

# State of Australia's Fast Growing Outer Suburbs

**The economic & demographic transition of the  
Fast Growing Outer Suburbs**

**Prepared for the NGAA**

February 2018

**prepared by .id**

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# Executive summary

## Overview

.id was engaged by National Growth Areas Alliance (NGAA) to prepare a demographic and economic analysis of the Fast Growing Outer Suburbs (FGOS). The National Growth Areas Alliance (NGAA) is a collaboration of twenty-one Councils across Australia whose areas are experiencing rapid growth. In this report they are referred to as the Fast Growing Outer Suburbs.

This report presents the demographic and economic processes at work in the FGOS. The analysis draws on the data in the 2016 ABS Census of Population and Housing to provide a contemporary understanding of the role and function of the FGOS within cities.

## Key findings

**FGOS are in transition, economically as well as demographically. Their populations and their economies are becoming more diverse.**

Almost 1 in 5 Australians now call the FGOS home. These suburbs are growing by around 3.0% per year, well above the Australian rate (1.7%), which is already considered very high in developed countries.

But the nature of this growth is changing. Today, FGOS's are home to a diverse mix of age groups, offering opportunities for first homebuyers, upgraders and retirees. More FGOS residents are living in medium and high density housing than ever before, renting is becoming more common and the population has become more culturally diverse.

The economic role and function of FGOS is generally geared toward its large resident base but it also has important export industries such as manufacturing and freight and logistics. The jobs analysis in this report suggests that the FGOS traditional economic role and function is transitioning, with several indicators showing early signals of entrepreneurial activity. This includes:

- Despite the common perception, the FGOS are among the largest growing employment areas in Australia, with nine featuring among the top 25 growth LGAs between 2011 and 2016. On average, employment in the FGOS has grown by around 2.6% per year, well above the national rate of 1.2% per year and well above Regional Australia (0.4% per year).
- Knowledge-intensity (share of high skilled jobs) has increased across many industries, with health, education and professional services leading the way. For example, the health industry was the largest growing industry in the FGOS over the past five years, growing by 45,000 jobs. Importantly, 40% of this growth was in high skilled occupations.

### **FGOS are increasingly playing a pivotal role in supporting productivity growth of cities**

At a macro level, the shift towards services and knowledge is having a major impact on the location of jobs across Australia. Research by NIEIR reveals that the five large metropolitan cities are driving employment growth. Over the period 2011 to 2016, employment in the large metropolitan cities grew by 8%, accommodating around 87% of national job growth.

The FGOS support this growth by unlocking affordable housing and employment land which in turn increases a cities access to labour, skills and supply chains (e.g. manufacturing, freight and logistics). What we know from studying urban economics is that bigger cities are generally more productive. The evidence suggests that doubling in city size is associated with a productivity increase of between 2 and 5%. The empirical work undertaken by our partners National Economics suggests it's at the upper end of this range for Australia.

The national economic significance of FGOS is large. The FGOS account for over 11% of GDP despite only making up 31 of Australia's 545 Local Government Areas (LGA). Its contribution to employment is also increasing. In 2016, almost 13% of jobs were located in the fast growing outer suburbs, up from 9.6% in 2006.

## **To successfully transition to the new economy, the FGOS need transformational infrastructure**

To successfully transition to the new economy, the fast growing outer suburbs need transformational infrastructure that responds to the high level of existing demand for housing and jobs. Transformational infrastructure includes transport and internet infrastructure as well as economic assets such as airports, universities and hospitals. Research by NIEIR shows that capital investment in a region, such as transport, telecommunications, universities, hospitals and cultural assets, is a core driver of economic activity and growth.

This report identifies several areas where investment is required to narrow the gap and help support the successful transition of the FGOS. They are:

- **Skill gaps:** 16.1% of residents aged 15+ have a bachelor degree, compared to the national average of 22%.
- **Major shortfalls in infrastructure:** while the fast growing outer suburbs support over 18% of Australia's population, they only share in 13% of non-dwelling capital stocks
- **Large deficits in social infrastructure:** For example, there are only 2.5 tertiary education jobs per thousand people in the FGOS compared to 8.6 at the metropolitan level. This is a similar story for hospitals, cultural assets and government jobs.
- **Poor health conditions:** Due mostly to their high levels of lifestyle risk factors including high levels of obesity and psychological distress and low levels of physical activity.
- **Plans may underestimate demand:** An important finding from this analysis is the largely unforeseen increase in the average household size in the FGOS. In 1991, the average household size in the FGOS was 3.15. This gradually declined each census period, reaching 2.86 in 2006, before stabilising in 2011 and then increasing in 2016 to 2.87. This suggests that the level of social infrastructure currently planned might not be enough.

These gaps puts the FGOS at a major disadvantage in attracting skills and businesses, but also creates barriers to existing businesses learning, innovating and becoming more productive.

**An inclusive plan for city growth is required to maximise and share the benefits of agglomeration**

National productivity is at stake if we do not plan and invest in infrastructure that enables the FGOS to successfully transition to the new economy.

Australia's larger capital cities are experiencing some of the disadvantages that come with ever expanding populations. This includes congestion, spatial inequalities in income and employment and unaffordable house prices.

In 2016, the job deficit position in the FGOS was 69 jobs for every 100 workers living in the FGOS. This reliance on jobs elsewhere then leads to daily congestion across our cities and high costs (economic and social). Research by CEDA reveals that road congestion was estimated at \$15 billion per year. This is projected to increase to \$53 billion per year by 2031.

Without transformational investment, the job deficit will rise and congestion will increase. The report Addressing Western Sydney's Job Slide, prepared by the Centre for Western Sydney's Director, Professor Phillip O'Neill, in collaboration with .id showed that if business-as-usual continues for the next twenty years, Western Sydney will face a jobs deficit of 306,063 and a daily worker outflow of 492,521.

A business as usual approach, that fails to integrate the FGOS with high income and high skill jobs, further embeds spatial inequalities that diminish the productivity benefits from agglomeration.

A new plan to planning and investment should be aimed at enabling the opportunities provided by the fast growing outer suburbs with a focus on projects that directly influence employment and knowledge capacity.

# 1. Introduction

.id has been engaged by National Growth Areas Alliance (NGAA) to prepare a demographic and economic analysis of the Fast Growing Outer Suburbs (FGOS).

The National Growth Areas Alliance (NGAA) is a collaboration of twenty-one Councils across Australia whose areas are experiencing rapid growth. In this report they are referred to as the Fast Growing Outer Suburbs. The FGOS are located at the urban-rural interface of metropolitan areas, have significant greenfield future development areas, and are experiencing relatively rapid population and/or urban development growth.

This report explains the demographic and economic processes at work in the FGOS, how they are changing and what implications they have for future growth outcomes. The purpose of this report is to deepen the understanding of the role and function of the FGOS within cities and how investment will not only benefit them but will have a national impact.

## 1.1 The report

In this document, we report on the analysis we have undertaken to assess the current economic and demographic trends. This report has been prepared in the following sections:

- ▣ **Fast Growing Outer Suburbs Today:** profiles the current demographics of the LGA, highlights key characteristics and identifies the role/function of the FGOS.
- ▣ **The Fast Growing Outer Suburbs economy:** identifies the economic role and function of the FGOS and industry trends that may impact future population growth and economic sustainability.
- ▣ **Towards the future:** describes implications of current trends and forecasts for the FGOS and identifies potential challenges and opportunities.

## 1.2 A note on sources

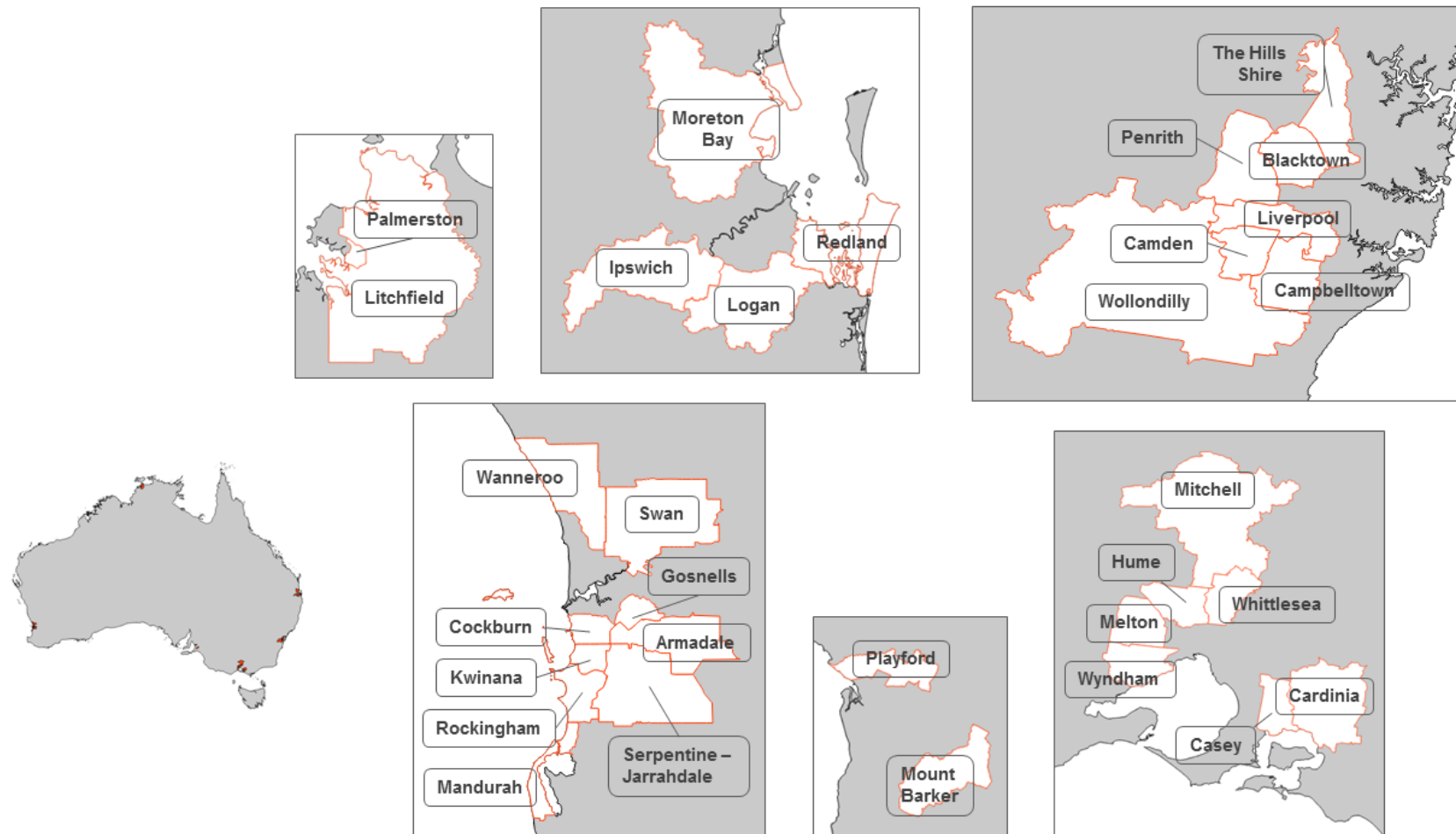
The report uses data and information from both published and unpublished documents. These include:

- economy.id with data supplied by NIEIR (National Economics)
- Australian Bureau of Statistics, Census of Population and Housing 1991 to 2016
- Population and household forecasts, 2011 to 2036, prepared by .id

## 1.3 Geographical reference

The map below lists and helps visualise these areas used in the analysis.

Figure 1 The 31 LGAs that make up the Fast Growing Outer Suburbs



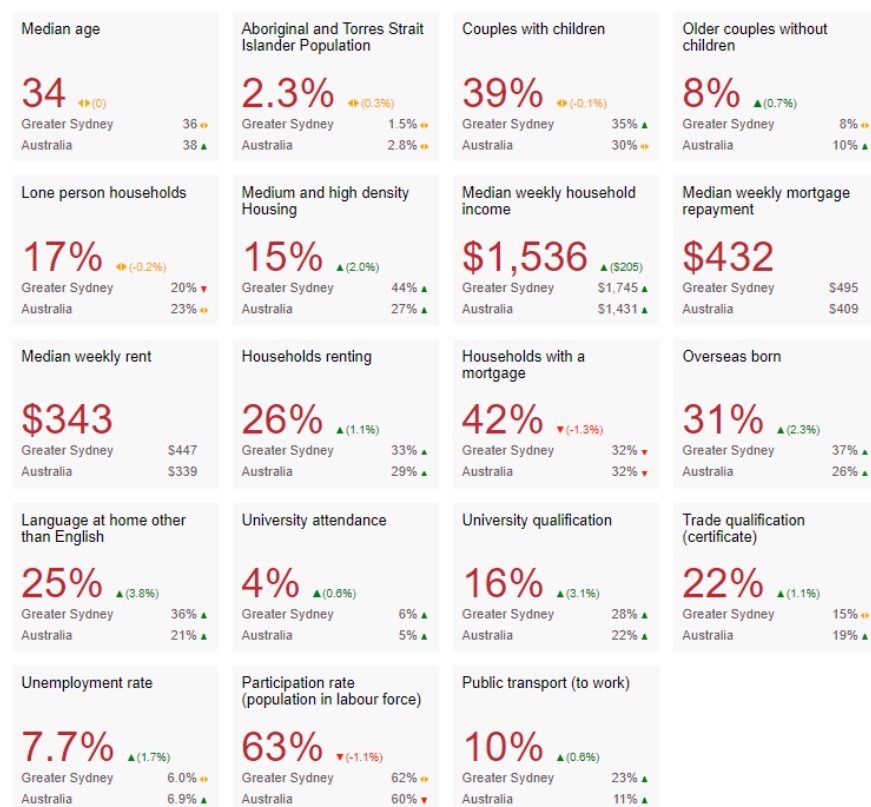
## 2. Fast Growing Outer Suburbs Today

### 2.1 Population highlights

The infographic below summarises the major demographic indicators for the FGOS. This infographic provides a high-level understanding about the population, and how it compares to national averages. In general, compared to Australia, FGOS are younger, have significantly more couples with children, more likely to be born overseas and live predominantly in separate dwellings, paying more in housing costs per week and less likely to use public transport to access jobs. The infographic also shows that the FGOS are continuing to change. More FGOS are living in medium and high density housing than ever before (up 2.0 percentage points), renting is becoming more common (up 1.1 percentage points) and there is also ageing in place as reflected by the increase in older couples without children.

National Growth Areas Alliance (NGAA) 2016

↔ No significant change since previous Census (less than ±0.5%) ▲ Increased since previous Census ▼ Decreased since previous Census



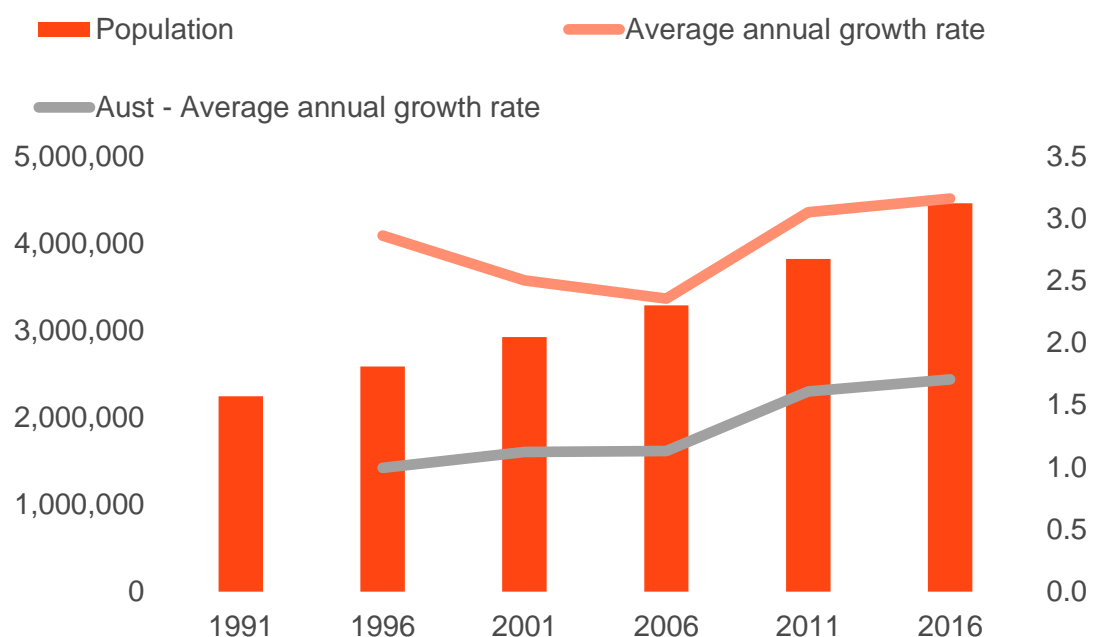
Source: ABS Census Population and Housing

## 2.2 Historical population growth

The population in FGOS has doubled since 1991 and by 2016 these areas were growing at 3% p.a., significantly faster than Australia whose growth rate (1.7% p.a. between 2011 and 2016) is already considered very high for a developed country.

*Historical population growth, FGOS (enumerated population)*

***The population of the FGOS has doubled over the last 25 years***

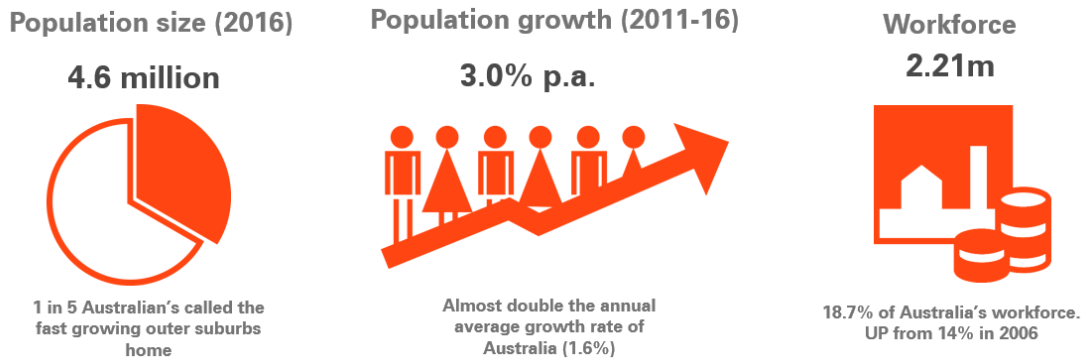


Source: ABS Census Population and Housing

The FGOS play an important role in supporting the productivity of cities by increasing labour supply and through diverse and affordable housing options. The 31 fast growing outer suburbs accounted for 35% of Australia's population growth over the last five years (2011-16), with almost 1 in 5 Australians now calling the fast growing outer suburbs home. As highlighted later in section 5.4 and 5.5, more investment however is required in the fast growing outer suburbs to unlock productivity benefits and decrease the cost of commuting.

### Fast Growing Outer Suburbs – Labour force contribution, 2016

**Important role in supporting productivity by increasing labour supply and through diverse and affordable housing options**



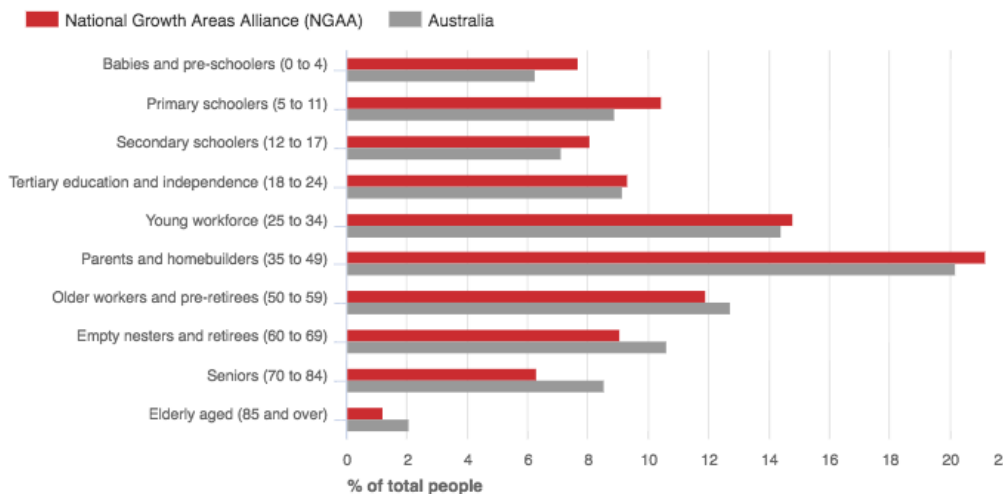
Source: Australian Bureau of Statistics

## 2.3 Population and household structure

As expected, compared to the Australian benchmark, the FGOS are home to a larger share of parent and homebuilders (35-49 year olds) and younger age groups (0-17 year olds), highlighting the important housing role of the FGOS.

### Age structure - service age groups, 2016

Total persons



Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data). Compiled and presented in profile.id by .id, the population experts.

**.id** the population experts

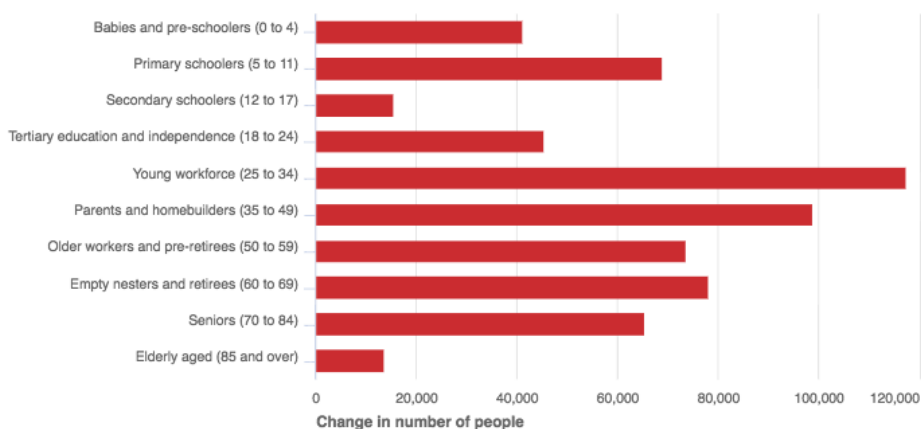
But the nature of growth is changing. Despite the common misconception, FGOS's are home to a diverse mix of age groups. The largest changes in the age structure in this area between 2011 and 2016 were in the age groups:

- Young workforce (25 to 34) (+117,385 people)

- ▣ Parents and homebuilders (35 to 49) (+98,918 people)
- ▣ Empty nesters and retirees (60 to 69) (+78,035 people)
- ▣ Older workers and pre-retirees (50 to 59) (+73,734 people)

#### Change in age structure - service age groups, 2011 to 2016

National Growth Areas Alliance (NGAA) - Total persons



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 and 2016 (Usual residence data). Compiled and presented in profile.id by .id, the population experts.

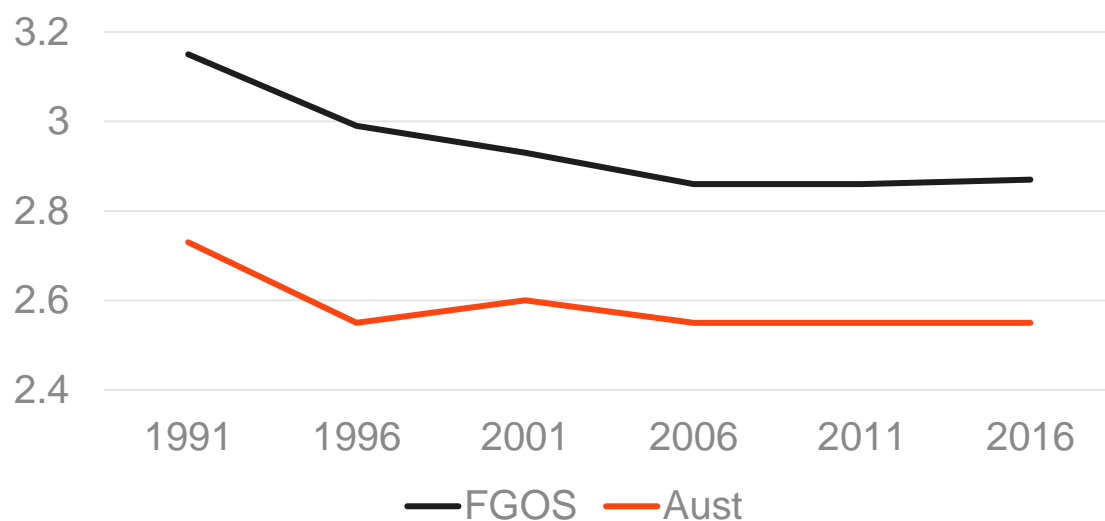
.id the population experts

## 2.4 Average household size

An important finding from this analysis is the largely unforeseen increase in the average household size in the FGOS. In 1991, the average household size in the FGOS was 3.15. This gradually declined each census period, reaching 2.86 in 2006, before stabilising in 2011 and then increasing in 2016 to 2.87. This was particularly the case in Sydney and Melbourne where many FGOS LGAs experienced strong increases in average household size. For example, Wyndham increased from 2.9 to over 3.03<sup>1</sup>, a significant increase reversing a long term trend.

This trend has major implications for the existing and future structure plans for the FGOS. The level of physical and social infrastructure currently planned might not be enough to meet the needs of the future population.

<sup>1</sup> Its marginal rate was 3.5 people for every additional occupied private dwelling. The share of households with more than 3 people increase by 5.1 percentage points between 2011 and 2016.

*Average household size, FGOS***Households sizes trended upwards in 2016, after 20 years of gradual decline.**

Source: ABS Census Population and Housing

*Average household size, Selected LGAs*

Local Government Area	2011	2016	Change
City of Wyndham	2.90	3.03	0.13
City of Melton	2.96	3.02	0.06
Wollondilly Shire	2.94	2.99	0.05
City of Gosnells	2.76	2.81	0.05
City of Casey	3.01	3.06	0.05
Blacktown City	3.10	3.14	0.04
Liverpool City	3.15	3.20	0.04
The Hills Shire	3.10	3.15	0.04
Shire of Litchfield	2.75	2.79	0.04
Camden Council	3.03	3.07	0.04
City of Kwinana	2.63	2.67	0.03
City of Armadale	2.64	2.67	0.03
Shire of Serpentine-Jarrahdale	2.89	2.92	0.02
Shire of Cardinia	2.80	2.82	0.02
City of Hume	3.06	3.08	0.02

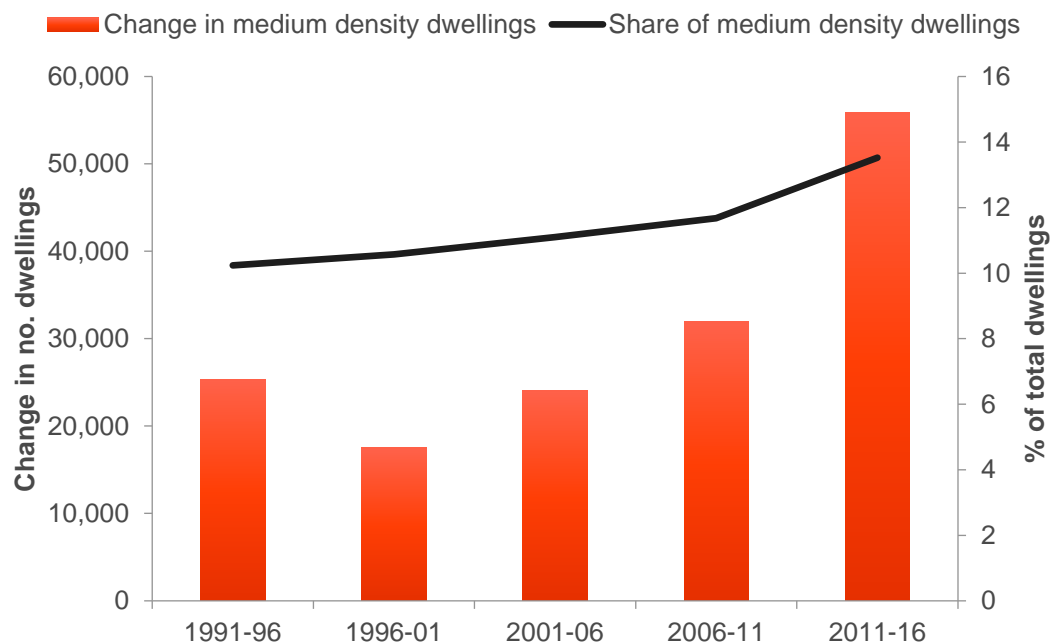
Source: ABS Census Population and Housing

## 2.5 Housing choices

Dwelling types continue to diversify in the FGOS. Over the last five years, there was a considerable increase in the level of medium density dwellings in the FGOS, well above the long-term average. The total number of medium density houses in the FGOS increased by 55,840 dwellings between 2011 and 2016. In 2016, 13.5% of all dwellings were medium density dwellings, up from 11.7% in 2011.

### *Change in medium density dwellings, FGOS*

***The number of medium density dwellings in the FGOS increased by 33% between 2011 and 2016.***



Note: The way the ABS collected dwelling structure data changed between 2011 and 2016. This suggests that the change in medium density dwellings may be overstated. Caution is therefore required when interpreting the results.

Source: ABS Census Population and Housing

LGAs experiencing the largest growth in medium density dwellings were:

- ▣ Moreton Bay Region
- ▣ City of Wyndham
- ▣ Blacktown City
- ▣ City of Whittlesea
- ▣ Logan City

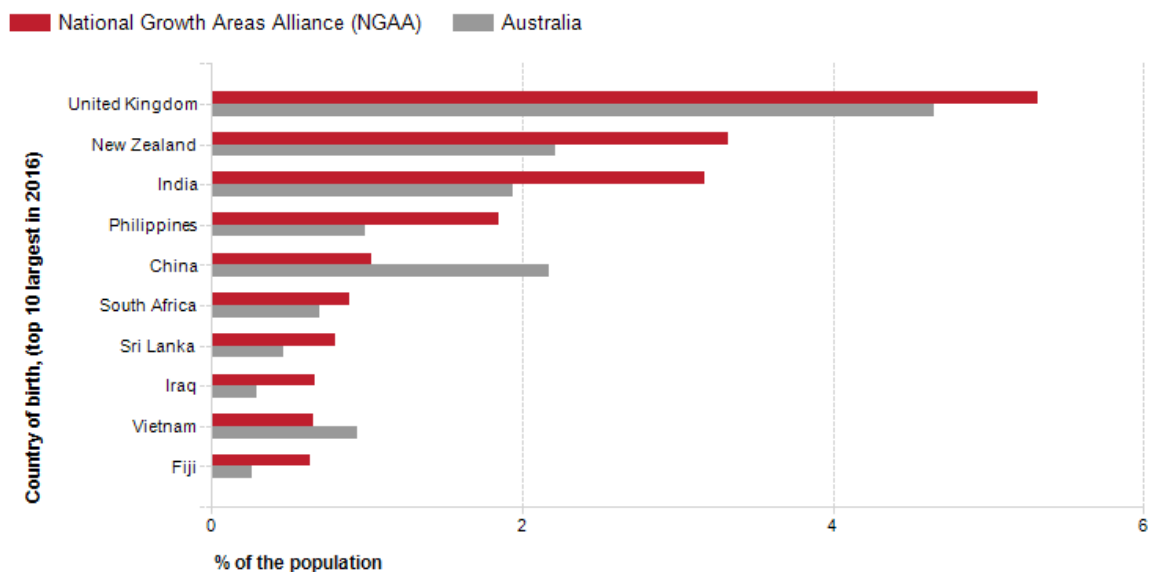
## City of Casey

### 2.6 Cultural diversity

Analysis of the country of birth of the population in the FGOS in 2016 compared to Australia shows that there was a larger proportion of people born overseas, as well as a larger proportion of people from a non-English speaking background.

Overall, 30.7% of the population was born overseas, and 20.5% were from a non-English speaking background, compared with 26.3% and 17.9% respectively for Australia. The largest non-English speaking country of birth in the FGOS was India, where 3.2% of the population, or 143,232 people, were born.

#### Birthplace, 2016



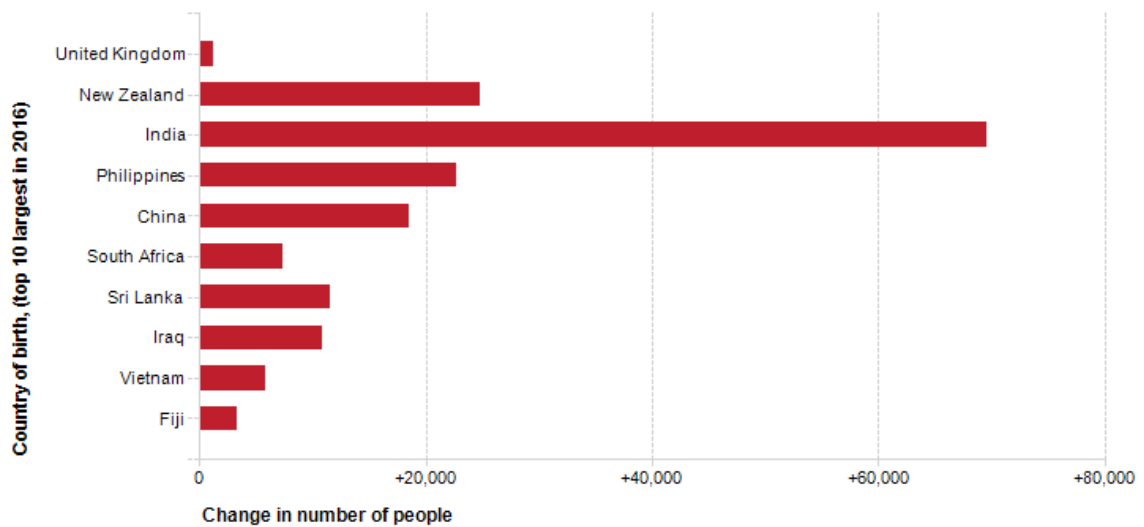
Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data)  
Compiled and presented in profile.id by .id, the population experts.

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Between 2011 and 2016, the number of people from a non-English speaking background increased by 239,799 or 35.1%. The largest changes were those born in India, New Zealand, Philippines and China.

## Change in birthplace, 2011 to 2016

National Growth Areas Alliance (NGAA)



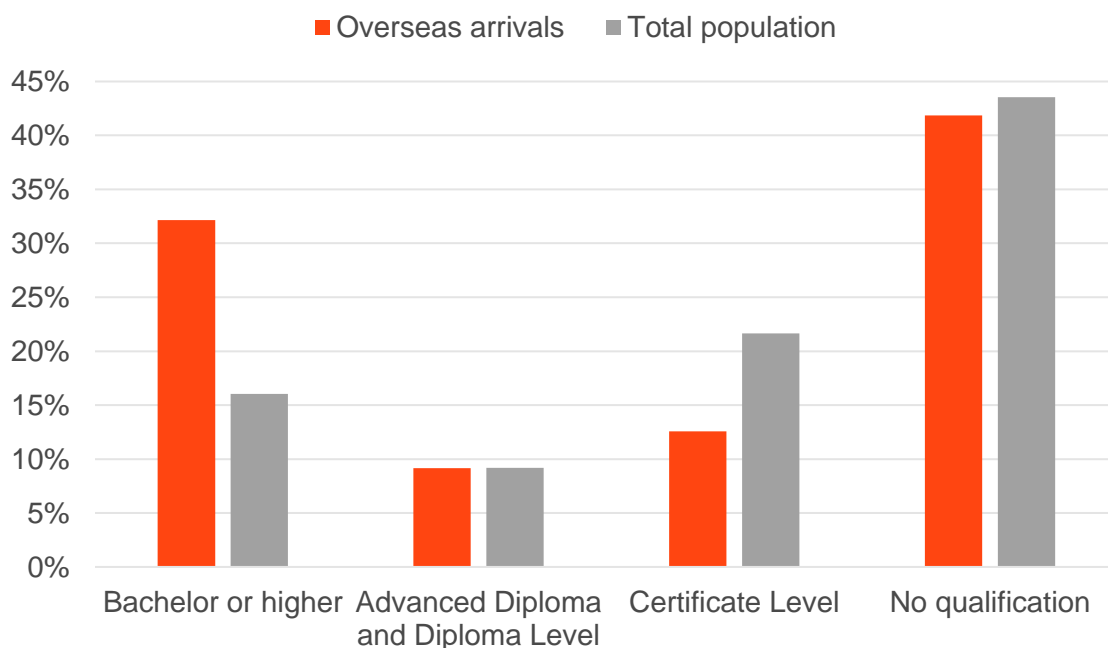
Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 and 2016 (Usual residence data)  
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Importantly, the socio-economic profile of migrants to FGOS regions is also helping drive productivity. So not only are they much younger which is great for participation rates, but they are bringing new skills & opportunities not previously found in FGOS. In particular, they bring specialised qualifications in – Accounting and Business and Management, Health and Engineering.

### Qualifications of recent arrivals, FGOS, 2016

#### Diverse cultures are driving skills growth

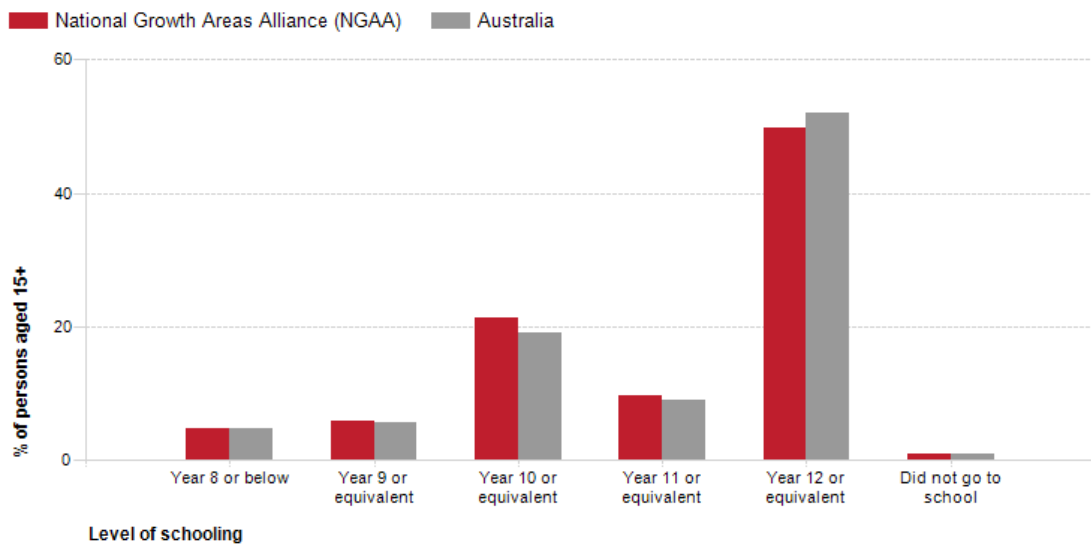


Source: ABS Census Population and Housing

## 2.7 Education and employment

The FGOS resident population is generally less educated than the Australian average with 49.7% of people aged over 15 stating they had completed year 12 in 2016, compared to 51.9% for Australia.

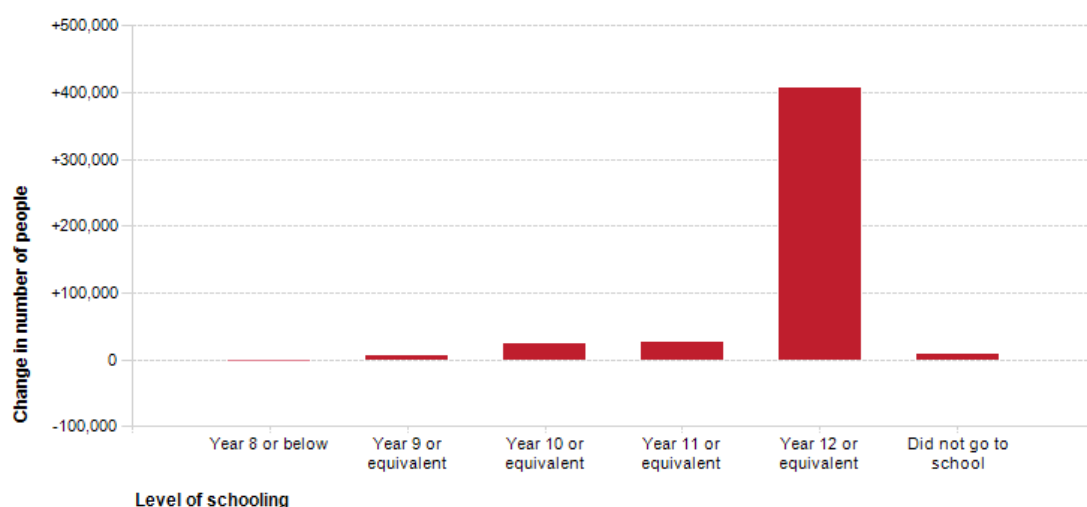
### Highest level of schooling completed, 2016



However, there was a strong increase in the level of schooling attained by FGOS between 2011 and 2016, with the number with year 12 attainment increasing by 405,534. The year 12 completion rate increased from 44.5% in 2011 to 49.7% in 2016. This increase was faster than the national average, meaning that the gap between FGOS and Australia's year 12-completion rate narrowed.

## Change in highest level of schooling completed, 2011 to 2016

National Growth Areas Alliance (NGAA) - Total persons



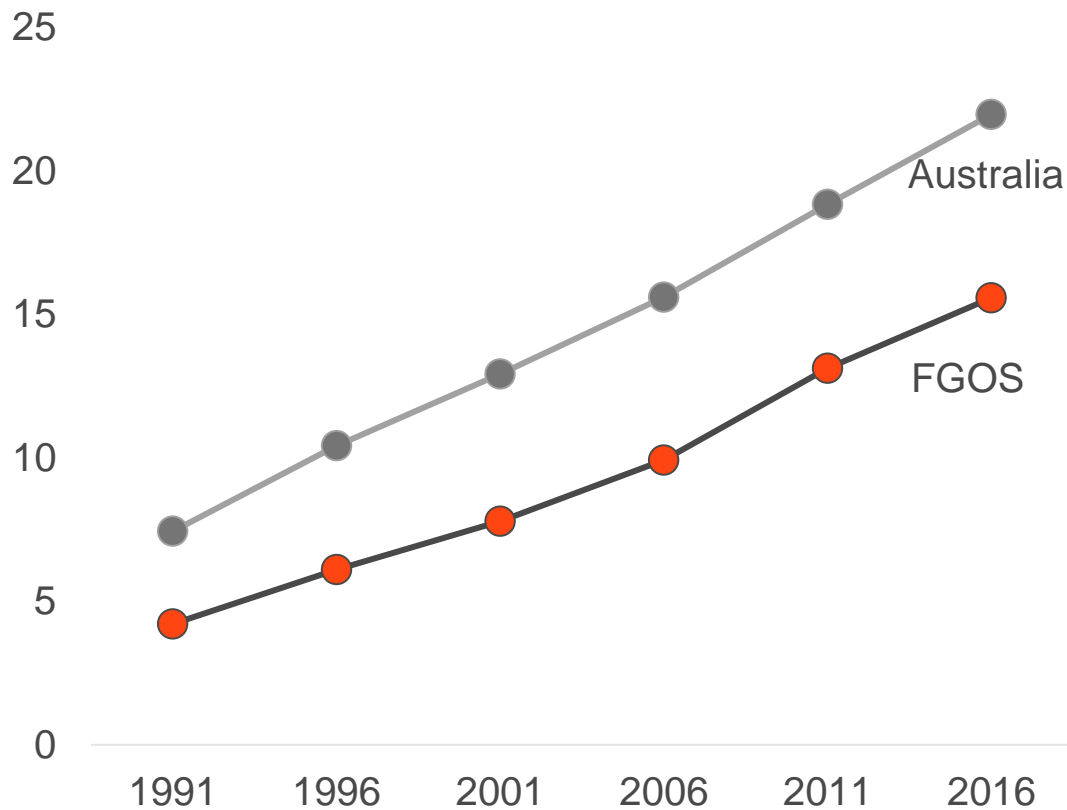
Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 and 2016 (Usual residence data)  
Compiled and presented in profile.id by .id, the population experts.

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There was also a large increase in the share of the FGOS resident population with a bachelor degree or higher. Overall, 16.1% of the population aged 15 and over held a bachelor degree in 2016, up from 13.0% in 2011. While the share of residents with bachelor degrees or higher improved, Australia's proportion has grown at a faster rate. This means that the skills gap is widening. To reach the national qualifications level, an extra 207,606 FGOS residents would have to have finished a degree. This partly explains why the level of high skilled jobs is much lower than the metropolitan average.

*Share (%) of population with a bachelor degree or higher (aged 15+), 2016*

**To reach the national qualifications level (22%), an extra 208,700 FGOS residents would have to have finished a degree<sup>2</sup>.**



Source: ABS Census Population and Housing

An important trend emerging in the FGOS is the importance of housing as an economic development driver. The analysis shows that many estates are playing a new and important role in attracting skills to the FGOS. Examples of estates attracting these markets include

- ▣ The Ponds, Blacktown City (NSW)
- ▣ Berwick Springs, Narre Warren (VIC)
- ▣ Sanctuary Lakes, Point Cook (VIC)
- ▣ Quinns Beach, Quinns Rocks (WA)
- ▣ Piara Waters, City of Armadale (WA)
- ▣ Settlers Hill and Evermore Heights, Baldivis (WA)

<sup>2</sup> In 2016, 563,249 residents in the FGOS had a bachelor degree or higher. This equates to 16.1% of the total population aged 15+ (3,508,959). To reach the national rate of 22%, then the FGOS need an extra 208,700 residents to finish a bachelor degree (i.e.  $563,249 + 208,700 = 771,949 = 22\%$  of FGOS population aged 15+).

- ▣ Eden Rise, Berwick (VIC)
- ▣ Brookwater, Ipswich (QLD)
- ▣ Peninsula Walk, Mawson Lakes (SA)

The table below shows the difference between these estates and the FGOS average across a number of socio-economic indicators. This shows that estates seeking to develop an element of desirability can also attract upgraders, higher income households, and more skilled households.

*Estates attracting higher skills and incomes*

ESTATE	Median age (years)	Population with a university degree (%)	Median household income (\$, weekly)	Median mortgage repayments (\$, weekly)
The Ponds, Blacktown City	32.4	40.5	1,362	726
Berwick Springs, Narre Warren	33.5	18.2	971	477
Sanctuary Lakes, Point Cook	34.1	34.2	1,200	545
Quinns Beach, Quinns Rocks	35.1	15.8	1,136	600
Piara Waters, City of Armadale	30.7	28.3	1,212	580
Settlers Hill and Evermore Heights, Baldivis	32.4	13.5	1,143	518
Eden Rise, Berwick	33.6	27.3	1,059	534
Brookwater, Ipswich	35.3	29.1	1,552	618
Peninsula Walk, Mawson Lakes	35.3	27.8	1,055	421
<b>FGOS</b>	<b>34</b>	<b>16.1</b>	<b>872</b>	<b>432</b>

Source: ABS Census Population and Housing

## 3. Fast Growing Outer Suburbs economy

### 3.1 Economic overview

The fast growing outer suburbs have become a major driver of economic and employment growth in Australia. The fast growing outer suburbs account for over 11% of GDP despite only making up 31 of Australia's 545 Local Government Areas (LGA).

Their economic role has become even more important as Australia's economy becomes more reliant on services and knowledge intensive activities. In 2016, almost 13% of jobs were located in the fast growing outer suburbs, up from 9.6% in 2006. The fast growing outer suburbs have a strong entrepreneurial culture with strong business growth over the last two years, well above the national average.

*Fast Growing Outer Suburbs - Economic contribution, 2016*

**Around 13% of Australia's jobs are located in the Fast Growing Outer Suburbs. This is higher than Western Australia's contribution.**

Source: National Economics, 2017



Source: National Economics 2017

## 3.2 Employment growth

The fast growing outer suburbs are among the largest growing employment areas in Australia, with nine featuring among the top 25 growth LGAs between 2011 and 2016. On average, employment in the fast growing outer suburbs has grown by around 2.6% per year, well above the national rate of 1.2% per year and well above Regional Australia (0.4% per year). Despite the common perception, job growth outpaced or matched population growth in around half of fast growing outer suburb LGAs.

*Employment change – Annual Average Growth % by part of Aust.*

**Employment in the Fast Growing Outer Suburbs (2.6%) is growing faster than the national average (1.2%) (2011-16)**

	2006-11	2011-16
<b>Capital City</b>	<b>2.4%</b>	<b>1.6%</b>
Metro - CBD LGA	3.4%	2.5%
Metro - Elsewhere	1.9%	1.0%
Metro - High Growth Fringe	3.3%	2.6%
<b>Regional Australia</b>	<b>1.8%</b>	<b>0.4%</b>
Regional Centres	2.0%	0.7%
Peri-urban metropolitan	2.3%	0.4%
Rural and Remote	1.2%	-0.1%
<b>Australia</b>	<b>2.2%</b>	<b>1.2%</b>

Source: National Economics 2017

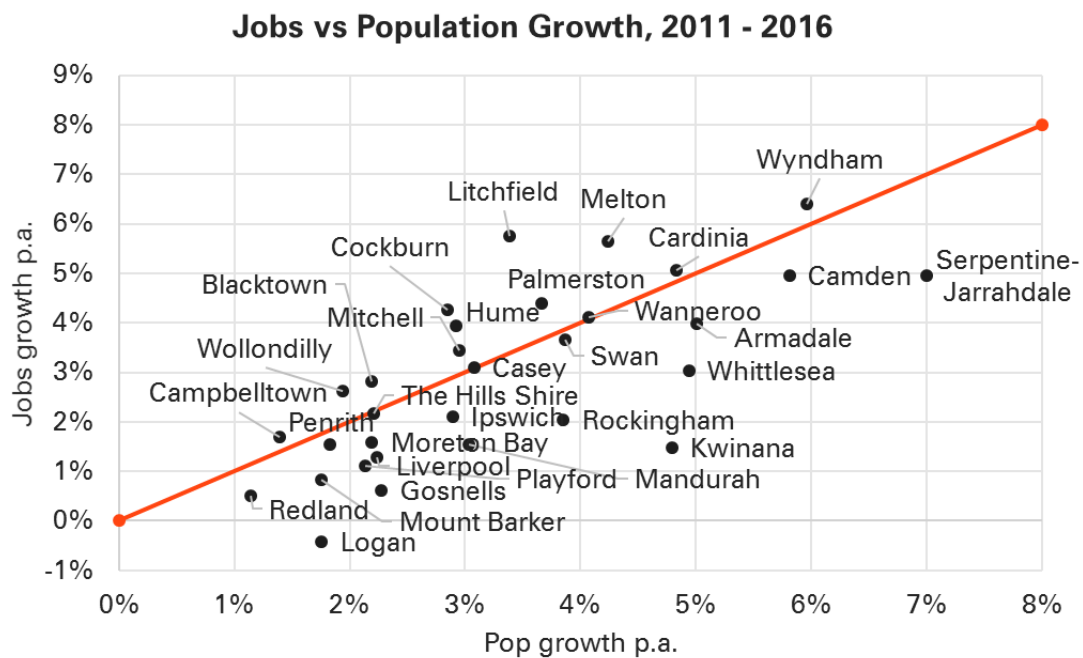
*Employment change 2011-2016 by LGA***9 of the top 25 job growth hot spots are Fast Growing Outer Suburb LGAs**

<b>LGA</b>	<b>Change</b>	
	<b>No.</b>	<b>%</b>
Sydney (C)	101,705	19.5%
Melbourne (C)	49,170	10.5%
Brisbane (C)	55,713	6.9%
Perth (C)	28,076	17.1%
Gold Coast (C)	21,336	8.9%
<b>Wyndham (C)</b>	<b>20,623</b>	<b>36.4%</b>
<b>Hume (C)</b>	<b>20,223</b>	<b>21.3%</b>
<b>Blacktown (C)</b>	<b>16,015</b>	<b>14.9%</b>
Belmont (C)	14,436	32.5%
Bayside (A) - NSW	14,410	16.4%
<b>Swan (C)</b>	<b>11,938</b>	<b>19.7%</b>
Sunshine Coast (R)	10,974	9.9%
<b>Casey (C)</b>	<b>10,507</b>	<b>16.5%</b>
Parramatta (C)	10,254	6.6%
Maribyrnong (C)	9,678	24.5%
Adelaide (C)	9,438	7.0%
<b>Moreton Bay (R)</b>	<b>9,224</b>	<b>8.2%</b>
<b>Wanneroo (C)</b>	<b>9,165</b>	<b>22.3%</b>
<b>Cockburn (C)</b>	<b>8,744</b>	<b>23.3%</b>
Greater Dandenong (C)	8,678	8.4%
Ryde (C)	8,324	9.4%
Brimbank (C)	8,297	12.1%
<b>Whittlesea (C)</b>	<b>8,157</b>	<b>16.1%</b>
Randwick (C)	7,896	15.5%
Nedlands (C)	7,834	35.2%

Source: National Economics 2017

Despite this common perception, job growth actually outpaced or matched population growth in around half of high growth fringe areas. In some cases however, the population growth is so fast that it makes it very difficult for jobs to keep pace.

#### *Jobs growth compared to population growth by FGOS LGA*



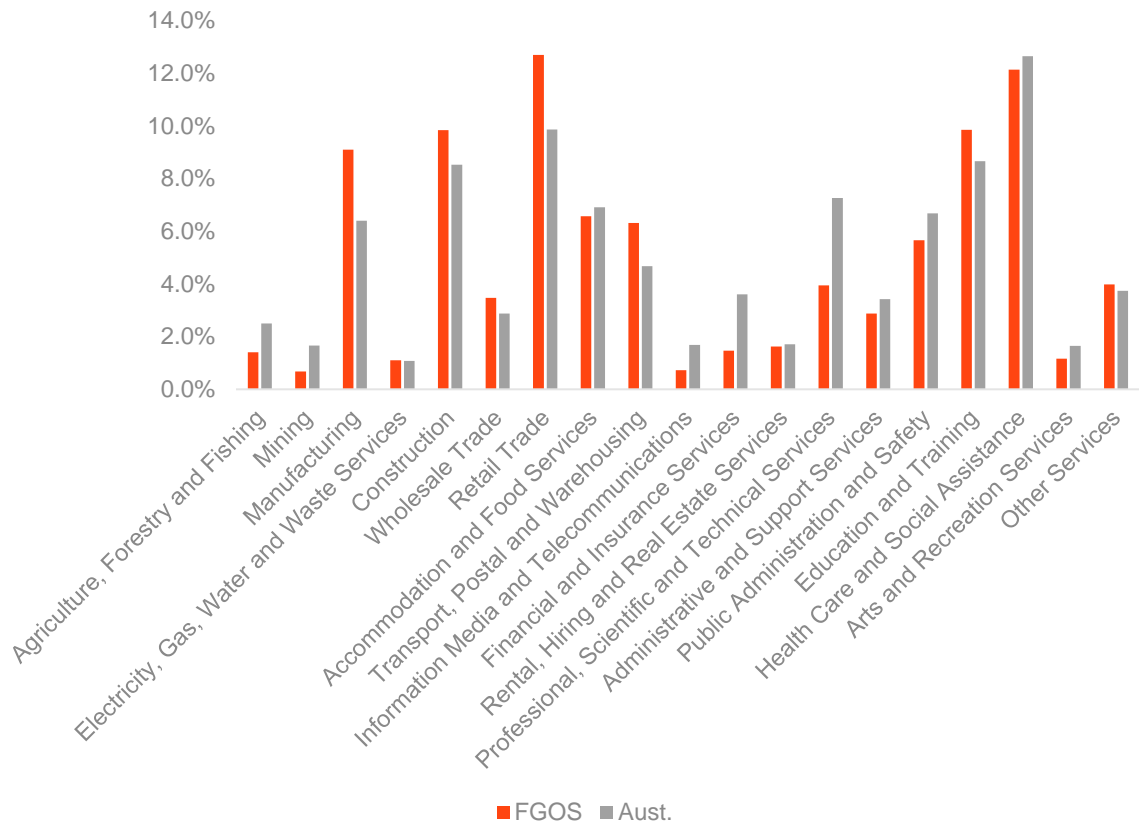
Source: National Economics 2017

### 3.3 Industry profile

FGOS's economy is structured to service its large resident base but it also has important export industries such as manufacturing. According to the 2016 ABS Census, the five largest industries were:

- ▣ Retail Trade: 169,031 (12.7%)
- ▣ Health Care and Social Assistance: 161,613 (12.1%)
- ▣ Education and Training: 131,152 (9.9%)
- ▣ Construction: 130,978 (9.8%)
- ▣ Manufacturing: 211,631 (9.1%)

Compared to Australia, FGOS have a relatively low share of business service jobs such as professional and financial services.

*Employment by industry, 2016*

Source: ABS Census Population and Housing

### 3.4 Knowledge intensity of jobs

#### High skilled jobs

One way to look at the nature of job growth is by looking at high skilled jobs. The ABS define this as occupations that require a bachelor degree or higher, involve previous experience and the amount of on-the-job training required<sup>3</sup>.

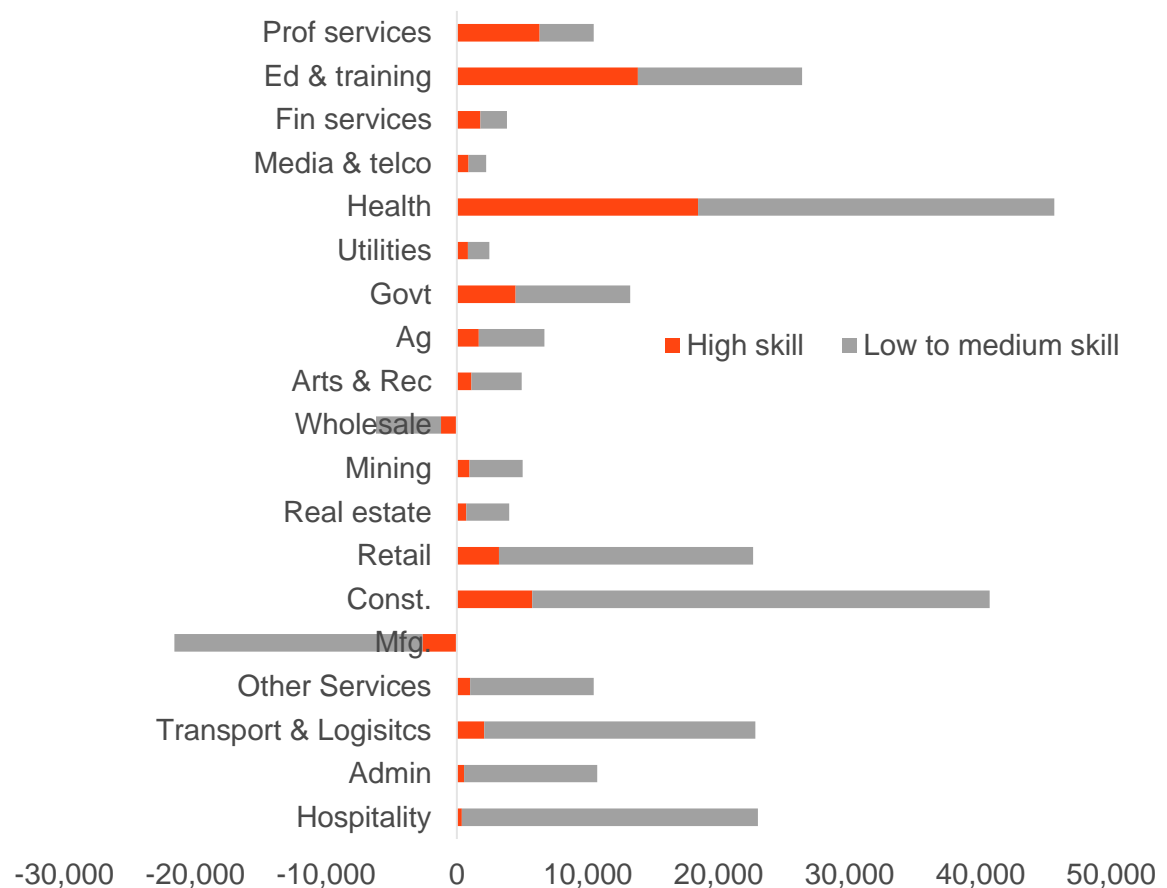
High skilled jobs are important as they offer higher incomes, but also generate higher economic multipliers, meaning that other sectors of the economy benefit from their activity.

<sup>3</sup> High skill is defined by the ABS Occupation definition – level 1

This chart shows the increase in jobs by industry and the nature of that job growth. The orange bar represents high skilled job growth in that industry. This shows that knowledge intensity in the FGOS is growing at the industry level.

The big three are health, education and professional services – all with strong absolute growth, but also driving most of the high skilled growth. Much of the recent job growth in FGOS employment has been in household services such as health and education – while they are talked about as population driven sectors, they in fact provide high skill, high income jobs.

*Employment growth by industry by occupation skill type, FGOS, 2011-2016*



Note: It should be noted that the 2011 Census estimate for place of work had issues assigning all jobs to a location, and the 2016 Census data had issues assigning all jobs to a particular industry. Caution is therefore required when interpreting the results.

Source: ABS Census Population and Housing

The table below presents the growth in high skill occupations in the FGOS between 2011 and 2016. The detailed occupations highlight the depth and niche role played by the health sector with nurses, GPs and health therapists. The list also shows the occupations related to planning the growth of the FGOS, such as engineers, architects and physical science. The FGOS also play an important local business-servicing role (e.g. accountants, marketing, business admin, information professionals).

While high skill job growth has been strong, the overall share of high skill jobs is still very low and well below the metropolitan average and below Regional Cities. What this means is that many FGOS residents need to travel increasingly long distances to access higher skilled and higher income jobs.

*High Skill Occupations in FGOS, Largest growth 2011-16*

Occupation	Change
School Teachers	10,183
Midwifery and Nursing Professionals	7,497
Construction, Distribution and Production Managers	4,352
Chief Executives, General Managers and Legislators	3,502
Medical Practitioners	3,391
Social and Welfare Professionals	3,305
Business Administration Managers	2,889
Health Therapy Professionals	2,608
Sales, Marketing and Public Relations Professionals	2,556
Accountants, Auditors and Company Secretaries	2,502
Engineering Professionals	2,476
Health Diagnostic and Promotion Professionals	2,160
Information and Organisation Professionals	2,136
Advertising, Public Relations and Sales Managers	1,972
Education, Health and Welfare Services Managers	1,963
Architects, Designers, Planners and Surveyors	1,672
Miscellaneous Education Professionals	1,639
Miscellaneous Specialist Managers	1,369

Business and Systems Analysts, and Programmers	1,337
ICT Managers	1,104
Financial Brokers and Dealers, and Investment Advisers	1,092
Natural and Physical Science Professionals	1,040

Note: It should be noted that the 2011 Census estimate for place of work had issues assigning all jobs to a location, and the 2016 Census data had issues assigning all jobs to a particular industry.

Caution is therefore required when interpreting the results.

Source: ABS Census Population and Housing

### High tech jobs

Another way of looking at the economic transition is to examine the level of high-tech job activity in an economy. 'High tech is defined by National Economics and is used as shorthand for high- tech/knowledge-based' industries. It refers to industries that create, design or utilise complex technologies and/or utilise high level skills.

While the fast growing outer suburbs have a relatively low share of high tech jobs, they have experienced quite substantial medium and high tech job growth over the last five years. Fast growing outer suburb job growth in high-tech industries is growing faster than the national average (1.6% p.a. vs 1.1% p.a.). These early signs of entrepreneurial activity need to be nurtured for the fast growing outer suburbs to successfully transition to the knowledge economy.

*Employment change by knowledge intensity, 2011-16<sup>4</sup>****More than a butcher, baker, candlestick maker economy***

	Average Annual % Growth		
	Low Tech	Med Tech	High Tech
<b>Metro - CBD LGAs</b>	2.7%	2.3%	2.8%
<b>Metro - Elsewhere</b>	1.3%	1.0%	0.4%
<b>Metro – Fast Growing Outer Suburbs</b>	<b>3.2%</b>	<b>2.4%</b>	<b>1.6%</b>
<b>Regional Centres</b>	0.9%	0.6%	0.5%
<b>Total Australia</b>	1.5%	1.1%	1.2%

Source: National Economics 2017

<sup>4</sup> Refer to Appendix 1 for definition of knowledge intensity

## 4. Challenges limiting the opportunities

The fast growing outer suburbs transition is underway, but they face a number of challenges as a result of strong population and employment growth.

### 4.1 Large job deficits

While employment growth has been strong, the FGOS still face large job deficits. At a headline level, the job deficit, as measured by the ratio of jobs located in a region to workers living in a region, is worse than it was in 2006. Most fast growing outer suburbs face large job deficits. As has been reported many times before, this leads to daily congestion across our cities and high costs (economic and social).

*Job deficits in the fast growing outer suburbs*

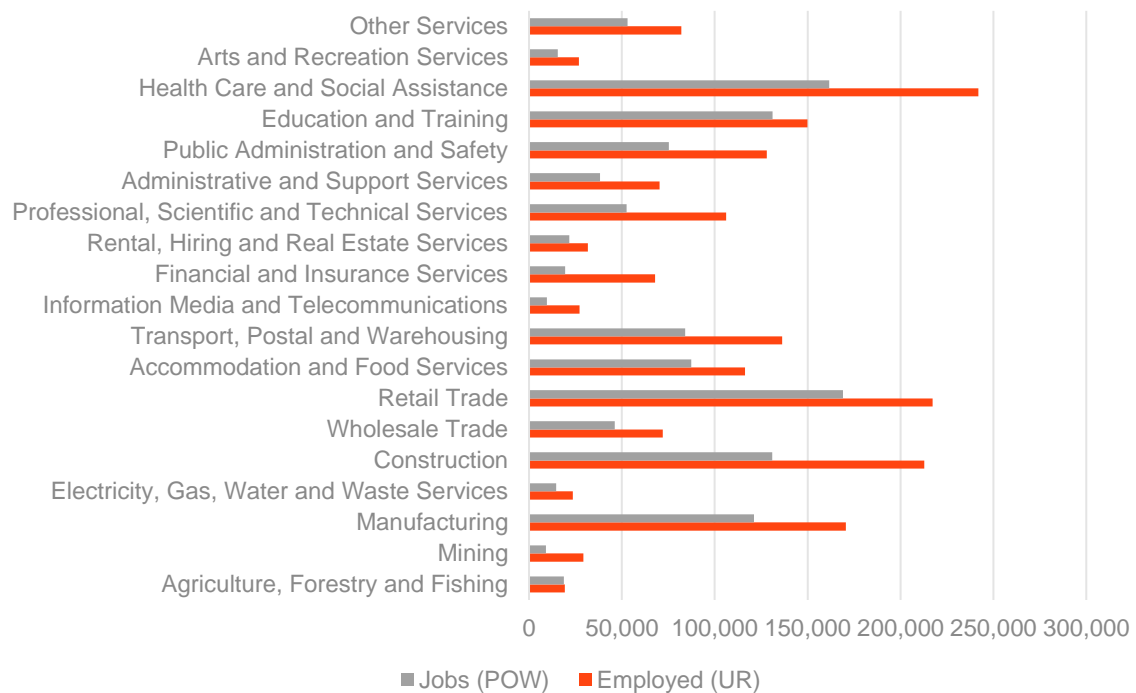
***The job deficit position is no better than it was in 2006.***



Source: National Economics 2017

The chart below shows the FGOS job deficit for each industry. Looking at the industry level shows that the FGOS has a job deficits across every industry.

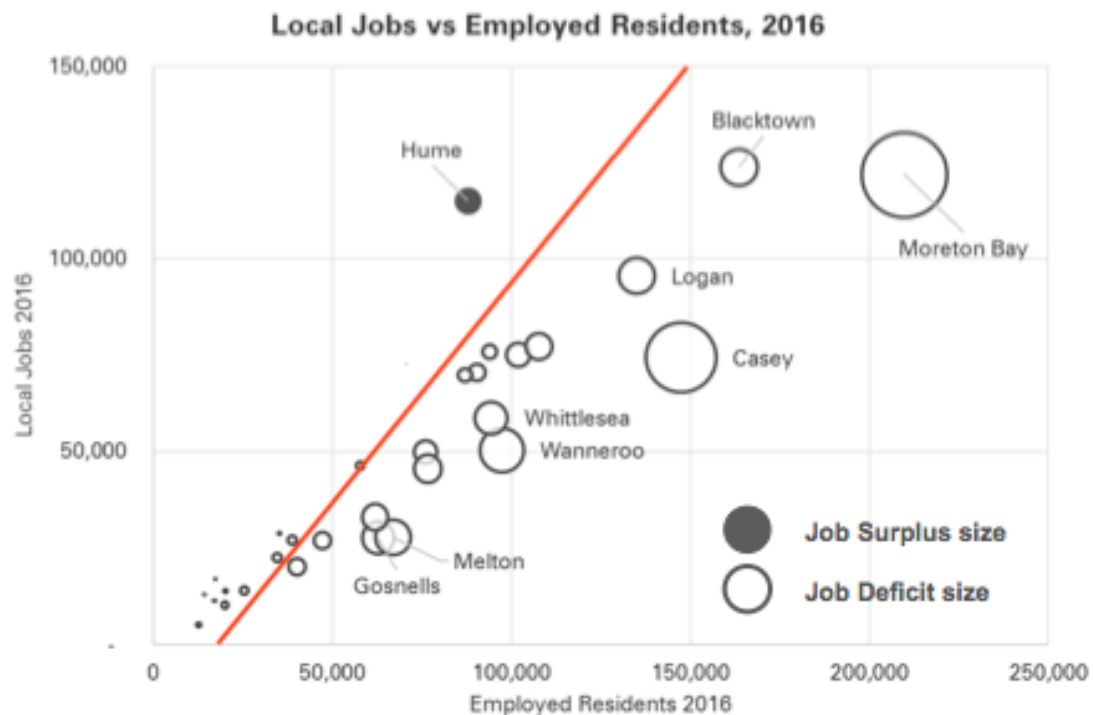
*Local jobs compared to employment residents by industry, FGOS, 2016*



Source: ABS Census Population and Housing

Looking at the LGA level shows that nearly every high growth fringe area faces large job deficits.

*Job deficits by LGA*



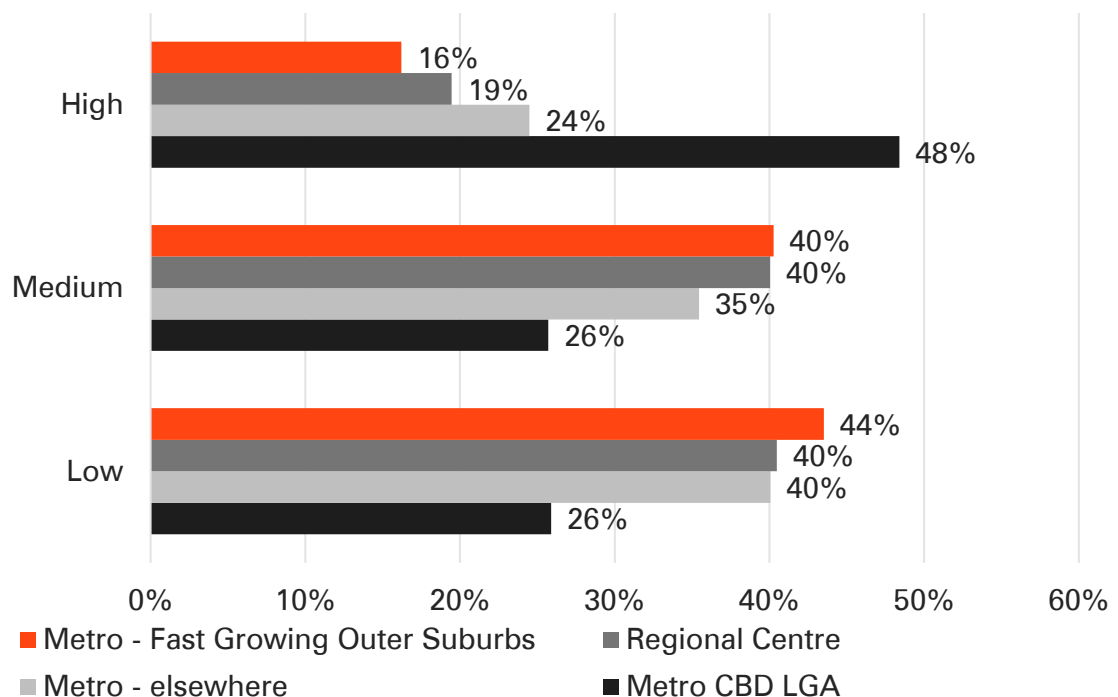
Source: National Economics 2017

## 4.2 Population and construction focussed economies

While the seeds of growth are there, the FGOS are still well behind other areas of Australia in their economic transition to the knowledge economy. The industry focus of the fast growing outer suburbs is heavily reliant on population-based employment, as illustrated in the chart below. This is cause for concern, particularly considering structural change<sup>5</sup> and the inevitable transition from a construction led economy once greenfield land is exhausted. With the right investment, there are significant opportunities to increase their share of high-tech jobs.

*Share of total jobs by Tech Level*

***Economy is focussed on low-tech and low income jobs***



Source: National Economics 2017

One way to support the transition is to develop or connect to local agglomerations. Agglomeration is driving productivity across our cities, and this

<sup>5</sup> For example, manufacturing no longer generates as many jobs per resident as it did before. Even traditional strengths for the fast growing outer suburbs like retail is under competitive pressure from online retailing and new market entrants.

has led to only a few locations with the right attributes attracting the higher skill jobs.

In fact, most of the jobs located in the city are located in the suburbs with only 20% of metropolitan jobs located in the CBD. (LGA based). The challenge for the FGOS is that the jobs in the middle and outer suburbs are dispersed, and typically offer lower income & lower skilled opportunities.

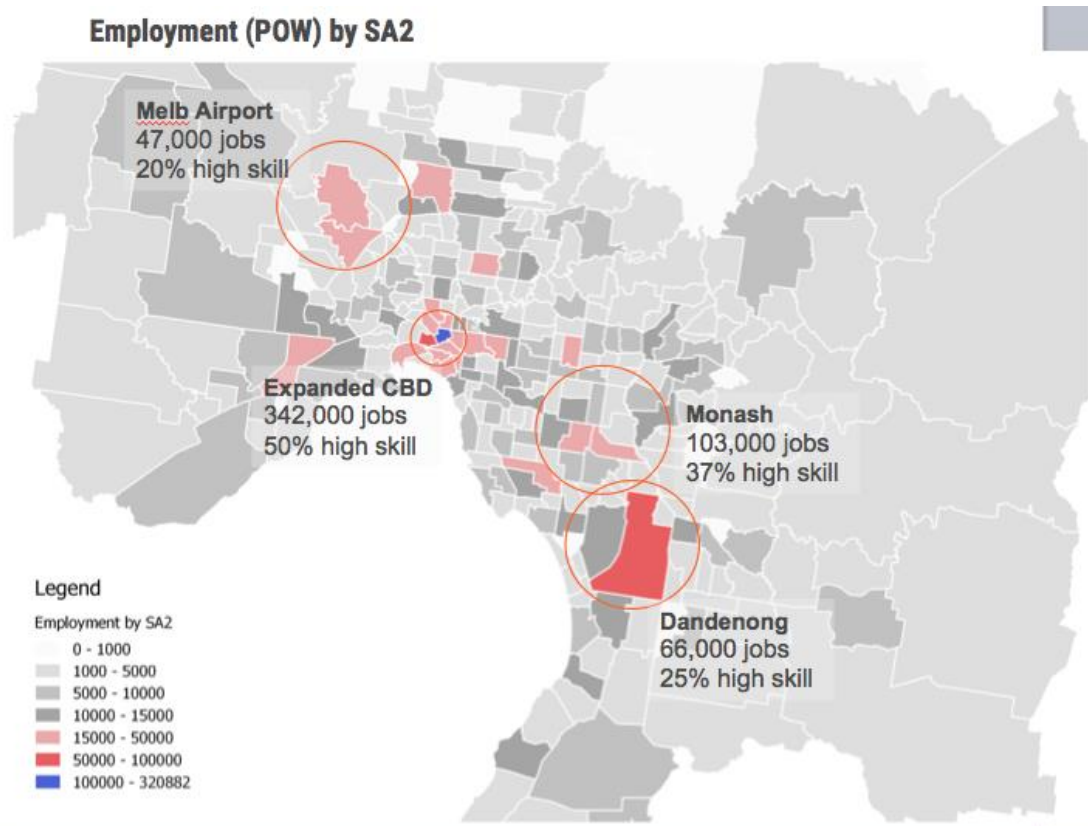
The focus going forward should be how to influence the location of future job growth towards middle/outer agglomerations. The opportunity here is to learn from the success of the CBD and replicate it in suitable locations.

And this is already happening. Recently, Walker Corporation started construction on the \$2.4 billion Parramatta Square development – a development that is focussed on increasing ideas per square metre and creating a high skilled, high income employment hub that is much closer to Sydney's FGOS.

The map below provides a Melbourne example of employment hubs across the metro areas. This map highlights the major CBD agglomeration, but also shows knowledge outposts in the middle suburbs. One of the big opportunities for the Casey-Cardinia corridor is Monash, which has over 100,000 jobs, many of which are high skill jobs. The area is relatively dense and is anchored by major institutions in the university and health precinct.

The emergence of these middle ring hubs means that the FGOS need to think regionally to understand how their LGA is connected into these areas. This means that the focus for economic development in the short to medium term needs to focus on increasing the income per capita of residents, not just about local job creation.

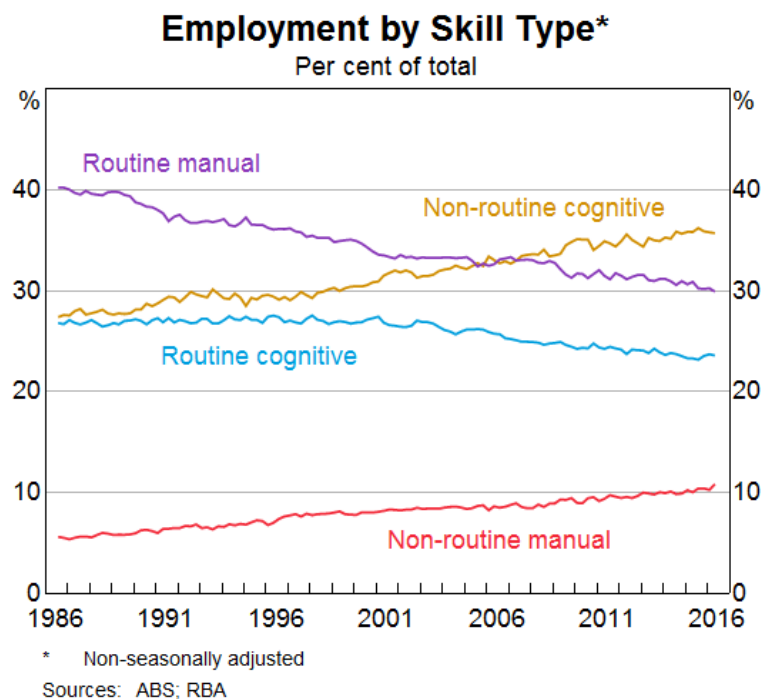
*Employment (place of work) by SA2, Metropolitan Melbourne*



Source: ABS Census of Population and Housing

### 4.3 Skills gaps limit the opportunity

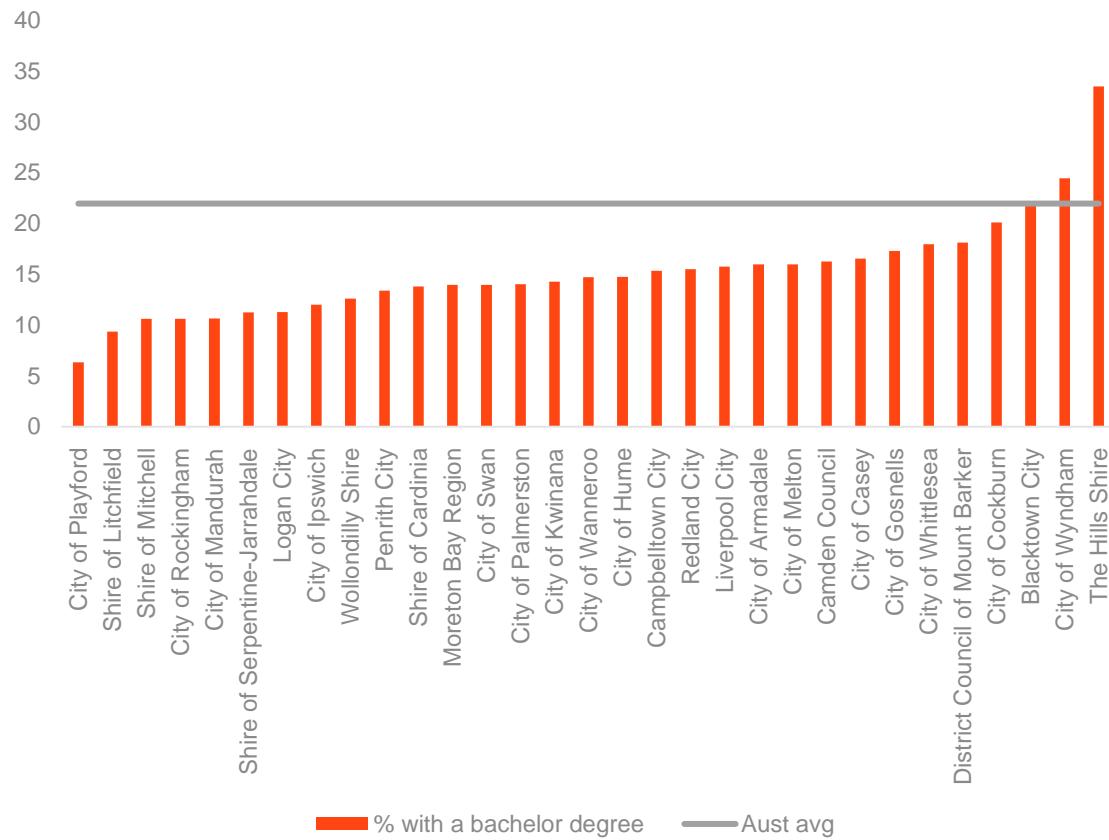
As shown in section 3.7, the skills gap between the fast growing outer suburbs and the national average is also a major economic development barrier, particularly in the new economy that favours qualified workers. Our economy is becoming more and more dependent on ideas and problem solving, with the largest increase in jobs across Australia being those that require higher-level qualifications. Unfortunately, skills have been increasing in inner and middle ring suburbs more rapidly than in the fast growing outer suburbs.



The skill gaps also vary widely between the municipalities of the FGOS. Reducing barriers to post-school education and training, and targeted strategies at keeping kids in school are an obvious opportunity to improve the educational outcomes for these communities.

*% with a bachelor degree, LGAs of the fast growing outer suburbs, 2016*

**Municipalities that make up the fast growing outer suburbs experience different educational challenges and outcomes**



Source: ABS Census of Population and Housing,

## 4.4 Deficits in transformational infrastructure

To successfully transition to the new economy, the fast growing outer suburbs need transformational infrastructure that responds to the high level of existing demand for housing and jobs. Transformational infrastructure includes transport and internet infrastructure as well as economic assets such as airports, universities and hospitals.

However they are not receiving the share of investment in transformational infrastructure. Our research finds that while the fast growing outer suburbs support over 18% of Australia's population, they only share in 13% of non-dwelling capital stocks<sup>6</sup>.

**Imagine the opportunities with a higher level of assets per capita**

Even more concerning is that the pace of infrastructure investment is not keeping up with demand. Fast growing outer suburbs generated 35% of population growth and 25% of job growth between 2011-16 but only received 13% of infrastructure investment.

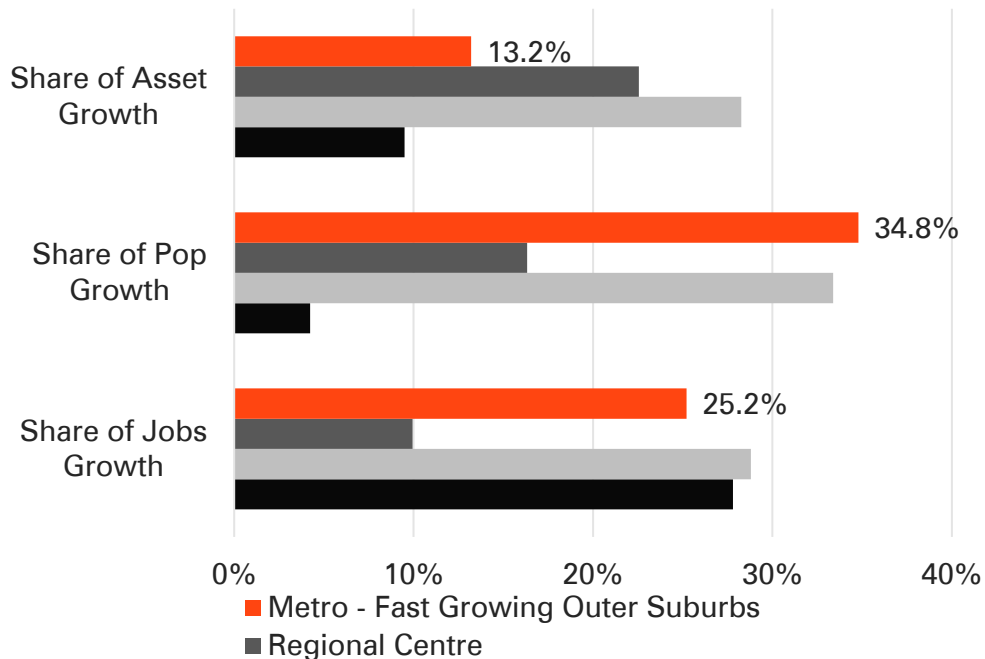
On a per capita basis, asset provision in the fast growing outer suburbs is 20% below the metropolitan average. Unlike inner/middle areas, the Fast Growing Outer Suburbs can no longer rely on the assets available in the Metro CBD LGAs, due to the long and increasing commute times.

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<sup>6</sup> Refers to Non-dwelling Capital Stock as defined in National Accounts. Non-dwellings capital stocks refer to Australia's stock of produced assets owned by private and public sector, but excludes dwellings. Assets include industrial/commercial buildings, water and sewerage installations, roads and bridges, telephone lines, machinery and equipment, livestock, etc.

*Share of national growth by selected indicators, 2011-16*

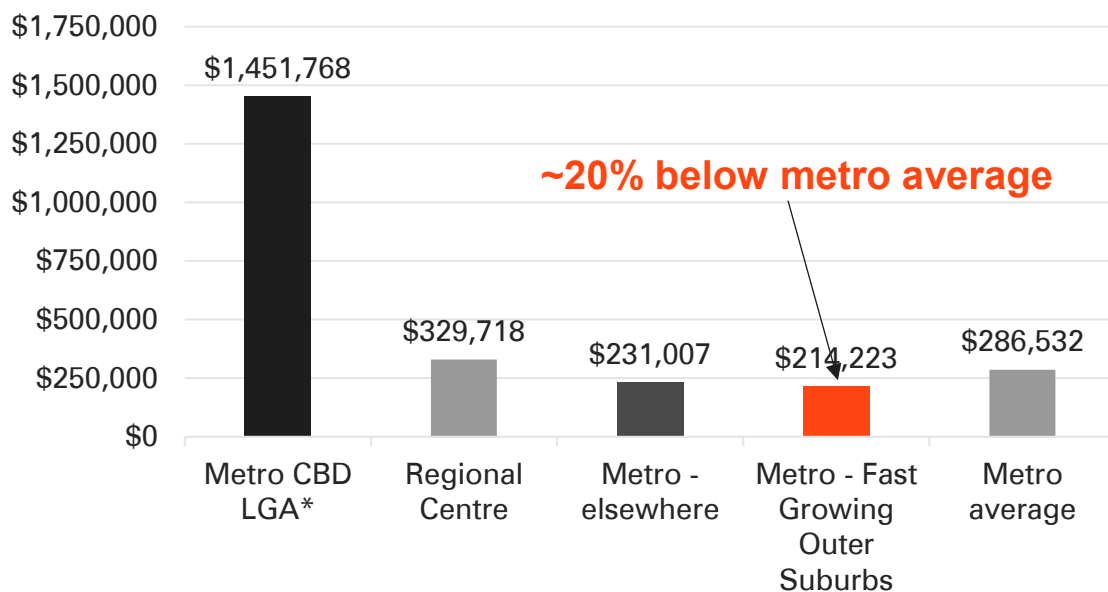
**Fast Growing Outer Suburbs generated 35% of population growth and 25% of job growth between 2011-16 but only received 13% of asset growth**



Source: National Economics, 2017. Note: Metro CBD LGA excludes Brisbane

*Assets per capita*

**Fast Growing Outer Suburbs support over 18% of Australia's population, however they only share in 13% of total assets (non-dwelling)**



Source: National Economics, 2017

## **CASE STUDY: BENEFITS OF INFRASTRUCTURE: SYDNEY METRO**

**This case study presents an example of the impact infrastructure is having on the fast growing outer suburbs in north-west Sydney. While the project focussed on connections into the CBD and Lower North Shore, it highlights the opportunities to create destinations in the fast growing outer suburbs around this new infrastructure. But like major inner urban renewal precincts, these destination opportunities in the fast growing outer suburbs need government support and investment.**

Research by NIEIR shows that capital investment in a region, such as transport, telecommunications, universities, hospitals and cultural assets, is a core driver of economic activity and growth.

One project already having a major impact on Sydney's fast growing outer suburbs is the Sydney Metro Northwest project.

Sydney Metro Northwest<sup>7</sup> is a major infrastructure project delivering a rapid transit link between central Sydney and the growing north western suburbs. The

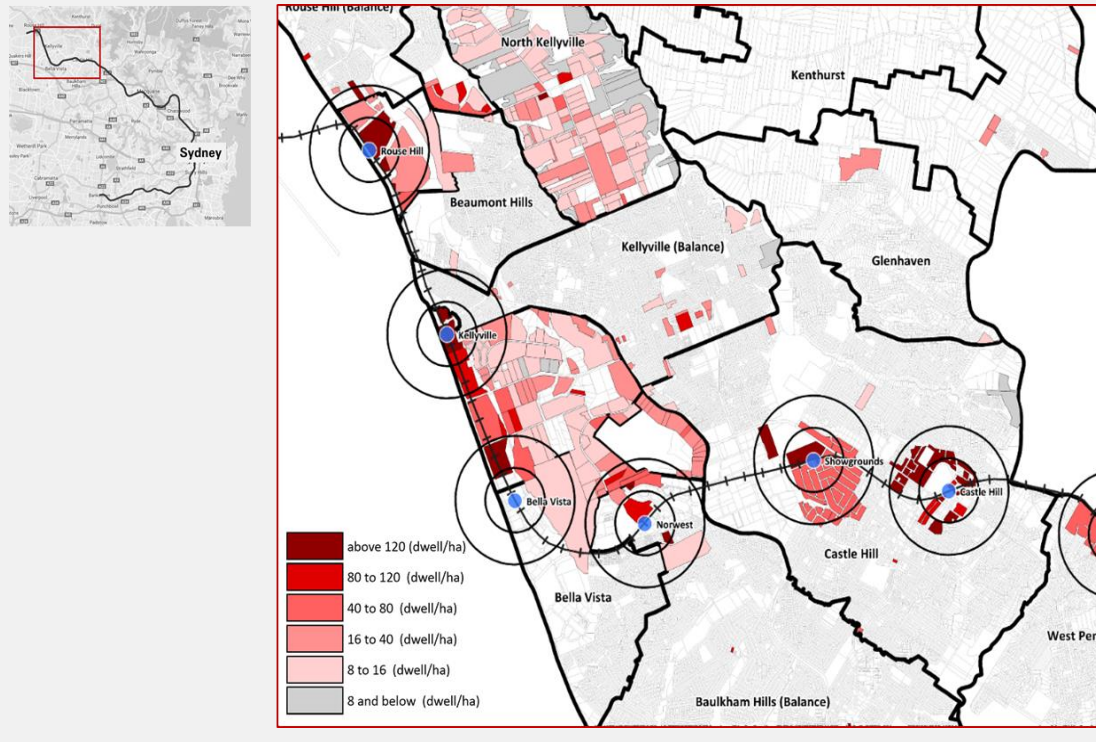
project is already having a considerable city shaping impact on places like the Hills Shire, an outer urban and rural area around 20 kilometres from the CBD. And the stations have not even been completed yet.

**Sydney Metro is having major spatial impacts on Sydney's Fast Growing Outer Suburbs**

Our research found that since 2012 around 42% of all major site dwelling applications/approvals which are yet to be constructed in the Hills Shire were located less than 800 metres from the new stations. This increases to almost 80% of dwelling additions over the longer term, as future residential land such as that in proximity to Showgrounds station comes online.

As illustrated in the figure below, locations like Castle Hill and Bella Vista will support a much wider range of housing choices. The construction of Sydney

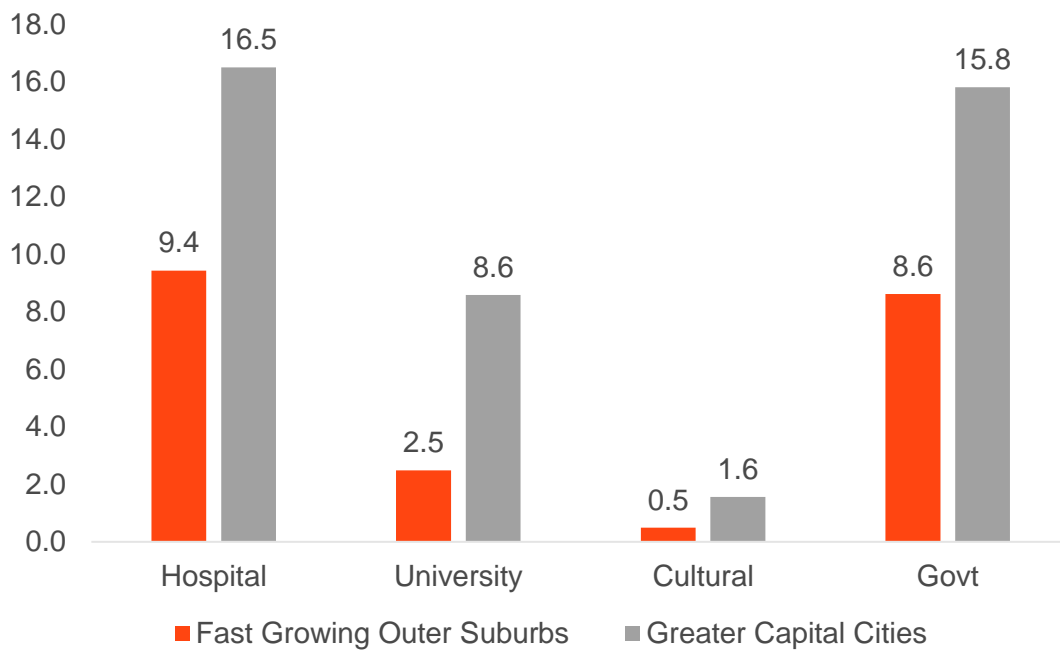
Metro Northwest will not just diversify the dwelling stock, it will also impact on the areas demographics. The new housing opportunities will attract younger families, couples and lone persons back into the area, while also providing the chance for older residents to downsize.



## 4.5 Deficits in social infrastructure

The level of social infrastructure installed in a region is an important driver of economic growth. Looking at the service levels of cultural institutions in the FGOS, the research finds that it is unsurprisingly way below the metropolitan average. For example, there are only 2.5 tertiary education jobs per thousand people in the FGOS compared to 8.6 at the metropolitan level. This is a similar story for hospitals, cultural assets and government jobs.

<sup>7</sup> See: <https://www.sydneymetro.info/northwest/project-overview>

*Jobs per '000 population, 2016*

Source: ABS Census of Population and Housing

This puts the FGOS at a major disadvantage in attracting skills and businesses, but also creates barriers to existing businesses learning, innovating and becoming more productive. In addition, the long distances to the areas that have these institutions puts FGOS residents at a social disadvantage.

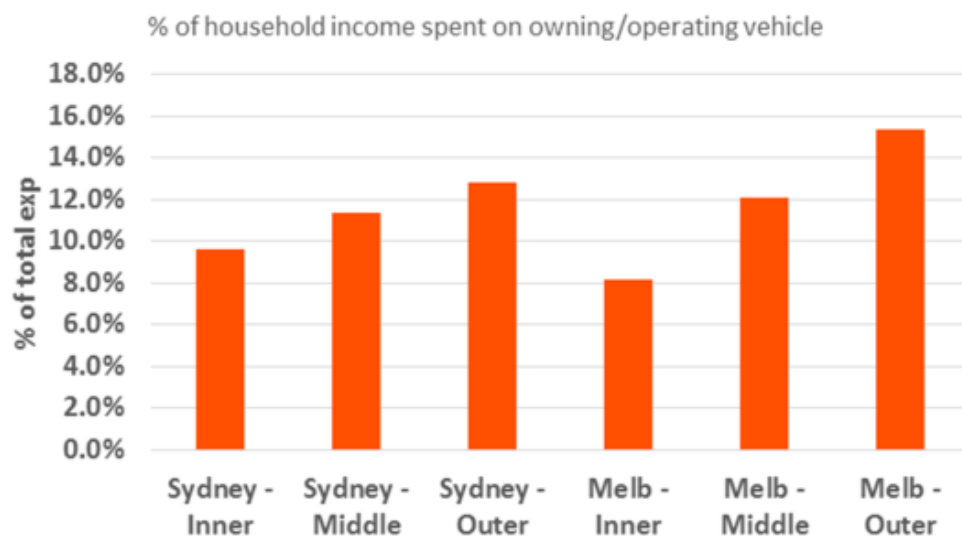
Each of these four institutions are important because:

- ▣ They bring knowledge intensive jobs
- ▣ Highly skilled workers seek these assets
- ▣ They can play an anchor tenant role, setting up the opportunity for agglomeration.
- ▣ Government plays a primary role in its spatial delivery.

## 4.6 Cost of living

FGOS may offer more affordable housing opportunities, but often have higher living costs, as well. The reliance on cars, combined with poor access to employment and services means that residents in the FGOS face higher transport costs. Analysis from BTRE shows that residents in the outer areas of Melbourne and Sydney spend significantly more on owning and operating a vehicle in comparison to their inner and middle ring counterparts.

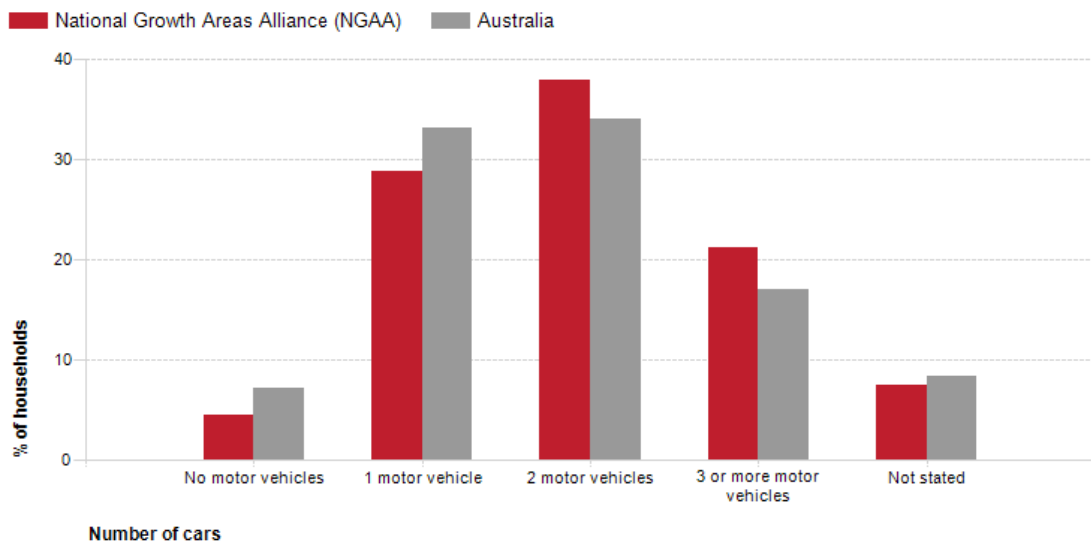
*Household income spent on owning or operating vehicles by part of metropolitan area*



Source: BTRE

This is further demonstrated by the 2016 ABS Census that shows the FGOS on average own more cars and are more likely to use their car to access employment.

## Car ownership, 2016



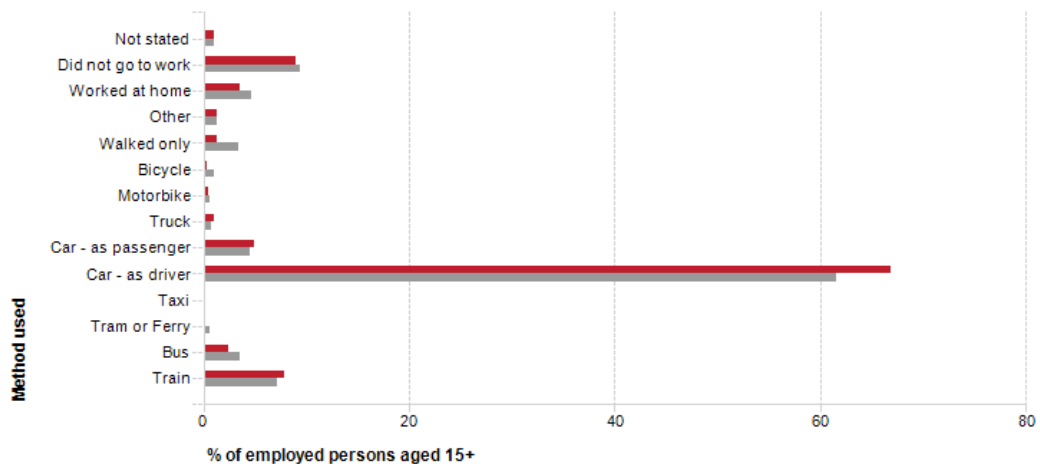
Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Enumerated data)  
Compiled and presented in profile.id by .id, the population experts.

.id the population experts

## Method of travel to work, 2016

Total employed persons

■ National Growth Areas Alliance (NGAA) ■ Australia



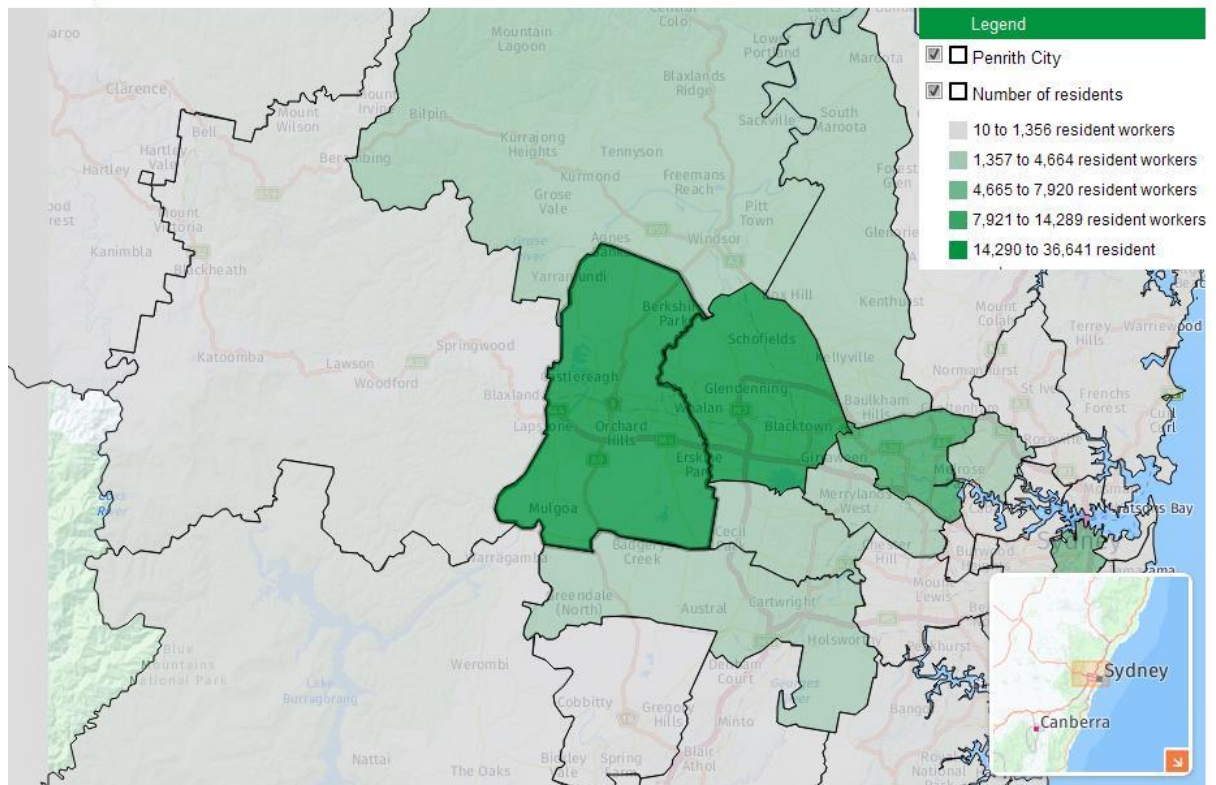
Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data)  
Compiled and presented in profile.id by .id, the population experts.

.id the population experts

The job shortfall in the FGOS also means that many residents need to travel long distances to work further adding to economic and social costs. For example, 56.4% of Penrith City's resident workers travel outside of the area to work, with many travelling more than 20 minutes to get to work.

## Employment locations of resident workers by LGA by industry, 2016

Penrith City - All Industries



Source: Australian Bureau of Statistics, Census of Population and Housing 2016.  
Compiled and presented in economy.id by .id, the population experts.

.id  
the population experts

By way of example, the table below compares several cost of living indicators for a FGOS (Jordan Springs) compared to a middle ring suburb in Sydney (Berala). While median house price is around 26% more affordable in Jordan Springs compared to Berala, this doesn't show you the full 'affordability' picture. The longer average commute to work, means that the average cost of work trips is around 112% more expensive.

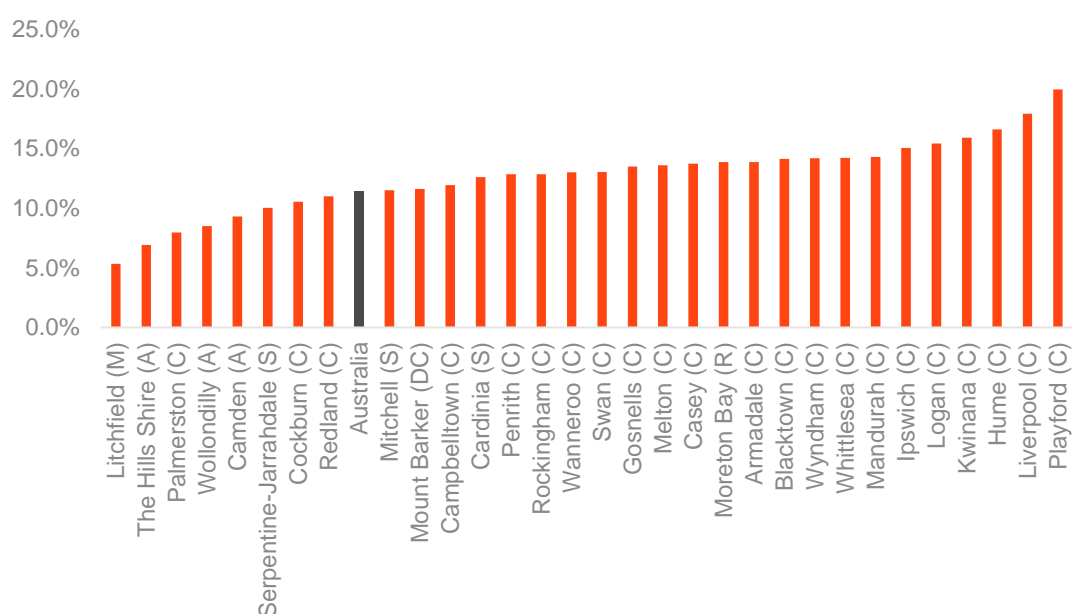
### Case study – House and Transport Costs

		FGOS	Middle ring suburb
		Jordan Springs	Berala
House price	\$	\$749,950	\$1,010,000
Estimated mortgage repayment	\$	\$826	\$1,112
3 or more motor vehicles	%	16.3	14.5
Public transport (to work)	%	16	29
Average distance travelled to work by car	kms per week	165	78
Average cost of travelling to work by car	\$ per week	\$109	\$51

Average distance is based on a straight line origin to destination analysis, and therefore provides only an indicative estimate. Costs assumes 2 trips per day, 5 days per week at 66 centres per km (based on ATO method).

Housing affordability is also an important consideration, which is more than just the price of a house. Housing affordability is a significant issue if mortgage and rent payments rapidly increase as a share of income. Despite offering more affordable housing, many of the FGOS face higher levels of housing stress than the Australian average (11.4%).

#### *Housing stress by FGOS LGA*



Source: ABS Census of Population and Housing

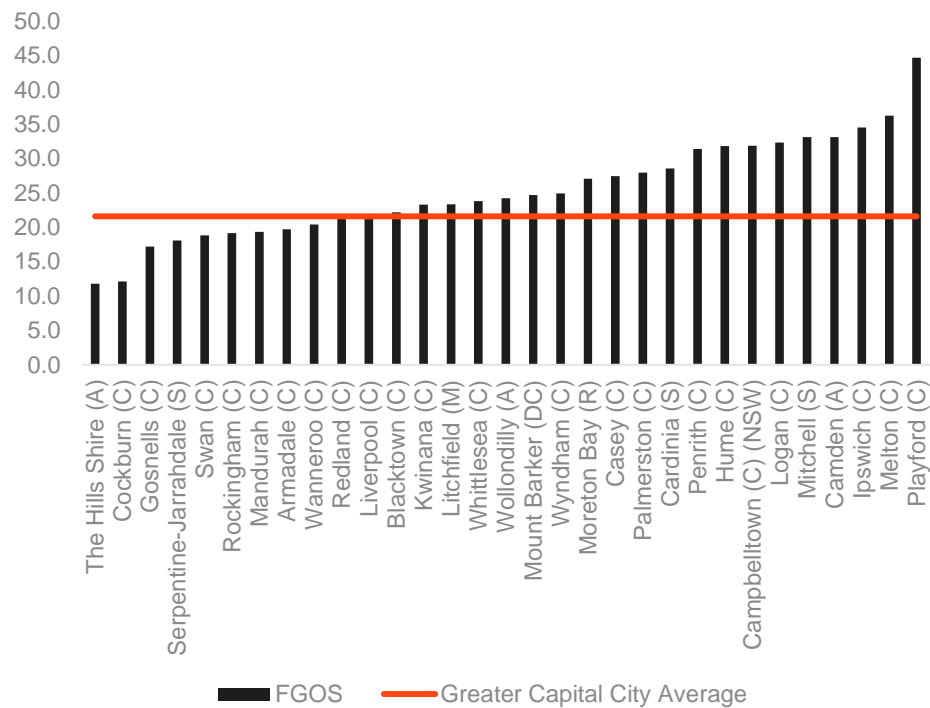
## 4.7 Health conditions

Heart disease, heart attack and cardiac arrest are Australia's number 1 cause of death. As they are more prevalent among the older age groups, Australia's ageing population has a big impact on this group of diseases, and many areas can expect increases in future. The good news about heart disease though is that it's also related to controllable lifestyle factors, like obesity, sugar and alcohol consumption and eating a good diet based on fruit and vegetables.

The rate of deaths from heart disease in the FGOS is around 25.4 per 100,000 people, one of the lowest in the state. This rate is significantly higher than the Greater Capital City average of 21.6.

*Deaths from ischaemic heart disease, 0 to 74 years, 2010-2014*

*Average annual ASR per 100,000*

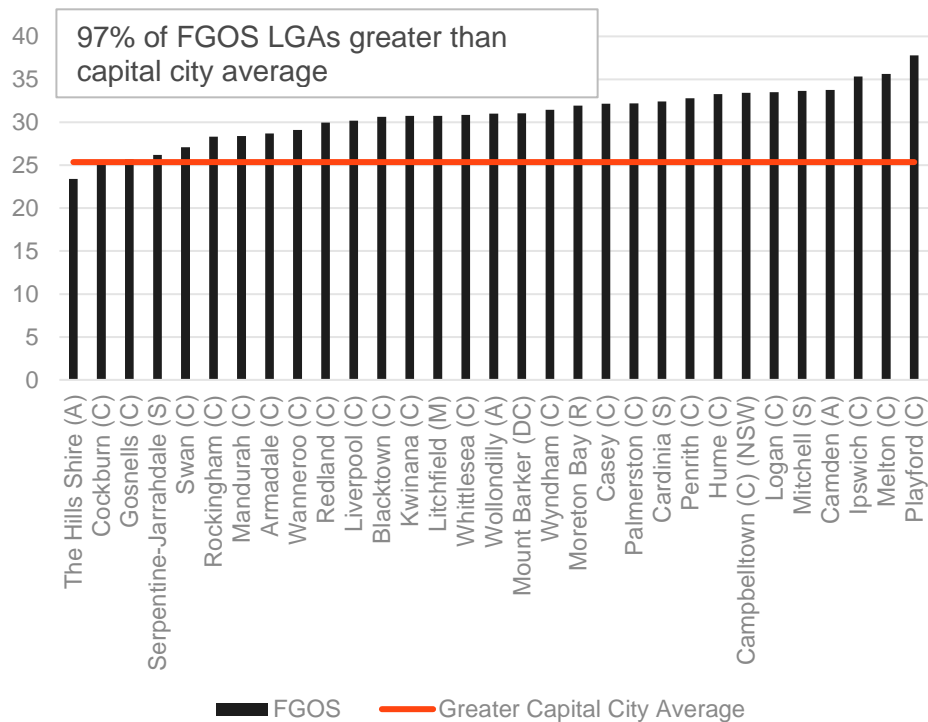


Source: PHIDU

So why are heart health outcomes in the FGOS so poor? Mostly it's due to their high level of lifestyle risk factors. The rate of obesity in the area is much higher than the Greater Capital City average. The rates of those who don't meet physical activity guidelines are also higher than average.

*Estimated number of people aged 18 years and over who were obese, 2014-15*

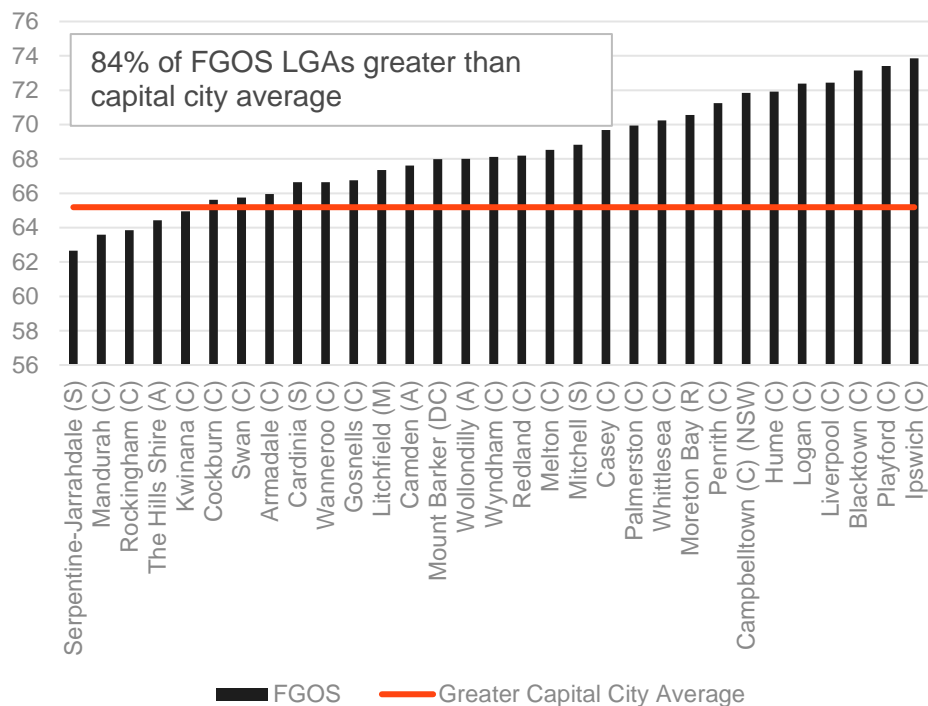
*Average annual ASR per 100*



Source: PHIDU

*Estimated number of people aged 18 years and over who undertook no or low exercise in the previous week, 2014-15*

*Average annual ASR per 100*

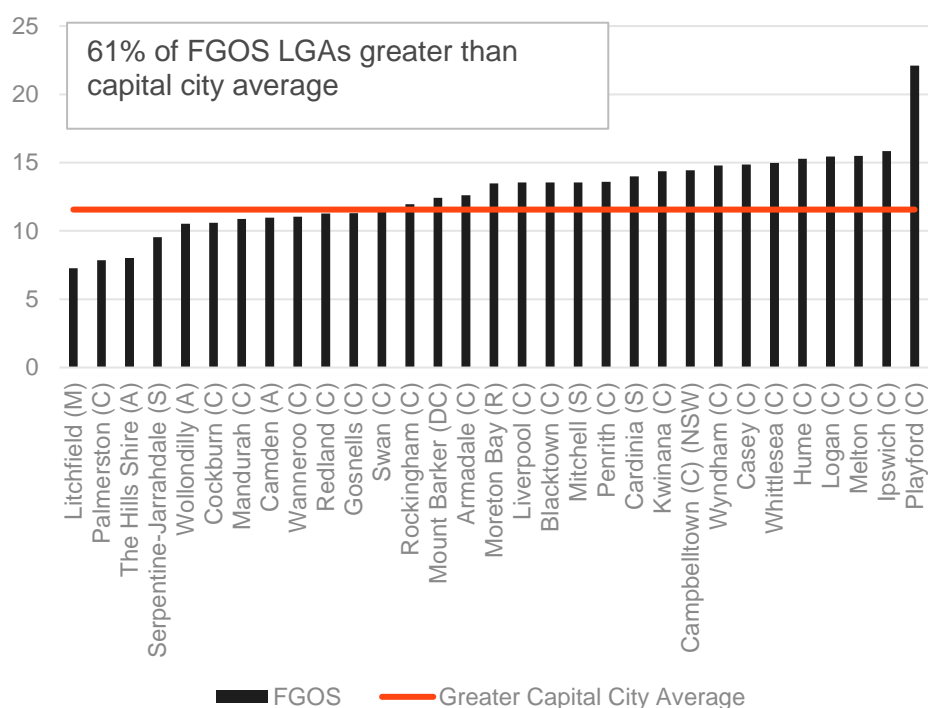


Source: PHIDU

There is also a relatively high level of psychological distress in the FGOS, with 61% of FGOS LGAs having a rate higher than the Greater Capital City average.

*Estimated number of people aged 18 years and over with high or very high psychological distress, based on the Kessler 10 Scale (K10), 2014-15*

*Average annual ASR per 100*



Source: PHIDU

Not only do the FGOS face high health risks and poor quality of life due to obesity, but these issues also generate large direct and indirect economic costs. Some of these include:

- ▣ **Productivity costs:** Physical inactivity can impact on employee productivity by causing increased absenteeism. This costs refers to the additional economic cost on employers. The labour productivity costs are

estimated to cost around 458 per employee per year (Medibank Private, The Cost of Physical Inactivity, 2008).

- ▣ **Healthcare costs:** Physical inactivity leads to increased medical costs. This costs refers to the additional government health costs due to ongoing inactivity. The net cost of inactivity is estimated to be around \$719 million in 2007/08 (Medibank Private, The Cost of Physical Inactivity, 2008)
- ▣ **Mortality costs:** Physical inactivity can also lead to medical conditions that reduce life expectancy. The economic cost of reduced life expectancy is estimated to be around \$3.8 billion in 2007/08 (Medibank Private, The Cost of Physical Inactivity, 2008).

While there are well-documented links between health behaviours and health outcomes, there is also a growing body of work suggesting that the way we are designing and building our suburbs can have a significant impact on the health outcomes of our communities. We know that where people live should not limit what opportunities they have. But in many cases, it does.

This highlights the need for projects and programs that can support healthier lifestyles and enhance the health and wellbeing of FGOS residents. There is a weight of literature that shows how participation in sports or physical activity has direct benefits in improving physical health and wellbeing, such as increased life expectancy, reduced heart disease and mental health (WHO 2004, WHO 2010, AIHW 2010). This is particularly important given the rise in obesity levels and the flow on health costs to government.

## 5. Why investment is required now

These infrastructure deficiencies are increasingly limiting the fast growing outer suburbs' ability to continue growing at their current high rate. This also highlights that there would be significant economic benefit from investment in fast growing outer suburb infrastructure.

**This undesirable future will be a common outcome across most Fast Growing Outer Suburbs unless major investment occurs.**

### 5.1 Productivity and income equality at risk

Not only are FGOS transitioning, they have become even more important to the success our cities.

At a macro level, the shift towards services and knowledge is having a major impact on the location of jobs across Australia. This new economic geography is leading to uneven growth within cities and between regions – meaning that there are winners and losers.

This context is important as cities rely on the FGOS for more than just affordable housing, or a release valve for growth.

What we know from studying urban economics is that bigger cities are generally more productive. The evidence suggests that doubling in city size is associated with a productivity increase of between 2 and 5%. The empirical work undertaken by our partners National Economics suggests its actually at the upper end of this range for Australia

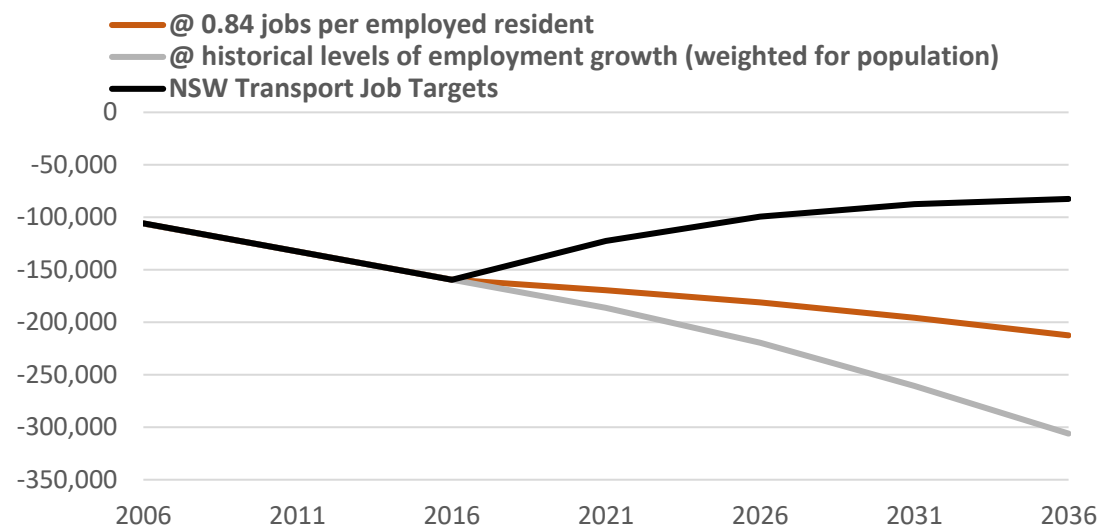
This is because of agglomeration benefits. Businesses benefit from:

- Economies of scale
- Deeper labour markets and supply chains
- Sharing and leveraging off infrastructure
- Learning from others to improve productivity

And it's through productivity, not population growth, that Australia can increase living standards.

Without transformational investment, the job deficit will rise and congestion will increase. The report Addressing Western Sydney's Job Slide, prepared by the Centre for Western Sydney's Director, Professor Phillip O'Neill, in collaboration with .id showed that if business-as-usual continues for the next twenty years, Western Sydney will face a jobs deficit of 306,063 and a daily worker outflow of 492,521.

#### *Difference between local jobs and employed residents in Greater Western Sydney*



Source: Addressing Western Sydney's Job Slide, Western Sydney University and .id

## 5.2 Liveability of our cities at risk

Australia is an urban country, more than 80% of our national population live in cities. Around the world, people, and businesses, are increasingly moving to urban localities to take advantage of the benefits of concentration. These include greater access to jobs, high quality service facilities, international transport gateways and recreational activities. However, Australia's larger capital cities are experiencing some of the disadvantages that come with ever expanding populations. These challenges are well presented in a range of reports including NIEIR State of the Regions, Commonwealth Government's State of Australian

Cities reports and State Government Strategic Plans. Some of the relevant challenges to this report include:

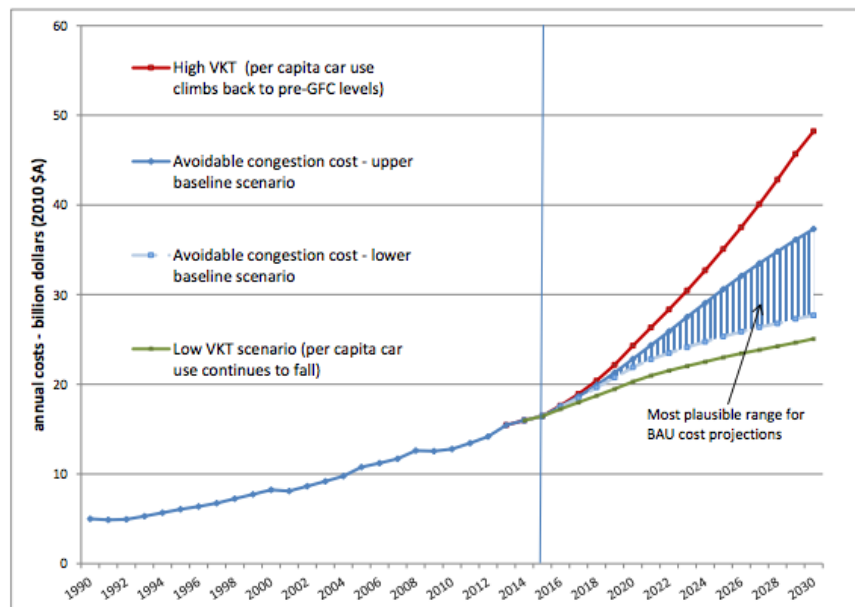
- ▣ Divergence in the productivity and income growth between inner and outer areas
- ▣ Increasing congestion, particularly on road and mass transit into the CBD
- ▣ Job shortages in the outer areas
- ▣ Infrastructure deficiencies make it difficult for outer regions to increase productivity
- ▣ Infrastructure deficiencies and congestion, makes it difficult to efficiency 'sort' workers into jobs, further discouraging city productivity.
- ▣ Rising house prices

Congestion can affect a region's economy by reducing its competitiveness relative to other locations. This is because congestion:

- ▣ Limits the effective labour force catchment.
- ▣ Increases the cost of business operations and reduces productivity
- ▣ Shrinks the business and consumer market

### *Congestion impacts*

Figure 18: Trends in avoidable social costs of congestion, base case scenario results



Note: Deadweight losses (years ending June 30) associated with total metropolitan traffic levels across all Australian capital cities.

Sources: BTRE (2007) and BITRE estimates.

Without strategic investment (see section 5.4), there is a risk that inner city locations will experience diminishing returns to agglomeration or capacity limits (land, roads and public transport) that are extremely expensive to alleviate. These factors are likely to result in below optimal employment, economic and productivity growth rates in the inner city, having a flow-on impact through the Australian economy. An inclusive plan for city growth is required that can maximise and share the benefits of agglomeration.

## 6. Investment to enable the opportunities

National productivity is at stake if we do not plan and invest in infrastructure that enables the fast growing outer suburbs to successfully transition to the new economy.

This planning and investment should be aimed at enabling the opportunities provided by the fast growing outer suburbs with a focus on projects that directly influence employment and knowledge capacity.

### *Unlocking the opportunities*

**Economic transition  
provides exciting  
opportunities**



**Increasingly important  
city building role**



**Significant economic  
benefits from investment**



## Appendix 1 – Knowledge intensity definition

A2Name06	A1	A2	Tech Classification
Agriculture	A	1	Medium
Aquaculture	A	2	Medium
Forestry and Logging	A	3	Low
Fishing, Hunting and Trapping	A	4	Medium
Agriculture, Forestry and Fishing Support Services	A	5	High
Coal Mining	B	6	Medium
Oil and Gas Extraction	B	7	Medium
Metal Ore Mining	B	8	Medium
Non-Metallic Mineral Mining and Quarrying	B	9	Medium
Exploration and Other Mining Support Services	B	10	High
Food Product Manufacturing	C	11	Medium
Beverage and Tobacco Product Manufacturing	C	12	Medium
Textile, Leather, Clothing and Footwear Manufacturing	C	13	Medium
Wood Product Manufacturing	C	14	Medium
Pulp, Paper and Converted Paper Product Manufacturing	C	15	Medium
Printing (including the Reproduction of Recorded Media)	C	16	Medium
Petroleum and Coal Product Manufacturing	C	17	High
Basic Chemical and Chemical Product Manufacturing	C	18	High
Polymer Product and Rubber Product Manufacturing	C	19	High
Non-Metallic Mineral Product Manufacturing	C	20	Medium
Primary Metal and Metal Product Manufacturing	C	21	Medium
Fabricated Metal Product Manufacturing	C	22	High
Transport Equipment Manufacturing	C	23	High
Machinery and Equipment Manufacturing	C	24	High
Furniture and Other Manufacturing	C	25	Medium
Electricity Supply	D	26	Medium
Gas Supply	D	27	Medium
Water Supply, Sewerage and Drainage Services	D	28	Medium
Waste Collection, Treatment and Disposal Services	D	29	Medium

Building Construction	E	30	Medium
Heavy and Civil Engineering Construction	E	31	Medium
Construction Services	E	32	Medium
Basic Material Wholesaling	F	33	Low
Machinery and Equipment Wholesaling	F	34	Low
Motor Vehicle and Motor Vehicle Parts Wholesaling	F	35	Low
Grocery, Liquor and Tobacco Product Wholesaling	F	36	Low
Other Goods Wholesaling	F	37	Low
Commission-Based Wholesaling	F	38	Low
Motor Vehicle and Motor Vehicle Parts Retailing	G	39	Low
Fuel Retailing	G	40	Low
Food Retailing	G	41	Low
Other Store-Based Retailing	G	42	Low
Non-Store Retailing and Retail Commission Based Buying	G	43	Low
Accommodation	H	44	Low
Food and Beverage Services	H	45	Low
Road Transport	I	46	Low
Rail Transport	I	47	Low
Water Transport	I	48	Low
Air and Space Transport	I	49	Low
Other Transport	I	50	Low
Postal and Courier Pick-up and Delivery Services	I	51	Low
Transport Support Services	I	52	Medium
Warehousing and Storage Services	I	53	Low
Publishing (except Internet and Music Publishing)	J	54	High
Motion Picture and Sound Recording Activities	J	55	High
Broadcasting (except Internet)	J	56	High
Internet Publishing and Broadcasting	J	57	High
Telecommunications Services	J	58	High
Internet Service Providers, Web Search Portals and Data Processing Services	J	59	High
Library and Other Information Services	J	60	High
Finance	K	62	High
Insurance and Superannuation Funds	K	63	High

Auxiliary Finance and Insurance Services	K	64	High
Rental and Hiring Services (except Real Estate)	L	66	Low
Property Operators and Real Estate Services	L	67	Low
Professional, Scientific and Technical Services (Except Computer System Design and Related Services)	M	69	High
Computer System Design and Related Services	M	70	High
Administrative Services	N	72	Medium
Building Cleaning, Pest Control and Other Support Services	N	73	Medium
Public Administration	O	75	Medium
Defence	O	76	Low
Public Order, Safety and Regulatory Services	O	77	Low
Preschool and School Education	P	80	Medium
Tertiary Education	P	81	High
Adult, Community and Other Education	P	82	High
Hospitals	Q	84	High
Medical and Other Health Care Services	Q	85	Medium
Residential Care Services	Q	86	Low
Social Assistance Services	Q	87	Low
Heritage Activities	R	89	Medium
Creative and Performing Arts Activities	R	90	High
Sports and Recreation Activities	R	91	Low
Gambling Activities	R	92	Low
Repair and Maintenance	S	94	Medium
Personal and Other Services	S	95	Low
Private Households Employing Staff and Undifferentiated Goods-	S	96	Low