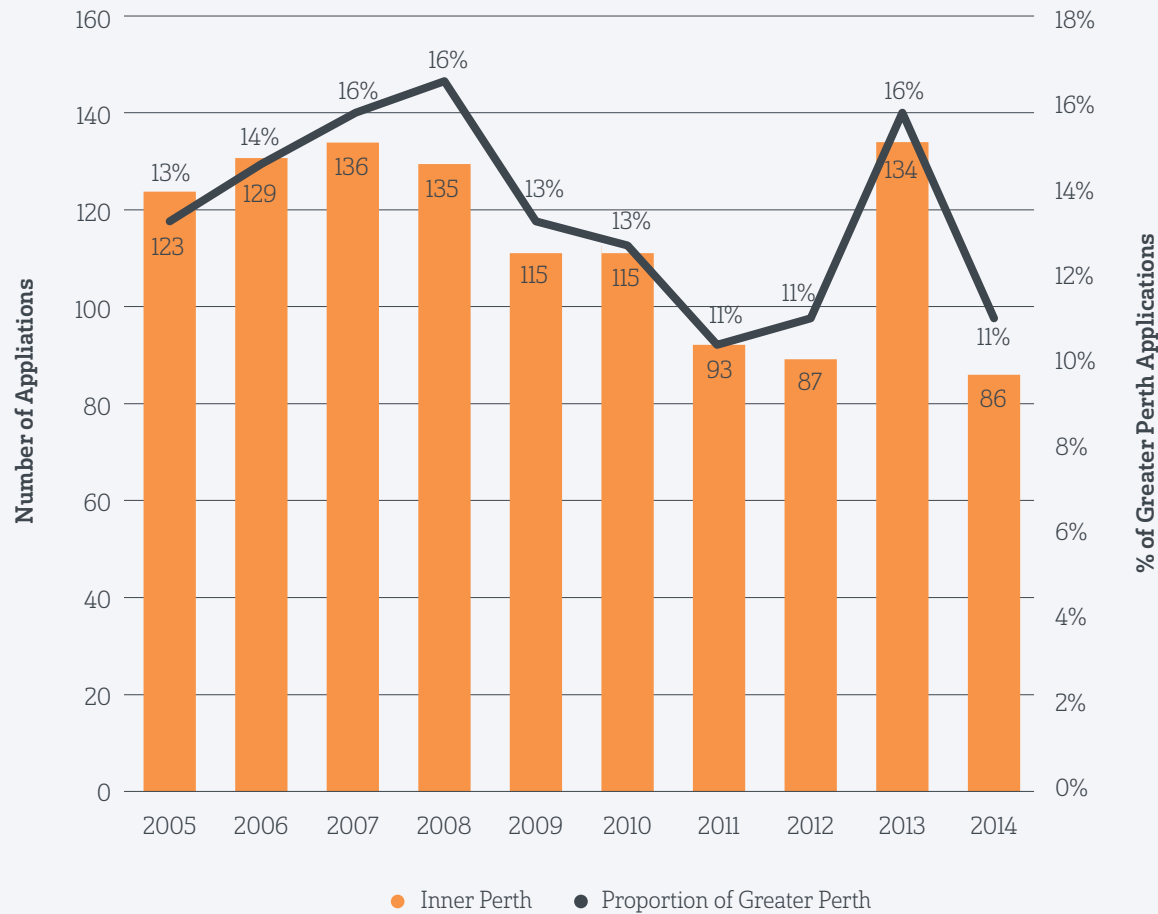
Patents

The contribution of enterprises in Perth City to innovation is most notably reflected by the number of patents and trademarks. Between 2010 and 2014, a total of 515 patents applications were registered by businesses located in Inner Perth¹, representing on average 14% of total applications across Greater Perth.⁴⁵



Rio Tinto Mine of The Future (Credit Rio Tinto)

Figure 14 - Patent Applications, Inner Perth Region, 2005 to 2014⁴⁶



¹Note – this is the ABS Inner Perth region which includes parts of Leederville and Highgate.

Nonetheless, organisations in Perth City (pre-July 2016).⁴⁷

- applied for 15.5 patents per 10,000 working age residents between 2005 and 2014 which was above the national average (10.1) and inner Sydney (2.4) and Melbourne (7.4).
- rated high for trademark applications, with local organisations making 94.2 applications per 10,000 working age residents compared to lower levels across Sydney (21), Melbourne (34.8) and Australia (9.5).

Innovation Cities Index

The Innovation Cities Index published by *2thinknow* measures the innovation performance of 500 cities around the world across 162 indicators of cultural assets, human infrastructure and networked markets to determine performance as an innovation hub, either currently or in the future. Greater Perth was the only Australian capital city to have improved its ranking between 2014 and 2015 climbing 27 places, however despite the improvement, Greater Perth scored low across the innovation criteria compared to other Australian capital cities.⁴⁸

Figure 15 - Innovation Cities Index 2014 and 2015, Australian Capital City Metropolitan Regions⁴⁹

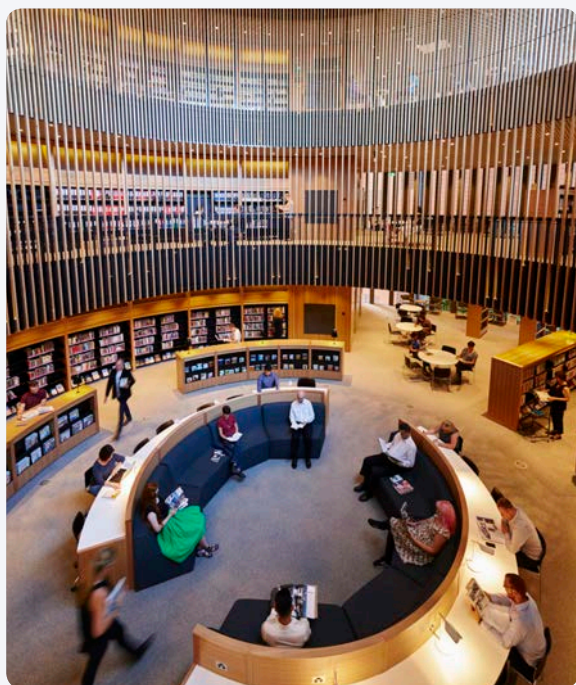
Capital City Metropolitan Regions	2014	2015
Sydney	17	18
Melbourne	23	33
Brisbane	60	57
Perth (ie Greater Perth Region)	183	156
Adelaide	160	186
Canberra	188	190
Hobart	278	292



Fiona Wood Inventor of spray-on-skin for burn victims
(Credit Fiona Wood Foundation)

E4 EDUCATION AND TRAINING

Perth City is home to globally renowned university campuses and a high proportion of education and training facilities and services and will play a key role in meeting the growing demand for domestic and international education. In this section, education and training refers solely to the economic contribution of the sector and the ability to directly support employment opportunities.



City of Perth Library (Credit Frances Andrijich)

E4.1 EDUCATION SECTOR CONTRIBUTION

The education and training sector is Australia's largest service export and the fourth largest export. Total spending by international students in Australia – including course fees, accommodation, living expenses and recreation – was \$18.2 billion in 2014-15, up from \$15.9 billion the previous year.⁵⁰ Of this amount, Western Australia is a small but valuable contributor, with education exports totalling \$1.3 billion during 2014-15.⁵¹ In addition to international students, this sector educates many domestic students.

In 2013-14, the education and training sector contributed approximately \$1.4 billion to Perth City's economic output (or 1.8% of total output) compared with an average of 3.2% across Greater Perth. A total of 6,859 people worked in education and training (or 5.1% of the total workforce) compared with an average of 9.0% across Greater Perth.⁵²

E4.2 STUDENT ATTRACTION

Students are an important customer base for Perth City's education and training sector organisations and additionally support local businesses such as retail and hospitality sectors.

In 2015, there were an estimated 38,000 students enrolled in Perth City (pre-July 2016) across three primary / high schools, two TAFE campuses, one university, and over 100 tertiary training organisations. Since this time, Perth City has expanded to include the University of Western Australia, which attracts an estimated 20,000 students and staff on a daily basis.^m In addition, the CQ University Australia will commence operation in the Perth CBD in February 2017.ⁿ

In 2015, it was estimated around 13,800 students attending the CBD on a daily basis.⁵³

Live-Study (TAFE and University Students)

In 2011, 18.2% of Perth City's residents (3,551 people) were attending TAFE or University, compared with 27.0% of residents in 2001. In comparison, 24% of the City of Melbourne's residents are attending TAFE or University, and 14.2% of the City of Sydney's residents (2011 Census).⁵⁴ A number of student housing developments are planned and combined with slight declines in rent prices, the number of students living in Perth City may increase over time.

Perth City has many appealing characteristics that make it a popular destination for international students who have identified the quality of education, friendliness of local people and the safety as appealing characteristics.⁵⁵

^mPers comms O'Brien, D August 2016

ⁿ<https://www.cqu.edu.au/campaigns/wa?gclid=CJXYn-au2c8CFYOavAodqwaGaw>

E5 VISITOR ECONOMY

Attracting visitors to Perth City has a direct impact on the economy through visitor spending and this is distributed across a number of businesses areas such as accommodation, food and beverage, retail, entertainment and cultural activities and tourism services.

A vibrant visitor economy attracts a diversity of visitors including workers, business travellers, tourists and residents of Greater Perth, to participate in a diverse range of experiences and activities, more often and for longer periods of time.

Perth City is home to a number of cultural facilities and hosts a number of events, festivals and performances throughout the year which attract a larger number of visitors. The Western Australian Museum and the Art Gallery of Western Australia alone have attracted an average of 1.5 million visitors a year in recent years, although numbers may decline temporarily due to redevelopment of the Museum. The Culture Theme provides a detailed breakdown of cultural activity in Perth City.

E5.1 VISITOR NUMBERS AND EXPENDITURE

It is difficult to accurately estimate the number of people who visit Perth City as there is no comprehensive set of data or information on visitor numbers, especially at different times of the week and for different purposes. However, there are a number of information sources that provide an indication of visitor levels.

Tourism Visitors

Tourism Research Australia estimates that the Inner Perth area (wider than Perth City) attracted an average of 34,175 visitors per day between 2011 and 2016 which represents 29.1% of total visitors to the wider Experience Perth Tourism Region.⁵⁶

Figure 16 - Visitor Estimates, Inner Perth, March 2011 to March 2016

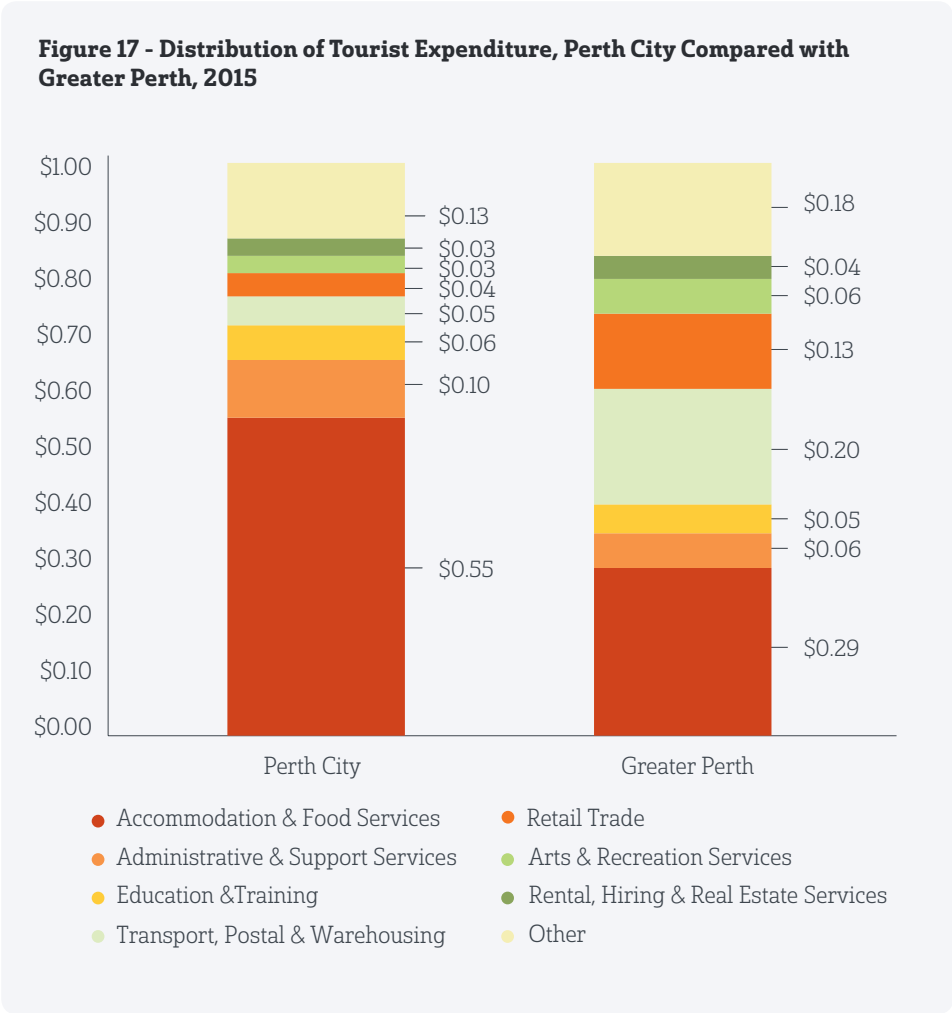
Origin	Average Visitors Per Day	% change 2006 to 2011	% of Total Visitors to "Experience Perth" Tourism Region
Intrastate	8,206	-9.9%	44.8%
Interstate	7,249	-27.4%	17.9%
International	18,720	18.7%	31.9%
TOTAL	34,175	-2.0%	29.1%

Daytime Visitors – Perth CBD

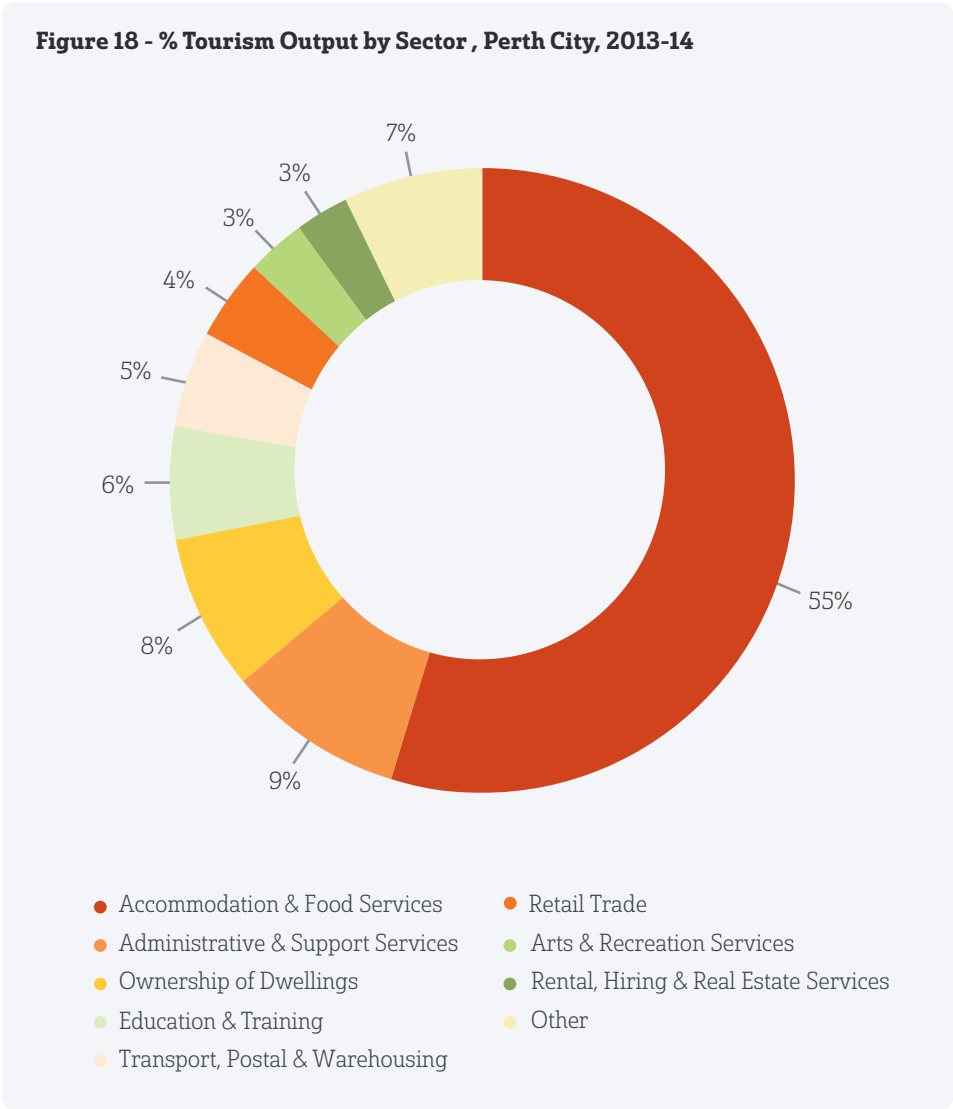
In 2015, it was estimated 205,750 visitors came into the CBD each day (weekday) for work, leisure, access to services and study. Although this estimate did not consider those parts of Perth City which have recently been included in the local government area such as University of Western Australia which attracts around 20,000 students and staff per day (weekday, usually Monday to Thursday)⁵⁷ and Queen Elizabeth II Medical Centre which attracts around 6,400 staff and 5,000 patients and visitors per day.⁵⁸

ES.2 TOURISM AND NIGHT TIME ECONOMY

In 2013-14, there was an estimated 5,078 people employed in tourism in Perth City or 3.8% of the total workforce compared with an average of 3.5% across Greater Perth.⁵⁹



In 2013-14, tourism output was estimated at \$1,217 million or 1.5% of total output for Perth City compared with an average of 1.9% across Greater Perth.⁶⁰



⁵⁹For the purposes of job numbers, tourism is defined as “an amalgam of activities across various industry sectors such as retail, accommodation, cafes & restaurants, cultural & recreational services. The tourism industry sector services the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited. Source: Australian Bureau of Statistics National Accounts Tourism Satellite Account (Source: 2013-14, Australian Bureau of Statistics (ABS), Tourism Satellite Account).

In 2015, the profile of tourism expenditure and stay was.⁶¹

Figure 19 - Tourism Average Expenditure Profile, Perth City, 2015

Visitor Profile	Domestic Day (Tourist)	Domestic Overnight (Tourist)	International (Tourist)
Average stay (nights)	n/a	4	28
Average spend per trip (\$)	\$97	\$869	\$2,355
Average spend per night (\$)	n/a	\$231	\$85

The 'night time economy'^p (NTE) makes an important contribution to Perth City's economy, providing entertainment and leisure opportunities that attract visitors and adding to the diversity of employment, especially for young people which make up a high proportion of Perth City's resident population.

A 2015 study of the NTE of Australian capital cities found the sector generated \$108 billion (annual sales revenue) in 2014, an increase of 20% from 2009, while the Australian economy only grew at 14.7% over the same period, and the number of NTE businesses grew by 6.9% compared to 5.1% for non-NTE businesses.⁶²

The report looked at Perth City (pre-July 2016) although there were some concerns regarding the validity of data and further verification is required, however preliminary findings indicated between 2009 and 2014 there was:

- a decline of 6% employment (or 625 jobs) from 10,428 jobs to 9,803 jobs.
- an increase of 13.8% of businesses (or 93 firms) from 676 firms to 769 firms, with the increase mostly in food.⁶³

E5.3 ACCOMMODATION

In response to the increase in economic activity as a result of growth in the mining and resources sector, the increase in corporate and business visitors to Perth City saw high levels of occupancy and room rates in medium and large accommodation places (more than 15 rooms), although rates have declined since 2012.

In response to tight supply and several years of limited development, a number of accommodation developments have been completed such as the Alex Hotel Northbridge (74 rooms), Como The Treasury (48) and Quest West Perth (72), and a further eight are under construction that will provide 900 additional rooms by 2017 and 566 rooms from 2018 onwards.⁶⁴

Figure 20 – Medium Hotel Accommodation, Perth City, 2012 to 2015

	2012-13	2013-14	2014-15
No. of Medium and Large Establishments	47	47	53
Total Room Nights Available	2,163,173	2,160,579	2,364,374
Average Occupancy Rate	83.4%	81.0%	81.0%
Average Price per Room (Occupied)	\$216.80	\$197.70	\$195.20



iCity Volunteer with Students (Credit Jessica Wyld)

^pThe Night Time Economy (NTE) is defined as economic activity that occurs between 6pm and 6am within a number of core business areas around food, drink and entertainment.

FINDINGS

E1 ECONOMIC CONTRIBUTION

1. In 2015, Perth City's Gross Regional Product (GRP) was \$42.1 billion (26% of Greater Perth GRP) and equivalent to \$21.7 million per hectare or \$313,500 per worker (compared to \$250,000 per hectare, \$216,700 per worker average for Greater Perth).
2. Perth City's total output was \$80.1 billion with the Mining sector contributing 40.6%, Professional, Scientific and Technical Services sector 11.9% and Finance and Insurance Services 11.4%. Perth City (pre-July 2016) GRP grew by an annual average of 4.49% during the period 2009 to 2016.
3. Perth City (pre-July 2016) has a strong economic base in Mining, Finance and Insurance and Professional, Scientific and Technical Services sectors. Overall however, the economy has limited diversity compared to other capital cities, ranking in the 52nd percentile of Australian local government areas meaning economic diversity is significantly lower when compared to Adelaide (32nd percentile), Darwin (39th percentile), Melbourne (43rd percentile) and Sydney (46th percentile)
4. Perth City has attracted some of the highest levels of public and private sector investment in Australia over the past five years and as of June 2016, there were around 315 projects under construction or recently completed worth around \$3.8 billion.
5. In 2011, there was an estimated 134,500 workers in Perth City representing 24% of the total workforce of the Central Sub-Region or 18% of the total workforce of Greater Perth. Perth City represents the largest cluster of employment in Western Australia.
6. Between 2006 and 2011 more than 9 out of every 10 new jobs created in Perth City (pre-July 2016) were in Mining and the Professional Services sectors. Employment across population-based industries such as retail trade declined despite significant population growth over this period in Perth City and Greater Perth. In 2011, the retail employment share was 69% below the average across Greater Perth, although an expansion of accommodation, competitive leasing costs and residential growth have coincided with an increase in hospitality and café/dining enterprises between 2013 and 2015.
7. There is no data or information that provides a comprehensive picture of business costs in Perth City, although a number of sources of information provide some insight. The cost of floorspace is more affordable in the retail sector where Perth CBD has the lowest cost retail floorspace when compared with the CBDs of Sydney, Melbourne and Brisbane. The cost of office floorspace has reduced dramatically over the last several years.

E3 RESEARCH AND INNOVATION

8. Perth City has attracted some of the highest levels of public and private sector investment in Australia over the past five years and as of June 2016, there were around 315 projects under construction or recently completed worth around \$3.8 billion.
9. Greater Perth has the largest concentration of head offices (752 firms) in Australia and almost more than Sydney and Melbourne combined (824 firms), with 55% located in the Inner Perth region (ABS SA2). Between 2013 and 2015 there was a decrease of 0.5% of total registered businesses in the Inner Perth region mainly in the mid-tier mining support and financial service firms. However, Perth City is still a major destination for large sized businesses in Greater Perth with 29.4% (200+ employees) locating in the Inner Perth region.
9. Perth City is home to two organisations registered with Innovation Australia (UWA and the Harry Perkins Institute of Medical Research) and a preliminary audit identified 35 research centres and organisations in Perth City, although this requires verification. Perth City also had a higher proportion of people working in research and development manager roles and higher proportions of qualified science and engineering workers compared with Australian averages.

10. Between 2013 and 2015, Perth City's 'startup' business sector grew by 225% from 100 businesses to 335 businesses, although between 2009 and 2013 new business growth in Perth City (pre-July 2016) was well below the growth experience in other capital cities.
11. There is no specific set of data or information that measures the level of innovation or capacity for innovation in Perth City; however several sources of information provide some insight. Between 2010 and 2014, there was 515 patent applications lodged in the Inner Perth region which is around 20% of the total number lodged in Greater Perth. According to a global innovation index that measured 500 cities, Greater Perth scored significantly lower than Sydney and Melbourne, although Greater Perth was the only Australian city to improve its score between 2014 and 2015.

E4 EDUCATION AND TRAINING

12. The education and training sector contributes approximately \$1.4 billion to Perth City's economic output (or 1.8%) compared to an average of 3.2% across Greater Perth. A total of 6,859 people worked in education and training (5.1% of total workforce) compared to an average 9% across Greater Perth.
13. Perth City is home to globally renowned universities, with over 100 education and training facilities and organisations. In 2015, there was an estimated 38,000 students enrolled in education facilities in Perth City (pre-July 2016) and around 13,800 students attending the CBD on a daily basis. With the inclusion of UWA in Perth City's boundaries at July 2016, this has added a further 20,000 students and staff on a daily basis (estimated) and in early 2017, a third university CQ University Australia will open in the CBD.

14. In 2011, 18.2% of Perth City's residents (3,551 people) were attending TAFE or University, compared with 27.0% of residents in 2001. In comparison, 24% of the City of Melbourne's residents and 14.2% of the City of Sydney's residents are attending TAFE or University.

E5 VISITOR ECONOMY

15. There is no specific set of data or information that accurately measures the number of visitors to Perth City visiting for different purposes and at different times, however there are a number of sources of information that provide an indication of visitor levels. Tourism Research Australia estimates an average of 34,175 visitors per day to Inner Perth (between 2011 and 2016) or 29.1% of total visitors to the Experience Perth Tourism Region. A 2015 study for the City of Perth, estimated 205,750 visitors came into the CBD each day (weekday) for work, leisure, access to services and study. In addition, UWA attracts around 20,000 students and staff per day (weekday) and QE2 Medical Centre attracts around 6,400 staff and 5000 patients and visitors per day.
16. In 2013-14, there was an estimated 5,078 people employed in tourism or 3.8% of workers in Perth City compared with an average of 3.5% tourism workers across Greater Perth. Tourism output was estimated at \$1,217 million or 1.5% of total output. International tourists registered the longest stays (average 28 nights) and the greatest spend (\$2,355 per trip).
17. Between 2009 and 2014, there was a decrease of 6% in employment and an increase in 13.8% in businesses (mainly food) in Perth City's 'night time economy' (NTE), although local verification of data is required.
18. Recent accommodation developments have seen an increase in available room nights from 2.1 million nights in 2012-13 to 2.4 million nights in 2014-15.

REFERENCES

- ¹ <http://www.dsd.wa.gov.au/about-the-state/quality-of-life/economy>
- ² REMPLAN (2016) City of Perth Economic Profile. Available from <http://www.economicprofile.com.au/perth>.
- ³ International Monetary Fund (2016) World Economic Outlook April 2016. Available from <http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx>
- ⁴ Op cit REMPLAN (2016).
- ⁵ Op cit REMPLAN (2016).
- ⁶ Australian Bureau of Statistics (2016) Counts of Australian Businesses, including Entries and Exits, Jun 2011 to Jun 2015, Cat No. 8165.0. Available from <http://www.abs.gov.au/>
- ⁷ Op cit REMPLAN (2016).
- ⁸ Regional Australia Institute (2016) Regional Insight. Available from <http://www.regionalaustralia.org.au/home/tools-and-products/insight/>
- ⁹ World Bank (2015) Competitive Cities for Jobs and Growth: What, Who and How, The World Bank Group. Available from <http://www.worldbank.org/en/events/2015/12/08/competitive-cities-jobs-growth>
- ¹⁰ Cordell Connect (2016) Current and Future Infrastructure Investment for Perth City. Available from <http://www.cordellconnect.com.au/>
- ¹¹ Op cit REMPLAN (2016)
- ¹² Colliers International (2016) CBD Office – First Half 2016. Available from http://www.colliers.com.au/find_research/office/cbd_office_-_first_half_2016/
- ¹³ Australian Bureau of Statistics (2016) Counts of Australian Businesses, including Entries and Exits, Jun 2011 to Jun 2015, Cat No. 8165.0. Available from <http://www.abs.gov.au/>
- ¹⁴ Op cit Australian Bureau of Statistics (2016).
- ¹⁵ Op cit Australian Bureau of Statistics (2016).
- ¹⁶ Op cit Australian Bureau of Statistics (2016).
- ¹⁷ Sigler, T (2012) Corporate clustering in Australian cities: An analysis of the geographic distribution of ASX-listed headquarters, prepared for the 2013 State of Australian Cities (SOAC) Conference Sydney. Available from <http://www.soacconference.com.au/wp-content/uploads/2013/12/Sigler-Economy.pdf>
- ¹⁸ Sigler, T., Martinus, K., Tonts, M., Hickey, S. (2016), The Attraction of Perth and Peel Centres for Global Firms and Local Commuters, University of Western Australia and Committee for Perth FACTBase Bulletin 47, April 2016.
- ¹⁹ Op cit REMPLAN (2016).
- ²⁰ Op cit REMPLAN (2016).
- ²¹ Department for Planning (2015) Draft Central Sub-regional Planning Framework – Towards Perth and Peel @ 3.5 million.
- ²² Op cit REMPLAN (2016)
- ²³ Australian Bureau of Statistics (2012) Census of Population and Housing, 2011. Available from: <http://www.abs.gov.au/>
- ²⁴ Ibid.
- ²⁵ Organisation for Economic Co-operation and Development (2016) Regional Competitiveness. Available from <http://www.oecd.org/gov/regional-policy/regionalcompetitiveness.htm>

- ²⁶ Bankwest Curtin Economic Centre (2015) The Cost of Doing Business In WA. Focus on WA Series Report No.4. Available from <http://bcec.edu.au/publications/the-costs-of-doing-business-in-wa/>
- ²⁷ City of Perth (2012) 2012 Survey of Businesses.
- ²⁸ Colliers International (2016) Retail Research – First Half 2016. Available from http://www.colliers.com.au/find_research/retail/retail_-_first_half_2016/
- ²⁹ Ibid.
- ³⁰ Knight Frank (2016) Perth CBD – Office Market Overview, March 2016. Available from <http://www.knightfrank.com.au/research/perth-cbd-office-market-overview-march-2016-3616.aspx>
- ³¹ Y Research (2016) West Australian Suburban Office Report May 2016. Available from <http://yresearch.blogspot.com.au/2016/05/new-from-y-research-may-2016-west.html?view=classic>
- ³² Property Council (2016) Office Market Report 2016. Available from <http://www.propertycouncil.com.au/> [20 June 2016]
- ³³ Op cit Knight Frank (2016).
- ³⁴ Regional Australia Institute (2015) [In]Sights for Competitive Regions: Innovation. Available from <http://www.regionalaustralia.org.au/wp-content/uploads/151013-Innovation-Full-report.pdf>
- ³⁵ Bank West Curtin Economics Centre (2016) Positions For An Ideas Boom? Productivity and Innovation in Australia. Focus on the State Series, No.4.
- ³⁶ Ibid.
- ³⁷ Op cit RAI (2015).
- ³⁸ ShanghaiRanking Consultancy (2016) Academic Ranking of World Universities. Available from <http://www.shanghairanking.com/World-University-Rankings/The-University-of-Western-Australia.html>
- ³⁹ City of Perth (2016) Audit of Research Centres (unpublished data).
- ⁴⁰ Regional Australia Institute (2016) Regional Insight. Available from <http://www.regionalaustralia.org.au/home/tools-and-products/insight/>
- ⁴¹ Boundless in Partnership with StartupWA, WA Dept. Of Commerce, and Perth City (2015) Startup Ecosystem Preliminary Report. Available from http://www.startupwa.org/docs/Western_Australia_Startup_Report_Dec_2015.pdf
- ⁴² Ibid.
- ⁴³ Op cit Australian Bureau of Statistics (2016)
- ⁴⁴ Op cit Bank West Curtin Economics Centre (2016).
- ⁴⁵ IP Australia (2016) Intellectual Property Government Open Live Data. Available from <https://data.gov.au/dataset/intellectual-property-government-open-live-data>
- ⁴⁶ Ibid.
- ⁴⁷ Ibid.
- ⁴⁸ Tothinknow Global Innovation Agency (2015) Innovation-Cities Index 2015. Available from <http://www.innovation-cities.com/innovation-cities-index-2015-global/9609>
- ⁴⁹ Ibid.
- ⁵⁰ Department of Education and Training (2015) Export Income to Australia From International Education Activity in 2014-15. Available from <https://internationaleducation.gov.au/research/Research-snapshots/Documents/Export%20Income%20FY2014-5.pdf>

⁵¹ Ibid.

⁵² Op cit REMPLAN (2016).

⁵³ Arup (2016) City of Perth Daytime Population Study (unpublished).

⁵⁴ Id Profile (2016) City of Perth. Accessed from <http://profile.id.com.au/perth>.

⁵⁵ Study Perth (2016) International Education in WA. Available from <http://studypertth.com.au/> [20 June 2016]

⁵⁶ Tourism Research Australia (2016) National and International Visitor Survey Year Ending March 2016 Available from <http://www.tra.gov.au/>

⁵⁷ Pers comms O'Brien, D (August 2016) University of Western Australia.

⁵⁸ Martin, J (2014) Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study, Presented at the Australian Institute of Traffic Planning and Management Incorporated 2014 Conference.

⁵⁹ Op cit REMPLAN (2016).

⁶⁰ Op cit REMPLAN (2016).

⁶¹ Op cit REMPLAN (2016).

⁶² TBR (2015) The Australian Night Time Economy 2009 – 2014 Federal, State and Key LGAs A review of NTE economic performance commissioned by National Local Government Drug and Alcohol committee

⁶³ Ibid.

⁶⁴ City of Perth (2016) accommodation data (unpublished data).

CHAPTER 7

CITY FORM

The City Form Chapter looks at the physical form of Perth City, its general structure and grain, and the intensity and nature of its land use activities. It also looks at the form and quality of buildings throughout the City as well as the range of amenities on offer. Current development activity and the capacity of the City to accommodate growth is also examined.

The form of Perth City supports its economic and social activities and has a significant impact on the life of the City. It contributes to its productivity and liveability as well as its sustainability and longer term adaptability and resilience.

*"It helps local businesses thrive. It attracts people to visit, live and work... It considers the landscape, encourages biodiversity and incorporates natural ecosystems. It has an important influence on our physical and mental health and wellbeing. It provides opportunities for healthy lifestyles and community interactions."*¹

An understanding of the form of the City provides a picture of how well placed Perth City is to fulfil its special social, economic, cultural, environmental and civic role as the Capital City of Western Australia.²

CF1 FORM AND FUNCTION

- CF1.1** Structure and Grain
- CF1.2** Density
- CF1.3** Land Use Mix

CF2 BUILDINGS

- CF2.1** Dwelling Diversity and Quality
- CF2.2** Non-Residential Building Diversity and Quality
- CF2.3** Environmental Sustainability

CF3 AMENITIES

- CF3.1** Streets
- CF3.2** Public Spaces
- CF3.3** Community Facilities
- CF3.4** Noise and Vibration

CF4 GROWTH AND CAPACITY

- CF4.1** Development Activity
- CF4.2** Land Tenure
- CF4.3** City Planning Scheme Capacity
- CF4.4** Utility Services Capacity

FINDINGS

REFERENCES

CF1 FORM AND FUNCTION

Form and function examines Perth City's structure and grain along with its density and land use mix.

The form and function of cities influences the intensity and diversity of people and activity, how easy it is to move around and to access goods, services and jobs, and the opportunities for social and economic exchange.

Great cities have a particular kind of urban intensity or “buzz” which is generally associated with higher densities and land use mix as well as ease of movement. These also bring sustainability benefits by making more efficient use of land and infrastructure and encouraging more environmentally friendly, healthy and affordable ways of travelling.

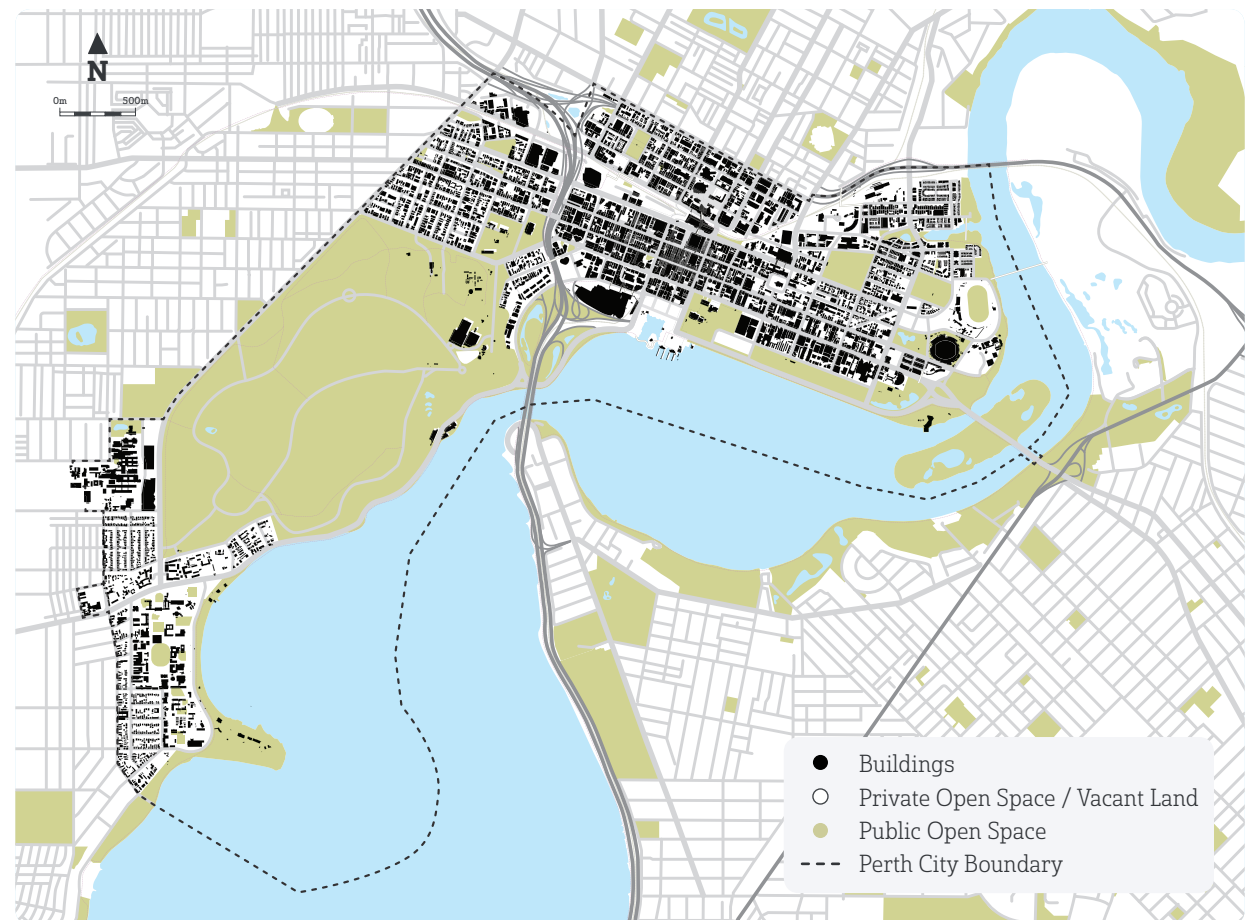
The State Government identifies Perth City as the Capital City, providing the most intensely concentrated development within Greater Perth. It is intended to have the greatest range of high order services and jobs, and the largest commercial component of any activity centre.³

CF1.1 STRUCTURE AND GRAIN

The structure and grain of Perth City relates to its general composition and layout of built form, public space and street/transport networks as well as its subdivision pattern.

Perth City's location on the Swan River influences its extent and layout as does Kings Park and major transport infrastructure such as the Mitchell Freeway to the west, and the Graham Farmer Freeway and railway line to the north which define its various neighbourhoods.

Figure 1 - Distribution of Buildings and Open Space, Perth City, 2016⁵



³ Developable land includes all land which has the potential to be developed, whether it is or not.

Perth City's land area totals 1375 hectares and is currently comprised of 42% or 586 hectares of developable land^a, 39% or 543 hectares of public open space^b and 18% or 256 hectares of streets^c. Of the developable land, 58% or 337 hectares is currently built upon, with the remaining 42% or 249 hectares being private open space or vacant land.⁴ Figures 1 and 2 show the broad composition and distribution of built form and public space in Perth City.

The length of river frontage and the alignment of the railway line (previously lakes and swamps) ultimately dictated the city's strong east-west street block orientation, with Perth City's layout generally characterised by large 180 metre x 120 metre street blocks.

A number of major east west streets (Wellington Street, Kings Park Road/St Georges/Adelaide Terrace, Hay Street, Murray Street and Railway Street/Roe Street), link East Perth, through the city core, to West Perth and beyond. Development has traditionally focussed on St Georges/Adelaide Terrace making the most of the river views.

Figure 2 - Distribution of Buildings, Perth City , 2016⁶



A number of north south streets link Perth City to the inner urban neighbourhoods to the north and to the Graham Farmer Freeway. The role of north south streets in the central core has recently been strengthened through new development along William and Barrack Streets, the creation of new destinations such as Elizabeth Quay as well as new transport connections with the undergrounding of the rail through the Perth City Link project area.

The large east west street blocks has influenced the intersection density within the city and therefore ease of movement, with the central core containing 60.03 intersections per km² (approximate). This is significantly less than the more intricate grid networks in Melbourne (166.97per km² - approximate) and Adelaide (163.77 per km² - approximate). A higher density of intersections can be seen within East Perth, West Perth and Northbridge.⁷

^b Public Open Space includes all land which is reserved for parks and recreation purposes under either the Metropolitan Region Scheme or City Planning Scheme No. 2.

^c Streets includes all land which is gazetted as road reserve. This includes the road pavement as well as verges. It excludes the roads within Kings Park.

Overlaid on the city's street network is the city's subdivision lot pattern which influences the diversity of land ownership and activity as well as the scale and distribution of development across the city.

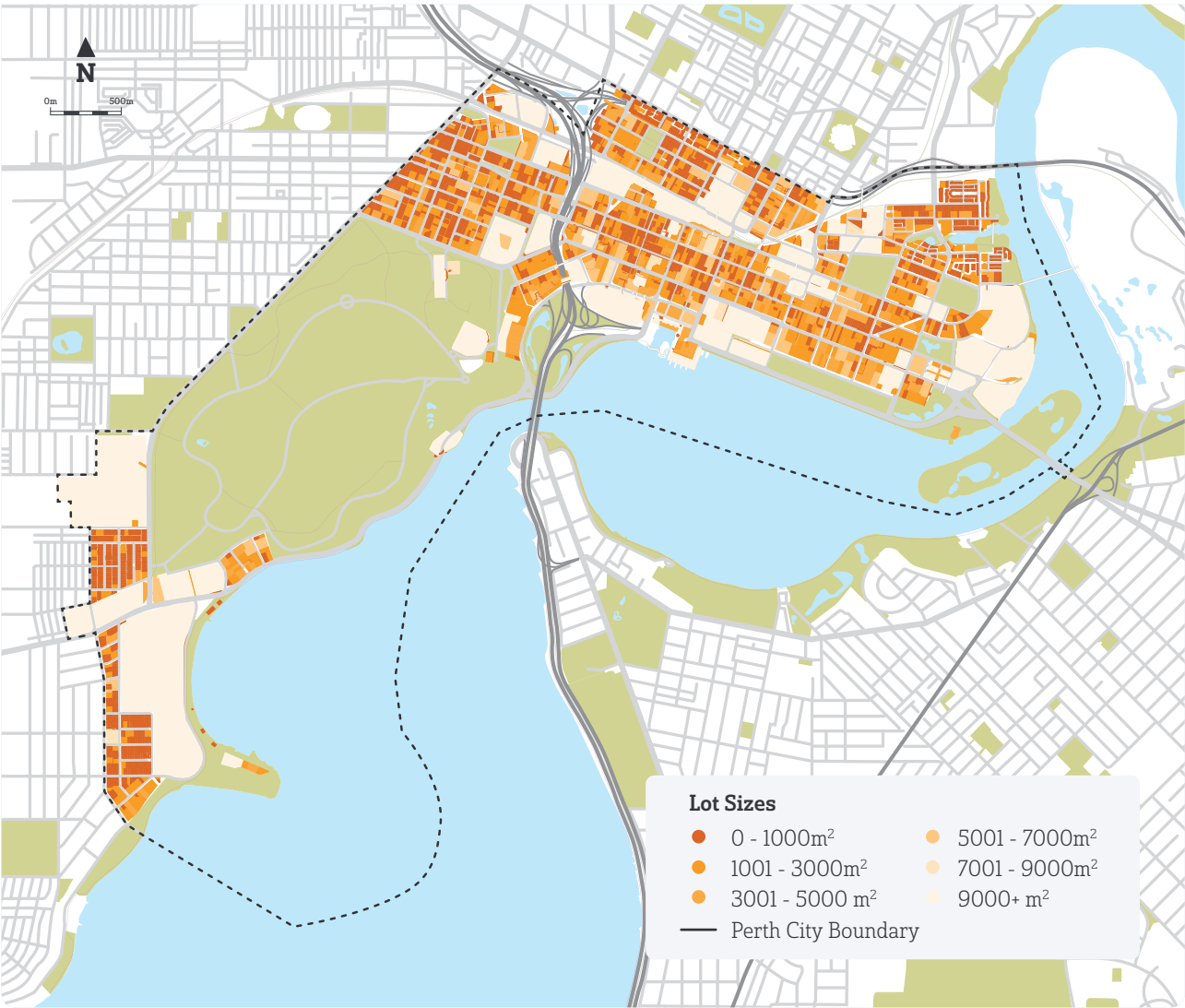
The large majority (76.4%) of lots within Perth City are small in size (<1000m²) and are generally evenly distributed across its breadth. Some concentrations of medium sized lots (between 1001m² and 9000m²) can be found along Terrace Road in East Perth, Mounts Bay Road in Crawley and in the area to the north of the McIver train station. Most of the large lots (>9000m²) in the city house government institutional uses or are located within State Government redevelopment areas.

The diversity of lot sizes within Perth City is outlined in Figure 3 and the distribution of these is shown in Figure 4.

Figure 3 - Diversity of Lot Sizes, Perth City, 2016⁸

Lot Size Categories	Number of Lots	% of Total Number of Lots
0-1000m ²	4670	76.4
1001 – 3000m ²	1035	13.8
3001 – 5000m ²	213	2.8
5001 – 7000m ²	77	1.0
7001 – 9000m ²	13	0.2
9001+ m ²	107	1.4
Total	6115	100%

Figure 4 - Diversity and Distribution of Lot Sizes, Perth City, 2016⁹



CF1.2 DENSITY

Density refers to the intensity (i.e. number of units) of people, dwellings or jobs for a defined area. Floorspace, resident and dwelling densities are examined below.

Floorspace Density^{10 11}

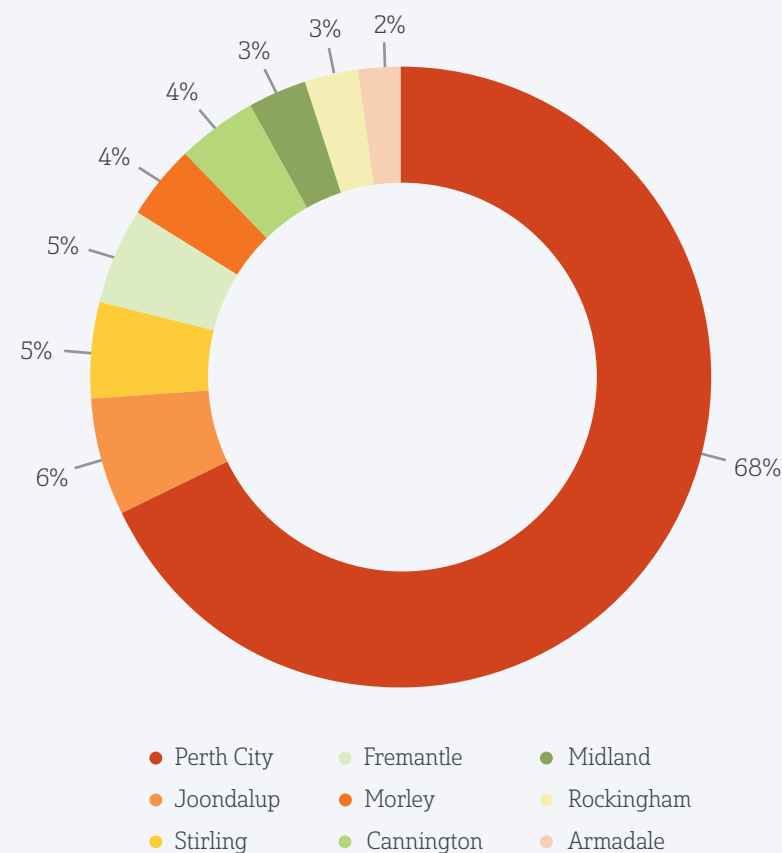
In 2015, it was estimated that Perth City had a total of 6,342,978m² floorspace (NLA – Nett Lettable Area) across all land uses (including vacant floorspace) or an average of 6,447m² floorspace (NLA) per hectare (excluding Kings Park), compared with 4,092,698m² in 2007, or 4,180m² of floorspace (NLA) per hectare, representing a 55% increase in floorspace between 2007 and 2015.^d

Comparison to Greater Perth

In comparison to the Strategic Regional Centres in Greater Perth, it is expected that the floorspace density within Perth City would be significantly higher, although 2015 data for the other Centres is not currently available.

Comparison of the 2007 land use survey data shows Perth City had 68% of the total occupied floorspace across all Centres with 3,622,379m² of occupied floorspace^e compared with a total of 1,711,937m² occupied floorspace across the Strategic Metropolitan Centres.

Figure 5 - Relative Size by Total Occupied Floorspace, Perth City (pre-July 2016) compared with Strategic Metropolitan Centres, 2007



^d Please note the 2015 figures are preliminary estimates only and may be subject to further verification and change. Note comparison with other Strategic Metropolitan Centres does not include Mandurah.

^e Includes complex 238 Highgate with 2,200sqm occupied floorspace of which a portion is outside of the City of Perth.

Office Employee Density

Linked to floorspace density is employee density, which is addressed in the Economy chapter.

Resident and Dwelling Density^{12 13 14}

Resident densities are important in a Capital City context as they help to bring life to the city at night and on the weekends when the majority of businesses are closed.

The State Government¹⁵ encourages higher residential densities in close proximity to public transport routes and stations (i.e transit precincts) to make efficient use of this key infrastructure and encourage more environmentally sustainable ways of travel. Within transit precincts, a minimum of 25 dwellings per hectare is generally advocated with substantially higher dwellings per hectare sought where high levels of public transport service are provided. The State Government identifies the whole of Perth City as a transit precinct with the exception of Kings Park and the southern part of Crawley.

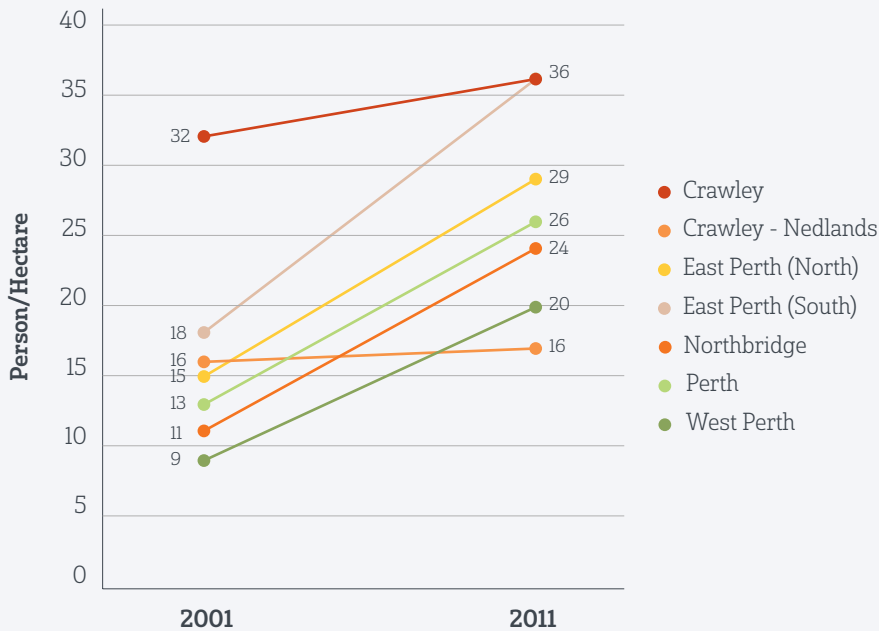
In 2011, Perth City had 25.2 residents and 12.5 dwellings per hectare (excluding Kings Park). Whilst these are below that expected by the State Government, they have increased significantly since 2001, when there were just 14 residents and 6.6 dwellings per hectare. The mixed use nature of Perth City, with residential uses and commercial uses, and its primary role as the Capital City is likely to be a factor influencing achievement of the residential dwelling target. The State Government also advocates for significant trip generating uses such as high density employment to be located close to transit facilities, which Perth City performs well in.

By 2036, Perth City is forecast to exceed the State Government’s residential dwelling target, with 40.5 residents and 27.1 dwellings per hectare (excluding Kings Park).

There is a differentiation of resident and dwelling densities across Perth City as shown in Figures 6 and 7. Parts of East Perth (south) and Crawley accommodate the highest resident densities while East Perth (south and north) has the highest dwelling densities. Interestingly Crawley despite having high resident densities has lower dwelling densities reflecting a greater number of residents per dwelling, perhaps due to its proximity to the University of Western Australia. The Crawley-Nedlands area has the lowest resident and dwelling densities across Perth City.

The majority of areas have seen significant increases in both resident and dwelling densities, with the exception of Crawley, where there have been more minor increases and the Crawley/Nedlands area where densities have remained fairly stable.

Figure 6 - Population Density (Residents/Hectare), Perth City, 2001 - 2011



The City of Perth's Urban Design Framework sets a target of 10,000 residents in the Perth City core by 2029. In 2011, 4,147 residents were living in the city core, with the target population forecast to be reached by 2033.

Comparison to Greater Perth

Perth City has higher resident and dwelling densities (25.2 and 12.5) than those within Greater Perth (2.7 and 1.1) however there are select areas within this broader region that have higher resident densities than Perth City and its surrounding area. Perth City (SA2 area) ranks only 7th out of 173 areas across the Greater Perth in terms of resident densities¹⁶. Again the mixed use nature of Perth City is likely to be a factor in this.

Perth City's resident and dwelling densities are comparable to those within the Central Sub-Region (27.2 and 11.5)¹⁷.

Figure 7 - Dwellings Density (Dwellings / Hectare), Perth City, 2001 - 2011

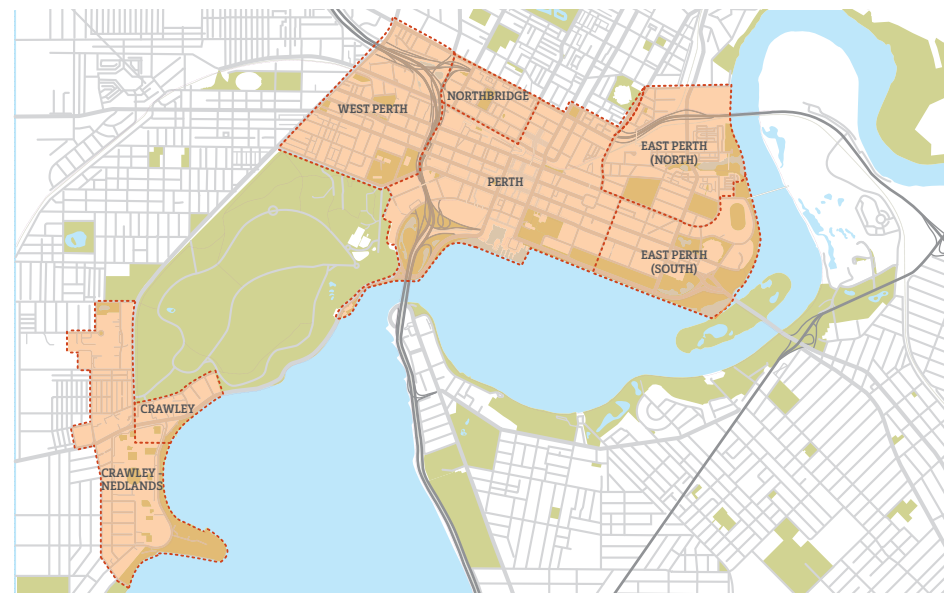


Comparison to Other Australian Capital Cities

Figure 8 shows that Perth City's resident and dwelling densities are similar to Melbourne, higher than Adelaide but lower than Sydney. It should be noted however that the geographical areas of these cities are greater than Perth City so they are not directly comparable.

Figure 8 – Perth City and other Australian Capital Cities – Resident and Dwelling Densities, 2011

Region	Residents per hectare of land area	Dwellings per hectare of land area
Perth City ¹⁸	25.2	12.5
City of Adelaide ¹⁹	14.9	7
City of Melbourne ²⁰	24.8	14.2
City of Sydney ²¹	63.4	35.5



CF1.3 LAND USE MIX ^{22 23}

Land use mix can be measured by the number of establishments and/or floorspace.

In 2015, the top five predominant land uses within Perth City were Office/Business, Residential, Health/Welfare/Community Services, Vacant Floor Area and Utilities/Communication.

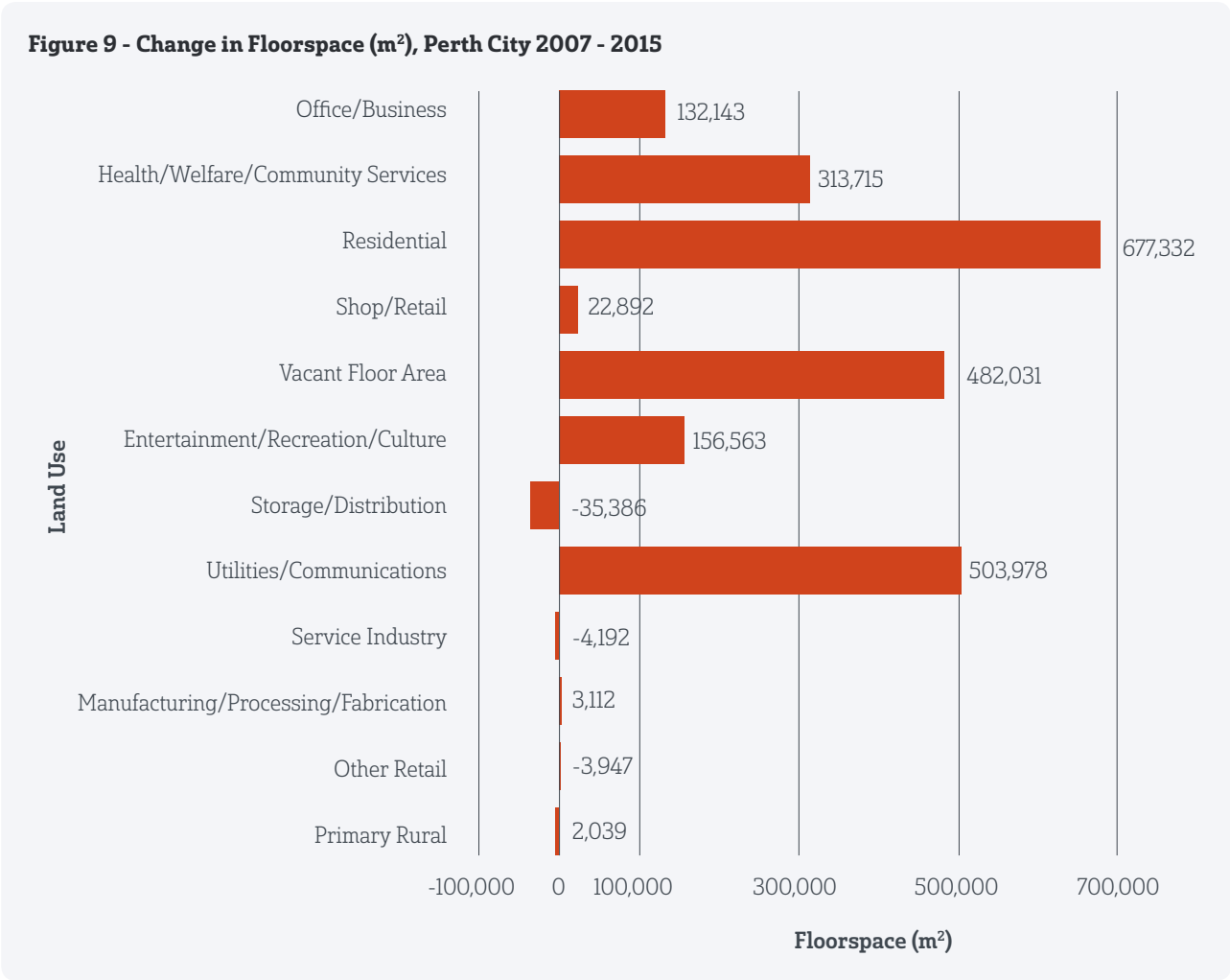


Figure 10 - Land Use by Floorspace Area (NLA), Perth City, 2007 and 2015

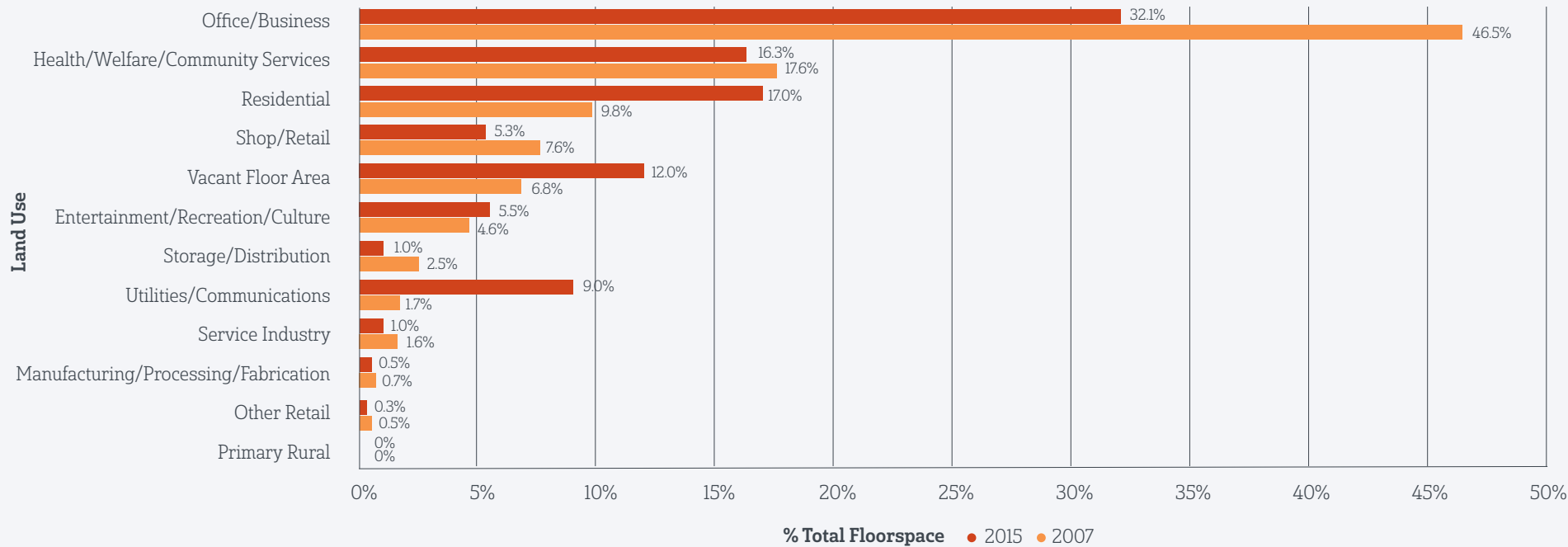
	2007 (2b)		2015 (2a)		Change b/w 2007 and 2015
Land Use Category (1)	m ²	%	m ²	%	m ²
Office/Business	1,902,852	46%	2,034,995	32%	132,143
Residential	401,303	10%	1,078,635	17%	677,332
Health/Welfare/Community Services	722,267	18%	1,035,982	16%	313,715
Vacant Floor Area	277,745	7%	759,776	12%	482,031
Entertainment/Recreation/Culture	189,777	5%	346,340	5%	156,563
Shop/Retail	311,275	8%	334,167	5%	22,892
Utilities/Communications	68,671	2%	572,649	1%	503,978
Storage/Distribution	100,683	2%	65,297	1%	-35,386
Service Industry	67,393	2%	63,201	1%	-4,192
Manufacturing/Processing/Fabrication	29,568	1%	32,680	1%	3,112
Other Retail	21,164	1%	17,217	0.3%	-3,947
Primary/Rural	0	0%	2,039	0.03%	2,039
TOTAL FLOORSPACE	4,092,698	100%	6,342,978	100%	2,250,280

(1) Land Use Categories are standard categories from the WA Planning Commission commercial surveys and definitions can be found at <https://www.planning.wa.gov.au/publications/782.asp>.

(2a) The 2015 figures are estimates only and may be subject to further verification and change. The large increase in Utilities / Communications is due to previously unsurveyed carparks.

(2b) The 2007 figures include those areas of Crawley and Nedlands that were included in the City of Perth boundaries at 1 July 2016.

Figure 11 - Proportion of Floorspace by Type, Perth City, 2007 and 2015



Perth City had a greater mix of land uses in 2015 than it did in 2007. The most significant proportional increases between 2007 and 2015 were seen in Residential (9.8% to 17%), Utilities/Communications (1.7% to 9%), and Vacant Floor Area (6.8% to 12%). It is understood that the increase in Utilities/Communications is due to an increased number of carparks in the city²⁴. There was a significant proportional decrease in Office/Business (46.5% to 32.1%) despite minor increases (7%) in floorspace in this category. Shop/Retail also decreased as a proportion of total floorspace (7.6% to 5.3%) despite minor increases (7%) in this category also.

The Property Council of Australia’s *Perth Office Market Report* dated August 2016 indicated that 385,303m2 or 21.8% of office floor space was vacant in July 2016.

Comparison to Greater Perth

Whilst Office/Business, Health/Welfare and Vacant Floor Area features prominently in both Perth City and the Strategic Regional Centres in Greater Perth, Office/Business is more prominent in Perth City given its Capital City role, whilst the Strategic Regional Centres are heavily dominated by Shop/Retail.

Comparison to Other Australian Capital Cities

It is not possible to compare the land use composition of Perth City to the Melbourne and Sydney CBDs given that different methodologies and land use categories exist across the cities.

CF2 BUILDINGS

Buildings examines the diversity and quality of dwellings and non-residential buildings across Perth City. In relation to quality it focuses on the internal amenity aspects. External amenity impacts are addressed in part under UF3.1 - Streets.

The diversity and quality of dwellings and non-residential buildings plays a part in influencing who lives and does business in the City as well as quality of life and productivity.

It also has a significant impact on the environmental sustainability of the City.

"Our built environment is currently the world's single largest contributor to greenhouse gas emissions, and also consumes around a third of our water and generates 40 per cent of our waste"²⁵. "Today, buildings and the energy used in them are responsible for one-quarter of all climate change causing greenhouse gas emissions."²⁶

Good quality buildings are fit for purpose whilst being flexible and adaptable. They provide *"internal rooms and spaces that are adequately sized, comfortable and easy to use and furnish, with good levels of daylight, natural ventilation and outlook."* They also provide *"appropriate levels of acoustic protection and visual privacy, adequate storage space and ease of access for all."*²⁷

CF2.1 DWELLING DIVERSITY AND QUALITY

The diversity (size and composition) of dwellings in Perth City directly influences household size (i.e. the number of people per household) and to an extent the diversity of households or people living in Perth City (i.e. group share households, larger family groups). The People Chapter provides more detail on the profile of households as well as dwelling affordability.

The quality of dwellings has an impact on a resident's well-being and their length of stay and the attractiveness of Perth City as a place to live.

Diversity

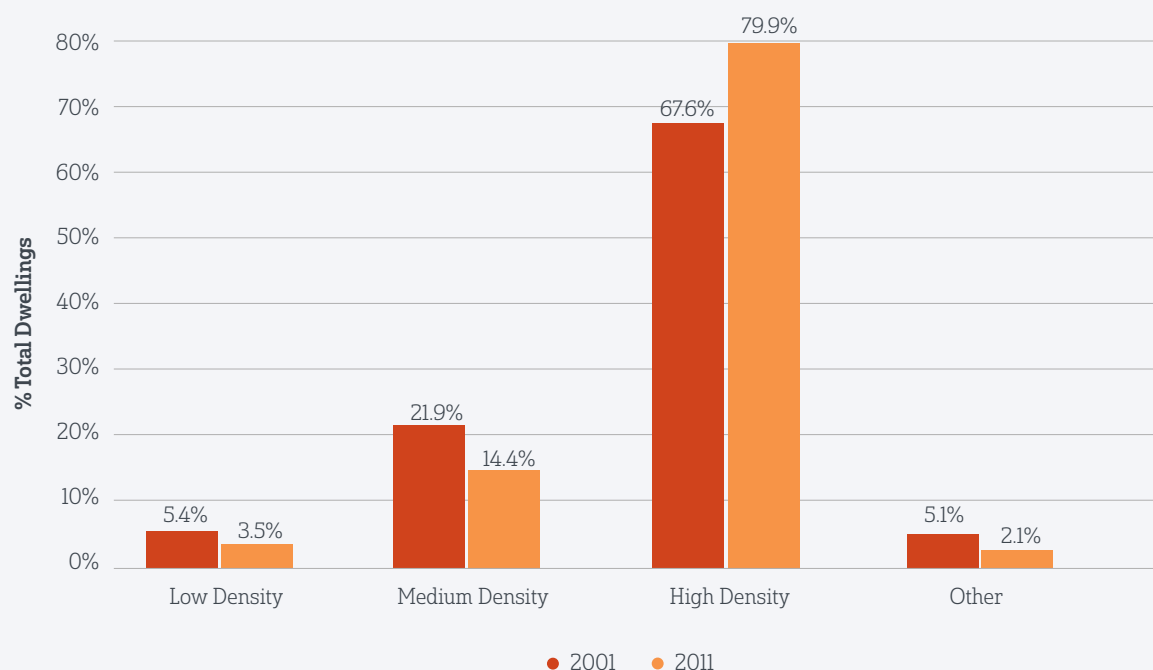
Dwelling diversity can be measured by dwelling type as well as size and composition (number of bedrooms and floorspace).

Dwelling Types by Density^{28 29}

In 2011 the majority (80%) of Perth City's 12,286 dwellings were high density apartments.

Figure 12 shows that high density dwellings have continued to increase as a proportion whilst low and medium density dwellings have decreased.

Figure 12 - Dwelling Type By Density Category, Perth City, 2001 - 2011



Comparison to Greater Perth and other Australian Capital Cities

Figure 13 shows that whilst the dwelling types in Perth City are vastly different to the low density character of Greater Perth, they are similar to other Australian capital cities. This is to be expected given that land values in capital cities are generally higher than those in suburban areas.

Dwelling Type by Number of Bedrooms ^{30 31}

In 2011, the majority (41%) of Perth City’s 12,286 dwellings were comprised of two bedrooms.

Figure 14 shows that the proportion of two bedroom dwellings has increased whilst one and three bedroom dwellings have decreased. The proportion of four bedroom dwellings has remained relatively constant.



Figure 13 - Proportion of Dwellings by Density Category, Perth City Compared with Other Places, 2011

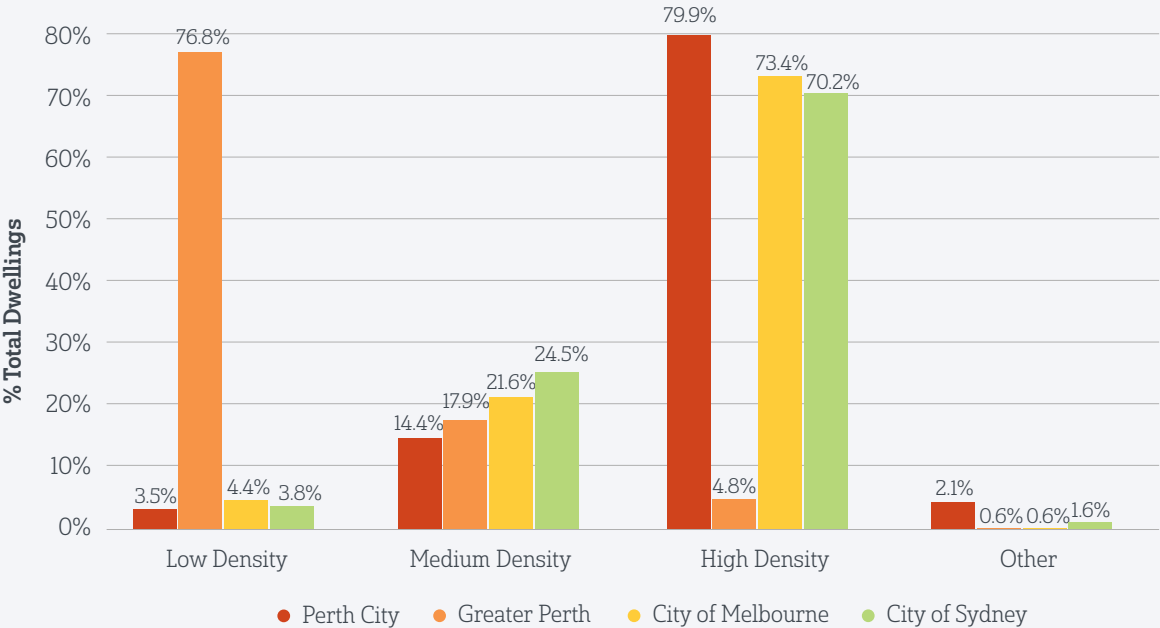
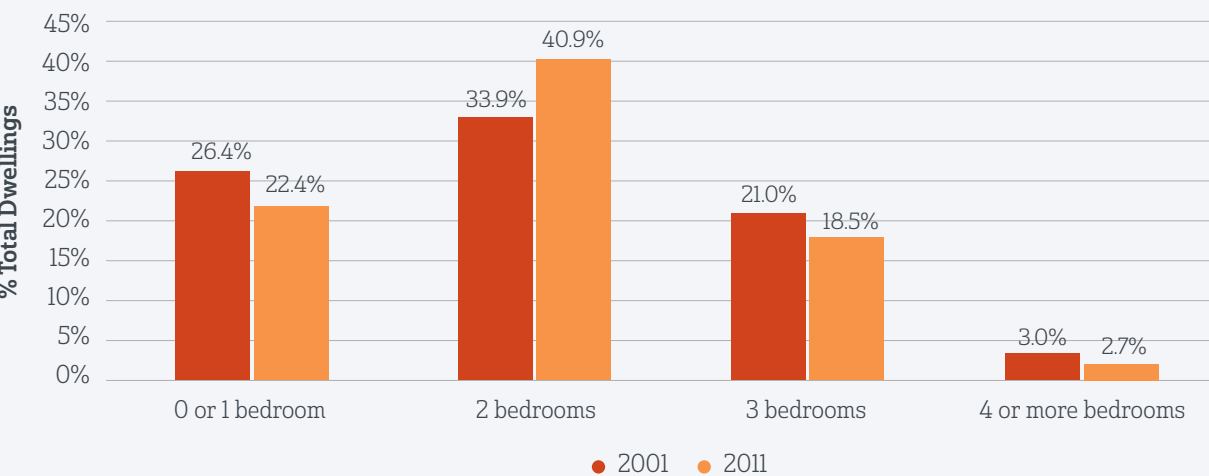


Figure 14 - Proportion of Dwellings By Number of Bedrooms, Perth City 2001 - 2011



Comparison to Greater Perth and other Australian Capital Cities

Figure 15 shows that like the dwelling type by density category, the proportion of dwellings by the number of bedrooms is vastly different to the average across Greater Perth, although comparable to the Cities of Melbourne and Sydney.

Dwelling Type by Floorspace and Non-Private Dwellings

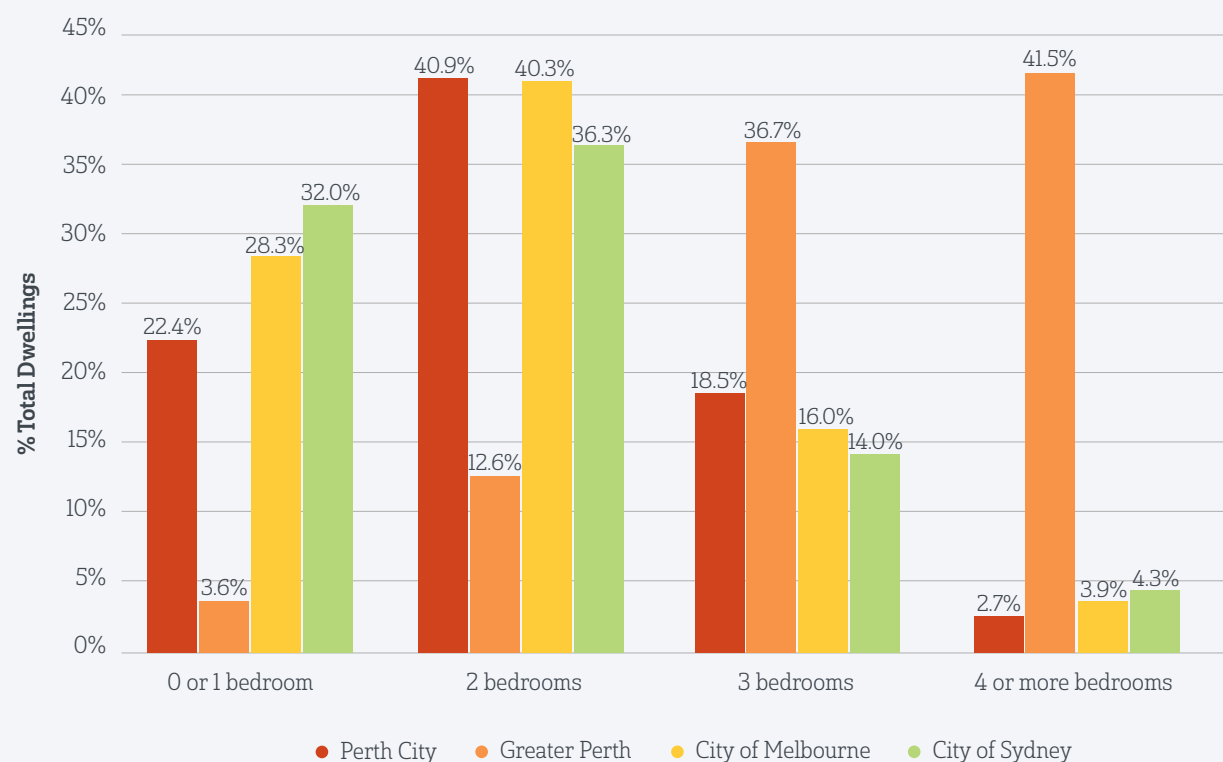
At present, there is no comprehensive set of data or information on dwelling sizes by floorspace or non-private dwellings in Perth City.

Quality

Dwelling quality can be measured by both resident satisfaction and environmental sustainability performance.

At present, there is no comprehensive set of data or information on actual or perceived quality of housing in Perth City. The environmental sustainability of buildings is addressed under UF2.3 – Environmental Sustainability.

Figure 15 - Proportion of Dwellings By Number of Bedrooms, Perth City Compared to Other Places, 2011



CF2.2 NON-RESIDENTIAL BUILDING DIVERSITY AND QUALITY

Non-residential buildings include all those used for purposes other than residential, including commercial, retail and community purposes.

The size and quality of spaces available within these buildings influences the diversity of businesses and organisations operating in Perth City which is addressed in the Economic Chapter.

Diversity

The diversity of non-residential buildings can be measured by the size of building floorplates however no collated information for Perth City is currently available.

Quality

It is also important to understand the quality of Perth City’s non-residential building stock as this is a contributing factor to the attractiveness of the City to do business and work. *“Good workplaces promote improved performance, communication and wellbeing....”*³²

The quality of Perth City’s non-residential building stock can be measured by a range of indicators including office grades, environment sustainability performance (see UF2.3 – Environmental Sustainability) and occupant satisfaction. Whilst information is available in relation to office grades and environmental sustainability, no information is currently available in relation to occupant satisfaction.

Office Grades³³

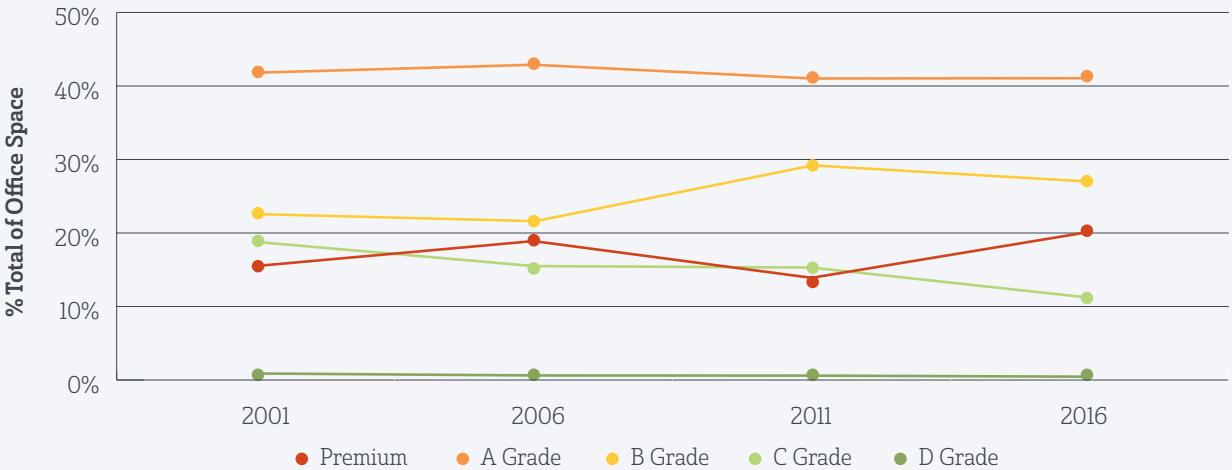
The grades of office buildings provide an indication of the quality of a large proportion of Perth City’s commercial buildings.

Perth CBD

Figure 16 shows that a significant proportion of Perth CBD’s office floorspace has been graded as Premium and that the majority (88.29%) of office floorspace falls in the top 3 grades, which is to be expected given its Capital City role.

Between 2001 and 2016, the proportion of Premium and A grade office floorspace has remained fairly stable whilst B and D grades have increased and C grade has decreased in proportion share.

Figure 16 - Perth CBD Office Floor Space 2001-2016



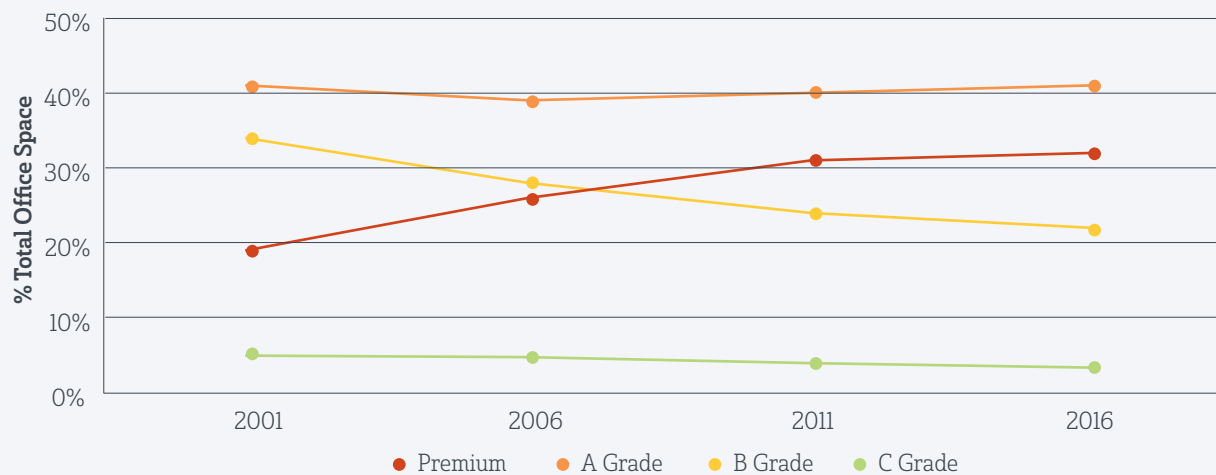
West Perth

Figure 17 shows that the majority (74%) of West Perth's office floorspace is either A or B grade. It has no premium office floorspace which is reflective of its role as a secondary office precinct to the Perth CBD.

Between 2001 and 2016 the proportion of B and D grade office floorspace has remained fairly stable whilst the proportion share of A grade has increased and C grade has decreased.



Figure 17 - West Perth Office Floor Space 2001-2016



CF2.3 ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability examines the environmental sustainability of both residential and non-residential buildings.

“Sustainable buildings use passive environmental design measures that respond to local climate and site conditions by providing optimal orientation, shading, thermal performance and natural ventilation. Reducing reliance on technology for heating and cooling minimises energy use, resource consumption and operating costs over the whole life-cycle of the project.”³⁴

The Natural Environment chapter includes information on greenhouse gas emissions in Perth City and shows that 63% of these are produced from buildings with the majority of these being from non-residential buildings. It also includes information on scheme water use and shows that the main users were non-residential buildings as well.

The environmental rating of a building provides an indicator of its environmental sustainability.

A wide range of rating tools are available to measure the environmental sustainability performance of buildings. These are useful for benchmarking against general industry practice, identifying areas for improvement and understanding potential building running costs.

Participation in a rating scheme is generally voluntary, with the exception of those selling, leasing or subleasing over 2000m² NLA of commercial floorspace who are required under the Federal Government’s Building Energy Disclosure Act 2010 to disclose its NABERS energy efficiency rating.

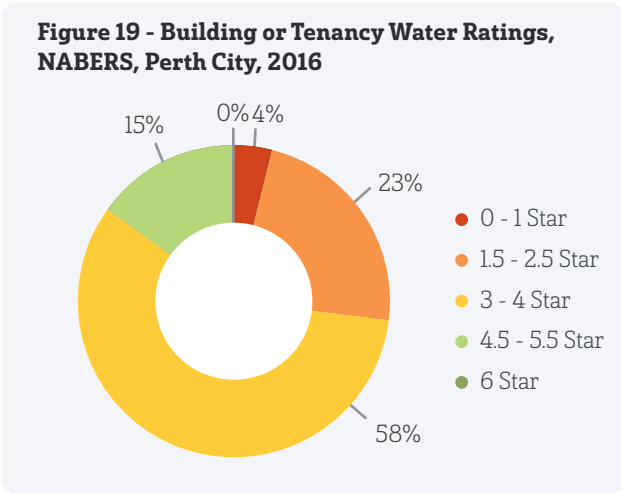
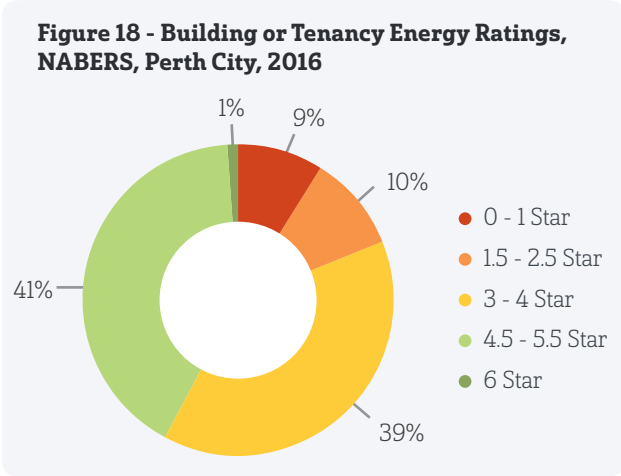
The City of Perth has set a target of “30% of net lettable area of existing office space participates in environmental programs, such as CitySwitch Green Office and Waterwise Office by 2030”.³⁵

An overview of the environmental sustainability performance of Perth City’s buildings under key environmental sustainability rating tools is provided below.

National Australian Built Environment Rating System (NABERS)³⁶

NABERS is a national rating system that measures the environmental performance of Australian buildings and tenancies. It measures the energy efficiency, water usage, waste management and indoor environment quality of a building or tenancy and its impact on the environment and applies a rating on a scale from 1 to 6 stars. A 6 star rating demonstrates market-leading performance, whilst a 1 star rating means the building or tenancy has considerable scope for improvement.

As at November 2016, there were 113 buildings or tenancies with a NABERS energy rating and 71 buildings or tenancies with a NABERS water rating in Perth City. Figures 18 and 19 shows that the majority of buildings or tenancies received a rating of 3 – 5.5 stars with respect to energy and 1.5 – 4 stars with respect to water.



City Switch

CitySwitch is a national high-value no-cost service which supports commercial office tenants to improve office energy and waste efficiency through the provision of a range of services, with the ultimate aim of achieving a 4 star or higher NABERS Energy rating.

As at November 2016, 64 business tenancies (covering 330,130 m² NLA) within Perth City participated in the City Switch program.³⁷



Waterwise Office Program

The Waterwise Office Program is a free, voluntary program, run by the Water Corporation, Property Council of Australia (WA) and the City of Perth, to support Perth's commercial office sector in reducing water use. It provides water use performance indicators to assess whether a building is water efficient and identifies opportunities for improvement. There are four recognition categories: bronze (industry baseline), silver, gold and platinum.

As at November 2016, 11 buildings within Perth City were recognised under the Waterwise Office program whilst an additional 3 office buildings are currently working towards Waterwise endorsement.

Figure 20 - Waterwise Office Recognition, Perth City, 2016

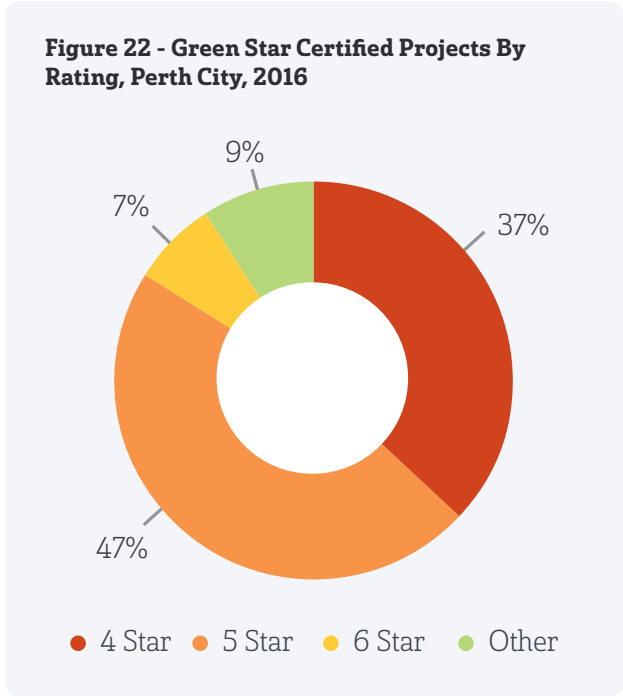
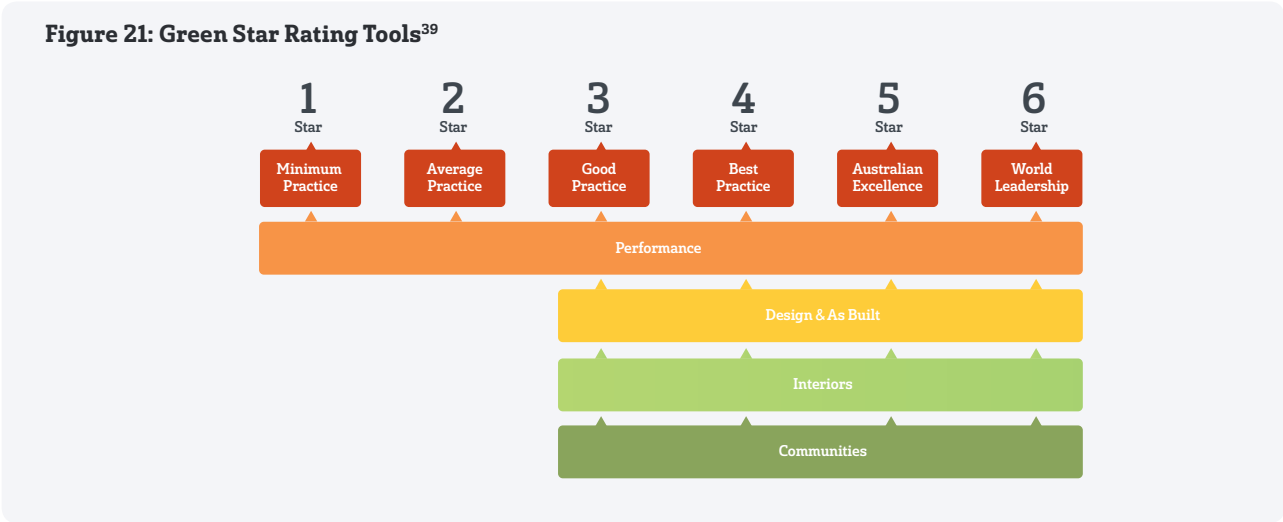
Recognition Categories	Number of Buildings
Platinum	2
Gold	3
Silver	5
Bronze	1
TOTAL	11

Green Building Council Australia Green Star Rating System

The Green Building Council of Australia’s Green Star rating system is Australia’s only national and voluntary rating system for buildings and communities. Green Star is helping to improve environmental efficiencies in our buildings, while boosting productivity, creating jobs and improving the health and well-being of our communities.

Four rating tools are available for certification, including: Communities, Design and As Built, Interiors and Performance. Ratings from 1 to 6 stars are awarded depending on the tool applied.

As at November 2016, 43 buildings⁴⁰ within Perth City have Green Star ratings, with the majority (81%) of these being under the Design and As Built tool. Figure 22 shows that the majority of projects having been awarded a rating of either 4 or 5 stars, reflecting Best Practice and Australian Excellence.



Nationwide House Energy Rating Scheme (NatHERS)

The Nationwide House Energy Rating Scheme (NatHERS) provides homes with a star rating out of ten based on an estimate of a home's potential (heating and cooling) energy use.

The National Construction Code (NCC), maintained and published by the Australian Building Codes Board (ABCB), details the minimum necessary requirements for safety, health, amenity and sustainability in the design and construction of new buildings throughout Australia. NatHERS tools are referenced in the NCC as part of one option for demonstrating compliance with the relevant energy efficiency Performance Requirements for houses and individual units in apartments.

The extent of residential buildings within Perth City which have been rated under this scheme is currently unknown.



CF3 AMENITY

Amenity examines the extent, quality and use/activity of Perth City's streets, public spaces and community facilities as well as the levels of noise.

High levels of amenity are important in making people feel welcome and valued, and ensuring Perth City is an attractive place for living, working and visiting. This is particularly important in higher density areas such as the City where private open space is limited.

Perth City's streets, public spaces and community facilities provide opportunities for both passive and active recreation as well as social interaction which contribute to community wellbeing. They also play a role in hosting major city events which create city vibrancy and provide economic benefit.

Perth City's streets and public spaces also play an important ecological function which is addressed in part in the Natural Environment chapter.

Whilst a mix of land uses within Perth City is desired, there is also a need for "down time" to enable the city to be renewed (e.g. waste collection and cleaning) for the next day. Noise levels need to be managed to ensure that the city is vibrant and well serviced but also highly liveable.

CF3.1 STREETS

*"Streets are the city's most extensive, visible and important public spaces. They do more than carry traffic. Streets provide a context for activity and human exchange, tie the fabric of the city together and help to unify the perceived image and experience of the city."*⁴¹

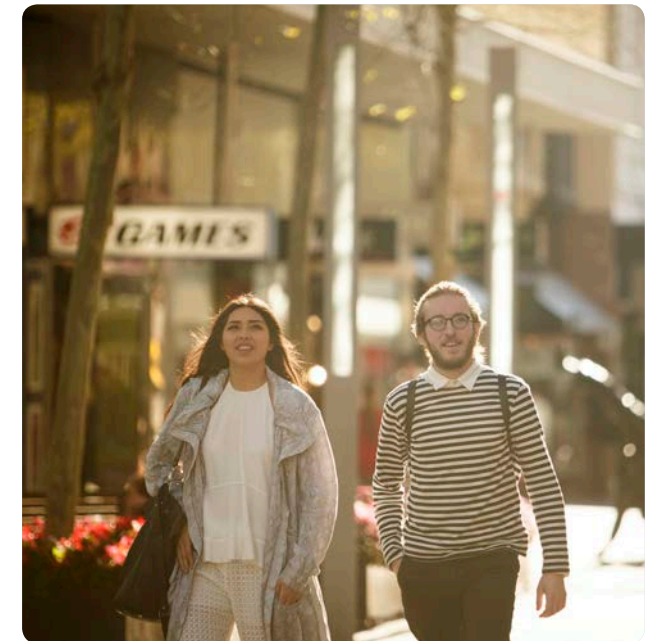
This section focuses on the human experience of Perth City's streets whilst the Movement Chapter addresses the transport functions of these.

Streets provide positive human experiences when they are comfortable, attractive, interesting and safe.

The human experience of Perth City's streets can be measured by a vast range of indicators including the extent and quality of footpaths and paving, public seating and drink fountains, trees, lighting, outdoor café seats, public art as well as the diversity of architectural expression including heritage buildings. It can also be measured by the quality of building frontages and also microclimatic elements such as the level of wind, extent of shade as well as sunlight access. The level of stationary activity within streets and community perceptions are also indicators of quality.

It is not possible to address the full range of measures in this report. This section examines two measures being the quality of building frontages and stationary activity. The extent of trees and heritage buildings are addressed in the Natural Environment and Culture chapters respectively.

In 2011, the quality of street lighting in Perth City (pre-July 2016) was measured as part of the City of Perth's Lighting Strategy. The results of this survey however are not included in this report as they are not considered to be reflective of the current state of the city given that a number of improvements have been made to lighting across the city since this time.



City Crowds (Credit Jessica Wyld)

Building Frontages ^{42 43}

Quality building frontages (the ground floor portion of a building facing the street) are those which are attractive and interesting, promote activity and maximise the interaction between the indoors and outdoors, as well as enhance the microclimate.

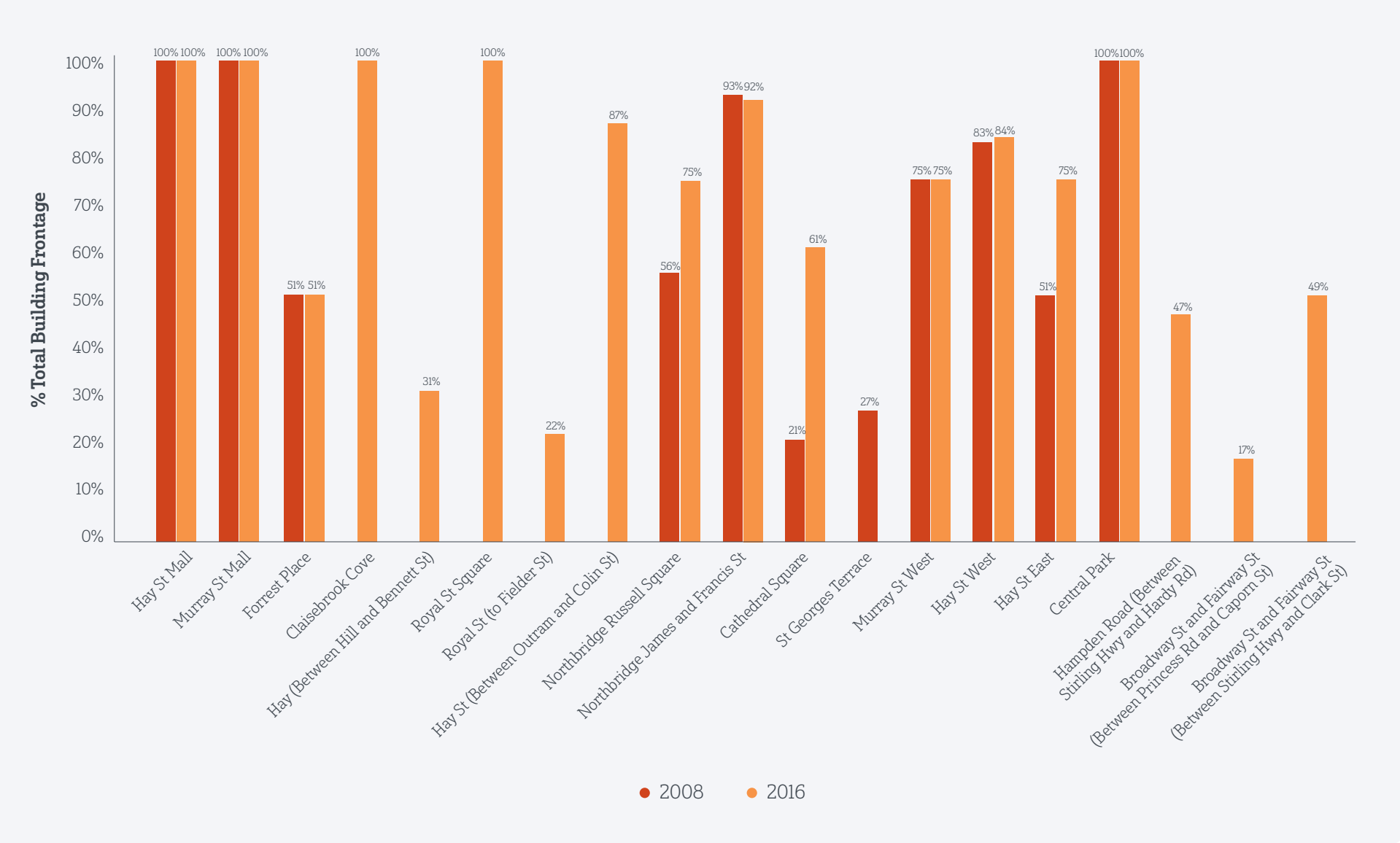
The quality of a building frontage is influenced by a range of factors including the height, setback and levels of the building from the street, the number, size, treatment and spacing of doors and windows, the extent of pedestrian shelter and uses that generate interest and activity, and the variety of architectural expression and detailing.

The quality of building frontages in the Perth CBD and Northbridge were evaluated in 2008 and 2016. Building frontages were assessed as either Active, Pleasant, Dull or Inactive taking into consideration the following criteria: number of activities/doors, diversity of activities, opportunities for interaction and interesting design and detailing. A number of additional locations (East Perth, West Perth and Crawley/Nedlands) were surveyed in 2016.

Across all locations surveyed in 2016, 42% of building frontages were considered active or pleasant. Figure 23 shows that while some locations performed highly, others performed poorly. The quality of building frontages has improved in several locations since 2008, with one of these locations being Cathedral Square, which has recently been renewed as part of a broader precinct including the historic State Buildings, Perth Town Hall, St George's Cathedral, The Deanery, the State Administrative Tribunal building, the new City of Perth Library and a new office tower by Mirvac.



Figure 23 - Proportion of Building Frontages Identified as either 'Active' or 'Pleasant' - Perth City - 2008-2016



Stationary Activity^{44 45}

Counting the number of people engaged in stationary activities^e is recognised internationally as an indicator of attraction and therefore quality of streets and public spaces.

*"A high number of pedestrians walking in the city does not necessarily indicate a high level of quality. However a high number of people choosing to spend time in the city indicates a lively city of high urban quality."*⁴⁶

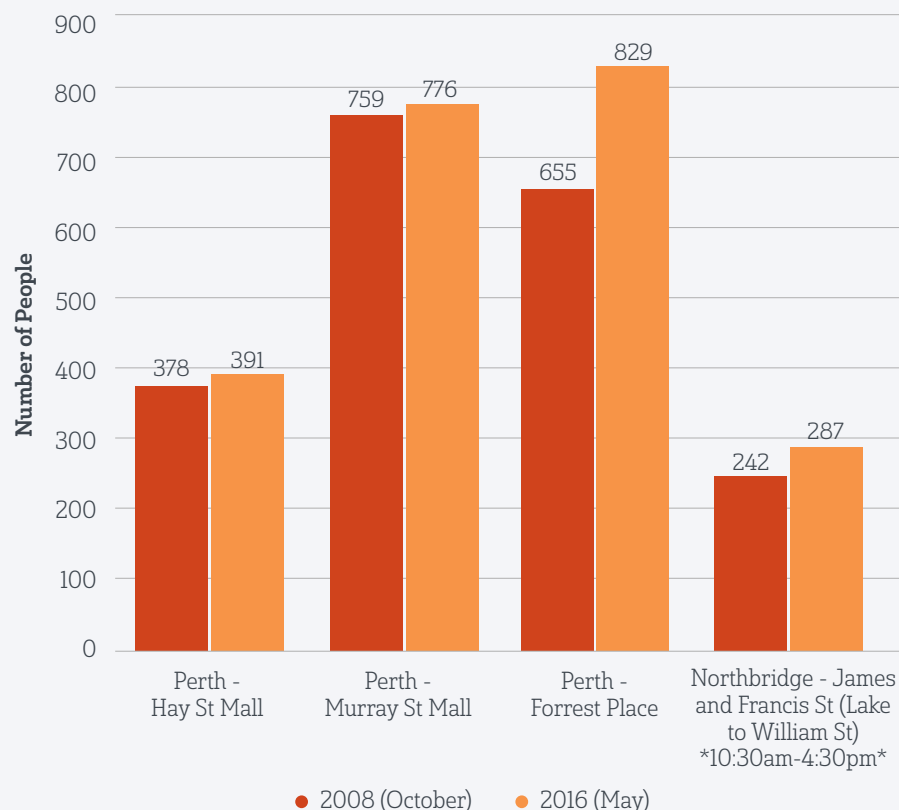
Stationary activity surveys were conducted within a number of streets or public spaces in Perth City in 2008-09 and 2016.

Figure 24 provides a comparison of the people observed in stationary activities in 2008 and 2016 in the four common survey locations. Within these areas, the total number of people engaged in stationary activities increased by 12.3% from 2,034 in 2008 to 2,283 in 2016, with Forrest Place experiencing the most significant of increases (27%). It should be noted that the 2008 and 2016 surveys were conducted in different months (October v's May) and this may affect the stationary activity levels. The level of formal and informal seating within the locations is also likely to be a factor in the differences in activity.

Notes:

1. The total number of people observed in stationary activities represents the number of people counted at 6 points in time on a single day between 10.30am and 8.30pm with the exception James and Francis Streets in Northbridge where it represents the number of people counted at 4 points in time on a single day between 10.30am and 4.30pm.
2. As outlined above, the 2016 survey was conducted in different months to the 2008 survey (May versus October) although the methodology developed by Gehl Architects does permit data to be collected in different months where weather conditions are the same on each survey day. The weather was dry in both 2008 and 2016 although it was 4 degrees warmer on the 2008 survey day.

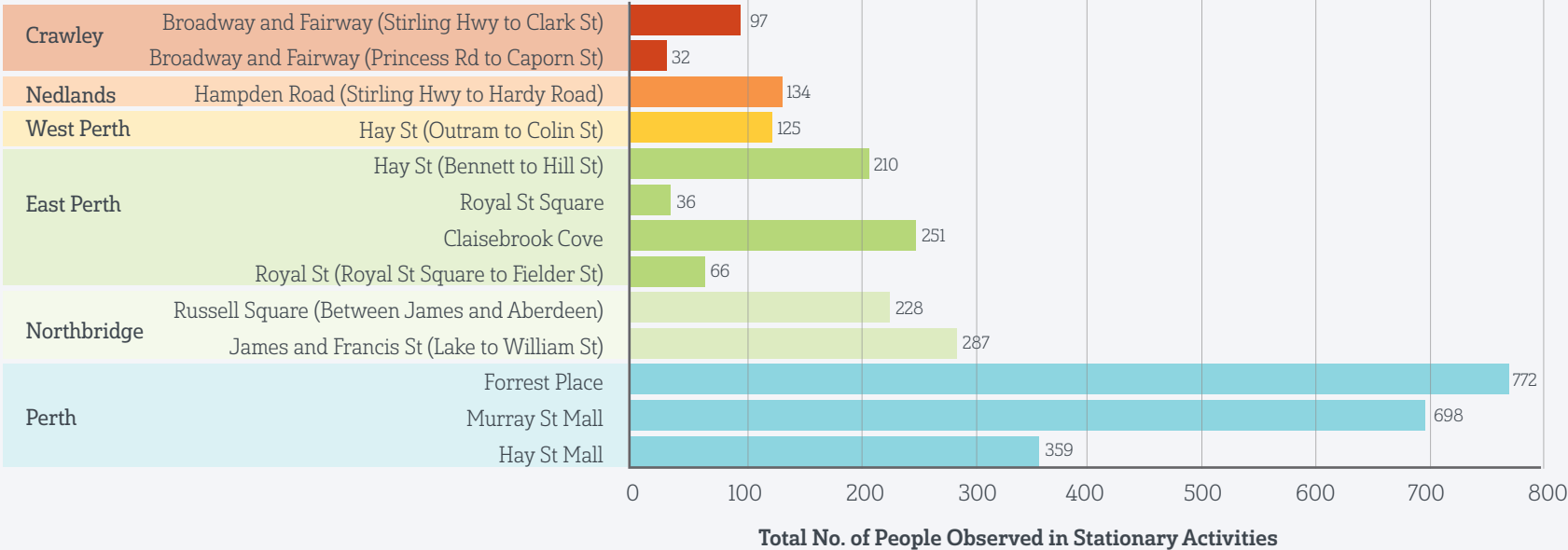
Figure 24 - Number of People Observed in Stationary Activities, Perth CBD and Northbridge, 2008 and 2016



3. There is no data on the estimated number of people in Perth City, in either survey period. As such, the proportional increase in overall visitation cannot be considered alongside the proportional increases in activity within the public spaces.

^e Stationary activities are defined as sitting on benches or outdoor cafes, standing waiting, children playing, waiting for transport etc. They are considered "optional" activities rather than "necessary" activities like walking (ibid).

Figure 25 - Total Number of People Observed in Daytime Stationary Activities By Location, Perth City, 2016



A number of additional locations in Northbridge, East Perth, West Perth, Nedlands and Crawley were surveyed in 2016. Across all locations surveyed, a total of 3295 people were observed in stationary activities. Figure 25 shows the highest levels of stationary activity occurred in the Perth CBD followed by Northbridge and East Perth.

Notes

1. The total number of people observed in stationary activities represents the number of people counted at 4 points in time on a single day between 10.30am and 4.30pm in May 2016 (all locations with the exception of West Perth) or June 2016 (West Perth).



CF3.2 PUBLIC SPACES

Public spaces are defined as open space that is accessible to the community on a regular basis and perceived as public, whether publically or privately owned including parks, bushland and urban spaces (such as city squares and piazzas). Whilst streets are also a form of public space, these are addressed separately under UF3.1 Streets.

For public spaces to be effective, they should meet community needs and like streets, be comfortable, attractive, interesting and safe.

Perth City's public spaces, can be measured by a vast range of indicators, many of which also apply to the city's streets. These include whether they meet community needs for both passive and active recreation as well events. The extent and quality of foot paths, public seating and drink fountains, trees, lighting and public art are also important measures for parks and urban spaces along with microclimatic elements such as the level of wind, extent of shade and sunlight access. The level of stationary activity and events within public spaces and community perceptions are also indicators of quality.

Figure 26 - Location and Type of Public Space, Perth City, 2016



^f Note calculation does not include waterbodies or lakes etc.

Diversity and Distribution ⁴⁷

In 2016, Perth City has a total of 558 hectares of public space^f including Kings Park (400 hectares) which covers 41% of the total land area of the City and which comprised:

- 108.4 hectares of parks (predominately grassed and garden areas)
- 433.5 hectares of bushland (including 400 hectares at Kings Park)
- 16.1 hectares of urban space (paved squares, piazzas etc).

A number of additional areas of urban space have been created in Perth City in recent years through urban renewal projects such as Brookfield Plaza, Cathedral Square, Perth Train Station Forecourt, State Theatre Complex, Elizabeth Quay and the Perth City Link.

Figure 27 shows the amount of public space within Perth City in comparison to the Cities of Melbourne and Sydney. It shows that Perth City has a considerably greater amount of public space as a proportion of total land area and per resident and worker, with the latter being due to Melbourne and Sydney having higher resident and worker populations.

Quality

There is currently no detailed information or data relating to the quality Perth City’s public spaces with the exception of the number of event bookings which is captured in the Culture Chapter and limited stationary activity counts which are captured under UF.1 Streets.

Some indication of satisfaction with Perth City’s public spaces may be taken however from general market research undertaken in 2014 which found that outdoor spaces were rated the most highly out of all attractions within Perth City, with 77% of respondents rating its outdoor spaces favourably and 56% respondents being likely to recommend these to their family and friends.⁵⁶

Figure 27 – Perth City and Other Australian Capital Cities – Public Space

	Total Land Area (hectares)	Total Residents	Total Workers	Public Space Land Area (hectares)	% of Total Land Area	Public Space Land Area (m ²) per Resident	Public Space Land Area (m ²) per Resident and Worker
Perth City	1,385	24,244 ⁴⁸	134,459 ⁴⁹	558	40%	226	35
City of Melbourne	3,770	93,627 ⁵⁰	360,330 ⁵¹	555 ⁵²	15%	59	12
City of Sydney	2,672	205,339 ⁵³	437,727 ⁵⁴	386 ⁵⁵	14.8%	18	6

CF3.3 COMMUNITY FACILITIES

Community facilities are defined as places and buildings where the community (residents, workers or visitors) can meet and participate in community activities or access community services. These facilities are generally provided by State and local government or the not-for-profit sector including churches and sporting clubs.

Extent

Figure 28 shows the number of community facilities per type as at November 2016.



There are number of facilities (swimming pools, indoor gyms, activity rooms or playgrounds, yoga centres etc.) within private developments such as schools and apartments which could be considered 'community orientated' as they contribute to the overall network of facilities although not necessarily accessible to the wider community. The extent of these is currently unknown.

Quality

The quality of community facilities can be measured by assessing whether they meet known community service needs and community perception however no information currently exists in relation to this. The People Chapter addresses the extent of community services provided within Perth City.

Figure 28 - Community Facilities By Type, Perth City, 2016⁵⁷

Facility Type	Number
Education:	67
Primary (private)	1
Secondary (private)	3
Tertiary – Vocational Education and Training	2
Tertiary – Universities	6
Tertiary - Other	55
Libraries	3
General Community Meeting Spaces	7
Religious	20
Arts and Culture	46
Film Venues	3
Galleries	8
Museums	11
Performance Spaces ⁱ	13
Art Labs ^j	11
Indoor Sport and Recreation (UWA)	1
Outdoor Sport and Recreation:	43
BBQ Areas	22
Courts	3
Playgrounds	11
Outdoor Gyms	7

⁵⁷ Includes publicly owned squares and forecourts, waterbodies and major sporting venues

^b Includes local government and other authorities public space

ⁱ Performance spaces include stadiums and theatres but not private live performance spaces or recording studios.

^j An Arts Lab is a place which offers collaborative opportunities, including workshops and education, and is non-profit and community based.

CF 3.4 NOISE AND VIBRATION

Sound and vibration are generated in cities from a variety of functions and activities such as waste collection, construction and transport movement as well as specific land uses such as entertainment which draw people from afar and create city vibrancy. When sound becomes unwanted, it becomes noise, defined as “unwanted sound that unreasonably intrudes into our daily activities and can cause varying degrees of nuisance and annoyance”.⁵⁸ When noise exceeds regulated limits it is considered noise pollution.

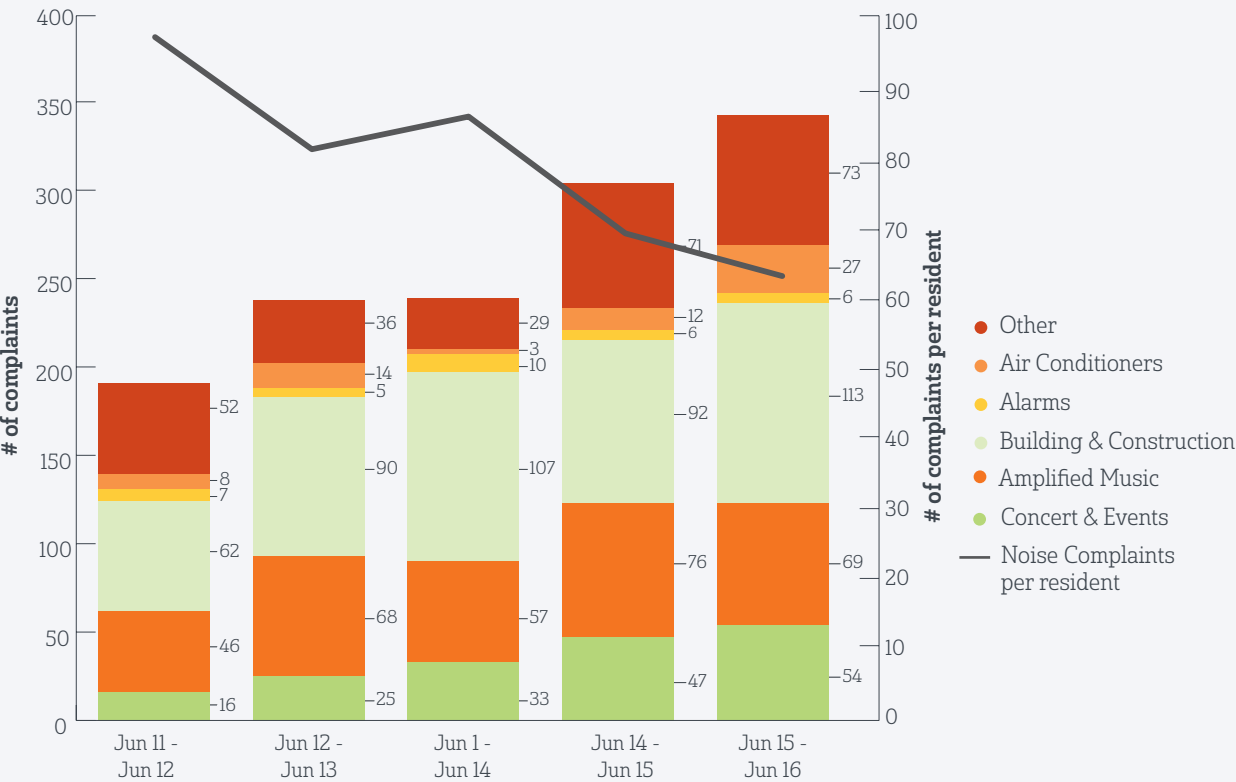
Noisy environments can have a detrimental impact on the health and wellbeing of people⁵⁹, particularly residents and can have an impact on Perth City’s reputation as a liveable and attractive place to visit and live.

In 2012, the community identified the “management of noise” as an important issue in Perth City ranking the issue 8th in terms of key health concerns and 19th in terms of key city values⁶⁰.

The number of noise complaints provides an indication of the level of noise annoyance in Perth City.

The number of noise complaints in Perth City (pre-July 2016 boundary) increased between 2011-12 and 2015-16⁶¹ by 79% from 191 to 342, although when residential population growth is taken into account, the average complaints per year per resident fell by 35% from 96 to 62.

Figure 29 - Number of Registered Noise Complaints by Type and Per Resident, Perth City (pre-July 2016), 2011 to 2016



Noise from “building and construction” received the most registered complaints over the 5 year period (465 or 35% of the total) most likely due to the extensive period of growth in office and apartment construction in Perth City. The next highest area of noise complaint was “amplified music” (317 or 24% of total) generated from both entertainment venues and private residences.

The most significant change in complaints was from “Concerts and Events” which increased from 8.4% to 15.8% of total complaints. This reflects the significant increase in the number of event approvals. Between 2012-13 and 2015-16 there was a 150% increase (161 to 403) in the number of event approvals.

¹ Regulated limits are developed based on World Health Organisation standards.
^k It should be noted that this does not include any data from WA Police or City of Perth Rangers who may deal with noisy parties and dog complaints.

CF4 GROWTH AND CAPACITY

Growth and capacity looks at recent trends in development activity and the capacity of key systems to facilitate future growth. These are important aspects of the current state of Perth City given the relatively long-lead times incurred where any changes may be required in the regulatory planning system and significant levels of capital investment needed to enhance utility services to facilitate growth.



CF4.1 DEVELOPMENT ACTIVITY

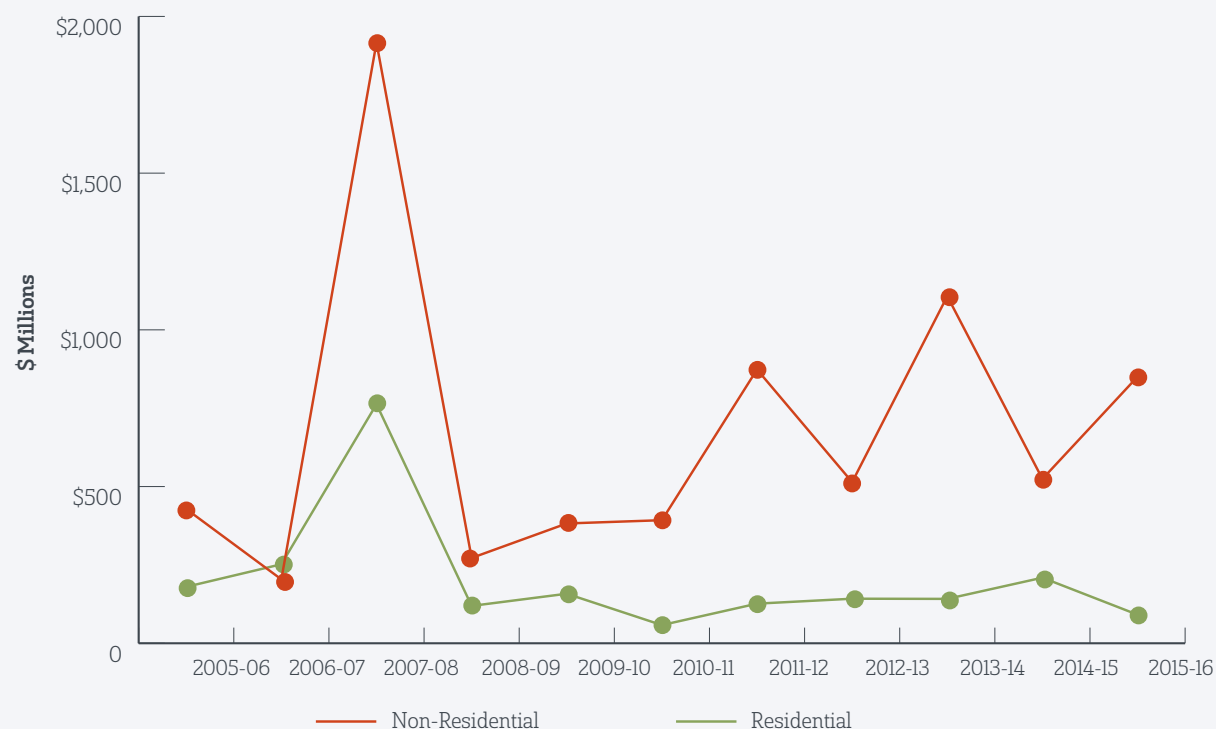
A review of recent trends in development activity provides background context to growth.

Building Approval

Figure 30 shows the yearly value of residential and non-residential building approvals in Perth City (pre-July 2016) over the last ten years which totalled over \$9 billion worth of development (or an average of \$900 million per year).⁶²

In 2007-08 there was a significant spike in the value of non-residential approvals resulting from buoyant economic conditions and a peak of office construction in Perth City. During 2007 and 2008 there were 7 "major" permits (each over \$100 million) approved for construction including Westralia Square and Brookfield Place (\$351 million).

Figure 30 - Value of Building Approvals Perth City (pre-July 2016), 2005-06 to 2015-16



In 2007-08 there was also a spike in the value of residential approval values during this period, then relatively steady values in following years, with a slight downward trend from 2014-15 to 2015-16.

As of June 2016, there were an estimated 315 projects under construction worth a total of \$3.8 billion.⁶³

Geographic Distribution of Recent Building Applications⁶⁴

Figures 31 and 32 provide an indication of the geographic distribution of the majority of current approvals across Perth City.

Figure 31 – Distribution of Approved Building and Development Applications - Perth City - 2014 – 2016

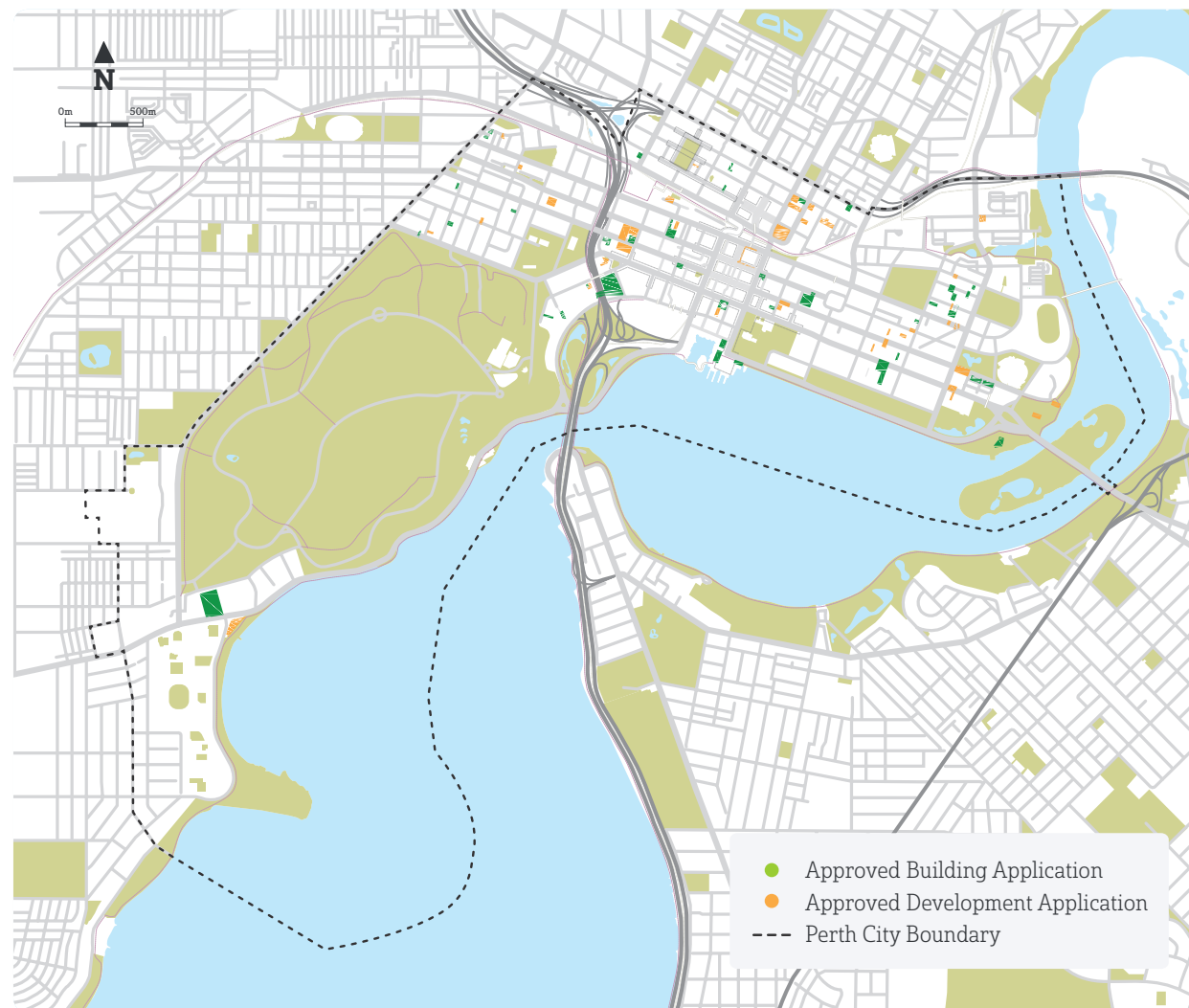


Figure 32 – 3D Visualisation of Approved and Current Building and Development Applications, Perth City, 2014 to 2016

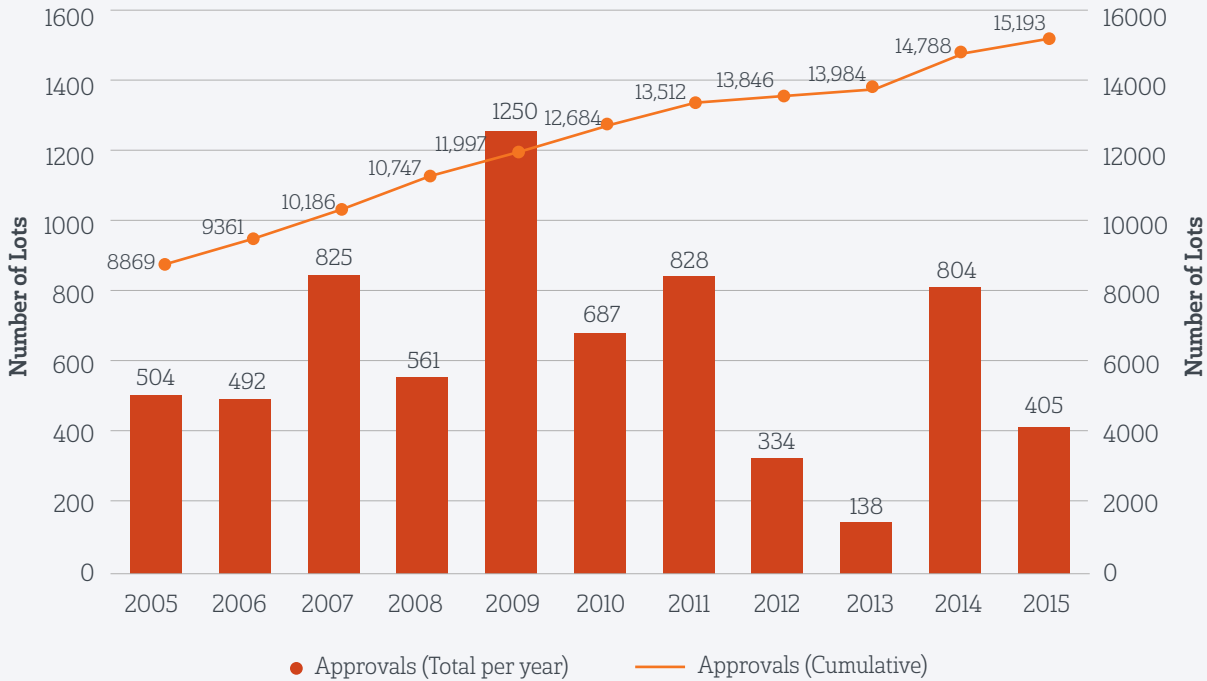


Growth in Residential Strata Lots

Between 2006 and 2015 there were 6,324 strata lots created in Perth City (pre-July 2016), an increase of 71.3% over the 9 year period, or a growth rate of 5.5% per year (average), slightly behind the population growth rate over the same period of 6.1% (annual average).⁶⁵



Figure 33 - Residential Strata Lots Approved, Perth City (pre-July 2016) 2005 to 2015



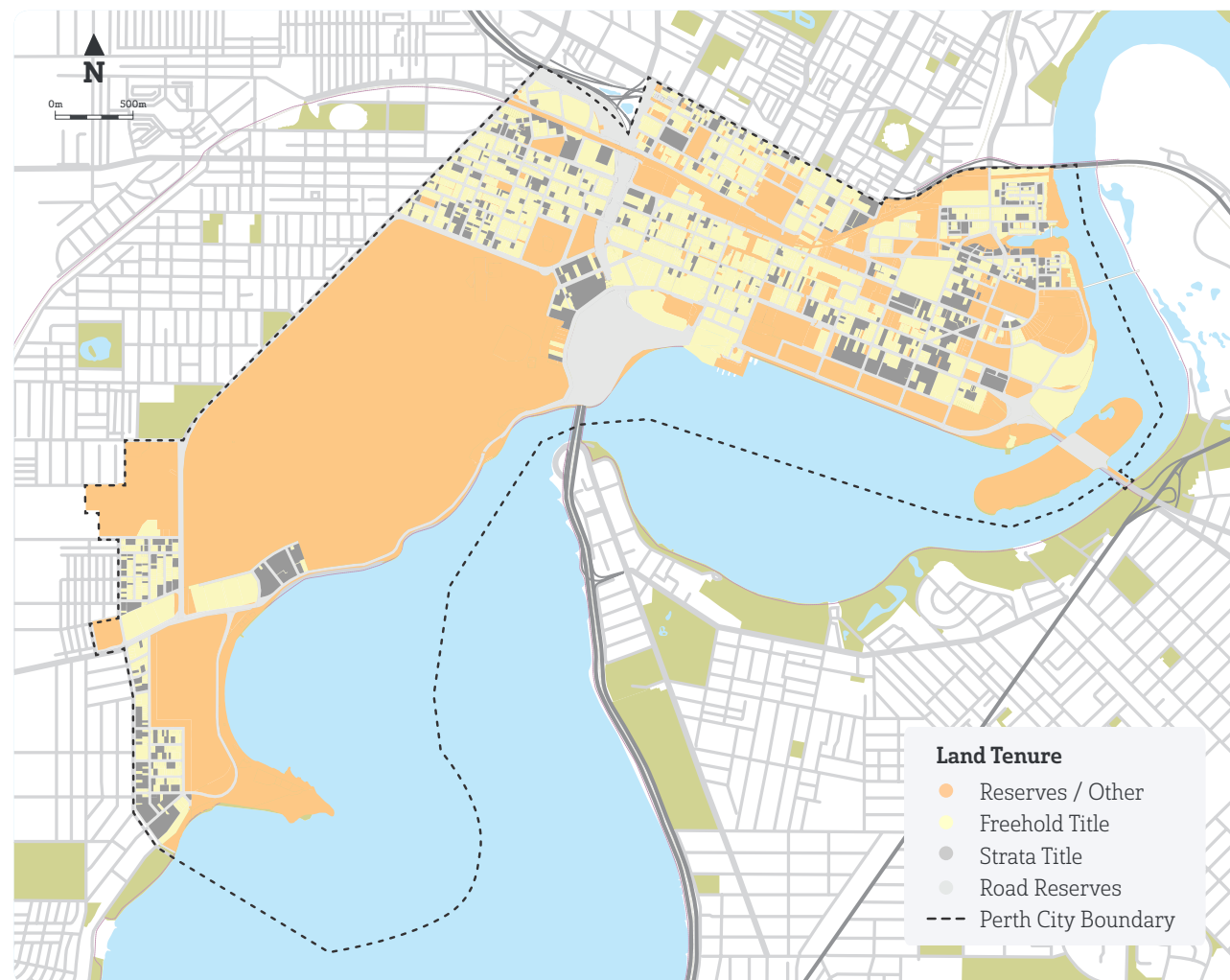
CF4.2 LAND TENURE

The tenure of land across Perth City may provide some insight into the extent of opportunity and/or constraint to future growth and development. Freehold land is considered the least unencumbered for development, while land that is Reserved and Strata titled, potentially possess greater restrictions or less flexibility to accommodate future change or development. Reserved land usually implies that land will be used for a specific use over the long-term (for example parks, roads or infrastructure corridors). Land that is Strata titled can have a multiplicity of owners which may impede decisions regarding future development or change. These are not hard and fast rules, rather they provide a broad insight into future development potential or constraint.

At this point in time, the data below provides a preliminary assessment only. In 2016⁶⁶, the proportion of land by tenure across Perth City^m was:

- Approx. 53% - Reserves / Other (including crown leases such as University of Western Australia, old Swan Brewery site and Perth Convention and Exhibition Centre).
- Approx. 27% - Freehold Title
- Approx. 2% - Strata Title
- Approx. 18% - Road Reserves (public roads, highways and main roads)

Figure 34 – Distribution of Land by Tenure, Perth City, 2016



Please note this data relates to ground level land only and does not necessarily measure land tenure above or below ground.

^m The land area of Perth City excludes the Swan River.

CF4.3 CITY PLANNING SCHEME CAPACITY

City Planning Scheme capacity looks at the potential for development permitted by the Scheme which regulates the extent and form of development primarily through “plot ratio floorspace” (i.e. the potential extent of floorspace able to be developed based on the size of the lot) which varies across different areas of the City. The potential for development should align with the State Government and the City of Perth's plans for future growth and development. The extent to which the Scheme provides flexibility and certainty to cater for different types of land uses as demand changes over time is also another important factor of capacity for future growth, although the analysis of this has not been undertaken in this report.

Plot Ratio Floorspace Capacity

In 2014, the capacity for additional floorspace that could be developed in Perth City was increased through Amendment No.25 to the City of Perth City Planning Scheme No.2. The aim of Amendment 25 was to increase the potential maximum plot ratios across large parts of the City to⁶⁷:

- *maintain the prominence of the City's central business district (CBD) and provide for additional capacity for development in the CBD;*
- *allow for greater development around the city's train stations and town centres; and*
- *provide for greater residential development in parts of the city.*

The Amendment provided the capacity for the development of an additional 1,124,000m² of floorspace, taking the total potential for additional floorspace in Perth City (pre-July 2016) to 5,000,000m² which is considered to effectively provide for any growth in demand in commercial or economic activity for the foreseeable future.



⁶⁷ Please note that transport services (private and public) are addressed in the Movement Chapter and municipal and commercial waste services are addressed in the Environment Chapter.

CF4.4 UTILITY SERVICES CAPACITY

Utility services refer to electricity, gas, potable water, wastewater (sewer), stormwater drainage and telecommunicationsⁿ which are critical to the future growth of commercial and residential development in Perth City and as such, future economic and social activity in the City.

The majority of utility services are currently delivered via large-scale infrastructure networks that stretch across Greater Perth and the State. However, there are also existing and emerging technologies that enable some utility services to be generated and delivered via 'decentralised' systems at the neighbourhood level or at building level such as district heating and cooling schemes, rainwater tanks and solar photovoltaic cells. The extent of decentralised systems in Perth City is unknown.

The Department of Planning's Draft Central Sub-regional Planning Framework (May 2015)⁶⁸, which provides a long-term integrated planning framework for land use and infrastructure, states (pg 43):

"The service capacity of existing infrastructure to accommodate the proportion of the 3.5 million people who will live in the city in infill developments within the next 30–40 years has been taken into consideration. State Government infrastructure agencies and utilities have assessed the implication of the proposed urban growth in the locations identified in the framework and have found, in most instances, that there is either capacity in the existing infrastructure systems or provision has been made for the expansion of the system as demand for additional housing grows."

Similar advice was received from public utility providers in 2014 in relation to the City of Perth's Amendment No.25 to City Planning Scheme No.2 (as discussed in the previous section) that proposed significant increases in the capacity for additional floorspace under the Planning Scheme. There were generally no objections raised by the utility service providers to additional floorspace growth as infrastructure systems either had existing capacity or could accommodate future capacity to cater for growth, although the Water Corporation advised that there may be a need for upgrades to local reticulation services.⁶⁹

A brief outline of the current state of individual utility services in Perth City as outlined in available public documentation is provided below. It does not however represent a thorough analysis of existing capacity, planned supply or future demand for utility services.



ⁿ Municipal and commercial waste services are addressed in the Environment Chapter.

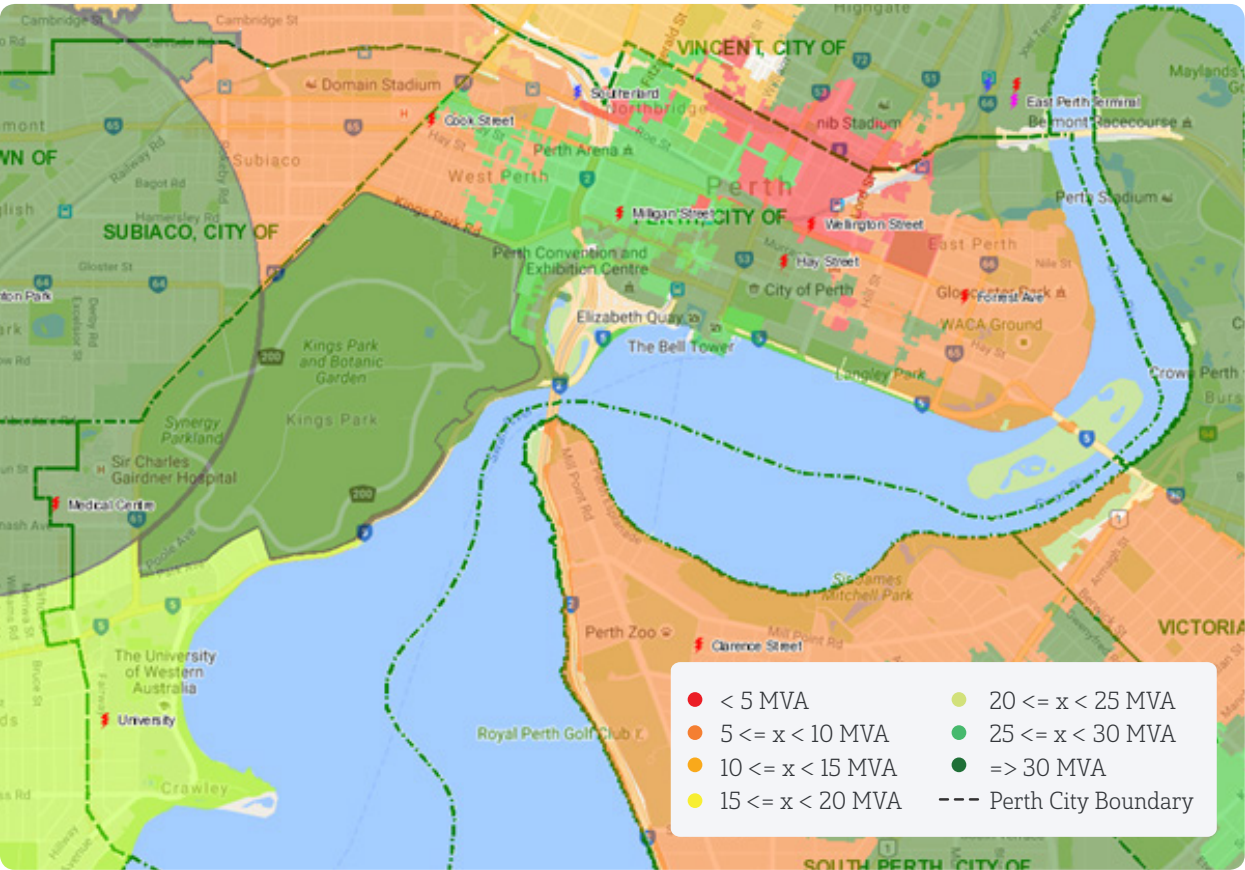
Electricity

Electricity is provided throughout Perth City from Western Power’s South West Interconnector System (SWIS). High Voltage electricity is delivered to eight Zone Substations by overhead and underground cables. Electricity is then reticulated to each property through an underground cable network generally located within the road reserves.

The current capacity of electrical infrastructure within Perth City is shown in Figure 35. The central area of Perth City including the University of Western Australia and Queen Elizabeth II Medical Centre have high levels of remaining capacity however the area around the McIver train station, part of Northbridge and Crawley have low levels of remaining capacity. It should be noted however that areas shown as having low levels of remaining capacity do not necessarily represent an overall capacity constraint problem as there is flexibility to transfer load demand within a constrained zone substation to an adjacent existing zone substation with available capacity⁷⁰.

Western Power in conjunction with the Department of Planning is currently reviewing its Transmission Network Development Plan (TNDP) and Long-term Network Development Plans (LNDPs) to respond to forecast growth over the next 25 years.⁷¹ Western Power is currently planning to upgrade and augment the high voltage distribution supply into the East Perth Substation with a new transmission line.

Figure 35 – Forecast Capacity to 2035, Electrical Infrastructure, Perth City, 2016



Natural Gas

Natural Gas is reticulated throughout Perth City via a network of high pressure pipes (mains) located within the road reserves which are managed by ATCO Gas. The current capacity of the natural gas network within Perth City is not currently known.

Potable Water

Potable water is supplied throughout Perth City by the Integrated Water Supply System (IWSS) which is owned and managed by the Water Corporation. The system sources raw water from a range of sources which is then treated and distributed through trunk mains to local reservoirs and high capacity storage tanks. From the storage reservoirs and tanks, water is delivered to individual properties through gravity pipes. Perth City is supplied with potable water from the Mt Isa Reservoir.

The Water Corporation upgraded the pipes in Adelaide Terrace, Barrack Street, Wellington Street and Murray Streets in 2015/16⁷².

The current capacity of the system to meet future demand is not known. To support the needs of population growth and climate change to 2031 and beyond, the Water Corporation is developing new water source infrastructure to boost the capacity of the IWSS and is working with residential and business consumers to reduce per capita water use.⁷³

Wastewater (Sewerage)

The wastewater (sewerage) systems within Greater Perth are owned and managed by the Water Corporation. The systems are a pipe network that collect sewerage from the individual properties to a temporary holding storage and pump station. The pump stations then transfer the wastewater to a treatment plant where it is treated and then discharged to the ocean. The Water Corporation is currently investing in systems to reduce ocean discharge by injecting the treated wastewater into the ground. Perth City is within the Subiaco Wastewater Treatment Plant (WWPT) catchment.

Wastewater inflows to Perth's treatment plants are projected to increase significantly by 2031, and how much wastewater is collected and treated will depend on growth as well as water use by homes/business.⁷⁴ A range of works are being considered over the next few years to accommodate growth.⁷⁵ The East Perth Distribution Main is proposed to be extended in the medium term.

Stormwater Drainage

The stormwater drainage system within Perth City is owned and managed by the City and/or the Water Corporation. The City's system provides for drainage from property, roads, footpaths and public open spaces through a series of pipes which then discharge to the Swan River and the Claisebrook Main Drain.

The system is designed to Australian Rainfall and Runoff standards and generally manages most rainfall conditions, with the exception of high river tides when the outfalls cannot discharge water quickly enough and localised flooding occurs along the Esplanade reserve. These events are generally short term and flooding clears when the river tides recede.

The Australian Rainfall and Runoff standard has been recently revised and the City is reviewing the impact of this on its infrastructure. The City limits the amount of discharge from properties and requires a minimum storage to be provided on-site.⁷⁶

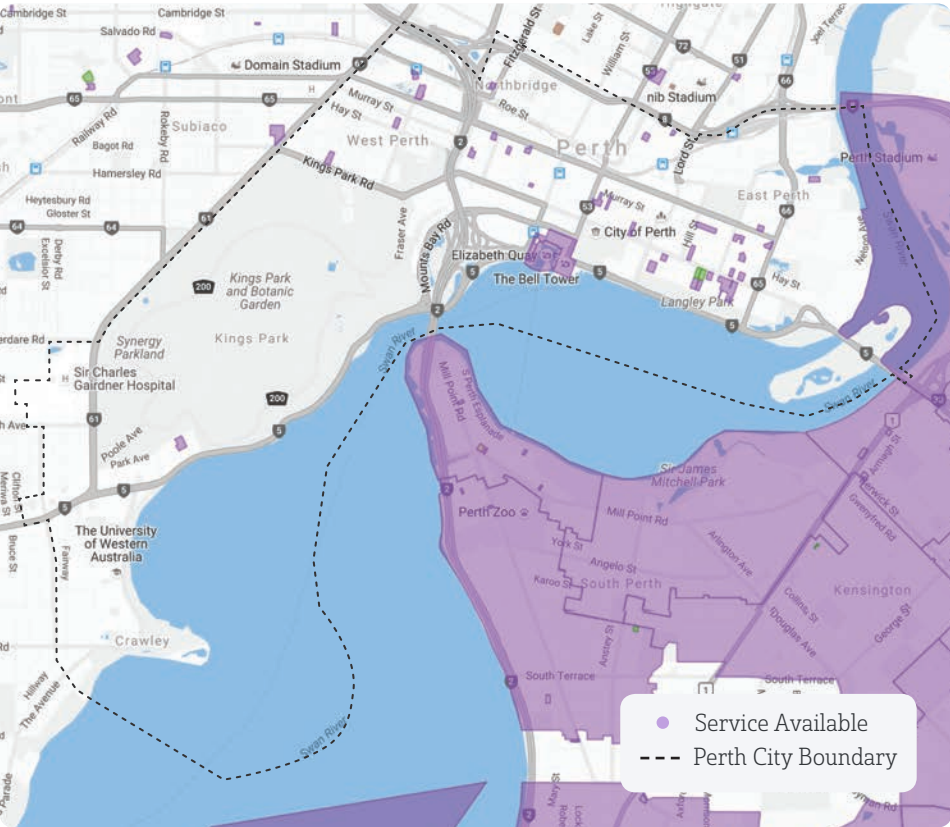
The capacity of the current system to meet the future needs of Perth City is not known.

Telecommunications^{77 78 79}

Telecommunications systems provide for voice and data communication via copper and fibre optic cabling which generally run within the road reserves. Perth City has separate cabling networks owned and managed by a range of providers. The older copper cables are being replaced by fibre optic cables.

Perth City has discrete areas currently serviced through the National Broadband Network (NBN) which provides a data network for high-speed phone / internet services.

Figure 36 - Existing NBN Services in Perth City, 2016⁸⁰



East Perth, Northbridge, Perth and West Perth are scheduled for NBN service in late 2016 and Nedlands and Crawley in the second half of 2016. Figure 36 shows the existing NBN services within the City.

In 2016, free public WiFi (supplied by the City of Perth) covered 50 hectares of the Central Business District and allowed for basic internet browsing. Free WiFi is also available in a number of city businesses such as restaurants and cafes, hotels etc.

Figure 37 - Free WIFI Network, Perth City, 2016



FINDINGS

CF 1 FORM AND FUNCTION

1. The central core of Perth City is dominated by large east-west aligned street blocks which influences the density of street intersections and the availability of different routes for moving around the City. Perth City has approximately 60 intersections per km² which is significantly less than the Cities of Melbourne and Adelaide. Although East Perth, West Perth and Northbridge have higher intersection densities.
2. The large majority of lots (76.4%) in Perth City are relatively small (1000m² and less) and are evenly distributed across the City. There are some concentrations of medium sized lots (between 1000m² and 9000m²) along Terrace Road in East Perth, Mounts Bay Road in Crawley and north of McIver train station. There is a very low proportion (1.4%) of larger lots (greater than 9000m²) in the City and most host government institutional uses or are located in State Government redevelopment areas.
3. In 2015, it was estimated that Perth City had a total of 6,342,978m² floorspace (NLA – Nett Lettable Area) across all land uses (including vacant floorspace) or an average of 6,447m² floorspace (NLA) per hectare (excluding Kings Park), compared with 4,092,698m² in 2007, or 4,180m² of floorspace (NLA) per hectare. This represents a 55% increase in total floorspace (+2,250,280m²) between 2007 and 2015. Perth City is significantly larger than the Strategic Metropolitan Centres in Greater Perth (accounting for 68% of the total floorspace across Perth City and nine other Centres, 2007 figures only, not including Mandurah).
4. In 2015, the top five land uses were Office/Business (32% of total floorspace), Residential (17%), Health/Welfare/Community Services (16%), Vacant Floor Area (12%) and Utilities/Communication (9%). Perth City had a greater mix of land uses in 2015 than 2007. The most significant proportional increases were Residential, Utilities/Communications (possibly due to additional carparking) and Vacant Floor Area. There was a significant proportional decrease in Office/Business (from 46.5% to 32.1% of total floorspace) and also a proportional decrease in Shop/Retail (7.6% to 5.3%) although actual floorspace increased for these land uses.
5. Office/Business is more prominent in Perth City than within the Strategic Regional Centres within Greater Perth, whilst the Strategic Metropolitan Centres are heavily dominated by Shop/Retail. It is not possible to compare the land use composition of Perth City to other Australian capital cities due to different survey methods and land use categories between cities.
6. In 2011, Perth City had 25.2 residents and 12.5 dwellings per hectare (excluding Kings Park). Whilst these are below that expected by the State Government (25 dwellings per hectare) they have increased significantly since 2001 (14 residents / hectare and 6.6 dwellings / hectare). The mixed use nature of Perth City is likely to be a factor in achievement of the State Government's dwelling target; however forecast densities for 2036 are expected to exceed the target (40.5 residents / hectare and 27.1 dwellings / hectare).
7. There is a differentiation in resident and dwelling densities across Perth City. East Perth (south) and Crawley have the highest resident densities while Crawley-Nedlands has the lowest resident densities. The majority of areas have seen increases in both resident and dwelling densities with the exception of Crawley which only had a minor increase and Crawley Nedlands which remained fairly stable.
8. Perth City has higher resident and dwelling densities than those within Greater Perth however there are parts of Greater Perth that have higher resident densities than the Perth City (SA2 area). Perth City's resident and dwelling densities are comparable to those in the Central Sub-Region, similar to the City of Melbourne, higher than the City Adelaide but lower than the City of Sydney.

CF 2 BUILDINGS

9. The majority of Perth's City's dwellings in 2011 were high density apartments which were comprised of two bedrooms. Perth City's dwelling stock is similar to other Australian capital cities whilst vastly different to that within Greater Perth where low density dwellings with a larger numbers of bedrooms dominate. There is currently no comprehensive information however on the actual or perceived quality of Perth City's dwellings.
10. There is currently no comprehensive information on the diversity of non-residential buildings (i.e. floorplate sizes) within Perth City.
11. A significant proportion of Perth CBD's office floorspace has been graded as Premium and the majority of it falls within the top 3 grades. The majority of West Perth's office floorspace is either A or B grade.
12. A number of Perth City's buildings and tenancies have received environmental sustainability ratings under various tools or participate in programs including the NABERS energy tool (113 buildings/tenancies) and water tool (71 buildings/tenancies), Cityswitch program (64 business tenancies), Waterwise Office program (11 buildings) and the Green Building Council Australia Green Star tool (43 buildings). The extent of residential buildings within Perth City which have been rated under the NatHERS tool is currently unknown.

CF 3 AMENITY

13. Across all locations surveyed in 2016, 42% of building frontages were considered active or pleasant. The quality of building frontages varies across Perth City, with some locations performing well and others less so. The quality of building frontages has improved since 2008 in several locations.
14. Across all locations surveyed in 2016, a total of 2395 people were observed in stationary activities. The highest levels of stationary activity occurred in Perth CBD followed by Northbridge and East Perth.

15. Perth City has 558 hectares of public space (including Kings Park at 406 ha) which covers 41% of total land area and equates to 226m² of public space per resident or 35m² of public space per resident and worker. This is significantly greater than the Cities of Sydney and Melbourne. However, there is no comprehensive information on the quality of public spaces and whether they are meeting community needs.
16. Perth City has a range of community facilities (education, general community meeting spaces, religious, arts and culture as well as sport and recreation). However, there no comprehensive information on the quality of facilities and whether they are meeting community needs.
17. The number of noise complaints in Perth City (pre-July 2016) increased by 79% between 2011-12 and 2015-16 although when residential population growth is taken into account, the average complaints per year per resident fell by 35%. Noise from building and construction received the most amount of complaints followed by amplified music over this period. The most significant change in complaints was from concerts and events which increased from 8.4% to 15.8% of total complaints which reflects the significant increase in event approvals (150% increase between 2012-13 and 2015-16).

CF4 GROWTH AND CAPACITY

18. A total of \$9 billion worth of development has been approved over the last ten years, with an estimated 315 projects currently under construction worth a total of \$3.8 billion.
19. Over the last nine years, 6,324 strata lots have been approved, at an average growth rate of 5.5% per year.
20. In terms of land tenure, Perth City is comprised of approximately 53% reserves, 27% freehold title, 2% strata title and 18% road reserves.
21. The City's Planning Scheme provides sufficient plot ratio floorspace to accommodate the city's future growth needs for the foreseeable future.
22. Perth City is serviced by a range of utilities infrastructure which is understood to either have capacity or which can be expanded to provide the capacity needed to accommodate future growth.

REFERENCES

- ¹ 2011, Creating Places for People – An Urban Design Protocol for Australian Cities
- ² Western Australia, 2016, City of Perth Act 2016
- ³ Western Australian Planning Commission, 2010, State Planning Policy 4.2 – Activity Centres for Perth and Peel
- ⁴ City of Perth, 2016, GIS land composition analysis (unpublished)
- ⁵ City of Perth, 2016, Figure Ground Diagram (unpublished)
- ⁶ City of Perth, 2016, City of Perth 3D Digital Model Image (unpublished)
- ⁷ City of Perth, 2016, Intersection density count (unpublished)
- ⁸ City of Perth, 2016, GIS lot size analysis (unpublished)
- ⁹ Ibid
- ¹⁰ Department of Planning, 2007, Perth Land Use and Employment Survey
- ¹¹ Department of Planning, 2015, Perth Land Use and Employment Survey (unpublished)
- ¹² Australian Bureau of Statistics, 2011, Census, accessed from <http://profile.id.com.au/perth>
- ¹³ Australian Bureau of Statistics, 2001, Census, accessed from <http://profile.id.com.au/perth>
- ¹⁴ Informed Decision (ID), 2016, City of Perth Population Forecasts accessed <http://forecast.id.com.au/perth/home>
- ¹⁵ Western Australian Planning Commission, 2006, Development Control Policy 1.6 – Planning to Support Transit Use and Transit Orientated Development
- ¹⁶ Australian Bureau of Statistics, 2016, 3218.0 Regional Population Growth, Australia 2014-15, accessed from: <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3218.0Main%20Features402014-15?opendocument&tabname=Summary&prodno=3218.0&issue=2014-15&num=&view=>
- ¹⁷ Western Australian Planning Commission, 2015, Draft Central Sub-regional Planning Framework – Towards Perth and Peel @ 3.5 million
- ¹⁸ Op cit Australian Bureau of Statistics, 2011
- ¹⁹ Australian Bureau of Statistics, 2011, Census, accessed from <http://profile.id.com.au/adelaide>
- ²⁰ Australian Bureau of Statistics, 2011, Census, accessed from <https://www.melbourne.vic.gov.au/SiteCollectionDocuments/demographic-profile-census-2006-to-2011-key-changes.pdf>
- ²¹ Australian Bureau of Statistics, 2011, Census, accessed from <http://profile.id.com.au/sydney/population>
- ²² Op cit Department of Planning, 2015
- ²³ Op cit Department of Planning, 2007
- ²⁴ Department of Planning, 2016, as per email communication with Simon Wee dated 26 October 2016.
- ²⁵ Green Building Council of Australia – accessed 16 June 2016 from <https://www.gbca.org.au/green-star/green-star-overview/>
- ²⁶ Renilde Becqué, Eric Mackres, Jennifer Layke, Nate Aden, Sifan Liu, Katrina Managan, Clay Nesler, Susan Mazur-Stommen, Ksenia Petrichenko and Peter Graham (2016) Accelerating Building Efficiency - Eight Actions for Urban Leaders for the World Resources Institute and WRI Ross Centre for Sustainable Cities accessed 16/06/16 <http://publications.wri.org/buildingefficiency/#c1>

- ²⁷ Western Australian Planning Commission, 2016, Draft State Planning Policy 7 – Design of the Built Environment
- ²⁸ Op cit Australian Bureau of Statistics, 2011
- ²⁹ Op cit Australian Bureau of Statistics, 2001
- ³⁰ Op cit Australian Bureau of Statistics, 2011
- ³¹ Op cit Australian Bureau of Statistics, 2001
- ³² Office of Government Architect, 2013, better places and spaces: a policy for the built environment in Western Australia
- ³³ Property Council Australia, 2016, as per email from Ryan Farrow dated 9 November 2016
- ³⁴ Op cit Western Australian Planning Commission, 2016
- ³⁵ City of Perth, 2016, City of Perth Environment Strategy
- ³⁶ Australian Government, 2016, Commercial Building Disclosure – A National Energy Efficiency Program – CBD Downloadable Data Set – accessed 11 November 2016
- ³⁷ Cityswitch, 2016, database (unpublished)
- ³⁸ Waterwise Office, 2016, Steering Group Minutes – May 2016 (unpublished)
- ³⁹ Green Building Council Australia, 2016, scale of green star ratings diagram – accessed from <http://new.gbca.org.au/about/definitions-terms/>
- ⁴⁰ Green Building Council Australia, 2016, Green Star Project Directory – accessed from <http://www.gbca.org.au/project-directory.asp>
- ⁴¹ City of Perth, 2010, Urban Design Framework
- ⁴² Gehl Architects, 2009, Perth 2009 Public Spaces & Public Life
- ⁴³ City of Perth, 2016, building frontages analysis (unpublished)
- ⁴⁴ Op cit Gehl Architects, 2009
- ⁴⁵ City of Perth, 2016, stationary activity counts (unpublished)
- ⁴⁶ Op cit Gehl Architects, 2009
- ⁴⁷ City of Perth, 2016, GIS public space analysis (unpublished)
- ⁴⁸ Op cit Australian Bureau of Statistics, 2011
- ⁴⁹ Australian Bureau of Statistics, 2011, Census, accessed from <http://www.economicprofile.com.au/perth>
- ⁵⁰ Australian Bureau of Statistics, 2011, Census, accessed from <http://www.melbourne.vic.gov.au/SiteCollectionDocuments/demographic-profile-census-2006-to-2011-key-changes.pdf>
- ⁵¹ Australian Bureau of Statistics, 2011, Census, accessed from City of Melbourne, 2013 Workers Demographic Profile, accessed from <http://www.melbourne.vic.gov.au/SiteCollectionDocuments/demographic-profile-workers-2013.pdf>
- ⁵² City of Melbourne, 2012, Open Space Strategy
- ⁵³ Australian Bureau of Statistics, 2015, Estimated Resident Population, accessed from <http://www.cityofsydney.nsw.gov.au/learn/research-and-statistics/the-city-at-a-glance>
- ⁵⁴ City of Sydney, 2012, City of Sydney Local Government Area Summary Report 2012, City of Sydney Floor Space and Employment Survey, accessed from: <http://www.cityofsydney.nsw.gov.au/learn/research-and-statistics/surveying-our-community/floor-space-and-employment-survey/2012-fes-overview-and-summary-reports>
- ⁵⁵ City of Sydney, 2016, Draft Public Open Space and Recreational Needs Study.
- ⁵⁶ IPSOS, 2014, City of Perth Visitation Study (unpublished)

- ⁵⁷ City of Perth, 2016, community facility count (unpublished)
- ⁵⁸ City of Perth, 2013, Draft Noise Strategy (unpublished).
- ⁵⁹ Klæboe R, 2011, Noise and Health: Annoyance and Interference. Encyclopedia of Environmental Health ; 152 – 163.
- ⁶⁰ Stoneham and Associates, 2012, City of Perth Health and Wellbeing Plan consultation results (unpublished)
- ⁶¹ City of Perth, 2016, Reported Noise Complaints (unpublished).
- ⁶² REMPLAN, 2016, City of Perth Economic Profile.
- ⁶³ Cordell Connect, 2016, Current and Future Infrastructure Investment for Perth City, accessed from <http://www.cordellconnect.com.au/>
- ⁶⁴ City of Perth, 2016, City of Perth 3D Digital Model (unpublished)
- ⁶⁵ Landgate, 2016, strata approval data (unpublished).
- ⁶⁶ City of Perth, 2016, GIS land tenure analysis (unpublished)
- ⁶⁷ City of Perth, 2012, Council Minutes, 12 December 2012.
- ⁶⁸ Op cit Western Australian Planning Commission, 2015
- ⁶⁹ Op cit City of Perth, 2012
- ⁷⁰ Western Power, 2016, Network Capacity Mapping Tool, accessed from : <http://ncmt.westernpower.com.au/index.cfm>
- ⁷¹ Western Power, 2016, Manager Asset Management Systems
- ⁷² Water Corporation, 2015/16, Annual Report 2015/16
- ⁷³ Op cit Water Corporation, 2015/16
- ⁷⁴ Western Australian Planning Commission, 2010, Central Metropolitan Perth Sub-Regional Strategy, accessed from: http://www.planning.wa.gov.au/dop_pub_pdf/plan_Central_Metro_Perth_Part7.pdf
- ⁷⁵ Ibid
- ⁷⁶ City of Perth, 2016, City of Perth Drainage Connection Guidelines, accessed from: <http://www.perth.wa.gov.au/planning-development/undertaking-works/drainage-and-dewatering>
- ⁷⁷ Nbn, 2016, corporate information, accessed from: <http://www.nbnco.com.au/corporate-information/about.nbn.com.html>
- ⁷⁸ Ibid
- ⁷⁹ Nbn, 2016, three year construction plan, accessed from: <http://www.nbnco.com.au/learn-about-the-nbn/three-year-construction-plan.html>
- ⁸⁰ Nbn, 2016, rollout map, accessed from: <http://www.nbnco.com.au/learn-about-the-nbn/rollout-map.html>

CHAPTER 8

MOVEMENT

The Movement Theme examines how people access and move around Perth City via different modes of transport – walking, cycling, public transport and private vehicles.

An efficient and sustainable movement system is not only fundamental to the economic, social and environmental prosperity of Perth City but also to Greater Perth given the large concentration of jobs, services, facilities, education and social and cultural opportunities in the City. As such, Perth City is highly reliant on the quality and efficiency of the regional movement network especially given forecast population growth across Greater Perth to 3.5 million people by 2050.

Community perceptions relating to accessibility, safety, comfort and convenience with the movement system play an important role in attracting visitors and business owners alike to Perth City. A 2012 survey of businesses in Perth City identified “*convenience and accessibility to and within*” Perth City as the most important factor to business growth.¹

Lastly, the movement system can play a critical role in improving health outcomes and minimising our environmental impact by encouraging a shift away from private vehicle transport to more active transport such as walking, cycling and public transport, whether for recreation or generally accessing work and services.

M1 WALKING AND CYCLING

- M1.1** Extent and patterns of walking
- M1.2** Quality of the walking environment
- M1.3** Extent and patterns of cycling
- M1.4** Quality of cycling environment

M2 PUBLIC TRANSPORT

- M2.1** Greater Perth public transport activity
- M2.2** Extent and patterns of public transport activity
- M2.3** Quality of public transport services

M3 TRAFFIC AND PARKING

- M3.1** Extent and patterns of vehicle use
- M3.2** Vehicle speeds and circulation
- M3.3** Parking
- M3.4** Quality of the vehicle environment

FINDINGS

REFERENCES

M1 WALKING AND CYCLING

Walking, cycling and getting around Perth City by other non or semi-motorised means such as kick scooters or electric bikes is called “active” transport.^a Active transport can be undertaken for recreation purposes, as a connector journey to access public transport services or to access work or local amenities and services.

People may choose to walk where it is quick, convenient, safe and usually over shorter distances with attractive routes and destinations.

Making cycling an easy choice requires a good city cycling environment with necessary space on roads and paths so cycling is considered safe and efficient, and there is supporting ‘end-of-trip’ infrastructure to store valuable bikes and gear.

Active transport contributes to health outcomes through greater physical activity and reduced environmental impacts from less motorised transport and fossil fuel use². Increasing walking and cycling activity in Perth City can contribute to increased economic activity and returns for businesses. Recent research in the City of Melbourne has estimated that a 10% increase in walking connectivity in the city centre can add “a 6.6% uplift in the local economy worth about \$2.1 billion”.³ In New York, a study found

“a 49% increase in sales on 9th Avenue after the implementation of protected bike lanes”.⁴

The Department of Transport states *“there is immense scope for car trips to be converted to walking or cycling trips, particularly for the 40 per cent of Australians that commute less than 10 km to their place of work or study, or those that make short local trip by vehicle”*.⁵

The Department has a target of 18% of all trips across Greater Perth to be active by 2050 (currently 15% of trips).⁶ The City of Perth’s *Draft Transport Strategy* also sets a community target of 15% of the workforce in Perth City using active transport modes by 2031.⁷

As such, active transport is of strategic importance to Perth City for a number of reasons.



M1.1 EXTENT AND PATTERNS OF WALKING

Most data on walking in Perth City comes from the Australian Bureau of Statistics (ABS) Census which records walking as a mode of transport to work. There is some data on the levels of pedestrian activity in the Perth CBD during a week day. However, there is lack of comprehensive data across Perth City on the extent and patterns of pedestrian activity, walking for recreational purposes and potentially data on special needs such as disability access, families and/or young people, late night shift workers and so forth.

This deficit of data is acknowledged in the City of Perth’s *Draft Transport Strategy* ... *“by improving the data we have on walking, we will be able to cater for pedestrians more effectively and implement projects that can deliver greater benefits for pedestrians”*.⁸

^aActive transport includes non-motorised forms of transport involving physical activity, such as walking and cycling. It also includes public transport to meet longer distance trip needs as public transport trips generally include walking or cycling components as part of the whole journey (Source - Villanueva et al, 2008 quoted in Healthy Places and Spaces Design Principles – Heart Foundation http://www.healthyplaces.org.au/site/active_transport_-_full_text.php).

Walking To Work (Walking Only)

In 2011, 3.3% of **workers** in Perth City (pre-July 2016) walked to work, an increase of 1.7% over the 10 year period from 2001, and slightly higher than the average of 2.2% across Greater Perth.⁹

In 2011, 22.8% of **residents** of Perth City (pre-July 2016) walked to work, an increase of 6.6% over the 10 year period from 2001, although less than the proportions of residents walking to work in the Cities of Adelaide (27.4%), Melbourne (27.5%) and Sydney (25.3%).

In 2015, it was estimated that on a typical day, 3% of staff and 8% of students walked to the University of Western Australia for the purposes of work or study.¹⁰

In 2012, it was estimated that 14% of trips to work by staff at the Queen Elizabeth II Medical Centre were made by walking and cycling.¹¹



Figure 1 - Walking to Work, Workers and Residents, Perth City (pre-July 2016), 2001 to 2011



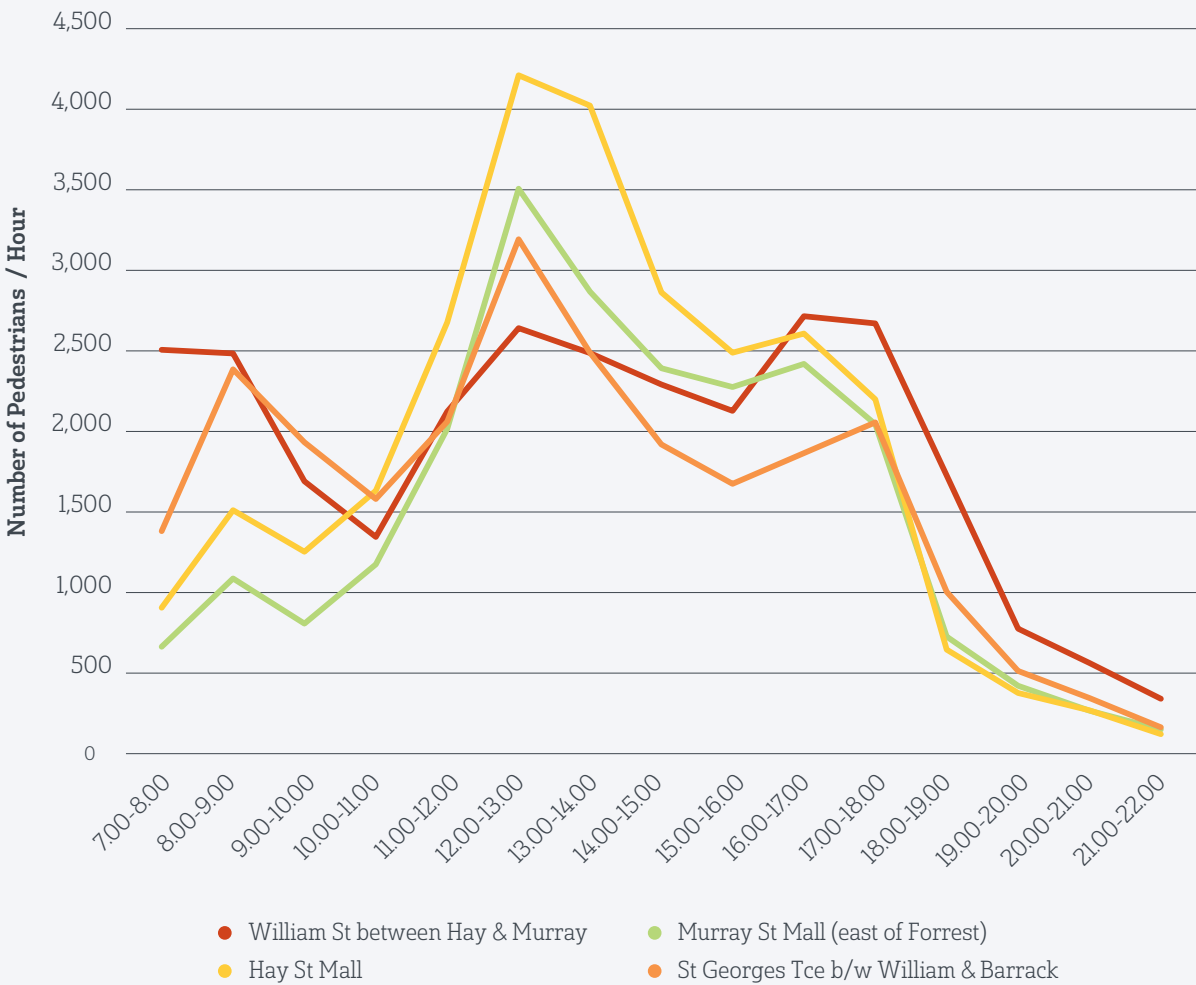
Pedestrian Activity – Perth City CBD

Figure 2 provides data on the volumes of pedestrian activity at four locations in the Perth CBD across the day /evening which indicates:¹²

- peaks of activity in the morning and later afternoon showing the dominance of the workforce population on pedestrian activity.
- a midday peak of activity showing the attraction of retail and food outlets in the Malls as a key destination, likely to be mostly workforce population but also some additional visitors to the City.
- steady level of activity along William Street (in comparison to the peaks and troughs of other locations) reflecting the popularity of the Perth Underground Train Station Murray Street Mall entrance.
- a steep decline in activity between 5pm to 7pm reflecting the close of business and retail shops, with little pedestrian activity from 9pm onwards.

Further data is being collected by the City of Perth through a trial using the free city WIFI system and is focussed on Forrest Place and Hay and Murray Street Malls, although there is potential to expand the program across a wider area.

Figure 2 - Pedestrian Counts, Perth City CBD, June 2015



M1.2 QUALITY OF THE WALKING ENVIRONMENT

The quality of the walking environment relates to the actual quality of infrastructure against best practice or standards and the perceived quality or experience from the city visitor perspective. At present there is no comprehensive set of data on the quality of the walking environment, although there are number of information sources which may provide an indication of quality.

Safe City Survey

In 2014, the City of Perth's *Safe City Survey* found:¹³

- 82% of respondents felt "safe or very safe" during the day.
- 36% felt "safe or very safe" during the evening (although there were 33% neutral responses, which contributed to the variation between daytime and evening).

Respondents also identified a number of places around Perth City where they felt unsafe. Although the survey was not specifically designed to elicit data on the quality of the walking environment, it does provide important data on the community's perception of safety on streets and in public places as pedestrians.

Health and Wellbeing Plan Survey

In 2012, the City of Perth's *Health and Wellbeing Plan* surveyed over 1,500 residents, workers and visitors to Perth City and the "provision of more cycle paths and walkways" was identified by 34% of respondents as the top priority for promoting a healthier city.¹⁴

Draft Transport Strategy

In 2015, feedback on the City of Perth's *Draft Transport Strategy* identified a number of areas relating to quality of the walking environment including:¹⁵

- *Creating an active city.*
- *Creating a safe and inviting public realm.*
- *A less car-oriented approach to the management of streets.*
- *A continued effort to emphasise the importance of people in city planning and design work.*
- *Improving the coordination of actions in the walking environment.*

A revised *Draft Transport Strategy* includes an action to develop a Walking Plan, in addition to improving the collection of walking data and undertaken biannual quality audits and perception surveys.¹⁶

M1.3 EXTENT AND PATTERNS OF CYCLING

Cycling is a popular activity with an estimated 591,800 people cycling each week in Western Australian.¹⁷

The cycling environment is made up of a mix of formal routes, such as shared paths and streets with dedicated cycling infrastructure, as well as streets where cyclists are permitted to ride but may not be necessarily catered for by the street design, and cycling infrastructure such as parking bays (secure, non-secure) and end of trip facilities (ie shower and change facilities, usually provided by work places). The availability and design of cycle facilities and infrastructure facilitates and encourages more cycling trips for residents, workers and visitors alike.

Most data on cycling comes from the ABS Census which records cycling as a mode of transport to work. In addition, there are cycle counters at various locations around the periphery of Perth City which record the volumes of cycle activity across the whole week. There is a lack of data however, relating to the extent and patterns of cycling within Perth City and for a whole range of purposes including accessing services, education, leisure or recreation, and special events.

Cycling to Work

In 2011, 2.5% of **workers** in Perth City (pre-July 2016) cycled to work, an increase of 1.3% over the 10 year period from 2001, and higher than the average of 1.1% across Greater Perth.¹⁸

In 2011, 1.3% of **residents** in Perth City (pre-July 2016) cycled to work, an increase from 1.0% in 2001 but less than the proportion of residents cycling to work in the Cities of Adelaide (3%), Melbourne (3.8%) and Sydney (3.0%). The lower proportion of residents cycling to work in Perth City may reflect the large proportion of residents (over 50%) who work outside the City, or preferences for walking and using CAT buses to access work given the relatively small size of the City.

In 2015, it was estimated that on a typical day, 11% of staff and 9% of students cycled to the University of Western Australia for the purposes of work or study.¹⁹

In 2012, it was estimated that 14% of trips to work by staff at the Queen Elizabeth II Medical Centre were made by walking and cycling.²⁰

Levels of Cycle Activity (selected locations)

In 2014-15, cycle counters located on the periphery of Perth City indicated:²¹

- an average of 7,530 cyclists per day moving into and through Perth City during a working week day.
- an average of 4,466 cyclists per day moving into and through Perth City during a weekend day.
- the highest week day cycle count is 1,378 cyclists per day on the Mounts Bay Road shared path, west of Crawley Avenue.
- the second highest week day count is 1,298 cyclists per day at the intersection of Thomas and Loftus Streets and the Railway Reserve.



Australian National Cycling Participation Survey

In 2015, *Australian National Cycling Participation Survey* found:²²

- Western Australia leads in cycling participation with 23% of people riding at least once a week, an increase of 5% from 2013, and higher compared NSW, Victoria, Queensland and South Australia (all 17% or less).
- children aged under 10 years of age have the highest cycling participation rate.
- in Greater Perth, 77% cycled at least once a month for recreation and 44% cycled for transport.
- in WA, 60% of households have access to at least one working bicycle.

City of Perth Cycle Plan Survey

In 2010, the City of Perth's *Cycle Plan Survey* found:

- 65% ride a bike for fitness and health reasons, however those who cycle five days per week or more cited "convenience" as the motivation, 22% only cycle for recreational reasons.

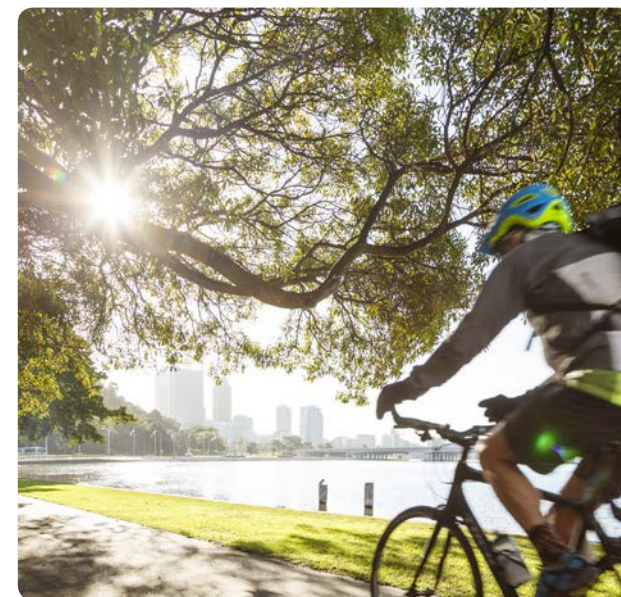
M1.4 QUALITY OF CYCLING ENVIRONMENT

The quality of the cycling environment relates to actual quality of infrastructure against best practice or standards and perceived quality of users. At present there is no comprehensive set of data on the quality of the cycling, although there is some information that may provide an indication of quality.

Infrastructure

There are approximately 6.2 kilometres of dedicated on road cycle lanes within Perth City (pre-July 2016), which provide connections to key destinations from the existing network of principal and recreational shared paths that cover the periphery of the City. Perth City has a number of key strategic cycle routes that provide dedicated cycle facilities and certain major signalised intersections afford cyclists priority over general vehicles through head start bicycle signals.

There are approximately 420 on-street bike racks in Perth City (pre-July 2016) and 54 secure fee paying bicycle racks in the City of Perth's Elder Street carpark.



There are approximately 347 commercial buildings in Perth City (pre-July 2016) that provide 7,722 private bike racks and most buildings also provide some form of end-of-trip facilities. It's estimated that 64% of these buildings are at least 50% capacity and 20% are either full or over capacity.²³

Community Perceptions and Satisfaction

There is currently no comprehensive set of data indicating the perceptions of quality in the cycling environment in Perth City, however some information provides an indication of quality and satisfaction.

In 2016, a survey of around 100 cyclists at the City of Perth’s Bike Week Breakfast found that improving cycle infrastructure and safety were the top two priorities for 73% of respondents.

In 2012, the City of Perth’s *Health and Wellbeing Plan Survey* found the “provision of more cycle paths and walkways” was identified by 34% of respondents as the top priority for promoting a healthier city.²⁴

In 2015, the RAC’s *Cycle Survey 2015* (for the whole of Western Australia) indicated low levels of satisfaction with on-road cycling infrastructure and higher levels of feeling unsafe when riding on the roads (sharing with vehicles) and bus lanes.²⁵



Figure 4 - RAC Cycle Survey 2015 for Greater Perth Satisfaction with on-road and off-road cycling infrastructure

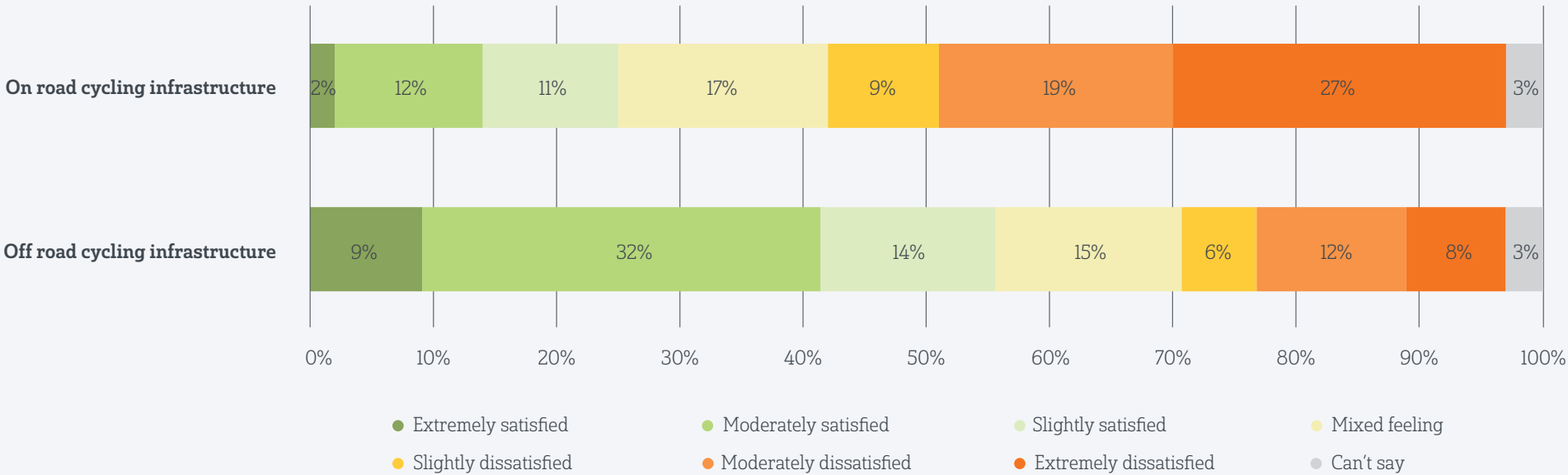
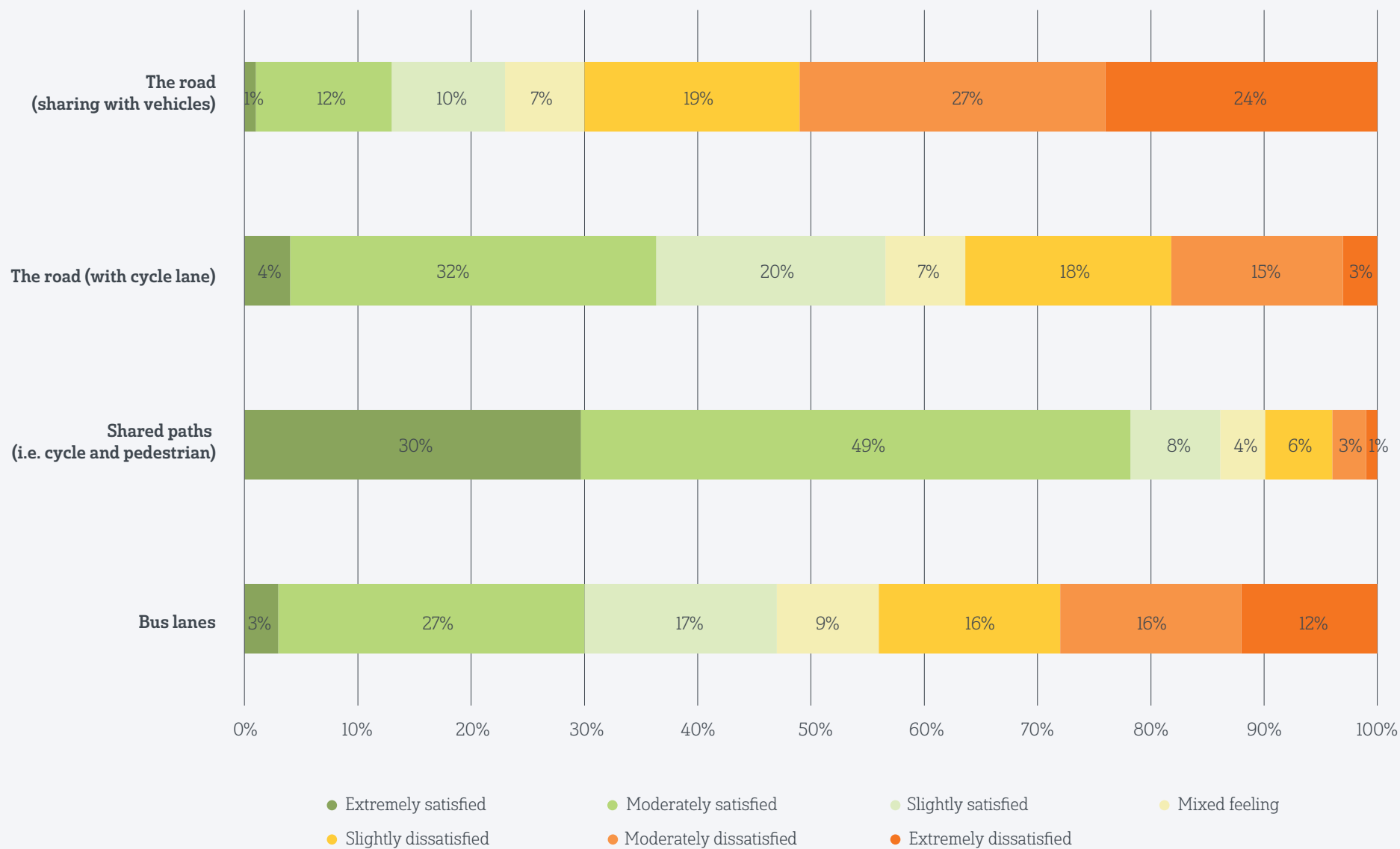


Figure 5 - RAC Cycle Survey 2015 for Greater Perth Feelings of safety while riding on different types of infrastructure



M2 PUBLIC TRANSPORT

Public transport refers to the system of government funded mass transit comprising trains, buses (including CAT buses) and ferries (in addition to supporting infrastructure such as train station car parks and bike lockers). In Greater Perth, there is a radial network of services into and out of Perth City as the place with the largest concentration of jobs and hence highest demand for public transport.

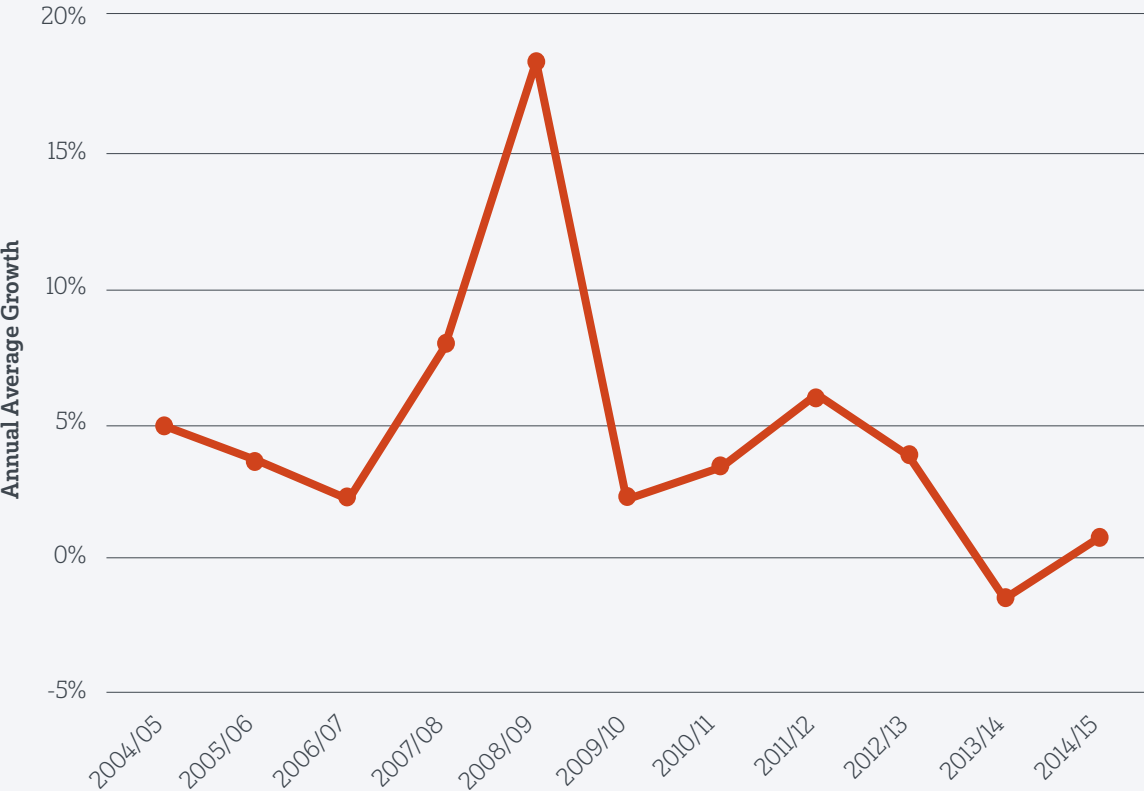
Public transport is critical to the effective functioning of Perth City now and into the future. At present, around 50% of all public transport peak hour commuter trips across Greater Perth are to Perth City and this is forecast to increase to “around 65 per cent of peak period trips to the Perth CBD and over 70 per cent of work trips to the wider business district, including West Perth, East Perth and Northbridge” to cater for the growth of Greater Perth to 3.5 million people by 2050.²⁶

M2.1 GREATER PERTH PUBLIC TRANSPORT ACTIVITY

Between 2004-05 and 2014-15, the total number of public transport trips across Greater Perth increased by 57% from 95 million trips per year to 148 million trips per year.

Figure 6 shows the rate of annual growth in public transport trips and the spike in 2008-09 from the opening of the Perth to Mandurah rail line and a decline in annual average growth from 2011-12, with some correction from 2013-14 onwards. This may reflect the contraction of the Western Australian economy and employment and population growth rates generally.

Figure 6 - Public Transport Trips Annual Growth Rates, Greater Perth, 2004-05 to 2014-15



M2.2 EXTENT AND PATTERNS OF PUBLIC TRANSPORT ACTIVITY

Bus and Train Activity – Perth CBD

In 2015, there was an average of 208,000 boardings and alightings (referred to as “activity”) per day on train and bus services in Perth City (pre-July 2016). Trains accounted for 62% of total activity.

Between 2013 and 2015 there was a decline of 7% in total activity, which may reflect the contraction of the WA economy and business activity in the CBD.

In 2015, 72% of total train activity occurred at the Perth Station and Perth Underground (91,500 boardings/alightings), 18% at the Elizabeth Quay station (23,900 boardings/alightings) and 10% across the remaining stations outside the Perth CBD (less than 5,000 boardings/alightings for each station).²⁷



Figure 7 - Average Daily Activity, Bus and Train Services, Perth City (pre-July 2016), 2009 to 2015

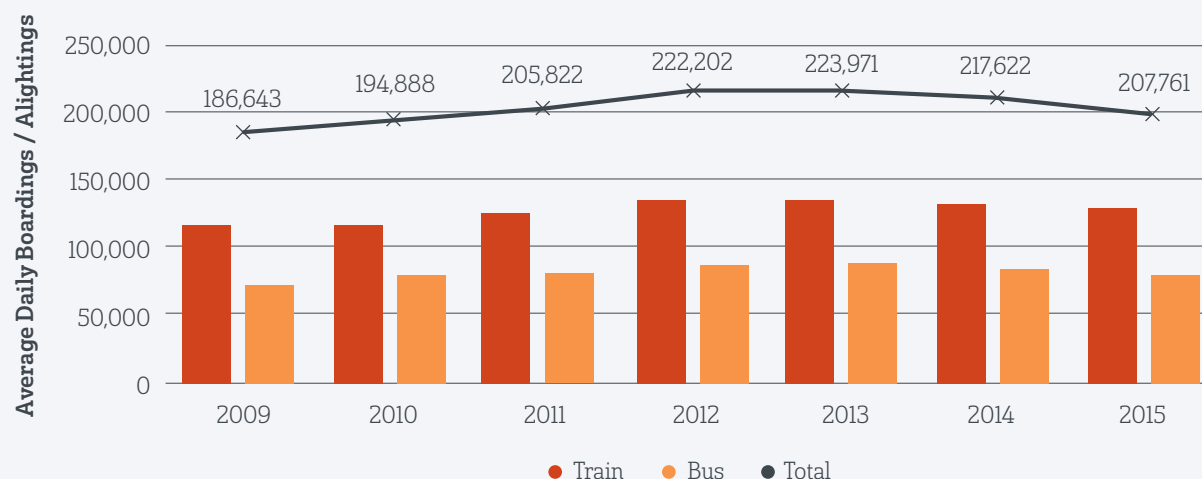
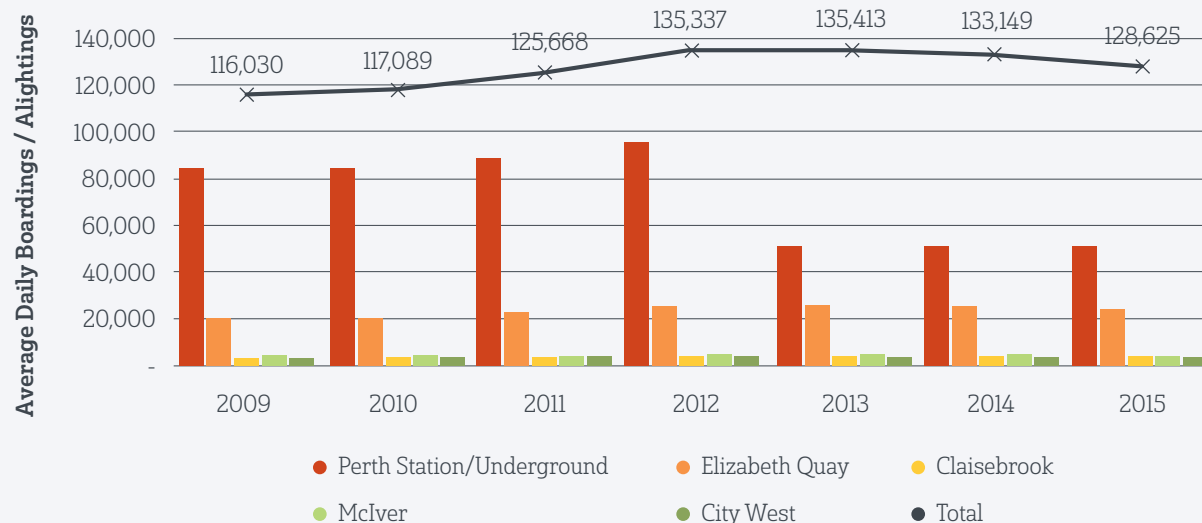


Figure 8 - Average Daily Activity, Train Services, Perth City (pre-July 2016), 2009 to 2015



Public Transport To Work

The City of Perth's *Draft Transport Strategy* (2016) proposes a community target to increase public transport trips to work to 60% of trips by 2031.

In 2011, 41.8% **workers** in Perth City (pre-July 2016) used public transport get to work, an increase of 5.2% over the 10 year period from 2001. Trains accounted for 67% of total public trips and buses 33%, a decline of 17% from 2006, possibly reflecting the shift of trips to trains following the opening of the Perth to Mandurah line in 2008.

In 2011, 21.9% of **residents** of Perth City (pre-July 2016) used public transport to get to work, an increase of 7.4% over the 10 year period from 2001, and a higher proportion than the average of 10.6% across Greater Perth. By comparison use of public transport to access work in other capitals was - Cities of Adelaide (10.2%), Melbourne (25.2%) and Sydney (30.5%).

In 2015, it was estimated that on a typical day, 14% of staff and 38% of students used public transport to get to the University of Western Australia for the purposes of work or study.²⁸

In 2012, it was estimated that 32% of trips to work by staff at the Queen Elizabeth II Medical Centre were by public transport, an increase from 10% in 2009 resulting from a major campaign to change staff travel behaviour.²⁹

Figure 9 - Public Transport To Work, Workers and Residents, Perth City (pre-July 2016), 2001 to 2011



M2.4 QUALITY OF PUBLIC TRANSPORT SERVICES

Perth City is heavily reliant on the regional public transport network to cater for the large influx of workers and visitors to Perth City each day and will become increasingly reliant as a greater proportion of trips are shifted to public transport to cater for the future growth of Greater Perth. As such, the actual and perceived quality of the regional public transport network is an important indicator for Perth City.

Apart from the Public Transport Authority's yearly passenger satisfaction survey which covers the whole of Greater Perth, there is no specific data available which provides an indication of community satisfaction with the local public transport environment and infrastructure.

Public Transport Survey

In 2016, the Public Transport Authority's *Customer Satisfaction Monitor* found:³⁰

- 94% satisfaction overall with Perth CAT services in comparison to 99% satisfaction for Fremantle and Joondalup services.
- 68% satisfaction with Perth CAT services on weekends, an increase from 35% in 2008, although a dip from a peak of satisfaction of 76% in 2015.
- 92% satisfaction with train services across Greater Perth (peak services - 94% satisfaction, off peak services - 91% satisfaction), an increase from 84% in 2013.
- 95% satisfaction with ferry services across Greater Perth, a decreased from 100% in 2013.
- 47% satisfaction with bus frequency on weekends and 54% satisfaction with off peak night services.
- a slight decline in satisfaction with dual use of modes of public transport since a peak in 2013 of 85%.

Safe City Survey

In 2014, the City of Perth's *Safe City Survey* found "improvements to public transport at night" in the top four factors for improving the safety of Perth City (pre-July 2016).³¹



M3 TRAFFIC & PARKING

Traffic and parking looks at vehicle use (such as cars, motorbikes, service vehicles, taxis and ride-share). Private vehicle transport (often single occupant) is the most popular form of transport across Greater Perth and accounts for 5 million of the 7 million trips made each day.³²

The development of an extensive network of regional and local roads in Greater Perth has played a major role in shaping the metropolitan region and resulted in an efficient, convenient and relatively affordable way to travel. Although the dominance and reliance on private vehicles can also have negative economic, social and environmental impacts on Greater Perth and Perth City including the economic costs of congestion (estimated at \$2 billion per year and without change could increase to \$4.4 - 5.7 billion per year),³³ air pollution, greenhouse gas emissions, and loss of amenity through noise and interruptions to pedestrian and cycle flows.

The City of Perth's *Draft Transport Strategy* proposes a community target to reduce car trips to work to 25% trips by 2031 to balance the impact of vehicles on the City while accommodating anticipated growth. As such, the extent and pattern vehicle use and supporting infrastructure (eg car parks) is an important indicator for Perth City.

M3.1 EXTENT AND PATTERNS OF VEHICLE USE

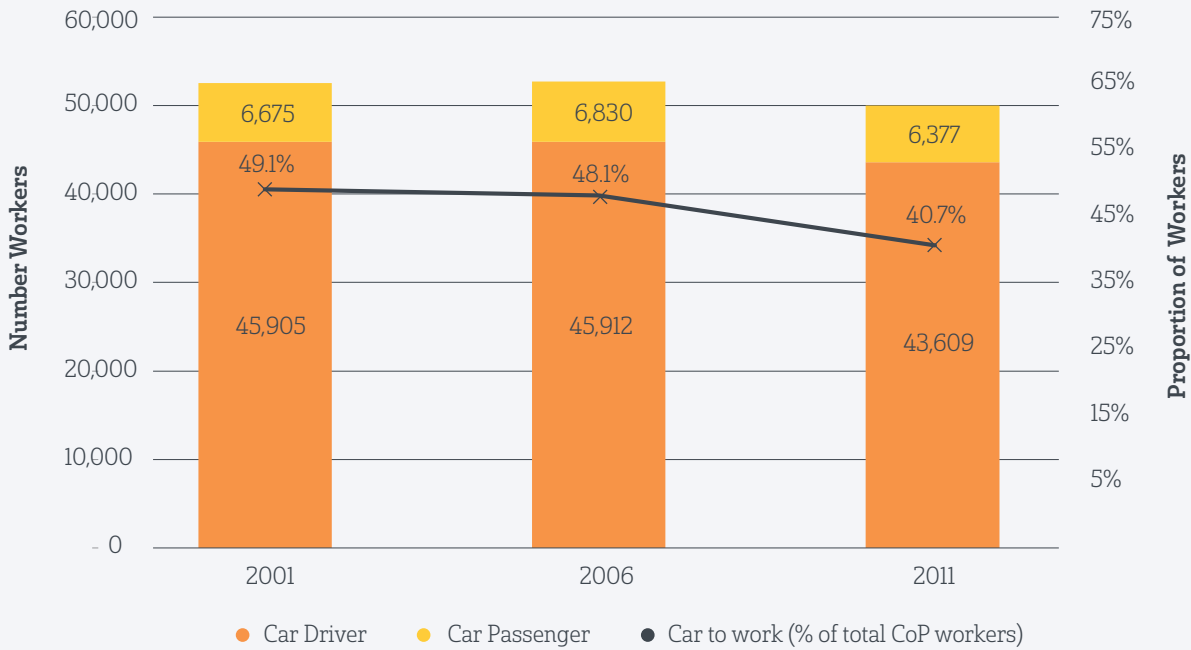
Vehicles - Journey to Work

In 2011, 40.7% **workers** in Perth City (pre-July 2016) used a car (as driver or passenger) to access work, a decrease of 8.4% over the 10 year period from 2001, and significantly less than the average of 66.9% across Greater Perth.

Around 35% of car trips to work were as “driver” and likely a high proportion as single occupant only.

Although the proportion of vehicle use to access work has declined over the last 10 years, the actual numbers of vehicles has remained relatively stable due to increased job growth in Perth City during the period.

Figure 10 - Vehicle Journey to Work, Workers Perth City (pre-July 2016), 2001 to 2011



In 2011, 35.3% of **residents** in Perth City (pre-July 2016) used a car (as driver or passenger) to access work, a decrease of 6.2% over the 10 year period from 2001.

The proportion of residents using cars to access jobs is much less than the average across the Greater Perth Region (66.9%), and slightly less than the City of Adelaide (40.4%) although more than the Cities of Melbourne (26.9%) and Sydney (25.3%).

There is no data available on the extent of vehicle use by residents for other non-work purposes or trips.

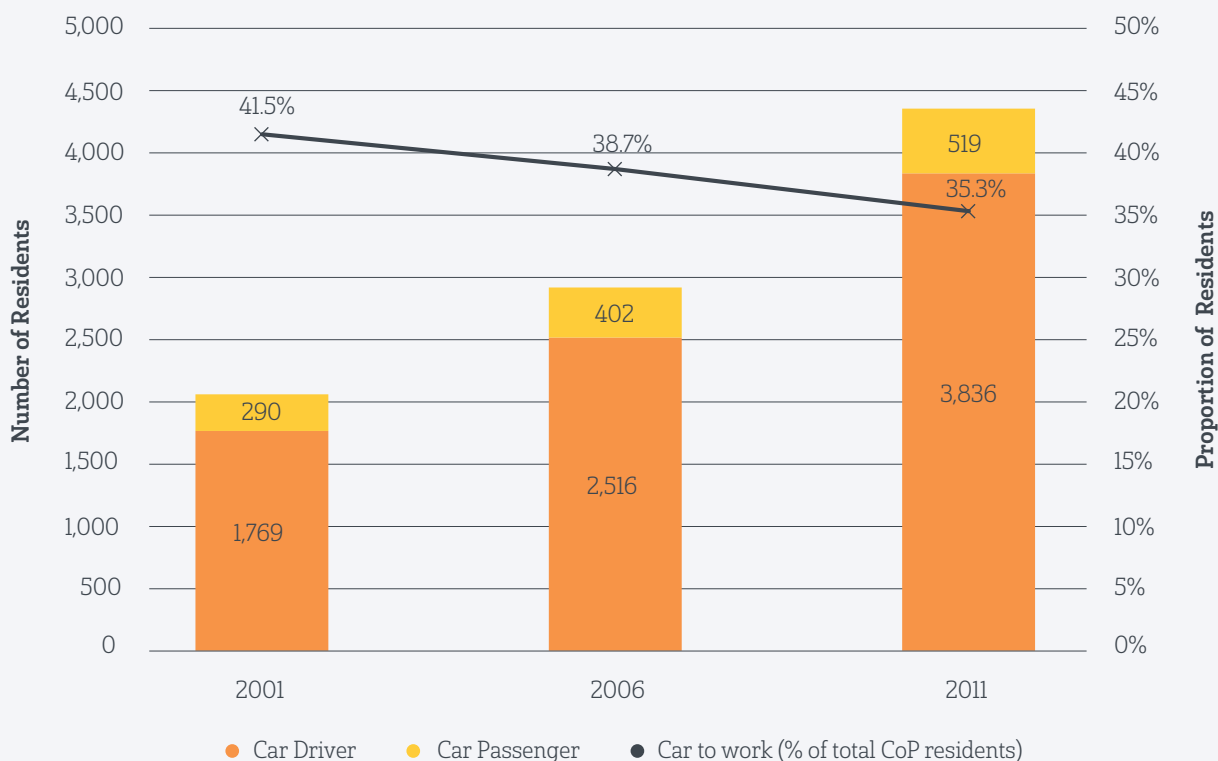
In 2015, it was estimated that on a typical day, 62% of staff at the University of Western Australia accessed work by car (with 10% car-pooling) and 37% of students by car (with 5% car-pooling).³⁴

In 2012, it was estimated that 43% of workers at the Queen Elizabeth II Medical Centre accessed work by car (as driver) which is significant decline from 73% of workers in 2009 that resulted from a major campaign to change staff travel behaviour.³⁵

Other Vehicles – Service Vehicles, Taxis/Ride-Share and Tourist Buses

At this point in time, data relating to the level of vehicle activity and patterns of movement relating to service vehicles, taxis, ride-share schemes and tourist buses is not known.

Figure 11 - Vehicle Journey to Work, Residents, Perth City (pre-July 2016), 2001 to 2011



M3.2 VEHICLE SPEEDS AND CIRCULATION

Vehicles Entering / Existing Perth City (CBD)

Data capturing the average number of vehicles entering and exiting Perth City during the week in an 'outer' cordon and an 'inner' cordon indicates:³⁶

- a higher level of vehicle activity in the outer cordon in comparison to the inner cordon indicating regional vehicle movement around the periphery of the CBD rather than through the CBD.
- a decline in the total amount of vehicle activity in both the outer cordon and inner cordon from 2013 to 2015, which may reflect the downturn of the WA economy and business activity in the CBD.

While the above data provides a picture of the extent of vehicle activity in Perth City, there is no data indicating the purpose of these trips ie for work, accessing goods and services, delivering goods or visiting residents, which highlights a gap that could be filled to improve our understanding of vehicle activity.

Figure 12 - Cordon Locations

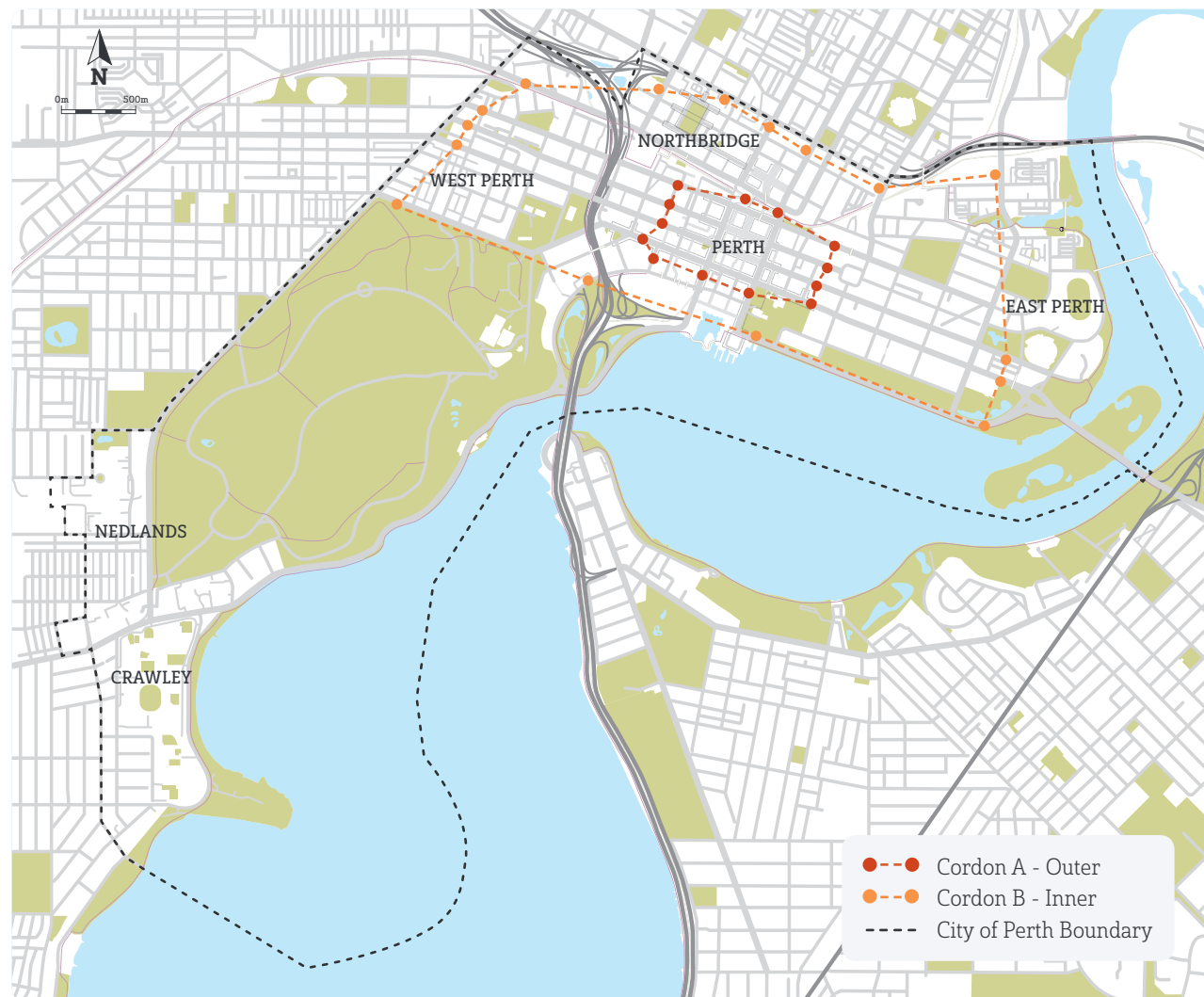


Figure 13 – Average Weekday Traffic Counts 2013 to 2015

CORDON A	2013	2014	2015
Average weekday traffic entering the city from other areas	118,762	118,225	112,588
Average weekday traffic exiting the city to other areas	116,993	118,370	112,922
CORDON B	2013	2014	2015
Average weekday traffic entering the city and travelling into the CBD	69,368	66,184	64,194
Average weekday traffic exiting the city from the CBD	69,245	67,470	63,774



Vehicle Speeds

Data on average traffic speeds in Perth City (pre-July 2016) indicates:³⁷

- speeds were relatively compliant with the posted traffic speed limits from 2013 to 2015 suggesting traffic flows were generally acceptable (ie absence of persistent congestion).
- speeds were consistent between 2013 and 2015, although there was a slight decline in the 50kph speed limit areas.
- the introduction of the 40kph speed limit in the central city area in June 2011 was effective.

Monitoring traffic speed trends also provides an insight into the use of our streets and the ways in which they are perceived, as higher speeds are often associated with perceptions of poorer urban amenity and reduced safety.

Figure 14 – Average vehicle speeds (85th percentile speed observed at various street locations)

Speed	2013	2014	2015
40 KPH Roads	40.7 km/h	40.2 km/h	40.0 km/h
50 KPH Roads	50.3 km/hr	48.7 km/hr	48.3 km/hr
60 KPH Roads	59.6 km/h	59.4 km/h	59.0 km/h

M3.3 PARKING

The parking environment is made up of a mix of public parking onstreet (long and short stay), public parking off street (provided by the City of Perth and private parking operators), private commercial parking and residential parking.

Commercial Parking

All non-residential parking bays within Perth City (pre-July 2016) are subject to a licensing fee under the Perth Parking Management Act 1999 (PPMA) and revenue raised is allocated for sustainable and active transport improvements to Perth City's transport network.

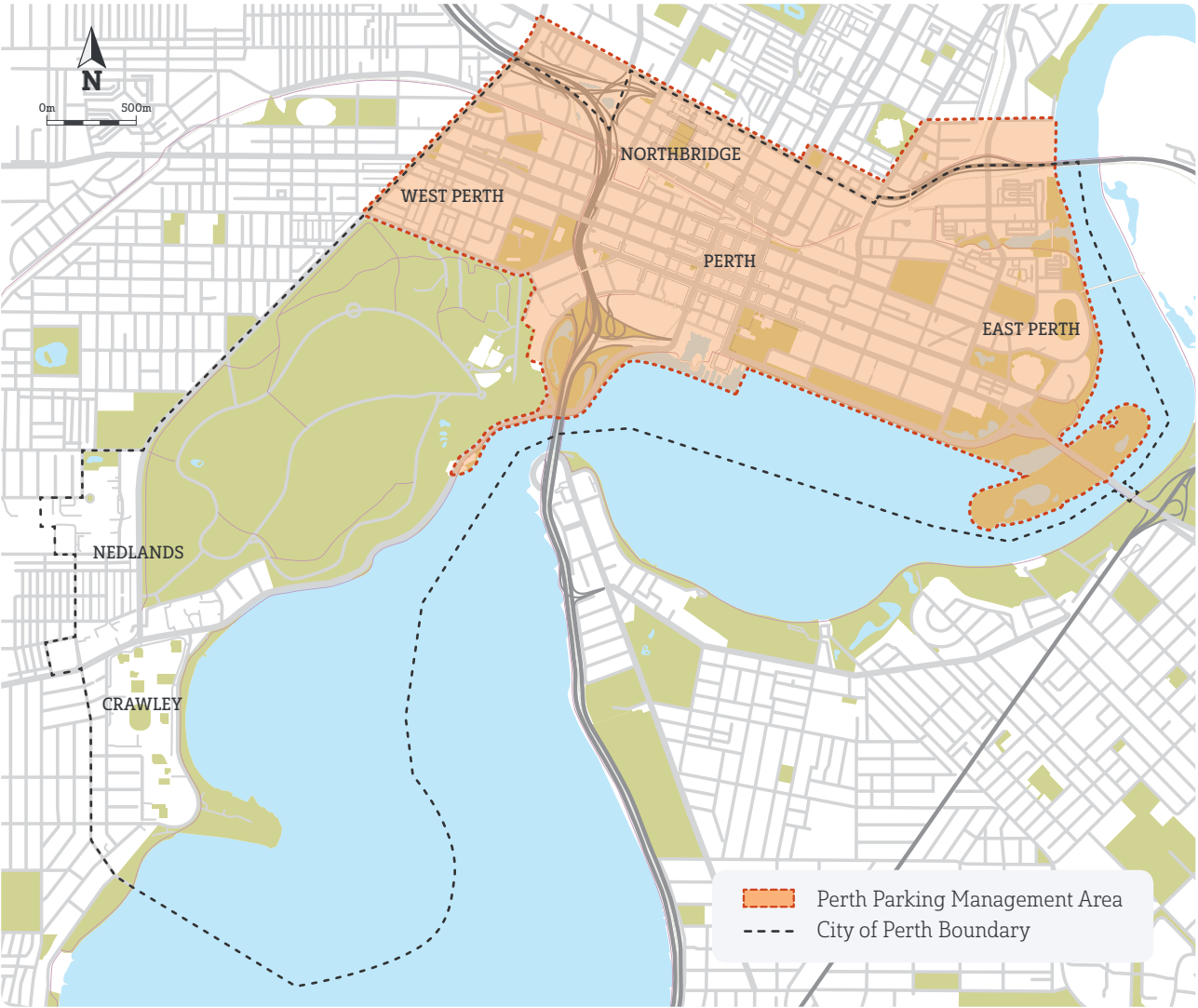
At present, the number of motorcycle bays or facilities for sustainable transport vehicles such as electric vehicle bays is unknown.

Figure 15 - Commercial parking bays in Perth City's portion of the PPMA, 31 August 2016³⁸

Type	Number
Private - Tenant	34,541
Public - Long Stay	9,285
Public - Short Stay	8,968
Public – On-Street	5,719*
Special fee-exempt (such as ACROD, loading/unloading etc)	3,428
TOTAL	72,328

* - Note there is an additional 387 on-street bays in the Town of Vincent

Figure 16 – Perth Parking Management Area



In 2014, there were 0.46 bays per worker in Perth City CBD (including Perth CBD, West Perth, East Perth and Northbridge only) which was less than the Adelaide CBD, but higher than Melbourne and Sydney CBD rates.³⁹

The proportion of workers using vehicles to access work is included in the figure below and appears to follow the trend in worker parking ratios, although the study notes the influence of metropolitan city size on parking rates ... *"generally, the larger the city, the lower the parking provision per capita and per city centre employee. This is understandable as the larger capitals have more developed public transport systems and higher public transport mode share to the centre".*⁴⁰

Figure 17 – Commercial Bays Per Worker, Perth City CBD compared with other Capital Cities, 2014

City Centre*	Commercial Bays per Worker	Worker Journey to Work by Car (ABS 2011)
Perth	0.46	37.1%
Adelaide	0.69	40.4%
Melbourne	0.33	26.9%
Sydney	0.22	25.3%

* approx. CBD areas

CBD Parking Costs

The cost of public off-street parking in the Perth CBD is significantly lower than that observed in other Australian CBD areas as shown in Figure 18 – where the average cost of off street daily parking in the Perth CBD was approximately \$30 in 2015, and Sydney and Brisbane CBD's had the most expensive daily parking rates at \$70.⁴¹

Residential Parking

In 2015, just under 14,000 residential parking bays were estimated in Perth City (or 1.73 bays per resident), although this data requires further verification.⁴²

In 2011, 62.3% of households in Perth City owned a vehicle, and increase of 5.0% over the 10 year period from 2001, and less than the average of 87.5% across Greater Perth.

By comparison, other capital cities were - Cities of Adelaide (59.4%), Melbourne (50.4%) and Sydney (51.1%).

Figure 18 - Average Cost of Parking Per Day, Australian Capital CBDs, 2009 to 2015

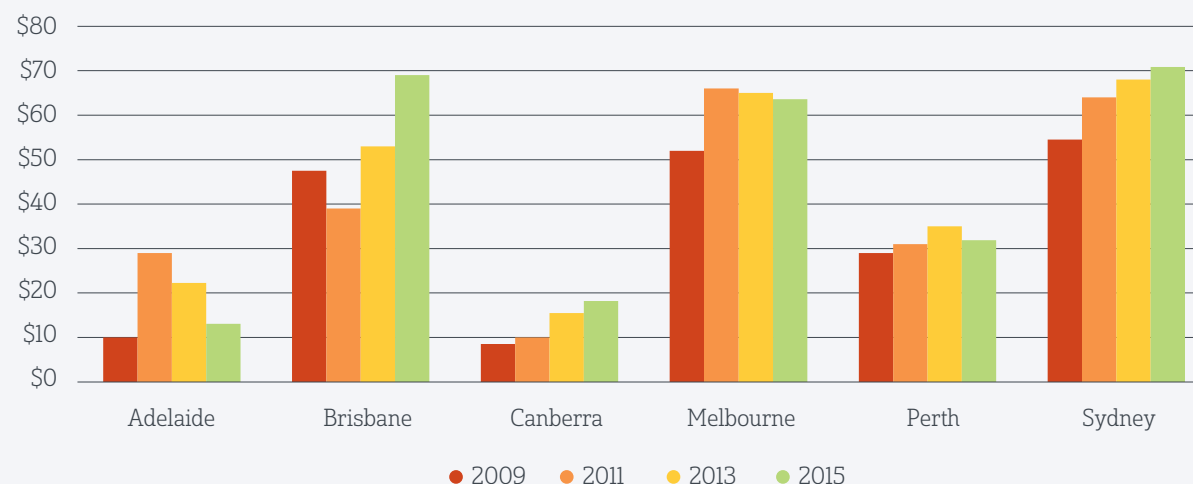
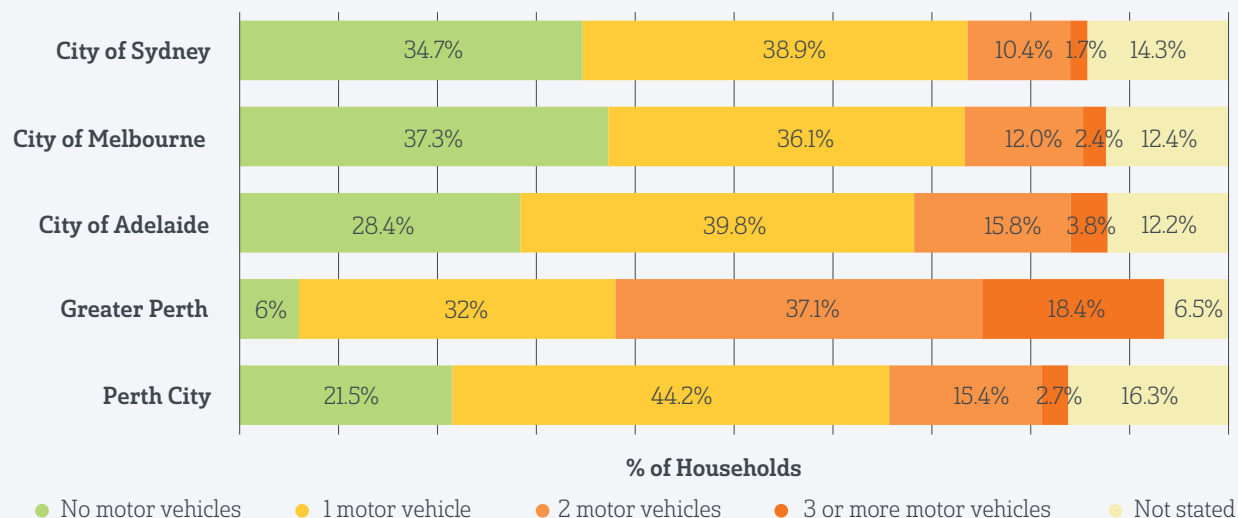


Figure 19 - Number of Vehicles Per Household, Perth City compared with Greater Perth & Australian Capital Cities, 2011

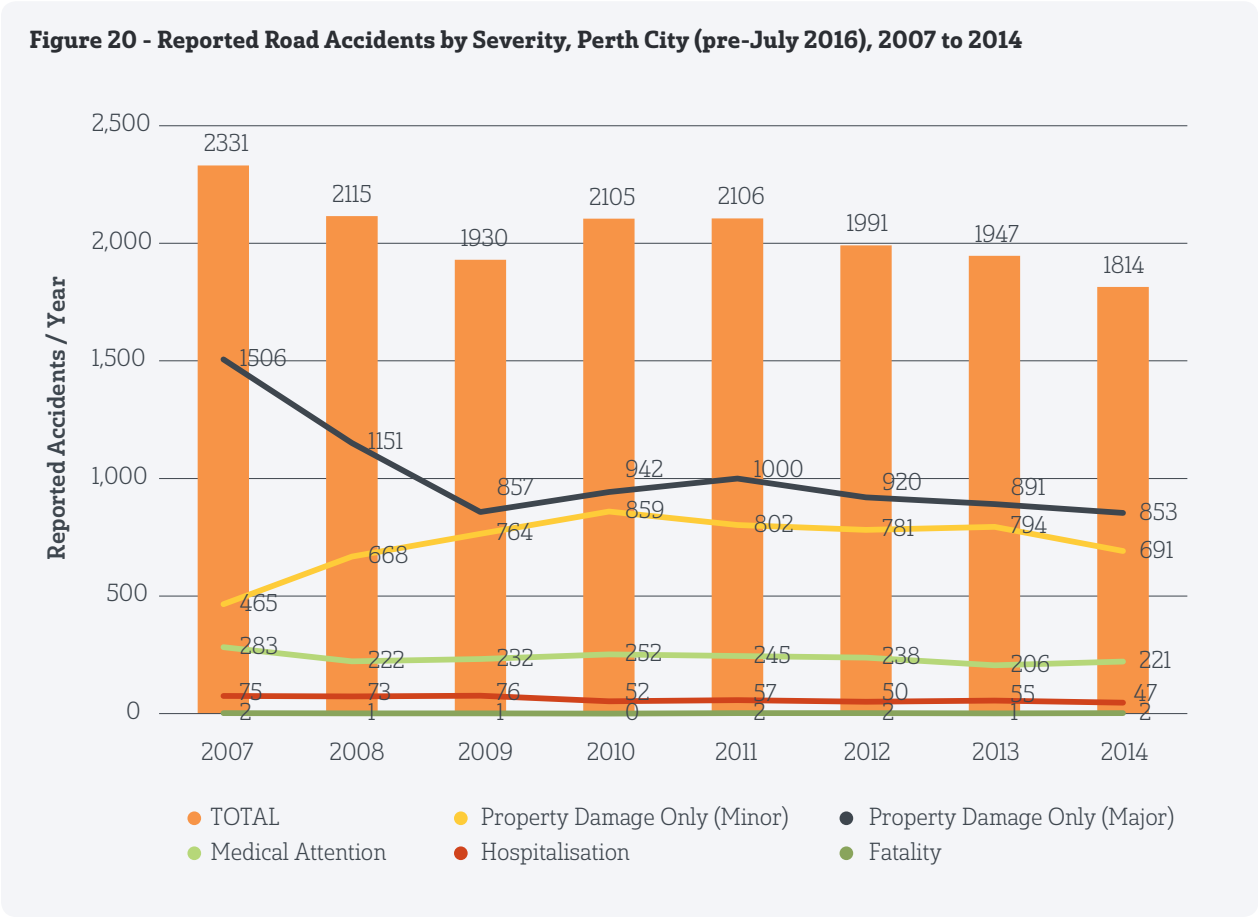


M3.4 QUALITY OF THE VEHICLE ENVIRONMENT

Actual and perceived quality and safety of the vehicle environment is important given the high volumes of traffic activity and multiple use of the road network by cars, buses, bicycles and pedestrians to access work, services and facilities and social opportunities in Perth City.

Reported Road Accidents

Between 2007 and 2014 there was a 22% decrease in reported road, although there was at least one fatality each year with the exception of 2010.⁴³



Perceptions of Quality and Safety

There is no comprehensive set of data to indicate the community’s perception of the quality and safety associated with the vehicle environment in Perth City, although a number of data sources provide an indication of perceptions.

In 2016, feedback on the City of Perth’s *Draft Transport Strategy* suggested a greater emphasis on road safety and the Draft Strategy has been amended to include an objective to address safety across all modes of transport in Perth City.

In 2014, the City of Perth’s *Safety City Survey* identified a number of places where people felt unsafe including “car parks” and “travelling to and within bus and train stations”, although these results require further verification.

In 2012, the City of Perth’s *Health and Wellbeing Plan Survey* found 18.4% of respondents considered “road safety to be a “key issue or concern”⁴⁴ although it was not clear whether respondents were referring specifically to Perth City or to Greater Perth in general.

FINDINGS

M1 WALKING AND CYCLING

1. There is limited data on pedestrian activity in Perth City including actual and perceived quality and safety, and this is acknowledged in the City of Perth's *Draft Transport Strategy*.
2. In 2011, 3.3% of workers and 22.8% of residents in Perth City (pre-July 2016) walked to work, which is higher than the average of 2.2% across Greater Perth, although the proportion of residents walking was less than the Cities of Adelaide (27.4%), Melbourne (27.5%) and Sydney (25.3%). The proportion of workers and residents walking to work increased 1.7% and 6.6% from 2001 respectively. Proportions of staff and students walking at UWA and QEII Medical Centre were slightly higher.
3. Pedestrian counts at selected Perth CBD locations reflects a pattern of activity associated with the daily influx of workers during the morning, the popularity of the Malls during the lunch-period, and the exit of workers following the close of business hours and retail shops, with very low levels of pedestrian activity recorded from 9pm onwards.
4. In 2011, 2.5% of workers and 1.3% of residents in Perth City (pre-July 2016) cycled to work, which is higher than the average of 1.1% across Greater Perth, although lower than the Cities of Adelaide (3%), Melbourne (3.8%) and Sydney (3.0%). The proportion of workers and residents cycling to work increased 1.3% and 1.0% from 2001 respectively. Proportions of staff and students cycling to UWA and QEII Medical Centre were higher.
5. In 2014-15, there was an average of 7,530 cyclists per weekday and an average of 4,466 cyclists per weekend day moving into and through Perth City. Preliminary findings from the City of Perth *Cycle Plan Survey* found 65% of cyclists ride a bike for fitness and health reasons, 22% for recreational reasons and those who cycled five days or more per week cited "convenience" as the motivation.

6. Perth City has more than 6 kilometres of dedicated on-road cycle lanes, 420 on-street bike racks, 54 secure fee paying bicycle racks and 347 buildings that provide 7,722 private bike racks and end-of -trip facilities (to be confirmed through future audit).
7. There is no comprehensive set of data on the community's perceptions about the quality and safety of the walking and cycling environment, although some data from the City of Perth's *Safe City Survey* provides insight into perceptions of safety where 82% of respondents felt "safe or very safe" during the day and 36% felt "safe or very safe" during the evening. The *Health and Wellbeing Plan* survey identified the "provision of more cycle paths and walkways" (34% responses) the top priority for developing healthy neighbourhoods. Support for promoting walking and cycling was also raised as a priority during the City's *Draft Transport Strategy* consultation.

M2 PUBLIC TRANSPORT

8. At present, around 50% of all public transport peak hour commuter trips across Greater Perth are to Perth City, although activity has declined slightly since 2013. Public transport is forecast to increase to "around 65 per cent of peak period trips to the Perth CBD and over 70 per cent of work trips to the wider business district, including West Perth, East Perth and Northbridge" to cater for the growth of Greater Perth to 3.5 million people by 2050.
9. In 2015, there was an average of 208,000 boardings and alightings (ie passenger activity) per day on train and bus services in Perth City (pre-July 2016). Trains accounted for 62% of total passenger activity, with the Perth Station / Perth Underground station accounting for 72% of all train passenger activity (91,500 / day).

10. In 2011, 41.8% workers and 21.9% of residents in Perth City (pre-July 2016) used public transport get to work, which is higher than the average of 10.6% across Greater Perth. The proportion of workers and residents taking public transport to work increased 5.2% and 7.4% from 2001 respectively. In comparison, public transport to access to work by residents in other capitals in 2011 was Cities of - Adelaide (10.2%), Melbourne (25.2%) and Sydney (30.5%). Public transport access at UWA was staff (14%) and students (38%) and QEII Medical Centre workers increased their public transport use from 10% in 2009 to 32% in 2012.
 11. There is no data which provides a comprehensive picture of community satisfaction with public transport services in Perth City itself, although the Public Transport Authority's passenger satisfaction survey for Greater Perth found generally high levels of satisfaction, with the exception of lower satisfaction with buses (weekend of and off peak night) and a decrease in satisfaction with weekend CAT and ferry services. The City of *Perth's Safe City Survey* recorded some data showing community did not feel safe when accessing public transport services after dark.
- ### M3 TRAFFIC AND PARKING
12. In 2011, 40.7% workers and 35.3% of residents in Perth City (pre-July 2016) used a car (as driver or passenger) to access work, which is significantly less than the average of 66.9% across Greater Perth. The proportion of workers and residents using cars to access work decreased by 8.4% and 6.2% respectively over the 10 year period from 2001. In comparison, resident use of cars to access work was - Cities of Adelaide (40.4%) Melbourne (26.9%) and Sydney (25.3%). There has been a significant reduction of vehicle use to access work at QEII Medical Centre from 73% in 2009 to 43% in 2012, and 62% of staff and 37% of students use cars to access work and study at UWA.
 13. At this point in time, data relating to the level of vehicle activity and patterns of movement relating to service vehicles, taxis, ride-share schemes and tourist buses is not known.
 14. Vehicle counts tracked in an 'outer' cordon and 'inner' cordon in Perth City have recorded a minor decrease in vehicle numbers entering Perth City between 2013 and 2015. The vehicle counts indicate greater vehicle activity in the outer cordon, suggesting regional through-traffic rather than through the CBD core. There is a lack of data on the purpose of vehicle trips into and around Perth City to build a more comprehensive picture of vehicle activity and patterns.
 15. Vehicle traffic speeds were relatively compliant with posted speed limits, suggesting acceptable flows within Perth City, although there was a slight decline in the 50kph areas. The introduction of the 40kph areas appears to be a success.
 16. Data on the total number of car bays in Perth City requires further investigation and verification. Initial figures estimate around 72,300 bays. Perth City has a higher rate of commercial parking (0.46 per worker) compared with the inner CBD areas of Melbourne (0.33/worker) and Sydney (0.22/worker), although less than Adelaide (0.69/worker). Perth City has significantly lower average costs of off street public parking than the inner areas of Melbourne, Sydney and Brisbane, although higher than Adelaide and Canberra.
 17. There are approximately 14,000 residential parking bays in Perth City or around 1.73 bays per resident.

18. The proportion of households in Perth City with one or more vehicles increased from 57.3% in 2001 to 62.3% in 2011 and was higher than the Cities of Adelaide (59.4%), Melbourne (50.4%) and Sydney (51.1%). There was a slight decline in the number of households in Perth City with no vehicles from 23.3% in 2001 to 21.5% in 2011, and this proportion is significantly lower than the Cities of Adelaide (28.4%), Melbourne (37.3%) and Sydney (34.7%).
19. Reported road accidents have been gradually declining since 2007, with just over 500 less reported crashes between 2007 and 2014, although minimal or no decreases in the proportion of accidents requiring medical attention, hospitalisation or resulting in a fatality.
20. There is no comprehensive set of data that provides a picture of the community's perception of quality and safety associated with the vehicle environment (and associated infrastructure) although community engagement and surveys indicate some concerns with road safety, accessing car parks and public transport.

REFERENCES

¹ City of Perth (2012) 2012 Survey of Businesses.

² Ibid.

³ Arup (2015) City of Perth Walking Study. Available from <http://engage.perth.wa.gov.au/transport>.

⁴ Rajé, F & Saffrey, A. (2016) The Value of Cycling. Prepared for the Department of Transport (UK) by the University of Birmingham. Available from <https://www.gov.uk/government/publications/the-value-of-cycling-rapid-evidence-review-of-the-economic-benefits-of-cycling>

⁵ Department of Transport (no date) Travel Demand Management Plan for Perth @3.5 million. Available from http://www.transport.wa.gov.au/mediaFiles/projects/PROJ_P_Travel_Demand_Management__Plan.pdf

⁶ Department of Transport (2016) Draft Perth Transport Plan.

⁷ City of Perth (2016) Draft Transport Strategy. Available from <http://www.perth.wa.gov.au/planning-development/city-initiatives/draft-transport-strategy>.

⁸ Ibid.

⁹ Australian Bureau of Statistics (2012) 2001-2011 Census – Journey to Work.

¹⁰ University of Western Australia (2015) UWA Staff and Student Travel Survey – Final Report - July 31 2015. Available from http://www.cm.uwa.edu.au/__data/assets/pdf_file/0017/2822120/UWA-Travel-Survey-with-Appendix_FINAL-July-31-2015.pdf

¹¹ Martin, J (2014) Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study. Presented to the AITPM 2014 National Conference

¹² City of Perth (2015) Pedestrian counts (various locations) (unpublished).

¹³ Knowledge Solutions (2014) City of Perth Safe City Survey.

¹⁴ Stoneham and Associates Public Health Consulting (2012) Community Consultation to inform the development of the City of Perth Public Health Plan (unpublished).

¹⁵ City of Perth (2016) City of Perth Transport Strategy - Engagement Summary Report. Available from <http://engage.perth.wa.gov.au/transport>

¹⁶ City of Perth (2016) Draft Transport Strategy. Available from <http://www.perth.wa.gov.au/planning-development/city-initiatives/draft-transport-strategy>.

¹⁷ Australian Bike Council (2015) National Participation Cycling 2015.

¹⁸ Op cit Australian Bureau of Statistics (2012).

¹⁹ Op cit University of Western Australia (2015).

²⁰ Martin, J (2014) Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study. Presented to the AITPM 2014 National Conference

²¹ <https://mrapps.mainroads.wa.gov.au/trafficmap>

²² Op cit Australian Bike Council (2015).

²³ Department of Transport (May 2016) End of Trip PPMA database (unpublished).

²⁴ Stoneham and Associates Public Health Consulting (2012) Community Consultation to inform the development of the City of Perth Public Health Plan (unpublished).

²⁵ RAC (2015) Cycle Survey 2015. Accessed from <http://rac.com.au>

²⁶ Department of Transport (2011) Public Transport for Perth in 2031 – Mapping Out the Future for Perth's Public Transport Network – Summary. Available from http://www.transport.wa.gov.au/mediaFiles/about-us/ABOUT_P_PT_Plan2031Summary.pdf

²⁷ Public transport Authority (2016) City of Perth train station – average boarding and alighting.(unpublished)

²⁸ Op cit University of Western Australia (2015)

²⁹ Op cit Martin, J (2014)

³⁰ Public Transport Authority (2016) Passenger Satisfaction Monitor 2016 – All Modes Presentation. Available from <http://www.transperth.wa.gov.au/Portals/0/All%20Modes%20Presentation%202016%20-%20Overlays%20Removed.pdf>

³¹ Op cit Knowledge Solutions (2015)

³² Department of Transport (2016) Perth Transport Plan –draft.

³³ Ibid.

³⁴ Op city University of Western Australia (2015)

³⁵ Op cit Martin, J (2014).

³⁶ City of Perth (2015) Draft Traffic Trend Report (unpublished).

³⁷ Ibid.

³⁸ Department of Transport, WA (2016) Pers comms T Ngo.

³⁹ Emmerson and Elaurant (2014) The Importance Of Parking Policy For Sustainable Transport And Land Use City Planning.

⁴⁰ Ibid.

⁴¹ Colliers International (2015) The evolution of car parking – technology creating risk and opportunity.

⁴² Department of Planning (2016) 2015 Land Use and Employment Survey, preliminary results.

⁴³ Main Roads WA (2015) Traffic Crash Stats.

⁴⁴ Op cit Stoneham and Associates Public Health Consulting (2012)

CHAPTER 9

CONCLUSION

“Great cities attract talent and investment – they encourage innovation and create jobs and growth.” Smart Cities Plan, 2016

Cities are the engines of innovation and sustainability. They reflect our deeds and values as individuals and as a society; they are the inheritance we leave future generations. They are the result of decisions and actions taken on a daily basis by multiple stakeholders – and as such, we all bear some level of responsibility for their condition and quality.

Perth City is the capital of Western Australia, the civic head and heart of our State. Our responsibilities extend beyond our boundary and beyond our time. We have a significant responsibility to ensure our City is the best it can be to a diverse range of people, for a diverse range of purposes. Our aims of being liveable, welcoming and equitable must be universal, in the face of a world that is dynamic and constantly evolving, of increasingly diverse and complex competing needs, and an era of uncertain ‘public resources’.

“Not everything that counts can be counted and not everything that can be counted counts.” Albert Einstein (attributed)

As such, knowing and understanding our City and current and future needs, evaluating the most effective way to do things and monitoring performance and outcomes, is critical to our future success.

The Commonwealth Department of Prime Minister for Cabinet’s Smart Cities Plan (May 2016) calls for “enhancing value” and “monitoring performance” through city metrics. As such, the inaugural Perth City Snapshot 2016 aims to collate a holistic array of key city data and information to provide a starting point for better understanding, to identify “where we are now” – the current state, character and trends impacting Perth City – to assist community and stakeholder dialogue to articulate “where do we want to be” and “how do we get there”.

While every care has been taken to reflect the dynamic nature of Perth City, the Snapshot is not complete or perfect. It forms a baseline and is part of a dynamic cycle of continuous improvement in collecting, analysing and sharing data, in filling in the key gaps in our knowledge about what works and what doesn’t work, and measuring what is important now and into the future.

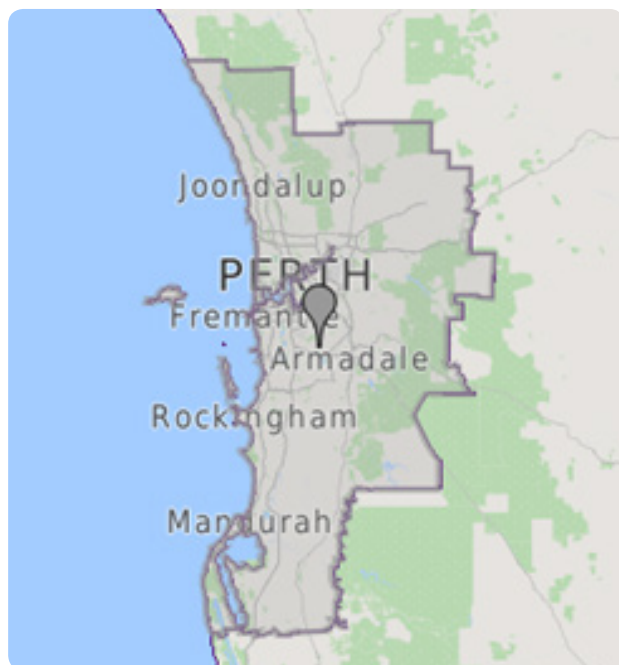
APPENDIX 1

GEOGRAPHICAL AREAS

GREATER PERTH:

Greater Perth refers to the Australian Bureau of Statistics (ABS) Greater Capital City Statistical Area – Greater Perth. It includes the Perth and Peel metropolitan areas.

Area - 6,418 square kilometres
Population - 2.04 million
(ABS, Estimated Resident 2015)

**CENTRAL SUB-REGION:**

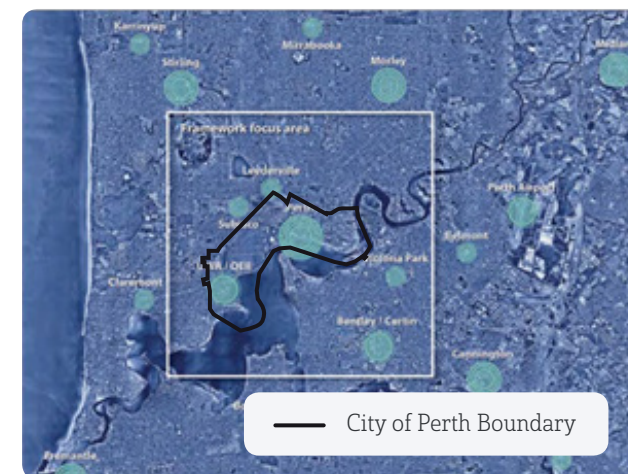
The Central Sub-Region refers to a strategic urban planning region defined by the Western Australian Planning Commission. It includes 19 local government areas.

Area - unknown
Population - 782,947 (2011)

**CENTRAL PERTH:**

Central Perth refers to a notional 12 km by 12 km strategic urban planning area defined by the Western Australian Planning Commission. It includes Perth City and surrounding areas.

Area – 144 square kilometres
Population – unknown.



PERTH CITY:

Perth City refers to the City of Perth local government area which expanded on 1 July 2016 to include parts of Crawley and Nedlands (previously in the Cities of Subiaco and Nedlands).

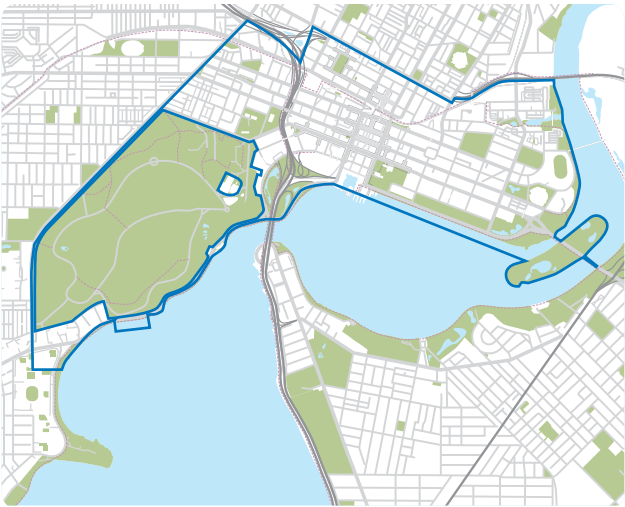
Area – 13.85 square kilometres
(land area only, not River)
Population – 24,244
(estimate, to be confirmed in 2016 Census)



PERTH CITY (PRE-JULY 2016):

Perth City (pre-July 2016) refers to the old City of Perth local government area prior to 1 July 2016.

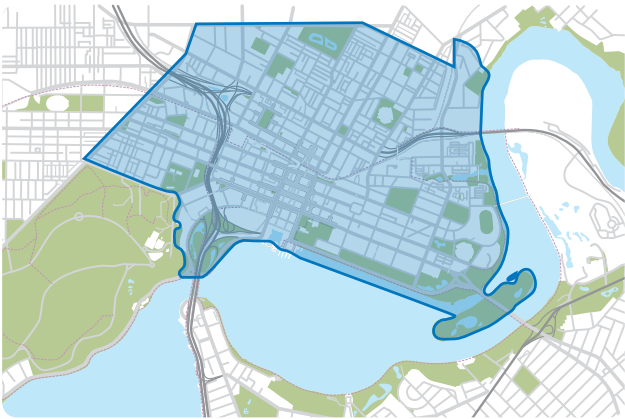
Area – 8.10 square kilometres
Population – 18,315
(ABS, Estimated Resident 2015)



PERTH CITY (SA2):

Perth City (SA2) refers to the Australian Bureau of Statistics (ABS) Perth City Statistical Area 2. It includes the City of Perth local government area with the exception of Crawley and Nedlands and includes portions of West Perth, Perth, Highgate and East Perth which lie outside the City of Perth.

Area – 10.9 square kilometres
Population – 32,187
(ABS, Estimated Resident 2014)



APPENDIX 2

PEOPLE AND PLACE PROFILE

This Appendix provides an overview of the social, cultural and economic character of Perth City. Further information is available from the City of Perth's Community and Economic Profiles and Residential Population Forecasts.

<http://profile.id.com.au/perth>

<http://forecast.id.com.au/perth>

<http://www.economicprofile.com.au/perth>

Unless otherwise indicated, all statistics are sourced from the Australian Bureau of Statistics Census data and the above Profiles.

PAST POPULATION GROWTH

Between 2001 and 2015, Perth City's resident population increased by 14,106 people from 10,138 residents to 24,244 residents. Or an average of just over 1000 additional people each year, or 6.43% growth per year (annual average) compared with a growth rate of 0.78% (annual average) for Greater Perth during the same period.

2015 RESIDENT POPULATION

In 2015, the estimated resident population of Perth City was 24,244 people (54% male / 46%).¹¹ The median age of residents is 31 years compared with 36 years for Greater Perth, 28 years for City of Melbourne and 32 years for City of Sydney.

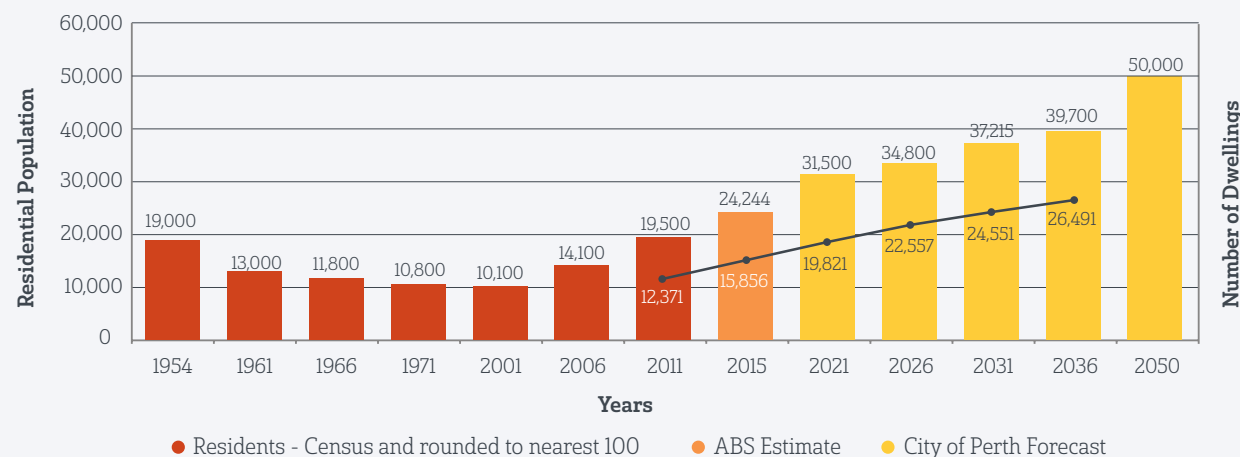
FUTURE POPULATION FORECAST

Perth City's resident population will grow to 40,000 residents by 2036 (next 20 years) and 50,000 people by 2050 (next 34 years).

This is an increase of 25,800 people or an additional 759 residents per year (average), representing a growth rate of 2.15% per year (annual average).

From 2011, the number of dwellings in Perth City will increase from 12,392 dwellings (private and non-private) to 26,490 dwellings by 2036, an additional 14,000 dwellings.

Perth City - Residential Population 1954 to 2050



¹¹ Note that this is an experimental estimate based on ERP at the SA1 level. It is subject to review after the release of Census data mid 2017 and may not match .id's population forecasts.

KEY POPULATION CHARACTERISTICS

Perth City’s resident population is young, migrant and mobile, different to the profile in Greater Perth but similar to other Australian capital cities.

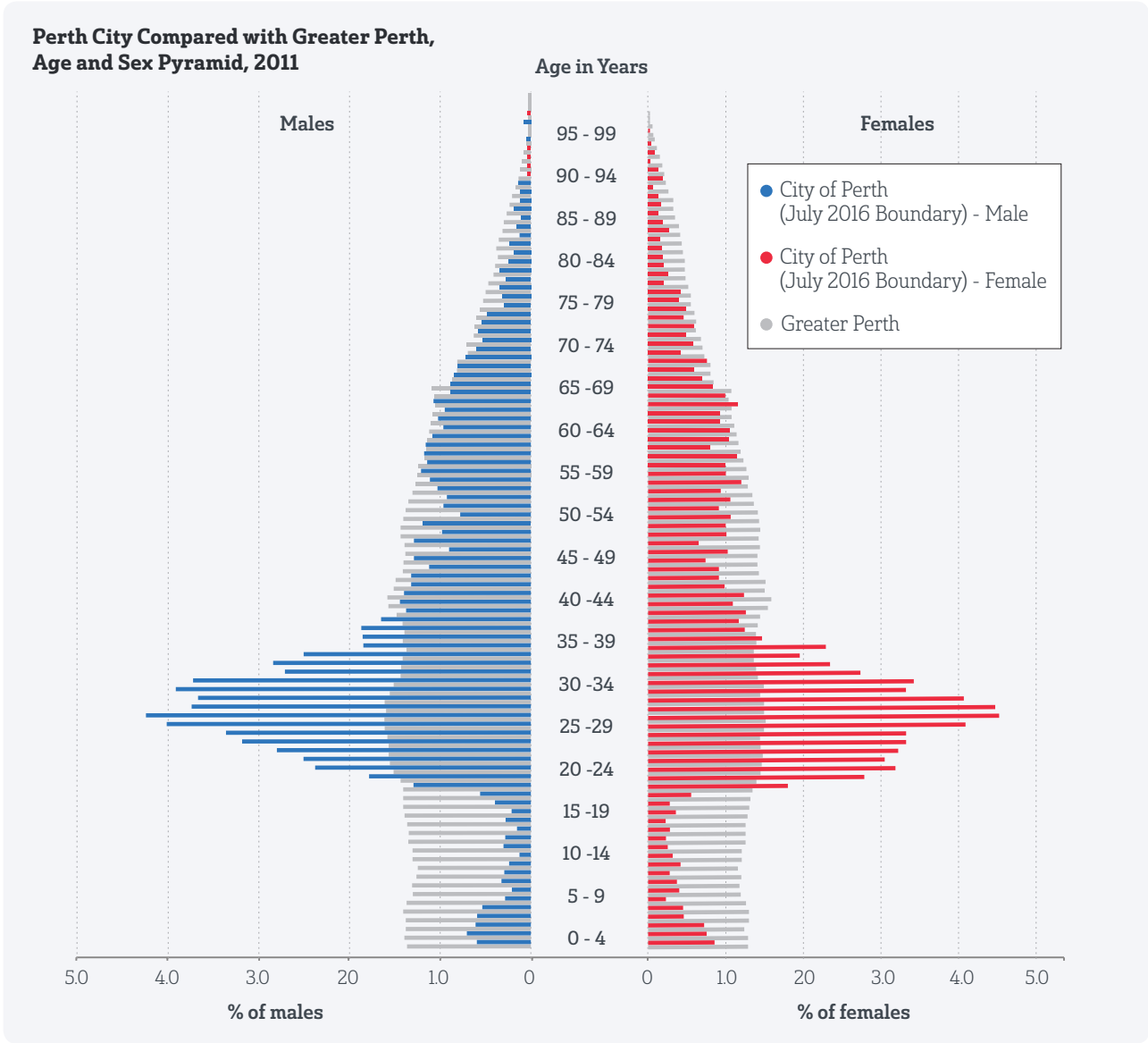
In 2011, 53% of Perth City residents were born overseas (36% in non-English speaking country), compared with 44% in 2001. 33% of residents can speak a language other than English, 6.6% of residents speak Mandarin and 4% of residents do not speak English well or at all.

In 2011, 52.6% of Perth City residents (or 10, 290 people) were born overseas (from 54 countries), in comparison to 34.4% across Greater Perth, and Cities of Melbourne 47.5%, Sydney 42.4% and Adelaide 40.7%.

In 2011, the top five ancestries of Perth City residents are - English (23.9%), Australian (12.8%), Chinese (11.2%), Irish (8.8%) and Scottish (6.4%)

In 2011, there was an average of 1.83 people per household² in Perth City, compared with 2.55 people per household across Greater Perth and 1.96 in the City of Melbourne and 1.95 in the City of Sydney.

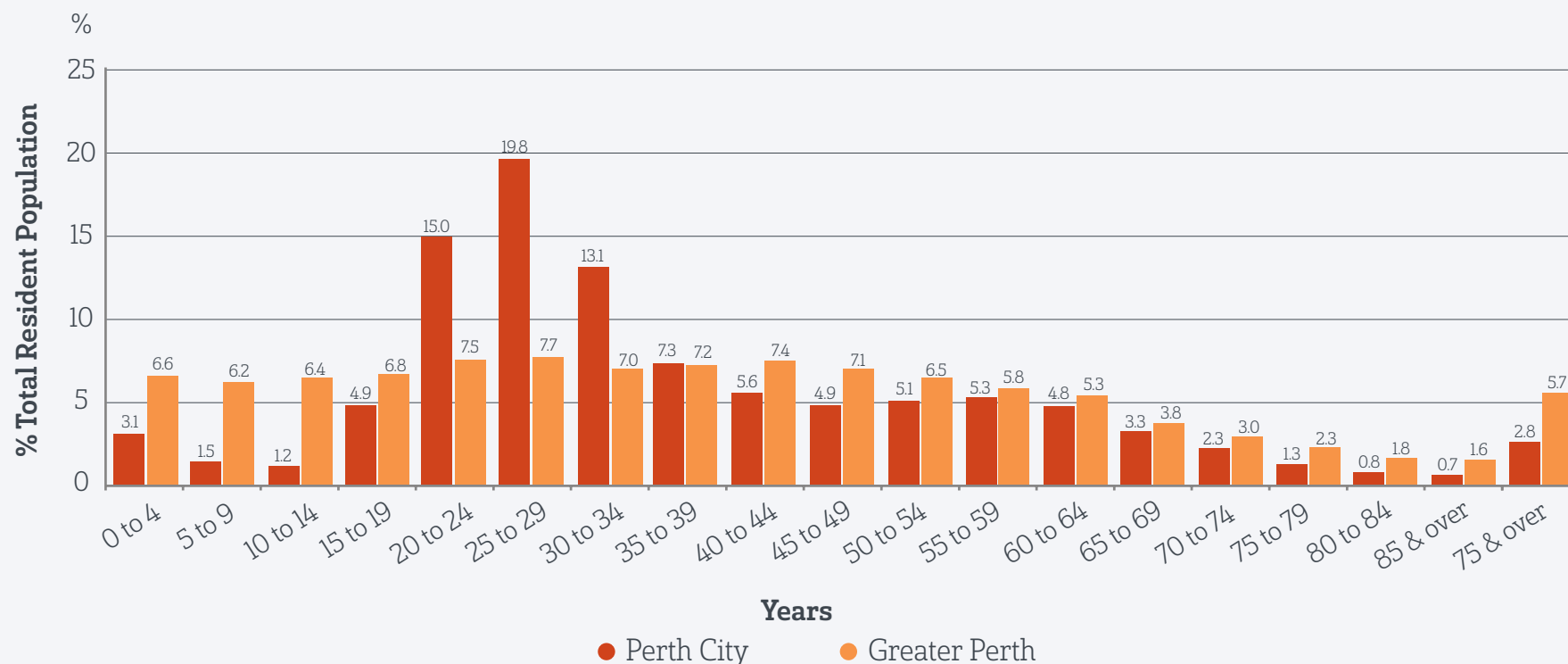
In 2011, 33% households in Perth City were lone (one person) households and 26% were with couples without children.



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Usual residence data)
Compiled and presented in profile i.d by i.d, the population experts.

²Population in occupied private dwellings

Perth City Resident Age Structure Compared with Greater Perth, 2011

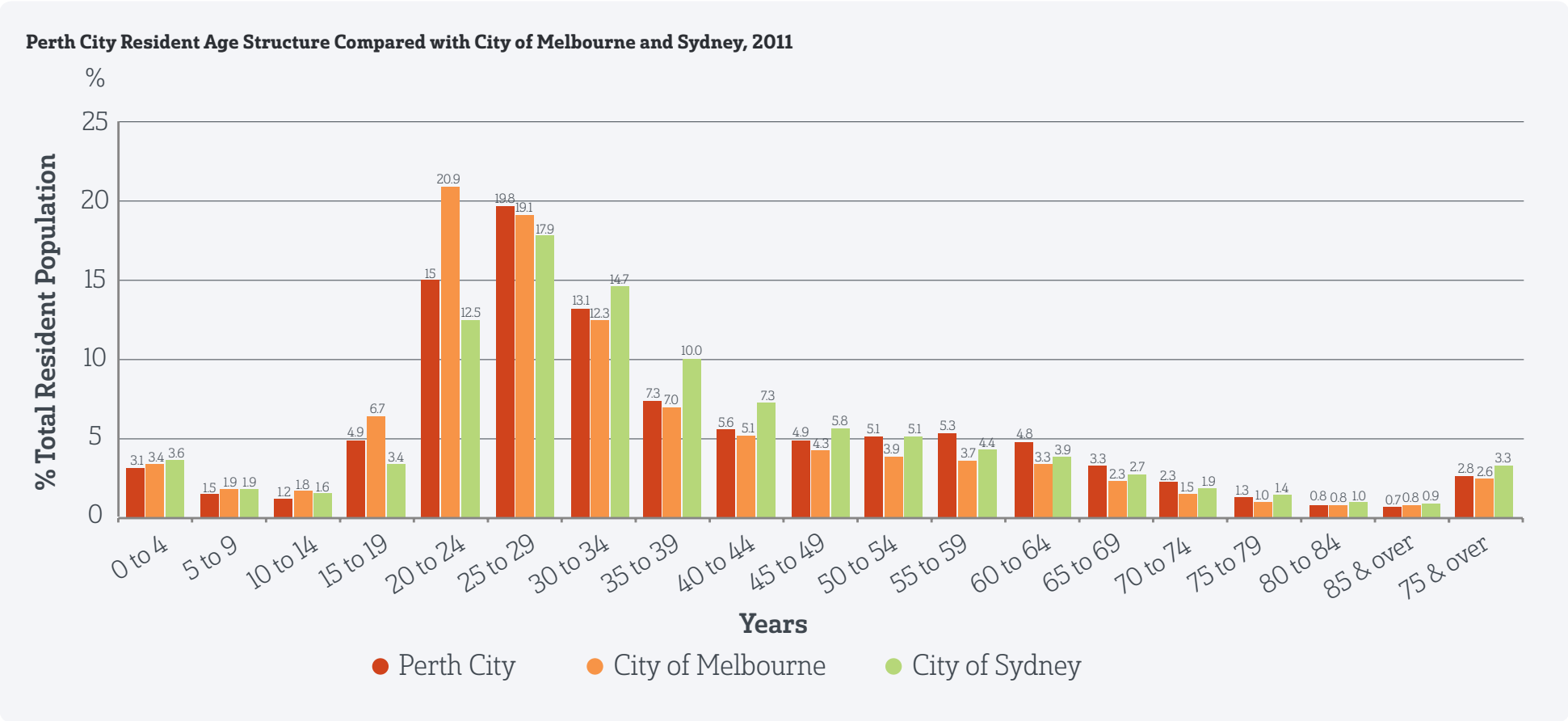


In 2011, 54% of Perth City residents were Managers and Professionals, compared with 33% across Greater Perth.

In 2011, 44% of Perth City households earned in the high income quartile group (\$1,384 and over per week / household) compared with 26% of households across Greater Perth, and 14% of Perth City households earned in the lowest income quartile (\$0-485 per week / household) compared with 24% of households across Greater Perth.³

Between 2001 and 2011, 66% of Perth City's population growth was in the 20 to 39 year age group (comprising 55% of total resident population in 2011).

In 2011, 3,551 university and TAFE students lived in Perth City comprising 18% of the resident population, a decline from 27% in 2001.



Between 2001 and 2011, lone person households contributed to 25% of household growth over the period, although as a proportion of all households, lone person household declined from 40.5% of total households in 2001 to 33.1% of all households in 2011.

Group households and other families without children remained a fairly static proportion of all households between 2001 and 2011.

³This is equavalised household income which puts all households on an equal footing independent of household size and composition to enable a true comparison between areas and over time, as it indicates the income resource available to a household of standard size.

Perth City Household Types Compared with Greater Perth, City of Melbourne and Sydney, 2011**Perth City, Forecast Household Types, 2011 to 2036**

	2011		2026		2036		Change between 2011 and 2036	
	Number	%	Number	%	Number	%	Number	%
Couple families with dependents	939	9.0%	1,525	8.4%	1,694	8.0%	755	80%
Couples without dependents	3,387	32.3%	5,596	30.7%	6,631	31.2%	3,244	96%
Group households	1,176	11.2%	1,675	9.2%	1,872	8.8%	696	59%
Lone person households	4,392	41.9%	8,516	46.7%	9,978	47.0%	5,586	127%
One parent family	319	3.0%	524	2.9%	602	2.8%	283	89%
Other families	275	2.6%	416	2.3%	454	2.1%	179	65%
TOTAL ADDITIONAL HOUSEHOLDS							10,743	

DWELLINGS

Between 2001 and 2011, there were an additional 5,790 dwellings constructed in Perth City, more than doubling the dwelling stock to 12,392 dwellings (private and non-private), including around 2000 dwellings for short stays, student accommodation colleges and boarding houses⁴.

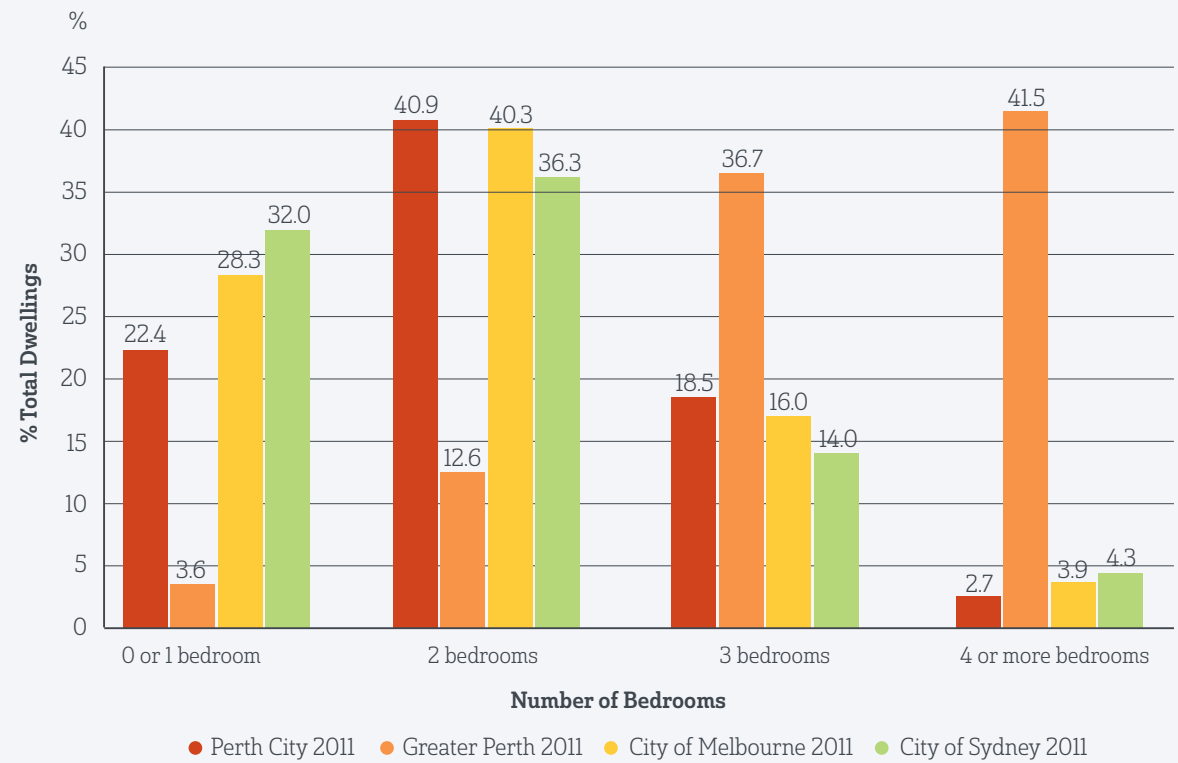
In 2011, 29% of dwellings in Perth City were owned or being purchased, compared with 66% across Greater Perth and City of Melbourne 31% and City of Sydney 33%.

In 2011, 56% of dwellings in Perth City were private rentals, compared with 27% across Greater Perth and City of Melbourne 57% and City of Sydney 53%. In Perth City, 4% of dwellings are public (social) rentals, compared with 3.5% across Greater Perth, City of Melbourne 6% and City of Sydney 8.5%.

In 2015, there was an estimated 4,558 residential rent leases signed or re-signed in Perth City.⁵

Between 2001 and 2011, 48% of new dwellings in Perth City were 2 bedrooms, increasing from 34% of all dwellings in 2001 to 41% in 2011.

Dwelling Size (by number of bedrooms), Perth City compared with Greater Perth and the Cities of Melbourne and Sydney (2011)



⁴ ABS Census 2011 - total visitor only and non-classified households.
⁵ Department of Commerce (2016) in published residential lease bond data.

NON-RESIDENT POPULATION – WEEKDAY ESTIMATE

People come to Perth City for work, business, study, services and facilities, shopping, cultural and social activities and tourism.

In 2015, it was estimated around 205,750 people come into Perth City Central Business District on a typical week day⁶ comprising:

- 134,500 workers (at 2011 Census)
- 38,000 students, 13,800 students attending the CBD
- 4,000 interstate and overseas visitor
- An estimated 25,000 (+) people attend the University of Western Australia and Queen Elizabeth II Medical Centre on a typical weekday⁷.

In 2011, 44.4% of Perth City workers (or 74,608 people) were born overseas (from 173 countries). A total of 76.9% of Perth City workers are born in English speaking countries (including Australia).

ECONOMY

Perth City has a Gross Regional Product worth \$41.8 billion which is 26% of Greater Perth's Gross Regional Product (2013-14).

There are around 5,500 businesses in Perth City employing workers and a total of 14,000 registered businesses. 53% of workers are aged between 25 and 44 years.

The City has 5.6 million square metres of commercial and institutional floorspace, compared with a total of 1.7 million square metres across all other Strategic Regional Centres in Greater Perth (2015).

⁶ Arup (2015) City of Perth Daytime Visitor Estimate (unpublished).

⁷ Martin, J (2014) - Parking Supply Restriction and Mode Shift at QEII Medical Centre – A Case Study, and pers.com D O'Brien (UWA), 2016.



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