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Department of Infrastructure, Transport, Regional Development, Communications and the Arts

Bureau of Communications, Arts and Regional Research

South East Queensland

POPULATION, HOUSING, JOBS, CONNECTIVITY AND LIVEABILITY

December 2022

Authors

This report was undertaken by the Bureau's Cities Research team and authored by Dr Sajeda Tuli, Leanne Johnson, Dr Rachael Kitchens, Dr Ray Liang and Lachlan Barnesby. Dr Justin Iu provided executive supervision.

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Executive Summary

South East Queensland (SEQ) is one of the fastest growing regions in Australia and home to one in seven Australians. Governments at all levels aim to support this growth by delivering a better-connected region, providing better infrastructure, creating more jobs, and protecting the region's liveability.

This report aims to support the Department's policy and project delivery by providing an evidence base on the spatial distribution of population and population growth, housing, jobs, skills, connectivity and liveability. This evidence base can be used to monitor how population, jobs, connectivity and liveability change over time and respond to investment.

Population growth

This report analyses the SEQ region population to understand the growth patterns and trends in the region over time. The SEQ region has **3.8 million population** as of 30 June 2020, which is about two-thirds of the total Queensland population. Between 2016 and 2020, SEQ added just over **300,000 new residents**, at an annual growth rate of 2.1 per cent. By 2041, the region is expected to accommodate an additional **1.6 million residents**, which is a 44 per cent increase since 2020.
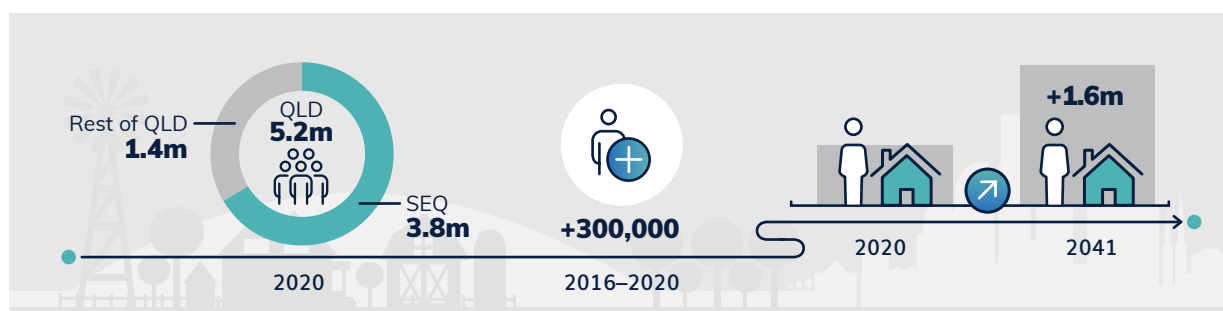
1 The **main growth** LGAs between 2016 and 2020 were Brisbane (**88,200 extra residents**), Gold Coast (**59,900**) and Moreton Bay (**40,300**).

2 **Internal migration** was the most dominant source of population growth (**38 per cent**) between 2017 and 2020, followed by international migration (**33 per cent**) and natural increase (**29 per cent**).

3 The Ipswich LGA has the **highest annual average growth rate** of **3.5 per cent** from 2016 to 2020, followed by Sunshine Coast (**2.7 per cent**) and Gold Coast (**2.5 per cent**).

4 The small areas that **added the most residents** from 2016 to 2020 were **Pimpama** in the Gold Coast LGA, **Jimboomba** in Logan, and **North Lakes-Mango Hill** in Moreton Bay.

5 **328,000 new residents** are projected for the Ipswich LGA by 2041. Significant growth is also projected for Gold Coast (**308,000**) and Brisbane (**278,000**).

6 The small areas projected to add the most residents to 2041 are **Ripley** in Ipswich LGA (**117,000**) and **Greenbank** in Logan LGA (**74,000**).

Housing and housing affordability

In 2016, there were 1.36 million dwellings in SEQ, with **separate houses** being the **dominant dwelling type** (**71 per cent**). However, only 59 per cent of new residential building approvals from 2016 to 2020 were for separate houses, indicating a recent **shift towards higher density** forms of housing. By 2041, the SEQ region is expected to need more than **800,000 new dwellings** to accommodate the projected population increase.
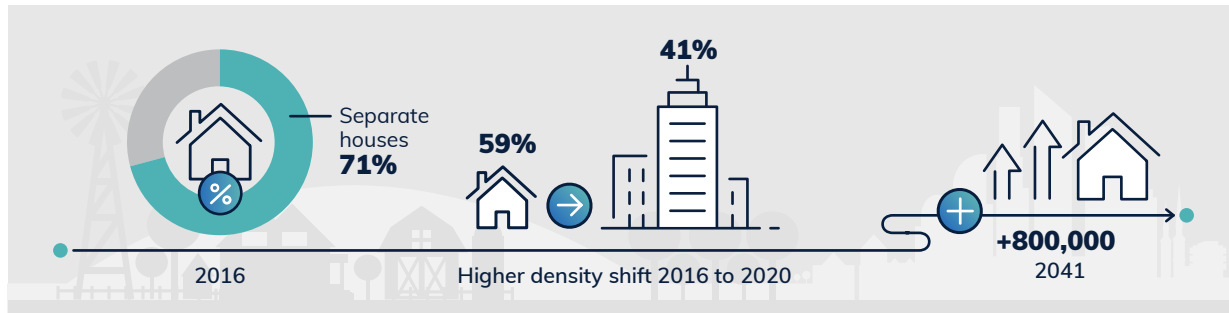
1 **166,000 new residential building approvals** across the 12 SEQ LGAs between 2016 and 2021.

2 The Moreton Bay LGA had the most **new house approvals** (**17,414**). The Brisbane LGA had the most approvals of other new residential buildings (**30,015**), reflecting **higher density** development.

3 The **small areas** with the most **residential building approvals** in the last 5 years were Pimpama in the Gold Coast LGA, Caloundra West in the Sunshine Coast and Ripley in Ipswich.

4 **Logan and Ipswich** LGAs are the major expansion areas, possessing **51 per cent** of **land suitable for development** in SEQ.

5 The Brisbane LGA is expected to add the most **new dwellings** between 2016 and 2041 (**155,200**), closely followed by the Gold Coast (**150,900**) and Ipswich LGAs (**146,000**).

6 Rental stress affects more SEQ households than mortgage stress. **17 per cent** of households in the Gold Coast LGA experienced **rental stress in 2016** – the highest share amongst Australia's 21 largest cities.

Jobs and industries

This report provides a snapshot of the spatial distribution of employment in SEQ as of 2016, and summarises the available evidence on recent employment growth in SEQ. As of August 2021, **1.93 million employed persons resided in SEQ**. The number of employed residents of SEQ increased by 186,800 persons between 2016 and 2021, representing an average **annual growth rate of 2.1 per cent**. By 2041, the region's growth is anticipated to require around **one million new jobs**.

2.1%
2016 1.74m +186,800 2021 1.93m
2041 +1m
Employed persons

1 **48 per cent** of SEQ employed people worked in the **Brisbane** LGA, while **16 per cent** worked in the **Gold Coast** LGA in 2016.

2 The number of people who work in the Brisbane LGA significantly outnumber its employed residents. However, the Redland and Moreton Bay LGAs have a notable shortfall of local jobs, with around 0.6 local workers per employed resident.

3 The Brisbane City SA2 is the main place of work with **122,500 employed persons**, representing **8.3 per cent of the SEQ** total in 2016, followed by South Brisbane (27,500), Southport North (24,200) and Rocklea-Acacia Ridge (23,300).

4 The **Gold Coast** SA4 had the largest increase in employed residents of all SA4s in SEQ from 2016 to 2021, gaining **44,700 employed persons**.

5 **14.5 per cent** of SEQ employment is in the **Health care** and **social assistance** industry as of August 2021, followed by Retail trade (10.2 per cent) and Construction (9.1 per cent).

6 The **Health care** and **social assistance** industry was the major source of employment growth in SEQ from 2016 to 2021. It added 43,900 employed persons, which was **23.5 per cent of total growth**.

Skills

A skilled workforce is an enabler of economic growth. Overall, SEQ had **30 per cent** of its working population with a **Bachelor degree or higher qualification** in 2016, the same as the national level (30 per cent). **Professionals** were the largest occupational group in SEQ (with a **21.1 per cent employment share**) and were the biggest occupational contributor to SEQ's employment growth from 2016 to 2021.

University qualified **30%**

2016

Professionals **21.1%**

Employment share

+82,200
2016 to 2021

1   The Brisbane LGA had the highest proportion of **Professionals** (**27 per cent**), followed by the Sunshine Coast and Toowoomba (both **20 per cent**) in 2016.

2   Of the 12 LGAs, the Brisbane LGA has the largest share of people with a **Bachelor degree** or higher qualification, at **35 per cent**.

3   Inner Brisbane is the focal point of SEQ's knowledge economy, with **48 per cent** of its working population holding a **Bachelor degree** or higher qualification.

4   Professionals were the biggest occupational contributor to SEQ's employment growth from 2016 to 2021, with an increase of **82,200 persons**, which is **43.9 per cent** of the total employment increase.

5   Queensland is becoming more educated. **Postgraduate degree qualifications** are projected to grow the most by 2024–25 (**26.9 per cent**), followed by Bachelor degrees (**15.9 per cent**).

6   **Professionals** are projected to grow by **16.1 per cent** by 2024 (compared to 2019), followed by Community and personal service workers (**14.3 per cent**) and Managers (**12.1 per cent**) in Queensland.

Transport

Private vehicle was the most popular transport mode in SEQ, with **79 per cent** of employed residents travelling to work by **private vehicle** in 2016, while **10 per cent used public transport** and **6 per cent worked at home**. The public transport mode share declined across SEQ during the COVID-19 pandemic and remains well below pre-pandemic levels. Working from home grew strongly during the pandemic, and SEQ employees would prefer to keep work from home uptake well above pre-pandemic levels.

70%
10%
6%
2021

2016 preferred transport mode

2016 work from home

1 **69 per cent o**f employed residents of the Brisbane LGA journeyed to work by **private vehicles** and **18 per cent** by **public transport** in 2016.

2 Public transport use was much less common in other LGAs. In Lockyer Valley, Scenic Rim, Somerset and Toowoomba, less than **2 per cent** of employed residents used **public transport** to get to work.

3 Transport mode use varies across SEQ. Only **57 per cent** of Inner Brisbane employed residents used private vehicle to get to work, compared to **85 per cent** in the Rest of SEQ in 2016.

4 **Work from hom**e uptake by employees in Brisbane was **35 per cent** at the peak of the pandemic, compared to 27 per cent for the whole of SEQ.

Connectivity

This report analyses journey-to-work movements across SEQ to provide insights into how workers are currently using the transport network as part of their daily commuting patterns. Across the 12 LGAs of SEQ, over **70 per cent** of employed residents **worked within their LGA of residence** in 2016. **Ten per cent** of all SEQ workers **commuted to the Brisbane** CBD for work, while SEQ's average commuting distance was 17.5km. On average, residents could access 43 per cent of SEQ's jobs within a 45-minute car commute in 2019, down slightly from 2016, reflecting an increase in congestion and travel times in the region. The average **commuting** trip duration for Greater Brisbane **increased from 31 minutes** in 2010 to **34 minutes** in 2019.

Commute within LGA — 70%   Commute to Brisbane CBD — 10%   Greater Brisbane — 2010 31mins, 2019 34mins

1 **Self-containment rates** were highest for the **Toowoomba** (**89 per cent**) and Brisbane LGAs (85 per cent), and lowest for the Logan (40 per cent) and Redland LGAs (43 per cent).

2 **Over 70 per cent** of Inner Brisbane's workforce **commuted to work** from outside the ring in 2016 – the largest proportion across the four BCARR rings of SEQ.

3 While **31 per cent** of Inner Brisbane residents commuted to the CBD for work, this dropped to **17 per cent** for Middle Brisbane, 7 per cent for Outer Brisbane and 1 per cent for the Rest of SEQ.

4 **Average commuting distances** were lowest for employed residents of **Inner Brisbane** (8.7km), and highest for the Rest of SEQ (24.3km) in 2016.

5 Brisbane and Logan LGAs showed the **strongest 45-minute job access** in 2019, providing employed residents with access to an average of **65 per cent** and **61 per cent** of all SEQ jobs, respectively.

6 The Brisbane and Gold Coast LGAs experience similar levels of **traffic congestion**, but the Sunshine Coast has relatively low levels of traffic congestion.

Liveability

The report analyses three key indicators of liveability from the Australian Urban Observatory (AUO): **access to services** (including health, education, arts and culture infrastructure, and community and sports infrastructure), **walkability** and access to **public open space**.

Overall, at the LGA scale, **Brisbane scored highest** on the access to **services** and **walkability** metrics, but **Redland**, **Noosa**, **Gold Coast** and **Moreton Bay** outperformed Brisbane on access to **public open space**. The expansion growth areas (new and developing areas) scored lower than consolidation growth areas (infill developments) for all of the indicators.

Redland, Noosa   Brisbane, Toowoomba   Brisbane, Somerset   Brisbane, Gold Coast

1 The **Brisbane LGA scored highest** on all of the liveability indicators except for access to public open space. In particular, the most highly liveable areas were centred around Inner and Middle Brisbane.

2 **Toowoomba** also performed well, scoring in the top three for all of the **access to services** measures.

3 **Gold Coast** scored well for access to **arts and culture** infrastructure, as did Scenic Rim for access to community and sports infrastructure and Somerset for access to health infrastructure.

4 **Brisbane** and **Gold Coast** were the **most walkable** LGAs, while Scenic Rim, Somerset and Lockyer Valley were the least walkable LGAs.

Implications of growth

SEQ is expected to reach **5.41 million population by 2041**, a **44 per cent increase** on 2020. This growth is likely to be concentrated in the Ipswich and Gold Coast LGAs, adding over **300,000 new residents** each. This report draws together the evidence on current and future focal points for population growth in SEQ and explores some of the implications for housing, housing affordability, jobs, skills, liveability, transport and commuter flows over the coming decades.

44%

2020
3.80m

2041
5.41m

Population growth

+328,000
Ipswich

+308,000
Gold Coast
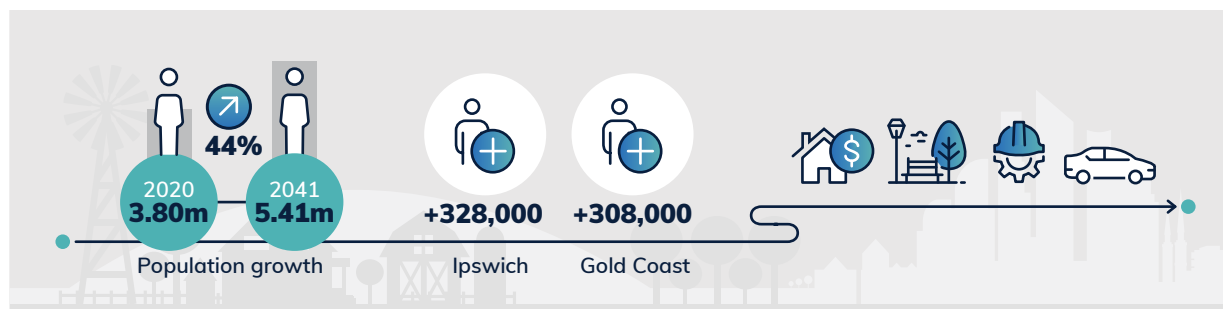
1 The *ShapingSEQ* strategic plan aims to accommodate this population growth by locating **60 per cent of new dwellings** in the existing urban area (consolidation), a shift to medium and high-density forms of housing, and smaller lot sizes.

2 The Brisbane LGA is expected to accommodate **45 per cent of employment growth** (on a place of work basis), but only 19 per cent of SEQ's population growth from 2016 to 2041.

3 The Moreton Bay, Logan and Ipswich LGAs will capture a much **smaller share** of SEQ's **jobs growth** than its population growth.

4 This imbalance between population and jobs growth suggests many future residents of these 3 outer LGAs will spend **significant time commuting** to the Brisbane LGA **to access jobs**. These impacts could be managed through initiatives to improve transport connections and facilitate development of employment precincts in suburban growth areas.

5 In the short term, **Professionals** are expected to show the **largest growth in occupations**, with strong growth in workers with bachelor degrees and higher qualifications. A higher-skilled workforce will make SEQ more adaptable to technological changes.

6 Much of SEQ's future **population growth** is expected to be concentrated in **outer suburban areas** that currently offer relatively poor access to services and low walkability to residents.

7 **Consolidation growth** has far more **positive outcomes** than expansion growth for resident's level of access to services, public open space and walkability.

8 A trade-off exists between liveability and housing affordability— **housing** is usually **more affordable** in **non-coastal outer-suburban** expansion areas.

9 The areas projected to experience the largest population increase from 2020 to 2041 (such as Ripley, Greenbank and Coomera) are located close to at least one of the Queensland Government's **five key economic corridors**. These corridors contain SEQ's major employment precincts.

10 **Commuter travel** in SEQ is very **car-dependent.** The areas projected to grow in future, currently have low public transport use. Significant and timely investment in public transport will help reduce congestion and manage road network impacts.

CHAPTER 1

INTRODUCTION

1.1 Background

South East Queensland (SEQ) is the capital city region and economic powerhouse of Queensland. As one of the fastest-growing regions in Australia, SEQ is experiencing significant changes. By 2041, the region is expected to accommodate an additional 1.64 million residents and almost 800,000 new homes (Queensland Government 2018a, 2019). The region is also expecting to support one million new jobs.

This report aims to provide an evidence base on the spatial distribution of population and population growth, jobs and jobs growth, connectivity and liveability within SEQ. The data in this report focuses on the 2016 to 2021 period. This report can be used to monitor how population, jobs, connectivity and liveability evolve in response to the Department's policy and project initiatives.

The report addresses the following research questions:

1. What is the current spatial distribution of population and housing in SEQ, how has it changed in recent years, and how is it expected to change in the future? This has included consideration of density and the housing mix.

2. What is the spatial distribution of jobs in SEQ, and what is the evidence on recent job growth patterns in SEQ, its regions and targeted economic corridors and precincts? This has included consideration of industry, skills and the knowledge economy.

3. How are transport and connectivity functioning in the SEQ region, the growth centres and sub-regions? The focus here is on the use of different transport modes, origin-destination commuter flows, commuting distances, congestion and 30 or 45-minute job access.

4. How do access to services and housing affordability vary across SEQ regions, and what can this tell us about the liveability status of SEQ and its sub-regions?

5. What are the implications of population growth in SEQ for housing, employment, liveability and connectivity?

The challenges and opportunities of accommodating forecast population growth were a key impetus for this research and are reflected in this report's focus on the implications of population growth.

1.2   Study area

The SEQ region is polycentric in that it contains multiple major centres. The SEQ region comprises 12 local government areas (LGAs). The regional planning approach began in 1990, and this regional approach became statutory in 2004.

The area covered by the SEQ Regional Plan (Queensland Government 2017) includes the following LGAs and adjacent Queensland waters:

1. Brisbane City
2. Gold Coast City
3. Ipswich City
4. Lockyer Valley

5. Logan City
6. Moreton Bay
7. Noosa
8. Redland City

9.   Scenic Rim
10. Somerset
11. Sunshine Coast
12. Toowoomba (SEQ part[1]).

Figure 1.1 maps SEQ. This report covers the 12 LGAs which comprise SEQ, according to the Queensland government legislative definition of the region.

Figure 1.1: Map of SEQ
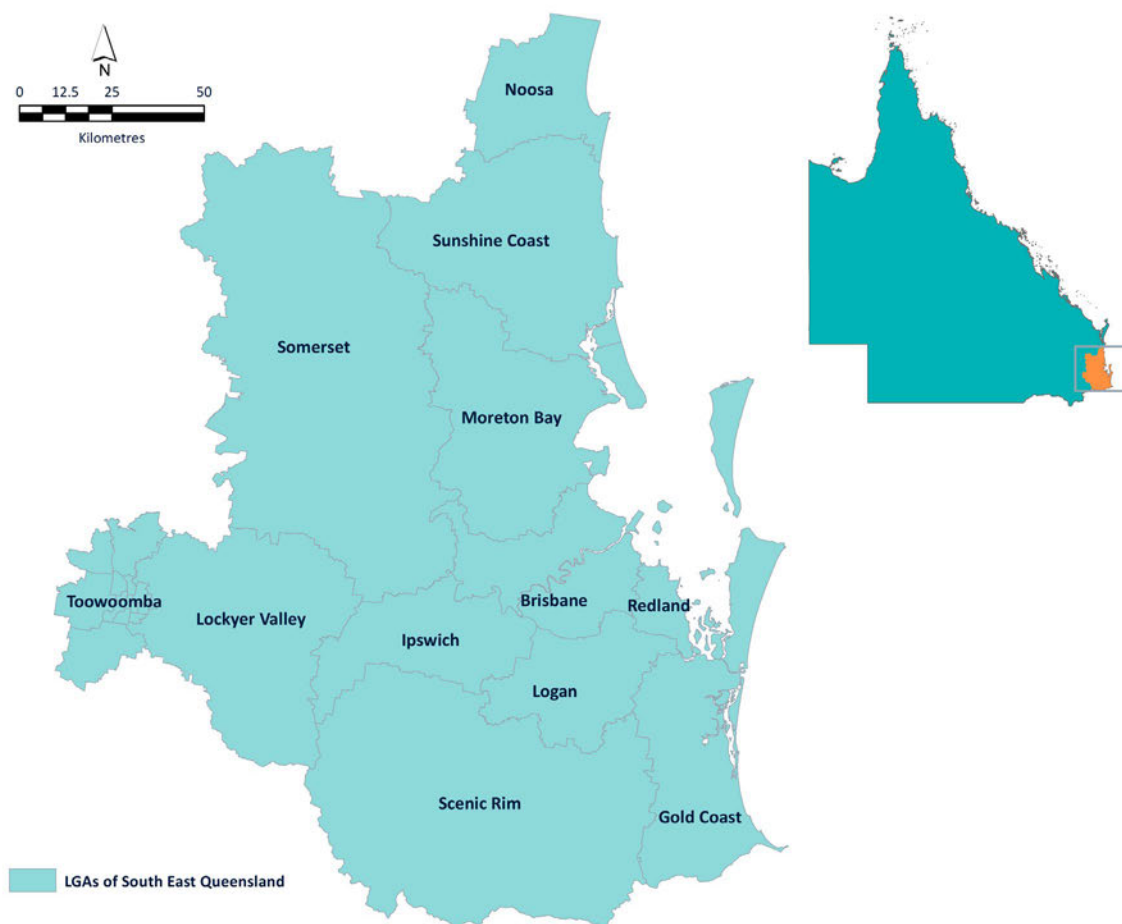
Note: Only the Urban area of the Toowoomba LGA is shown on the map, as only the Urban area is part of SEQ.
Source: BCARR.

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1   Only the Urban area of the Toowoomba LGA is part of the SEQ region. In addition to reporting on the urban part of Toowoomba, this study will also separately report for the Toowoomba LGA as a whole.

1.3 Methods

The Bureau of Infrastructure and Transport Research Economics (BITRE) previously published Research Report 134, *Population growth, jobs growth and commuting flow in South East Queensland* in 2013, which has heavily influenced the content of this report (BITRE 2013a). The current study closely follows the quantitative methods of the earlier report, by focusing on analysing the spatial distribution of population, jobs, housing, transport use and commuter flows. However, the scope of this study is broader in that it also considers access to services, access to jobs and housing affordability.

The data sources that form the basis of this study are all secondary data sources. The key data sources are listed by theme in Table 1.1.

Table 1.1: Principal data sources used in this study by theme

Theme	Data source
Population growth	ABS Estimated Resident Population ABS Census of Population and Housing Queensland Government Population Projections
Housing	ABS Building Approvals ABS Census of Population and Housing CoreLogic SGS Economics and Planning Queensland Government Dwelling Projections
Jobs	ABS Labour Force Survey ABS Census of Population and Housing National Skills Commission Projections
Skills	ABS Labour Force Survey ABS Census of Population and Housing Jobs Queensland National Skills Commission Projections
Transport	ABS Census of Population and Housing Department of Transport and Main Roads Google COVID–19 Community Mobility Reports University of South Australia i-move work from home survey, 2020–2021
Connectivity	ABS Census of Population and Housing Household, Income and Labour Dynamics in Australia (HILDA) HoustonKemp TomTom
Liveability	Australian Urban Observatory

Source: BCARR.

This study uses 2016 ABS Census of Population and Housing data. The research was largely undertaken before the release of the relevant 2021 census data items in mid to late 2022. The 2021 ABS census data lies beyond the scope of the current study.

The research uses both place of usual residence (PoR) and place of work (PoW) census data for analysis, depending on relevance to the issue being analysed. PoR records the geographic area in which a person usually lives, and PoW data provides information on where employed people over 15 years of age worked in the week prior to census night. For industry and occupational data, the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 and Australian and New Zealand Standard Classification of Occupations (ANZSCO) 2013, have been used.

The geographic units used in the report include the SEQ region, LGAs and Statistical Area Level 2s (SA2s). The smallest unit of analysis for this report is generally SA2s[2]. SA2s are designed to reflect functional areas that represent a community considered a suburb and with locality boundaries. The SA2 is the smallest area for the release of many ABS statistics; they generally have a population range of 3,000 to 25,000 persons and an average population of about 10,000 persons.

SEQ's regional boundary can be closely approximated using SA2 boundaries. However, there are a small number of SA2 boundaries that cut across LGA boundaries (see Table 1.2 below). For example, Bribie Island SA2 (population 18,145 in 2016) is divided between the Moreton Bay and Sunshine Coast LGAs. However, the Moreton Bay part is larger (nearly two-thirds area) and has most of the settlements, and the Sunshine Coast part is mostly nature reserve and beaches. Therefore, this SA2 has been included under Moreton Bay LGA for this study. As detailed in , other affected SA2s are:

- Noosa Hinterland SA2, which has been included under Noosa LGA for this study
- Lockyer Valley East SA2, which has been considered part of Lockyer Valley LGA; and
- Ipswich North SA2, which has been considered part of the Ipswich LGA for this study.

These discrepancies have no impact on the overall SEQ boundaries or population, and very low impact on the individual LGA populations.

Table 1.2: **SA2s which cut across LGA boundaries**

SA2	LGA classified to	Reason
Bribie Island	Moreton Bay	Two-thirds of the land area under Moreton Bay LGA and very few settlements under Sunshine Coast LGA
Noosa Hinterland	Noosa	Over 95 per cent of land under Noosa LGA
Lockyer Valley East	Lockyer Valley	Over 95 per cent of land under Lockyer Valley LGA
Ipswich North	Ipswich	Over 95 per cent of land under Ipswich LGA and very few settlements under Brisbane LGA

Source: BCARR.

The main spatial breakdown of SEQ used in the analysis is the 12 contributing LGAs. Wherever data is available based on LGAs, this study has used LGA-based data (rather than aggregating SA2 data) for the spatial breakdown. The only exception is Toowoomba LGA, since only the urban part of the LGA is under SEQ, not the whole Toowoomba LGA. Estimates for the urban and rural parts of Toowoomba LGA are based on SA2 data.

In addition to the LGA-based spatial breakdown, SEQ is also disaggregated into BCARR rings and sub-regions as an additional way of summarising spatial differences in this report (see Table 1.3 and Figure 1.2 below). This is referred to as BCARR rings and sub-regions throughout this report.

- The Brisbane LGA has a much larger population than the other SEQ LGAs and has been further disaggregated into 2 rings.
  - The **Inner** ring corresponds to the Inner Brisbane sub-region.
  - The **Middle** ring is the aggregate of the Middle East, Middle North, Middle South and Middle West sub-regions.
- The **Outer** ring of the Greater Brisbane region has been defined as comprising the Redland, Moreton Bay, Logan and Ipswich LGAs.
- The **Rest of SEQ** comprises the Sunshine Coast, Noosa, Toowoomba (urban part), Gold Coast, Somerset, Lockyer Valley and Scenic Rim LGAs.

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2   There are some pieces of analysis which require access to data at more detailed geographies. For example, analysis of employment precincts are based on destination zones (DZs), which are a disaggregation of SA2s. Analysis of population weighted density requires sub-SA2 data (e.g. SA1s, Mesh Blocks, suburbs).

This ring-based classification (BCARR rings/sub-regions) is based on that used in previous BITRE studies, and can add value by highlighting differences within the Brisbane LGA, and commonalities between the outer suburban LGAs.

Data for the whole Toowoomba LGA has been presented in the LGA tables. However, the SEQ totals and the ring and sub-region tables include data for only the urban part of the Toowoomba LGA.[3]

Table 1.3: Example table based on BCARR rings and sub-regions

BCARR ring/sub-region	Estimated resident population, June 2020
INNER Brisbane*	298,546
MIDDLE Brisbane – TOTAL*	974,234
Middle East	82,790
Middle North	228,486
Middle South	381,849
Middle West	281,109
OUTER Brisbane – TOTAL	1,212,039
Ipswich	229,818
Redland	160,331
Logan	341,985
Moreton Bay	479,905
TOTAL – GREATER BRISBANE	2,484,819
Rest of SEQ	1,279,937
Gold Coast	635,191
Sunshine Coast	332562
Noosa	60,487
Toowoomba (urban part)	139,526
Scenic Rim	43,625
Lockyer Valley	42,263
Somerset	26,283
TOTAL – SOUTH EAST QUEENSLAND	3,764,756
Toowoomba LGA	170,222

Notes: All BCARR sub-regions are a close SA2-based approximation of LGA boundaries, except for Toowoomba (urban part), which is a SA2 based approximation of the urban part of the LGA, and the Inner and Middle sub-regions of Brisbane (which together aggregate to form the City of Brisbane LGA).

*   Inner and Middle Brisbane Rings combined equate to the City of Brisbane LGA.

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020

To understand the respective roles of infill and greenfield development in accommodating population growth, this study has identified some SA2s as growth areas. SA2s with population growth of 1600 or more persons from 2016 to 2020 are considered SA2 growth areas. These growth areas are further divided into Consolidation and Expansion growth areas.

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3   The following 5 rural SA2s are thereby excluded: Crows Nest – Rosalie, Jondaryan, Millmerran, Pittsworth and Clifton – Greenmount.

Consolidation is development occurring on land inside the existing urban area boundary[4], and is often referred to as 'infill development'. Expansion is development occurring on land outside the existing urban area boundary, and is commonly referred to as 'greenfield development' . This study found 23 consolidation SA2s and 25 expansion SA2s, which are listed in Table 1.4 below.

These SA2s have been used in the liveability and connectivity chapters to explore how access to jobs, services and social infrastructure varies between new and already established growth areas.

Figure 1.2: Map of BCARR rings and sub-regions in SEQ in 2016
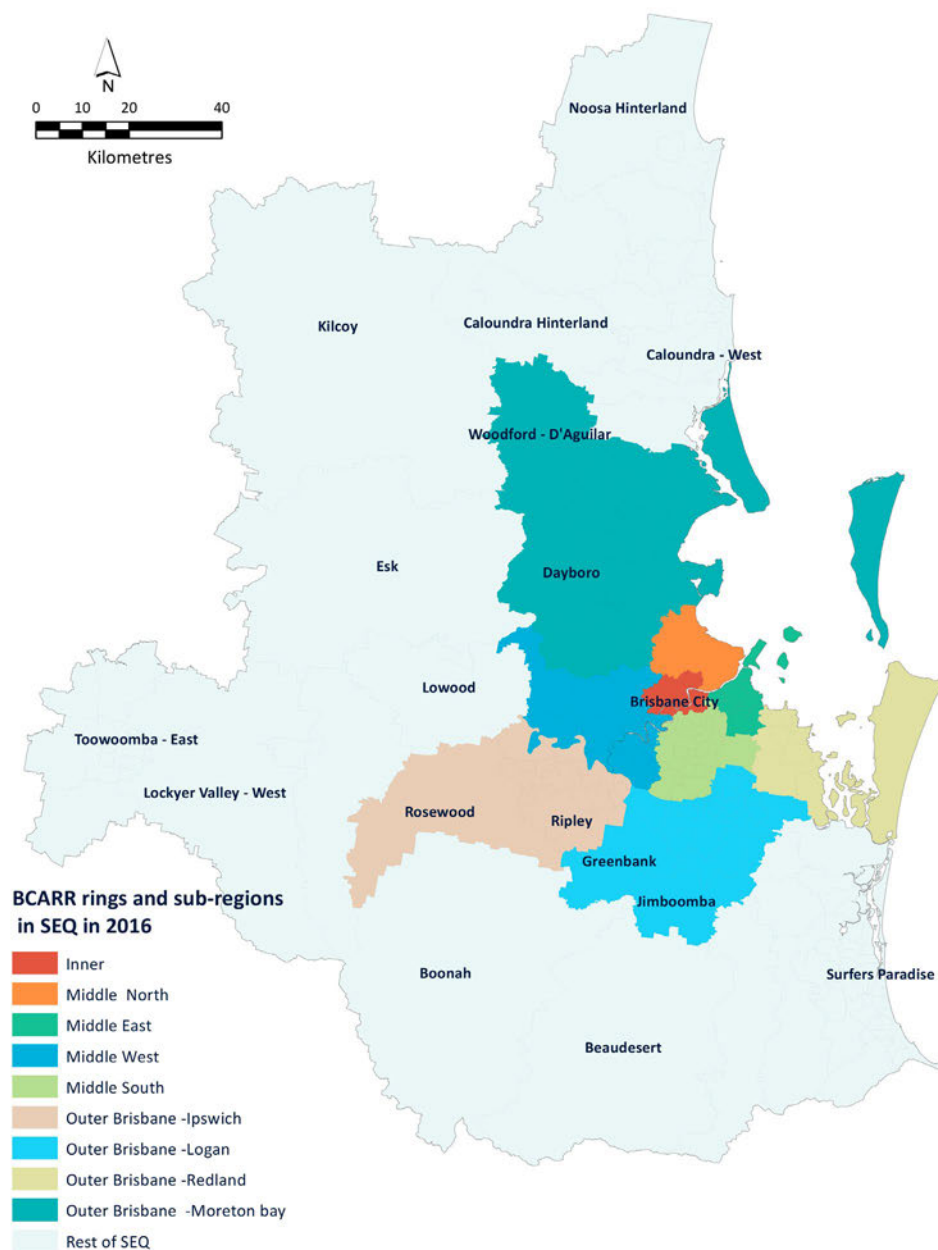
Notes: All BCARR sub-regions are a close SA2-based approximation of LGA boundaries, except for Toowoomba (urban part), which is a SA2 based approximation of the urban part of the LGA, and the Inner and Middle sub-regions of Brisbane (which together aggregate to form the City of Brisbane LGA).

Inner and Middle Brisbane Rings combined equate to the City of Brisbane LGA.

Source: BCARR.

4   Figure 32, on page 175 of ShapingSEQ (Queensland Government 2017), defines existing urban areas and is used to measure consolidation and expansion development.

Table 1.4: Consolidation and expansion growth areas in SEQ

SA2s consolidation growth areas	BCARR rings/ sub-regions in SEQ	SA2 expansion growth areas	BCARR rings/ sub-regions in SEQ
Biggera Waters	Gold Coast	Bellbird Park – Brookwater	Ipswich
Bli Bli	Sunshine Coast	Boronia Heights – Park Ridge	Logan
Bribie Island	Moreton Bay North	Caloundra – West	Sunshine Coast
Brisbane City	Inner	Cashmere	Moreton Bay South
Caboolture	Moreton Bay North	Chambers Flat – Logan Reserve	Logan
Caboolture – South	Moreton Bay North	Coomera	Gold Coast
Calamvale – Stretton	Middle South	Dakabin – Kallangur	Moreton Bay South
Coorparoo	Middle South	Greenbank	Logan
Forest Lake – Doolandella	Middle West	Jimboomba	Logan
Fortitude Valley	Inner	Murrumba Downs – Griffin	Moreton Bay South
Hope Island	Gold Coast	Narangba	Moreton Bay North
Morningside – Seven Hills	Inner	Noosa Hinterland	Noosa
Mountain Creek	Sunshine Coast	North Lakes – Mango Hill	Moreton Bay South
Newstead – Bowen Hills	Inner	Ormeau – Yatala	Gold Coast
Oxenford – Maudsland	Gold Coast	Pallara – Willawong	Middle South
Peregian Springs	Sunshine Coast	Pimpama	Gold Coast
Robina	Gold Coast	Redbank Plains	Ipswich
Scarborough – Newport – Moreton Island	Moreton Bay North	Redland Bay	Redland
South Brisbane	Inner	Ripley	Ipswich
Surfers Paradise	Gold Coast	Rochedale – Burbank	Middle South
Taigum – Fitzgibbon	Middle North	Springfield Lakes	Ipswich
West End	Inner	Thornlands	Redland
Wurtulla – Birtinya	Sunshine Coast	Toowoomba – West	Toowoomba (part)

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020, *ShapingSEQ* (Queensland Government 2017, p.172) and ShapingSEQ (Queensland Government 2017, p.35).

1.4   Report structure

The report has nine main chapters in addition to preliminaries and concluding parts. There are seven analytical chapters and a discussion chapter that examines the implications of population growth for jobs, liveability and connectivity.

Chapter 2 provides some policy context on SEQ regional governance arrangements and planning policies. This chapter identifies the key players in metropolitan planning in SEQ. However, it does not provide any original analysis to identify any weaknesses and strengths of the existing system. It focuses on the following planning documents:

*   *ShapingSEQ*, South East Queensland Regional Plan 2017
*   SEQ-Economic Foundations Paper, 2018

Chapter 3 presents a comprehensive analysis of population and population growth. Population growth is connected to each of the priorities. Chapter 3 of the report provides a snapshot of the population distribution of SEQ, the spatial pattern of population growth, sources of population growth, population density, and projections of future population for the SEQ region.

Chapter 4 examines housing in SEQ and includes an analysis of dwelling mix, building approvals, infill and greenfield development, and lot sizes. The chapter also analyses housing affordability in SEQ. By 2041, the SEQ region will need almost 800,000 new homes to accommodate the anticipated population growth (Queensland Government 2019).

Chapter 5 covers jobs and job growth. It presents a snapshot of the state of employment and its spatial distribution across SEQ, including analysis of job density, employment growth and the key industry drivers of that growth.

Chapter 6 covers the skills of the workforce. This includes a snapshot of occupation and educational attainment, as well as analysis of changes in occupation mix, and future projections for different occupation and skill categories.

Chapter 7 is on transport modes. This chapter includes a snapshot of transport mode use by commuters and also analyses changes in mode use over time.

Chapter 8 focuses on the connectivity of commuter travel within SEQ. This chapter analyses self-containment, origin-destination commuter flows, commuting trip distances and durations, 30- and 45- minute job access, and congestion metrics.

Chapter 9 is on liveability and focuses on presenting evidence on access to services, walkability and access to public open space. This chapter highlights some of the relative strengths and challenges to liveability faced by different SEQ sub-regions and smaller areas.

Chapter 10 discusses the implications of population growth in SEQ for housing, employment, liveability and connectivity. This chapter draws together the evidence on current and future focal points for population growth in SEQ, and explores consequences for housing, housing affordability, liveability and transport and commuter flows. It also discusses how job growth is connected with growth centres and the implications for connectivity. It also gives an overview of the study and outlines some limitations and future directions.

Overall, this study aims to pull together the evidence on how jobs, connectivity and liveability are functioning in the SEQ region, and by doing so, assist in identifying areas where more focus is needed to improve outcomes.

CHAPTER 2

GOVERNANCE

 Key points

- *ShapingSEQ* is a state planning instrument providing a framework to manage growth, change, land use and development in SEQ. The *ShapingSEQ* strategic regional plan sets the direction for how to sustainably manage and accommodate an additional 1.64 million people to achieve the 50-year vision for SEQ.

- The Queensland Government released an economic foundations paper in 2018 to guide regional economic development planning activities and provides the foundation for developing a framework for investment in the region.

2.1   Introduction

This chapter provides some policy context on SEQ regional governance arrangements and planning policies. This section will identify the key players of metropolitan planning in SEQ and provide an overview of the following key documents:

- *ShapingSEQ*, South East Queensland Regional Plan 2017
- SEQ Economic Foundations Paper 2018

2.2   *ShapingSEQ* – South East Queensland Regional Plan 2017

ShapingSEQ is the Queensland Government's statutory regional plan to guide the future of the SEQ region. *ShapingSEQ* is a state planning instrument providing a framework to manage growth, change, land use and development in SEQ (Queensland Government 2017, p.15). *ShapingSEQ* replaces the South East Queensland Regional Plan 2009–2031 and is the region's pre-eminent strategic land use plan made under the Sustainable Planning Act 2009 and given effect by the Planning Act 2016. *ShapingSEQ* will inform State Infrastructure Plan (SIP) (Part B) updates.

ShapingSEQ was prepared in collaboration with the region's 12 local governments, key industry groups and the wider community to ensure the aspirations of all regional stakeholders were considered. The role of the SEQ Regional Planning Committee was broadened to oversee the alignment of state and local government priorities.

ShapingSEQ's vision provides a 50-year outlook for SEQ, when the region's population is expected to grow to about seven million or more. Five themes underpin SEQ's 50-year vision: Grow, Prosper, Connect, Sustain and Live. These five themes are woven through all aspects of the plan and presented in Table 2.1.

ShapingSEQ provides essential context for BCARR's study of the spatial patterns of population and population growth, jobs, connectivity and liveability within SEQ. For example, the directions set for the desired long-term pattern of residential development, including focusing on growth in the existing urban area, are critical to the analysis in Chapters 3 and 4 on Population growth and Housing. A further example is using various elements of Goal 2 Prosper (e.g. activity centres, knowledge and technology precincts) to inform the analysis of Jobs and Skills in Chapters 5 and 6.

Table 2.1: **List of goals and elements from ShapingSEQ 2017**

Goals	Elements
Goal 1: Grow 1. **Sustainably accommodating a growing population**	a. Efficient land use b. Focusing on residential density c. New communities d. Housing diversity e. Growing rural towns and villages
Goal 2: Prosper 2. **A globally competitive economic powerhouse**	a. High-performing outward-focused economy b. Regional Economic Clusters c. Regional activity centres network d. Knowledge and technology precincts e. Major enterprise and industrial areas f. Tourism g. Special uses h. Rural prosperity
Goal 3: Connect 3. **Moving people, products and information efficiently**	a. An efficient movement system b. Active transport c. Integrated planning d. Prioritised infrastructure investment e. Regional infrastructure networks f. Digital infrastructure
Goal 4: Sustain 4. **Promoting ecological and social sustainability**	a. Aboriginal and Torres Strait Islander people b. Biodiversity c. Koala conservation d. Regional landscapes e. Water-sensitive communities f. Natural economic resources g. Health and wellbeing h. Fairness i. Climate change j. Safety k. Affordable living
Goal 5: Live 5. **Living in better-designed communities**	a. Valuing good design b. Working with the weather c. Inspiration from local character d. Working with natural systems e. Creating legible and connected streets and spaces f. Embedding opportunities for adaptation and change g. The power of place-making

Source: *ShapingSEQ (Queensland Government 2017, p.37).*

The planning framework outlined in *ShapingSEQ* sets the direction for sustainably managing and accommodating around an additional 1.64 million people to achieve the 50-year vision for SEQ. The main focus is to accommodate the growing population sustainably through efficient land use, housing diversity and residential density. It focuses on providing 60 per cent of new housing development in the existing urban area and promoting 'missing middle[5]' forms of housing.

Another priority is making SEQ a globally competitive economy by creating a high-performing, outwardly focused economy, regional economic clusters, and knowledge and technology precincts. *ShapingSEQ* also focuses on promoting ecologically and socially sustainable development and better-designed communities. It aims to prioritise public and active transport and identify region-shaping infrastructure, including freight, to increase accessibility and productivity.

Implementing *ShapingSEQ* at a regional scale is primarily the role of state and local governments. It will also involve a wide range of stakeholders from the community, industry and non-government organisations. Figure 2.1 outlines the key roles and responsibilities for delivering *ShapingSEQ*. The Queensland Cabinet will oversee the ongoing delivery of *ShapingSEQ*. The Minister for Planning is responsible for preparing, implementing and reviewing *ShapingSEQ*, advising the Queensland Cabinet on related matters, and assembling and convening the SEQ Regional Planning Committee.

The Minister for Planning established the SEQ Regional Planning Committee (RPC) under section 14(1) of the Planning Act 2016. Its membership includes the region's 12 mayors and relevant Queensland Government ministers. Its purpose is to advise the Queensland Government, through the Minister for Planning, on the preparation and implementation of *ShapingSEQ*.

The Department of Infrastructure, Local Government and Planning will lead and work with other state government agencies, local governments and stakeholders to facilitate and coordinate the implementation of *ShapingSEQ*.

5   '"Missing middle' is a form of housing that offers greater density and diversity in a manner compatible with surrounding lower density residential environments. Most 'missing middle' housing is oriented toward the street or laneway. It covers housing types between detached houses and high-rise, and may include 'Fonzie' flats (a small, self-contained apartment on the same land as a house), 'plexes' (duplexes, triplexes, quadplexes etc), row/terrace housing and medium-rise apartments" (Queensland Government 2017 p.44).

Figure 2.1: Governance arrangements
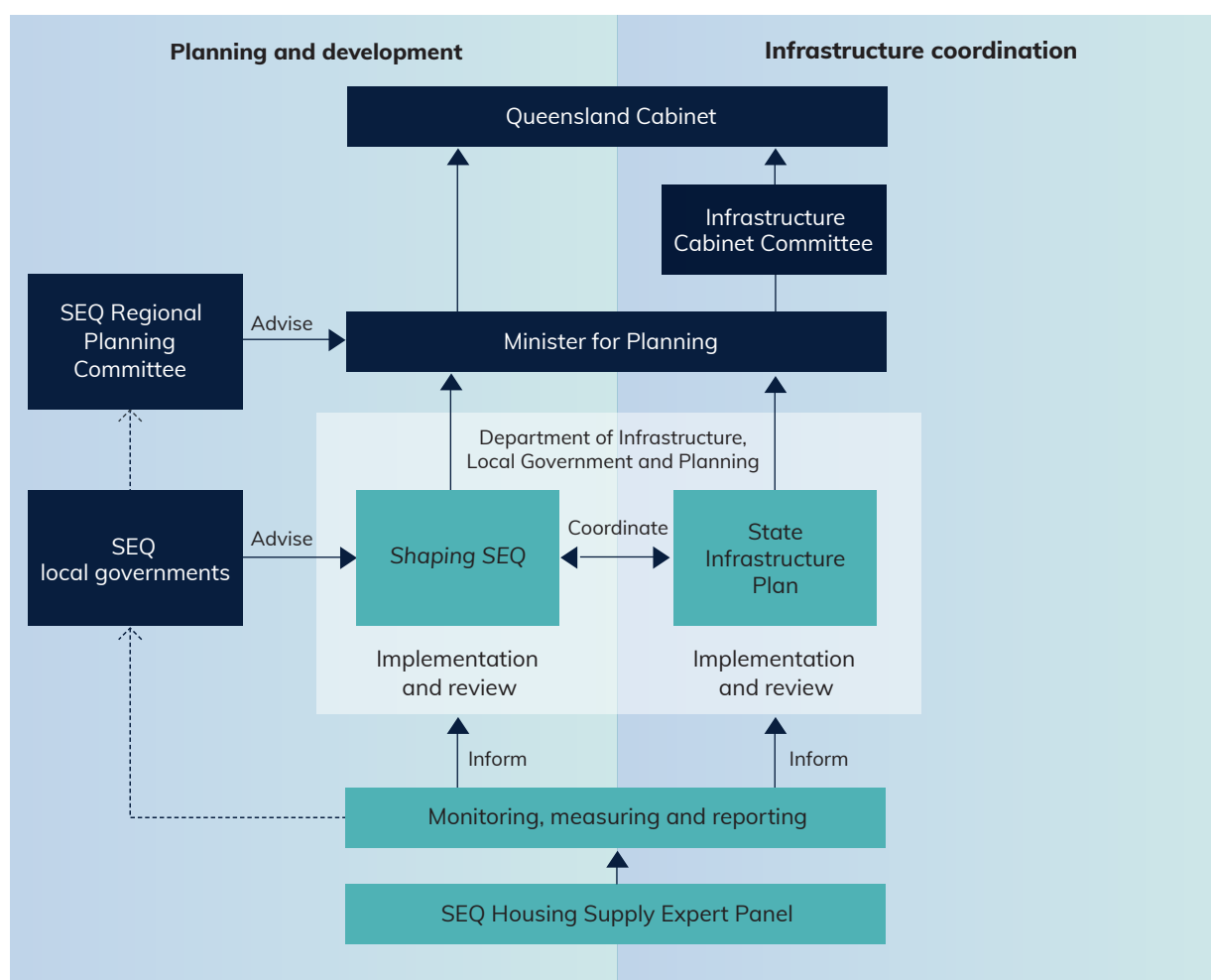
Source: *ShapingSEQ* (Queensland Government 2017, Figure 27, p. 149)

ShapingSEQ is essential to Queensland's planning framework (Figure 2.2). It provides a regional framework to manage growth, change, land use and development in SEQ by reflecting state policy and informing a range of other more detailed planning instruments and functions.

Figure 2.2: **ShapingSEQ's relationship with other plans and programs**
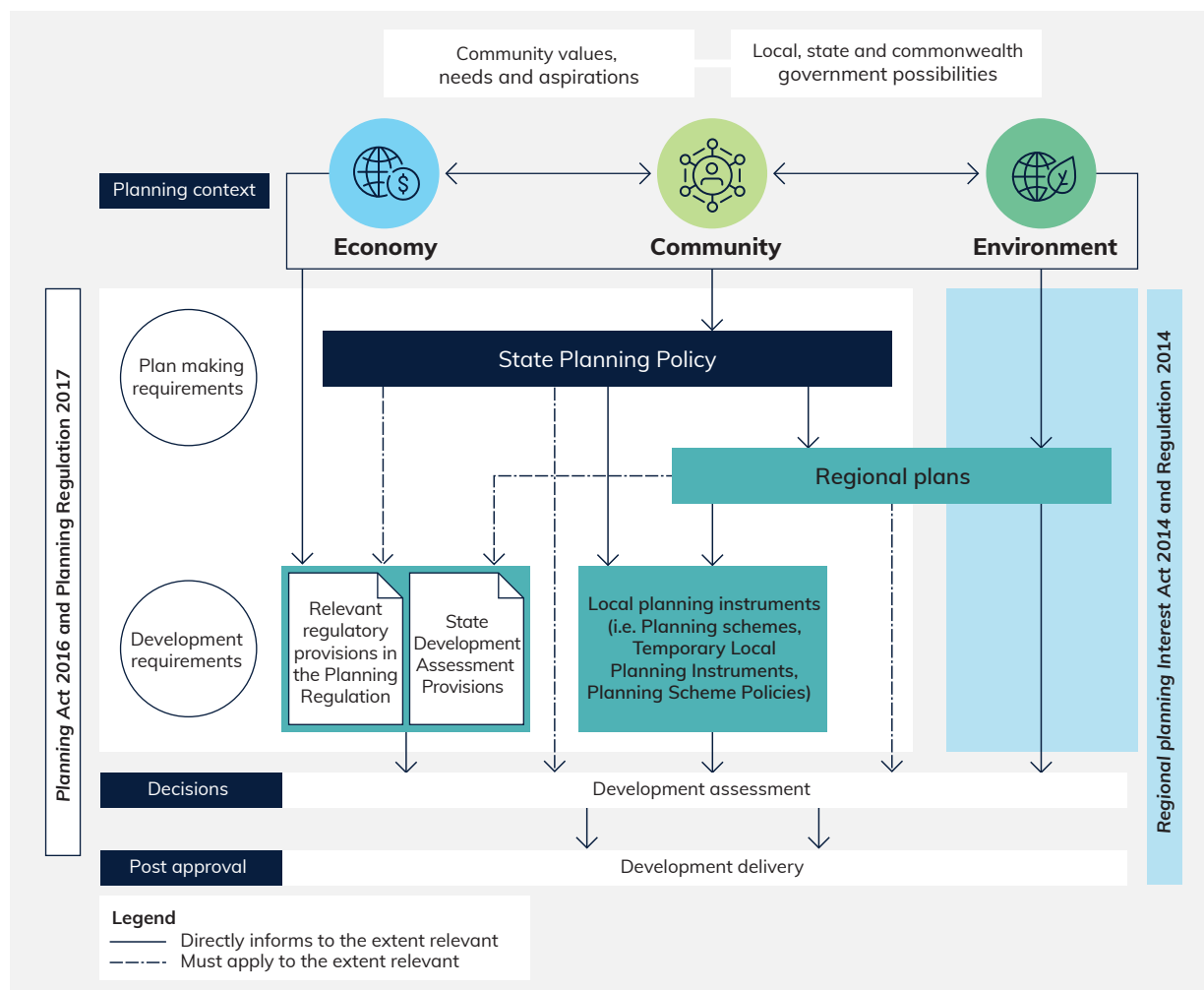
Source: *ShapingSEQ* (Queensland Government 2017, Figure 28, p. 151)

2.3   SEQ Economic Foundations Paper, 2018

The SEQ Economic Foundations Paper was drafted by the Queensland Government's Cities Transformation Taskforce (CTT). The foundations paper aims to guide regional economic development planning activities. It provides the basis for developing a framework for investment in the region that will support the growth of priority industries; support the expansion, efficiency and connectivity of key corridors and clusters; and ensure the effective connectivity of key labour market areas to centres of employment activity. The five priority industry clusters are:

1.   Advanced manufacturing
2.   Agribusiness
3.   Traded health and education
4.   Transport and communications
5.   Tourism and creative.

The paper also identifies key enablers to support growth in these priority industry clusters. These include land (and other natural resources), infrastructure, open information, human capital, financial capital, policy and technology. The report identifies key economic corridors (see Figure 2.3) that serve as both key inter-regional and cross-regional corridors for passengers and freight, namely the East-West Corridor, Capital City Knowledge Corridor, South Corridor, North Corridor and South-West Corridor.

Figure 2.3: **SEQ clusters, corridors and growth fronts that will underpin regional growth**

Regional initiatives					
Sub-regional initiatives					
	East-West Corridor	Capital City Knowledge Corridor	South Corridor	South-West Corridor	North Corridor
Regional Economic Clusters	• Australia Trade Coast • South west industrial corridor • Ipswich • Western Gateway	• Capital City	• Pacific Motorway • Meadowbrook–Loganholme • Yatala Stapylton–Beenleigh • Southport–Broadbeach • Robina Varsity Lakes • Southern Gateway	• Bromelton SDA	• Strathpine–Brendale–Petrie • North Lakes–Mango Hill • Kawana • Northern Gateway
Urban Growth Fronts	• Ripley • Springfield • Westbrook • Under-Utilised Urban Footprint		• Southern Redland Bay • Yarrabilba • Coomera • Under-Utilised Urban Footprint	• Greater Flagstone • Beaudesert • Park Ridge • Under-Utilised Urban Footprint	• Caloundra South • Beerwah East • Palmview • Caboolture West • Under-Utilised Urban Footprint
Place making initiatives					

Source: SEQ Economic Foundations Paper (Queensland Government 2018a, p.8)

The economic foundations paper is particularly relevant to BCARR's analysis of Jobs and Skills in Chapters 5 and 6 as it identifies what the Queensland Government sees as the key spatial corridors for future jobs as well as the priority industries for jobs growth.

2.4   Conclusion

The chapter discussed some key strategic planning documents for SEQ. The main focus of the *ShapingSEQ* strategic plan is to sustainably accommodate an additional 1.64 million people through efficient land use, housing diversity and residential density. It focuses on providing 60 per cent of new housing development in the existing urban area and promoting 'missing middle' forms of housing. The Queensland Government drafted an SEQ Economic Foundations Paper to guide regional economic development planning activities.

These documents are extensively connected and will provide essential guidelines and frameworks to manage and facilitate growth in the SEQ region. They provide important context for this BCARR report on the spatial patterns of population, housing, jobs, liveability and connectivity by setting out key concepts and directions for the future development of SEQ.

CHAPTER 3

POPULATION GROWTH

ⓘ **Key points**

- About two-thirds of the Queensland population lives in the South East Queensland (SEQ) region. As of 30 June 2020, SEQ has 3.8 million people, with 33.5 per cent living in the Brisbane Local Government Area (LGA), 16.7 per cent in the Gold Coast LGA, and 12.6 per cent in the Moreton Bay LGA.

- In 2020, Greater Brisbane accommodated 66 per cent of the SEQ population. The remaining 34 per cent live in the rest of SEQ, primarily in the Gold Coast (16.9 per cent) and Sunshine Coast (8.8 per cent) sub-regions.

- Within Greater Brisbane, nearly half of the population (48.8 per cent) live in the Outer Ring, 39.2 per cent in the Middle Ring, and 12.0 per cent in the Inner Ring.

- Over the last four years (2016–2020), the SEQ population has grown from 3.46 million to 3.76 million, with an annual growth rate of 2.1 per cent. With a total of 300,510 residents gained by the SEQ region, the main growth LGAs were Brisbane (88,247), Gold Coast (59,888) and Moreton Bay (40,347).

- The Ipswich LGA has the highest annual average growth rate of 3.5 per cent from 2016 to 2020, followed by Sunshine Coast (2.7 per cent) and Gold Coast LGA (2.5 per cent). Logan and Moreton Bay LGAs also had growth rates that exceeded the SEQ rate.

- Greater Brisbane has a 2.0 per cent annual growth rate between 2016 to 2020. Inner Brisbane (2.8 per cent) and Outer Brisbane (2.3 per cent) have grown faster than Middle Brisbane (1.5 per cent). Greater Brisbane accommodated nearly 64 per cent of the population growth of SEQ over the last four years. Outside of Greater Brisbane, the Gold Coast housed a significant share of SEQ's growth (at 19.9 per cent).

- The most dominant source of population growth for the SEQ region was internal migration, which was responsible for 38 per cent of growth between 2017 and 2020. International migration contributed a further 33 per cent of the population growth in SEQ, with natural increase responsible for the rest of the growth.

- Brisbane LGA had the highest population-weighted density (PWD) among the SEQ LGAs, and Gold Coast LGA had the second-highest PWD in 2020.

- SEQ's overall PWD was 4196 persons per km² in 2020, which increased by 485 persons per km² from 2016.

- Inner Brisbane has the highest population density of the SEQ rings/sub-regions and experienced the highest increase in PWD (2425 persons per km²) over the past four years. Outside of Greater Brisbane, Gold Coast has had the highest increase in PWD over the last four years (501 persons per km²).

- By 2041, SEQ is expected to add 1.64 million new residents and reach 5.41 million population. In SEQ, significant future population growth is projected in Outer Brisbane areas, such as the Ripley, Jimboomba, and Greenbank SA2s, which are located in the Ipswich and Logan LGAs.

- The Ipswich LGA is projected to add 327,804 new residents by 2041, the largest growth in the SEQ region. Gold Coast LGA is projected to add a further 308,495 residents and the City of Brisbane LGA a further 278,150 new residents.

- The proportion of the SEQ population aged 65 and over is expected to increase from 15.5 per cent in 2021 to 20.3 per cent in 2041. Overall, SEQ will have a much older population in the future; this will necessitate careful planning of social services in the region.

3.1 Introduction

This chapter provides an analysis of the SEQ region population to understand the growth patterns and trends in the region over time. Population growth is intrinsically connected to housing, jobs, transport and liveability. By 2041, the region is expected to accommodate an additional 1.64 million residents (Queensland Government 2018a).

The chapter is divided into four sections – population snapshot, population growth, population-weighted density and future population projections. Firstly, the chapter provides a snapshot of the population in 2020, based on the Australian Bureau of Statistics (ABS) Estimated Residential Population (ERP) data as of 30 June 2020 (see Box 3.1).[6] The second section of the chapter analyses population growth from 2016 to 2020, using the ERP data for 2016 and 2020. In addition, this section also gives information about the sources of population growth and information on changes in the population composition by age. The third part of the chapter provides information on population-weighted density (PWD) in the SEQ region. The last section shows the projected future population and its spatial distribution.

Most of the spatial analysis is based on the following geographies: the 12 LGAs, the SEQ sub-regions, and SA2s. The definition of SEQ sub-regions is provided in Chapter 1, Table 1.3.

> **Box 3.1 What is Estimated Resident Population?**
>
> According to the ABS, ERP refers to all usual residents, regardless of nationality or citizenship, who usually live in Australia, excluding foreign diplomatic personnel and their families (ABS n.d.). It includes usual residents who are overseas for less than 12 months and excludes overseas visitors who are in Australia for less than 12 months. The ERP is based on the Census of Population and Housing results, adjusted for the net undercount and Australian usual residents temporarily overseas on census night. Two main steps are involved in estimating the national and state/territory population:
>
> - calculating the base population (Census year population estimates)
> - updating this base population (post-censal population estimates).
>
> The post-censal population estimates are derived by ageing the base population, then adjusting for subsequent components of population growth (births, deaths, overseas and interstate migration) (ibid).

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6   This was the latest available ERP data at the time the research was undertaken in late 2021. However, the ABS has subsequently produced updated and revised ERP estimates, most recently in July 2022.

3.2 Population snapshot

SEQ is the third most populous area in Australia. Table 3.1 below shows the capital cities population as of 30 June 2020 along with SEQ. Around 15 per cent of the Australian population lives in the SEQ region.

Table 3.1: **Population of capital cities and SEQ as of 30 June 2020**

Capital cities	Estimated Resident Population, 2020	Proportion of Australian total (per cent)
Sydney	5,367,206	20.9
Melbourne	5,159,211	20.1
Brisbane	2,560,720	10.0
Adelaide	1,376,601	5.4
Perth	2,125,114	8.3
Hobart	238,834	0.9
Darwin	147,231	0.6
Canberra	431,380	1.7
SEQ	3,764,756	14.7
Australia	**25,687,041**	**100.0**

Source: Australian Bureau of Statistics (ABS), regional population 2019–20.

Population snapshot of SEQ in 2020: LGAs

The ABS ERP for the 12 LGAs of the SEQ region was 3.80 million as of 30 June 2020, up from 3.49 million in 2016. Table 3.2 gives the LGA population snapshot. Among the 12 LGAs, the highest population is in Brisbane LGA, at 1.27 million. Gold Coast (635,191) and Moreton Bay (479,639) have the second and third highest populations. The Sunshine Coast, Logan and Ipswich LGAs also make a significant contribution, with each having between 200,000 and 350,000 residents. The Somerset LGA has the lowest ERP in the region (26,279) in 2020.

Proportionately, Brisbane LGA has the highest share of the total population of the 12 LGAs (33.5 per cent). Gold Coast and Moreton Bay are the second and third most populated LGAs, with population shares of 16.7 per cent and 12.6 per cent, respectively. The Lockyer Valley, Scenic Rim, and Somerset LGAs each contribute less than 1.2 per cent of the region's ERP.

These 12 LGAs account for 73.3 per cent of the entire Queensland population. Nearly three-quarters of the state population is living in the region, which reinstates the region's significance. Taken together, the Brisbane, Gold Coast and Moreton Bay LGAs comprise almost 50 per cent of the State's population.

Table 3.2: Snapshot of the estimated residential population of LGAs in SEQ as of 30 June 2020

LGAs	Estimated Resident Population, June 2020	Population share within SEQ, 2020	Population share within QLD, 2020
Brisbane	1,272,999	33.5	24.6
Gold Coast	635,191	16.7	12.3
Ipswich	229,845	6.1	4.4
Lockyer Valley	42,267	1.1	0.8
Logan	341,985	9.0	6.6
Moreton Bay	479,639	12.6	9.3
Noosa	56,587	1.5	1.1
Redland	160,331	4.2	3.1
Scenic Rim	43,625	1.1	0.8
Somerset	26,279	0.7	0.5
Sunshine Coast	336,482	8.9	6.5
Toowoomba	170356	3.7	2.7
12 LGAs total	3,795,586	100.0	73.3
TOTAL QUEENSLAND	5,176,186		100.0

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ.
Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Population snapshot of SEQ in 2020: BCARR rings and sub-regions

As previously shown in Figure 1.2, Greater Brisbane is divided into nine sub-regions, which includes the Inner sub-region (ring), plus four middle and four outer sub-regions. Brisbane LGA is comprised of the Inner and four middle sub-regions. Outer Brisbane comprises four LGAs that surround the Brisbane LGA and have a significant commuter connection with the Inner and Middle sub-regions. The rest of SEQ is made up of the seven remaining LGAs of the SEQ region. Inner Brisbane, Middle Brisbane, Outer Brisbane, and the Rest of SEQ are referred to as BCARR rings for this research.

Greater Brisbane is home to 66 per cent of the SEQ population. Table 3.3 provides the population snapshot of the SEQ BCARR rings and sub-regions. Twelve per cent of the Greater Brisbane population live in the Inner Ring. The Middle Ring has 39.2 per cent of the residential population of the Greater Brisbane area, while the Outer Ring comprises the highest share of the Greater Brisbane population, which is 48.8 per cent.

Within the Middle Ring, Middle South has the highest proportion of the residential population (15.4 per cent). By contrast, the Middle East has the lowest share of the residential population (3.3 per cent). Among the Outer Brisbane Ring, Moreton Bay has the highest percentage of the residential population (19.3 per cent), followed by Logan (13.8 per cent) and Ipswich (9.2 per cent). Outside of Greater Brisbane, the Gold Coast sub-region has the highest percentage (16.9 per cent) of ERP within the SEQ region, followed by Sunshine Coast (8.8 per cent). The Outer Brisbane ring has the highest population (1,212,039) among the BCARR rings, followed by Middle Brisbane (974,234).

Table 3.3: Snapshot of the estimated resident population of SEQ sub-regions as of 30 June 2020

BCARR rings/sub-regions	Estimated Resident Population, June 2020	Share of Greater Brisbane population (per cent)	Share of SEQ population (per cent)
INNER Brisbane*	298,546	12.0	7.9
MIDDLE Brisbane – TOTAL*	974,234	39.2	25.9
Middle East	82,790	3.3	2.2
Middle North	228,486	9.2	6.1
Middle South	381,849	15.4	10.1
Middle West	281,109	11.3	7.5
OUTER Brisbane – TOTAL	1,212,039	48.8	32.2
Ipswich	229,818	9.2	6.1
Redland	160,331	6.5	4.3
Logan	341,985	13.8	9.1
Moreton Bay	479,905	19.3	12.7
TOTAL – GREATER BRISBANE	2,484,819	100.0	66.0
Rest of SEQ	1,279,937		34.0
Gold Coast	635,191		16.9
Sunshine Coast	332,562		8.8
Noosa	60,487		1.6
Toowoomba (urban part)	139,526		3.7
Scenic Rim	43,625		1.2
Lockyer Valley	42,263		1.1
Somerset	26,283		0.7
TOTAL – SOUTH EAST QUEENSLAND	3,764,756^		100.0

Notes:

* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^ The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Population snapshot of SEQ in 2020: SA2s

To illustrate the spatial distribution of the population, Figure 3.1 shows the number of people living in each SA2 in 2020. Some of the SA2s have less than 30 population and were mainly nature reserve, such as Mount Coot-tha and Lake Manchester – England Creek. According to the 2016 Australian Statistical Geography Standard (ASGS) boundaries, the SEQ region contains 332 SA2s.

As shown in Table 3.4, the three most populous SA2s are North Lakes – Mango Hill (39,565), Upper Coomera – Willow Vale (37,148) and Jimboomba (35,571). They are located in the Moreton Bay, Gold Coast, and Logan LGAs, respectively (see Table 3.4). Among the ten most populous SA2s, four are located in the Moreton Bay LGA, and Gold Coast LGA contains three. Caboolture in the Moreton Bay LGA is one of the future growth areas identified by the Queensland Government. A detailed discussion of this growth area is included in Chapter 4.

Some of the least populous SA2s in the SEQ region include Eagle Farm – Pinkenba in the Middle North sub-regions (1,485 persons), Riverview in Ipswich (3,002) and Upper Caboolture in Moreton Bay (3,425). The average population size across the SA2s in the SEQ region is 11,340 people. The Noosa LGA has the lowest population average per SA2 (7,240).

Figure 3.1: Distribution of population by SA2s in SEQ as of 30 June 2020
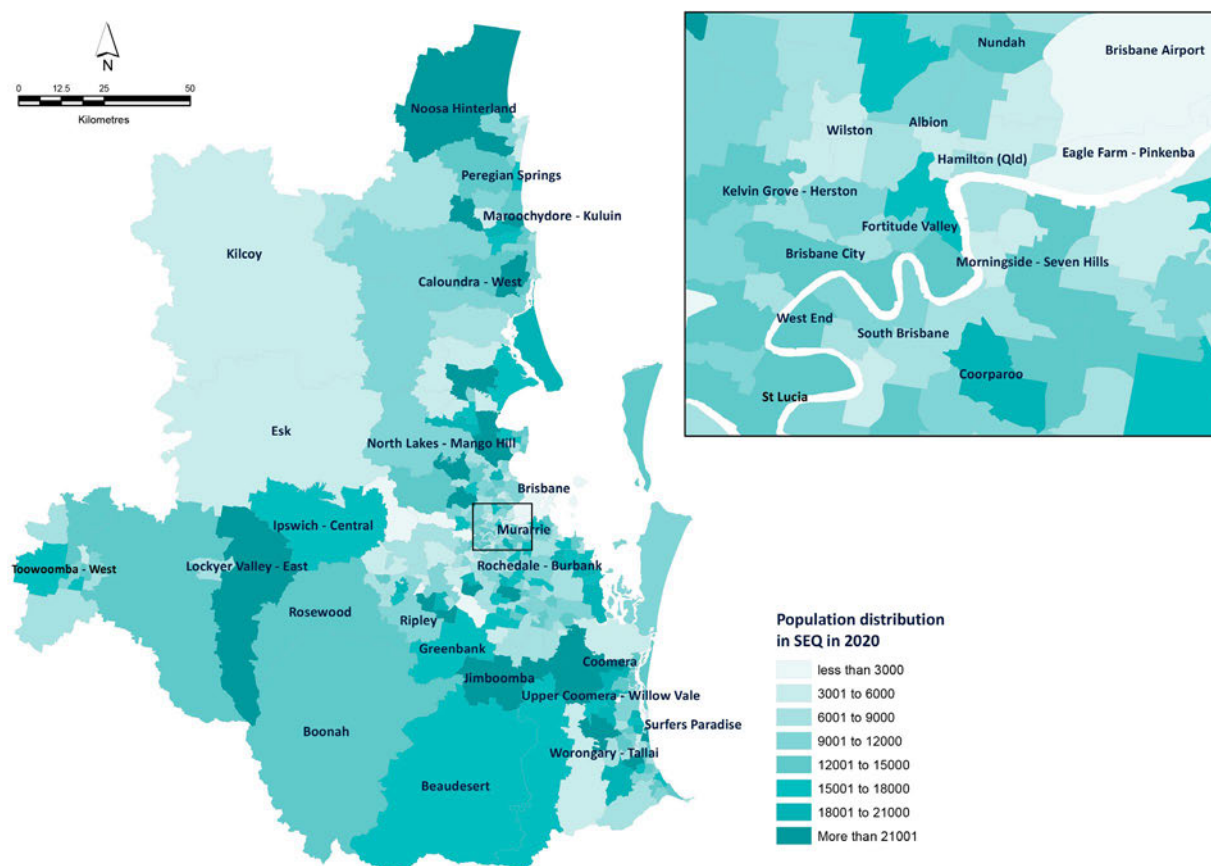
Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Table 3.4: Ten SA2s with the largest estimated resident population in SEQ as of 30 June 2020

SA2s	BCARR rings/ sub-regions	Estimated resident population, 2020	Population share within SEQ 2020
North Lakes – Mango Hill	Moreton Bay	39,565	1.1
Upper Coomera – Willow Vale	Gold Coast	37,148	1.0
Jimboomba	Logan	35,571	0.9
Forest Lake – Doolandella	Middle West	31,267	0.8
Caboolture	Moreton Bay	30,284	0.8
Surfers Paradise	Gold Coast	28,160	0.7
Caloundra – West	Sunshine Coast	27,992	0.7
Dakabin – Kallangur	Moreton Bay	27,952	0.7
Robina	Gold Coast	26,486	0.7
The Hills District	Moreton Bay	24,604	0.7

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Figure 3.2 shows the distribution of the population of SEQ in 2016. Here one dot represents 150 population. Population density is higher along the coast and in the middle region. The North West and South West of SEQ have lower population density.

Figure 3.2: Distribution of population in SEQ in 2016
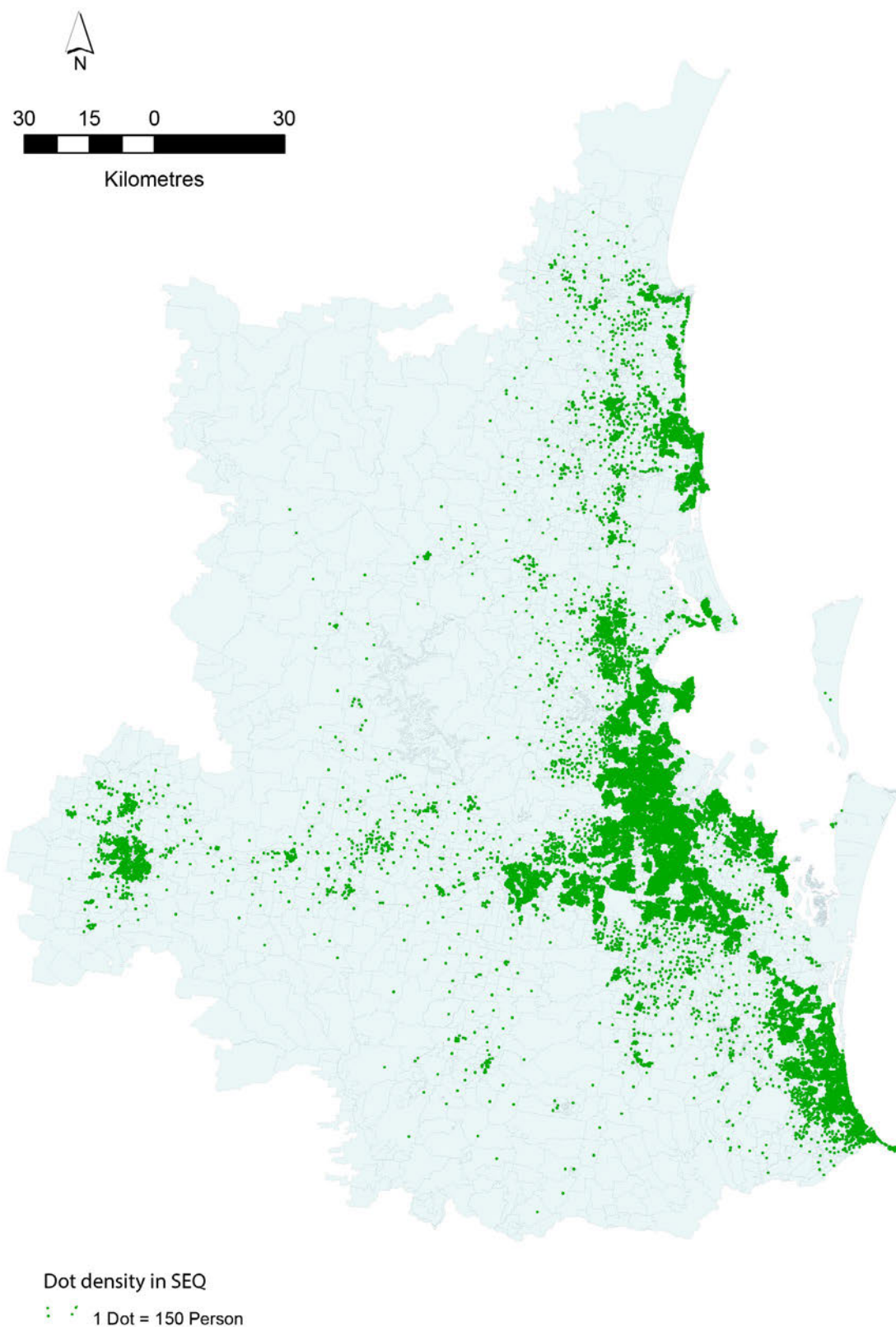
Source: BCARR analysis of Census of Population and Housing, 2016: Mesh Block Counts, Australia, 2016.

3.3 Population growth

Population growth of SEQ from 2016 to 2020: LGAs

The total population of the 12 LGAs has increased by an average of 2.1 per cent per annum between 2016 and 2020, adding 302,842 people. The highest growth occurred in Brisbane LGA (88,247), followed by Gold Coast (59,888), Moreton Bay (40,347) and Sunshine Coast (33,641). They are the four main SEQ growth centres over the last four years (see Table 3.5).

However, the Ipswich LGA is growing at a faster rate. Among the 12 LGAs, Ipswich has experienced the highest annual growth (3.5 per cent), followed by Sunshine Coast (2.7 per cent) and Gold Coast (2.5 per cent) (see Table 3.5). Logan and Moreton Bay LGAs have also grown by more than 2 per cent annually in the same period. The Toowoomba LGA has the lowest annual growth in the region (0.9 per cent) from 2016 to 2020, followed by Somerset and Noosa.

Brisbane LGA accounted for 29.1 per cent of the increased population from 2016 to 2020, which is the highest in the region. Other than Brisbane, Gold Coast (19.8 per cent), Moreton Bay (13.3 per cent), and Sunshine Coast (11.1 per cent) each accounted for over 10 per cent of population growth throughout 2016 to 2020. Somerset has the lowest growth within the SEQ region, followed by Scenic Rim, Noosa and Lockyer Valley, with these 4 LGAs each contributing less than 1 per cent of the region's growth in the same period.

Table 3.5: Population growth in the LGAs of SEQ from 2016 to 2020

LGAs	Estimated resident population, 2020	Estimated resident population, 2016	Changes 2016–2020	Average annual growth rate (per cent)	Share of growth (per cent)
Brisbane	1,272,999	1,184,752	88,247	1.8	29.1
Gold Coast	635,191	575,303	59,888	2.5	19.8
Ipswich	229,845	200,103	29,742	3.5	9.8
Lockyer Valley	42,267	39,499	2,768	1.7	0.9
Logan	341,985	314,511	27,474	2.1	9.1
Moreton Bay	479,639	439,292	40,347	2.2	13.3
Noosa	56,587	53,922	2,665	1.2	0.9
Redland	160,331	152,216	8,115	1.3	2.7
Scenic Rim	43,625	40,984	2,641	1.6	0.9
Somerset	26,279	25,153	1,126	1.1	0.4
Sunshine Coast	336,482	302,841	33,641	2.7	11.1
Toowoomba	170,356	164,168	6,188	0.9	2.0
12 LGAs total	3,795,586	3,492,744	302,842	2.1	100.0

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ.
Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020 and 2016.

Population growth of SEQ from 2016 to 2020: BCARR rings and sub-regions

From 2016 to 2020, SEQ had a 2.1 per cent average annual growth rate and added 300,510 more population (Table 3.6). Altogether Greater Brisbane grew 2.0 per cent annually from 2016 to 2020. Within Greater Brisbane, Ipswich and Inner Brisbane have the highest population growth (2.8 per cent). Middle Brisbane has an average annual growth rate lower than the SEQ average, while Outer Brisbane slightly exceeds the SEQ average yearly growth rate. Between 2016 and 2020, Greater Brisbane added 191,929 people, which accounts for nearly 64 per cent of the total growth of SEQ. Within Greater Brisbane, Outer Brisbane has added 105,433 more people over the past four years.

Outer Brisbane has accommodated 54.9 per cent, Middle Brisbane 28.6 per cent, and Inner Brisbane 16.5 per cent of population growth within the Greater Brisbane region throughout 2016 to 2020. Within the outer sub-regions, Moreton Bay has the highest share of the increase in population (21.0 per cent). Within the Middle ring, the Middle South sub-region added the most population.

Within SEQ, the Rest of SEQ is responsible for 36.1 per cent of population growth, followed by the Outer Brisbane ring (35.1 per cent), Middle Brisbane (18.3 per cent) and Inner Brisbane (16.5 per cent). In the Rest of SEQ, Gold Coast (19.9 per cent) and Sunshine Coast (11.1) have been responsible for a significant share of SEQ's population growth.

Table 3.6: Population growth in SEQ sub-regions from 2016 to 2020

BCARR rings/sub-regions	Estimated resident population, June, 2016	Estimated resident population, June, 2020	Changes (2016–2020)	Average annual growth rate, 2016–2020 (per cent)	Proportion of Greater Brisbane's increase 2016–2020 (per cent)	Proportion of SEQ's increase, 2016–2020 (per cent)
INNER Brisbane*	266,968	298,546	31,578	2.8	16.5	10.5
MIDDLE Brisbane – TOTAL*	**919,316**	**974,234**	54,918	1.5	28.6	18.3
Middle East	79,187	82,790	3,603	1.1	1.9	1.2
Middle North	214,765	228,486	13,721	1.6	7.1	4.6
Middle South	356,779	381,849	25,070	1.7	13.1	8.3
Middle West	268,585	281,109	12,524	1.1	6.5	4.2
OUTER Brisbane – TOTAL	**1,106,606**	**1,212,039**	105,433	2.3	54.9	35.1
Ipswich	200,203	229,818	29,615	3.5	15.4	9.9
Redland	152,216	160,331	8,115	1.3	4.2	2.7
Logan	314,511	341,985	27,474	2.1	14.3	9.1
Moreton Bay	439,676	479,905	40,229	2.2	21.0	13.4
TOTAL – GREATER BRISBANE	**2,292,890**	**2,484,819**	191,929	2.0	100.0	63.9
Rest of SEQ	1,171,356	1,279,937	108,581	2.2		36.1
Gold Coast	575,303	635,191	59,888	2.5		19.9
Sunshine Coast	299,225	332,562	33,337	2.7		11.1
Noosa	57,538	60,487	2,949	1.3		1.0
Toowoomba (urban part)	133,654	139,526	5,872	1.1		2.0
Scenic Rim	40,984	43,625	2,641	1.6		0.9
Lockyer Valley	39,503	42,263	2,760	1.7		0.9
Somerset	25,149	26,283	1,134	1.1		0.4
TOTAL – SOUTH EAST QUEENSLAND^	**3,464,246**	**3,764,756**	**300,510**	**2.1**		**100.0**

Notes:

* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^ The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Population growth of SEQ from 2016 to 2020: SA2s

Tables 3.7 and 3.8 below show the population growth of the SA2s in SEQ from 2016 to 2020. According to Table 3.7, Pimpama (12,609) had the most significant increase in population over the four years, followed by Jimboomba (9,011) and North Lakes – Mango Hill (8,226). The highest average annual growth rates occurred in Pimpama (23.5 per cent), Ripley (19.7 per cent) and Eagle Farm – Pinkenba (14.9 per cent). While most of the top growth SA2s were located in Outer Brisbane or Rest of SEQ, there is some evidence of urban infill in established suburbs such as Newstead-Bowen Hills and Eagle Farm-Pinkenba. The rapid recent population growth in Eagle Farm-Pinkenba reflects Mirvac's ongoing development of the Eagle Farm Residential Precinct, adjoining the Eagle Farm Racecourse.

Table 3.7: SA2s with the largest increase in population in SEQ from 2016 to 2020

SA2s	BCARR rings/ sub-regions	Estimated resident population, 2020	Estimated resident population, 2016	Changes in number 2016–2020	Average annual growth rate, 2016–2020 (per cent)
Pimpama	Gold Coast	22,093	9,484	12,609	23.5
Jimboomba	Logan	35,571	26,560	9,011	7.6
North Lakes – Mango Hill	Moreton Bay	39,565	31,339	8,226	6.0
Springfield Lakes	Ipswich	23,535	16,037	7,498	10.1
Caloundra – West	Sunshine Coast	27,992	20,815	7,177	7.7
Coomera	Gold Coast	19,724	13,685	6,039	9.6
Murrumba Downs – Griffin	Moreton Bay	23,557	18,181	5,376	6.7
Ripley	Ipswich	9,759	4,755	5,004	19.7
Upper Coomera – Willow Vale	Gold Coast	37,148	32,204	4,944	3.6
Newstead – Bowen Hills	Inner	16,042	11,355	4,687	9.0

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Table 3.8: SA2s with the largest proportional change in population in SEQ from 2016 to 2020

SA2s	BCARR rings/ sub-regions	Estimated resident population, 2020	Estimated resident population, 2016	Changes in Number 2016–2020	Average annual growth rate, 2016–2020 (per cent)
Pimpama	Gold Coast	22,093	9,484	12,609	23.5
Ripley	Ipswich	9,759	4,755	5,004	19.7
Eagle Farm – Pinkenba	Middle North	1,485	852	633	14.9
Springfield Lakes	Ipswich	23,535	16,037	7,498	10.1
Coomera	Gold Coast	19,724	13,685	6,039	9.6
Rochedale – Burbank	Middle South	9,541	6,665	2,876	9.4
Newstead – Bowen Hills	Inner	16,042	11,355	4,687	9.0
Peregian Springs	Sunshine Coast	10,536	7,489	3,047	8.9
Chambers Flat – Logan Reserve	Logan	7,260	5,245	2,015	8.5
Pallara – Willawong	Middle South	6,771	4,892	1,879	8.5

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Figure 3.3 shows population changes across the SA2s in SEQ between 2016 and 2020. A feature of the map is the cluster of SA2s with large population increases to the south of Brisbane, extending from Ripley in the Ipswich LGA, through Jimboomba in the Logan LGA, and on to Pimpama and Coomera in the northern part of the Gold Coast (as previously highlighted in Table 3.7).

Figure 3.3: Changes in population in SEQ SA2s 2016–2020

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2016 to 2020.

Figure 3.3 also shows some pockets of population decline. Table 3.9 shows the SA2s that experienced the largest population decreases between 2016 and 2020. The largest decline was for the Woodridge SA2 in the Logan LGA, which lost 481 residents between 2016 and 2020.

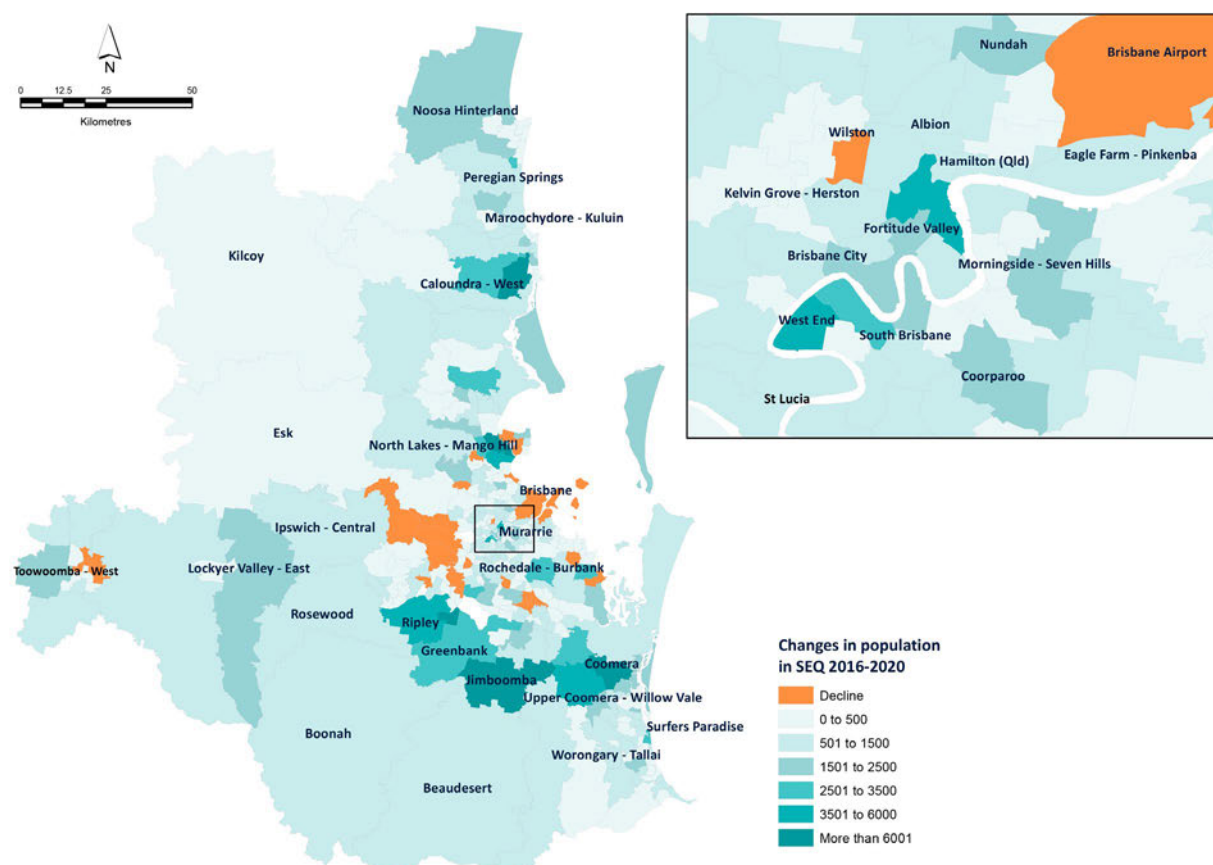**Table 3.9: SA2s with the largest decrease in population in SEQ from 2016 to 2020**

SA2s	BCARR rings/ sub-regions	Estimated resident population, 2020	Estimated resident population, 2016	Change in Number 2016–2020	Average annual growth rate, 2016–2020 (per cent)
Woodridge	Ipswich	12,530	13,011	−481	−0.9
Rothwell – Kippa-Ring	Logan	17,450	17,717	−267	−0.4
Toowoomba – East	Logan	9,780	10,012	−232	−0.6
Slacks Creek	Toowoomba	10,627	10,837	−210	−0.5
Kingston (Qld.)	Middle North	10,544	10,730	−186	−0.4

Source: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Sources of population growth in SEQ

Natural increase, internal migration (including interstate migration, intrastate migration) and overseas migration are the three primary sources of population growth in Australia. Table 3.10 shows the components of population change in the capital cities of Australia. Brisbane is the most popular destination for internal migrants in Australia. Brisbane has received the largest net internal migration inflow of the capital cities, whereas Sydney and Melbourne lost a large number of internal migrants from 2018–19 to 2019–20. Brisbane had a similar net natural increase (34,850) and net overseas migration (34,958).

Table 3.10: **Components of population change in the capital cities from 2018–2019 to 2019–2020**

Capital cities	Net natural increase	Net internal migration	Net overseas migration
Melbourne	67,130	- 7,014	133,452
Sydney	75,812	- 55,642	124,002
Brisbane	34,850	29,693	34,958
Perth	29,447	- 667	36,184
Adelaide	9,763	- 6,301	26,565
Canberra	6,786	- 844	5,478
Hobart	1,665	551	3,839
Darwin	3,078	- 5,077	674

Source: Australian Bureau of Statistics, Regional population 2018–2019 to 2019–2020 financial year.

Table 3.11 shows the sources of population growth of the 12 LGAs of the SEQ region from 2017 to 2020. The total population increase for that period was 225,698. Internal migration is the most dominant source of population growth in the region. Gold Coast, Sunshine Coast and Moreton Bay LGAs have received the highest internal migration between 2017 and 2020, reflecting people's coastal living preferences. The Toowoomba LGA has received negative internal migration in this period (–95). Overseas migration is the second most important source of population growth in the region. Brisbane LGA has received the most overseas migrants in the region (35,672), followed by Gold Coast (15,287).

Table 3.11: Sources of population growth in the LGAs from 2017–18 to 2019–20

LGAs	Estimated resident population, 2017	Estimated resident population, 2020	Estimated resident population, changes 2017–2020	Total natural increase 2017–2020	Total net internal migration 2017–2020	Total net overseas migration 2017–2020
Brisbane	1,208,663	1,272,999	64,336	24,076	4,588	35,672
Gold Coast	591,141	635,191	44,050	9,379	19,384	15,287
Ipswich	206,500	229,845	23,345	7,498	13,484	2,363
Lockyer Valley	40,219	42,267	2,048	683	582	783
Logan	320,487	341,985	21,498	10,314	6,079	5,105
Moreton Bay	449,213	479,639	30,426	7,950	17,042	5,434
Noosa	54,642	56,587	1,945	−197	1,325	817
Redland	154,590	160,331	5,741	1,412	2,775	1,554
Scenic Rim	41,749	43,625	1,876	266	1,316	294
Somerset	25,529	26,279	750	268	316	166
Sunshine Coast	311,142	336,482	25,340	2,626	18,134	4,580
Toowoomba	166,013	170,356	4,343	2,593	- 95	1,845
12 LGAs total	**3,569,888**	**3,795,586**	**225,698**	**66,868**	**84,930**	**73,900**

Source: BCARR analysis of ABS.Stat, ERP and components by LGA (ASGS 2020), 2017 to 2020.

The highest natural increase in the population has occurred in Brisbane (24,076), Logan (10,314), Gold Coast (9,379) and Ipswich (7,498). Noosa has experienced a net negative change in population due to deaths exceeding births in this period (−197).

From 2017 to 2020, 37.6 per cent growth came from internal migration, 32.7 per cent from overseas migration and 29.6 from natural increase in the 12 LGAs of SEQ (see Figure 3.4). Toowoomba has the highest proportion of its population increase due to natural increase, which accounts for nearly 60 per cent of its growth. Logan (48.0 per cent) and Brisbane (37.4 per cent) have the next highest natural increase as their source of growth. However, for Noosa, this category made a negative contribution to the LGA's population growth during this period. Internal migration was the major source of population growth in the Sunshine Coast (71.6 per cent), Scenic Rim (70.1 per cent) and Noosa (68.1 per cent) LGAs in the period of 2017–2020. Moreton Bay and Ipswich also received over 50 per cent of their population growth from net internal migration. Only the Toowoomba LGA recorded a negative contribution from net internal migration.

Figure 3.4: Sources of population growth as a proportion of the population increase from 2017–18 to 2019–20 by LGAs
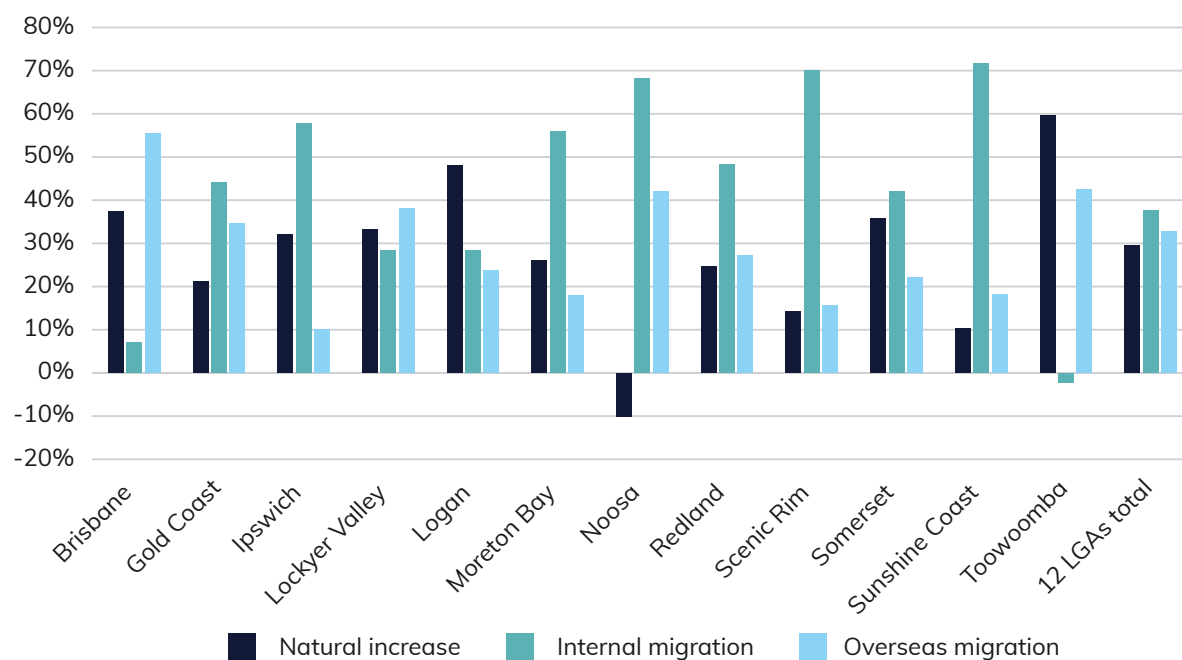
Source: BCARR analysis of ABS.Stat, ERP and components by LGA (ASGS 2020), 2017 to 2020.

In the Brisbane LGA, overseas migration was the main source of population growth (55.4 per cent). Overseas migration was also an important contributor to population growth for Toowoomba (42.5 per cent), Noosa (42.0 per cent) and Lockyer Valley (38.2 per cent) from 2017 to 2020. However, overseas migration made a relatively minor contribution to population growth in the Ipswich and Scenic Rim LGAs.

Composition of population growth: age breakdown

This section gives the data on the age composition of the SEQ population and how it has changed over the four years. Figure 3.5 divides the population into 0–14, 15 to 64, and 65 and above age groups, representing children, working-age and older populations. Overall, in the 12 LGAs, 15.5 per cent of people are aged 65 and over, and 19.1 per cent are children, and the rest are the working-age population. Ipswich LGA has the highest representation of children, and Noosa has the lowest representation of children. Brisbane LGA has the highest percentage of the working-age population, and Noosa LGA has the lowest working-age population. On the other hand, Ipswich has the lowest percentage of the older age population. Noosa and Somerset have the highest proportion of the population aged 65 and over in the SEQ region.

Figure 3.6 shows changes in population composition over time in the 12 LGAs. Overall, across the 12 LGAs, the population aged 65 and over has increased more than the other two age groups. All the LGAs, except Toowoomba and Brisbane, have experienced more than 15 per cent increases in their older age population, which shows the widespread effect of an ageing population on the SEQ region. Ipswich (23.0 per cent), Logan (19.9 per cent) and Somerset (21.0 per cent) all show particularly rapid growth in the population aged 65 and over during this period. In contrast, the population of children showed negative growth in Somerset (–2.9 per cent) and Noosa (–0.9 per cent) between 2016 and 2020.

Also of interest is the very strong population growth in the Ipswich LGA across all age groups, with a 13.9 per cent increase in the population aged 0 to 14 years, a 13.9 per cent increase in people aged 15 to 64 years, and 23.0 per cent increase in the older age population.

Figure 3.5: Distribution of population by age groups for 12 SEQ LGAs in 2020
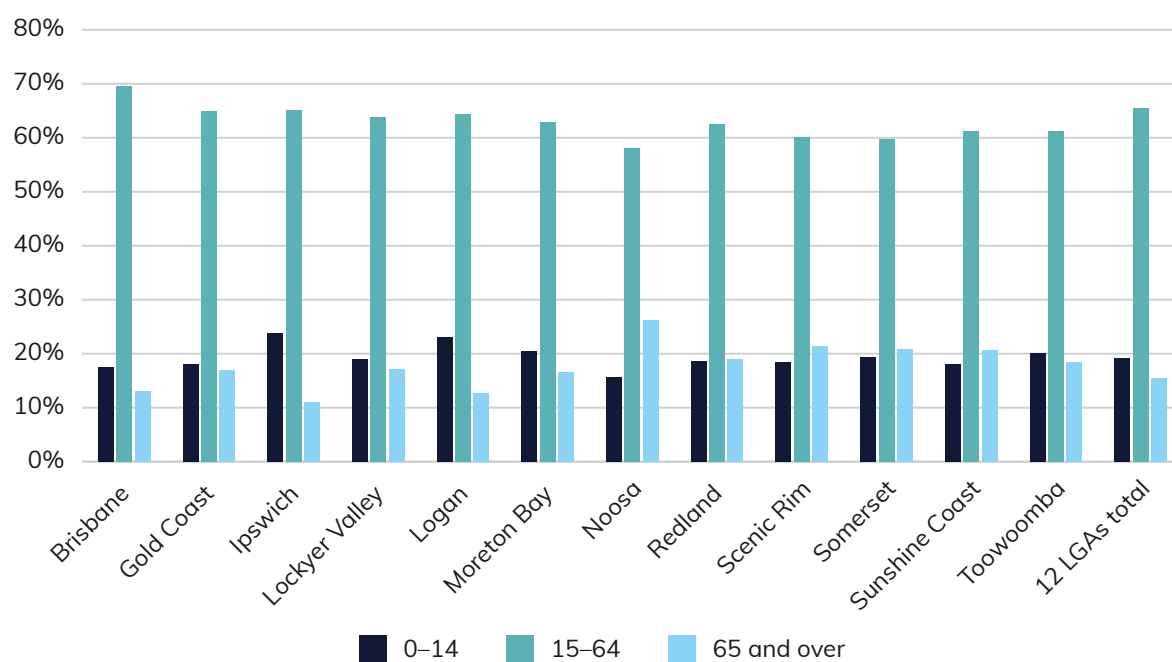
Source: BCARR analysis of ABS.Stat, Regional population by age and sex, 2020.

Figure 3.6: Changes in population by age group in 12 SEQ LGAs, 2016–2020
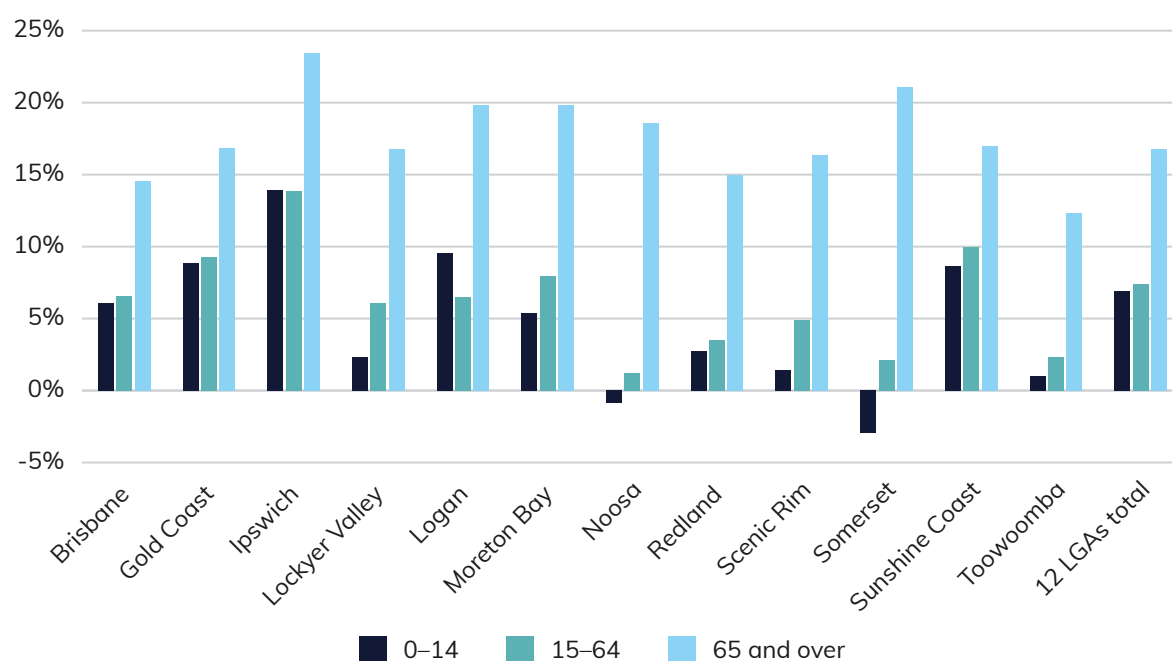
Source: BCARR analysis of ABS.Stat, Regional population by age and sex, 2016–2020.

3.4 Population-weighted density (PWD)

This report uses PWD instead of average population density. Average population density covers rural land, nature reserves, industrial and other land uses, whereas PWD excludes those land uses. A city where a large proportion of people live in dense areas will have a much higher PWD than the average population density. For more details, see Box 3.2.

> **Box 3.2 What is PWD? Why is it important?**
>
> PWD is a weighted average of the density of all the parcels of land in the city, with the population of each parcel of land providing the weighting. PWD gives equal weight to each person rather than to the land (Barnes 2001). This means land that is not populated is excluded from the measurement (Morton 2014). This altered method of measurement increases the density results that would have otherwise been presented using the average density calculation that includes all of the lands within the official city boundaries. Morton (2014) considers PWD more as a measurement of clustering of people. The results present unequal weighting based on the relative density of the neighbourhood.
>
> PWD can be calculated in census years based on Mesh Block population counts, where Mesh Blocks are used to represent parcels of land, and Mesh Blocks with a zero population are excluded from the measurement. BCARR has developed estimates of Mesh Block populations for 2020 that adjust the 2016 census Mesh Block population counts based on the change in the ABS' ERP between 2016 and 2020 at the SA2 scale. The estimated Mesh Block populations for 2020 are then used to derive PWD estimates for the required SEQ geographies.

Population-weighted density in 2020: LGAs

Population density varies across the SEQ region. The level of population density in any area depends on housing density, average household size, and non-residential land in an area. Therefore this report measures the population-weighted density. The densest LGA in SEQ is Brisbane LGA (5,445 persons per km²), followed by Gold Coast (5,308 persons per km²) and Logan (2,887 persons per km²). The Somerset, Lockyer Valley and Scenic Rim LGAs have the lowest PWD (See Table 3.12).

Table 3.12: **Population-weighted density in the LGAs as at 30 June 2020**

LGAs	Population-weighted density, 2020
Brisbane	5,445
Gold Coast	5,308
Ipswich	2,828
Lockyer Valley	629
Logan	2,887
Moreton Bay	2,852
Noosa	1,643
Redland	2,504
Scenic Rim	641
Somerset	594
Sunshine Coast	2,724
Toowoomba	1,765
12 LGAs total	**3,976**

Note: The PWD estimates in this table are calculated by directly aggregating the Mesh Block data to the LGA scale and differ from the estimates in Table 3.13, which were derived via a two-stage calculation method (from Mesh Blocks to SA2s to sub-regions).

Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020 and Census of Population and Housing: Mesh Block Counts, Australia, 2016 (ABS 2017b).

Population-weighted density in 2020: BCARR rings and sub-regions[7]

The PWD in the SEQ region overall is 4,196 persons per km². Inner Brisbane has the highest PWD in the region, which is 12,444 persons per km². No other sub-region has such a high density, which is not surprising since it contains the Brisbane CBD (see Table 3.13). Middle South (4,333 persons per km²) and Middle North (4,130 persons per km²) have the second and third highest PWD in the Greater Brisbane region after Inner Brisbane. Middle Brisbane ring has a PWD of 3,986 people per km², whereas the Outer Brisbane average is 2,813 persons per km². In the Outer Brisbane sub-region, Ipswich and Moreton Bay have the highest densities.

Outside of Greater Brisbane, Gold Coast has the highest density per km², followed by the Sunshine Coast, Toowoomba urban area and Noosa. Toowoomba urban area has a higher population density than Toowoomba LGA as a whole (see Table 3.12 and 3.13), which is expected. The Somerset, Lockyer Valley and Scenic Rim LGAs have the lowest population density in the region.

Table 3.13: Population-weighted density in the SEQ sub-regions as of 30 June 2020

BCARR rings/sub-regions	Population-weighted density, 2020
INNER Brisbane*	12,444
MIDDLE Brisbane – TOTAL*	3,986
Middle East	3,377
Middle North	4,129
Middle South	4,333
Middle West	3,579
OUTER Brisbane –TOTAL	2,813
Ipswich	2,973
Redland	2,492
Logan	2,726
Moreton Bay	2,906
TOTAL – GREATER BRISBANE	4,430
Rest of SEQ	3,742
Gold Coast	5,385
Sunshine Coast	2,776
Noosa	1,526
Toowoomba (urban part)	2,027
Scenic Rim	644
Lockyer Valley	627
Somerset	602
TOTAL – SOUTH EAST QUEENSLAND	**4,196**

Note: The PWD estimates in this table are derived via a two-stage calculation method (from Mesh Blocks to SA2s to sub-regions), and differ from the estimates in Table 3.12, which were directly aggregated from Mesh Blocks to LGAs.

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

Sources: BCARR analysis of ABS Cat.3218.0 Regional Population Growth Data, 2020 and Census of Population and Housing: MeshBlock Counts, Australia, 2016 (ABS 2017b).

7   The population –weighted density estimates for sub-regions are based on aggregating data from Mesh Blocks to SA2s and then sub-regions, and differ from the LGA-based estimates in the previous section.

Population-weighted density of SEQ in 2020: SA2s

The level of PWD varies a lot across the SA2s in the SEQ region. Figure 3.7 below shows the PWD across SEQ. The density is more along the coast, becoming less toward inland areas. There is a clear pattern of high-density SA2s along the Brisbane River. The ten most densely populated SA2s in SEQ are shown in Table 3.14. The most densely populated SA2s are Fortitude Valley, Brisbane City and South Brisbane. Of the ten most densely populated SA2s, eight are located in Inner Brisbane. The other densely populated SA2s are mainly in the Gold Coast sub-region. Thirteen out of 332 SA2s have a population density of more than 10,000 persons per km².

Figure 3.7: Distribution of population-weighted density in SEQ in 2020

Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020 and Census of Population and Housing: Mesh Block Counts, Australia, 2016.

Table 3.14: The ten most densely populated SA2s in SEQ as of 30 June 2020

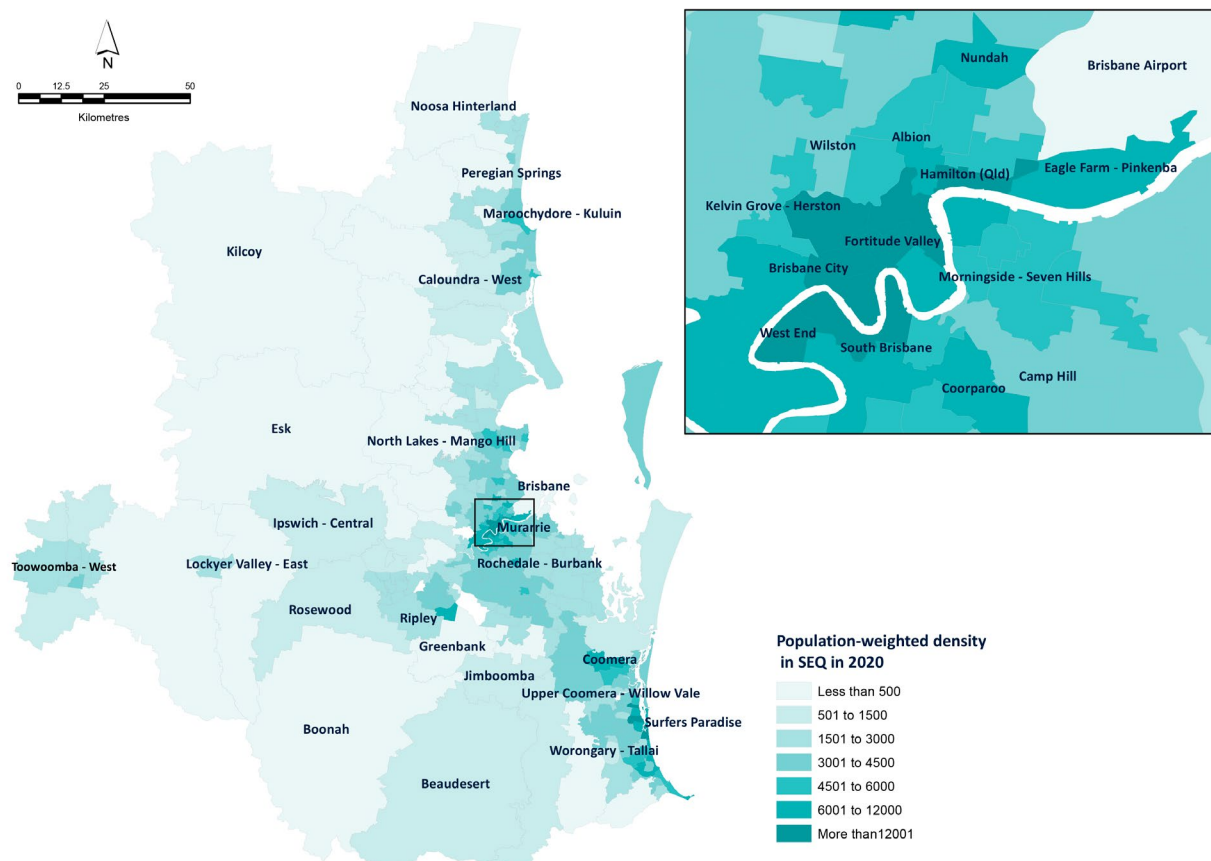| SA2s	BCARR rings/sub-regions	Population-weighted density, 2020
Fortitude Valley	Inner	49,133
Brisbane City	Inner	46,208
South Brisbane	Inner	25,046
Hamilton (Qld)	Inner	24,885
Newstead – Bowen Hills	Inner	22,504
Spring Hill	Inner	21,549
Southport – North	Gold Coast	20,808
Kelvin Grove – Herston	Inner	15,773
Surfers Paradise	Gold Coast	14,720
West End	Inner	14,709

Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020 and Census of Population and Housing: Mesh Block Counts, Australia, 2016 (ABS 2017b).

Table 3.15 shows the least densely populated SA2s in the SEQ region, and they are primarily rural or industrial areas. Lake Manchester – England Creek, Brisbane Port – Lytton and Enoggera Reservoir are the three least-populated SA2s in the region. Around 29 SA2s in SEQ have PWD of less than 500 persons per km², and 45 SA2s have less than 1000 persons per km².

Table 3.15: Five least densely populated SA2s in SEQ as of 30 June 2020

SA2s	BCARR rings/sub-regions	Population-weighted density, 2020
Lake Manchester – England Creek	Middle West	0
Brisbane Port – Lytton	Middle East	4
Enoggera Reservoir	Middle West	5
Carole Park	Ipswich	24
Lockyer Valley – West	Lockyer Valley	200

Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020 and Census of Population and Housing: Mesh Block Counts, Australia, 2016 (ABS 2017b).

Change in population-weighted density from 2016 to 2020: LGAs

The SEQ region has around 8.7 per cent population growth from 2016 to 2020, with an average annual growth rate of 2.1 per cent. The population growth has led to a density increase in the region. Table 3.16 shows the density changes across the 12 LGAs in the SEQ region between 2016 to 2020. Gold Coast LGA has the most significant changes in this period; PWD increased from 4,808 persons per km² in 2016 to 5,308 in 2020.

Table 3.16: Changes in population-weighted density of LGAs, 2016 to 2020

LGAs	Population-weighted density, 30 June 2020	Population-weighted density, 30 June 2016	Changes 2016–2020
Brisbane	5,445	5,068	377
Gold Coast	5,308	4,808	500
Ipswich	2,828	2,462	366
Lockyer Valley	629	588	41
Logan	2,887	2,655	232
Moreton Bay	2,852	2,612	240
Noosa	1,643	1,566	77
Redland	2,504	2,378	127
Scenic Rim	641	602	39
Somerset	594	568	25
Sunshine Coast	2,724	2,451	272
Toowoomba	1,765	1,701	64
12 LGAs total	**3,976**	**3,657**	**318**

Note: The PWD estimates in this table are calculated by directly aggregating the Mesh Block data to the LGA scale, and differ from the estimates in Table 3.17, which were derived via a two-stage calculation method (from Mesh Blocks to SA2s to sub-regions).

Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2016–2020 and Census of Population and Housing: Mesh Block Counts, Australia, 2016 (ABS 2017b).

Brisbane LGA has the second-highest shift in population density which is 378 persons per km², followed by Ipswich (366 persons per km²). Other LGAs which have significant changes in PWD were Logan (232 persons per km²), Moreton Bay (240 persons per km²) and Sunshine Coast (272 persons per km²). The lowest changes in PWD occur in Somerset (25 persons per km²), Scenic Rim (39 persons per km²) and Toowoomba (64 persons per km²).

Change in population-weighted density from 2016 to 2020: BCARR rings and sub-regions

Table 3.17 below shows the PWD changes in the SEQ sub-regions. Overall the SEQ region density has increased 485 persons per km² between 2016 to 2020. The highest increase (2425 persons per km²) in PWD has occurred in Inner Brisbane, from 10,019 persons per km² to 12,444 persons per km² from 2016 to 2020. In the Middle ring, the largest increases in density occurred in the Middle North and Middle South. In the Outer Ring, a significant increase in density occurred in Ipswich and Moreton Bay. Greater Brisbane's PWD has increased by 539 persons per km² from 2016 to 2020. Outside of Greater Brisbane, Gold Coast has the highest increase in PWD in the region, followed by Sunshine Coast.

Table 3.17: Changes in population-weighted density in the SEQ sub-regions from 2016 to 2020

BCARR rings/sub-region	Population-weighted density, 2020	Population-weighted density, 2016	Changes 2016–2020
INNER Brisbane*	12,444	10,019	2,425
MIDDLE Brisbane – TOTAL*	3,986	3,719	268
Middle East	3,377	3,221	156
Middle North	4,129	3,817	313
Middle South	4,333	4,043	290
Middle West	3,579	3,356	223
OUTER Brisbane – TOTAL	2,813	2,568	245
Ipswich	2,973	2,468	505
Redland	2,492	2,379	113
Logan	2,726	2,660	67
Moreton Bay	2,906	2,614	292
TOTAL – GREATER BRISBANE	4,430	3,891	539
Rest of SEQ	3,742	3,365	377
Gold Coast	5,385	4,837	547
Sunshine Coast	2,776	2,494	282
Noosa	1,526	1,489	37
Toowoomba (urban part)	2,027	1,979	49
Scenic Rim	644	602	42
Lockyer Valley	627	590	37
Somerset	602	569	32
TOTAL – SOUTH EAST QUEENSLAND	4,196	3,711	485

Note: The PWD estimates in this table are derived via a two-stage calculation method (from Mesh Blocks to SA2s to sub-regions), and differ from the estimates in Table 3.16, which were directly aggregated from Mesh Blocks to LGAs.

* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2016–2020 and Census of Population and Housing: Mesh Block Counts, Australia (ABS 2017b).

Change in population-weighted density from 2016 to 2020: SA2s

Table 3.18 shows the highest and lowest PWD changes in the SA2s of the SEQ region from 2016 to 2020. The highest increases in density occurred in Fortitude Valley, Brisbane City and South Brisbane. All of them are located in Inner Brisbane, and these 3 SA2s also had the highest PWD in 2020. Most of the density increase has occurred in the Inner Brisbane and Gold Coast areas.

Table 3.18: **Highest and lowest changes of population-weighted density in SA2s from 2016 to 2020**

SA2s	BCARR rings/ sub-region	Highest changes 2016–2020	SA2s	BCARR rings/ sub-region	Lowest changes 2016–2020
Fortitude Valley	Inner	10,389	**Woodridge**	Logan	−200
Brisbane City	Inner	7,018	**Riverview**	Ipswich	−118
South Brisbane	Inner	6,721	**Logan Central**	Logan	−102
Newstead – Bowen Hills	Inner	6,575	**Sandgate – Shorncliffe**	Middle North	−80
Pimpama	Gold Coast	3,851	**Slacks Creek**	Logan	−73

Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2016–2020 and Census of Population and Housing: Mesh Block Counts, Australia (ABS 2017b).

Among the 332 SA2s, nearly three hundred of them experienced a positive increase of PWD, five had no changes, and the rest of them experienced negative density changes. Woodbridge, Riverview and Logan Central had the largest decrease of PWD in the region. Figure 3.8 shows changes in PWD in SEQ from 2016 to 2020.

Figure 3.8: Changes in population-weighted density in SEQ from 2016 to 2020
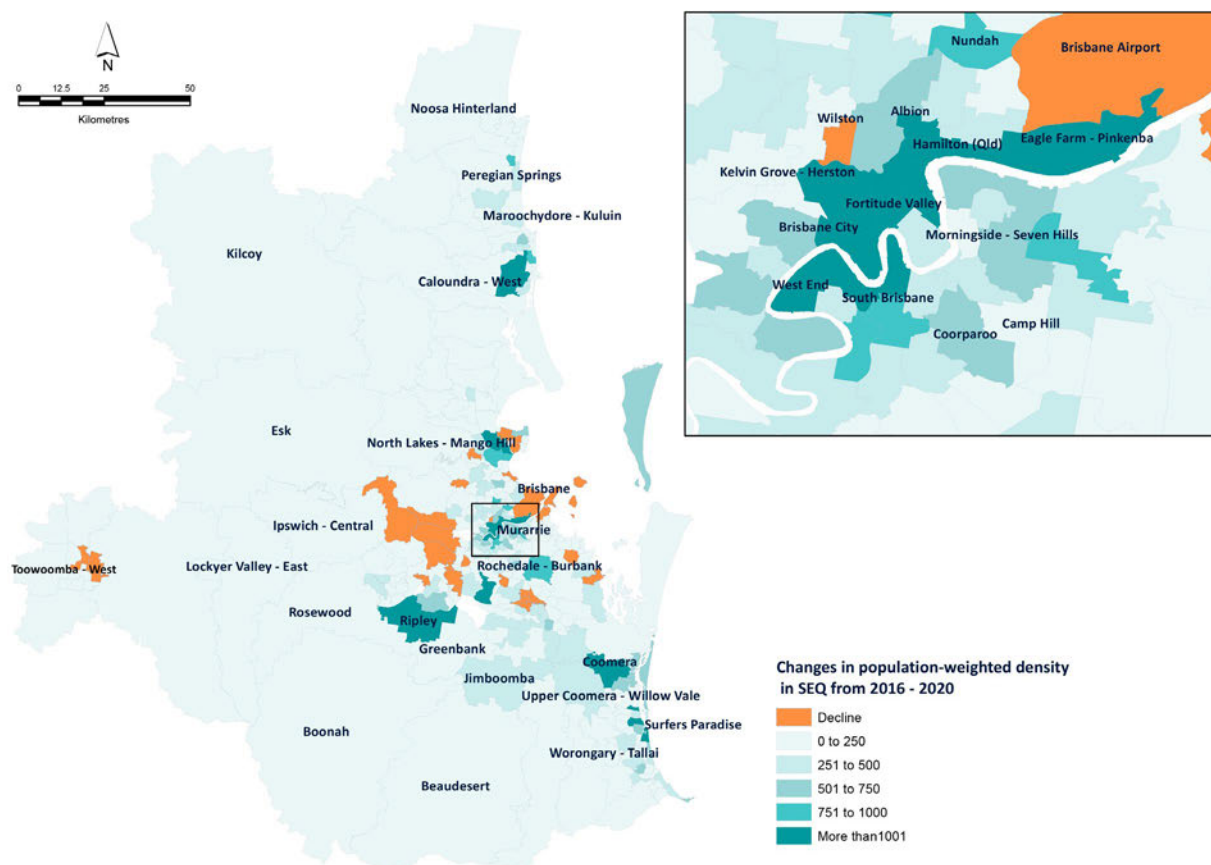
Sources: BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2016–2020 and Census of Population and Housing: Mesh Block Counts, Australia (ABS 2017b).

3.5   Projected future population

This section presents the Queensland Government's projections of the future population of SEQ at the LGA, sub-region and SA2 scale (Queensland Government 2018b). The projections were published in 2018 and cover the period out to 2041. Given the timing of their release, the projections do not factor in the impacts of the pandemic on migration flows and future population growth. The Queensland Government report presents low, medium and high projections, and this report largely relies on the medium series of population projections. Further information on the Queensland Government projections is provided in Box 3.3.

Projected future population: LGAs

Table 3.19 shows the SEQ low, medium and high population projections. According to the high projections, the 12 LGAs of SEQ are projected to increase their total population by 57.4 per cent to reach a population of 5.97 million by 2041. With the low projections, the population is projected to be 4.98 million in 2041, which is a 31.3 per cent increase.

Table 3.19: SEQ low, medium and high population projection for 2021–2041 and estimated resident population 2020

12 LGA's total projection	Estimated resident population, 2020	2041 projection	Percentage increase
Low	3,795,586	4,983,609	31.3
Medium	3,795,586	5,442,029	43.4
High	3,795,586	5,973,170	57.4

Note: Based on data for 12 LGAs, and so includes rural areas of Toowoomba LGA that are not part of SEQ.

Sources: BCARR analysis of Queensland Government population projections, 2018 and BCARR analysis of ABS Cat.3218.0 Regional Population Growth Data, 2020.

Box 3.3 What is a population projection, and how is it calculated?

The Queensland Government's population projections (Queensland Government 2018b) consider issues such as fertility and mortality rates, overseas and internal migration, demand for housing versus supply of dwellings, data reliability and availability, the rate of population change, and a region's share of the overall state population. The future size, distribution, and age structure of the population of Queensland and its regions will be the outcome of future levels of fertility, mortality and migration. As such, a demographic cohort component model (incorporating assumptions about future levels of these components of population change) is used to model these populations.

Future population change for smaller geographical levels, such as LGAs and SA2s, is less likely to result from demographic factors alone. Population change in small geographical urban areas is mainly a function of available land supply and constraints and consequent dwelling construction. For example, large amounts of available land supply are expected to result in significant future population growth in areas such as Ripley, Jimboomba (Yarrabilba) and Greenbank (Greater Flagstone). Constraints on land availability for future dwelling construction are projected to result in slowing population growth in areas such as Noosa.

Moreover, the 2018 edition of the Queensland Government's population projections also incorporate information on estimated dwelling yields in Priority Development Areas (PDAs), formerly known as Urban Development Areas, in the Greater Brisbane geographical region. PDAs are parcels of land within Queensland that have been identified for specific accelerated development with a focus on economic growth. Data on PDAs were provided by Economic Development Queensland.

Figure 3.9 and Table 3.20 shows the projected population increase of the 12 LGAs between 2020 and 2041. This is based on the Queensland Government's medium series of forecasts. The 2020 ABS ERP data is used as a reference point. Overall, the 12 LGAs population in 2041 is projected to be 5.44 million, which is a 43.4 per cent increase compared to the 2020 ERP (Figure 3.10).

Between 2020 and 2041, the largest population increases are projected for the Ipswich (327,804), Gold Coast (308,495) and Brisbane (278,150) LGAs. Logan and Moreton Bay are also expected to add more than 200,000 new residents each. The Noosa LGA has the lowest projected growth of the 12 LGAs, at just 8,412 extra persons.

Among the 12 LGAs, Ipswich LGA is expected to experience the highest percentage increase in population, around 142 per cent, which is three times higher than the SEQ projection. Significant increases in population are also projected for Logan (62.1 per cent), Scenic Rim (54.2 per cent) and Sunshine Coast (53.9 per cent) over the next 20 years. Amongst the LGAs, Noosa (14.9 per cent), Toowoomba (19.9 per cent) and Redland (20.0 per cent) are projected to have the lowest rates of growth, according to Queensland Government projections. As mentioned earlier, some of the LGAs have land constraints which are expected to inhibit future growth, such as Noosa. Other LGAs might have more scope for future development, with plenty of land availability. These factors are considered during the development of the population projections.

Figure 3.9: Projected population of LGAs (medium projection), 2021–2041 and estimated resident population, 2020
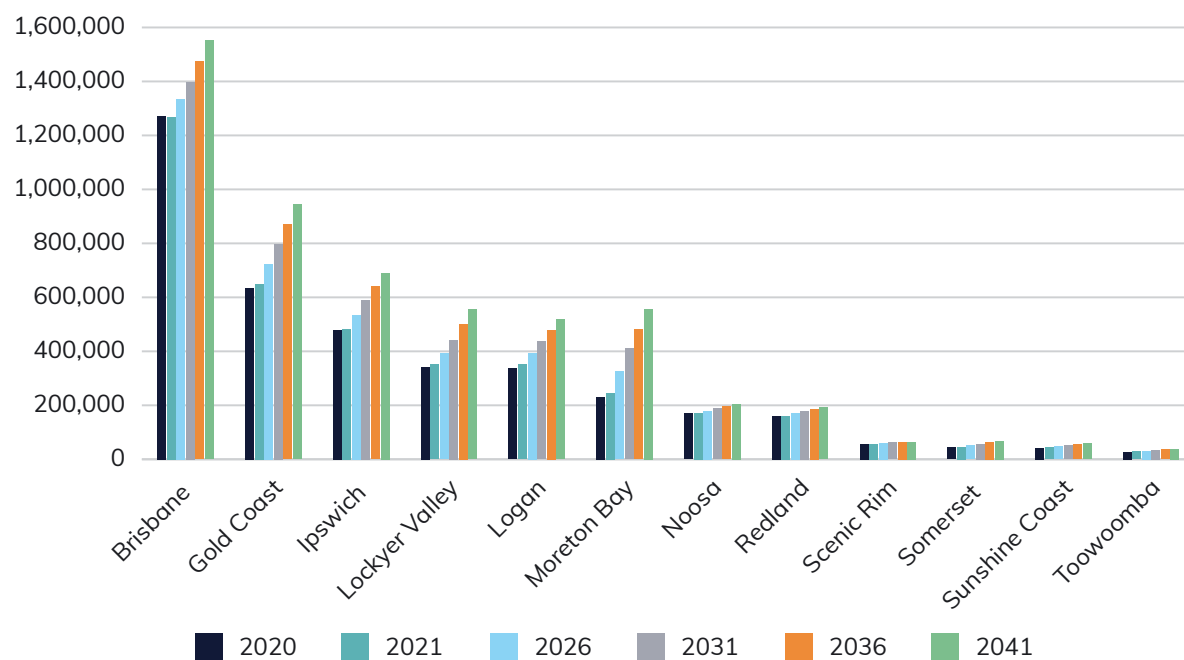
Sources: BCARR analysis of Queensland Government population projections, 2018 and BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Table 3.20: Projected population of LGAs (medium projection), 2021–2041 and estimated resident population 2020

| LGAs	Estimated resident population, 2020	Population according to 2041 medium projection	Change in population, 2020–2041 (medium projection)	Percentage change in population, 2020–2041 (medium projection)
Brisbane	1,272,999	1,551,149	278,150	21.9
Gold Coast	635,191	943,686	308,495	48.6
Moreton Bay	479,639	690,602	210,963	44.0
Logan	341,985	554,327	212,342	62.1
Sunshine Coast	336,482	518,004	181,522	53.9
Ipswich	229,845	557,649	327,804	142.6
Toowoomba	170,356	204,332	33,976	19.9
Redland	160,331	192,431	32,100	20.0
Noosa	56,587	64,999	8,412	14.9
Scenic Rim	43,625	67,290	23,665	54.2
Lockyer Valley	42,267	58,542	16,275	38.5
Somerset	26,279	39,017	12,738	48.5
12 LGAs total	**3,795,586**	**5,442,029**	**1,646,443**	**43.4**

Sources: BCARR analysis of Queensland Government population projections, 2018 and BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Figure 3.10: **Percentage change in LGAs medium population projection, 2021–2041, based on ERP 2020**
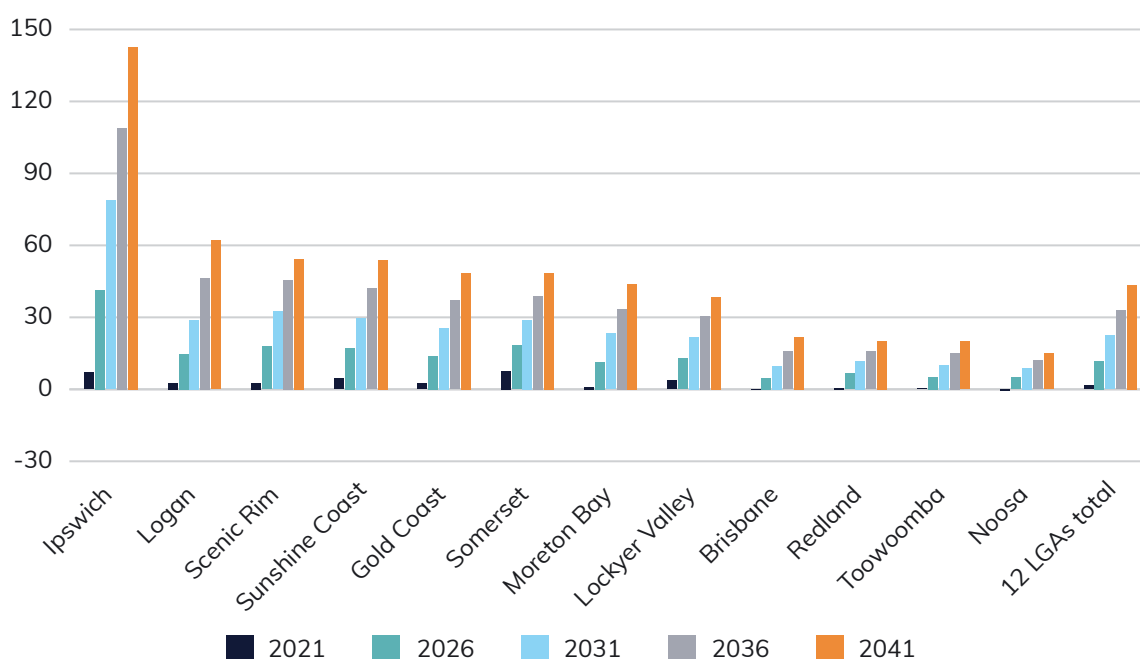
Projected future population: BCARR rings and sub-regions

Table 3.21 shows the population projections for the SEQ sub-regions. Within Greater Brisbane, Inner Brisbane is projected to grow from 298,546 to 406,004, which is a 36 per cent increase over the 20 years. Middle Brisbane is projected to grow 17.5 per cent (170,426 new residents) and Outer Brisbane 64.6 per cent, which is 783,456 additional new residents. In Outer Brisbane, Ipswich is projected to grow 142 per cent, followed by Logan (62 per cent) and Moreton Bay (44 per cent). The Ipswich sub-region alone is projected to add 327,937 more new residents in 20 years.

Redland has the least projected growth within the Outer Brisbane ring. Within the rest of SEQ, Sunshine Coast (54.7 per cent), Scenic Rim (54.2 per cent), and Gold Coast (48.6 per cent) have the highest projected growth rates, while Gold Coast and Sunshine Coast have the largest projected increases in population (at 308,495 and 181,790 persons, respectively).

To illustrate more visibly, Figures 3.11 and 3.12 show growth projections for Brisbane's Inner, Middle and Outer rings as well as the Rest of SEQ, looking at how the population is expected to change at 5-year intervals between 2021 and 2041. It shows that Outer Brisbane will accommodate more of the future population growth along with Inner Brisbane.

Table 3.21: SEQ sub-regions population projection 2021–2041 and estimated resident population, 2020

BCARR rings/sub-regions	Estimated resident population, 2020	Projected population, 2041	2041 number increase	2041 per cent increase
INNER Brisbane*	298,546	406,004	107,458	36.0
MIDDLE Brisbane – TOTAL*	974,234	1,144,660	170,426	17.5
Middle East	82,790	92,059	9,269	11.2
Middle North	228,486	268,513	40,027	17.5
Middle South	381,849	462,367	80,518	21.1
Middle West	281,109	321,721	40,612	14.4
OUTER Brisbane – TOTAL	1,212,039	1,995,495	783,456	64.6
Ipswich	229,818	557,755	327,937	142.7
Redland	160,331	192,431	32,100	20.0
Logan	341,985	554,327	212,342	62.1
Moreton Bay	479,905	690,982	211,077	44.0
TOTAL – GREATER BRISBANE	2,484,819	3,546,159	1,061,340	42.7
Rest of SEQ	1,279,937	1,862,046	582,109	45.5
Gold Coast	635,191	943,686	308,495	48.6
Sunshine Coast	332,562	514,352	181,790	54.7
Noosa	60,487	68,651	8,164	13.5
Toowoomba (urban part)	139,526	170,508	30,982	22.2
Scenic Rim	43,625	67,290	23,665	54.2
Lockyer Valley	42,263	58,545	16,282	38.5
Somerset	26,283	39,014	12,731	48.4
TOTAL – SOUTH EAST QUEENSLAND	3,764,756	5,408,205	1,643,449	43.7

Notes:

*   The Inner and Middle Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Sources: BCARR analysis of Queensland Government population projections, 2018 (medium projections) and BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Figure 3.11: SEQ BCARR rings population projections from 2021 to 2041 and estimated resident population, 2020
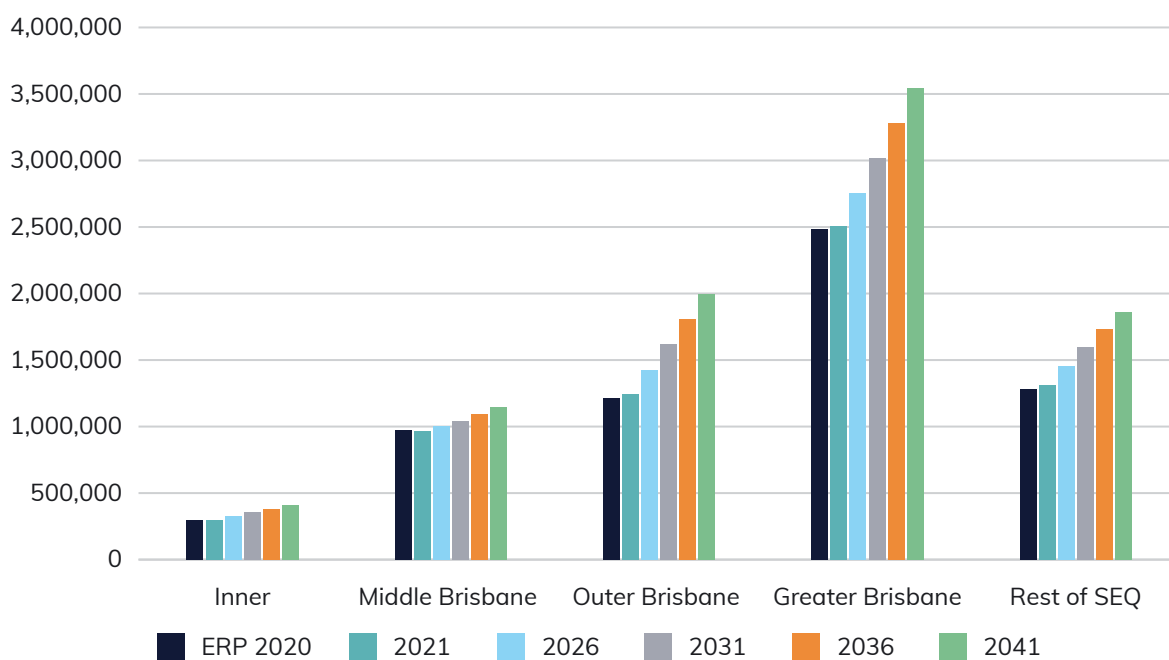
Sources: BCARR analysis of Queensland Government population projections, 2018 (medium projections) and BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Figure 3.12: Projected population growth rates of SEQ sub-regions, 2020–2041
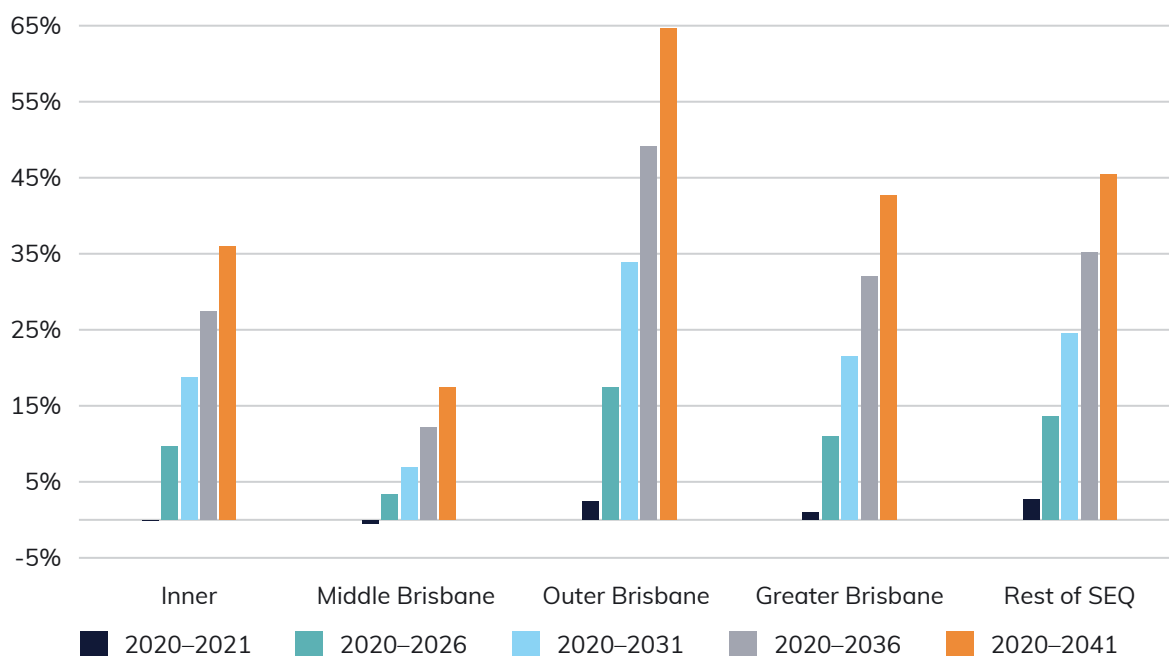
Source: BCARR analysis of Queensland Government population projections, 2018 (medium projections).

Projected future population: SA2s

Table 3.22 shows the SA2s that are projected to have the largest population increase between 2020 and 2041. The largest projected increases are for Ripley (116,575), Greenbank (74,109) and Jimboomba (57,890). Ripley is a newly developing area in the Ipswich LGA, which is expected to see an 1195 per cent increase in its population over the 20 years. As can be seen from Figure 3.13, Greenbank and Jimboomba are neighbouring SA2s in the Logan LGA, located on the southern fringe of the existing Brisbane urban area. In addition to the very rapid growth projected for Ripley, the Greenbank and Rosewood SA2s are also projected to have more than a 400 per cent increase in their population between 2020 and 2041.

Four of the 10 SA2s with the largest projected population increases are located in the Ipswich LGA, which is the fastest-growing region in SEQ. Others are located in the Logan, Gold Coast and Sunshine Coast LGAs.

Table 3.22: **SA2s with the largest projected population increase in number between 2020 and 2041**

| SA2s	BCARR rings/ sub-region	2041 projection	Estimated resident population, 2020	Change in population, 2020–2041	Percentage change, 2020–2041
Ripley	Ipswich	126,334	9,759	116,575	1,195
Greenbank	Logan	89,924	15,815	74,109	469
Jimboomba	Logan	93,461	35,571	57,890	163
Coomera	Gold Coast	75,606	19,724	55,882	283
Rosewood	Ipswich	67,975	13,478	54,497	404
Caloundra – West	Sunshine Coast	81,280	27,992	53,288	190
Springfield Lakes	Ipswich	73,256	23,535	49,721	211
Landsborough	Sunshine Coast	49,658	13,094	36,564	279
Bellbird Park – Brookwater	Ipswich	54,874	18,554	36,320	196
Surfers Paradise	Gold Coast	50,209	28,160	22,049	78

Sources: BCARR analysis of Queensland Government population projections, 2018 (medium projections) and BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Table 3.23 shows the SA2s that are expected to experience the most rapid population growth over the 20 year period. Most of these SA2s are located in the Ipswich, Moreton Bay, Logan, Gold Coast and Sunshine Coast sub-regions. As discussed above, Ripley and Greenbank are projected to see the most rapid population increase along with Upper Caboolture (434 per cent). Upper Caboolture is another future growth area of SEQ. As discussed in the next chapter, the Caboolture West priority growth area is forecast to accommodate more than 65,000 people by 2041.

Table 3.23: SA2s with largest population percentage increase between 2020 to 2041

SA2s	BCARR rings/ sub-region	Estimated resident population, 2020	2041 projection	Changes in population, 2020–2041	Percentage change, 2020–2041
Ripley	Ipswich	9,759	126,334	116,575	1,195
Greenbank	Logan	15,815	89,924	74,109	469
Upper Caboolture	Moreton Bay	3,425	18,306	14,881	434
Rosewood	Ipswich	13,478	67,975	54,497	404
Eagle Farm – Pinkenba	Middle North	1,485	7,246	5,761	388
Morayfield	Moreton Bay	5,412	24,771	19,359	358
Wamuran	Moreton Bay	4,381	18,673	14,292	326
Coomera	Gold Coast	19,724	75,606	55,882	283
Landsborough	Sunshine Coast	13,094	49,658	36,564	279
Springfield Lakes	Ipswich	23,535	73,256	49,721	211
Chambers Flat – Logan Reserve	Logan	7,260	22,404	15,144	209

Sources: BCARR analysis of Queensland Government population projections, 2018 (medium projections) and BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Figure 3.13: Projected growth rate of SA2 population from 2020 to 2041

Source: BCARR analysis of Queensland Government population projections, 2018 (medium projections) and BCARR analysis of ABS Cat. 3218.0 Regional Population Growth Data, 2020.

Table 3.24 shows the top five projected population increase SA2s over the four sub-periods: 2021–2026, 2026–2031, 2031–2036 and 2036–2041. This shows how these SA2s will evolve over time and the shifting focus areas of development in SEQ. Ripley in the Ipswich LGA is the principal growth SA2 in all four sub-periods. However, Jimboomba is more prominent early in the period, Greenbank becomes a more significant contributor to growth as time progresses, and Springfield Lakes emerges as an important contributor after 2036. These projected top growth SA2s are located mainly in the Ipswich, Logan and Gold Coast LGAs.

Table 3.24: **Top five population increase SA2s 2021–2026, 2026–2031, 2031–2036 and 2036–2041**

SA2s	BCARR rings	2021–2026	SA2s	BCARR rings	2026–2031
Ripley	Ipswich	29,585	Ripley	Ipswich	27,674
Jimboomba	Logan	17,798	Greenbank	Logan	16,148
Coomera	Gold Coast	12,661	Coomera	Gold Coast	15,798
Rosewood	Ipswich	12,358	Caloundra – West	Sunshine Coast	15,047
Caloundra – West	Sunshine Coast	11,620	Rosewood	Ipswich	14,999

SA2s	BCARR rings	2031–2036	SA2s	BCARR rings	2036–2041
Ripley	Ipswich	23,554	Ripley	Ipswich	29,953
Greenbank	Logan	21,348	Greenbank	Logan	22,670
Coomera	Gold Coast	14,682	Springfield Lakes	Ipswich	14,460
Jimboomba	Logan	13,478	Rosewood	Ipswich	13,346
Caloundra – West	Sunshine Coast	12,935	Coomera	Gold Coast	13,018

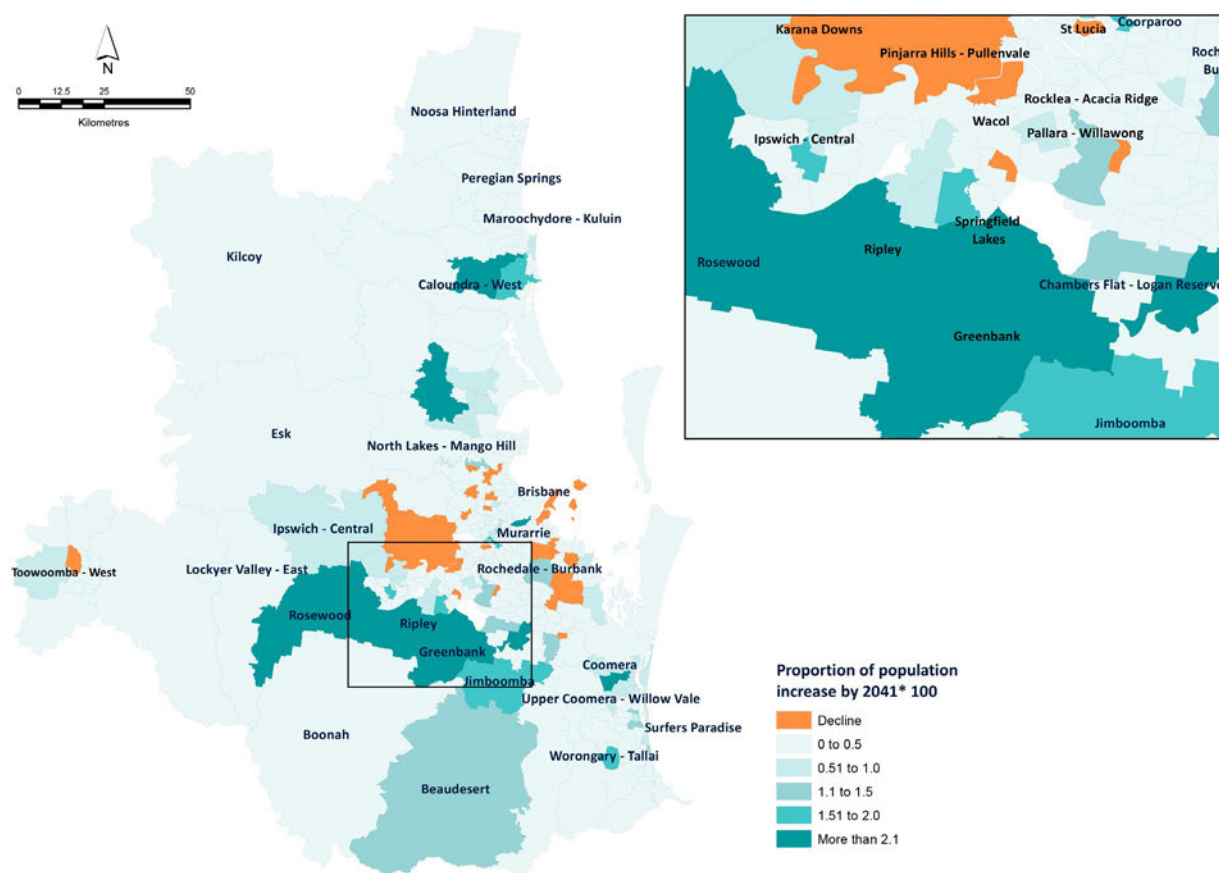Sources: BCARR analysis of Queensland Government population projections, 2018 (medium projections) and BCARR analysis of ABS Cat.3218.0 Regional Population Growth Data, 2020.

Projected future population by age groups

Table 3.25 and Figure 3.14 shows the population projection by age groups and LGA in ten and twenty years. The Ipswich LGA will have the most significant percentage of the younger population both in 2031 and 2041, followed by Logan, Moreton Bay and Somerset LGAs. Brisbane, Ipswich and Gold Coast are projected to have the highest percentage of the working-age population both in 2041 and in 2031. The highest proportion of the older population in both 2031 and 2041 is projected to be in Noosa (30.3 and 33.0 per cent), Scenic Rim (26.4 and 29.2 per cent) and Redland (25.5 and 28.3 per cent).

Table 3.25: Projected population (medium series) by five–year age groups by LGA, 2031 and 2041

LGAs	2031			2041		
	0–14 years	15–64 years	65 and above	0–14 years	15–64 years	65 and above
Brisbane	16.3	68.5	15.2	15.6	67.4	17.0
Gold Coast	17.8	63.2	19.0	17.2	62.1	20.7
Ipswich	22.3	64.0	13.8	21.3	62.8	15.9
Lockyer Valley	18.3	60.5	21.2	17.9	58.9	23.2
Logan	21.6	62.1	16.3	20.7	60.9	18.5
Moreton Bay	19.6	60.0	20.4	18.9	58.6	22.5
Noosa	14.9	54.8	30.3	14.3	52.8	33.0
Redland	16.4	58.1	25.5	15.7	56.0	28.3
Scenic Rim	16.4	57.2	26.4	15.8	54.9	29.2
Somerset	19.6	55.4	25.0	19.1	54.1	26.8
Sunshine Coast	17.2	59.1	23.7	16.6	57.6	25.8
Toowoomba	18.8	59.4	21.8	18.3	58.1	23.6

Source: BCARR analysis of Queensland Government population projection, 2018 (medium projection).

Noosa, Brisbane, and Redland are expected to have the lowest proportion of children in 2031 and 2041. Noosa, Somerset and Scenic Rim are expected to have the lowest proportion of the working-age population in 2031. The lowest proportion of the population aged 65 and over in both 2031 and 2041 is expected to be in Ipswich (13.8 and 15.9 per cent), Brisbane (15.2 and 17.0 per cent) and Logan (16.3 and 18.5 per cent). These findings will need to inform future service design in the LGAs.

Figure 3.14: Projected population (medium series) by five–year age groups by LGAs, 2031 and 2041
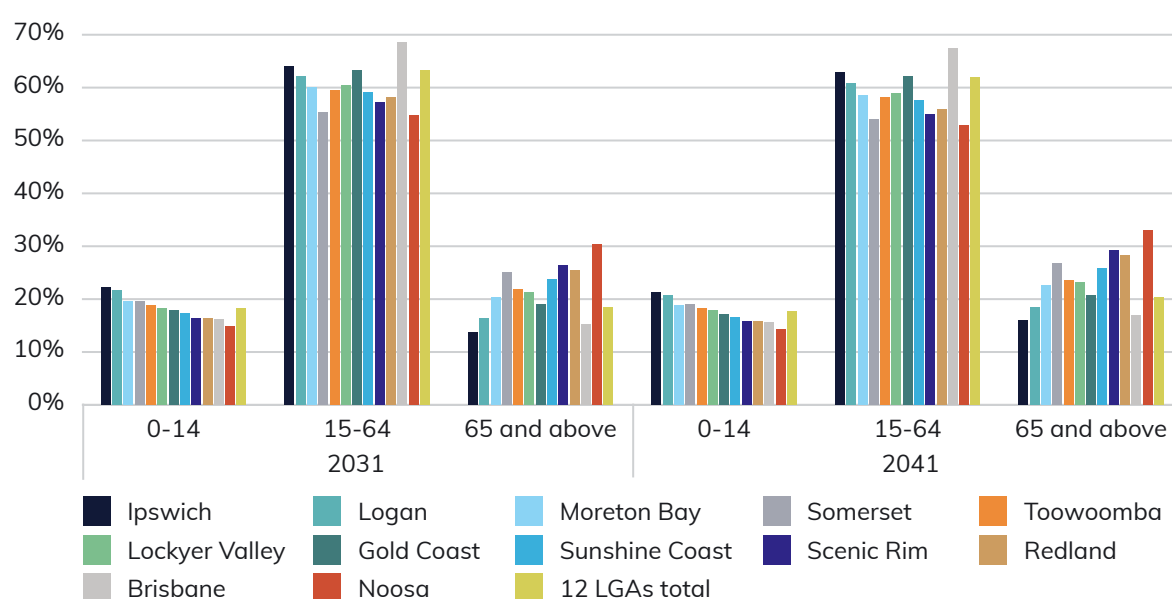
Source: BCARR analysis of Queensland Government population projection, 2018.

3.6 Conclusion

This chapter summarised the population distribution of the SEQ region in 2020 and how it has changed from 2016 to 2020. In 2020, the SEQ population was 3.76 million, and the region added 300,510 residents in four years. The average population growth per annum was 2.1 per cent between 2016 to 2020 in SEQ.

Over this four year period, the LGAs that accommodated most of SEQ's growth were Brisbane (88,247), Gold Coast (59,888) and Moreton Bay (40,347). At the small area scale, the Pimpama SA2 had the largest population increase in the four years, followed by Jimboomba and North Lakes – Mango Hill.

The most densely populated sub-regions were in Inner Brisbane and Gold Coast, and also the largest increases in density happened in these two sub-regions. Fortitude Valley and Brisbane City SA2s had the highest PWD among the SA2s.

The chapter also presented future population projections for SEQ through to 2041. By 2041 the population is projected to grow by 1.64 million to reach 5.41 million, a 44 per cent population increase over 20 years. Much of this additional population is projected to be accommodated in the Ipswich and Gold Coast LGAs, which are projected to add 327,804 and 308,495 new residents, respectively. SEQ is projected to have a much older population by 2041.

CHAPTER 4

HOUSING AND HOUSING AFFORDABILITY

Key points

- At the time of the 2016 census, there were a total of 1.36 million dwellings in South East Queensland (SEQ). Separate houses are the dominant dwelling type, comprising 71.4 per cent of the total dwelling stock in SEQ. Flats or apartments are the second most common type of dwelling (15.2 per cent), followed by semi-detached houses (12.5 per cent).

- Flats or apartments have a very high concentration in the Inner Brisbane sub-region along the river. The Gold Coast, Sunshine Coast and Noosa sub-regions along the coast also have a relatively high proportion of flats or apartments. Gold Coast has the highest concentration of semi-detached dwellings in SEQ.

- The 12 LGAs of SEQ have a total of 166,139 residential building approvals from 2016 to 2021. Within those, 98,693 (or 59 per cent) were for new houses, and the rest were new other residential building approvals (e.g. flats, apartments and semi-detached dwellings).

- The Brisbane LGA has the highest number of residential building approvals from 2016 to 2021 (46,916), followed by Gold Coast, Moreton Bay and the Sunshine Coast. The Moreton Bay LGA had the most new house approvals (17,414), while the Brisbane LGA had the most approvals of other new residential buildings (30,015), reflecting higher density development in the area.

- Fifty nine per cent of SEQ's residential building approvals in the past five years were within the existing urban area boundary, and thus reflect consolidation rather than expansion. The Pimpama SA2, in the Gold Coast LGA, has the most residential building approvals in the past five years (4,691), followed by Caloundra West (3,976) in the Sunshine Coast LGA and Ripley (3,344) in the Ipswich LGA. All three are expansion areas, located outside the existing urban area.

- Overall, lot sizes are getting smaller across SEQ, with the median declining by 30m^2 from 2016 to 2020.

- SEQ is expected to add just over 800,000 new dwellings between 2016 and 2041. The largest addition of new dwellings is projected for the Brisbane LGA (155,200), followed by Gold Coast (150,900) and Ipswich (146,000). Around 60 per cent of the new dwellings are to be added through consolidation, rather than expansion. The Logan LGA has the highest stock of identified future developable land (9,654 ha).

- In 2019, the dwelling price to income ratio was highest in Noosa (10.0), followed by Gold Coast (7.9) and Sunshine Coast (7.7). The Brisbane LGA had a ratio of 6.3. On this measure, the Ipswich, Lockyer Valley and Toowoomba LGAs are identified as more affordable than other parts of the SEQ region.

- Overall, mortgage stress is low in SEQ compared to rental stress. The proportion of households with mortgage stress was highest in the Logan and Scenic Rim LGAs (8.2 per cent) and lowest in the Toowoomba LGA (5.1 per cent) in 2016.

- The Gold Coast LGA has the highest proportion of households in rental stress (16.8 per cent), followed by the Ipswich, Logan and Sunshine Coast LGAs. Scenic Rim had the lowest rental stress in 2016.

- Greater Brisbane's Rental Affordability Index (RAI) score was 121 in 2021, meaning the average household seeking to rent a dwelling needs to spend 25 per cent of its total income. Greater Brisbane's RAI has declined over the past 12 months, although before that, it had improved from 2016 to 2020. Overall, based on the RAI, rental affordability was considered acceptable for Brisbane as of June 2021.

- Some SA2s have seen a notable decline in rental affordability over the 12 months ended June 2021. In Greater Brisbane, this includes Rochedale, Acacia Ridge to Drewvale, Alexandra Hills, Wellington Point, and Stafford to Fortitude Valley. In the rest of SEQ, affordability has significantly decreased in the Gold Coast, with areas such as Helensvale, Broadbeach and Robina now severely unaffordable. A similar trend is evident from Maroochydore to Noosa on the Sunshine Coast.

4.1   Introduction

By 2041, the SEQ region is expected to have more than 800,000 new homes to accommodate new residents (Queensland Government 2019). The South East Queensland Regional Plan 2017, named ShapingSEQ (Queensland Government 2017), aims to promote more dense and diverse housing by 2041. The four indicators identified in ShapingSEQ for measuring and monitoring housing success in the next 25 years relate to adequate land supply, dwelling growth, housing diversity (by dwelling type) and housing density (ibid).

This chapter gives an overview of the current state of housing in SEQ, which includes:

- Mix of dwelling types
- Residential building approvals by type
- Lot sizes
- Future stock of land and dwellings
- Housing affordability.

Most of the spatial analysis presented in this chapter is based on the following geographies: the 12 LGAs of SEQ; the BCARR rings and sub-regions; and SA2s. The definition of SEQ sub-regions is provided in Chapter 1, Table 1.3**.**

4.2   Mix of dwelling types

Historically, the SEQ region had a dispersed, low-density settlement pattern. Figure 4.1 below shows the dwelling type mix for the 12 LGAs of SEQ in 2016. Separate houses were dominant across the 12 LGAs of SEQ, as 71.4 per cent of dwellings were separate houses, 15.1 per cent were flats and apartments and 12.4 per cent were townhouses. The Gold Coast LGA had the lowest proportion of separate houses (54.8 per cent), followed by the Brisbane LGA (65.2 per cent). Gold Coast had the highest proportion of flats or apartments (23.7 per cent) and semi-detached dwellings (20.2 per cent) among the LGAs of SEQ. The Brisbane LGA also had a relatively high share of apartments (23.5 per cent).

Figure 4.1: Dwelling stock by dwelling type in the LGAs of SEQ in 2016
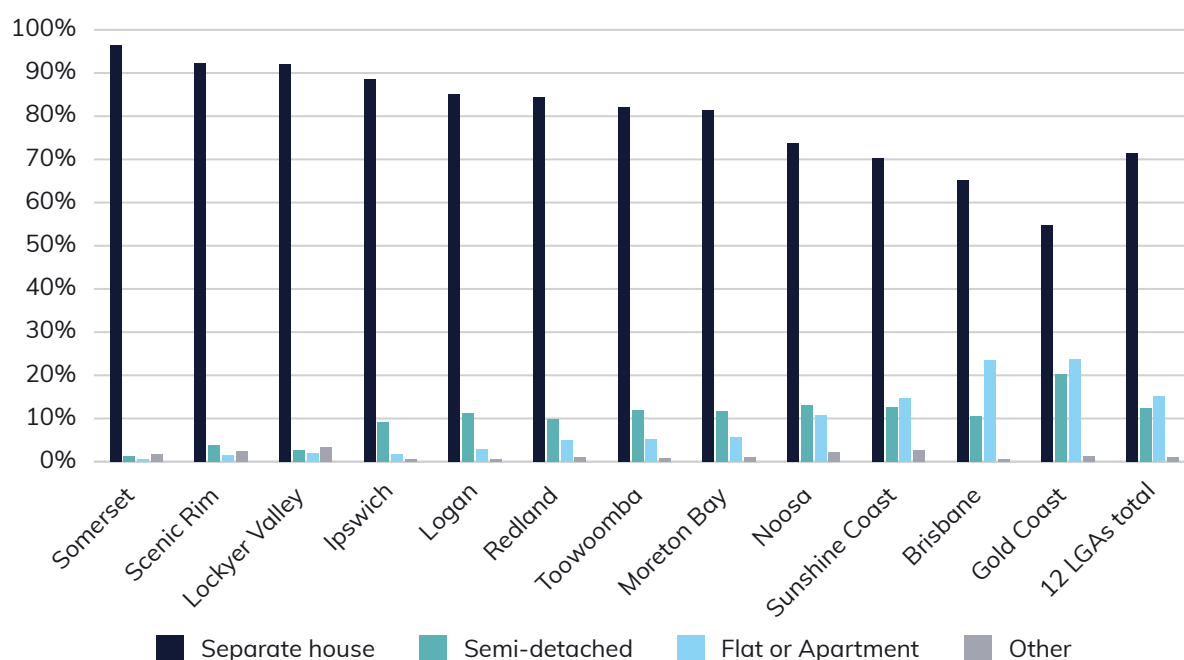
Note: Excludes not stated or not applicable dwelling type. Only the urban part of Toowoomba LGA is part of SEQ.
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

The Somerset LGA had separate houses contributing 96.4 per cent of its dwelling stock, which was the highest in the SEQ region. Separate houses also contributed to more than 90 per cent of the dwelling stock in the Scenic Rim and Lockyer Valley LGAs. The Logan, Redland, Toowoomba and Moreton Bay LGAs had more than 80 per cent separate houses.

Table 4.1 summarises the dwelling stock and the mix of different dwelling types in SEQ and its sub-regions. In 2016, SEQ had a total of 1.36 million dwellings captured in the census, of which 64 per cent were in Greater Brisbane. Just over 71 per cent of SEQ dwellings were separate houses, while 14.4 per cent were flats and apartments and 12.5 per cent were semi-detached dwellings.

The proportion of separate houses in the dwelling stock was lowest for Inner Brisbane (38.7 per cent), higher for Middle Brisbane (74.4 per cent) and higher again for Outer Brisbane (84.2 per cent). While the more rural parts of the Rest of SEQ had a very high proportion of separate houses in their dwelling stock, the Gold Coast, Noosa and Sunshine Coast had a much more diverse mix of dwellings. The proportion of flats and apartments in the dwelling stock was highest for Inner Brisbane (53.5 per cent) and Gold Coast (23.7 per cent), and less than 2 per cent for Lockyer Valley, Scenic Rim and Somerset. The proportion of semi-detached dwellings was highest for the Gold Coast (20.2 per cent), urban Toowoomba (14.5 per cent) and Brisbane's Middle East (14.4 per cent), and was less than 4 per cent for Lockyer Valley, Scenic Rim and Somerset.

Table 4.1: **Dwelling stock by dwelling type in SEQ sub-regions, 2016**

BCARR rings/sub-regions	Proportion of dwellings that are separate houses (per cent)	Proportion of dwellings that are semi-detached dwellings (per cent)	Proportion of dwellings that are flats and apartments (per cent)	Total dwelling count
INNER Brisbane*	38.7	7.3	53.5	118,301
MIDDLE Brisbane – TOTAL*	74.4	11.8	13.2	342.609
Middle East	80.3	14.4	4.4	29.774
Middle North	71.2	12.4	15.8	87,032
Middle South	71.5	13.5	14.2	130,876
Middle West	79.3	8.2	12.2	94,927
OUTER Brisbane – TOTAL	84.2	10.8	4.1	408,256
Ipswich	88.6	9.1	1.7	72,524
Redland	84.5	9.7	4.9	59,503
Logan	85.2	11.2	3.0	109,488
Moreton Bay	81.5	11.7	5.7	166,741
TOTAL – GREATER BRISBANE	74.1	10.7	14.4	869,166
Rest of SEQ	65.9	15.7	16.7	490,368
Gold Coast	54.8	20.2	23.7	237,735
Sunshine Coast	69.9	12.6	14.8	127,878
Noosa	75.1	12.5	10.3	27,910
Toowoomba (urban part)	79.1	14.5	5.8	55,083
Scenic Rim	92.3	3.9	1.5	16,683
Lockyer Valley	92.1	2.6	1.9	14,781
Somerset	96.4	1.1	0.5	10,298
TOTAL – SOUTH EAST QUEENSLAND^	**71.2**	**12.5**	**15.2**	**1,359,534**

Notes: Excludes not stated or not applicable dwelling type.

*   The Inner and Middle Rings comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   The SEQ total differs from the 12 LGA total in the preceding chart, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 4.2 shows the distribution of flats or apartments across the SA2s of SEQ. Most of the SA2s have less than 250 flats or apartments. Flats or apartments have a very high concentration in Inner Brisbane along the river. Apart from that, the Gold Coast, Sunshine Coast and Noosa areas have significant numbers of flats and apartments. These are tourist destinations and have high demands for tourist accommodation, resulting in high-density developments. Overall, the SEQ region is dominated by low-density development. *ShapingSEQ* identifies opportunities for more 'missing middle' type housing development, including duplexes, terraces, townhouses, low-rise and medium-rise apartments (Queensland Government 2017, p.44).

Figure 4.2: Distribution of flats or apartments by SA2s of SEQ in 2016
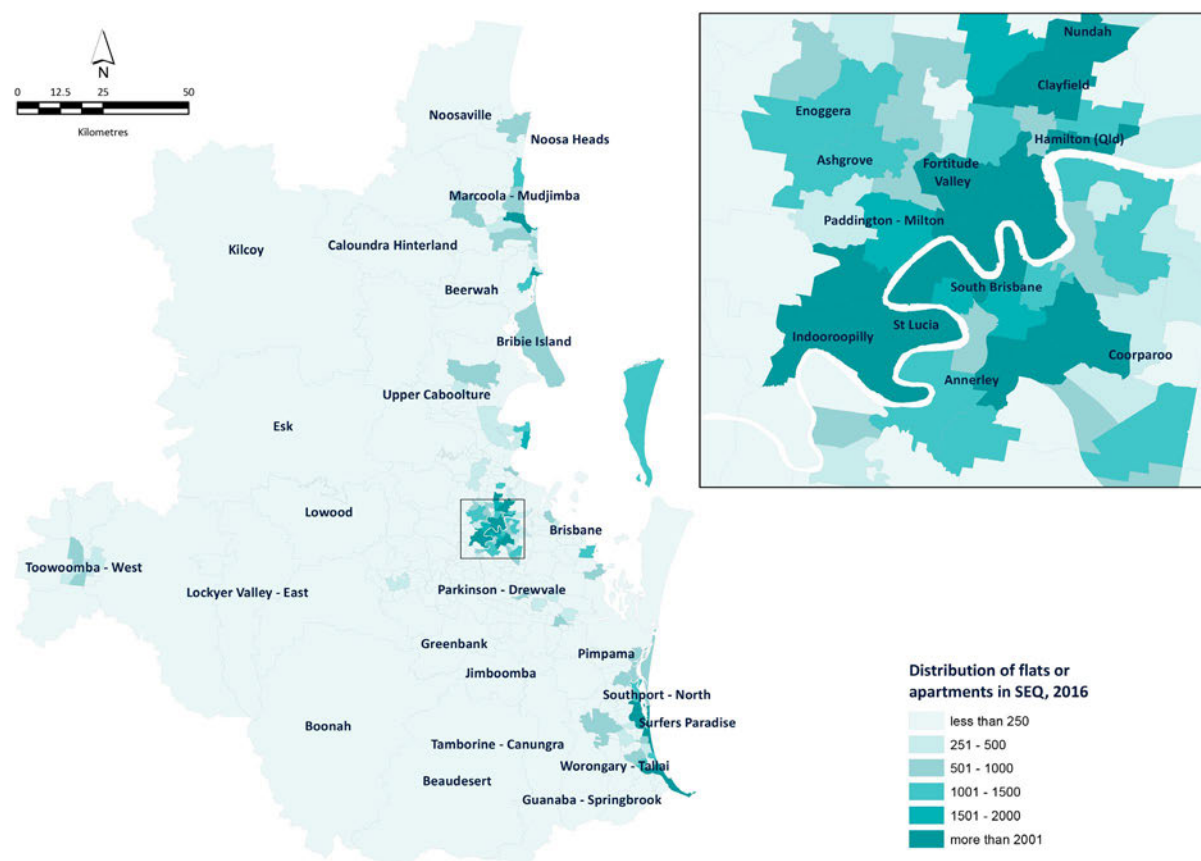
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

4.3   Residential building approvals

This section gives an overview of five years of residential building approvals for the SEQ region from 2016 to 2021. It therefore provides information on how the dwelling stock (described in the previous section) has changed since 2016. It should be noted, however, that not all of the dwellings approved between 2016 and 2021 will have been completed, and dwelling demolitions have not been assessed.

Table 4.2 below shows residential building approvals over the past five years in the 12 LGAs of SEQ. The 12 LGAs had a total of 166,139 residential building approvals. Within those, 98,693 were for new houses, and the rest were new other residential building approvals (e.g. flats, apartments and semi-detached dwellings). This means that 59 per cent of approvals were for separate houses, and since separate houses made up 71 per cent of the SEQ dwelling stock in 2016 (see Figure 4.1), this indicates some shift towards higher density forms of residential development since 2016.

The Brisbane LGA had the highest approvals in these five years (46,916) and accounted for 28.2 per cent of total residential building approvals within these 12 LGAs. After Brisbane LGA, the highest residential building approvals were for Gold Coast (28,078), Moreton Bay (23,321) and Sunshine Coast (20,712) LGAs.

Figure 4.3 shows the comparison of the new houses and other residential building approvals in the 12 LGAs of SEQ from 2016 to 2021. The Brisbane LGA has the highest number of new other residential building approvals (30,015) over the past five years, followed by Gold Coast (15,793).

This reflects high-density development in those areas. The highest number of new house approvals in this period were in Moreton Bay (17,414), Brisbane (16,759) and Sunshine Coast (14,238) LGAs.

Table 4.2: **Total residential building approvals of the LGAs in SEQ from 2016 to 2021**

LGAs	New house approvals, 2016–2021	New other residential building approvals, 2016–2021	Total dwelling approvals, 2016–2021	Percentage of total building approvals in the 12 LGAs, 2016–2021
Brisbane	16,759	30,015	46,916	28.2
Gold Coast	12,166	15,793	28,078	16.9
Ipswich	12,794	1,956	14,757	8.9
Lockyer Valley	1,230	52	1,290	0.8
Logan	13,412	3,399	16,853	10.1
Moreton Bay	17,414	5,852	23,321	14.0
Noosa	1,092	493	1,610	1.0
Redland	3,964	1,630	5,609	3.4
Scenic Rim	1,136	177	1,326	0.8
Somerset	606	8	621	0.4
Sunshine Coast	14,238	6,315	20,712	12.5
Toowoomba	3,882	1,139	5,046	3.0
12 LGAs total	**98,693**	**66,829**	**166,139**	**100.0**

Note: Only the urban part of Toowoomba LGA is part of SEQ.

Source: BCARR analysis of ABS Cat. 8731.0 Building Approvals, Australia, 2016 to 2021.

Figure 4.3: **Total new house and new other residential building approvals of LGAs in SEQ from 2016 to 2021**
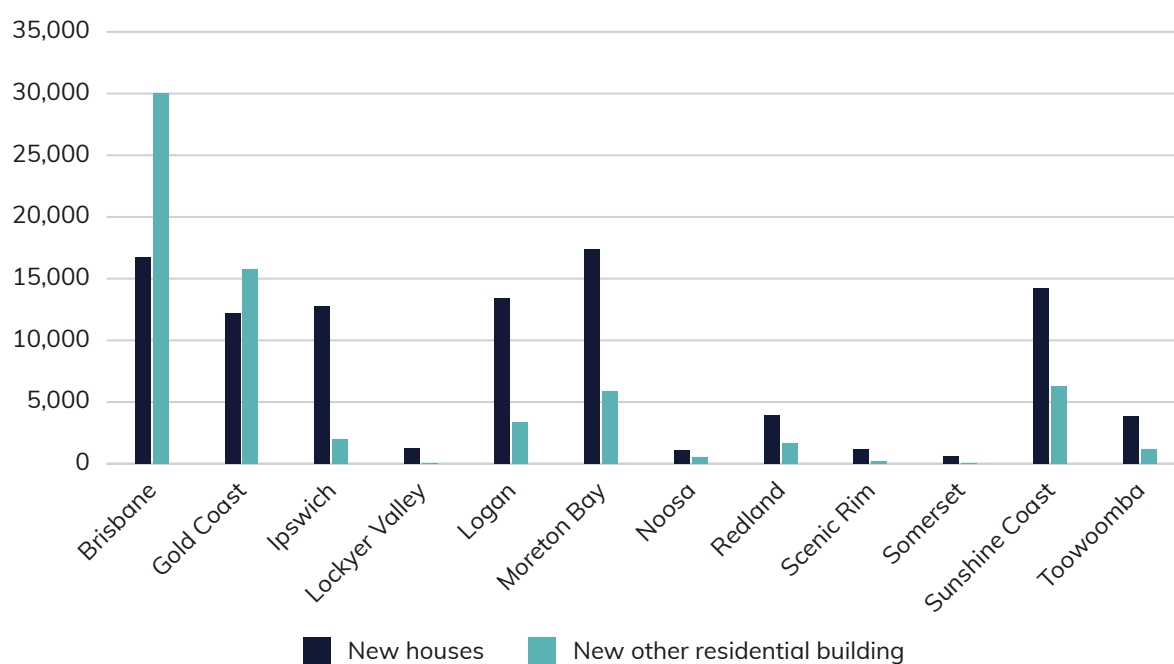
Note: Only the urban part of Toowoomba LGA is part of SEQ.

Source: BCARR analysis of ABS Cat. 8731.0 Building Approvals, Australia, 2016 to 2021.

Table 4.3 shows the total residential building approvals in the SEQ sub-regions from 2016 to 2021. Greater Brisbane had 107,423 building approvals in this period, which is 64.9 per cent of the SEQ approvals. Within Greater Brisbane, the majority of the residential building approvals happened in Outer Brisbane (61,175), followed by Middle Brisbane (32,043) and Inner Brisbane (14,205).

Table 4.3: Total residential building approvals in SEQ sub-regions from 2016 to 2021

BCARR rings/sub-regions	New houses, 2016 to 2021	New other residential building, 2016 to 2021	Total residential building approvals, 2016 to 2021	Per cent of residential building approvals within SEQ, 2016 to 2021
INNER Brisbane*	1,637	12,498	14,205	8.6
MIDDLE Brisbane – TOTAL*	15,121	16,850	32,043	19.3
Middle East	1,272	865	2,146	1.3
Middle North	3,289	4,626	7,929	4.8
Middle South	7,182	7,182	14,389	8.7
Middle West	3,378	4,177	7,579	4.6
OUTER Brisbane – TOTAL	47,552	13,504	61,175	36.9
Ipswich	12,792	1,956	14,755	8.9
Redland	3,964	1,630	5,609	3.4
Logan	13,379	3,399	16,820	10.2
Moreton Bay	17,417	6,519	23,991	14.5
TOTAL – GREATER BRISBANE	64,310	42,852	107,423	64.9
Rest of SEQ	33,881	23,949	58,181	35.1
Gold Coast	12,172	15,793	28,084	17.0
Sunshine Coast	14,117	6,309	20,578	12.4
Noosa	1,217	495	1,744	1.1
Toowoomba (urban part)	3,403	1,115	4,538	2.7
Scenic Rim	1,136	177	1,326	0.8
Lockyer Valley	1,230	52	1,290	0.8
Somerset	606	8	621	0.4
TOTAL – SOUTH EAST QUEENSLAND^	**98,191**	**66,801**	**165,604**	**100.0**

Notes:

*   The Inner and Middle Rings comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Source: BCARR analysis of ABS Cat. 8731.0 Building Approvals, Australia, 2016 to 2021.

Building approvals in the Rest of SEQ mainly occurred in the Gold Coast (28,084) and Sunshine Coast (20,578) sub-regions. Figure 4.4 shows the proportion of building approvals in the BCARR rings of SEQ from 2016 to 2021. Outer Brisbane has the highest share of building approvals (36.9 per cent), followed by the Rest of SEQ (35.1 per cent). These percentages are consistent with the population growth discussed in Chapter 3 (see Table 3.6). Most population growth occurred in the Outer Brisbane region, followed by the Rest of SEQ and Middle Brisbane.

Figure 4.5 shows residential building approvals across the SA2s of SEQ over the last five years. Building approvals were high in SA2s located in the Gold Coast, Sunshine Coast, Logan and Ipswich areas. The Pimpama SA2, situated on the Gold Coast, has the highest residential building approvals in the past five years. This SA2 alone has 4,691 building approvals, followed by Caloundra – West (3,976) and Ripley (3,354).

Figure 4.4: Proportion of residential building approvals in SEQ BCARR rings from 2016 to 2021
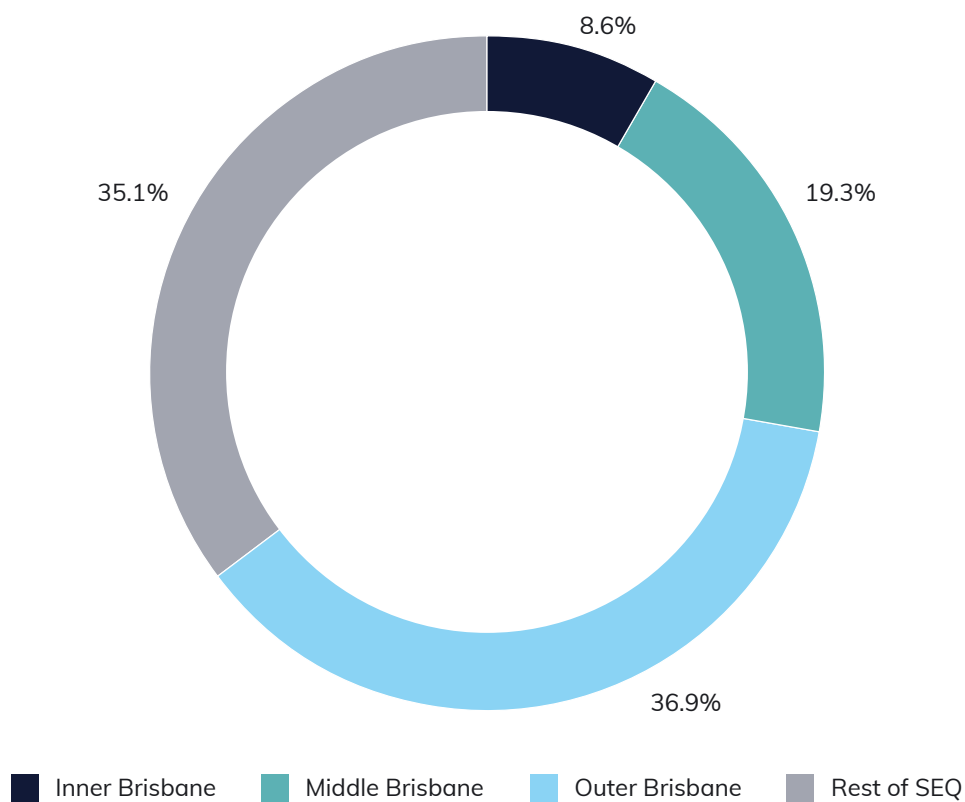
Source: BCARR analysis of ABS Cat. 8731.0 Building Approvals, Australia, 2016 to 2021.

Figure 4.5: Five year total building approvals of SA2s in SEQ from 2016 to 2021
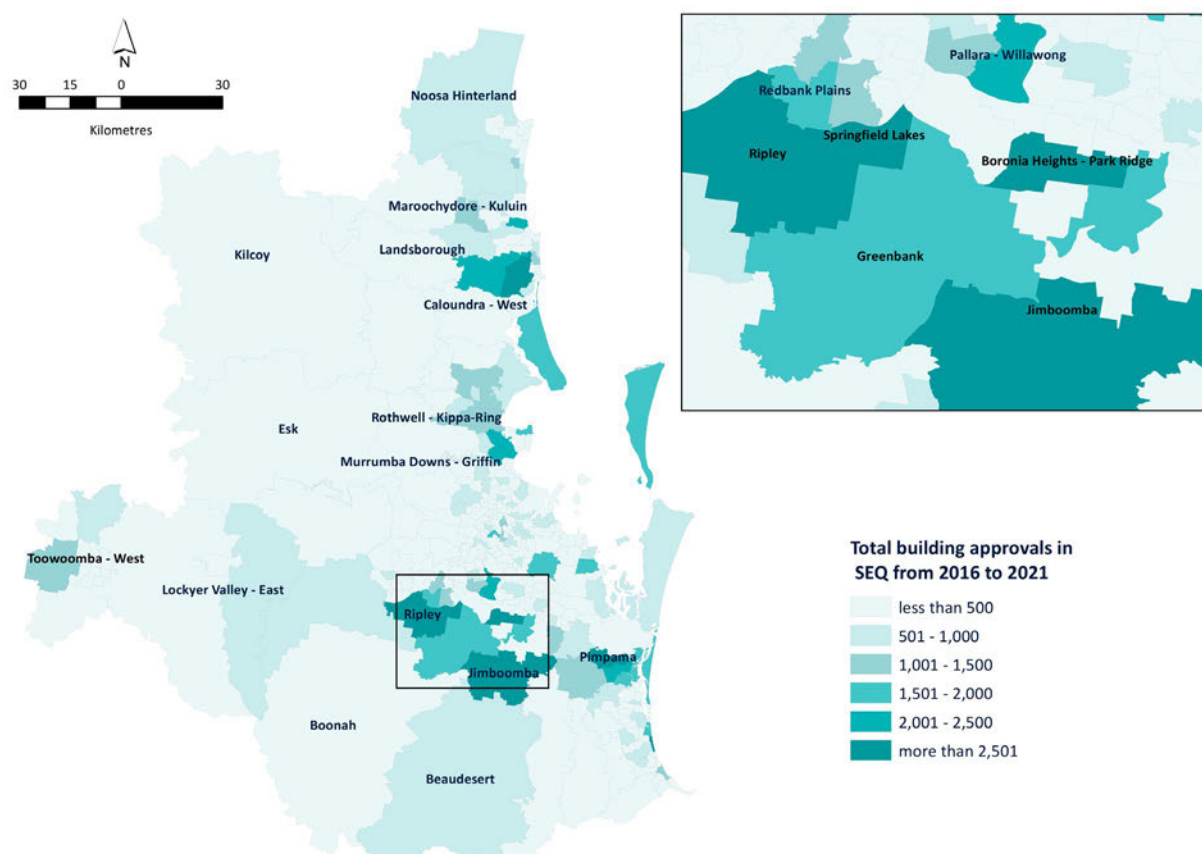
Source: BCARR analysis of ABS Cat. 8731.0 Building Approvals, Australia, 2016 to 2021.

Table 4.4 shows the five SA2s with the highest number of new house approvals, new other residential building approvals and total residential building approvals from 2016 to 2021. The largest number of new house approvals were in the Caloundra – West (3,524), Pimpama (3,425) and Ripley (3,131) SA2s. Among these five, two of them are adjoining SA2s located in Ipswich (see inset to Figure 4.5).

The highest number of new other residential building approvals were in Mermaid Beach – Broadbeach (2,667), West End (1,935) and South Brisbane (1,935) SA2s. These SA2s are located in the Inner Brisbane ring and the Gold Coast sub-region, reflecting the high-density development in these areas.

The highest total building approvals were in Pimpama (4,691), Caloundra – West (3,976) and Ripley (3,344) SA2s.

Table 4.4: SA2s with most new house, new other residential building and total residential building approvals from 2016 to 2021

SA2s	BCARR rings/sub-region	New houses, 2016 to 2021
Caloundra – West	Sunshine Coast	3,524
Pimpama	Gold Coast	3,425
Ripley	Ipswich	3,131
Springfield Lakes	Ipswich	2,646
Jimboomba	Logan	2,485

SA2s	BCARR rings/sub-region	New other residential buildings, 2016 to 2021
Mermaid Beach – Broadbeach	Gold Coast	2,667
West End	Inner	1,935
South Brisbane	Inner	1,935
Surfers Paradise	Gold Coast	1,566
Maroochydore – Kuluin	Sunshine Coast	1,501

SA2s	BCARR rings/sub-region	Total residential building approvals, 2016 to 2021
Pimpama	Gold Coast	4,691
Caloundra – West	Sunshine Coast	3,976
Ripley	Ipswich	3,344
Boronia Heights – Park Ridge	Logan	2,943
Springfield Lakes	Ipswich	2,900

Source: BCARR analysis of ABS Cat. 8731.0 Building Approvals, Australia, 2016 to 2021.

In *ShapingSEQ*, a key distinction is made between consolidation (sometimes referred to as infill development) and expansion (often referred to as greenfields development). Consolidation is growth that occurs on land within the existing urban area boundary, and expansion is growth that occurs outside that boundary (Queensland Government 2017) (See Table 1.4). Figure 4.6 illustrates the existing urban area boundary from *ShapingSEQ*. All of the top 5 SA2s in terms of total residential building approvals are located outside the existing urban area boundary, and could therefore be described as greenfields or expansion development.[8]

Using the existing urban area boundary shape file supplied by the Queensland Government and ABS SA2-scale building approvals data, BCARR has estimated the proportional split of recent dwelling approvals between consolidation and expansion development. Using this approach, it is estimated that 59 per cent of residential building approvals in SEQ between 2016 and 2021 were attributable to consolidation (i.e. were inside the existing urban area boundary), and 41 per cent was attributable to expansion (i.e. growth that occurs outside the boundary). This is very much in line with *ShapingSEQ*, in which the Queensland Government anticipates that 60 per cent of future

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8   Note that SA2s such as Caloundra West can be relatively large, and contain a mix of well-established areas that were developed many years ago, areas that are recently developed, areas that are currently under development and areas that are yet to be developed. Similarly, SA2s classified as within the existing urban area boundary, such as Caboolture South and Morayfield East, can contain a mix of well-established areas that were developed many years ago and much newer housing estates. While these new housing estates are classified as consolidation, they may not always be visually distinguishable from expansion development occurring outside the boundary, except by their typically more modest scale.

dwellings growth between 2016 and 2041 will be due to consolidation, rather than expansion (Queensland Government, 2017).

It should not be assumed that this 'consolidation' development is necessarily high or medium density development. From 2016 to 2021, 42 per cent of the dwelling approvals in the existing urban area were for separate houses. This compares to 85 per cent for expansion areas (and 59 per cent for SEQ overall).

Figure 4.6: Existing urban area boundary, SEQ
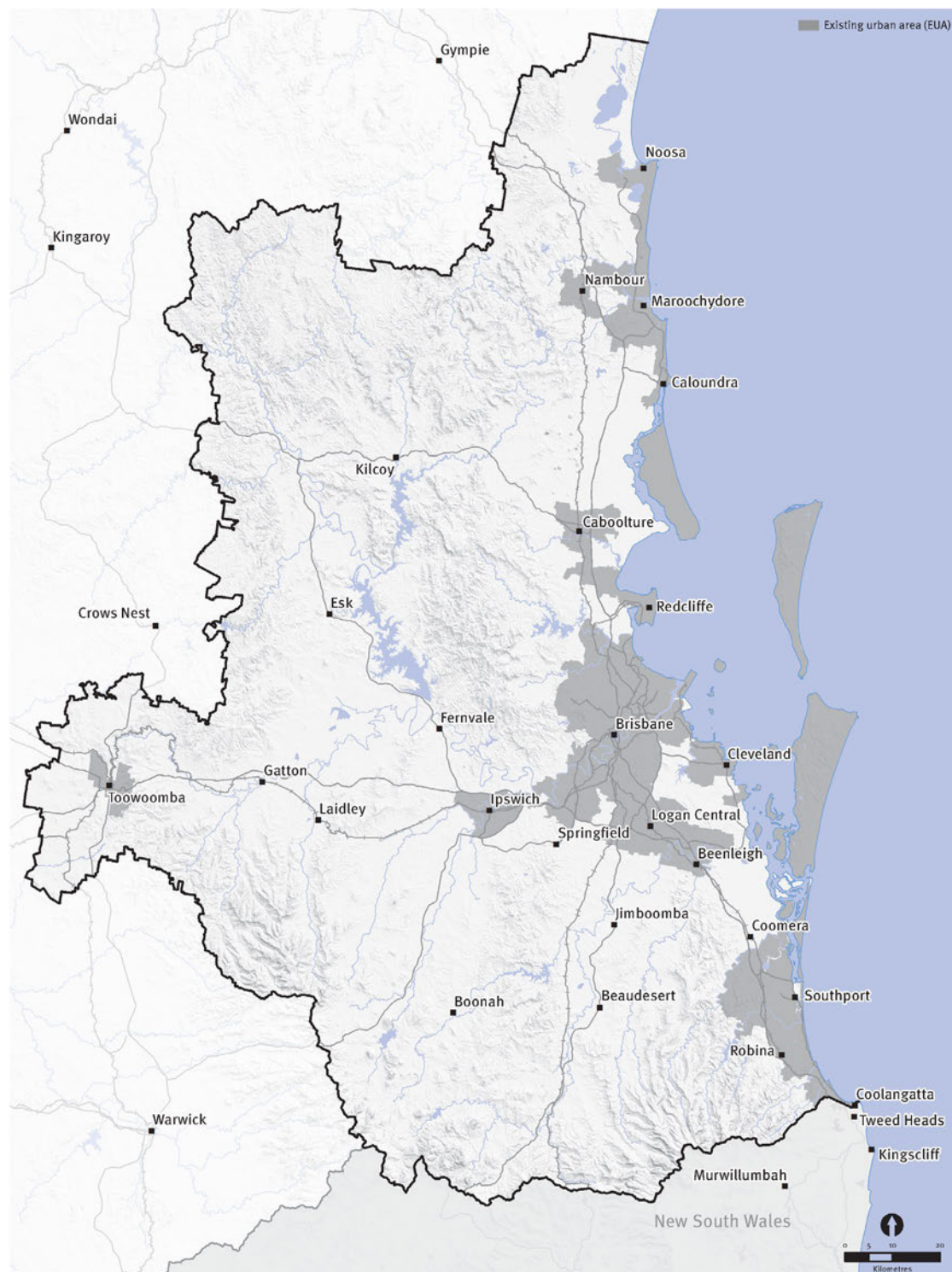
Source: *ShapingSEQ* (Queensland Government 2017, p.172).

4.4   Connection between dwellings and population growth

Residential building approvals provide a more timely guide than the official population data as to which small areas are experiencing the most growth. Comparing Table 4.4 (which shows SA2s with the most dwelling approvals between 2016 and 2021) with Table 3.7 (which shows SA2s with the largest population increase between 2016 and 2020) reveals many commonalities. Pimpama, Caloundra West, Ripley and Springfield Lakes are prominent in both tables. However, there are also some differences, since residential building approvals only flow through to population growth at the small area scale with a considerable lag.

Changes in household size over time can also influence the relationship between dwelling approvals and population increases. It is common in new developments for average household sizes to increase strongly as children are added to young families. Table 4.5 shows household size for the 12 LGAs in 2011 and 2016. There were no significant changes in the average household size of these LGAs between 2011 and 2016. However, there was some notable variation in average household sizes across LGAs, with Noosa having a slightly smaller average household size than other LGAs in 2016 (at 2.4 persons per household), and Logan having a slightly larger average household size (2.9 persons).

Table 4.5: **Average household size of the LGAs in SEQ from 2011 to 2016**

LGA	Average household size, 2011	Average household size, 2016	Change, 2011 to 2016
Brisbane	2.6	2.6	0.0
Gold Coast	2.5	2.6	0.1
Ipswich	2.8	2.8	0.0
Lockyer Valley	2.7	2.7	0.0
Logan	2.9	2.9	0.0
Moreton Bay	2.7	2.7	0.0
Noosa	n/a	2.4	n/a
Redland	2.7	2.6	−0.1
Scenic Rim	2.6	2.6	0.0
Somerset	2.6	2.6	0.0
Sunshine Coast	2.5	2.5	0.0
Toowoomba	2.5	2.5	0.0

Note: Only the urban part of Toowoomba LGA is part of SEQ. Average household size calculated for private dwellings only, based on usual residents.

Source: BCARR analysis of ABS Census of Population and Housing 2011 and 2016.

4.5 Median lot sizes

According to *ShapingSEQ*, lot size is one of the housing density measures that will be used to measure progress in implementing the SEQ strategic plan (Queensland Government 2017, p.167). Table 4.6 shows the median lot size of the 12 LGAs of SEQ in 2016 and 2020. Median lot size is relatively high in Somerset and Scenic Rim LGAs, reflecting the peri-urban nature of much of the development occurring in these areas. As of 2020, median lot sizes were lowest in Moreton Bay (404m^2) and Brisbane (408m^2), with Ipswich, Logan, Redland and Gold Coast also having median lot sizes of less than 430m^2.

The overall trend is a 30m^2 reduction of median lot sizes across SEQ between 2016 and 2020. The Toowoomba, Sunshine Coast, Redland and Logan LGAs have the highest reduction of median lot sizes from 2016 to 2020. However, there is some evidence of a shift towards larger lot sizes in the three most outlying LGAs of SEQ (Scenic Rim, Somerset, Lockyer Valley), potentially reflecting the impact of rural residential development in these areas.

Table 4.6: Median lot size of LGAs in SEQ, 2016 and 2020

LGAs	Median lot size (m²), 2016	Median lot size (m²), 2020	Change in lot size (m²), 2016 –2020
Brisbane	449	408	−41
Gold Coast	429	429	0
Ipswich	448	420	−28
Lockyer Valley	600	625	25
Logan	481	424	−57
Moreton Bay	431	404	−27
Noosa	686	695	9
Redland	480	426	−55
Scenic Rim	922	1,000	78
Somerset	783	1,600	817
Sunshine Coast	480	400	−80
Toowoomba (urban part)	709	541	−168
SEQ	450	420	−30

Source: BCARR analysis of DNRME Digital Cadastral Database (DCDB); Local government authority planning schemes, Queensland Treasury, 2020c.

4.6 Future stock of land and dwellings

Table 4.7 shows suitable future land stock for development in the SEQ region. As of 2020, the highest stock of future developable land was in the Logan LGA (9,654 ha), followed by Ipswich (6,263 ha) and Lockyer Valley (2,536 ha). The highest expected yield of dwellings is projected for the Logan (118,864) and Ipswich (104,926) LGAs.

Table 4.7: Stock of residential greenfield and brownfield land (greater than 2,500 m²) that is currently suitable for residential development in the LGAs of SEQ

LGAs	Stock (hectares), as of June 2020	Expected yield (dwellings), as of June 2020
Brisbane	1,294	39,311
Gold Coast	1,844	60,305
Ipswich	6,263	104,926
Lockyer Valley	2,536	15,650
Logan	9,654	118,864
Moreton Bay	2,160	14,990
Noosa	91	564
Redland	338	5,289
Scenic Rim	1,721	8,005
Somerset	1,033	6,820
Sunshine Coast	1,932	31,414
Toowoomba *	2,541	15,154
South East Queensland	**31,407**	**421,292**

Notes:

*   Toowoomba (urban part) includes the geographic area of Toowoomba LGA, which is located within South East Queensland as bounded by the Toowoomba Statistical Area Level 4 (SA4).

Source: QGSO Broadhectare Study, Queensland Treasury, 2020d.

Figure 4.7 shows the major expansion areas (in orange) that *ShapingSEQ* identifies for future greenfield development over the next 25 years. There is a concentration of these major expansion areas to the south of Brisbane, particularly within the Ipswich and Logan LGAs (including the Ripley Valley, Yarrabilba, Springfield Lakes and Greater Flagstone expansion areas). That is in line with the population projections presented in Chapter 3, in which the Ipswich LGA particularly stands out as having the largest projected population increase through to 2041.

Figure 4.7: Major expansion areas through to 2041, SEQ
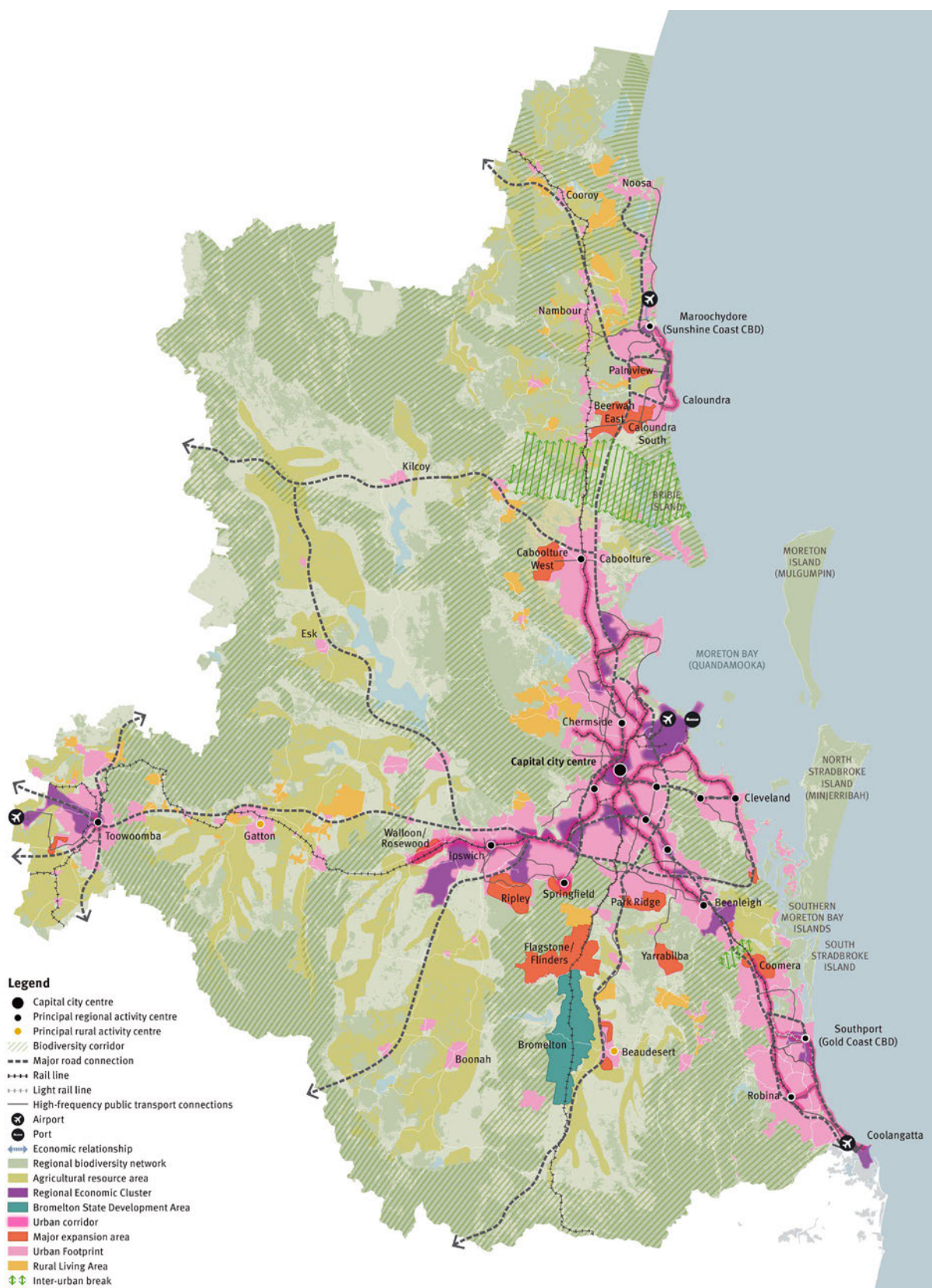
Source: *ShapingSEQ* (Queensland Government 2017, p.35).

ShapingSEQ identified future dwellings growth to 2041 for LGAs, and the expected split between consolidation and expansion development. Of the roughly 800,000 new dwellings to be added between 2016 and 2041, 60 per cent will be added through consolidation, rather than expansion (Queensland Government, 2017). As of 2016, 78 per cent of SEQ's dwellings were located within the existing urban area boundary (ibid).

The Queensland Government's most recent dwelling projections (Queensland Treasury 2019) show a total of 806,900 dwellings to be added across the 12 LGAs by 2041, which is slightly higher than the *ShapingSEQ* projections. This most recent set of projections does not include a split between consolidation and expansion areas.

Figure 4.8 shows how the projected dwelling growth, and the consolidation/expansion split, are expected to be distributed across LGAs. Between 2016 and 2041, the latest projections show the Brisbane LGA is expected to add the most dwellings (155,200), followed by Gold Coast (150,900). The new dwellings in these two LGAs will be mainly added through urban consolidation. However, the majority of the 146,000 dwellings expected to be added in Ipswich and the 83,800 dwellings to be added in Logan are likely to occur through greenfields development beyond the existing urban area boundary.

The projected dwellings growth for Brisbane was revised significantly downwards (by 33,000 dwellings) between the 2017 and 2019 projections, while dwellings growth was revised significantly upwards for Ipswich (by 34,300 dwellings) and Moreton Bay (by 22,700 dwellings).

Figure 4.8: Expected dwellings growth by SEQ LGAs from 2016 to 2041 and from 2019–2041
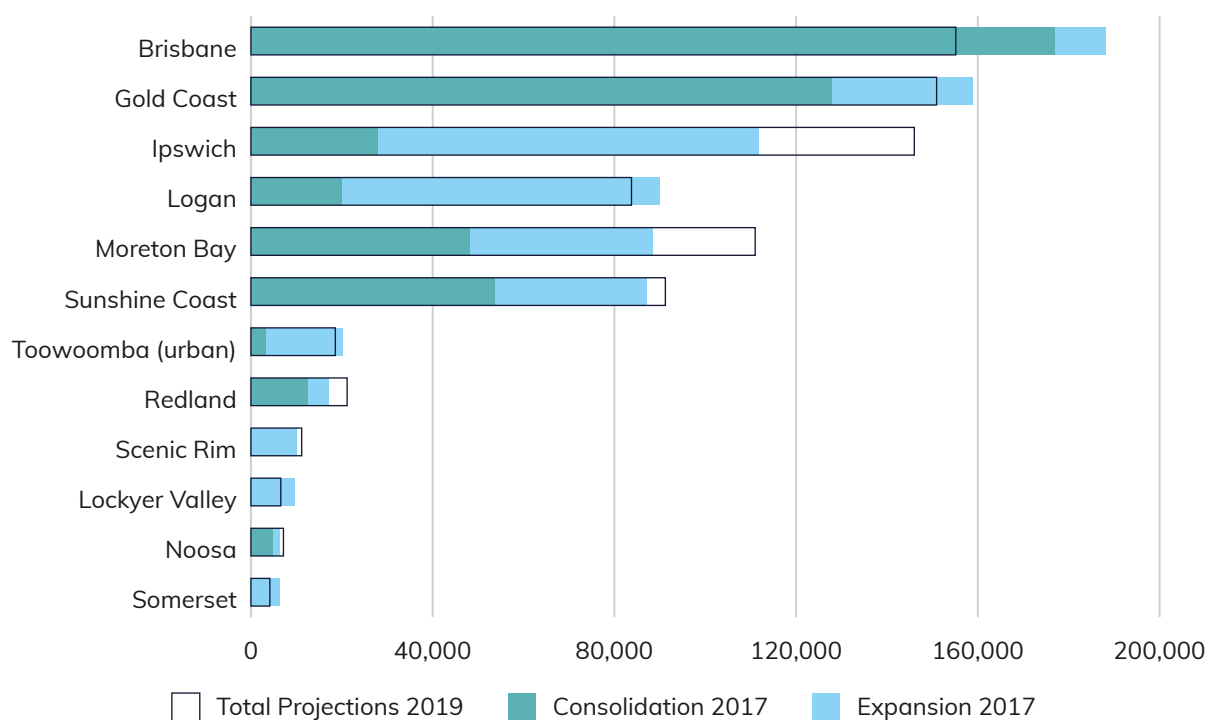
Note: 2019 dwelling projections are for LGAs, therefore the data cover the whole Toowoomba LGA.

Source: BCARR analysis of dwelling projections from *ShapingSEQ* (Queensland Government 2017), Queensland Government Dwelling projections, 2019 edition, Queensland Treasury.

Box 4.1 presents a case study of the Caboolture West growth area in the Moreton Bay LGA, a major expansion area which is expected to eventually provide homes for around 70,000 people.

Box 4.1: Caboolture West case study

Caboolture West in the Moreton Bay Regional Council has been identified as a future growth area within SEQ (Queensland Government 2021b). It is located in the north of Brisbane and is bounded by the D'Aguilar Highway to the north, Caboolture River Road to the south and Low Hills to the west of Old North Road (see Figure 4.9). Currently, the area is predominately open rural grazing land and small parcels of agricultural cropping land. The area is close to the Caboolture-Morayfield Principal Activity Centre, has been found to be suitable for urban development and identified as a new major long-term growth area for SEQ (Queensland Government 2017).

In March 2021, the Queensland Government announced the initial stage of Caboolture West, known as Neighbourhood Development Plan 1 (NDP1), to:

- unlock growth
- address housing choice and affordability
- identify the infrastructure necessary to support more liveable communities.

In 2021 an amendment to the Moreton Bay Regional Planning Scheme, 2014, was approved to facilitate the development assessment of around 3,000 residential lots in NDP1 (Moreton Bay Regional Council, 2021).

Key features of the Caboolture West Local Plan 2050 include:

- Local plan area approximately 6,663 ha
- Urban Population: 68,700 residents
- Urban Dwellings: 26,900
- Urban Employment: 17,000 jobs
- Local Plan area: 3,480 ha
- Local Plan urban area 1,787 ha comprising:
  - Town centre 106 ha
  - Enterprise and employment 160 ha
  - Urban living 1,521 ha
  - 6 local centres
  - 13 neighbourhood hubs
  - TAFE and Private hospital
  - 3 high schools
  - 9 primary schools
  - Rapid transit connection to Caboolture Central
- Green network 1,070 ha comprising Local Plan rural living area 622 ha.

Figure 4.9: **Map of Caboolture West**
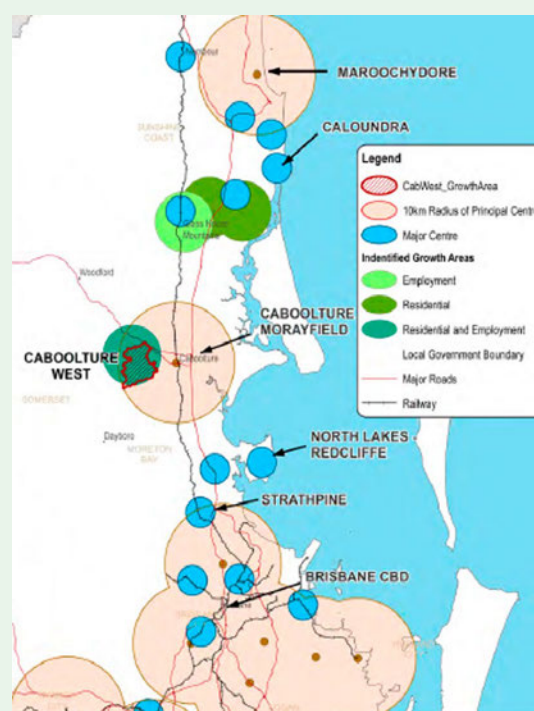
Source: Moreton Bay Regional Council 2013.

4.7 Housing affordability

Housing affordability is considered part of liveability for this study. Four different indicators are used to assess housing affordability: the dwelling price to income ratio, mortgage stress, rental stress and the rental affordability index.

Before looking at these indicators, Figure 4.10 shows tenure types across the 12 LGAs of the SEQ region. Across the 12 LGAs, 28.5 per cent of people owned their housing outright, 35.6 per cent owned their home with a mortgage and 34.9 per cent rented their home, as of the 2016 Census. The highest proportion owning their home outright was in Noosa (40.8 per cent), Scenic Rim (37.5 per cent) and Somerset (37.2 per cent) LGAs. On the other hand, the highest proportion of dwellings owned with a mortgage was in Logan (41.3 per cent), Redland (40.5 per cent) and Lockyer Valley (39.8 per cent) LGAs. The highest proportion renting their home was in Ipswich (40.7 per cent), Brisbane (38.0 per cent) and Gold Coast (37.5 per cent) LGAs.

Figure 4.10: Tenure types of the 12 LGAs in SEQ in 2016
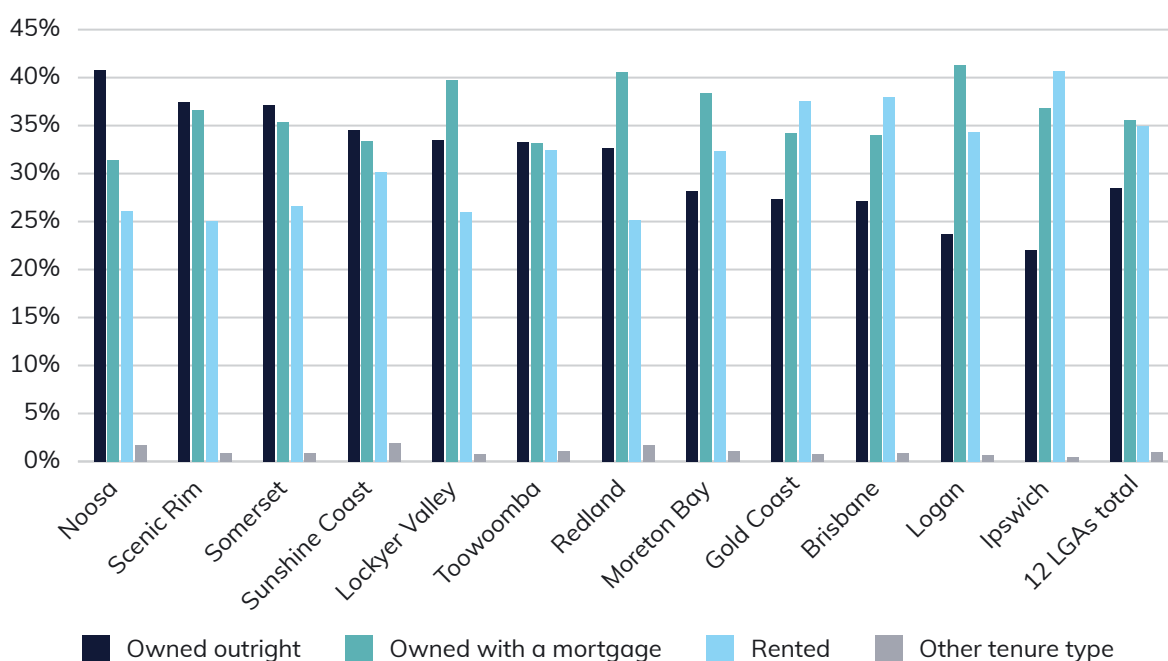
Source: ABS Census of Population and Housing 2016.

Home ownership affordability

Two indicators are used to provide an overview of home ownership affordability in the SEQ region: the dwelling price to income ratio and mortgage stress. The dwelling price to income ratio provides a guide to the cost of buying a typical dwelling relative to a typical household's annual income in that location. Mortgage stress measures the proportion of households whose mortgage repayments are 30 per cent or more of their household income.

Dwelling price to income ratio

Table 4.8 shows the dwelling price to income ratio in the LGAs of SEQ in 2018–2019 and (where available) 2019–2020. The dwelling price to income ratio was highest in Noosa (10.0), followed by Gold Coast (7.9) and Sunshine Coast (7.7). This means that purchasing a typical dwelling in Noosa would cost 10.0 times the annual income of a typical household. Noosa, Gold Coast and the Sunshine Coast were less affordable than the other LGAs of SEQ. The Brisbane LGA had a dwelling price to income ratio of 6.3 in 2018–2019, which decreased in 2019–2020 (to 6.1). The Ipswich LGA had a dwelling price to income ratio of 4.6 in 2018–2019, which was similar to that of Lockyer Valley (5.0) and Toowoomba (5.0), making them more affordable than other parts of the SEQ region.

Table 4.8: **Dwelling price to income ratio of LGAs in SEQ in 2018–2019 and 2019–2020**

LGAs	Dwelling price to income ratio 2018–2019	Dwelling price to income ratio 2019–2020
Brisbane	6.3	6.1
Gold Coast	7.9	7.0
Ipswich	4.6	--
Lockyer Valley	5.0	--
Logan	5.2	--
Moreton Bay	5.6	--
Noosa	10.0	--
Redland	6.1	--
Scenic Rim	6.8	--
Somerset	5.2	--
Sunshine Coast	7.7	7.9
Toowoomba	5.0	5.0

Note:

-- 	data not available.

Sources: 	BCARR analysis of CoreLogic, Median dwelling price 2018–2019 data and Median household income – The Australian National University household income model (custom data) 2019.

In the National Cities Performance Framework (NCPF) (BITRE 2021a), this indicator was used to compare housing affordability across Australia's 21 largest cities.[9] For the year ended June 2020, the Sunshine Coast was the 3rd least affordable city (dwelling price to income ratio of 8.0), behind Sydney (8.5) and Wollongong (8.3). The city of Gold Coast-Tweed was in 7th place (with a ratio of 7.0) and Brisbane was 10th (5.9). However, Toowoomba was the 3rd most affordable of the included cities, with a dwelling price to income ratio of 4.7.

To illustrate the spatial distribution of the dwelling price to income ratio, Figure 4.11 shows the dwelling price to income ratio of each SA2 in 2019–2020. SA2s located in the Noosa, Sunshine Coast, Middle South and Gold Coast sub-regions had higher dwelling price to income ratios, i.e. those areas were least affordable. On the other hand, SA2s located in Ipswich, Toowoomba and Moreton Bay had lower dwelling price to income ratios and were more affordable.

Most of the SA2s in SEQ had a dwelling price to income ratio between 3.5 and 7.0. Table 4.9 shows the top five SA2s with the highest and lowest dwelling price to income ratio in 2019–20. Robertson (12.5), Sunshine Beach (11.7) and Caloundra Hinterland (11.7) had the highest dwelling price to income ratio. On the other hand, Morayfield (3.5), Cambooya – Wyreema (3.9) and Churchill – Yamanto (4.0) had the lowest dwelling price to income ratio.

9 	Note that the NCPF used different geographic boundaries to this study. Capital city boundaries were based on ABS Greater Capital City Statistical Areas, while for smaller cities, ABS Significant Urban Area boundaries were used.

Figure 4.11: Dwelling price to income ratio of SA2s in SEQ 2019–2020

Note: Ratio data is missing for SA2s displayed in white colour, typically due to zero or limited property sales in period or a small number of resident households.

Sources: BCARR analysis of CoreLogic, Median Dwelling price 2019–2020 data and Median household income – The Australian National University household income model (custom data) 2019 –2020.

Table 4.9: Top 5 SA2s with highest and lowest dwelling price to income ratio in SEQ 2019–2020

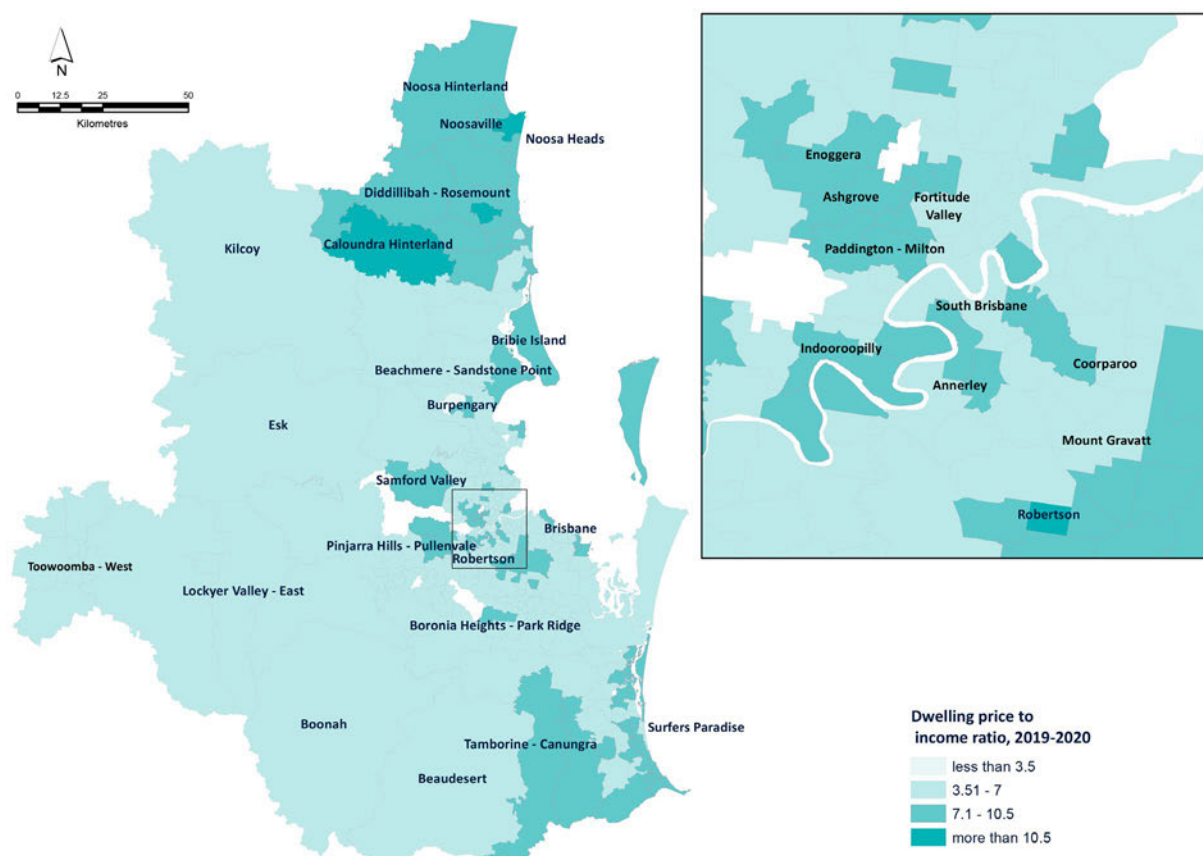| SA2s	BCARR rings/ sub-region	Dwelling price to income ratio (highest)	SA2s	BCARR rings/ sub-region	Dwelling price to income ratio (lowest)
Robertson	Middle South	12.5	**Morayfield**	Moreton Bay	3.5
Sunshine Beach	Noosa	11.7	**Cambooya – Wyreema**	Toowoomba	3.9
Caloundra Hinterland	Sunshine Coast	11.7	**Churchill – Yamanto**	Ipswich	4.0
Noosa Heads	Noosa	11.5	**Ripley**	Ipswich	4.1
Noosaville	Noosa	11.3	**Springfield**	Ipswich	4.2

Sources: BCARR analysis of CoreLogic, Median Dwelling price 2019–2020 data and Median household income – The Australian National University household income model (custom data) 2019 –2020.

Mortgage stress

The mortgage stress indicator is from the ABS Census of Population and Housing 2016 and measures the percentage of households with mortgage repayments which are 30 per cent or more of household income.[10] Table 4.10 shows the percentage of households that were in mortgage stress in the 12 LGAs of SEQ in 2016. The highest proportions in mortgage stress were in the Logan and Scenic Rim LGAs, both at 8.2 per cent. As discussed above, the Logan LGA had a very high percentage of dwellings owned with a mortgage, which has flowed through into a high degree of mortgage stress. The Toowoomba, Brisbane and Ipswich LGAs had the lowest proportion of households in mortgage stress in 2016.

Table 4.10: Proportion of households in mortgage stress in the 12 LGAs of SEQ in 2016

LGAs	Mortgage stress, 2016
Brisbane	5.8
Gold Coast	7.9
Ipswich	5.9
Lockyer Valley	7.9
Logan	8.2
Moreton Bay	6.8
Noosa	8.0
Redland	7.3
Scenic Rim	8.2
Somerset	7.5
Sunshine Coast	7.2
Toowoomba	5.1

Source: ABS, Census QuickStats, Census of Population and Housing 2016

Overall, mortgage stress is not particularly high in SEQ, with the NCPF showed that in 2016 Gold Coast-Tweed was the SEQ city that had the highest incidence of mortgage stress at 7.7 per cent, well below the incidence in Western Sydney (10.2 per cent) and Perth (9.3 per cent) (BITRE 2021a). Toowoomba had the second lowest mortgage stress of all the NCPF cities at 5.0 per cent (ibid).

To illustrate the spatial distribution of mortgage stress, Figure 4.12 shows the mortgage stress of each SA2 of SEQ in 2016. The map shows that households in mortgage stress are quite highly represented in a number of SA2s in the Logan, Middle South and Gold Coast sub-regions. Table 4.11 shows that the SA2s with the highest mortgage stress were Jimboomba (12.4), Greenbank (12.4), Parkinson – Drewvale (11.8), Reedy Creek Andrews (11.5) and Upper Caboolture (11.4). A relatively large proportion of households in those SA2s were paying mortgage payments greater than or equal to 30 per cent of household income.

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10 The assessment is based on an imputed income measure and is expressed as a proportion of the total number of households in an area (including those households which were renting, and excluding the small proportion of visitor only and other non-classifiable households). The nature of the income imputation means that the reported proportion may significantly overstate the true proportion (ABS 2016b).

Figure 4.12: Proportion of households in mortgage stress by SA2s of SEQ in 2016
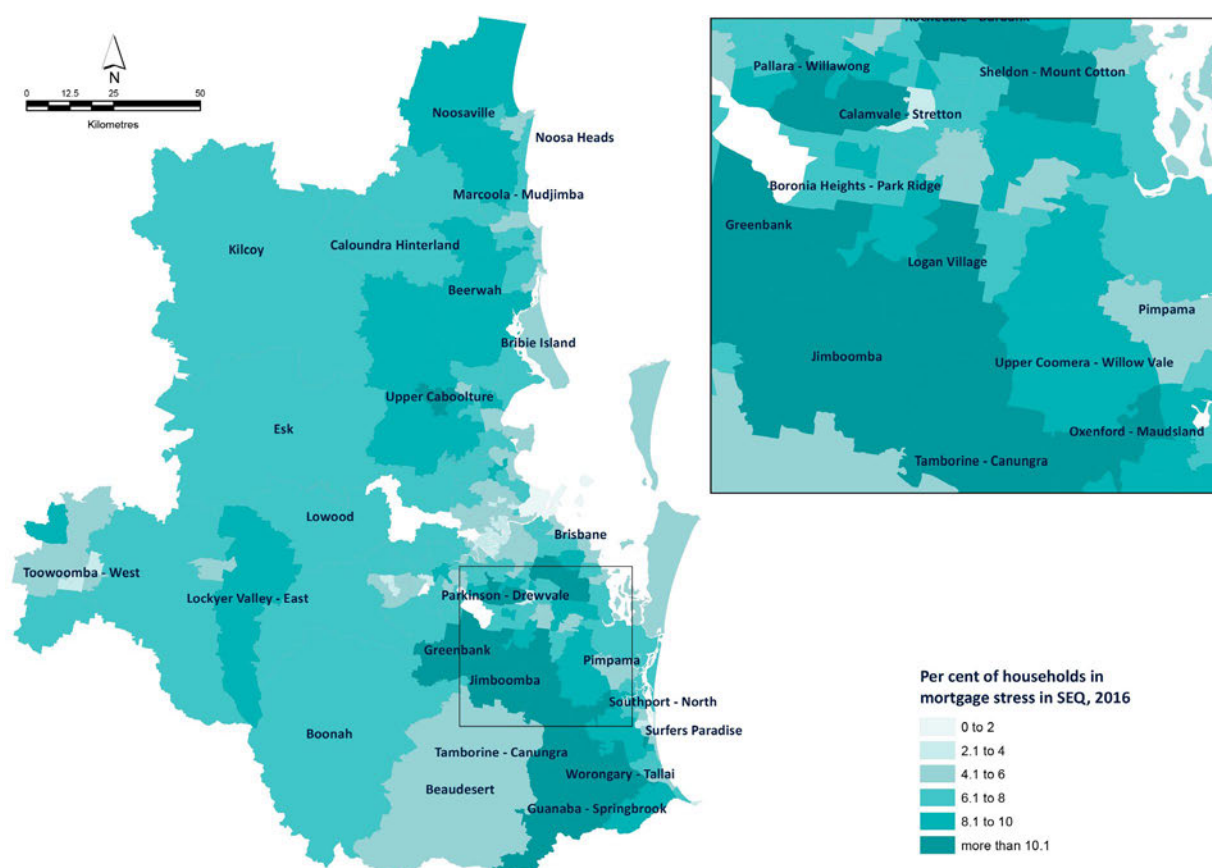
Source: BCARR analysis of ABS Census of Population and Housing, 2016, data obtained on request.

Table 4.11: Top five SA2s of SEQ with mortgage stress in 2016

SA2s	BCARR rings- sub-regions	Mortgage stress (per cent)
Jimboomba	Logan	12.4
Greenbank	Logan	12.4
Parkinson – Drewvale	Middle South	11.8
Reedy Creek – Andrews	Gold Coast	11.5
Upper Caboolture	Moreton Bay	11.4

Source: BCARR analysis of ABS Census of Population and Housing, 2016, data obtained on request

Rental affordability

Two indicators are used to provide an overview of rental affordability in the SEQ region: the rental affordability index (RAI) and rental stress. The RAI is released biannually by SGS Economics and Planning and tracks rental affordability relative to income for all households. Rental stress measures the proportion of households whose rental payments are 30 per cent or more of their household income.

Rental stress

The rental stress indicator is from the ABS Census of Population and Housing 2016 and measures the percentage of households with rental payments which are 30 per cent or more of household income.[11] According to the NCPF, SEQ cities had a relatively high incidence of rental stress. In 2016, Gold Coast-Tweed had the highest incidence of rental stress of all NCPF cities at 16.5 per cent, while Sunshine Coast was in 4th place (13.8 per cent) and Brisbane in 6th place (12.9 per cent) (BITRE 2021a).[12]

This is confirmed by Table 4.12 which shows the proportion of households that were in rental stress in the 12 LGAs of SEQ in 2016. The Gold Coast LGA has the highest rental stress, with 16.8 per cent of households spending more than 30 per cent of their income on rent. The Ipswich (14.0 per cent), Logan (13.4 per cent) and Sunshine Coast (13.3 per cent) LGAs also had relatively high rental stress. Scenic Rim had the lowest proportion of households with rental stress in 2016 (9.9 per cent).

A comparison of Table 4.12 with the mortgage stress indicator in Table 4.10 makes it clear that rental stress is a more widespread issue in SEQ than mortgage stress, affecting a larger proportion of the SEQ population.

Table 4.12: Proportion of households in rental stress in the 12 LGAs of SEQ in 2016

LGAs	Rental stress, 2016
Brisbane	13.1
Gold Coast	16.8
Ipswich	14.0
Lockyer Valley	10.1
Logan	13.4
Moreton Bay	12.8
Noosa	12.8
Redland	10.1
Scenic Rim	9.9
Somerset	10.2
Sunshine Coast	13.3
Toowoomba	11.1

Source: ABS Quick Stats, Census of Population and Housing 2016.

To illustrate the spatial distribution of rental stress, Figure 4.13 below shows the rental stress of each SA2 in SEQ in 2016. Households were paying more rent in the Inner sub-region. Some coastal SA2s also have a relatively high incidence of rental stress. Southport – North (32.8), Kelvin Grove – Herston (31.1), St Lucia (31.1), Fortitude Valley (28.4) and Surfers Paradise (27.0) were the top five SA2s where more than a quarter of the households were in rental stress (see Table 4.13).

11 The assessment is based on an imputed income measure and is expressed as a proportion of the total number of households in an area (including those households which were not renting, and excluding the small proportion of visitor-only and other non-classifiable households). The nature of the income imputation means that the reported proportion may significantly overstate the true proportion (ABS 2016b).

12 Note that the NCPF uses different geographic boundaries to this study. Capital city boundaries are based on ABS Greater Capital City Statistical Areas, while for smaller cities, ABS Significant Urban Area boundaries are used.

Figure 4.13: Proportion of households in rental stress in SEQ in 2016
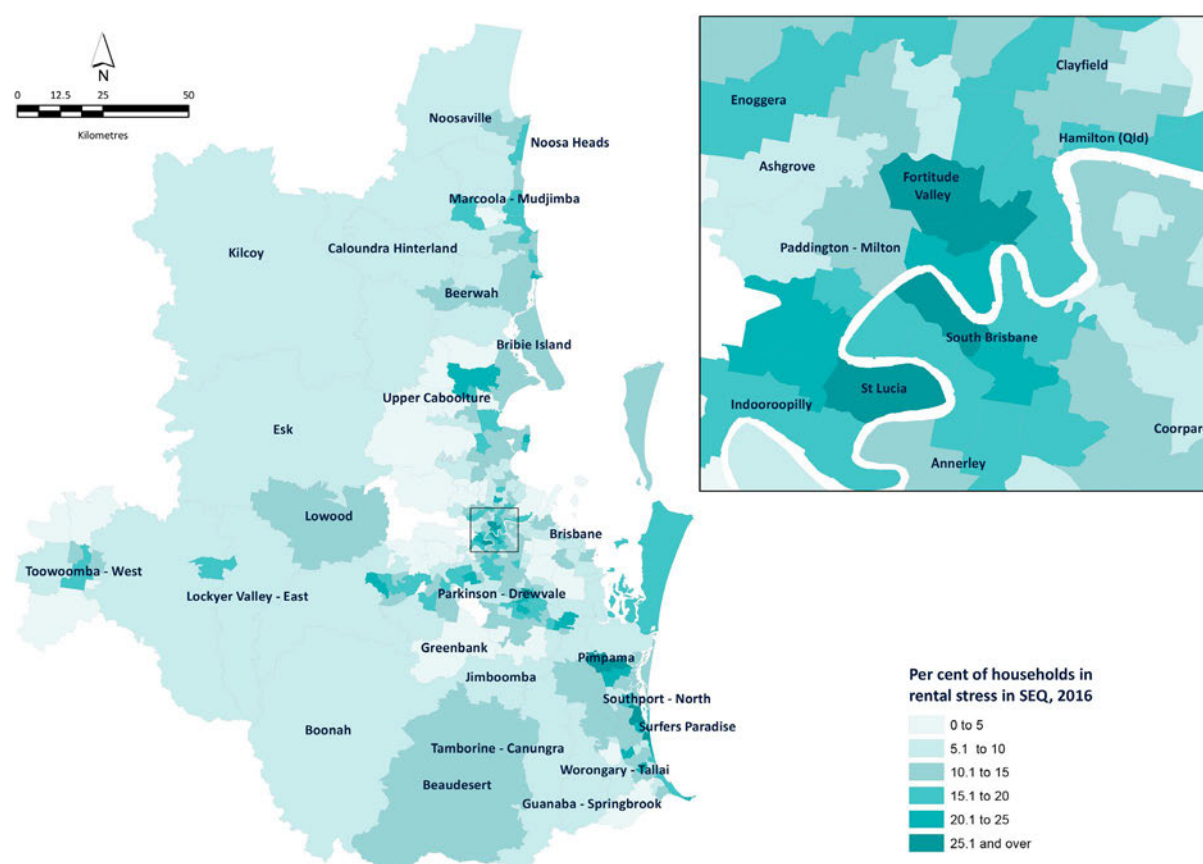
Source: BCARR analysis of ABS Census of Population and Housing, 2016, data obtained on request

Table 4.13: Top five SA2s with rental stress in SEQ in 2016

SA2s	BCARR rings/sub-regions	Rental stress (per cent)
Southport – North	Gold Coast	32.8
Kelvin Grove – Herston	Inner	31.1
St Lucia	Middle West	31.1
Fortitude Valley	Inner	28.4
Surfers Paradise	Gold Coast	27.0

Source: BCARR analysis of ABS Census of Population and Housing, 2016, data obtained on request

Rental affordability index (RAI)

This study uses the RAI from SGS Economics and Planning, which is an indicator of rental affordability relative to household incomes, applied to geographic areas across Australia. Like the rental stress indicator presented in the previous section, a 30 per cent of income threshold is used. RAI scores of 100 or less indicate that households spent 30 per cent or more of their income on rent, and scores of 80 or less indicate severely unaffordable rents (with households paying 38 per cent or more of their income on rent).

Figure 4.14 below shows the RAI of SEQ and surrounding areas, and Figure 4.15 shows the RAI scores of the Greater Brisbane area over time. Based on the average rental household gross income of $91,000 per annum, the Greater Brisbane RAI score was 121 as of June 2021 (SGS, 2021).

This is considered an acceptable level of affordability, with an average of 25 per cent of income being spent on rent by Brisbane's renting households in 2021. As of June 2021, Brisbane's level of rental affordability was similar to that of Sydney and Perth, and while not as affordable as Melbourne, it was much more affordable than Hobart or Adelaide (based on the RAI).

Between 2016 and 2020, there was a trend of gradual improvements in rental affordability in Greater Brisbane (with the RAI score improving from 117 in 2016 to 130 in 2020). However, Greater Brisbane's RAI has declined over the past 12 months (from an index score of 130 to 121). This represents a return to the rental affordability levels seen previously in 2017 and 2018.

Figure 4.14 shows that areas to the north-west of Brisbane (around Samford Valley) continue to be among the most unaffordable in the region. Areas to the north and south-east of the Brisbane CBD are moderately unaffordable. Beaudesert and Boonah SA2s in the Scenic Rim LGA are amongst the areas listed as affordable.

Over the 12 months to June 2021, some SA2s have experienced a notable decline in affordability, including Rochedale, Acacia Ridge to Drewvale, Alexandra Hills, Wellington Point, and Stafford to Fortitude Valley (see Figure 4.14).

Figure 4.14: **SGS rental affordability index in SEQ as of June 2021**
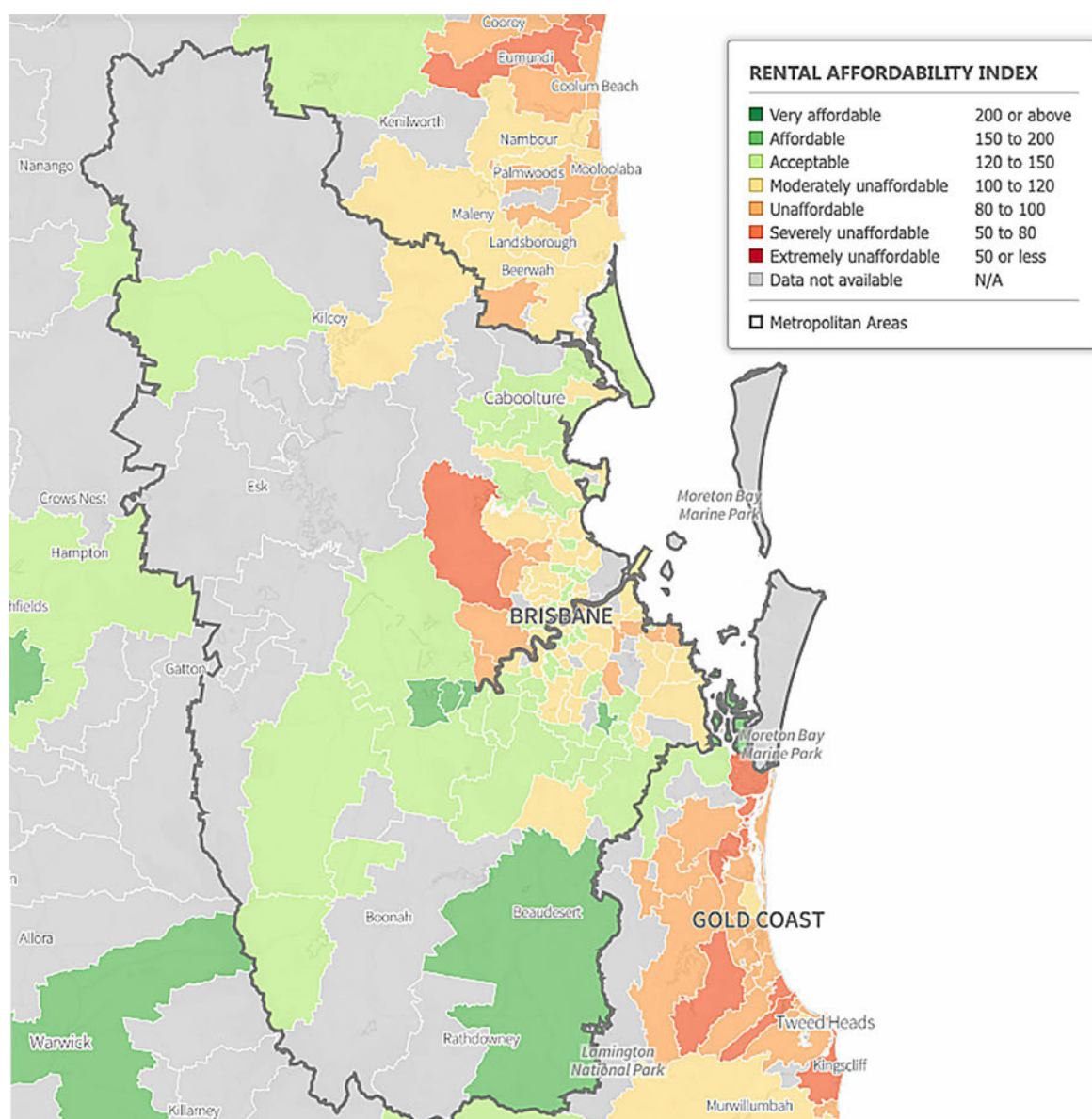
Source: SGS Economics and Planning 2020.

Based on the average rental household gross income of $82,000 per annum, regional Queensland (which includes the Rest of SEQ) had an RAI score of 110, which means moderately unaffordable. Rental affordability in the Rest of Queensland decreased recently, shifting from what was an acceptable level a year ago (see Figure 4.16). The RAI score for regional Queensland exceeded 120 for most of the period from 2016 to mid–2020, but has declined significantly over the last year. The average rental household seeking to rent a dwelling now needs to spend 27 per cent of its total income (SGS 2021).

Affordability has significantly decreased in the Gold Coast area over the last 12 months, with Gold Coast SA2s now having a RAI ranging between moderately unaffordable and severely unaffordable. Areas such as Helensvale, Broadbeach and Robina are some of the severely unaffordable areas on the Gold Coast. On the Sunshine Coast, areas from Maroochydore to Noosa have shifted recently from acceptable/moderately unaffordable to unaffordable and severely unaffordable. All these areas are significant tourist destinations, which might impact the rental affordability of these areas. There is a trend of using rental property through Airbnb these days, which is more profitable than the regular rental income (Buckle et al. 2020). Therefore, popular tourist destinations are becoming less affordable for local residents who wish to rent.

Figure 4.15: **Rental Affordability Index of Greater Brisbane from 2012 to 2021**
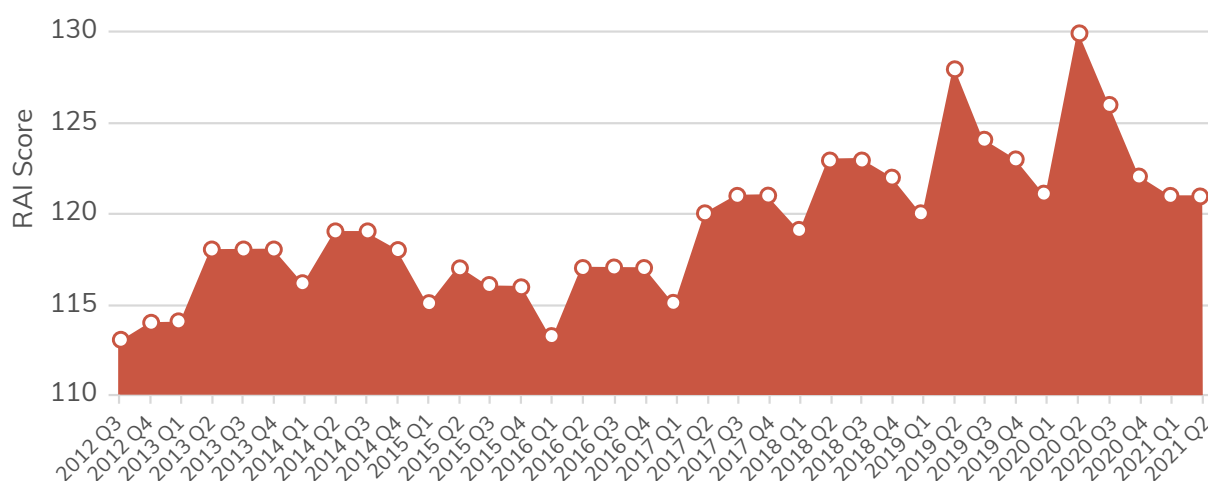
Source: SGS Economics and Planning, 2021.

Figure 4.16: **Rental Affordability Index of Rest of QLD from 2012 to 2021**
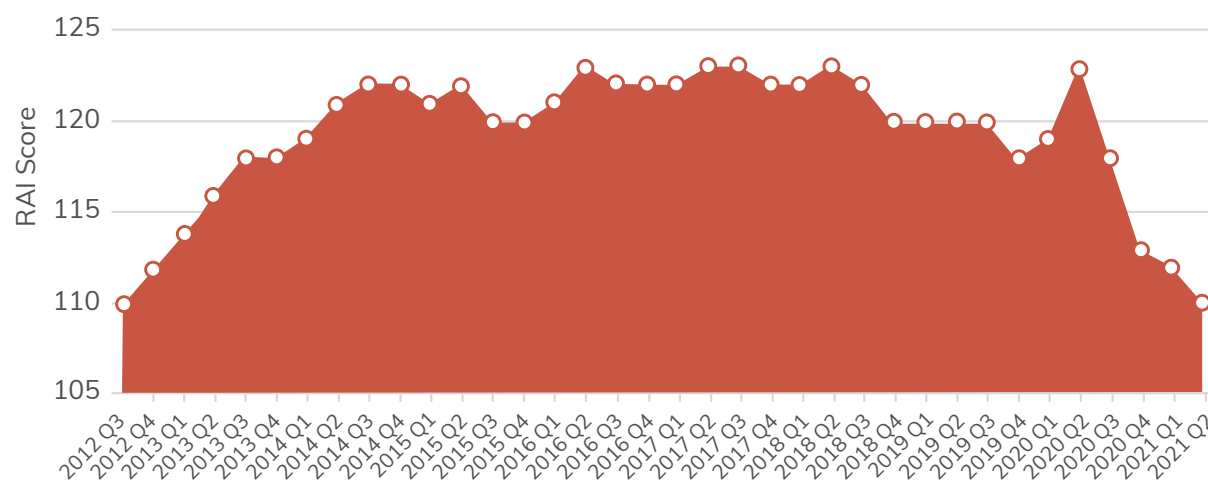
Source: SGS Economics and Planning, 2021.

Taken together, the two rental affordability measures show that:

- Rental affordability is an issue that impacts a significant proportion of SEQ households, moreso than home ownership affordability

- Within SEQ, rental affordability issues are particularly pronounced on the Gold Coast

- Rental affordability has declined significantly over the 12 months ended June 2021, with large parts of Gold Coast and the Sunshine Coast, and some areas of Brisbane, now being assessed as either unaffordable or severely unaffordable for renting households.

4.8 Conclusion

This chapter has provided an overview of housing and housing affordability in the SEQ region. Separate, low-density detached houses dominate the region's housing mix (with a 71 per cent share of SEQ's dwelling stock), except in the Brisbane, Gold Coast and Sunshine Coast LGAs. Of the 166,139 new residential building approvals in SEQ between 2016 and 2021, 59 per cent were for separate houses, which indicates some shift towards higher density forms of residential development since 2016. In the Brisbane LGA, only 36 per cent of residential building approvals were for separate houses over the last five years, and the Gold Coast LGA is following the same trend towards higher-density residential development. There was also an overall decline in median lot sizes across SEQ between 2016 and 2020.

SEQ is expected to add around 800,000 new dwellings between 2016 and 2041, with 60 per cent of these added through consolidation, rather than expansion. The Brisbane LGA is expected to add the most dwellings (155,200), almost entirely through urban consolidation. Gold Coast is expected to add 150,900 dwellings, mainly through consolidation. However, the majority of the 146,000 dwellings expected to be added in Ipswich and the 83,800 dwellings to be added in Logan are likely to occur through greenfields development beyond the existing urban area boundary. It is these two LGAs – Ipswich and Logan – that have the most available land identified for future development.

Compared with rental stress, mortgage stress is low in SEQ. The Logan and Scenic Rim LGAs have the highest proportion of households with mortgage stress. On the other hand, the Gold Coast LGA is the least affordable for renters. The available evidence suggests that rental affordability issues in the Gold Coast and some other SEQ locations have become more pronounced over the last 12 months.

CHAPTER 5

JOBS AND INDUSTRIES

Key points

- There were 1.93 million employed persons residing in SEQ, on average, during the year ended August 2021. Of these, 68 per cent (or 1.3 million) resided in Greater Brisbane, 19 per cent in the Gold Coast, 10 per cent in the Sunshine Coast and 4 per cent in Toowoomba.

- The Health care and social assistance industry employs more SEQ residents than any other industry. With around 280,000 employed persons, it contributed 14.5 per cent of total SEQ employment as of August 2021. Other important industries include Retail trade (with 198,000 employed persons), Construction (176,000), Professional, scientific and technical services (167,000) and Education and training (165,000).

- Of the total 1.5 million people with an identifiable LGA of work in SEQ at the time of the 2016 census, 714,200 (48 per cent) worked in the Brisbane LGA and 235,500 (16 per cent) worked in the Gold Coast LGA. The Moreton Bay and Sunshine Coast LGAs were the only other LGAs which contained the place of work of more than 100,000 people.

- The Brisbane LGA is the only SEQ LGA that has more employed people who work in it than live in it. In 2016, there were 125 people who reported a place of work in the Brisbane LGA for every 100 employed residents of the LGA. In contrast, the Redland and Moreton Bay LGAs had a notable shortfall of local jobs, with around 60 people reporting a place of work in the LGA for every 100 employed residents.

- Employment density was highest in the Brisbane LGA at 532 persons per km^2 in 2016, followed by Gold Coast (177 persons per km^2). The Scenic Rim and Somerset LGAs had very low employment densities.

- The SEQ sub-regions of work with the most employment in 2016 were Inner Brisbane (312,100), Gold Coast (235,500), Middle South (155,700), Middle North (112,500) and Sunshine Coast (110,200).

- The industry mix of employment in Inner Brisbane is notably different to the other rings. Inner Brisbane has particularly high representation of the Professional, scientific and technical services, Financial and insurance services, Information media and telecommunications, and Public administration and safety industries, and a lower share of Manufacturing employment.

- Overall, SEQ had 23.9 per cent of its total employment in knowledge-intensive industries in 2016. Representation was highest for jobs located in Inner Brisbane (43.4 per cent), followed by Middle Brisbane (19.8 per cent) and Rest of SEQ (19.3 per cent). Outer Brisbane had the lowest share (16.0 per cent).

- The Brisbane City SA2 was the location of work of 122,500 persons, representing 8.3 per cent of the SEQ total at the time of the 2016 census. There were six SA2s in SEQ that were the place of work of between 20,000 and 28,000 employed persons, namely South Brisbane, Fortitude Valley and Newstead-Bowen Hills (in the Inner sub-region), Southport North (in the Gold Coast sub-region), Rocklea-Acacia Ridge (in the Middle South sub-region) and Brisbane Airport (in the Middle North sub-region).

- The number of employed residents of SEQ increased by 186,800 persons between 2016 and 2021, representing an average annual growth rate of 2.1 per cent. Of this, 122,300 (or almost two-thirds) were in Greater Brisbane. Within Greater Brisbane, the greatest increases occurred in Brisbane Inner City SA4 (29,100), Ipswich SA4 (28,900) and Logan-Beaudesert SA4 (24,300).

- The Gold Coast SA4 had the largest increase in employed residents of all SA4s in SEQ, with employment rising by 44,700 employed persons between 2016 and 2021.

- The major industry source of employment growth in SEQ from 2016 to 2021 was the Health care and social assistance industry which added 43,900 employed persons, which was 23.5 per cent of total growth. Other key contributors included Education and training (22,100), Professional, scientific and technical services (19,600), Manufacturing (18,000) and Accommodation and food services (14,000).

5.1 Introduction

This chapter provides an analysis of the spatial distribution of jobs throughout the SEQ region, and summarises recent evidence on growth in SEQ's employment and industries.

The chapter starts by presenting a snapshot of the spatial distribution of employment in SEQ, initially focusing on employment by place of residence (using ABS *Labour Force Survey* data for 2021), and then turning to the location of work (using ABS Census of Population and Housing data from 2016). It presents evidence on the employment contribution of various industries, including knowledge-intensive industries, across different parts of SEQ. The spatial analysis is undertaken using a range of geographies, including the 12 LGAs, the SEQ rings and sub-regions, SA4s, SA2s and major employment precincts. The latter part of the chapter is focused on summarising the available evidence on employment growth in SEQ between 2016 and 2021, including the spatial and industry breakdowns of that growth.

5.2 Employment snapshot

Snapshot of employed residents of SEQ in 2021

The ABS *Labour Force Survey* (LFS) provides the official measure of employment for Australia. Based on LFS data, there were 1.9 million employed persons residing in SEQ during 2020–21. This reflects a labour force participation rate of 66.7 per cent.

ABS LFS data is not available for LGAs, but is published for Statistical Area Level 4s (SA4s).[13] Table 5.1 presents LFS estimates of employed persons for the SA4s within SEQ. Of the total 1.9 million employed persons residing in SEQ, 68 per cent (or 1.3 million) live in Greater Brisbane, 19 per cent in the Gold Coast, 10 per cent in the Sunshine Coast and 4 per cent in Toowoomba. Within Greater Brisbane, the Brisbane South SA4 has the largest number of employed residents, followed by the Brisbane Inner City SA4.

Table 5.1 also reveals that the Health care and social assistance industry employs more SEQ residents than any other industry. With around 280,000 employed persons, this industry is responsible for 14.5 per cent of total SEQ employment as of August 2021.

The Health care and social assistance industry is also the top employing industry in most of the individual SA4s of SEQ. It is particularly prominent in the Toowoomba, Sunshine Coast and Brisbane North SA4s, where more than 16 per cent of employed residents work in this industry. However, of the SA4s in SEQ, Gold Coast has the largest number of employed residents working in the Health care and social assistance industry (46,900).

The Professional, scientific and technical services industry is the top employing industry in the Brisbane Inner City and Brisbane West SA4s, while Retail trade is the top employing industry for residents of the Moreton Bay South SA4.

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13 SA4 regions are the largest sub-State regions in the ABS's Australian Statistical Geography Standard (ASGS) main structure. They are specifically designed for the output of ABS LFS data and therefore have population limits imposed by the LFS sample. There are 107 SA4 regions covering the whole of Australia without gaps or overlaps, including 18 non-spatial special purpose codes (ABS 2016a).

Table 5.1: Employed persons by Statistical Area 4 of residence in SEQ as of August 2021

SA4 of residence	Employed persons ('000)	Share of SEQ total (per cent)	Top employing industry in SA4 of residence	Industry share of SA4 total (per cent)
Brisbane Inner City	193.5	10.0	Professional, scientific and technical services	15.4
Brisbane East	127.8	6.6	Health care and social assistance	15.8
Brisbane North	126.5	6.5	Health care and social assistance	16.2
Brisbane South	201.1	10.4	Health care and social assistance	14.5
Brisbane West	102.6	5.3	Professional, scientific and technical services	17.9
Ipswich	182.1	9.4	Health care and social assistance	15.2
Logan – Beaudesert	158.7	8.2	Health care and social assistance	13.0
Moreton Bay North	106.7	5.5	Health care and social assistance	13.0
Moreton Bay South	116.5	6.0	Retail trade	15.0
TOTAL – GREATER BRISBANE	1315.5	68.0	Health care and social assistance	14.4
Gold Coast	358.1	18.5	Health care and social assistance	13.1
Sunshine Coast	185.9	9.6	Health care and social assistance	16.7
Toowoomba	74.0	3.8	Health care and social assistance	17.4
TOTAL – SEQ	1933.6	100.0	Health care and social assistance	14.5

Note: Data is an annual average of the estimates for the 12 months up to August 2021. The Toowoomba SA4 captures only the urban extent of Toowoomba. Based on ANZSIC 1-digit industries.

Source: ABS *Labour Force Survey* data, Cat. 6291.0.55.001 (Table RQ1, 24 March 2022 release).

Figure 5.1 illustrates the industry structure of employment for SEQ residents as of August 2021. As previously noted, the Health care and social assistance industry is the principal industry of employment in SEQ, employing almost 280,000 residents. Other important employing industries include:

- Retail trade, with 198,000 employed persons (and 10.2 per cent of the SEQ total)
- Construction, with 176,000 employed persons (9.1 per cent)
- Professional, scientific and technical services, with 167,000 employed persons (8.7 per cent)
- Education and training, with 165,000 employed persons (8.6 per cent).

Figure 5.1: **Employed persons by industry in SEQ as of August 2021**
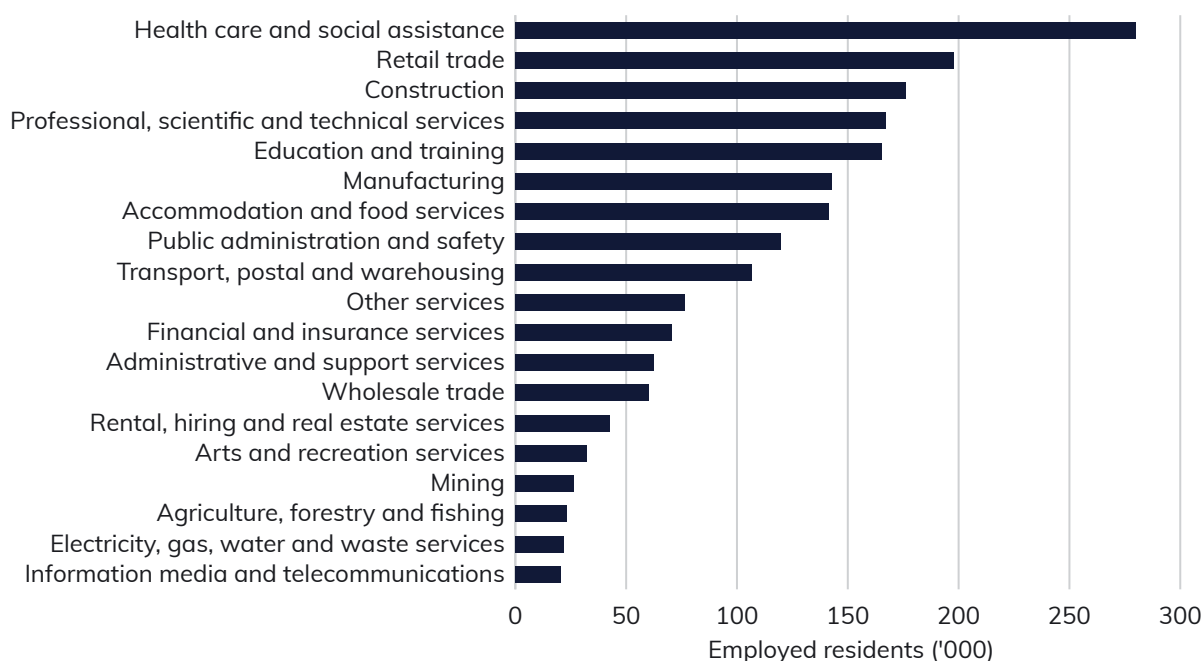
Note: Data is an annual average of the estimates for the 12 months up to August 2021. The Toowoomba SA4 captures only the urban extent of Toowoomba. Based on ANZSIC 1-digit industries. Data is on a place of residence basis.

Source: ABS *Labour Force Survey* data, Cat. 6291.0.55.001 (Table RQ1, 24 March 2022 release).

Snapshot of the location of work within SEQ in 2016

The previous section focused on employed residents of SEQ and its SA4s. However, for this study it is more important to understand the locations at which employed persons actually work, rather than where they live. The most recent data we have on employment by place of work for SEQ comes from the 2016 ABS *Census of Population and Housing*.[14]

Location of work by Local Government Areas

Table 5.2 summarises the census place of work data for the 12 LGAs of SEQ. In total, there were close to 1.5 million employed persons with an identifiable LGA of work in SEQ in 2016. This figure is significantly lower than the 1.9 million total from Table 5.1, reflecting the following factors:

- The 1.5 million figure is from 2016, and misses the growth that occurred between 2016 and 2021.

- Census non-response and item non-response to the labour force questions means that census employment estimates tend to be 11–12 per cent less than the official LFS estimates at the same point in time (ABS 2017a).

- About 5 per cent of employed persons in Queensland reported no fixed address of work. This can include occupations such as truck drivers, couriers, mobile salespeople, construction workers etc.

- Some employed residents of SEQ have a place of work outside of SEQ, such as fly-in fly-out mine sites.

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14 The 2021 census place of work data was released by ABS in October 2022, after the completion of this research project.

Of the total 1.5 million people with an identifiable LGA of work in SEQ, 48 per cent worked in the Brisbane LGA and 16 per cent in the Gold Coast LGA. The Moreton Bay and Sunshine Coast LGAs were the only other LGAs which contained the place of work of more than 100,000 people. The Lockyer Valley, Somerset and Scenic Rim LGAs each contributed less than one per cent of SEQ employment.

Table 5.2: Employed persons by LGA of work in SEQ in 2016

LGA of work	Employed persons ('000)	Share of 12 LGA total (per cent)	Ratio of workers to employed residents	Employment density (persons/km²)
Brisbane	714.2	48.1	1.25	531.9
Gold Coast	235.5	15.9	0.90	176.6
Ipswich	62.3	4.2	0.74	57.4
Lockyer Valley	11.2	0.8	0.71	4.9
Logan	89.1	6.0	0.68	93.0
Moreton Bay	113.0	7.6	0.60	55.3
Noosa	20.1	1.4	0.91	23.1
Redland	40.6	2.7	0.58	75.5
Scenic Rim	12.4	0.8	0.73	2.9
Somerset	6.1	0.4	0.66	1.1
Sunshine Coast	110.8	7.5	0.86	49.2
Toowoomba	69.4	4.7	0.97	5.4
12 LGAs total	**1484.7**	**100.0**	**0.94**	**42.1**

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ.

Sources: BCARR analysis of ABS Census of Population and Housing, 2016 (data extracted from TablebuilderPro) and ABS Cat. 3218.0 Regional population, Australia, 2016.

Overall, there were 94 workers with an identifiable place of work in SEQ for every 100 employed residents of SEQ. This ratio lies below 1 primarily because about 5 per cent of employed people had jobs which did not have a fixed work address, although commuting out (or into) the region may have also played a role.

The only SEQ LGA which had a ratio of workers to employed residents that exceeded 1 was the Brisbane LGA. There were 125 people who reported a place of work in the Brisbane LGA for every 100 employed residents of the LGA. In Australian cities, the central LGA – and specifically the Central Business District – tends to be a key employment hub which draws commuters in from residences in more outlying suburbs, and the Brisbane LGA result is typical of that pattern. The Toowoomba LGA's ratio of 0.97 exceeded that of the 12 LGAs total, indicating it had sufficient local jobs to employ its residents.

The Gold Coast, Sunshine Coast and Noosa LGAs all had ratios of around 0.9, indicating a relatively minor shortfall of local jobs relative to employed residents. The remaining LGAs all had a notable shortfall of local jobs compared to employed residents, so that a significant number of locals needed to commute outside the LGA for work. In particular, there were only 58 people who reported a place of work in the Redland LGA for every 100 employed residents, and only 61 workers for every 100 employed residents of the Moreton Bay LGA.

The overall employment density of the 12 LGAs was 42 employed persons per square kilometre (km²) (Table 5.2). Employment density was highest in the Brisbane LGA at 532 persons per km², followed by Gold Coast (177 persons per km²). The Scenic Rim and Somerset LGAs had particularly low employment densities, reflecting their predominantly rural nature.

Figure 5.2 illustrates the distribution of employment across industries for each of the LGAs of work in 2021. The Health care and social assistance industry was the top employing industry across the 12 SEQ LGAs with 202,900 employed persons at the time of the 2016 census, representing 14.3 per cent of total employment across the 12 LGAs. Health care and social assistance was also the top employing industry in most of the individual LGAs, with its employment share ranging from a low of 8.0 per cent for the Lockyer Valley to a high of 17.2 per cent for the Sunshine Coast.

Agriculture, forestry and fishing was the top employing industry in the Lockyer Valley (where it contributed 22.1 per cent of employment) and Scenic Rim LGAs (13.3 per cent), and was also a prominent source of employment in the Somerset LGA (13.9 per cent). However, Manufacturing was the top employing industry in the Somerset LGA, with 18.7 per cent of jobs.

In the Logan LGA, Retail trade was the top employing industry, with a 14.3 per cent employment share. In the Noosa LGA, the top employing industry was Accommodation and food services, which accounted for 15.9 per cent of Noosa's total jobs.

Figure 5.2: Employed persons by industry by LGA of work in SEQ in 2016
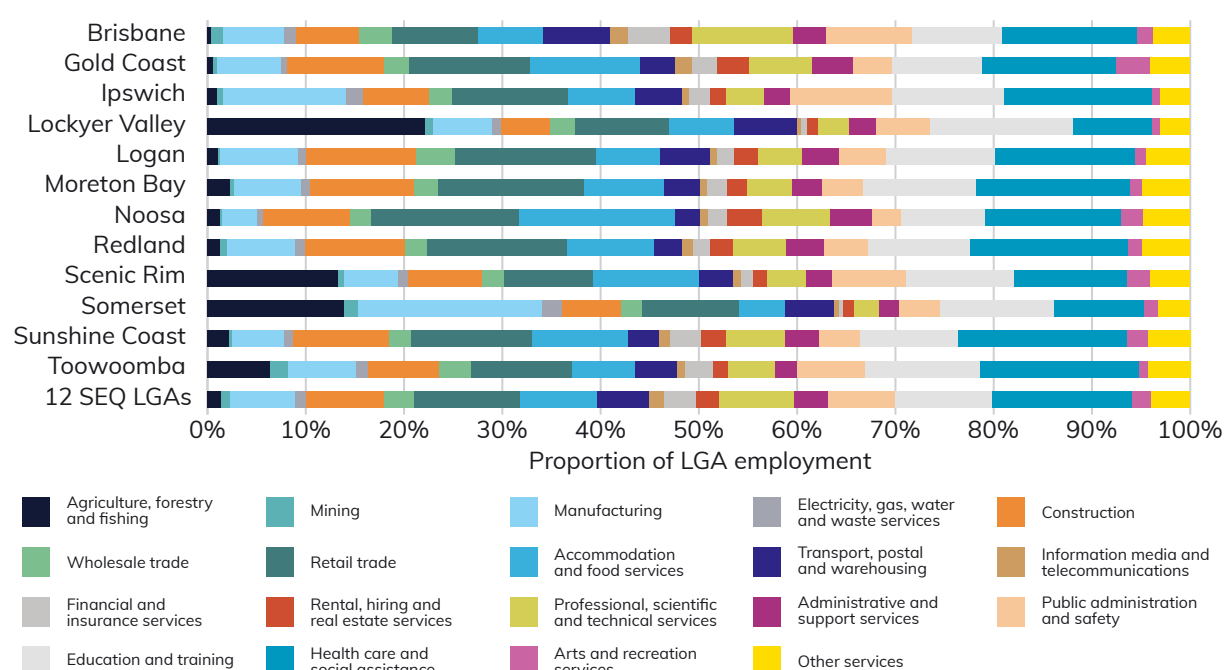
Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ.
Source: ABS Census of Population and Housing 2016 (place of work data extracted from TablebuilderPro).

To understand the spatial distribution of knowledge-intensive industry jobs in SEQ, the report uses a group of knowledge industries comprising 126 sub-industries (Appendix A) within the following eight broad industries classified by the Australian and New Zealand Standard Industrial Classification (ANZSIC) (ABS 2006):

1. Information media and telecommunications
2. Financial and insurance services
3. Professional, scientific and technical services
4. Manufacturing
5. Public administration and safety
6. Education and training
7. Health care and social assistance
8. Arts and recreation

The knowledge-intensive industries were selected based on a review of literature on knowledge and creativity (Machlup 2014; Mellander 2009; Florida 2002; Florida 2003; Hu 2014 and Hu 2016). Some manufacturing sub-industries are considered knowledge-intensive because they are high-tech manufacturing and require a significant knowledge base to function. Similarly, some sub-industries within Public administration and safety are included, which are important in the knowledge economy (Tuli and Hu 2019).

Figure 5.3 below shows the proportion of knowledge-intensive industry jobs within the total place of work employment of each LGA in 2016. The Brisbane LGA had 30.1 per cent of its total employment in knowledge-intensive industries, which was above the 12 LGAs proportion of 23.8 per cent. Toowoomba, Ipswich and Sunshine Coast LGAs also had over 20 per cent of their total employment in knowledge-intensive industries in 2016, while Somerset LGA had the lowest representation at 9.6 per cent. The Professional, scientific and technical services industry was the main contributor to these knowledge-intensive jobs in Brisbane and to the total of the 12 LGAs (at 32.7 and 30.1 per cent respectively).

Figure 5.3: Proportion of total LGA employment in knowledge-intensive industries of SEQ in 2016
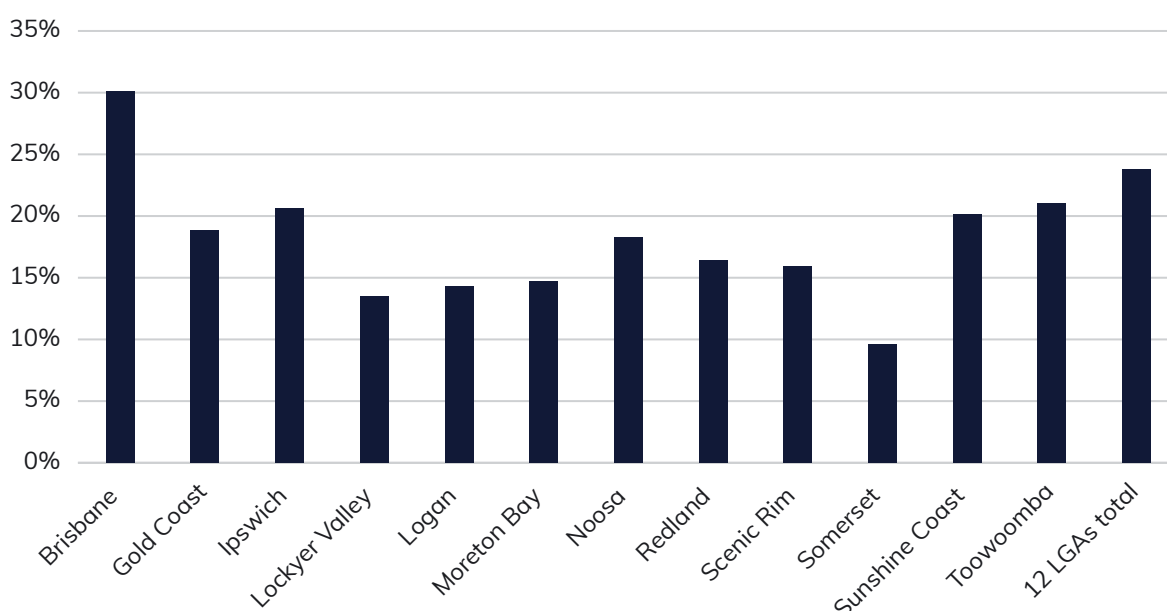
Note: Industries classified as knowledge-intensive are listed in Appendix A. The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ.

Source: BCARR analysis of ABS Census of Population and Housing, 2016 (place of work data extracted from Tablebuilder Pro).

Location of work by BCARR rings and sub-regions

Table 5.3 summarises the census place of work data for SEQ and its sub-regions. In 2016 just over 69 per cent of employed persons had a place of work in Greater Brisbane. The Middle ring of Brisbane was a particularly important source of jobs, responsible for 27 per cent of the SEQ total, while the Inner and Outer rings each contributed about 21 per cent of the SEQ total. At the sub-region scale, the most important contributors to the SEQ total were Inner Brisbane (312,100 jobs), Gold Coast (235,500), Middle South (155,700), Middle North (112,500) and Sunshine Coast (110,200).

Inner Brisbane was highly self-sufficient with respect to employment, with 222 jobs located in Inner Brisbane for every 100 employed residents. Jobs were heavily concentrated in and around Brisbane's CBD, with the Inner Brisbane sub-region accounting for 31 per cent of all jobs in Greater Brisbane, while 32 per cent of Greater Brisbane's jobs were located within a 5km radius of the central General Post Office (GPO).

The Middle East and Middle North sub-regions were also relatively self-sufficient, with slightly more jobs located in these sub-regions than employed residents. All of the remaining sub-regions had self-sufficiency ratios below one. The lowest ratios of workers to employed residents were for the Redland and Moreton Bay sub-regions, both of which had roughly 60 jobs available locally for every 100 employed residents.

Table 5.3 shows that employment density varies greatly across SEQ's rings and sub-regions. Inner Brisbane has very high employment density, with more than 3800 jobs per km^2. Other sub-regions with relatively high employment density include the Middle North and Middle South sub-regions. The semi-rural sub-regions of Scenic Rim, Lockyer Valley and Somerset all have very low employment densities, of less than 5 jobs per km^2.

Table 5.3: **Employed persons by ring and sub-region of work in SEQ in 2016**

BCARR rings/sub-regions	Employed persons ('000)	Share of SEQ total (per cent)	Ratio of workers to employed residents	Employment density (persons/km^2)
INNER Brisbane*	312.1	21.2	2.22	3805.8
MIDDLE Brisbane – TOTAL*	401.9	27.3	0.93	373.2
Middle East	40.0	2.7	1.05	344.9
Middle North	112.5	7.6	1.08	601.7
Middle South	155.7	10.6	0.93	586.7
Middle West	93.7	6.4	0.78	184.2
OUTER Brisbane – TOTAL	305.3	20.7	0.64	70.7
Ipswich	62.3	4.2	0.74	57.0
Redland	40.6	2.8	0.58	75.5
Logan	89.1	6.1	0.68	93.0
Moreton Bay	113.3	7.7	0.60	65.5
TOTAL – GREATER BRISBANE	1019.2	69.2	0.97	186.1
Rest of SEQ	453.0	30.8	0.88	26.6
Gold Coast	235.5	16.0	0.90	176.6
Sunshine Coast	110.2	7.5	0.86	50.5
Noosa	20.8	1.4	0.88	23.0
Toowoomba (urban part)	56.9	3.9	0.98	78.1
Scenic Rim	12.4	0.8	0.73	2.9
Lockyer Valley	11.2	0.8	0.71	4.9
Somerset	6.1	0.4	0.66	1.1
TOTAL – SOUTH EAST QUEENSLAND^	**1472.2**	**100.0**	**0.94**	**65.4**

Notes:

* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^ The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Sources: ABS Census of Population and Housing 2016 (data extracted from TablebuilderPro) and ABS Cat. 3218.0 Regional population, Australia, 2016.

Figure 5.4 illustrates the distribution of place of work employment across industries for each of the BCARR rings. The Health care and social assistance industry was the top employing industry in SEQ at the time of the 2016 census, with 202,200 employed persons, representing 14.4 per cent of total SEQ employment. Health care and social assistance was also the top employing industry in the Middle and Outer rings of Brisbane and in the Rest of SEQ. Its employment share was relatively stable across the rings, ranging from a low of 13.1 per cent for Inner Brisbane to a high of 15.2 per cent for Outer Brisbane.

The distribution of employment across industries in the Inner ring differs from the other rings.

- Professional, scientific and technical services was the top employing industry for the Inner sub-region, where it accounted for 16.4 per cent of employment. This industry accounted for less than 6.0 per cent of employment in the Middle, Outer and Rest of SEQ rings.

- The Inner ring also had higher representation of the Financial and insurance services, Information media and telecommunications, and Public administration and safety industries, compared to the other rings.

- The Inner ring had a significantly lower share of employment in Manufacturing than the other rings, as well as lower shares of employment in Construction, Retail trade and Education and training.

Figure 5.4: **Employed persons by industry by BCARR ring of work in SEQ in 2016**
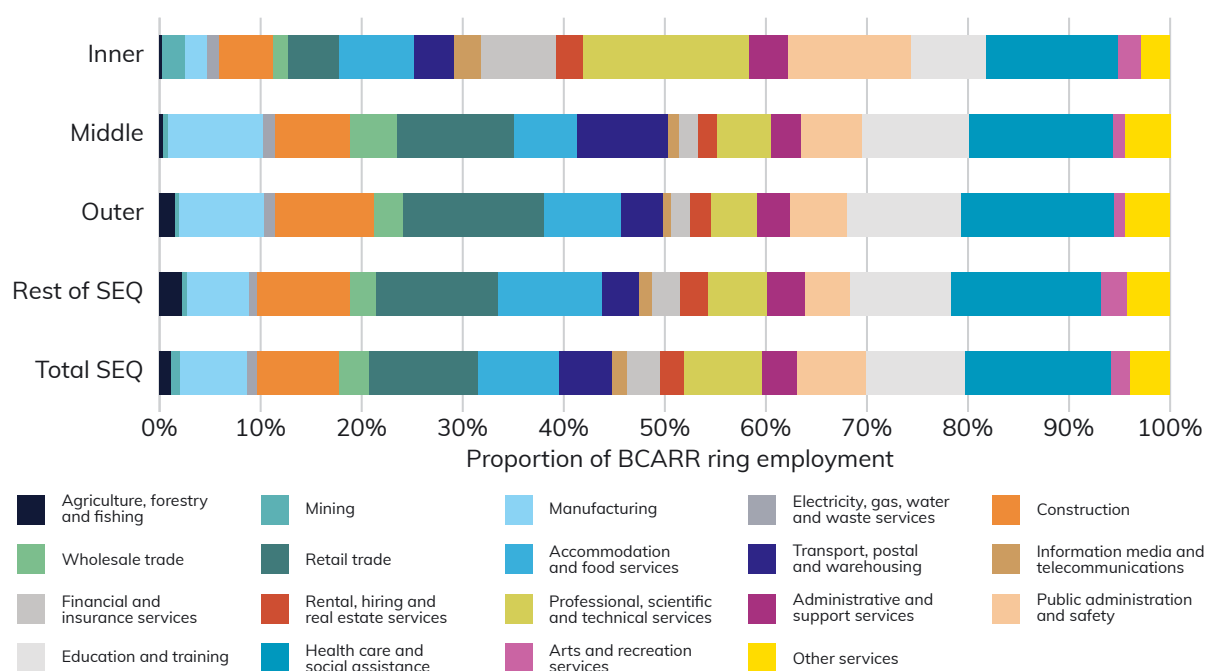
Notes: The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

The SEQ total differs from the 12 LGA total in the preceding chart, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Source: ABS Census of Population and Housing 2016 (place of work data extracted from TablebuilderPro).

A distinctive feature of the industry distribution of employment in Middle Brisbane is its relatively high share of employment in the Transport, postal and warehousing and Wholesale trade industries. This reflects the presence of some important transport and logistics precincts in the Middle ring. More detail on SEQ's major employment precincts will be provided later in this chapter.

A distinctive feature of the industry distribution of employment in the Rest of SEQ is the relatively high share of employment in the Accommodation and food services industry at 10.3 per cent, which compares to 6–8 per cent in the other rings. This reflects the prominence of Gold Coast, Sunshine Coast and Noosa as tourist destinations.

Figure 5.5 below shows the proportion of the total employment of each of the BCARR rings that relates to knowledge-intensive industries (as defined in Appendix A). Overall, SEQ had 23.9 per cent of its total employment in knowledge-intensive industries. Inner Brisbane had the highest proportion of its total place of work employment in the knowledge-intensive industries (43.4 per cent), followed by Middle Brisbane (19.8 per cent) and Rest of SEQ (19.3 per cent). The Outer Brisbane ring has the lowest proportion of knowledge-intensive jobs (16.0 per cent).

Figure 5.5: **Proportion of total employment in knowledge-intensive industries by BCARR ring in SEQ in 2016**
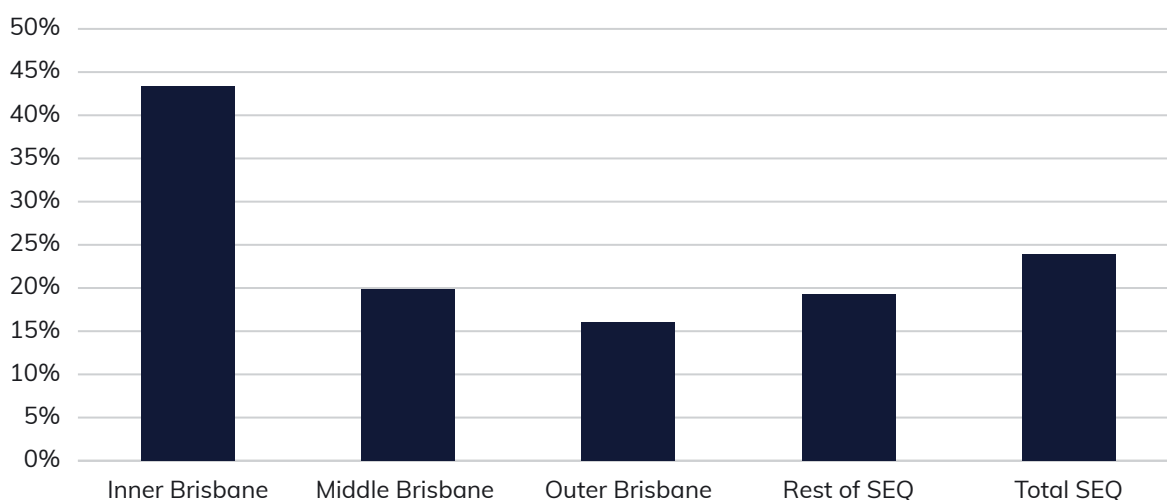
Note: Industries classified as knowledge-intensive are listed in Appendix A.

Source: BCARR analysis of ABS Census of Population and Housing, 2016 (place of work data extracted from Tablebuilder Pro).

Location of work by small areas

This section summarises the ABS Census of Population and Housing place of work data for 2016 at the Statistical Area Level 2 (SA2) scale, and also draws on the finer-grained destination zone (DZ) scale data. Table 5.4 lists the top employing SA2s within SEQ. Figure 5.6 maps the SA2 data.

Brisbane City SA2 was by far the largest employment location, with 122,500 jobs, representing 8.3 per cent of the SEQ total at the time of the 2016 census. There were six SA2s that had between 20,000 and 28,000 people working in them, namely South Brisbane, Fortitude Valley and Newstead-Bowen Hills (in the Inner sub-region), Southport North (in the Gold Coast sub-region), Rocklea-Acacia Ridge (in the Middle South sub-region) and Brisbane Airport (in the Middle North sub-region).

Employment density was very high for the Brisbane City SA2 at more than 50,000 jobs per km^2, while the South Brisbane and Fortitude Valley SA2s in the Inner sub-region also had relatively high densities. The only other SA2 in SEQ with a density of more than 10,000 jobs per km^2 is the Spring Hill SA2, which is also in the Inner sub-region. The Brisbane Airport, Ormeau-Yatala and Rocklea-Acacia Ridge SA2s all have very low employment densities of 1000 jobs per km^2 or less, despite each containing around 20,000 jobs. This is typical of employment precincts that contain industrial areas focused on manufacturing, transport and logistics.

The Public administration and safety industry is the top employing industry in the Brisbane City SA2. The Health care and social assistance industry is the top employing industry in 4 of the top 10 SA2s, reflecting its status as the main industry of employment in SEQ (see Table 5.4). Each of these 4 SA2s contain a major hospital. The Fortitude Valley SA2 has a specialisation in Professional, scientific and technical services, while the transport specialisation of the inner city Newstead-Bowen Hills SA2 reflects the presence of Virgin Australia's headquarters in Bowen Hills as of 2016.

Table 5.4: Top ten employing SA2s of work in 2016

SA2 of work	Sub-region	Employed persons ('000)	Density (jobs/ km²)	Top employing industry (and its employment share)
Brisbane City	Inner	122.5	51,800	Public administration and safety (23%)
South Brisbane	Inner	27.5	13,600	Health care and social assistance (34%)
Southport – North	Gold Coast	24.2	3,200	Health care and social assistance (34%)
Rocklea – Acacia Ridge	Middle South	23.3	1,000	Manufacturing (20%)
Fortitude Valley	Inner	22.1	17,300	Professional, scientific and technical services (24%)
Brisbane Airport	Middle North	21.4	500	Transport, postal and warehousing (45%)
Newstead – Bowen Hills	Inner	20.3	6,700	Transport, postal and warehousing (18%)
Ormeau – Yatala	Gold Coast	18.4	300	Manufacturing (26%)
Toowoomba Central	Toowoomba	18.2	1,900	Health care and social assistance (23%)
Kelvin Grove – Herston	Inner	16.7	5,000	Health care and social assistance (53%)

Notes: Estimates of job density are rounded to the nearest hundred, so as not to overstate the underlying precision of estimates.

Source: ABS Census of Population and Housing 2016 (place of work data extracted from TablebuilderPro).

Figure 5.6 maps the SA2 employment data. A key feature is the cluster of high employment SA2s in and around the CBD. The high employment SA2s listed in Table 5.4 all stand out on the map, as do some other outlying SA2s with relatively high employment, including Maroochydore-Kuluin, Caboolture, North Lakes-Mango Hill and Robina.

Figure 5.6: Employed persons by SA2 of work in SEQ in 2016
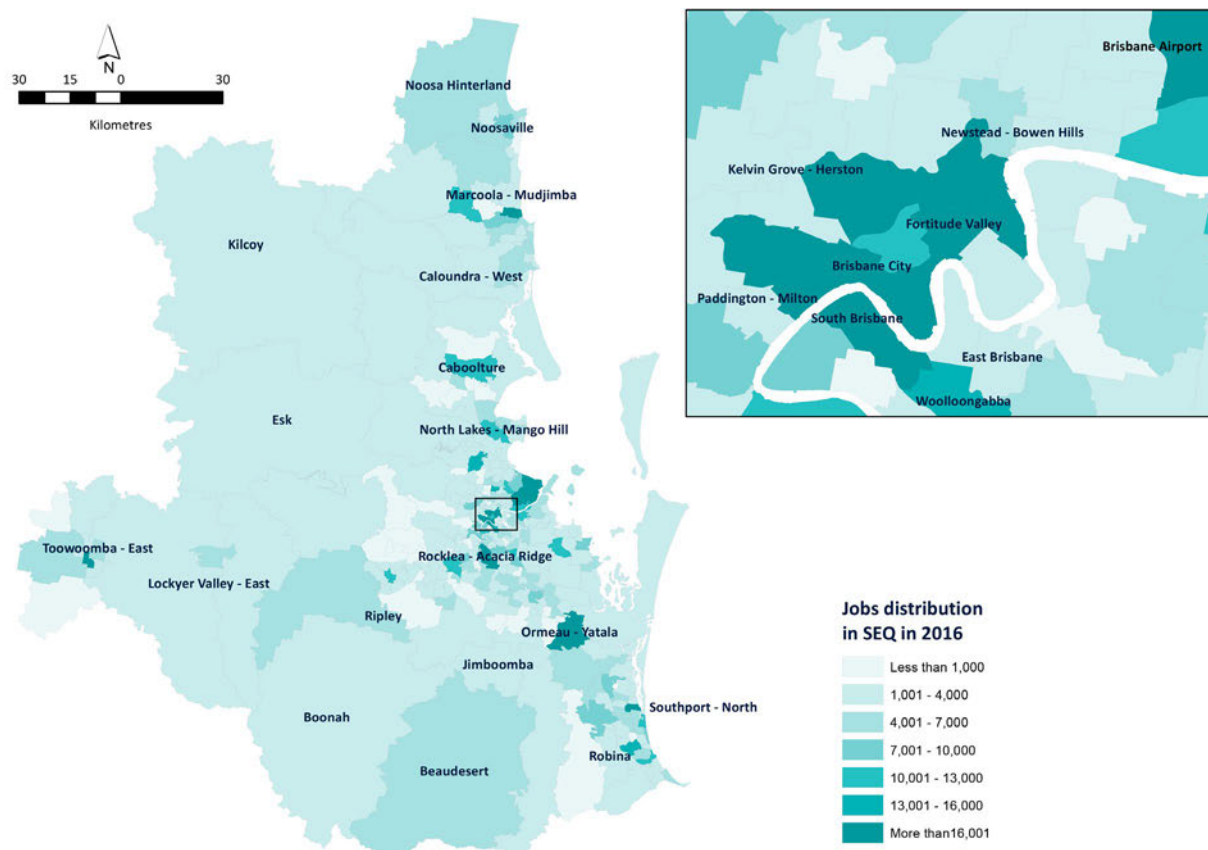
Source: ABS Census of Population and Housing 2016 (place of work data extracted from TablebuilderPro).

Figure 5.7 illustrates the top employing industry for each of the SA2s in SEQ. Education and training is the top employing industry for 81 of SEQ's SA2s. It tends to be the top employing industry in many residentially-oriented suburban and peri-urban SA2s, where there are few sizeable workplaces apart from the local schools. However, it is also the top employer in SA2s containing university campuses, such as St Lucia and Salisbury-Nathan. Health care and social assistance is the top employing industry for 72 SA2s, reflecting it being the main employing industry in SEQ. Employment in the Health care and social assistance industry is concentrated in SA2s containing significant hospitals (e.g. South Brisbane, Southport North, Kelvin Grove-Herston), but is well represented in many SA2s across the region. Retail trade is the top employing industry in 49 SA2s, while Construction and Manufacturing are both the top employing industries in 33 SA2s. It is also evident from Figure 5.7 that Agriculture, forestry and fishing is the top employing industry in a number of SEQ's more rural SA2s.

Figure 5.7: Top employing industry by SA2 of work in SEQ in 2016

Note: Other includes industries which appear fewer than 3 times as the top employing industry, and SA2s which have more than one industry with equal top employment.

Source: ABS Census of Population and Housing 2016 (place of work data extracted from TablebuilderPro).

Figure 5.8 maps the distribution of employment (by place of work) in SEQ, based on the more detailed destination zone (DZ) data. The map is reasonably similar to the population dot density map (Figure 3.2) and also resembles the existing urban area footprint (Figure 4.6). Employment is heavily concentrated in the Inner and Middle suburbs of Brisbane, with several additional employment corridors stretching out beyond the Brisbane LGA to the north, south-east and west.[15] Other major employment clusters can be seen in Toowoomba and the Gold Coast, with a further employment cluster evident around Maroochydore on the Sunshine Coast.

15 These 3 corridors correspond to the Economic Foundation paper's North Corridor, South Corridor and the Ipswich component of the East-West Corridor, respectively (Queensland Government, 2018a).
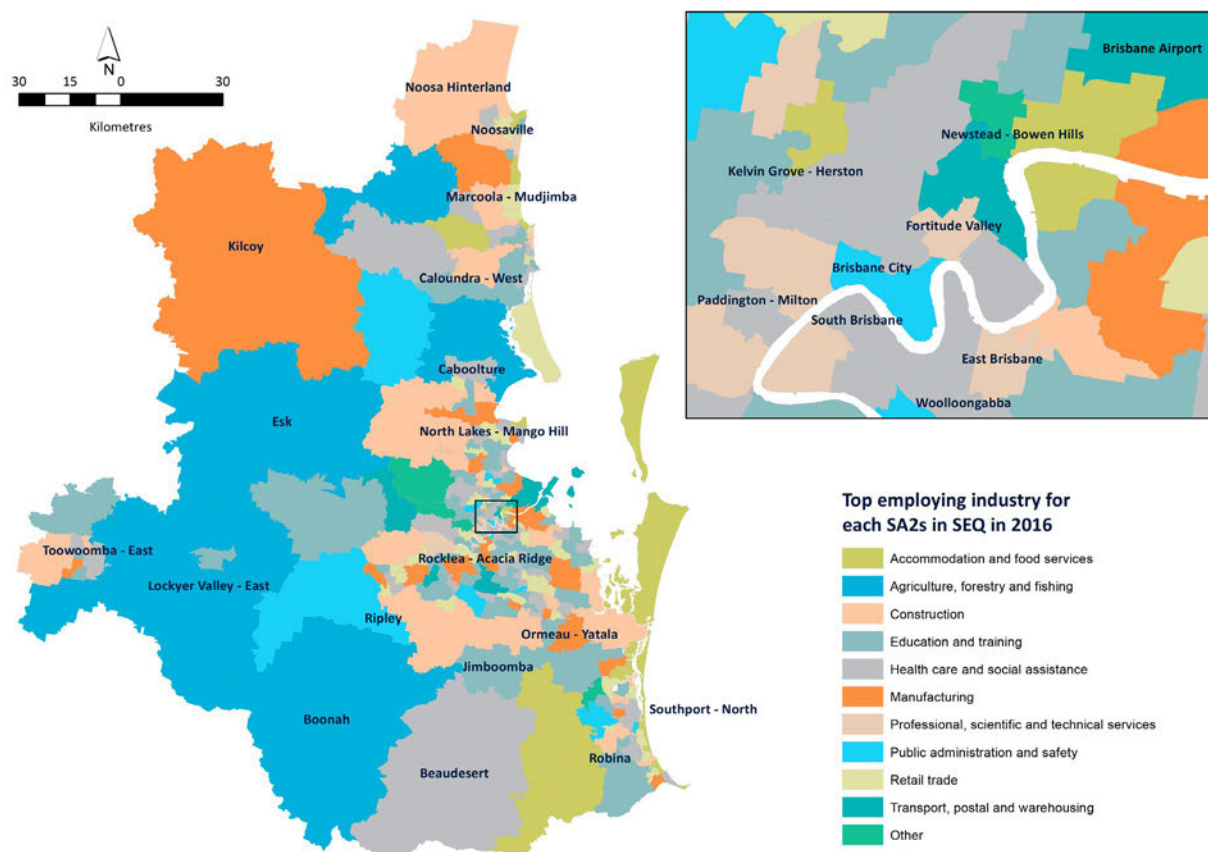
Figure 5.8: **Dot density distribution of employment by place of work in SEQ in 2016**
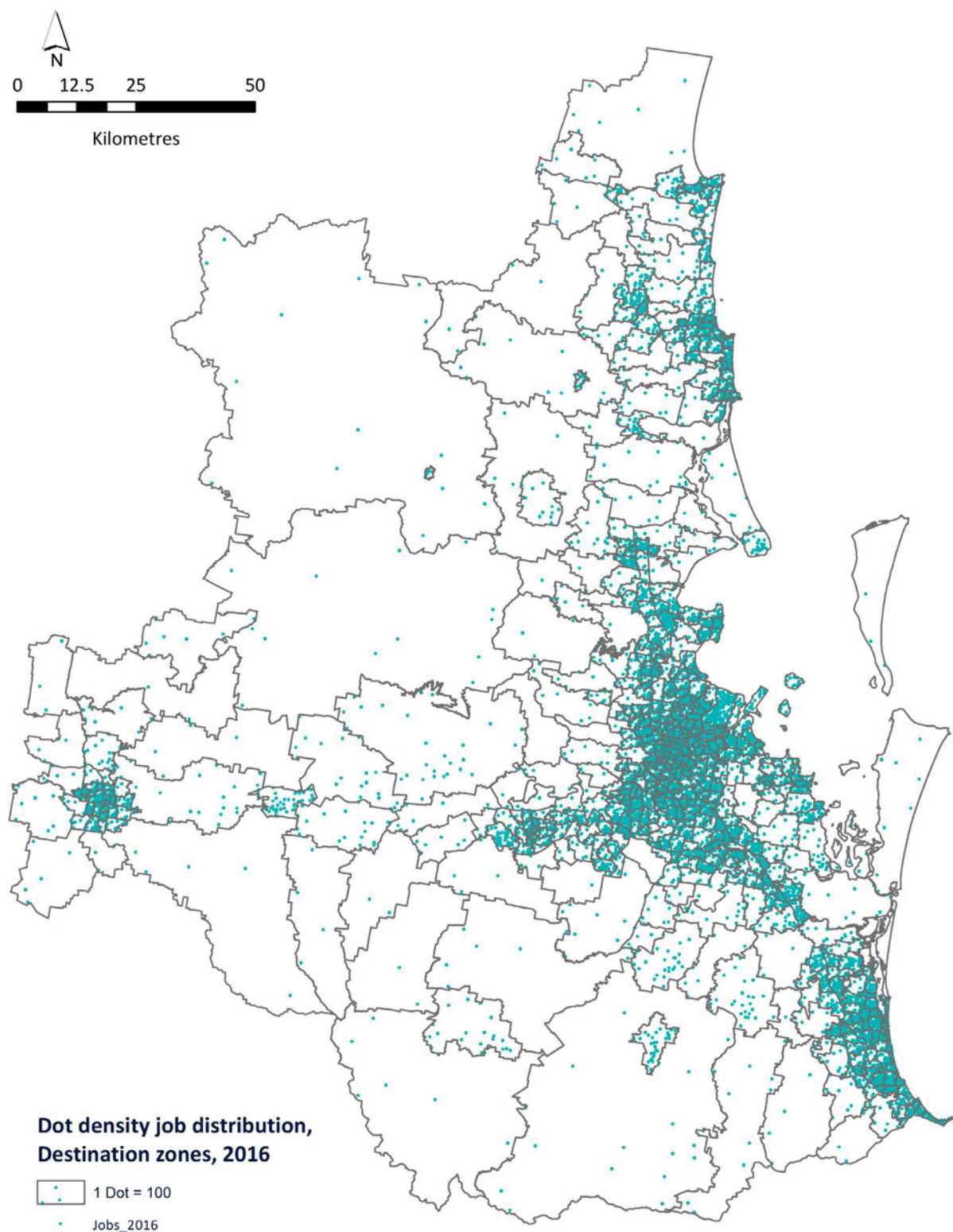
Source: ABS Census of Population and Housing 2016 (place of work data extracted from TablebuilderPro at destination zone scale).

Because SA2s are defined principally based on population characteristics, they do not provide a particularly suitable statistical boundary for identifying the most significant employment precincts in Australia's major cities. Employment precincts can be much more accurately defined using DZ boundaries, and this will be the focus of the next part of this section.

Employment precincts potentially include CBDs, suburban activity centres, industrial areas, and specialised precincts, such as hospitals, universities, office parks, airports and ports. Employment precincts share a common economic function and land use pattern. They can be smaller than SA2s (e.g. the Yatala-Stapylton employment precinct is a subset of the Ormeau-Yatala SA2) or they can cover multiple SA2s (e.g. the Brisbane Capital City precinct). The motivation for defining employment precincts in this study is to ensure the analysis is relevant to the Queensland Government's employment-related strategic planning goals. Box 5.1 describes BCARR's approach to identifying and defining the boundaries of the major employment precincts in SEQ.

Box 5.1 How are major employment precincts identified and defined?

Employment precincts are defined as a set of contiguous destination zones (DZs) that meet the aggregate jobs threshold of 10,000 jobs, where the precinct as a whole shares a common land use structure and function.

BCARR identified a set of potential employment precincts from the *SEQ Regional Plan 2017*. Geographic boundaries for each of these precincts were established based on state government provided boundaries where available, or otherwise defined by BCARR based on prior studies (BITRE 2013a,b), analysis of information contained in state planning documents, and spatial patterns of land use and employment. Brisbane Capital City and South Brisbane are neighbouring precincts that were identified as separate centres in the metropolitan strategic plan, and so BCARR followed that approach and defined them as separate precincts. The activity centre network, knowledge and technology precincts, and major enterprise and industrial areas from the SEQ Regional Plan were all assessed against the job threshold.

Based on analysis of census employment data, BCARR also identified some additional employment precincts that met the job threshold, but were not highlighted as key precincts within the SEQ Regional Plan. An example is Burleigh Heads.

There was no employment density criterion applied in defining these precincts, so the final list of precincts includes very high density precincts such as CBDs, as well as very low density precincts such as outer suburban industrial areas.

Table 5.5 identifies 24 major employment precincts containing more than 10,000 jobs in SEQ as of 2016. Taken together, these 24 precincts capture 39 per cent of SEQ jobs that could be allocated to an identifiable place of work. The 24 major employment precincts are mapped in Figure B.1 of Appendix B.

The Brisbane Capital City employment precinct[16] is by far the largest employment precinct in SEQ, containing the workplaces of 188,200 employed persons, and capturing 12.8 per cent of SEQ employment. Note that the Brisbane Capital City employment precinct (as defined by BCARR) extends beyond the Brisbane City SA2 to cover Fortitude Valley, Spring Hill and parts of the Newstead-Bowen Hills and Paddington-Milton SA2s.

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16 The Brisbane Capital City employment precinct is a core part of the Capital City Knowledge Corridor, one of the five key economic corridors identified in the SEQ Economic Foundations paper (Queensland Government, 2018a).

Table 5.5: Employment precincts containing the most jobs in SEQ in 2016

Employment precinct	Sub-region	Jobs ('000)	Density (jobs/ km^2)	Top employing industry (and its employment share)
Brisbane Capital City	Inner	188.2	22,300	Professional, scientific and technical services (21%)
Acacia Ridge-Coopers Plains-Salisbury-Rocklea	Middle South	35.4	900	Manufacturing (21%)
South Brisbane KTP	Inner	27.5	13,600	Health care and social assistance (35%)
Sumner-Darra-Richlands-Wacol-Carole Park	Middle West	25.8	1,100	Manufacturing (37%)
Geebung-Virginia-Northgate-Banyo	Middle North	23.0	1,500	Manufacturing (22%)
Brisbane Airport	Middle North	22.2	600	Transport, postal and warehousing (45%)
Murrarie-Hemmant	Middle East	19.5	1,100	Manufacturing (28%)
Southport PRAC	Gold Coast	19.1	1,800	Health care and social assistance (21%)
Maroochydore PRAC	Sunshine Coast	18.7	1,000	Retail trade (18%)
Yatala-Stapylton	Gold Coast	16.5	400	Manufacturing (28%)
Toowoomba PRAC	Toowoomba	15.6	4,900	Health care and social assistance (24%)
Caboolture-Morayfield PRAC	Moreton Bay	15.4	600	Health care and social assistance (27%)
Herston-Kelvin Grove KTP	Inner	15.3	6,700	Health care and social assistance (56%)
Chermside PRAC	Middle North	14.2	4,200	Health care and social assistance (48%)
Underwood-Slacks Creek	Logan	13.5	1,100	Retail trade (18%)
Ipswich PRAC	Ipswich	12.8	2,300	Health care and social assistance (34%)
Robina PRAC	Gold Coast	12.7	1,300	Health care and social assistance (24%)
Surfers Paradise MRAC	Gold Coast	12.0	2,100	Accommodation and food services (40%)
Eagle Farm-Pinkenba	Middle North	11.9	1,600	Manufacturing (26%)
Burleigh Heads	Gold Coast	11.7	900	Retail trade (17%)
Noosa MRAC	Noosa	11.4	300	Accommodation and food services (21%)
Southport KTP	Gold Coast	10.9	2,800	Health care and social assistance (52%)
North Lakes MRAC	Moreton Bay	10.3	400	Retail trade (24%)
Broadbeach MRAC	Gold Coast	10.2	5,900	Retail trade (26%)

Notes: Estimates of jobs and job density are rounded to the nearest hundred, so as not to overstate the underlying precision of estimates. PRAC is a Principal Regional Activity Centre, MRAC is a Major Regional Activity Centre, and KTP is a knowledge and technology precinct, as identified in *ShapingSEQ*.

Source: BITRE analysis of ABS Census of Population and Housing 2016 place of work data for destination zones (extracted from Tablebuilder Pro) and key employment precincts identified in SEQ Regional Plan 2017.

Other major employment precincts in SEQ include:

- The Acacia Ridge-Coopers Plains-Salisbury-Rocklea industrial area[17] in Brisbane's Middle South, which employs 35,400 people, primarily in Manufacturing (21 per cent), Wholesale trade (15 per cent) and Transport, postal and warehousing (14 per cent).

- The South Brisbane knowledge and technology precinct[18] in Inner Brisbane, which employs 27,500 people, and has a strong specialisation in health due to the presence of Mater Hospital and the Queensland Children's Hospital.

- The Sumner-Darra-Richlands-Wacol-Carole Park industrial area[19] (which is largely in the Middle West sub-region but extends into the Ipswich sub-region) employs 25,800 people, predominantly in the Manufacturing industry (37 per cent).

The Gold Coast sub-region is very well represented in Table 5.5, with 7 separate employment clusters of 10,000 or more jobs, reflecting the lack of a single focal point of economic activity in the sub-region. Instead employment is dispersed across a number of mid-sized employment precincts.

The table contains a mix of traditional suburban activity centres (e.g. Ipswich, North Lakes), industrial areas (e.g. Yatala-Stapylton, Murrarie-Hemmant) and specialised centres (e.g. Brisbane Airport, Herston-Kelvin Grove). Employment density was highest in the inner city precincts of Brisbane Capital City, South Brisbane and Herston-Kelvin Grove. Employment density tended to be relatively low in industrial areas and in precincts located outside the Brisbane LGA (e.g. in Moreton Bay, Noosa).

Health care and social assistance is frequently the top employing industry, both for the Queensland Government's identified knowledge and technology precincts, but also for several principal and major activity centres where a hospital is located in close proximity to the town centre (e.g. Toowoomba, Chermside). Several of the principal and major activity centres have Retail trade as the major employing industry, as does the Underwood-Slacks Creek commercial area. The Manufacturing industry was the top source of employment for several industrial area precincts (e.g. Eagle Farm-Pinkenba). The Accommodation and food services industry was the major employing industry in two tourism-oriented precincts (i.e. Noosa, Surfers Paradise).

The SEQ *Economic Foundations* paper identified 5 key economic corridors (Queensland Government, 2018), which were listed previously in Figure 2.3 and are mapped in Figure 5.9 below.

17 This industrial area is an important part of the East-West Corridor, one of the five key economic corridors identified in the SEQ Economic Foundations paper (Queensland Government, 2018a).
18 A set of Knowledge and technology precincts (or KTPs) are identified by the Queensland Government in ShapingSEQ (Queensland Government, 2017). The South Brisbane KTP is part of the Capital City Knowledge Corridor, one of the five key economic corridors identified in the SEQ Economic Foundations paper.
19 This industrial area is part of the East-West Corridor, one of the five key economic corridors identified in the SEQ Economic Foundations paper (Queensland Government, 2018a).

Figure 5.9: Five key economic corridors of South East Queensland
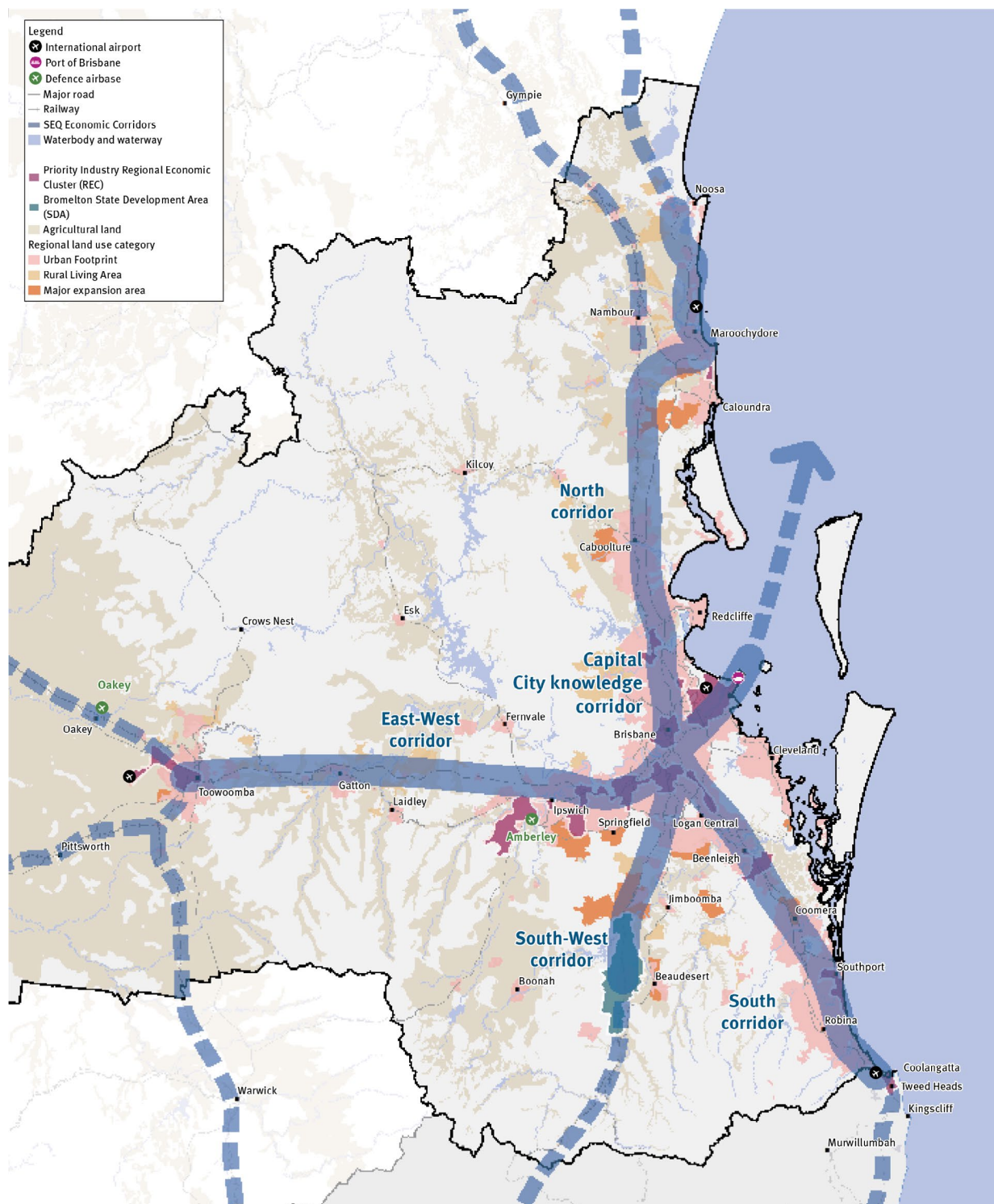
Source: Queensland Government (2018), Figure 60.

The 5 key economic corridors and the major employment precincts from Table 5.5 that contribute to them are listed below:

- East-West Corridor: includes Brisbane Airport, Eagle Farm-Pinkenba, Murarrie-Hemmant, Acacia Ridge-Coopers Plains-Salisbury-Rocklea, Sumner-Darra-Richlands-Wacol-Carole Park, Ipswich PRAC and Toowoomba employment precincts

- Capital City Knowledge Corridor: includes Brisbane Capital City, Herston-Kelvin Grove KTP and South Brisbane KTP major employment precincts

- North Corridor: includes Chermside PRAC, North Lakes MRAC, Caboolture-Morayfield PRAC, Maroochydore PRAC and Noosa MRAC major employment precincts

- South Corridor: includes Underwood-Slacks Creek, Yatala-Stapylton, Southport PRAC, Southport KTP, Surfers Paradise MRAC, Broadbeach MRAC, Robina PRAC and Burleigh Heads major employment precincts

- South West Corridor: this is an emerging corridor and none of the contributing precincts had sufficient employment in 2016 to make the 10,000 job cutoff of Table 5.5.

The key economic corridors capture nearly all of SEQ's major employment precincts, as listed in Table 5.5.

5.3   Employment growth

Growth in employed residents from 2016 to 2021

The ABS *Labour Force Survey* (LFS) shows that the number of employed residents of SEQ increased by 186,800 persons between 2016 and 2021, representing an average annual growth rate of 2.1 per cent (see Table 5.6).

ABS LFS data is not available for LGAs, but is published for SA4s. Table 5.6 provides details of how SEQ's growth in employed persons was distributed across SA4s of residence. Of the total increase of 186,800 employed persons, 122,300 (or almost two-thirds) was in Greater Brisbane. Within Greater Brisbane, the greatest increases in employed residents occurred in Brisbane Inner City SA4 (29,100), Ipswich SA4 (28,900) and Logan-Beaudesert SA4 (24,300). The Gold Coast SA4 experienced the largest increase in employed residents of all SA4s in SEQ, with employment rising by 44,700 employed persons between 2016 and 2021, which represented 23.9 per cent of SEQ's total growth.

The growth rate of employment was highest for Ipswich between 2016 and 2021 (averaging 3.5 per cent per annum), closely followed by Logan-Beaudesert (3.4 per cent) and Brisbane Inner City (3.3 per cent). In contrast, Brisbane South, Moreton Bay North and South (combined) and Toowoomba recorded much more modest growth rates.

Table 5.6: Growth in employed residents by Statistical Area 4 of residence in SEQ from 2016 to 2021

SA4 of residence	Employed persons, 2016 ('000)	Employed persons, 2021 ('000)	Change in employed persons, 2016 to 2021 (per cent)	Average annual growth rate, 2016 to 2021 (per cent)	Share of SEQ total growth (per cent)
Brisbane Inner City	164.4	193.5	29.1	3.3	15.6
Brisbane East	119.6	127.8	8.2	1.3	4.4
Brisbane North	113.3	126.5	13.3	2.2	7.1
Brisbane South	195.2	201.1	5.9	0.6	3.1
Brisbane West	96.4	102.6	6.1	1.2	3.3
Ipswich	153.2	182.1	28.9	3.5	15.5
Logan – Beaudesert	134.5	158.7	24.3	3.4	13.0
Moreton Bay North and South (combined)	216.7	223.2	6.5	0.6	3.5
TOTAL – GREATER BRISBANE	1193.2	1315.5	122.3	2.0	65.5
Gold Coast	313.4	358.1	44.7	2.7	23.9
Sunshine Coast	169.6	185.9	16.3	1.9	8.7
Toowoomba	70.5	74.0	3.5	1.0	1.9
TOTAL – SEQ	1746.7	1933.6	186.8	2.1	100.0

Note: Data is an annual average of the estimates for the 12 months up to August of 2016/2021. The Toowoomba SA4 captures only the urban extent of Toowoomba. Results for the Moreton Bay North and Moreton Bay South SA4s have been aggregated together, as results for the individual SA4s were volatile over time.

Source: ABS *Labour Force Survey* data, Cat. 6291.0.55.001 (Table RQ1, 24 March 2022 release).

Figure 5.10 shows the industry contributors to SEQ's employment growth between 2016 and 2021. The major source of employment growth was the Health care and social assistance industry which added 43,900 jobs, which was 23.5 per cent of total growth. Employment in SEQ's Health care and social assistance industry grew quite rapidly at 3.5 per cent per annum. The Sunshine Coast SA4 appeared to capture more of this growth than other SA4s, with an increase of around 10,000 residents employed in the Health care and social assistance industry.

Other key contributors to growth included Education and training (up 22,100 employed persons), Professional, scientific and technical services (19,600), Manufacturing (18,000) and Accommodation and food services (14,000). However, employment in the Information, media and telecommunications industry declined by 7,500 persons over the period.

Figure 5.10: Growth in employed persons by industry in SEQ from 2016 to 2021
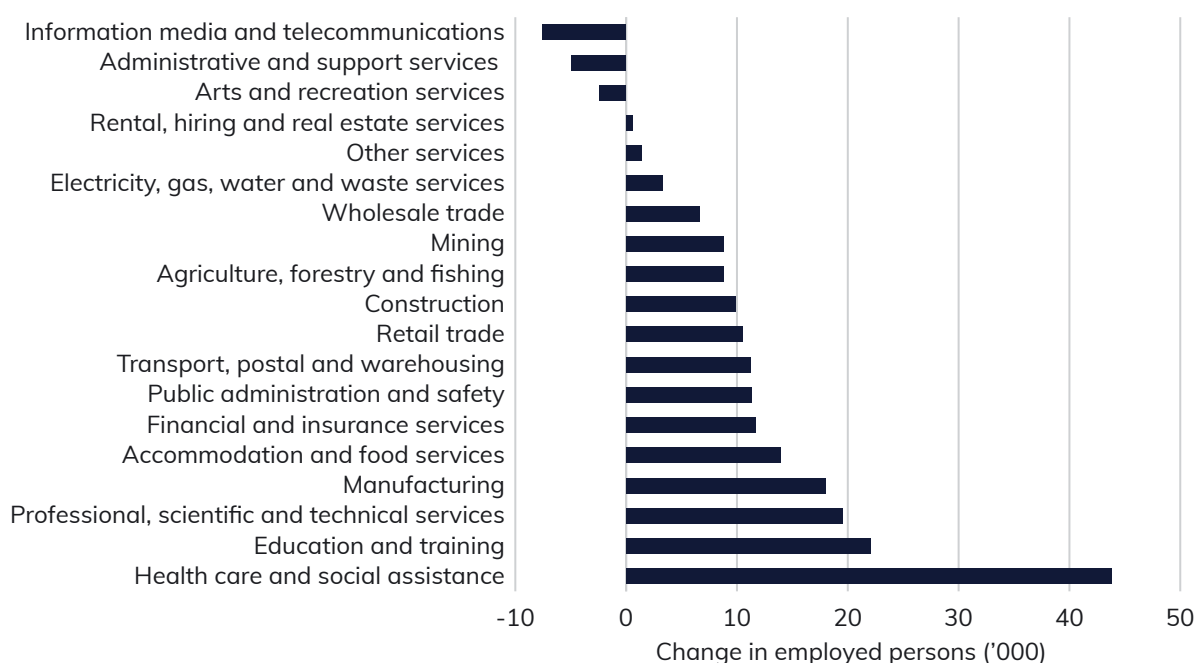
Evidence on the spatial distribution of recent jobs growth

At the time of writing, ABS 2021 Census of Population and Housing second-release data was not available, meaning there was no clear evidence about which SEQ locations have experienced particularly strong jobs growth or decline since 2016 on a place of work basis. The 2021 census place of work data could be impacted by the pandemic (including the effect of lockdowns and government recommendations to encourage working from home).[20]

There is some evidence available on past trends on where jobs growth tends to be concentrated in SEQ, which is summarised below.

- Analysis of the 2011 and 2016 census place of work data shows that some of the key job growth locations were North Lakes – Mango Hill in Moreton Bay (up by 4,400 employed persons), Ormeau-Yatala in the Gold Coast (4,100), Newstead-Bowen Hills in Inner Brisbane (3,400), Brisbane Airport in the Middle North (2,800), South Brisbane in Inner Brisbane (3,100) and Southport on the Gold Coast (3,000). Areas that experienced significant job declines between 2011 and 2016 included Spring Hill in Inner Brisbane (2,700) and Rocklea-Acacia Ridge in the Middle South (−2,500).

- Brisbane's Inner ring was the location of 18.9 per cent of SEQ's total employment in 2006 (BITRE 2013a, p. 109). This compares to a 21.2 per cent share in 2016 (see Table 5.3), which suggests increased centralisation of jobs over the preceding decade.[21]

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20 There was a short lockdown in place in SEQ in the lead up to the 2021 census, but restrictions were significantly eased a few days prior to census night.

21 There were methodological changes for the census place of work data between 2006 and 2016, so comparison of results across censuses should be treated with caution.

The Gold Coast and Inner Brisbane sub-regions recorded the largest increases in employed residents between 2016 and 2021 (see Table 5.6), and given they both have relatively high self-containment rates (see Chapter 7), it is likely that this will be reflected in relatively large increases in some of the main employment precincts within these two sub-regions (e.g. Brisbane Capital City, Southport, Yatala-Stapylton).

Employment projections

The National Skills Commission (2021) projects national employment growth by industry between November 2021 and November 2026. The industries with the largest projected increases in employment are Health care and social assistance (301,000), Professional, scientific and technical services (206,600) and Education and training (149,600). These align with the top three employment growth industries for SEQ between 2016 and 2021, as shown in Figure 5.9. Thus, the national growth projections point to ongoing growth in the industries that have been the main drivers of SEQ's recent employment growth.

Figure 5.11 shows that beyond these top three sources of growth, employment growth is projected to be distributed widely across most industries at the national scale.

Figure 5.11: Projected growth in employed persons by industry in Australia from November 2021 to November 2026
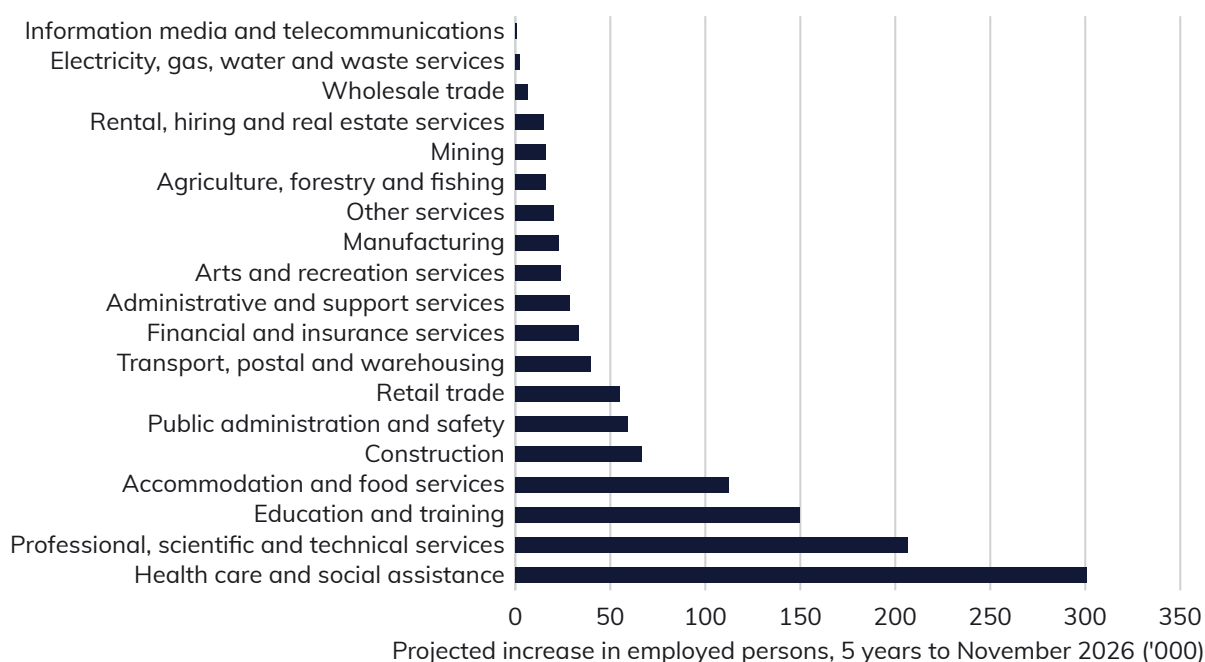
Source: National Skills Commission (2022a), Employment Outlook (five years to November 2026).

Similar projections have been prepared by the state government for Queensland, covering the five year period ending 2024 (Queensland Government 2020a). However, they were prepared prior to the emergence of COVID–19 and do not take into account its impacts. For the 2019 to 2024 period, employment growth in Queensland is projected to be greatest in the following industries:

- Health care and social assistance (60,651)
- Professional, scientific and technical services (29,099)
- Education and training (27,701).

These are the same three industries that ranked most highly for Australia as a whole in Figure 5.11.

5.4   Conclusion

This chapter has presented a detailed snapshot of the spatial distribution of jobs throughout SEQ as of 2016. It described how jobs are distributed across SEQ's LGA's, rings and sub-regions and identified the main SA2s of work and the major employment precincts. It also identified the top employing industries in each place and the extent to which employment is in knowledge-intensive industries.

The chapter has also summarised employment growth in SEQ between 2016 and 2021, identifying the rings and sub-regions that grew most strongly (i.e. Gold Coast, Inner Brisbane and Ipswich) and the main industry drivers of employment growth (i.e. Health care and social assistance).

While the focus remains on employment in the next chapter, there is a shift to considering the skills of the SEQ workforce, from both an occupational and educational perspective.

CHAPTER 6

SKILLS

Key points

- In 2016, Professionals were the largest occupational group (328,587), followed by Clerical and administrative workers (221,379) and Technicians and trades workers (184,255) in the 12 LGAs of SEQ. The Brisbane LGA had the highest proportion of Professionals (27.0 per cent), followed by the Sunshine Coast (20.0 per cent) and Toowoomba (19.5 per cent) LGAs.

- Professionals was the largest occupation in every BCARR ring, comprising 21.1 per cent of the SEQ total occupations in 2016. Inner Brisbane has the highest proportion of both Managers and Professionals occupations in the region, at 14.5 and 35.1 per cent respectively.

- From 2016 to 2021, Professionals were the single biggest occupational contributor to SEQ's employment growth, with an increase of 82,200 employed persons, representing 43.9 per cent of the total increase in employed residents for SEQ.

- From 2016 to 2021, the number of Machinery operators and drivers in SEQ increased by 22.4 per cent, Professionals by 21.0 per cent and Managers by 19.5 per cent.

- From 2016 to 2021, most Brisbane Statistical Area Level 4s (SA4s) have positive changes in Professionals and Managers except Brisbane-East. The Gold Coast SA4 has the largest increases in Managers (13,700) and Professionals (21,600), followed by Brisbane Inner City SA4.

- In 2016, together the 12 LGAs had 30.2 per cent of the working population with a Bachelor's degree or higher qualification.

- Overall, Greater Brisbane had 33.1 per cent of its working population with a Bachelor's degree or higher qualification in 2016. The Inner Brisbane ring has 48.4 per cent of its working population with a Bachelor's degree or higher qualification. This shows the significance of the ring to SEQ's knowledge economy.

- Similar to national trends, Queensland is becoming more educated, with almost two million workers possessing a post-school qualification. By 2024–25, the Postgraduate degree qualifications are projected to experience the highest growth at 26.9 per cent, followed by Bachelor's degree (15.9 per cent) and Graduate diploma and graduate certificate (14.2 per cent).

- In Queensland, Professionals, the largest major occupational group, are projected to increase by 16.1 per cent by 2024 (compared to 2019), followed by Community and personal service workers (14.3 per cent) and Managers (12.1 per cent).

6.1   Introduction

This chapter analyses the skilled workforce of SEQ, including occupational snapshots, changes in the occupational mix from 2016 to 2021, educational attainment snapshots, national projections of occupations and skills, and an assessment of changes in SEQ skills based on recent trends and prospects. The skilled workforce is identified as one of the enablers of economic growth in the SEQ Economic Foundations Paper, along with land availability, access to market and population growth (Queensland Government 2018a).

This chapter uses ABS Census of Population and Housing Place of Work data for 2016 for the occupational and educational snapshots. Most of the spatial analysis is based on the following geographies: the 12 LGAs, the SEQ BCARR rings and sub-regions and SA2s, similar to other chapters. Only the changes in occupational mixes are provided at the SA4 scale due to data availability.

6.2   Occupations of the workforce

This section analyses the skills of the workforce in the SEQ region, with both occupational and educational attainment data providing useful insight into available skills. A skilled workforce and knowledge economy are key determinants for economic growth and prosperity. Occupational diversity and changes over time are important measures of any skilled workforce. Educational attainment is a measure of human capital and the capacity of the knowledge economy (Tuli et al. 2019). Therefore, this chapter analyses these two indicators to understand the skilled workforce in SEQ.

Occupational snapshot of SEQ in 2016: LGAs

Table 6.1 shows the occupational distribution across the LGAs of SEQ in 2016, based on the Australian and New Zealand Standard Classification of Occupations (ANZSCO). Box 6.1 provides an overview of this classification. Figure 6.1 and Table 6.1 show that Professionals were the largest occupational group, with 328,587 Professionals in 2016. The second and third largest occupations among the 12 LGAs were Clerical and administrative workers (221,379) and Technicians and trades workers (184,255).

Box 6.1: What are the Australian and New Zealand Standard Classification of Occupations (ANZSCO) classification and occupation major groups?

ANZSCO is the skill-based classification used to categorise all occupations and jobs undertaken for profit in the Australian and New Zealand labour markets. It is used in the collection and dissemination of all official statistics on occupation and is a key tenet of Australia's statistical infrastructure. ANZSCO is applied to a range of data sets, including the Census of Population and Housing, that inform and support government policy settings and programs – from vocational education and training to skilled migration programs (ABS 2021). ANZSCO is a hierarchical classification system that categorises occupations according to one of 8 major groups and then into increasingly smaller sub-categories: sub-major group; minor group; unit group, before resulting in the specific occupation (ABS 2021). The 8 major groups are:

- Managers
- Professionals
- Technicians and trades workers
- Community and personal service workers
- Clerical and administrative workers
- Sales workers
- Machinery operators and drivers
- Labourers

These hierarchical levels have a corresponding reference number ('code') with a specific number of digits:

- major groups are represented by a single digit code
- sub-major groups by a 2 digit code
- minor groups by a 3 digit code
- unit groups by a 4 digit code
- occupations by a 6 digit code.

This chapter uses the major groups from the 2013 edition of ANZSCO. Appendix C, Table C.1 and C.2 has a full list of occupations that are included in the Managers and Professionals major groups at the 4 digit level.

The Brisbane LGA has the highest number of Managers (91,805) and Professionals (189,773) with a place of work in the LGA, followed by the Gold Coast LGA, which had 28,452 Managers and 43,355 Professionals in 2016. As discussed in the previous chapter, the Brisbane and Gold Coast LGAs have several major employment precincts, including knowledge and technology precincts. Therefore they have the highest number of Managers and Professionals too.

Table 6.1: Snapshot of occupations by place of work in the LGAs of SEQ in 2016

LGAs	Managers	Professionals	Technicians and trades workers	Community and personal service workers	Clerical and administrative workers	Sales workers	Machinery operators and drivers	Labourers	Total
Brisbane	91,805	189,773	78,413	72,107	117,973	60,442	40,031	52,111	702,655
Gold Coast	28,452	43,355	32,110	29,062	33,172	29,716	12,592	23,123	231,582
Ipswich	6,198	11,239	8,269	8,540	7,348	6,570	5,065	7,975	61,204
Lockyer Valley	1,695	1,505	1,222	1,188	1,130	988	994	2,306	11,028
Logan	9,863	14,929	12,102	10,680	12,238	11,194	6,752	9,836	87,594
Moreton Bay	11,933	19,359	15,979	15,550	14,462	14,225	6,851	12,892	111,251
Noosa	2,727	3,460	2,938	2,805	2,439	2,705	650	2,103	19,827
Redland	4,475	7,166	5,534	5,694	5,247	5,260	1,929	4,697	40,002
Scenic Rim	2,146	1,801	1,633	1,677	1,378	1,015	727	1,820	12,197
Somerset	1,051	710	767	621	556	467	524	1,305	6,001
Sunshine Coast	12,916	21,889	15,545	13,983	15,689	13,291	4,956	10,977	109,246
Toowoomba	8,595	13,381	9,749	7,899	9,741	6,514	4,588	8,019	68,486
12 LGAs total	181,864	328,587	184,255	169,817	221,379	152,387	85,649	137,167	1,461,105

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Excludes persons with occupation not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Figure 6.1 shows the proportional distribution of occupations in the 12 LGAs in 2016. The 12 LGAs have 22.5 per cent Professionals, 15.2 per cent Clerical and administrative workers, 12.6 per cent Technicians and trades workers and 12.4 per cent Managers. The Scenic Rim and Somerset LGAs have the highest proportion of Managers at 17.6 and 17.5 per cent, respectively. In Scenic Rim, Somerset and Lockyer Valley LGAs, over 40 per cent of Managers are Farmers and farm managers, showcasing the agriculture and rural characteristics of the areas. The Brisbane LGA has the highest proportion of Professionals (27.0 per cent) with a place of work in the LGA, followed by the Sunshine Coast (20.0 per cent) and Toowoomba (19.5 per cent) LGAs.

Figure 6.1: **Occupational mix of employment by place of work across the LGAs of SEQ in 2016**
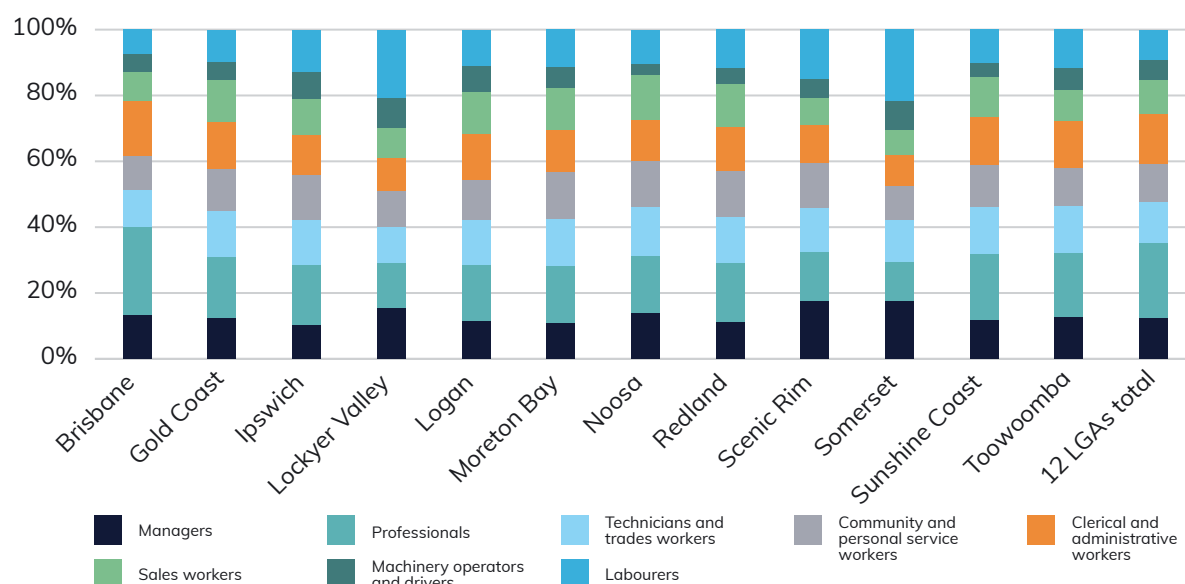
Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Excludes persons with occupation not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Occupational snapshot of SEQ in 2016: sub-regions

Table 6.2 shows the occupational distribution in BCARR rings and sub-regions in 2016. Professionals are the largest occupational group in SEQ, with 327,326 Professionals in 2016. Clerical and administrative workers (220,411) and Technicians and trades workers (182,455) are the second and third largest occupations in SEQ. The Middle Brisbane ring has the highest number of Managers (47,301) among the rings and sub-regions. The Inner Brisbane ring has the highest number of Professionals (107,777), followed by the Middle Brisbane ring, which had 81,983 Professionals in 2016.

Professionals was the major occupational group in the Rest of SEQ region, with 84,849 Professionals in 2016. The other major occupations in Rest of SEQ were Clerical and administrative workers (63,114), Technicians and trades workers (62,179) and Community and personal service workers (56,284). Within the Rest of SEQ, the Gold Coast sub-region has the highest number of Professionals (43,371), Managers (28,431) and Clerical and administrative workers (33,182), followed by Sunshine Coast and Toowoomba.

Figure 6.2 shows the proportional distribution of occupations in BCARR rings and sub-regions in 2016. Professionals was the largest occupation in every ring, comprising 21.1 per cent of the SEQ all occupations total. Inner Brisbane has the highest proportion of both Managers and Professionals occupations in the region, at 14.5 and 35.1 per cent, respectively. Inner Brisbane also has the highest proportion of Clerical and administrative workers (20.0 per cent). The Outer Brisbane ring has the largest proportion of Technicians and trades workers, which is 14.0 per cent.

Table 6.2: Snapshot of occupations by place of work in the BCARR rings and sub-regions of SEQ in 2016

BCARR rings/sub-regions	Managers	Professionals	Technicians and trades workers	Community and personal service workers	Clerical and administrative workers	Sales workers	Machinery operators and drivers	Labourers	Total
INNER Brisbane*	44,464	107,777	26,367	26,634	61,428	19,657	5,486	15,190	307,003
MIDDLE Brisbane – TOTAL*	47,301	81,983	51,994	45,404	56,526	40,748	34,540	36,875	395,371
Middle East	5,158	5,773	6,257	3,347	5,569	3,061	4,851	5,270	39,286
Middle North	12,991	20,363	15,298	11,889	16,585	12,338	9,946	11,322	110,732
Middle South	18,213	34,811	18,827	16,067	23,375	15,822	13,850	12,210	153,175
Middle West	10,939	21,036	11,612	14,101	10,997	9,527	5,893	8,073	92,178
OUTER Brisbane – TOTAL	32,503	52,717	41,915	40,547	39,343	37,296	20,617	35,479	300,417
Ipswich	6,190	11,257	8,269	8,538	7,370	6,570	5,071	7,994	61,259
Redland	4,475	7,172	5,535	5,691	5,244	5,264	1,920	4,707	40,008
Logan	9,877	14,919	12,095	10,704	12,242	11,190	6,759	9,832	87,618
Moreton Bay	11,961	19,369	16,016	15,614	14,487	14,272	6,867	12,946	111,532
TOTAL – GREATER BRISBANE	124,268	242,477	120,276	112,585	157,297	97,701	60,643	87,544	1,002,791
Rest of SEQ	54,682	84,849	62,179	56,284	63,114	54,103	23,777	47,085	446,073
Gold Coast	28,431	43,371	32,098	29,061	33,182	29,694	12,604	23,114	231,555
Sunshine Coast	12,806	21,729	15,415	13,942	15,588	13,243	4,927	10,903	108,553
Noosa	2,833	3,630	3,070	2,845	2,540	2,764	664	2,175	20,521
Toowoomba (urban part)	5,719	12,094	7,970	6,947	8,736	5,932	3,327	5,462	
Scenic Rim	2,144	1,803	1,636	1,675	1,375	1,012	734	1,822	12,201
Lockyer Valley	1,694	1,507	1,221	1,189	1,134	987	999	2,309	11,040
Somerset	1,055	715	769	625	559	471	522	1,300	6,016
TOTAL – SOUTH EAST QUEENSLAND	178,950	327,326	182,455	168,869	220,411	151,804	84,420	134,629	1,448,864

Notes:

* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications. ^ The SEQ total differs from the 12 LGAs total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Employment total differs from that in Table 5.3 because this table excludes persons with occupation not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 6.2: **Snapshot of occupations by place of work in the BCARR rings of SEQ in 2016**
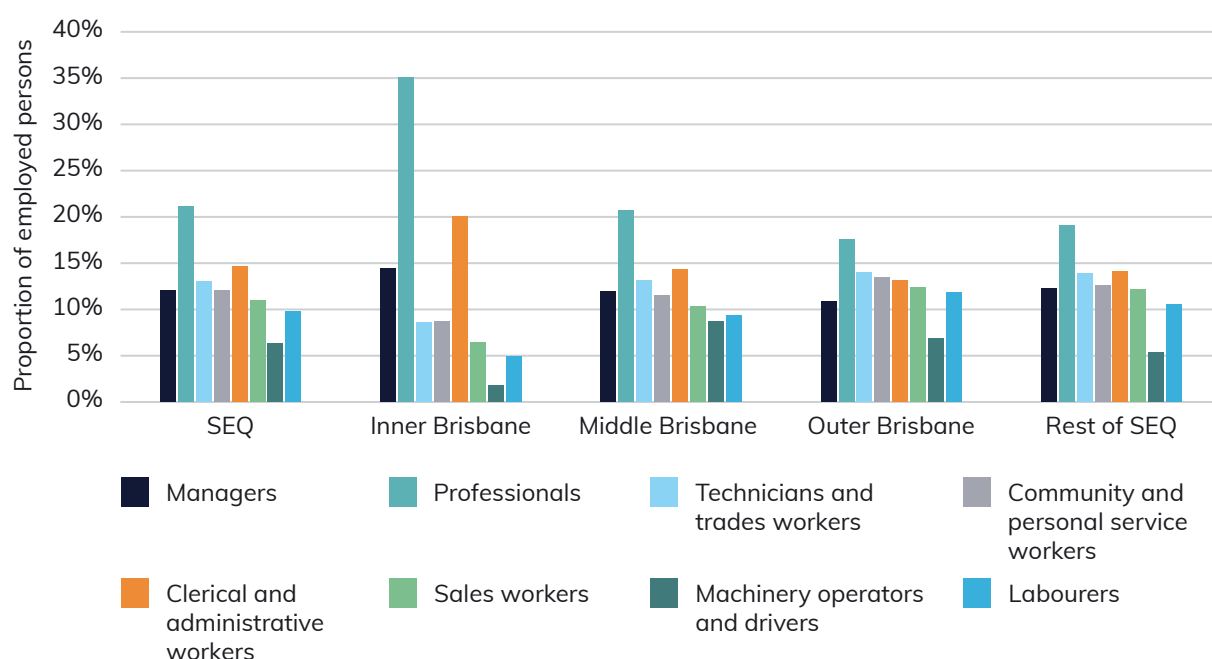
Note: Excludes persons with occupation not stated or inadequately described.
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Changes in the occupational mix, 2016 to 2021

Using the ABS *Labour Force Survey*, Chapter 5 reported that the number of employed residents of SEQ increased by 186,800 persons between 2016 and 2021, representing an average annual growth rate of 2.1 per cent (see Table 5.6). In terms of occupations, Professionals were the single biggest contributor to this growth, with an increase of 82,200 employed persons, representing 43.9 per cent of the total increase for SEQ. There were also significant increases in the number of Managers (40,200) and Machinery operators and drivers (22,800).

In terms of the overall occupational mix in SEQ, the biggest changes between 2016 and 2021 were:

- Professionals increased their employment share by 2.0 percentage points from 22.4 to 24.4 per cent

- The employment share of Clerical and administrative workers declined from 15.1 to 13.6 per cent

- The employment share of Technicians and trade workers declined from 14.9 to 13.7 per cent.

Figure 6.3 shows the percentage changes in the occupational mix from 2016 to 2021 in SEQ. The number of persons employed as Managers and Professionals have increased by 19.5 and 21.0 per cent over the past five years. Machinery operators and drivers have also increased by 22.4 per cent over this period. The number of Clerical and administrative workers residing in SEQ remained virtually unchanged between 2016 and 2021.

Figure 6.3: Changes in the occupational mix by place of residence of SEQ from 2016 to 2021
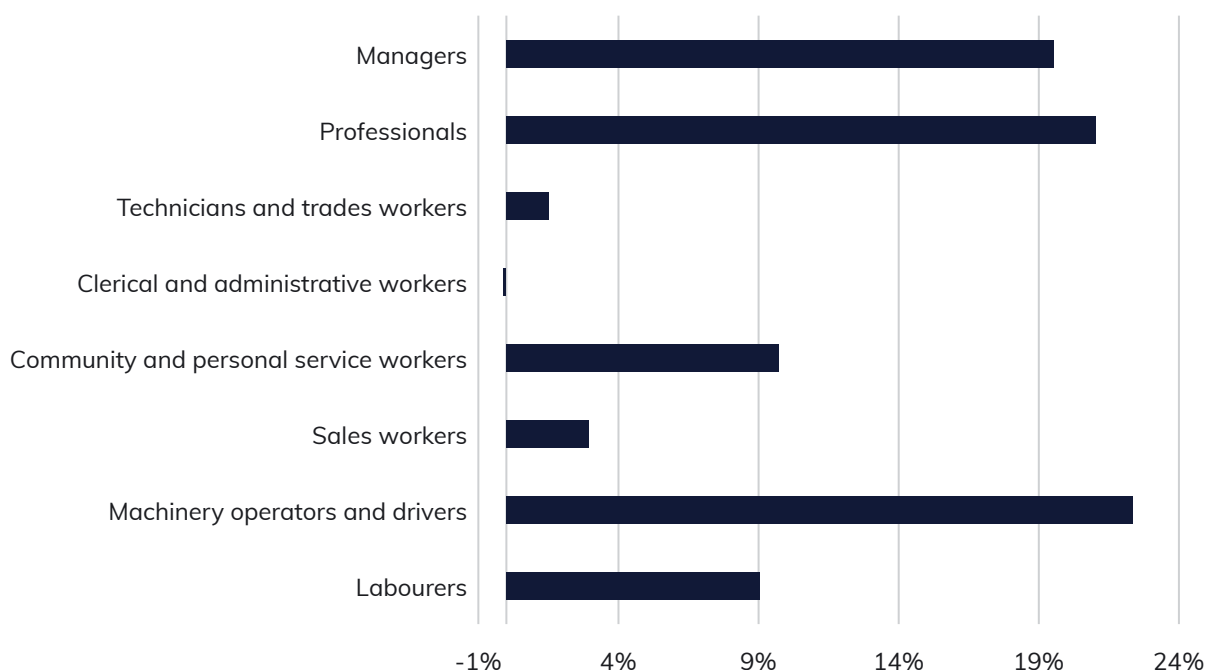
Source: BCARR analysis of ABS Cat. 6291.0.55.001 RQ2 – Employed persons by Labour market region (ASGS), Occupation major group (ANZSCO) and Sex, Annual averages of the preceding four quarters, Year to August 1999 onwards.

Figure 6.4 shows the changes in the occupational mix from 2016 to 2021 for SA4s of usual residence in SEQ. The Gold Coast SA4 has the largest increase in Managers and Professionals occupational groups in the last five years, at 13,700 and 21,600 employed persons, followed by Brisbane Inner City SA4. Most of the SA4s in Brisbane have positive changes in Professionals and Managers except Brisbane- East (decrease of 2,800 Managers). Toowoomba SA4 is the only area that has experienced negative growth in the Professionals occupation, which is a loss of 800 residents employed as Professionals between 2016 to 2021. Brisbane South has experienced a significant adverse change in Technicians and trades workers in this period (–3,400), as has Gold Coast (–2,200).

Figure 6.4: Changes in the occupational mix by place of residence in the SA4s of SEQ from 2016 to 2021
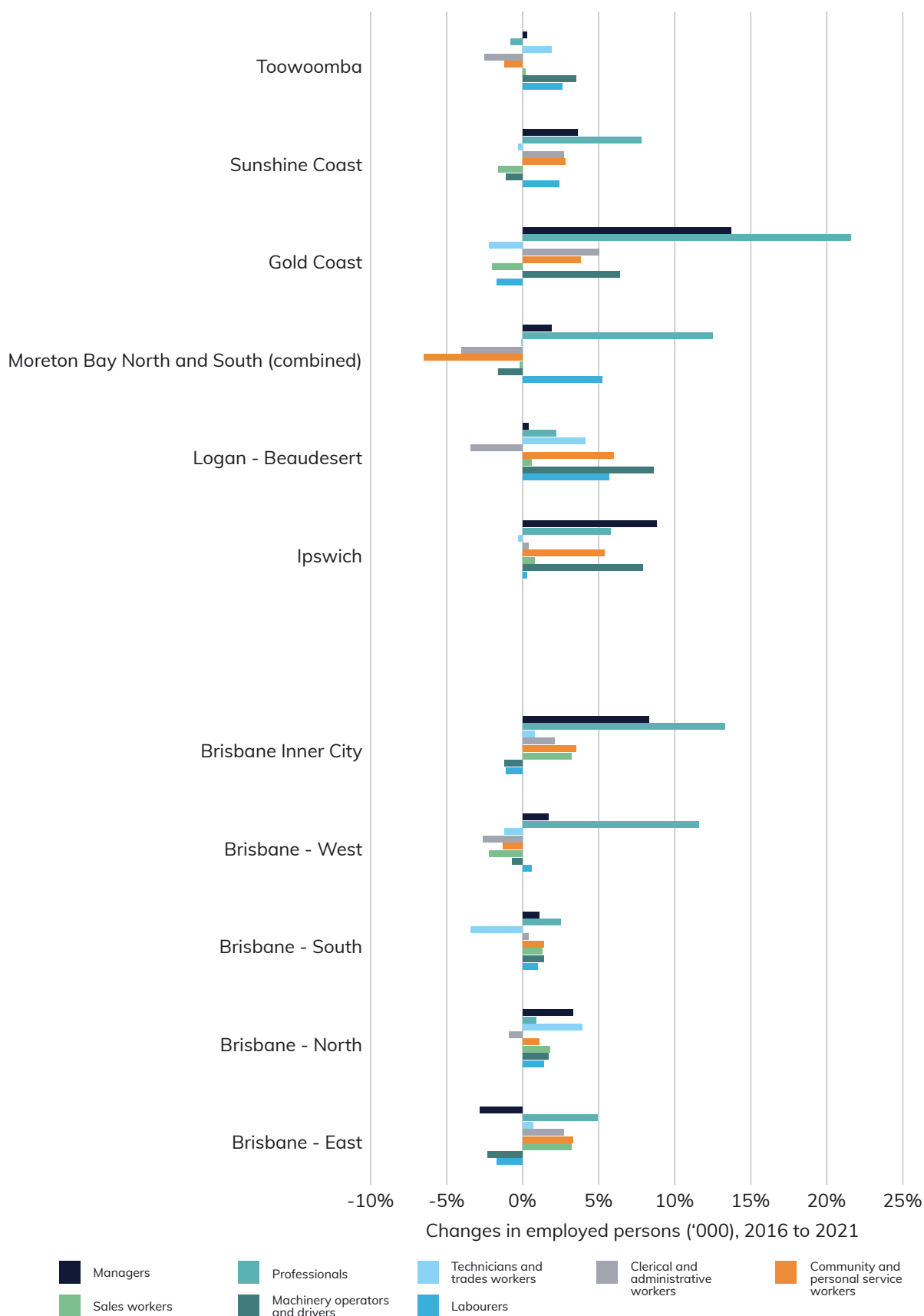
Changes in employed persons ('000), 2016 to 2021

Managers
Professionals
Technicians and trades workers
Clerical and administrative workers
Community and personal service workers
Sales workers
Machinery operators and drivers
Labourers

Source: BCARR analysis of ABS Cat. 6291.0.55.001 RQ2 – Employed persons by Labour market region (ASGS), Occupation major group (ANZSCO) and Sex, Annual averages of the preceding four quarters, Year to August 1999 onwards.

6.3 Educational attainment of the workforce

Educational attainment snapshot of SEQ in 2016: LGAs

Table 6.3 provides a snapshot of educational attainment in the LGAs of SEQ by place of work in 2016. The 12 LGAs have 298,044 working population[22] with a Bachelor's degree, 40,832 with a Graduate diploma or graduate certificate level qualification and 88,693 with a Postgraduate degree, which taken together comprise 30.2 per cent of the working population. Any city with 30 per cent or more Bachelor's degrees is called a creative or knowledge city (Florida, 2003). This threshold was set nearly 20 years ago, and not many Australian cities were qualified as knowledge cities at that time. Over time, the Australian population has become more qualified, and only a few cities have reached that threshold.

Of the 12 LGAs, the Brisbane LGA has the largest number of people with Bachelor's degree (176,011), Graduate diploma or graduate certificate level qualification (23,750) and Postgraduate degree (58,895) qualifications, which is over 35 per cent of the working population. The Gold Coast LGA has the second-largest university-qualified working population, having 39,479 Bachelor's degrees, 4,717 Graduate diplomas or graduate certificates and 10,479 Postgraduate degrees. In the 12 LGAs, 33.4 per cent of the working population has their highest educational attainment at the Year 10 and above secondary school level.

Educational attainment snapshot of SEQ in 2016: sub-regions

Table 6.4 presents a snapshot of educational attainment for the BCARR rings and sub-regions of SEQ. SEQ had a 296,826 working population with a Bachelor's degree, 40,607 with a Graduate diploma or graduate certificate and 88,535 with a Postgraduate degree. Together, this represents 30.4 per cent of SEQ employed persons with a bachelor degree or higher qualification.

The Inner Brisbane ring has the largest number of people with Bachelor's degrees (98,790), Graduate diploma or graduate certificate (13,721) and Postgraduate degree (32,902) qualifications. Inner Brisbane also has the most educated workforce in relative terms, with 48.4 per cent of employed persons having a Bachelor degree or higher qualification. The Middle South and Middle West sub-regions also have relatively educated workforces, with 32.4 and 32.8 per cent of their workforce having a Bachelor degree or higher qualification, respectively. Only these three SEQ sub-regions make the 30 per cent cutoff referred to above. Across SEQ, the sub-region with the lowest proportion holding a Bachelor degree or higher qualification was Somerset (16.4 per cent), followed by Lockyer Valley (18.5 per cent).

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22 Working population refers to when the data is based on Census, Place of Work.

Table 6.3: Snapshot of educational attainment by place of work in the LGAs of SEQ in 2016

LGAs	Postgraduate degree	Graduate diploma and graduate certificate	Bachelor degree	Advanced diploma and diploma	Certificate III & IV	Secondary: Years 10 and above	Certificate I & II	Years 9 and below	No educational attainment	Total
Brisbane	58,895	23,750	176,011	82,549	121,859	207,883	288	12,183	1,068	684,486
Gold Coast	10,479	4,717	39,479	29,733	52,200	79,106	129	6,149	298	222,290
Ipswich	2,491	1,437	9,537	6,728	14,888	21,634	57	2,223	153	59,148
Lockyer Valley	365	181	1,411	932	2,411	4,327	9	760	56	10,452
Logan	3,305	1,967	13,532	9,663	20,995	31,687	62	2,872	290	84,373
Moreton Bay	3,511	2,600	16,551	12,497	28,379	39,777	73	3,645	158	107,191
Noosa	672	435	3,178	2,555	4,806	6,820	12	471	11	18,960
Redland	1,387	888	6,212	4,793	9,543	14,413	26	1,208	45	38,515
Scenic Rim	364	271	1,572	1,341	2,844	4,514	5	645	15	11,571
Somerset	108	111	705	486	1,433	2,333	12	446	19	5,653
Sunshine Coast	4,132	2,813	18,750	13,774	26,620	35,991	67	2,873	66	105,086
Toowoomba	2,991	1,661	11,104	7,202	16,896	23,281	54	2,728	66	65,983
12 LGAs total	88,693	40,832	298,044	172,259	302,865	471,769	779	36,197	2,253	1,413,691

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Excludes persons with educational attainment not stated or inadequately described, which is why the total differs from that in Table 6.1.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Table 6.4: Snapshot of educational attainment by place of work in the BCARR rings and sub-regions of SEQ in 2016

BCARR rings/sub-regions	Postgraduate degree	Graduate diploma and graduate certificate	Bachelor degree	Advanced diploma and diploma	Certificate III & IV	Secondary: Years 10 and above	Certificate I & II	Years 9 and below	No educational attainment	Total
INNER Brisbane*	32,902	13,721	98,790	37,149	38,772	76,064	85	2,695	301	300,479
MIDDLE Brisbane – TOTAL*	25,980	9,979	77,167	45,369	83,048	131,781	160	9,497	749	383,730
Middle East	1,453	710	6,044	4,288	9,921	14,199	20	1,193	63	37,891
Middle North	4,982	2,496	19,888	13,658	25,364	38,093	41	2,668	148	107,338
Middle South	11,107	4,078	32,957	17,185	29,783	49,616	70	3,597	354	148,747
Middle West	8,438	2,695	18,278	10,238	17,980	29,873	29	2,039	184	89,754
OUTER Brisbane – TOTAL	10,764	6,892	45,878	33,689	73,838	107,606	186	9,967	646	289,466
Ipswich	2,510	1,448	9,550	6,746	14,877	21,636	51	2,220	152	59,190
Redland	1,384	879	6,212	4,780	9,541	14,404	23	1,214	61	38,498
Logan	3,333	1,966	13,544	9,654	20,986	31,702	58	2,887	282	84,412
Moreton Bay	3,537	2,599	16,572	12,509	28,434	39,864	54	3,646	151	107,366
TOTAL – GREATER BRISBANE	69,646	30,592	221,835	116,207	195,658	315,451	431	22,159	1,696	973,675
Rest of SEQ	18,889	10,015	74,991	54,856	104,048	151,609	257	13,093	512	428,270
Gold Coast	10,473	4,703	39,500	29,747	52,201	79,098	125	6,161	310	222,318
Sunshine Coast	4,097	2,792	18,589	13,683	26,454	35,792	49	2,859	54	104,369
Noosa	702	454	3,318	2,644	4,951	7,022	16	485	13	19,605
Toowoomba (urban part)	2,774	1,514	9,900	6,038	13,754	18,519	36	1,734	40	54,309
Scenic Rim	365	276	1,574	1,336	2,842	4,514	6	644	18	11,575
Lockyer Valley	363	170	1,403	929	2,414	4,330	14	764	62	10,449
Somerset	115	106	707	479	1,432	2,334	11	446	15	5,645
TOTAL – SOUTH EAST QUEENSLAND	88,535	40,607	296,826	171,063	299,706	467,060	688	35,252	2,208	1,401,945

Notes:

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   The SEQ total differs from the 12 LGAs total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA. Excludes persons with educational attainment not stated or inadequately described, which is why the total differs from that in Table 6.2.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 6.5 shows educational attainment across the BCARR rings in 2016. As previously noted, the Inner Brisbane ring has 48.4 per cent of the working population with a Bachelor's degree or higher qualification. This knowledge-intensive workforce means Inner Brisbane is the key focal point of SEQ's knowledge economy. The proportion of employed persons with a Bachelor's degree or higher qualification tends to decline with distance from the CBD, standing at 29.5 per cent for the Middle Brisbane ring and 21.9 per cent for Outer Brisbane. However, the Rest of SEQ ring has a slightly higher proportion with a Bachelor's degree or higher qualification than Outer Brisbane, at 24.3 per cent. Overall, Greater Brisbane has 33.1 per cent of its working population with a Bachelor's degree or higher qualification.

Figure 6.5: **Employed persons by educational attainment by place of work in the BCARR rings of SEQ in 2016**
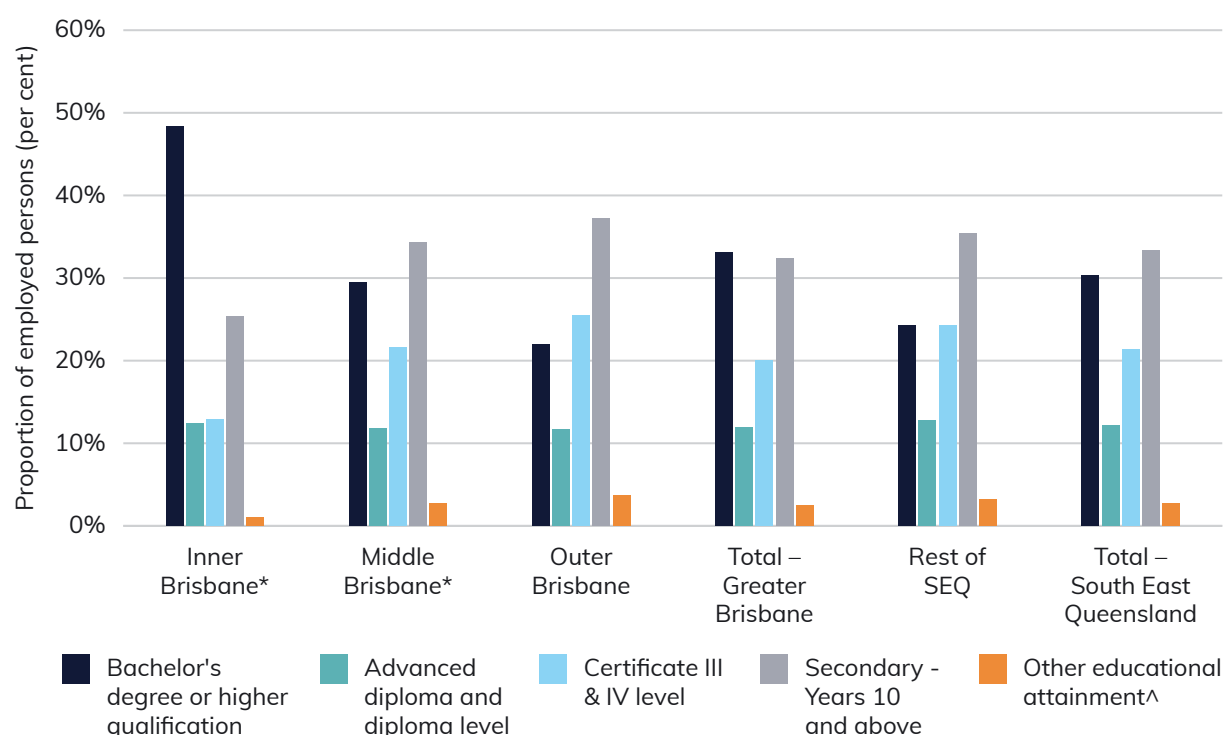
Notes:

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   Other educational attainment includes: Year 9 and below, Certificate I and II level, and No educational attainment.

     Excludes persons with educational attainment not stated or inadequately described,

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 6.6 shows the distribution of the university qualified (Bachelor degree and above) employed population who work in each of the SA2s of SEQ in 2016. The figure shows the university qualified workforce is heavily concentrated in the Inner Brisbane, Gold Coast and Sunshine Coast areas.

Figure 6.6: University qualified employed persons by place of work in the SA2s of SEQ in 2016
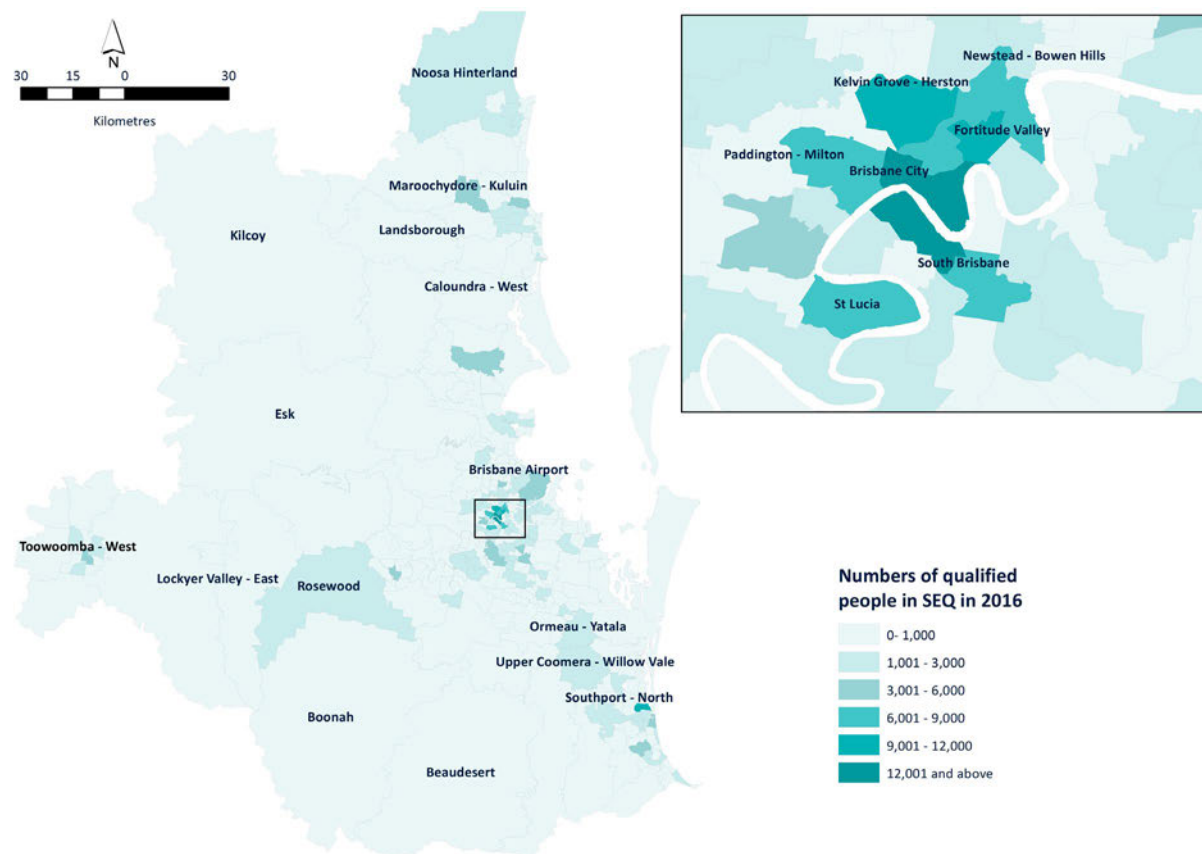
Note: University qualified was defined as employed persons with a highest educational attainment of a Postgraduate degree, Graduate certificate or graduate diploma or Bachelor degree qualification.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

6.4   Future projections of the skilled workforce

This section discusses the future projections of the skilled workforce, including national projections for occupations and skill levels and Queensland government projections for occupations and educational attainment. Box 6.2 explains the concept of skill levels. These occupation, education and skill level projections are important for understanding economic growth and prosperity in the future.

> **Box 6.2: What is meant by skill levels?**
>
> Each ANZSCO occupation is assigned a skill level. The skill level reflects the range and complexity of the set of tasks undertaken in the occupation. These skill levels measure the level or amount of formal education and training, the amount of previous experience in a related occupation and the amount of on-the-job training required to competently perform the set of tasks required for that occupation (ABS 2021). The 5 broad skill levels used in ANZSCO are:
>
> - Skill level 1 – Occupations that have a level of skill commensurate with a bachelor degree or higher qualification. At least five years of relevant experience may substitute for the formal qualification.
> - Skill level 2 – Occupations that have a level of skill commensurate with NZQF Diploma or AQF Associate Degree, Advanced Diploma or Diploma. At least three years of relevant experience may substitute for the formal qualifications listed above.
> - Skill level 3 – Occupations that have a level of skill commensurate with NZQF Level 4 qualification, AQF Certificate IV or AQF Certificate III including at least two years of on-the-job training. At least three years of relevant experience may substitute for the formal qualifications listed above.
> - Skill level 4 – Occupations that have a level of skill commensurate with NZQF Level 2 or 3 qualification or AQF Certificate II or III. At least one years of relevant experience may substitute for the formal qualifications listed above.
> - Skill level 5 – Occupations that have a level of skill commensurate with NZQF Level 1 qualification, AQF Certificate I or compulsory secondary education. For some occupations a short period of on-the-job training may be required in addition to or instead of the formal qualification.

National projections by occupation and skills

Over the last 20 years, Australia has shifted towards a higher-skilled, more services-based economy which is reflected in the changing industry, occupational and skill mix of jobs (National Skills Commission 2021). Automation and computing have varying effects within occupations and industries, and the key skills that will be needed for future jobs are care, computing, cognitive and communication skills (National Skills Commission 2021).

Table 6.5 provides National Skills Commission (NSC) projections for all occupations for five years to November 2025. NSC projected that employment is expected to increase by 7.8 per cent in total in the 5 year period. Community and personal service workers are projected to see the largest growth in 5 years (14.7 per cent), followed by Professionals (13.2 per cent) and Managers (6.2 per cent). Sales workers (2.0 per cent) is projected to be the lowest growth occupation in the next 5 years, followed by Clerical and administrative workers (3.5 per cent). These two occupations are particularly subject to automation and are expected to shrink in most developed nations (Frey and Osborne 2013).

Table 6.6 shows the top 10 growth occupations by 4 digit level, regardless of skill levels. Waiters is the highest projected growth occupation to 2025 (with projected employment growth of

42.3 per cent), followed by Cafe and restaurant managers (35.0 per cent), ICT support and test engineers (34.0 per cent) and Computer network professionals (30.4 per cent). Other non ICT-related occupations with high growth projections are Midwives, Aged and disabled carers, and Audiologists and speech pathologists/therapists.

Table 6.5: National Skills Commission projections for one-digit level occupations to 2025

Occupations	National Skills Commission Projections			
One digit level occupation	Employment level – November 2020	Projected employment level – November 2025	Projected employment growth – five years to November 2025	
	('000)	('000)	('000)	per cent
Community and personal service workers	1,272.7	1,459.1	186.4	14.7
Professionals	3,331.4	3,770.9	439.5	13.2
Managers	1,599.2	1,697.5	98.3	6.2
Technicians and trades workers	1,770.5	1,866.8	96.8	5.4
Machinery operators and drivers	814.6	850.8	36.1	4.4
Labourers	1,176.5	1,228.6	51.7	4.4
Clerical and administrative workers	1,763.1	1,824.6	61.5	3.5
Sales workers	1,070.1	1,091.8	21.8	2.0
All occupations	12,740.6	13,732.3	991.6	7.8

Source: National Skills Commission Projections, 2021

Table 6.6: Top 10 growth occupations, Australia, 5 years to November 2025

Occupation	National Skills Commission Projections			
4 digit level occupation	Employment level – November 2020	Projected employment level – November 2025	Projected employment growth – five years to November 2025	
	('000)	('000)	('000)	per cent
Waiters	100.0	142.3	42.3	42.3
Cafe and restaurant managers	60.7	82.0	21.3	35.0
ICT support and test engineers	12.1	16.3	4.1	34.0
Computer network professionals	49.1	64.0	14.9	30.4
Software and applications programmers	153.7	199.8	46.1	30.0
ICT business and systems analysts	34.1	43.5	9.4	27.7
Midwives	18.2	22.8	4.6	25.1
Multimedia specialists and web developers	21.7	27.1	5.4	25.0
Aged and disabled carers	221.4	276.1	54.7	24.7
Audiologists and speech pathologists/therapists	14.5	18.0	3.5	24.1

Source: National Skills Commission Projections, 2021

Table 6.7 shows NSC's projection for the top 5 growth occupations (4 digit level) with skill level 1, which is equivalent to a Bachelor's degree or higher qualification. Four out of 5 of these occupations are ICT related. ICT support and test engineers is projected to increase by 34.0 per cent compared with the 2020 level, followed by Computer network professionals (30.4 per cent) and Software and applications programmers (30.0 per cent). Midwives are the only non ICT related occupation in the top five, which is projected to increase by 25.1 per cent in 2025 compared to the 2020 level.

Table 6.7: **Top 5 growth occupations with skill level one, Australia, five years to November 2025**

Occupations	National Skills Commission Projections			
4 digit level occupation and skill level one	Employment level – November 2020	Projected employment level – November 2025	Projected employment growth – five years to November 2025	
	(' 000)	(' 000)	(' 000)	per cent
ICT support and test engineers	12.1	16.3	4.1	34.0
Computer network professionals	49.1	64.0	14.9	30.4
Software and applications programmers	153.7	199.8	46.1	30.0
ICT business and systems analysts	34.1	43.5	9.4	27.7
Midwives	18.2	22.8	4.6	25.1

Source: National Skills Commission Projections, 2021

Figure 6.7 compares NSC projections for different skill levels in 2020 and 2025. Skill level 1, which is commensurate with a Bachelor's degree or higher qualification, is projected to increase by 11.8 per cent, which is around 523,000 extra employed persons in 5 years. Skill level 4 is expected to grow 7.7 per cent (102,300 employed persons), while skill level 2 is expected to grow 6.6 per cent (233,700 employed persons). Overall, the stronger growth of the skill level 1 occupations represents a shift towards a more highly skilled workforce.

Figure 6.7: **National Skills Commission projections for skills in 2020 and 2025 in Australia**
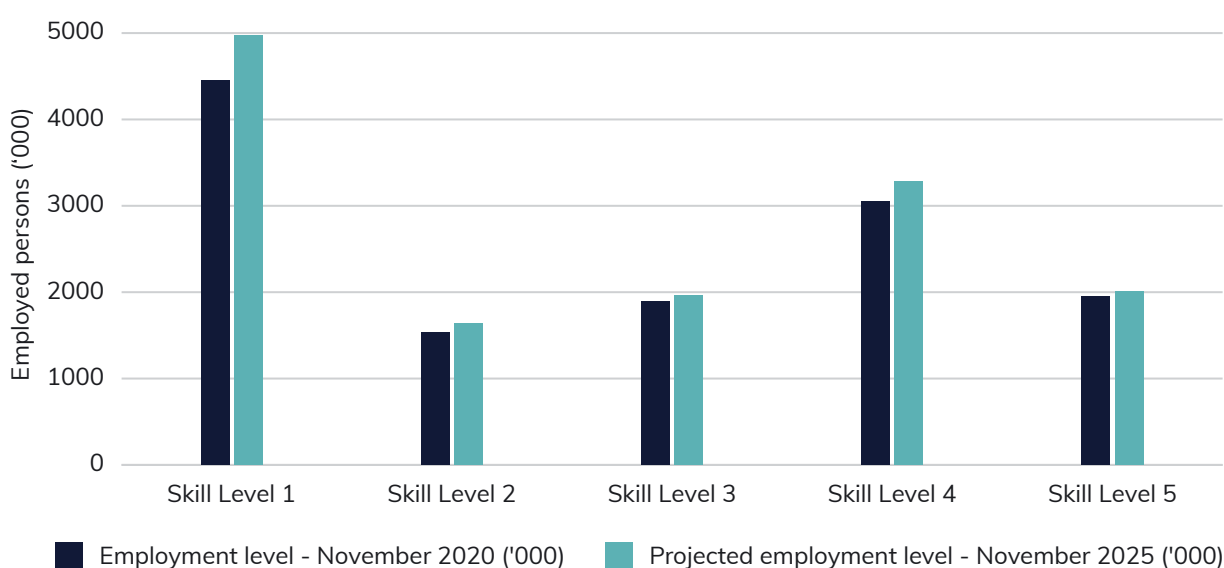
Source: National Skills Commission Projections, 2021

Assessment of changes in skills base in recent years and prospects

Like national trends, Queensland is becoming more educated, with almost two million workers projected to possess a post-school qualification (Queensland Government 2021a). According to Queensland Government projections, by 2024–2025, more than 2.8 million people are expected to be employed in Queensland, with 280,000 more employed persons expected to be added from 2020–2021 (a 10.9 per cent increase) under the baseline scenario (Queensland Government 2021a). More than 50 per cent of all new workers are projected to be employed in three industries:

- Health care and social assistance;
- Professional, scientific and technical services; and
- Education and training.

The highest growth industries in Queensland match with Australia's projection, previously shown in Figure 5.11. The projections presented in this section all relate to Queensland as a whole. SEQ makes up about two-thirds of the Queensland population. While SEQ currently has a more skilled workforce than Queensland as a whole, it is expected that the broad trends projected for Queensland will also be relevant for SEQ.

By 2024, it is projected that there will be almost 620,000 Professionals employed in Queensland, over 1.5 times more than the next largest major occupation of Technicians and trades workers. Professionals, the largest major occupational grouping, are projected to increase by almost 85,000 people or 16.1 per cent by 2024 (Figure 6.8). Community and personal service workers is projected to grow by 14.3 per cent or almost 42,000 workers. Another major occupation group of Managers is projected to increase by around 23,000 (12.1 per cent) compared to 2019.

Figure 6.8: **Projected major occupations employment growth numbers from 2019 to 2024 in Queensland**
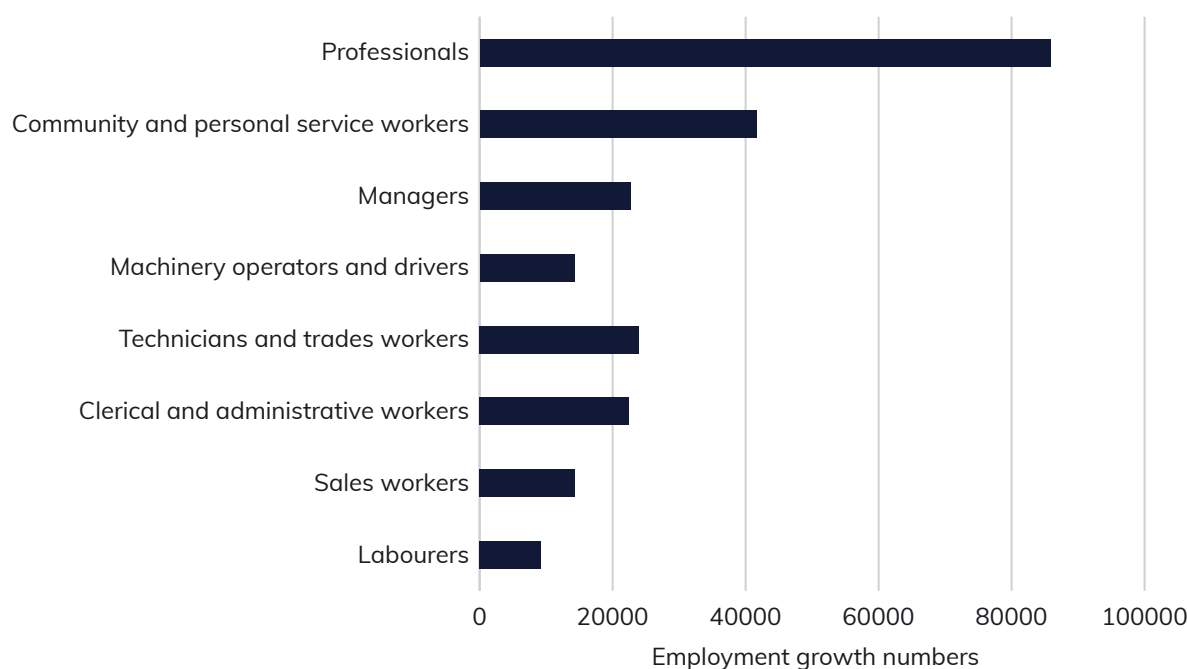
Source: Queensland Government, 2020

The Queensland workforce is becoming more educated, with the number of workers with a post-school qualification expected to increase by 13.9 per cent by 2024. Figure 6.9 shows that the Postgraduate degree qualifications are projected to experience the highest growth at 26.9 per cent, while Bachelor degree qualifications are projected to increase by a more moderate 15.9 per cent. Certificate level I and II qualifications are projected to decline in importance over the next few years.

Table 6.8 shows the qualification levels of the Queensland workforce in 2024–25 compared with 2020–21. It is projected that Queensland workers will become more educated, with 71.7 per cent having a post-school qualification by 2024–25, compared with 69.9 per cent in 2020–21 (Queensland Government 2021a).

Figure 6.9: **Projection of Queensland workforce by level of highest qualification from 2019 to 2024**
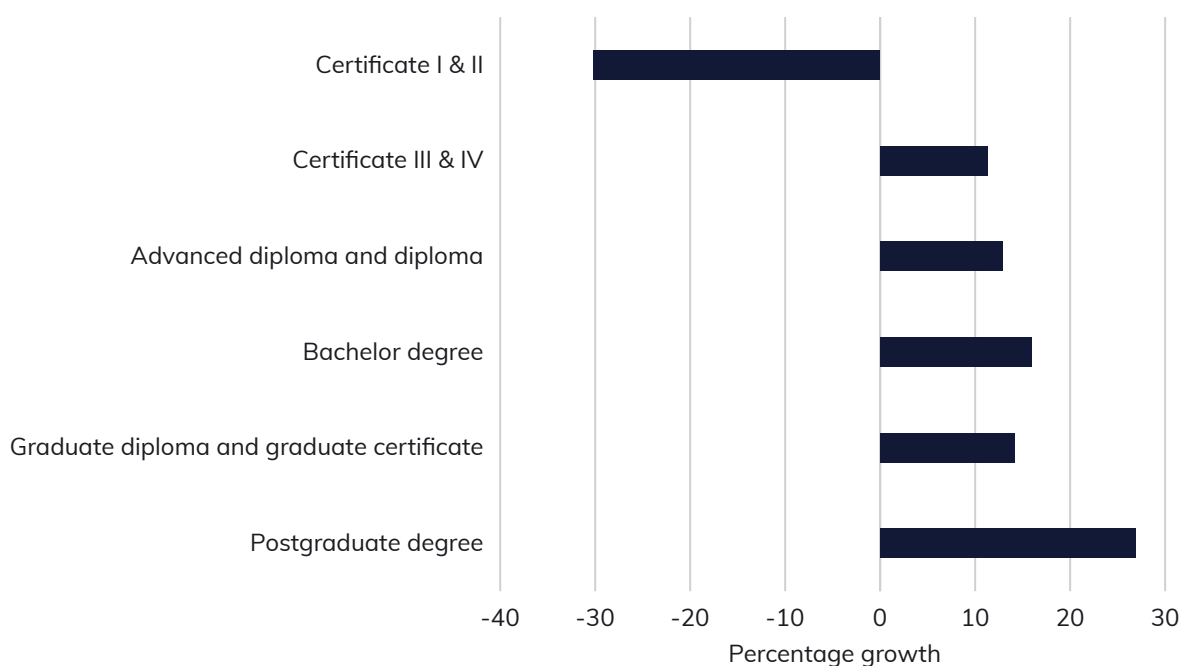
Source: Queensland Government, 2021

Table 6.8: **Change in qualification level (per cent) in Queensland workforce from 2020–21 to 2024–25**

	Postgraduate degree	Graduate diploma and graduate certificate	Bachelor degree	Advanced diploma and diploma	Certificate III & IV	Certificate I & II	No post-school
2020–21	7.7	2.9	3.0	11.9	24.6	1.1	30.1
2024–25	8.6	3.0	22.4	12.2	24.8	0.8	28.3

Source: Queensland Government, 2021

Nationally, Community and personal service workers is the occupation that is projected to see the fastest rate of growth over the next five years, followed by Professionals and Managers. In Queensland, the Professionals major occupation group is projected to grow at the fastest rate to 2024, followed by Community and personal service workers and Managers.

6.5 Conclusion

This chapter has provided a snapshot of the skilled workforce in SEQ, including by occupational mix and educational attainment. It also discussed future projections of skills at the national and state level.

Inner Brisbane has the most qualified workforce within the SEQ region and has the highest number of Managers and Professionals among all occupations. Within the Rest of SEQ, Gold Coast has the largest increase in Managers and Professionals over the last 5 years, followed by Inner Brisbane.

Professionals are projected to increase by 16.1 per cent in Queensland to 2024, which is the largest increase in any major occupation group. Queensland is also projected to become more educated in future, with a large increase of people with Bachelor's degrees and higher qualifications.

In general, countries or cities with a greater portion of their population with higher educational qualifications and skilled workforces see faster economic growth than countries or cities with less-educated and less-skilled workers in the age of the knowledge economy (Tuli et al. 2019). With technological advancement, cities are becoming more competitive around the world. With a better-qualified and higher-skilled workforce, SEQ will be better prepared to adopt technological advancements.

CHAPTER 7

TRANSPORT

Key points

- Private vehicle was the most frequently used transport mode in South East Queensland (SEQ). About 79 per cent of employed residents travelled to work by private vehicle in 2016, while about 10 per cent used public transport and just below 6 per cent worked at home.

- Amongst employed residents of the Brisbane LGA, 70 per cent journeyed to work by private vehicles and 18 per cent by public transport in 2016. The public transport mode was much less popular in other LGAs. In Lockyer Valley, Scenic Rim, Somerset and Toowoomba LGA, less than 2 per cent of employed residents used public transport.

- Transport mode use varies across the BCARR rings. Only 57 per cent of Inner Brisbane employed residents journeyed to work by private vehicle, whereas about 85 per cent did so in the Rest of SEQ in 2016. About 21 per cent of Inner Brisbane employed residents travelled to work by public transport, but the public transport mode share was just 3 per cent for the Rest of SEQ. The Rest of SEQ had a higher proportion of employed residents who worked at home (7 per cent).

- The Inner Brisbane sub-region had the highest public transport mode use by place of work (36 per cent). Inner Brisbane was the place of work for 73 per cent of all journeys to work by public transport in SEQ in 2016.

- From 2011 to 2016, across the LGAs of SEQ, commuting to work by private vehicle increased by 0.9 per cent points and working at home increased by 0.5 percentage points. The public transport mode share declined by 1.1 percentage points across the SEQ LGAs. The decline was evident in most of the LGAs, but was the most pronounced for the Brisbane LGA (–1.8 percentage points). The active transport mode share fell by 0.3 percentage points across the SEQ LGAs between 2011 and 2016.

- The pandemic has caused SEQ passengers to switch from public transport to private vehicles in recent years.

- During the pandemic, the total passenger trips recorded in the SEQ public transport network dropped and only partially recovered in 2021.

- Work from home uptake by employees in Brisbane was 35 per cent at the peak of the pandemic, compared to 27 per cent for the whole of SEQ. SEQ employees preference for future work from home uptake is well above pre-pandemic uptake (21 per cent and 15 per cent, respectively).

7.1   Introduction

This chapter investigates the use of different travel modes across the decade from 2011 to 2021 in SEQ. Specifically, Australian Bureau of Statistics (ABS) 2011 and 2016 Census of Population and Housing data are used to understand patterns in journey to work by place of residence and place of work. Additionally, changes in transport mode use after 2016 are examined using data from the Queensland government, Google COVID–19 Community Mobility Reports and the University of South Australia iMOVE project (see Vij et al. 2021). Only passenger transport and not freight transport is covered in this chapter.

This chapter first provides a snapshot of transport mode use in 2016. Secondly, changes in transport mode use between 2011 and 2021 are discussed.

7.2   Snapshot of transport mode use in 2016

Place of residence

This section investigates the journey to work data by place of residence for different geographical classifications of SEQ. Box 7.1 provides contextual information about the journey to work data. As shown in Table 7.1, private vehicle mode was the most popular accounting for 79.3 per cent of the SEQ total. About 10 per cent of employed residents journeyed to work by public transport, while 5.7 per cent worked at home and 4.3 per cent used active transport.

Table 7.1: **Journey to work by transport modes for usual residents in SEQ in 2016**

Modes of transport	Place of usual residence	
	Employed persons	**Share of total (per cent)**
Private vehicle	1,104,731	79.3
Car (as driver)	998,613	71.7
Car (as passenger)	77,996	5.6
Truck	13,655	1.0
Motorbike/scooter	14,467	1.0
Public transport	139,555	10.0
Train	66,919	4.8
Bus	64,135	4.6
Ferry	3,628	0.3
Tram	2,002	0.1
Taxi	2,871	0.2
Active transport	59,549	4.3
Bicycle	15,712	1.1
Walked only	43,837	3.1
Worked at home	79,530	5.7
Other mode	9,891	0.7
Total	**1,393,256**	**100**

Notes: Total excludes did not go to work, not stated and not applicable responses.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

The car (as driver) mode was the key contributor to the private vehicle mode in the detailed travel modes. Buses and trains are the most frequently used of the public transport modes. Taxis are used less frequently (i.e. about 0.2 per cent mode share).[23] For active transport, bicycle travel was less commonly reported than walk only trips to work.

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23 The 2016 Census does not report ride-share services like Uber. Hence, the taxi data in 2016 cannot distinguish taxi use from ride-share service use. In the 2021 Census, taxi and ride-share services together are considered to be the same travel method under the public transport mode. The 2021 census data was released by ABS in October 2022, after the completion of this research project.

Box 7.1 What is the Journey to Work data?

According to the ABS, a journey to work captures individuals' location of usual residence and the location of the workplace along with the mode by which they commuted. As Table 7.2 shows, there are 11 detailed modes of transport in the journey to work data, which is categorised into the following 5 modes of transport for the analysis of this chapter.

Table 7.2: Modes of transport

Modes of transport	Detailed modes of transport
Private Vehicle	Car (as driver), Car (as passenger), Truck and Motorbike/scooter
Public Transport	Train, Bus, Ferry, Tram and Taxi
Active Transport	Bicycle and Walk only
Worked at Home	N/A
Other Mode	N/A

To calculate each of the 5 transport mode shares, the total trips recorded by these 5 modes are computed first. Next, each mode share is equal to its recorded trips divided by the total recorded trips of these 5 modes. For example, if the total trips made by these 5 transport modes were 100 among which 10 were made by vehicles in 2016, the vehicle mode share was therefore 10 per cent. Hence, the total of the 5 mode shares is always equal to 100 per cent in the analysis of this chapter, as 'did not go to work' and 'not applicable' responses are excluded.

Individuals can report that they used multiple transport modes when responding to the census (e.g. car as driver and train). Where multiple methods of work are used, ABS has used a priority hierarchy to make assumptions for the 'main mode'. The priority hierarchy underlying the data in this chapter is:
* Train
* Bus
* Ferry
* Tram
* Taxi
* Vehicle driver
* Vehicle passenger
* Truck
* Motorbike or motor scooter
* Bicycle
* Other mode (not elsewhere specified
* Walked only

For example, if a person selected, 'Train' and 'Car driver', their mode of transport would be coded to 'Train' for Mode of travel to work (15 modes). 'Train' forms part of BCARR's 'Public transport' category.

Transport modes by place of residence in 2016: LGAs

Table 7.3 summarises transport mode shares by LGAs of usual residence in SEQ in 2016. As shown, use of the 5 transport modes varies significantly among the 12 LGAs. For example, 69.5 per cent of residents in Brisbane LGA used a private vehicle to journey to work. This was the lowest of all the LGAs, and was considerably lower than the 12 LGAs total of 79.1 per cent. In Ipswich and Logan, about 86 per cent of employed residents travelled to work by private vehicle.

Use of public transport was relatively uncommon in the outlying LGAs. In Lockyer Valley, Scenic Rim, Somerset and Toowoomba, less than 2 per cent of employed residents used public transport for the journey to work. In contrast, about 18 per cent of Brisbane LGA employed residents travelled to work by public transport. In the outer suburban LGAs of Ipswich, Logan, Redland and Moreton Bay, about 5 per cent of employed residents used public transport. These results show a pattern whereby public transport use tends to decline in line with the distance of the LGA from central Brisbane.

Among the 12 LGAs, the Brisbane LGA had the highest share of employed residents who travelled to work by active transport in 2016 (6.6 per cent). About 4.6 per cent of Toowoomba's employed residents used active transport to travel to work, which was slightly above the 12 LGAs total of 4.3 per cent. Over 10 per cent of Noosa and Scenic Rim employed residents worked at home on the 2016 census day. Their work at home mode share was higher than the 12 LGA total of 5.8 per cent.

Table 7.3: **Transport mode share for the journey to work by LGAs of residence in SEQ in 2016**

LGAs	Private vehicle	Public transport	Active transport	Worked at home	Other mode
			(per cent)		
Brisbane	69.5	18.0	6.6	5.3	0.6
Gold Coast	84.0	4.9	3.8	6.6	0.8
Ipswich	86.3	7.9	1.9	3.3	0.6
Lockyer Valley	88.5	1.3	3.0	6.6	0.6
Logan	87.0	6.7	1.5	4.2	0.6
Moreton Bay	83.0	9.0	2.2	5.2	0.7
Noosa	79.9	2.7	4.4	11.8	1.3
Redland	83.6	8.0	2.1	5.6	0.7
Scenic Rim	82.7	1.5	4.2	10.7	0.9
Somerset	83.7	2.0	4.0	9.5	0.8
Sunshine Coast	84.5	2.8	3.7	8.1	1.0
Toowoomba	87.3	1.0	4.6	6.4	0.7
12 LGAs Total	79.1	10.1	4.3	5.8	0.7

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Total excludes did not go to work, not stated and not applicable responses.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Transport modes by place of residence in 2016: BCARR rings and sub-regions

Several noticeable patterns show in Table 7.4 and Figure 7.1. The first pattern was that private vehicle use increased with distance from Inner Brisbane. Only 57.4 per cent of Inner Brisbane residents used private vehicles to journey to work compared to 84.8 per cent of Rest of SEQ residents. About 73.7 per cent of Middle Brisbane residents commuted to work by private vehicles. In Outer Brisbane, it was 84.9 per cent. Within these two rings, the Middle East sub-region and Ipswich sub-region had private vehicle mode share over 78 per cent. The second pattern was that public transport use decreased with distance from Inner Brisbane. About 21 per cent of Inner Brisbane residents travelled to work by public transport, but the public transport mode share dropped to 3.4 per cent in the Rest of SEQ. The third pattern was that the active transport mode share was much higher in Inner Brisbane (14.5 per cent) than elsewhere, and was particularly low in Outer Brisbane (1.9 per cent). The last pattern was that the worked-at-home mode share was highest in the Rest of SEQ (7.1 per cent), reflecting the high rate of working from home in Noosa, Scenic Rim and Somerset.

Table 7.4: **Transport mode share for the journey to work by sub-regions of residence in SEQ in 2016**

BCARR rings/sub-regions	Private vehicle	Public transport	Active transport	Worked at home	Other mode
			(per cent)		
INNER Brisbane	57.4	21.4	14.5	5.9	0.8
MIDDLE Brisbane – Total	73.7	16.6	4.0	5.1	0.6
Middle East	78.8	12.1	2.7	5.7	0.7
Middle North	74.4	17.3	3.3	4.4	0.6
Middle South	73.0	17.6	4.1	4.8	0.5
Middle West	72.5	15.9	4.9	6.1	0.6
OUTER Brisbane – Total	84.9	7.8	1.9	4.6	0.6
Ipswich	86.6	7.6	1.9	3.3	0.5
Redland	83.8	7.9	2.1	5.6	0.7
Logan	87.2	6.6	1.5	4.2	0.6
Moreton Bay	83.1	8.8	2.2	5.2	0.7
GREATER BRISBANE – Total	76.6	13.3	4.5	5.0	0.6
Rest of SEQ-Total	84.8	3.4	3.8	7.1	0.9
Gold Coast	84.1	4.7	3.8	6.6	0.8
Sunshine Coast	84.7	2.6	3.7	8.0	1.0
Noosa	79.9	2.5	4.3	12.0	1.3
Toowoomba (urban part)	89.7	1.0	4.3	4.4	0.6
Scenic Rim	82.7	1.5	4.2	10.8	0.8
Lockyer Valley	88.7	1.1	3.0	6.6	0.6
Somerset	83.8	1.9	3.9	9.5	0.8
South East Queensland – Total	79.3	10.0	4.3	5.7	0.7

Note: The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA. Total excludes did not go to work, not stated and not applicable responses.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Overall, the share of private vehicle use in the whole of SEQ was higher than in Greater Brisbane (79.3 versus 76.6 per cent). However, the public transport mode share in the former was lower than in the latter (10.0 versus 13.3 per cent).

Figure 7.1: **Transport mode share for journey to work by BCARR rings of residence for SEQ in 2016**
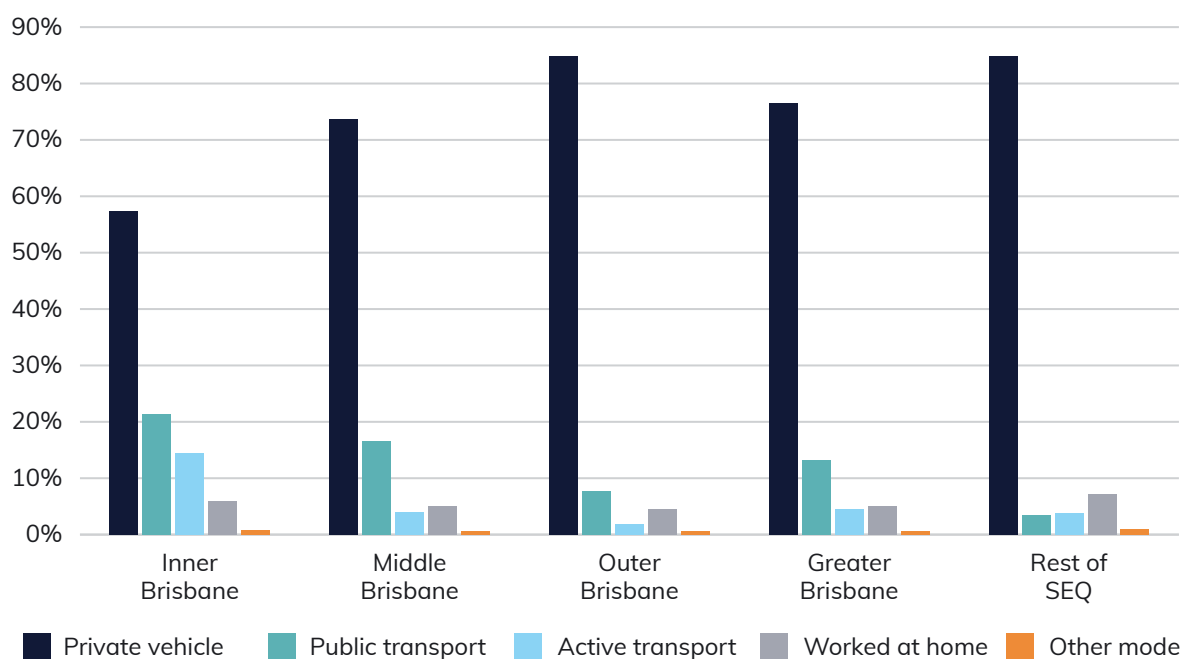
Source: BCARR analysis of ABS Census of Population and Housing, 2016

Transport modes by place of residence in 2016: SA2s

Figure 7.2 shows private vehicle use varied significantly across SA2s in SEQ in 2016. Less than 65 per cent of employed residents in the SA2s of the Inner Brisbane used a private vehicle to get to work. However, over 90 per cent of employed residents in some of the SA2s from the Rest of SEQ did so. As Table 7.5 shows, the private vehicle mode share in Spring Hill in Inner Brisbane was only 29.4 per cent, but, it was 93.7 per cent in Gowrie, which is part of the Rest of SEQ.

Figure 7.2: Private vehicle mode share for the journey to work by SA2s of residence in SEQ in 2016
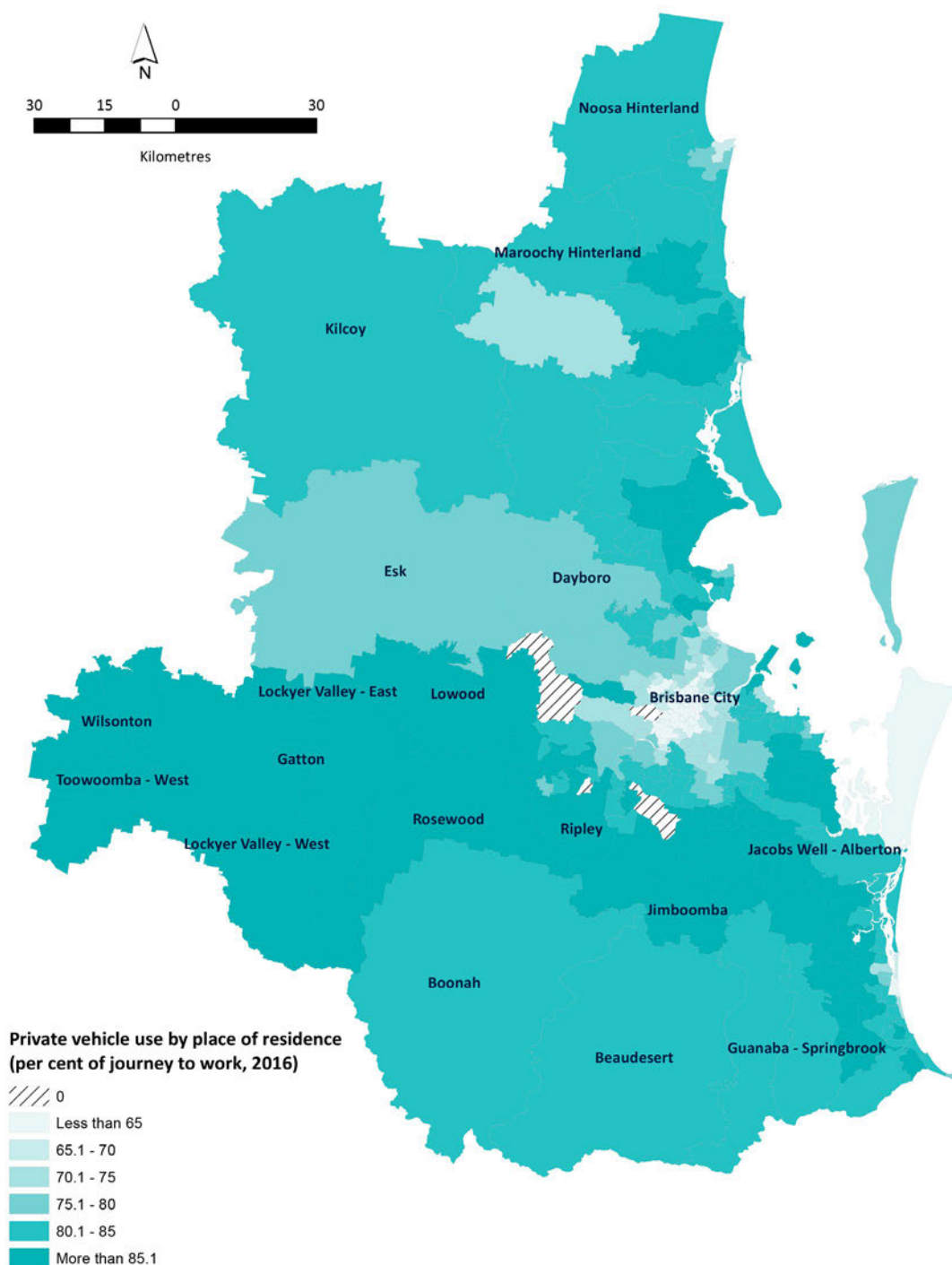
Note: The values of zero reflect a zero count of employed persons, rather than a genuine zero per cent mode share.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Table 7.5: **SA2s of residence with the largest and smallest private vehicle mode share for the journey to work for SEQ in 2016**

SA2s	BCARR rings/sub-regions	Private vehicle mode share (per cent)
Top 5 largest		
Gowrie	Toowoomba	93.7
Toowoomba – West	Toowoomba	92.5
Wilsonton	Toowoomba	91.9
Gatton	Lockyer Valley	91.2
Leichhardt – One Mile	Brisbane Outer – Ipswich	91.1
Top 5 smallest		
Spring Hill	Inner Brisbane	29.4
Brisbane City	Inner Brisbane	29.7
Fortitude Valley	Inner Brisbane	35.2
South Brisbane	Inner Brisbane	37.5
West End	Inner Brisbane	47.1

Note: Each of these SA2s above had over 100 residents individually.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 7.3 shows that public transport use is centralised in Brisbane's inner and middle rings. Examples include Woolloongabba and Nundah, which both have public transport mode shares of over 25 per cent as Table 7.6 shows. These SA2s are not far away from the Brisbane Central Business District (CBD). The Outer Brisbane SA2 of Redland Islands is an exception to the pattern, with a very high public transport mode share due to the use of ferries. Public transport is generally used much less in the Rest of SEQ. For example, Cambooya-Wyreema in the Toowoomba sub-region has a public transport mode share of less than 1 per cent.

Figure 7.3: Public transport mode share for the journey to work by SA2s of residence in SEQ in 2016
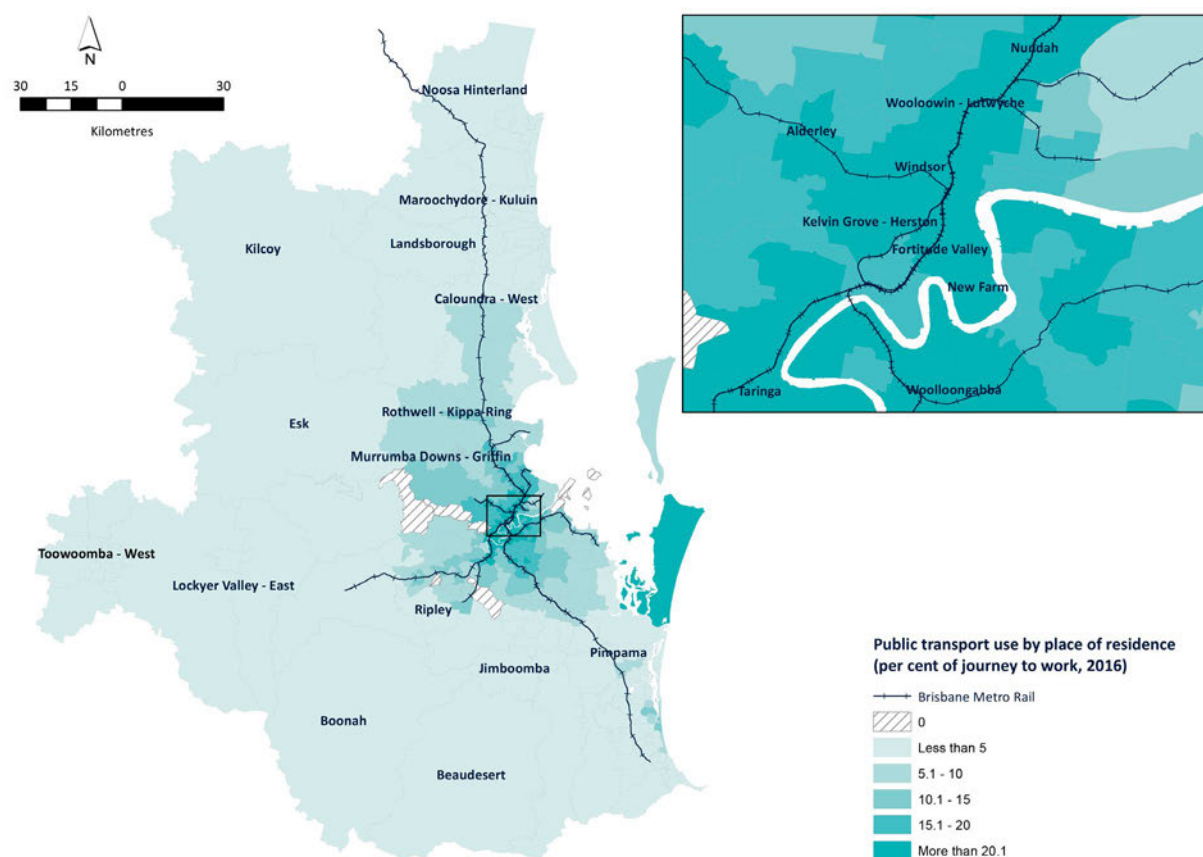
Noted: The values of zero reflects a small count of employed persons, rather than a genuine zero per cent mode share.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Table 7.6: SA2s of residence with the largest and smallest public transport mode shares for the journey to work in SEQ in 2016

SA2s	BCARR sub-region	Public transport mode share (per cent)
Top 5 largest		
Redland Islands	Outer Brisbane – Redland	33.3
Nundah	Middle Brisbane – North	28.3
Woolloongabba	Middle Brisbane – South	27.9
Wooloowin – Lutwyche	Inner Brisbane	27.2
Taringa	Middle Brisbane – West	26.9
Top 5 smallest		
Cambooya – Wyreema	Toowoomba	0.4
Lockyer Valley – West	Lockyer Valley	0.4
Toowoomba – East	Toowoomba	0.6
Toowoomba – West	Toowoomba	0.7
Gowrie	Toowoomba	0.8

Note: Each of these SA2s above had over 100 residents individually.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Analysis by place of work

This section uses the place of work data from the 2016 Census of Population and Housing to investigate the transport mode shares in SEQ. As shown in Table 7.7, there were over 1.3 million employed persons with an identifiable place of work in SEQ.[24] Over 1 million of them used private vehicles to travel to work (78.8 per cent). The car (as driver) mode represented over 71 per cent of all recorded journeys. The private vehicle mode played a dominant role in the journey to work by place of work (and residence). However, the private vehicle mode share by place of work was a little smaller than by place of residence. This was due to the difference in the spatial distribution of the usual resident population and the distribution of jobs with a fixed place of work in SEQ. Employed SEQ residents with no fixed address of work are excluded from the place of work total, but have a very high rate of private vehicle use.

Public transport consisted of about 10 per cent of total recorded trips. In this mode, trains and buses were used most frequently. The worked-at-home mode accounted for about 6 per cent of the total. Fewer commuters used the active transport mode (4.4 per cent) such as bicycles (1.2 per cent) and walk-only (3.2 per cent).

Table 7.7: **Journey to work by transport mode for the place of work in SEQ in 2016**

Modes of transport	Place of work	
	Employed persons	Share of total (per cent)
Private vehicle	1,041,482	78.8
Car (as driver)	943,743	71.4
Car (as passenger)	73,443	5.6
Truck	10,111	0.8
Motorbike/scooter	14,185	1.1
Public transport	137,248	10.4
Train	67,032	5.1
Bus	61,475	4.7
Ferry	3,806	0.3
Tram	2,057	0.2
Taxi	2,878	0.2
Active transport	57,440	4.4
Bicycle	15,544	1.2
Walked only	41,896	3.2
Worked at home	77,704	5.9
Other mode	7,353	0.6
Total	**1,321,227**	**100.0**

Note: Date is for employed persons aged 15 years and over. Total excludes did not go to work, not stated and not applicable responses. Total also excludes those who reported no fixed work address.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

24 The total of 1.32 million is lower than the 1.39 million total in Table 7.1 due to about 5 per cent of employed persons reporting they had no fixed address of work. This can include occupations such as truck drivers, couriers, mobile salespeople, construction workers etc.

Transport modes by place of work in 2016: LGAs

Patterns in the place of work data were similar to the place of residence data at the LGA level, although there are some key differences across the 5 travel modes and LGAs. While private vehicle use increased gradually with distance from Brisbane, its use in place of work was smaller than in place of residence. For example, the private vehicle mode share by place of work in Scenic Rim and Somerset were 78.6 and 79.8 per cent, respectively, which were smaller than their shares by place of residence (See Table 7.8). This is not surprising given the different distribution of usual residents and employment. People residing in these LGAs were likely to travel to their workplace in Brisbane or its surrounding areas by private vehicles.

Public transport use by place of work decreased steadily with distance from Brisbane. In the Brisbane LGA the public transport mode share was 18.8 per cent (which was the highest among all the LGAs). However, the Lockyer Valley, Scenic Rim, Somerset and Toowoomba LGAs had less than 1 per cent public transport use. This reflects the focus of the public transport network being to move people in and out of the CBD, with limited public transport services available in outlying and rural areas.

The share of active transport and worked-at-home mode by place of work varied significantly across all the LGAs. In Brisbane, Scenic Rim and Somerset, their active transport use shares were 5.3, 6.1 and 5.5 per cent, individually. However, Logan had less than 2.5 per cent active transport. The worked-at-home mode shares for Scenic Rim and Somerset were 13.9 and 13.4 per cent respectively. However, Brisbane's worked-at-home share was only 4.4 per cent, which was the lowest among all the LGAs.

Table 7.8: **Transport mode share for the journey to work by LGA of employment in SEQ in 2016**

LGAs	Private vehicle	Public transport	Active transport	Worked at home	Other mode
			(per cent)		
Brisbane	71.0	18.8	5.3	4.4	0.5
Gold Coast	85.1	3.4	3.9	6.9	0.6
Ipswich	90.7	2.3	2.3	4.2	0.5
Lockyer Valley	85.9	0.6	3.9	8.9	0.7
Logan	89.2	2.6	1.9	5.8	0.5
Moreton Bay	86.2	2.3	3.0	7.9	0.6
Noosa	80.8	2.1	4.2	12.1	0.8
Redland	83.9	3.6	3.1	8.8	0.5
Scenic Rim	78.6	0.6	6.1	13.9	0.9
Somerset	79.8	0.5	5.5	13.4	0.8
Sunshine Coast	85.0	1.6	3.9	8.9	0.6
Toowoomba	87.5	0.8	4.6	6.4	0.6
12 LGAs Total	**78.8**	**10.3**	**4.4**	**6.0**	**0.6**

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Total excludes did not go to work, not stated and not applicable responses. Total also excludes those who reported no fixed work address.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Transport modes for the place of work in 2016: BCARR rings and sub-regions

Table 7.9 and Figure 7.4 present transport mode shares by place of work for sub-regions and BCARR rings. Private vehicle mode use in Inner Brisbane was 52.6 per cent, whereas Outer Brisbane and the Rest of SEQ were above 80.0 per cent. Ipswich and Toowoomba (urban part) sub-regions had private vehicle mode shares of 90 per cent or above. Public transport use was concentrated in Inner Brisbane. Additionally, public transport use for Inner Brisbane as a place of work was larger than as the place of residence (35.7 versus 21.4 per cent). Inner Brisbane's active transport mode share was the largest (7.7 per cent) whereas its work at home mode share was the smallest (3.5 per cent). In Greater Brisbane, the public transport and active transport mode share was 13.9 and 4.5 per cent respectively, which were higher than relevant mode shares for SEQ.

Inner Brisbane was the place of work for 73 per cent of all journeys to work by public transport in SEQ in 2016. This highlights the radial nature of the public transport network (particularly the rail network), which is focused on transporting commuters to and from the city centre, and is much less useful for cross-suburban travel.

Table 7.9: **Transport mode share for the journey to work by sub-regions of employment in SEQ in 2016**

BCARR rings/sub-regions	Private vehicle	Public transport	Active transport	Worked at home	Other mode
			(per cent)		
INNER Brisbane	52.6	35.7	7.7	3.5	0.5
MIDDLE Brisbane-Total	85.2	5.7	3.4	5.2	0.5
Middle East	89.5	2.8	2.1	5.0	0.5
Middle North	88.1	4.8	2.7	3.9	0.5
Middle South	85.2	6.2	3.1	5.0	0.5
Middle West	80.0	7.0	5.2	7.1	0.6
OUTER Brisbane – Total	87.7	2.6	2.6	6.7	0.5
Ipswich	90.7	2.2	2.3	4.2	0.5
Redland	83.9	3.6	3.1	8.8	0.6
Logan	89.2	2.6	1.9	5.8	0.5
Moreton Bay	86.1	2.3	3.1	7.9	0.6
GREATER BRISBANE-Total	76.0	13.9	4.5	5.1	0.5
Rest of SEQ – Total	85.3	2.4	4.1	7.6	0.6
Gold Coast	85.1	3.4	3.9	6.9	0.6
Sunshine Coast	85.1	1.6	3.9	8.8	0.6
Noosa	80.1	2.0	4.3	12.8	0.8
Toowoomba (urban part)	90.0	0.9	4.2	4.5	0.5
Scenic Rim	78.5	0.6	6.1	13.9	0.9
Lockyer Valley	85.9	0.6	4.0	8.9	0.6
Somerset	79.8	0.5	5.7	13.4	0.7
South East Queensland – Total	78.8	10.4	4.3	5.9	0.6

Note: Data is for employed persons aged 15 years and over. The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA. Total excludes did not go to work, not stated and not applicable responses. Total also excludes those who reported no fixed work address.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 7.4: **Transport mode share for the journey to work by BCARR rings of work for SEQ in 2016**
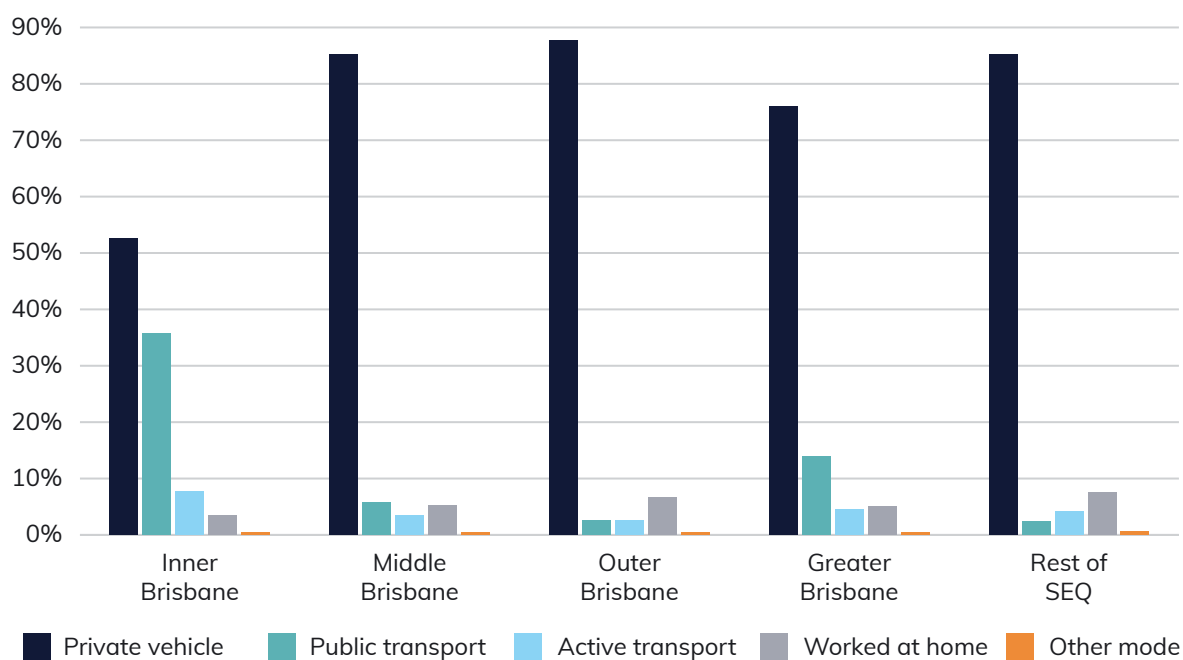
Source: BCARR analysis of 2016 Census of Population and Housing.

Transport modes for the place of work in 2016: SA2s

Figure 7.5 shows that the private vehicle mode shares were relatively low in Brisbane City SA2 and its nearby SA2s. Table 7.10 shows that private vehicle mode shares in Fortitude Valley and Brisbane City were only 53.1 and 29.1 per cent, respectively. SA2s that were more distant from Brisbane City tended to have a higher private vehicle mode share. These SA2s included, but were not limited to, New Chum, Carole Park and Riverview, which each had a private vehicle mode share of over 94.0 per cent. Riverview has a mix of residential and industry land use, with the majority of its jobs in Manufacturing. New Chum and Carole Park are industrial areas, with virtually no residents. Workers in industrial areas tend to be highly reliant on private vehicles. This may be because private vehicles are needed to carry tools and equipment, access their place of work and travel to other locations during the course of their work day. Industrial areas also tend to have limited public transport provision.

Figure 7.5: Vehicle mode share for journey to work by SA2s of employment in SEQ in 2016
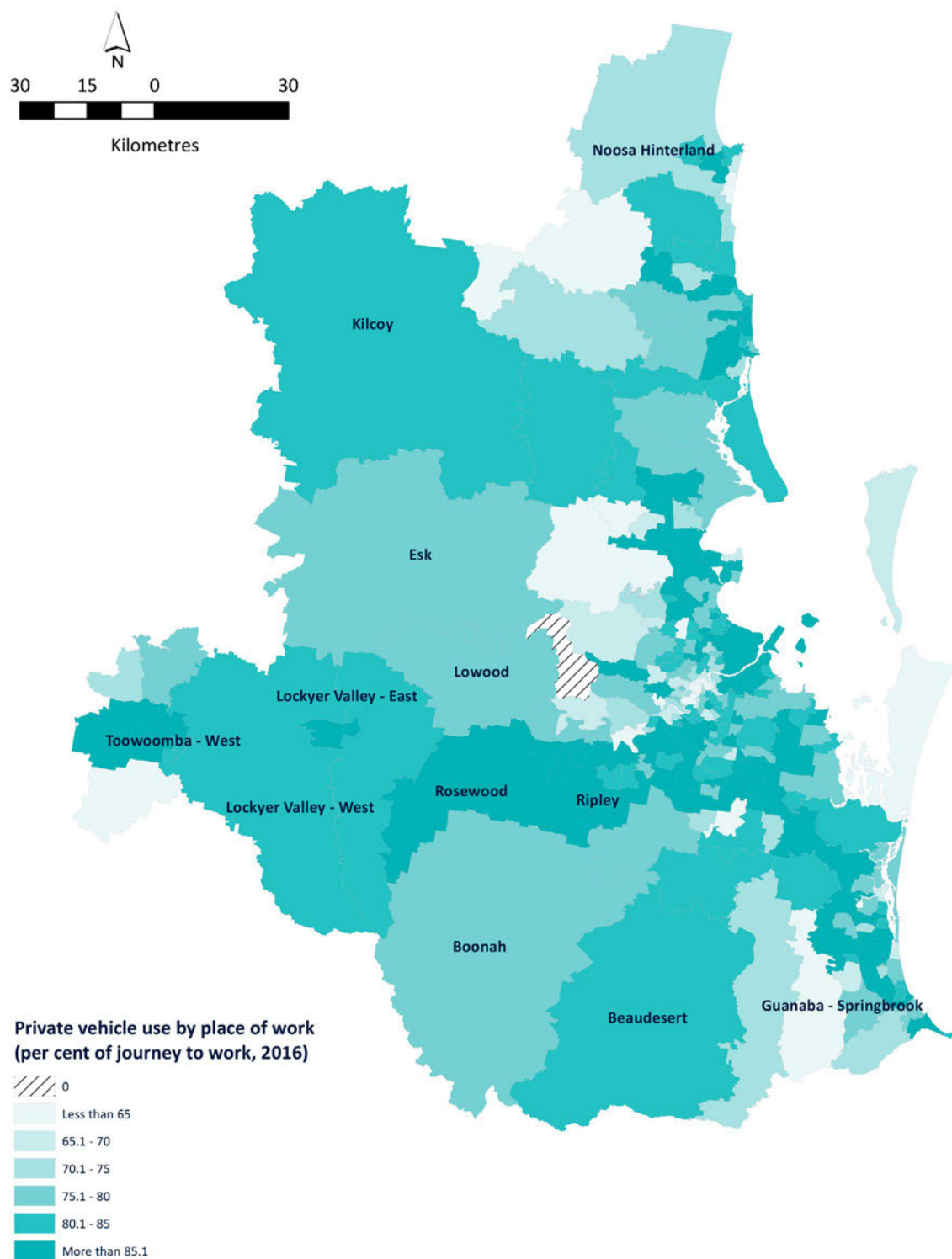
Note: The values of zero count of employed persons, rather than a genuine zero per cent mode share.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Table 7.10: SA2s of employment with the largest and smallest private vehicle mode share for the journey to work in SEQ in 2016

SA2s	BCARR sub-region	Private vehicle mode share (per cent)
Top 5 largest		
New Chum	Brisbane Outer-Ipswich	100.0
Carole Park	Brisbane Outer-Ipswich	97.9
Riverview	Brisbane Outer-Ipswich	96.0
Brisbane Port – Lytton	Middle Brisbane- East	95.9
Wacol	Middle Brisbane-West	95.9
Top 5 smallest		
Brisbane City	Inner Brisbane	29.1
Westlake	Middle Brisbane-West	40.7
St Lucia	Middle Brisbane-West	50.9
Fortitude Valley	Inner Brisbane	53.1
Upper Caboolture	Outer Brisbane-Moreton Bay	53.5

Note: Date is for employed persons aged 15 years and over and each of these SA2s had over 100 workers individually.
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 7.6 illustrates the public transport mode share by SA2s of employment in SEQ in 2016. The patterns here were opposite to the private vehicle mode use discussed previously. Specifically, public transport use was high in Brisbane City (59.8 per cent) and its nearby suburbs. The high public transport mode share of St Lucia, Fairfield and Dutton Park reflects the presence of the University of Queensland and frequent public transport services. SA2s from the Rest of SEQ and Outer Brisbane tended to record very low public transport use. Some of the SA2s with the lowest public transport use included Highfields, Esk, North Toowoomba – Harlaxton, Lockyer Valley–West and Boonah.[25]

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25 Each of them has over 100 employed persons working there in 2016.

Figure 7.6: Public transport mode share for the journey to work by SA2s in employment of SEQ in 2016

Note: The value of zero may reflect a small count of employed persons, rather than a genuine zero per cent mode share.
Source: 2016 Census of Population and Housing.

Table 7.11: SA2s of employment with the largest and smallest public transport mode share for the journey to work in SEQ in 2016

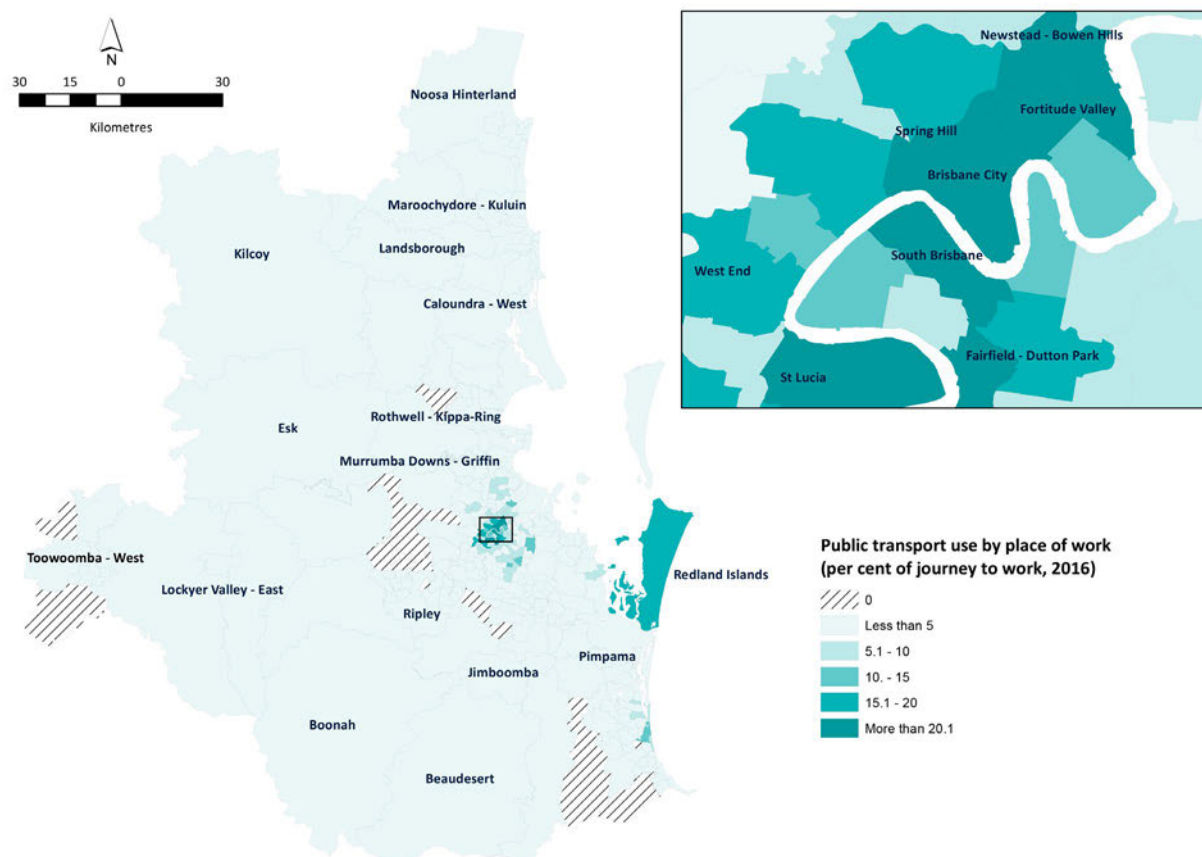| SA2s	BCARR sub-region	Public transport mode share (per cent)
Top 5 largest		
Brisbane City	Inner Brisbane	59.8
Fortitude Valley	Inner Brisbane	34.7
South Brisbane	Inner Brisbane	31.1
Spring Hill	Inner Brisbane	30.0
St Lucia	Middle Brisbane- West	28.9
Top 5 smallest		
Highfields	Toowoomba	0.1
Esk	Somerset	0.3
North Toowoomba – Harlaxton	Toowoomba	0.3
Lockyer Valley – West	Lockyer Valley	0.3
Boonah	Scenic Rim	0.3

Note: Date is for employed persons aged 15 years and over and each of these SA2s above had over 100 workers individually.
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

7.3 Changes in transport mode use over time in SEQ

This section aims to analyse changes in transport mode use over time in SEQ. Firstly, 2011 and 2016 census data were used to capture mode use change in this five-year period. Secondly, data between 2016 and 2021 from different sources were employed to investigate the most recent mode use changes.

Change of transport modes used from 2011 to 2016

Table 7.12 shows the change of mode use shares for LGAs from 2011 to 2016 on a place of usual residence basis. Please note that at the time of the 2011 census, there was not a separate Noosa LGA, and the Sunshine Coast LGA boundary encompassed what is now the Noosa LGA. Noosa Shire Council was re-established as a local government on 1 January 2014. In the remainder of this chapter, data is reported for the combination of Sunshine Coast and Noosa (i.e. the 2011 Sunshine Coast LGA boundary) to support like-for-like comparisons of changes between 2011 and 2016. Table 7.12 shows that for the SEQ LGAs as a whole there was a significant shift away from public transport between 2011 and 2016 (−1.1 percentage points) and a significant shift towards private vehicles (0.9 percentage points).

Table 7.12 documents four major differences in mode use between 2011 and 2016 at the LGA scale. Firstly, private vehicle use increased in all LGAs except Gold Coast during this period (by between 0.2 and 1.5 percentage points). Secondly, public transport use decreased in all LGAs except Sunshine Coast-Noosa and Gold Coast. Thirdly, active transport use reduced slightly across all LGAs. One exception was Brisbane where its use remained constant. Fourthly, most of the LGAs experienced an increase in the worked-at-home mode share whereas Lockyer Valley and Scenic Rim recorded a modest reduction. In Somerset, the worked-at-home mode share did not change.

Table 7.12: Change in modes share for the journey to work by LGAs of residence in SEQ from 2011–2016

LGAs	Private vehicle	Public transport	Active transport	Worked at home	Other mode
	(percentage point)				
Brisbane	1.0	−1.8	0.0	0.7	0.1
Gold Coast	−0.4	0.2	−0.4	0.5	0.1
Ipswich	1.0	−0.8	−0.5	0.3	0.0
Lockyer Valley	1.4	−0.4	−0.3	−0.6	−0.1
Logan	1.3	−1.4	−0.4	0.4	0.0
Moreton Bay	1.5	−1.7	−0.4	0.5	0.1
Redland	0.9	−1.0	−0.2	0.4	0.0
Scenic Rim	1.5	−0.2	−0.7	−0.4	−0.1
Somerset	0.8	−0.1	−0.7	0.0	−0.1
Sunshine Coast & Noosa	0.2	0.1	−0.8	0.4	0.1
Toowoomba	0.7	−0.1	−0.8	0.2	0.0
11 LGAs Total	**0.9**	**−1.1**	**−0.3**	**0.5**	**0.1**

Note: The 11 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. The Sunshine Coast and Noosa LGAs are combined in the table, to reflect census data only being available on a combined basis for 2011.

Source: BCARR analysis of ABS Census of Population and Housing, 2011 and 2016.

Change of transport mode use from 2016 to 2021

Table 7.13 presents the change in mode use by total passenger kilometres travelled for the Brisbane GCCSA from 2016 to 2021. There are 6 transport modes in the dataset, with active transport excluded – these transport modes are passenger cars, commercial vehicles, motorcycles, heavy rail, bus and ferry. In the Brisbane GCCSA, transport use reduced dramatically in 2019–2020, reflecting the impact of COVID–19 and associated lockdowns and travel restrictions. As shown, passenger cars, commercial vehicles and heavy rail use increased from 2016 to 2019. When the pandemic started in 2019–2020, passenger car, commercial vehicles, heavy rail and bus saw reduced activity. Among them, passenger car use experienced the most significant drop. In 2020–2021, passenger cars and commercial vehicles use improved whereas heavy rail and bus use continued to decline. The cumulative change from 2019 to 2021 for the passenger cars mode was positive, whereas heavy rail and bus modes experienced a negative cumulative change. Hence, the COVID–19 pandemic caused passengers to switch from public transport to private vehicles.

Table 7.13: **Change from current to the previous financial year in transport mode use by total passenger kilometres travelled in Brisbane from 2016–2021**

Financial year	Passenger cars	Commercial vehicles	Motor cycles	Heavy Rail	Bus	Ferry
	(billion passenger kilometres)					
Change relative to previous financial year						
2016–17	0.2	0.2	0.0	0.0	0.0	0.0
2017–18	0.2	0.1	0.0	0.0	0.0	0.0
2018–19	0.2	0.1	0.0	0.1	0.0	0.0
2019–20	−1.1	−0.1	0.0	−0.2	−0.3	0.0
2020–21	1.8	0.1	0.0	−0.2	−0.2	0.0
Cumulative change						
2019–2021	0.7	0.0	0.0	−0.4	−0.5	0.0
2016–2021	1.3	0.4	0.0	−0.3	−0.5	0.0

Source: BCARR analysis of Table 5.3c of the Australian Infrastructure and Transport Statistics Yearbook 2021 from the Bureau of Infrastructure, Transport and Regional Economics (2021b).

To understand the reduction of public transport use in the whole of SEQ during the pandemic, the number of monthly passenger trips made and Go card usage were analysed.[26] Figure 7.7 shows that passenger trips and Go card usage reduced dramatically after restrictions were imposed on border movements and business operations in March 2020.[27] Although they improved slowly from May 2020 to September 2021, as restrictions were eased, they did not reach the pre-restriction level.

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26 This data recorded by TransLink's South East Queensland public transport network, which can be download from the Department of Transport and Main Roads. Go Card trips record the usage of bus, train, ferry and light rail.

27 Restricted entry into Queensland from other states was introduced from 26 March. Some non-essential businesses were required to stop operating or operate under new restrictions from 23 March, including sporting facilities, licensed premises, churches, restaurants, cafés and fast-food outlets. It was also announced on 26 March that state schools would be student-free until the end of term 1 (which was subsequently extended). Stay at home restrictions were introduced in Queensland on 2 April 2020. Further details available from Storen and Corrigan (2020).

To stop the spread of the virus during the pandemic, governments ordered people to work from home where it was reasonable to do so. For example, on 2 April 2020, the Queensland Government introduced a home confinement direction that prevented people from leaving their residence, except for permitted purposes. People were permitted to leave home to work for an employer engaged in an essential business or activity, or if the work could not reasonably be performed from home (Queensland Government 2020b). A significant proportion of the workforce did not meet these criteria and were therefore required to work from home. As restrictions eased, many employees chose to continue to work from home. Therefore, there was a positive link between the pandemic and working from home in SEQ.

Figure 7.7: **Public transport patronage and Go card usage in SEQ from January 2019 to September 2021**
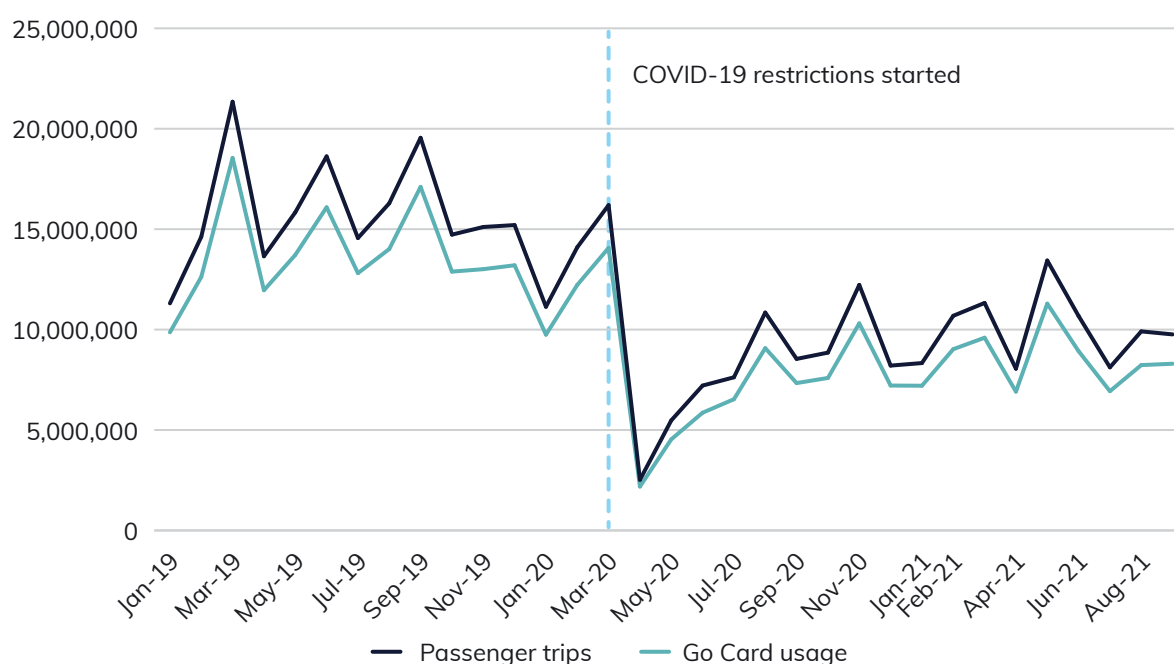
Source: BCARR analysis of public transport patronage and Go card usage data from Queensland Government (2022).

To provide more evidence on the role of working from home and impacts on transport use, two different data sources are employed. The first data source is the Google COVID–19 Community Mobility Reports. These reports tracked people's daily movements to 6 different categories of places. These places were retail and recreation, groceries and pharmacies, parks, public transport stations, workplaces and residential. These reports measured changes in the length of stay at these six categories of places compared to a pre-COVID baseline (3 January 2020 to 6 February 2020) at country, state and LGA levels in Australia. Details of how the data was transformed are provided in Box 7.2.

Box 7.2 Data transformation

Google mobility data presented in Figure 7.8 and 7.9 has undergone some transformations by BCARR. Firstly, the daily data in these reports was transformed into monthly data by using the average of daily values. Secondly, the LGA data in these reports was transformed into BCARR ring data by using the average of the associated LGA values. For example, the LGAs of Ipswich, Redland, Logan and Moreton Bay belong to Outer Brisbane. The average of these LGA values is used to represent Outer Brisbane.

As Figure 7.8 shows, compared to the pre-COVID baseline, people visited their workplace much less during the early stages of the pandemic than before the pandemic. However, the impact was less pronounced in Outer Brisbane and the Rest of SEQ than it was for the Brisbane LGA (i.e. Inner and Middle Brisbane). Throughout the winter and spring of 2021, time spent at workplaces was around pre-pandemic levels for Outer Brisbane and the Rest of SEQ, but remained significantly lower than pre-pandemic levels in the Brisbane LGA.

Figure 7.9 shows the other side of the picture, focusing on time spent at home. It shows that people stayed at home longer after the onset of the pandemic than before the pandemic, which would be consistent with stay-at-home restrictions and increased working from home. Again, the impact is greatest for Inner and Middle Brisbane, and gradually declines after peaking in April of 2020, with short-term spikes occurring during 2021 and early 2022 as restrictions were temporarily tightened in SEQ. Throughout 2021, time spent at home remained above pre-COVID levels in all 3 rings, but the difference is most pronounced for Inner and Middle Brisbane.

Figure 7.8: Mobility change for workplace by BCARR rings in SEQ from February 2020 to January 2022
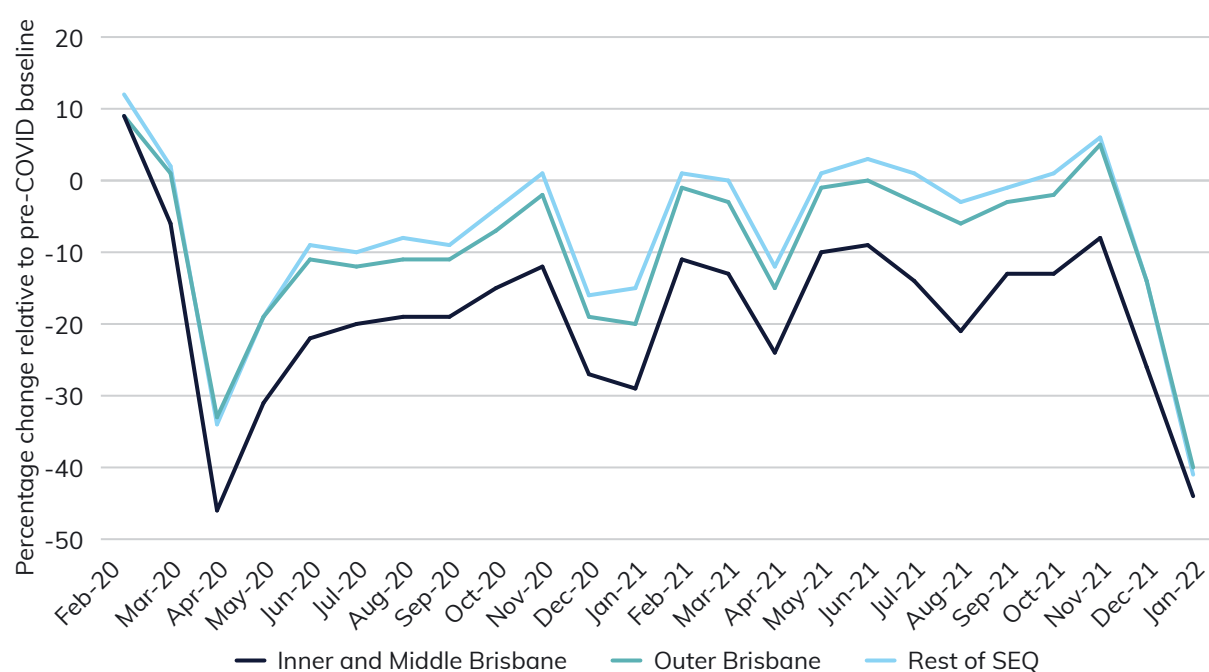
Note: The blue line represents the Brisbane LGA, which corresponds to the combination of the BCARR Inner and Middle Brisbane rings
Source: BCARR analysis of Google COVID–19 Community Mobility Reports (2022)

Figure 7.9: **Mobility change for residence by BCARR rings in SEQ from February 2020 to January 2022**

The second data source is the University of South Australia iMOVE survey data (Vij et al. 2021). In this dataset, over 3000 employed individuals from 17 Australian cities were surveyed about their work from home practice between 11 December 2020 and 4 May 2021. Particularly, people were asked about their work from home uptake during four time periods (i.e. before COVID–19, at the peak of COVID–19, during survey week and in the future/after the pandemic is gone).

Figure 7.10 documents the work from home uptake in the Brisbane LGA, Outer Brisbane and the Rest of SEQ combined and for the whole of SEQ. Work from home uptake is consistently higher for the Brisbane LGA across all four time periods. The three regions all show a similar pattern with uptake lowest pre-COVID, surging during the initial COVID peak, and then lower but remaining above pre-COVID levels during survey week and into the future. For instance, Brisbane's work from home uptake increased from 19 to 35 per cent at the pandemic's peak, but then declined to 26 per cent during survey week, with desired future uptake standing at 27 per cent.

Figure 7.10: **Change in work from home practice in SEQ from December 2020 to May 2021**
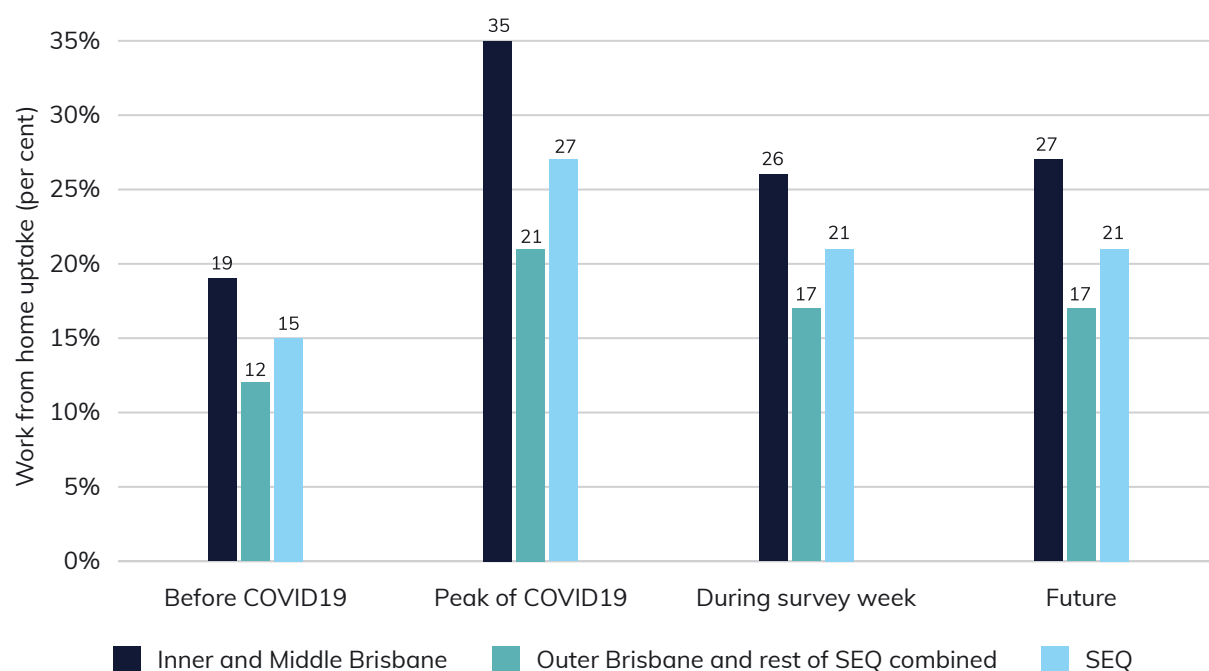
Note: The Brisbane LGA corresponds to the combination of the BCARR Inner and Middle Brisbane rings.
Source: BCARR analysis of University South Australia iMOVE survey data extracted from 2020–2021

7.4   Conclusion

This chapter analysed the transport modes used for journeys to work in SEQ over time. Private vehicle, public transport and active transport modes use varied significantly within SEQ. Private vehicle was the most dominant transport mode for both SEQ residents and workers (over 79 per cent). Public transport was less widely used in SEQ (with a mode share of around 10 per cent). Inner Brisbane residents used public transport the most, whereas the Rest of SEQ residents used it the least.

From 2011 to 2016, there was a significant shift away from public transport (–1.1 percentage points) and a significant shift towards private vehicles (0.9 percentage points) for the SEQ LGAs as a whole. Public transport and private vehicle use both declined dramatically in 2019–2020 due to the COVID–19 pandemic outbreak and associated restrictions on movement, and public transport use has not yet returned to pre-pandemic levels. The pandemic was also associated with an increase in working from home, and while the incidence of working from home has declined from its initial COVID peak, it remains above pre-pandemic levels into early–2022.

While this chapter has focused on the transport modes used by commuters in SEQ, the next chapter provides a more in-depth analysis of these commuter flows, including analysis of self-containment rates, the main types of commuter flows, commuting distances and durations, 30 and 45 minute job access, and traffic congestion.

CHAPTER 8

COMMUTER CONNECTIVITY

Key points

- Self-containment is described as the proportion of employed residents of a given region that report the same region as their place of work. The average self-containment rate across SEQ at the LGA level was 69.9 per cent in 2016. The Toowoomba and Brisbane LGAs showed the highest self-containment rates of 88.6 per cent and 84.6 per cent, respectively.

- The Logan and Redland LGAs showed the lowest self-containment rates across SEQ in 2016 at 39.9 per cent and 42.9 per cent, respectively. This is likely due to the proximity of the Brisbane LGA, which was identified as the place of work for around half of SEQ's working population.

- Over 70 per cent of Inner Brisbane's workforce commuted to work from outside the ring in 2016 – the largest proportion across the four BCARR rings of SEQ.

- On census day 2016, the largest single flow of commuters between different LGAs was 78,311 commuters, which described employed residents from the Moreton Bay LGA who commuted to the Brisbane LGA for work. This flow represents 41.3 per cent of commuting flows from the Moreton Bay LGA – the largest probability of commuting to another specific LGA of work across SEQ.

- In 2016, there were 1.44 million total commuter flows between SA2s within SEQ. The majority of these flows were ambiguous in direction with 65.7 per cent of all commuting flows occurring within the same BCARR ring, while 26.5 per cent of commuter flows occurred in an inwards direction across rings, and only 7.8 per cent of commuter flows occurred across rings in an outward direction.

- Across SEQ, 9.9 per cent of all workers in 2016 commuted to the Brisbane CBD for work. The largest portion of these workers reside within the Brisbane LGA. While 30.7 per cent of Inner Brisbane residents commuted to the CBD for work, this proportion dropped to 16.9 per cent for Middle Brisbane, 6.9 per cent for Outer Brisbane and just 1.3 per cent for the Rest of SEQ.

- The average commuting distance across SEQ was 17.5km by place of residence. Employed residents in the Inner Brisbane ring had the lowest commuting distance of 8.7km, followed by an average of 13.7km for Middle Brisbane, 20.6km for Outer Brisbane and 24.3km for residents in the Rest of SEQ.

- Employed residents in the Esk and Lockyer Valley – East SA2s had the longest average commuting distances in 2016 at 36.5km and 35.6km respectively.

- The 45-minute job access across SEQ decreased in 2019 to 42.7 per cent compared to 43.1 per cent in 2016, reflecting an increase in congestion and travel times throughout the region. Brisbane and Logan LGAs showed the strongest 45-minute job access, providing employed residents with access to an average of 65 per cent and 61 per cent of all SEQ jobs in 2019, respectively.

- Underwood and Springwood SA2s had the highest job access in 2019, with 72.7 per cent and 71.4 per cent of all SEQ jobs accessible in 45 minutes, respectively. Both SA2s are located in the Logan LGA.

- According to the Household, Income and Labour Dynamics in Australia (or HILDA) survey, the average commuting trip duration for Greater Brisbane increased from 31 minutes in 2010 to 34 minutes in 2019.

- When compared to other major Australian cities, Greater Brisbane's average commuting trip duration of 32.1 minutes (averaged across the entire 2010 to 2019 period) ranked 3rd after Greater Sydney (37.2 minutes) and Greater Melbourne (34.0 minutes).

- Brisbane and Gold Coast experience similar levels of traffic congestion, but the Sunshine Coast has relatively low levels of traffic congestion.

8.1 Introduction

This chapter conducts an evidence-based analysis of commuter behaviour in SEQ, exploring the movements of commuters between places of residence and places of work to provide insights into commuting flows, distances and times. The analysis of connectivity across SEQ provides insight into how workers are currently using the existing road and public transport networks as part of their daily commuting patterns. This chapter is split into seven different sections, which include:

- Self-containment
- Origin-destination commuter flows
- Commuting distance
- Changes in commuting flows
- 30- and 45- minute cities
- Average commuting trip duration
- Congestion metrics.

The first four sections of this chapter utilise the ABS Census of Population and Housing 2016 data to investigate where employed residents live and work. This data highlights the major commuting connections within SEQ, and shows differences in commuting distances for various places of work and residence.

In addition, HoustonKemp job access data is used to analyse job access for all LGAs and SA2s within SEQ. Analysis of commuting trip duration has been conducted using time-series data collected from the Household, Income and Labour Dynamics in Australia (HILDA) annual survey. Finally, this chapter collates traffic congestion data from a range of sources such as TomTom and the Queensland Government to illustrate the evolution of traffic congestion across Brisbane and other major population bases in SEQ.

8.2   Self-containment

This section analyses the self-containment of the SEQ region. Self-containment is described as the number of employed residents whose commuting trips are within their locality of residence. As a measure, the self-containment rate is calculated as the proportion of employed residents within a given region that report the same region as their place of work (PoW).

Self-containment is an important indicator due to its possible implications for sustainability goals. Increasing self-containment within urban areas is often associated with reduced emissions resulting from shorter commuting distances. However, such benefits are only realised when self-containment coincides with reduced vehicle kilometres travelled and/or uptake of sustainable transport modes.

Self-containment of SEQ in 2016: LGAs

Self-containment rates vary across the SEQ region. The average self-containment rate across the 12 LGAs of SEQ is 69.9 per cent, resulting from the majority of employed residents in the region residing in the four most self-contained LGAs (see Table 8.1). The remaining 30.1 per cent of all employed residents across the 12 LGAs either work in another LGA in SEQ, commute to a workplace outside SEQ or have no fixed work address. Toowoomba and Brisbane LGAs demonstrate the highest self-containment rates of 88.6 per cent and 84.6 per cent, respectively. Other LGAs with relatively high self-containment rates are the Gold Coast and Sunshine Coast, both of which show a self-containment rate of roughly 78 per cent.

Logan and Redland LGAs reported particularly low self-containment rates relative to the other LGAs (39.9 per cent and 42.9 per cent, respectively). This is likely a result of their proximity to the Brisbane LGA, which was identified as the PoW for almost half of the working population across the 12 LGAs.

Table 8.1 also shows the proportion of commuters who commute from outside each LGA. For Logan LGA, 40.9 per cent of the total workforce commutes from outside the LGA – the largest proportion across the 12 LGAs. These results for Logan LGA suggest a skill mismatch may exist between local residents and jobs. Ipswich and Brisbane LGAs also possess significant portions of their workforces who commute from outside the LGA (36.3 per cent and 32.4 per cent respectively). The Toowoomba and Sunshine Coast LGAs reported the lowest proportions of workers who commuted from outside the LGA at 9.1 per cent and 9.2 per cent respectively, followed closely by the Gold Coast LGA at 13.8 per cent.

Table 8.1: Self-containment and proportion who commute from outside by LGAs in SEQ in 2016

LGAs	Workers	Employed Residents	Work in home region	Self-containment rate (per cent)	Proportion of LGA's workers who commute from outside LGA (per cent)
Brisbane	714,221	570,454	482,723	84.6	32.4
Gold Coast	235,526	260,550	202,936	77.9	13.8
Ipswich	62,312	84,281	39,695	47.1	36.3
Lockyer Valley	11,201	15,765	8,417	53.4	24.9
Logan	89,097	131,953	52,636	39.9	40.9
Moreton Bay	112,980	189,495	90,401	47.7	20.0
Noosa	20,130	22,009	14,307	65.0	28.9
Redland	40,573	70,165	30,080	42.9	25.9
Scenic Rim	12,362	16,927	9,032	53.4	26.9
Somerset	6,094	9,267	4,355	47.0	28.5
Sunshine Coast	110,848	129,638	100,636	77.6	9.2
Toowoomba	69,350	71,191	63,066	88.6	9.1
12 LGAs total	**1,484,696**	**1,571,693**	**1,098,284**	**69.9**	**26.0**

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. The self-containment rate is the proportion of employed residents of the LGA who also have a place of work in that LGA. The remaining employed residents of the LGA could work in other SEQ LGAs, work outside SEQ, or have no fixed work address.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Self-containment of SEQ in 2016: BCARR rings and sub-regions

The self-containment rate across SEQ at the sub-region level is 54.7 per cent (see Table 8.2). Across Greater Brisbane, the Inner Brisbane ring reported the largest self-containment rate of 65.5 per cent. Sub-regions within the Middle Brisbane ring demonstrated significantly lower self-containment rates. The Middle sub-regions' self-containment rates are lower than those reported in any other sub-region across SEQ.

Within the Rest of SEQ, Toowoomba produced the highest self-containment rate of 83.9 per cent, followed by both Gold Coast and Sunshine Coast (77.9 per cent each). Noosa produced a self-containment rate of 65.3 per cent, the only other sub-region with a self-containment rate equal to or greater than Inner Brisbane.

Despite a high self-containment rate, Inner Brisbane's workforce possessed the largest proportion of workers who commute from outside the sub-region of 70.6 per cent. This result is consistent with the low self-containment rates produced by the sub-regions surrounding Inner Brisbane, and indicates that Inner Brisbane is a significant employment destination. Inner Brisbane has a ratio of workers to employed residents of 2.2, suggesting a high commercial focus in the area. The Middle East and Middle North are the only other sub-regions with a ratio of workers to employed residents above 1.0.

There is a general trend across SEQ that the proportion of workers who commute from outside the sub-region decreases with increasing distance from Inner Brisbane. Across the Rest of SEQ, the average proportion of workers who commute from outside their sub-region of employment is 14.2 per cent, which is significantly lower than the Greater Brisbane average of 54.5 per cent.

Table 8.2: **Self-containment and proportion who commute from outside by sub-regions in SEQ in 2016**

BCARR rings/sub-regions	Workers	Employed Residents	Work in home region	Self-containment rate (per cent)	Proportion of workers who commute from outside sub-region (per cent)
INNER Brisbane*	312,060	140,265	91,869	65.5	70.6
MIDDLE Brisbane – TOTAL*	401,874	429,940	159,153	37.0	60.4
Middle East	39,976	37,966	12,384	32.6	69.0
Middle North	112,511	104,614	41,015	39.2	63.5
Middle South	155,718	167,704	64,814	38.6	58.4
Middle West	93,669	119,656	40,940	34.2	56.3
OUTER Brisbane – TOTAL	305,243	476,144	213,033	44.7	30.2
Ipswich	62,331	84,333	39,727	47.1	36.3
Redland	40,573	70,165	30,080	42.9	25.9
Logan	89,097	131,953	52,636	39.9	40.9
Moreton Bay	113,242	189,693	90,590	47.8	20.0
TOTAL – GREATER BRISBANE	**1,019,177**	**1,046,349**	**464,055**	**44.3**	**54.5**
Rest of SEQ	453,031	512,354	388,763	75.9	14.2
Gold Coast	235,526	260,550	202,936	77.9	13.8
Sunshine Coast	110,157	128,020	99,761	77.9	9.4
Noosa	20,823	23,627	15,418	65.3	26.0
Toowoomba (urban part)	56,862	58,196	48,844	83.9	14.1
Scenic Rim	12,362	16,927	9,032	53.4	26.9
Lockyer Valley	11,203	15,765	8,417	53.4	24.9
Somerset	6,097	9,265	4,355	47.0	28.6
TOTAL – SOUTH EAST QUEENSLAND	**1,472,208**	**1,558,703**	**852,818**	**54.7**	**42.1**

Notes:

* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^ The SEQ total differs from the 12 LGA total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

The self-containment rate is the proportion of employed residents of the region who also have a place of work in that region. The remaining employed residents of the region could work in other SEQ regions, work outside SEQ, or have no fixed work address.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Self-containment of SEQ in 2016: SA2s

Self-containment rates at the SA2 level vary significantly across SEQ. Figure 8.1 shows the variation in self-containment rates, and highlights those SA2s with the highest reported self-containment rates. The SA2s with the highest self-containment rates are Kilcoy (60.7 per cent), Beaudesert (59.8 per cent) and Esk (56.7 per cent). Of the ten SA2s with the highest self-containment rates, eight of them are located outside the Greater Brisbane area, with only Brisbane City and Redland Islands SA2s featuring from Greater Brisbane.

Table 8.3 provides further insight into those SA2s with the largest self-containment rates, highlighting their respective regions as well as detailed resident and worker numbers. Somerset and Scenic Rim sub-regions are well-represented among SA2s with the highest self-containment rates. From Somerset, both Kilcoy and Esk SA2s feature in the three SA2s with the highest self-containment. Beaudesert and Boonah SA2s are located in the Scenic Rim sub-region, both of which feature amongst the four highest SA2s for self-containment.

Figure 8.1: Self-containment rates by SA2s of SEQ in 2016
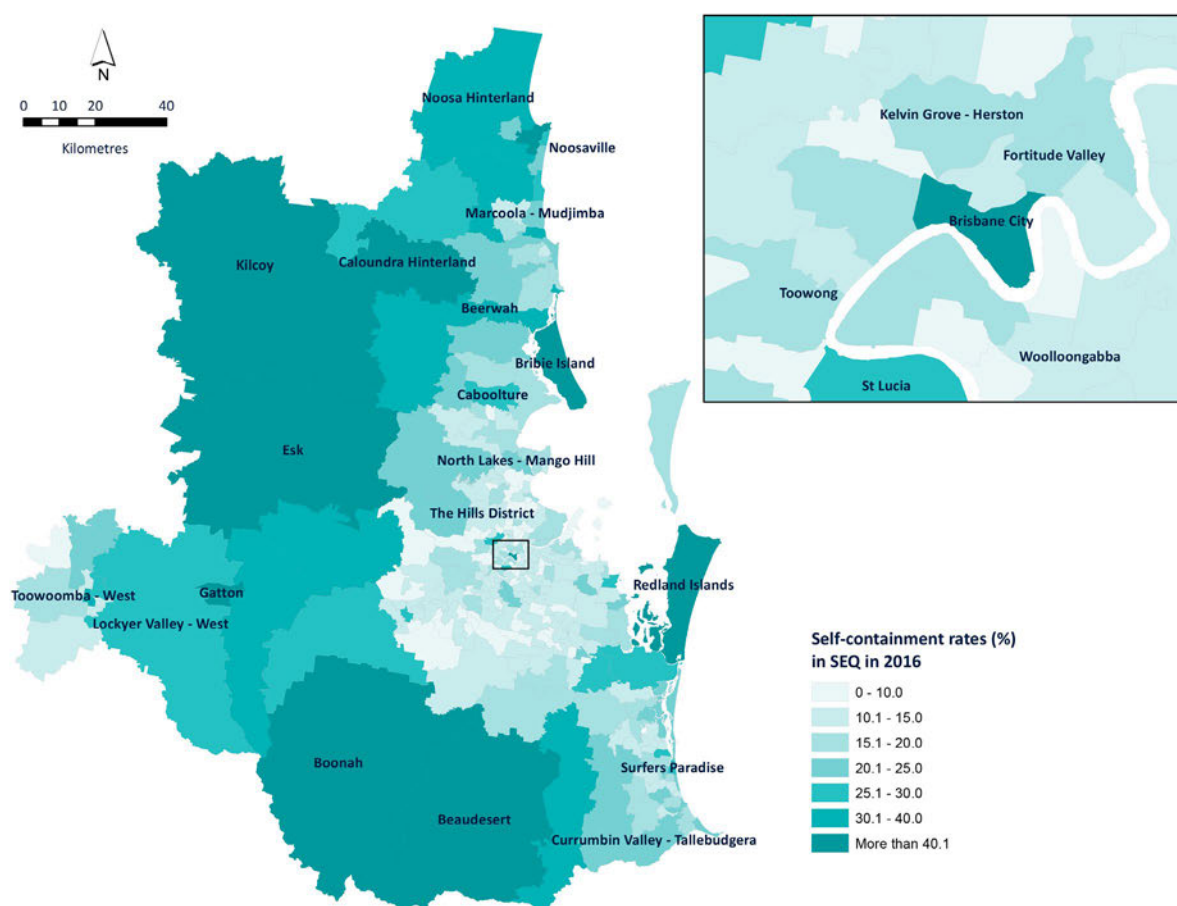
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Other well-represented sub-regions include Sunshine Coast, Noosa and Lockyer Valley, each of which has multiple SA2s in the largest 20 for self-containment rates. Across the 332 SA2s of SEQ, only 12 SA2s possessed a self-containment rate of 40.0 per cent or above. Despite a large self-containment rate for Toowoomba and Brisbane at the LGA level (as shown in Table 8.1), Brisbane City is the only SA2 from either LGA that features in the highest ten self-containment rates at the SA2 level.

Table 8.3: **Top 10 SA2s of SEQ with the highest self-containment rates in 2016**

SA2s	BCARR rings/ sub-regions	Workers	Employed Residents	Work in home region	Self- containment rate (per cent)
Kilcoy	Somerset	2,032	2,196	1,333	60.7
Beaudesert	Scenic Rim	5,151	5,360	3,205	59.8
Esk	Somerset	1,306	1,689	957	56.7
Boonah	Scenic Rim	3,477	5,234	2,893	55.3
Gatton	Lockyer Valley	4,423	2,947	1,609	54.6
Caloundra Hinterland	Sunshine Coast	2,624	3,297	1,768	53.6
Redland Islands	Redland	1,571	2,491	1,253	50.3
Brisbane City	Inner Brisbane	122,488	5,391	2,586	48.0
Noosa Heads	Noosa	4,379	1,902	887	46.6
Noosaville	Noosa	7,008	3,479	1,570	45.1

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

The high self-containment rate for Brisbane City SA2 can be attributed to the ratio of workers to employed residents of 22.7. This abundance of jobs ensures sufficient employment opportunities for local residents. Both Noosa Heads and Noosaville SA2s have ratios of workers to employed residents larger than 2.0. This result is consistent with a large proportion of local workers having been 'priced-out' of the residential market, requiring them to commute from elsewhere for work.

In contrast, the ten SA2s with the lowest self-containment rates are all located within Greater Brisbane (see Table 8.4). The Ripley SA2 reported only 133 employed residents who work within the area, producing a self-containment rate of 5.3 per cent. One reason for these SA2s possessing particularly low self-containment rates is their proximity to Brisbane, and as a result, proximity to numerous other major employment hubs/destinations. In addition, Ripley SA2 has been identified as a location for major expansion development into the future. As such, significant employment opportunities may yet to be established for local residents.

Other SA2s with relatively low self-containment rates include Riverhills, Morayfield – East, Durack, Regents Park – Heritage Park and Zillmere, all of which demonstrate a self-containment rate of around 7.0 per cent. In total, 40 SA2s demonstrate a self-containment rate below 10.0 per cent.

Table 8.4: **Top 10 SA2s of SEQ with the lowest* self-containment rates in 2016**

SA2s	BCARR rings/ sub-regions	Workers	Employed Residents	Work in home region	Self- containment rate (per cent)
Ripley	Ipswich	703	2,532	133	5.3
Riverhills	Middle West	235	2,146	145	6.8
Morayfield – East	Moreton Bay	991	3,613	256	7.1
Durack	Middle West	973	3,038	219	7.2
Regents Park – Heritage Park	Logan	1,167	7,865	587	7.5
Zillmere	Middle North	2,025	4,182	313	7.5
Alderley	Inner Brisbane	1,021	3,490	270	7.7
Bald Hills	Middle North	1,258	3,642	282	7.7
Carina Heights	Middle South	1,228	3,562	284	8.0
Thorneside	Redland	396	1,838	149	8.1

*   Those SA2s with zero workers who work in the home region have been excluded.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

One possible reason for the low self-containment rates in Table 8.4 is the ratio of workers to employed residents. All ten SA2s have a ratio lower than 0.5 – less than one job available for every two employed residents in the SA2. Riverhills and Regents Park – Heritage Park SA2s have less than one job available for every five employed residents living in the locality.

8.3   Origin-destination commuter flows

Summary of origin-destination commuter flows: LGAs

Origin-destination commuter flows show the number of commuters who commute between a given residence area and employment area. Table 8.5 illustrates the total number of commuters for each origin-destination pair based on LGAs. The shaded values in Table 8.5 show the self-contained commuters, those who both reside and work within the same LGA, as discussed previously.

While Table 8.5 is focused on commuting flows within the 12 SEQ LGAs, there are also some sizeable flows occurring to regions in other parts of Australia. According to BITRE (2013a), the most sizeable flows in and out of the region were from the Tweed LGA to a place of work in SEQ (6,300 in 2006), from SEQ to a place of work in the Tweed LGA (3,700) and from SEQ to a place of work in Sydney (2,200). The Tweed LGA has a particularly strong commuting connection with the Gold Coast.

The Brisbane LGA is a significantly larger place of work than a place of residence – 705,335 flows terminate in the LGA compared to only 542,670 flows that originate in the LGA.

Significant commuter flows exist between the Brisbane LGA and those LGAs in the Outer Brisbane ring. The single largest flow of commuters between different LGAs is 78,311 commuters who travel from Moreton Bay LGA to Brisbane LGA for work. Only four individual origin-destination flows between different LGAs are larger than 20,000 commuters. These four flows originate in the Outer Brisbane ring (Moreton Bay, Logan, Ipswich and Redland LGAs) and feature Brisbane LGA as their destination.

The largest origin-destination flow outside of the Brisbane LGA is the flow of 8,984 commuters from the Logan LGA to the Gold Coast LGA.

Table 8.6 highlights the probabilities of employed residents in a given LGA commuting to a place of work in each LGA. Across the 12 LGAs, the majority of significant commuting probabilities involve self-containment flows within an LGA. The four largest commuting probabilities are shown by employed residents commuting within the Toowoomba (88.6 per cent), Brisbane (84.6 per cent), Gold Coast (77.9 per cent) and Sunshine Coast (77.6 per cent) LGAs.

Employed residents in Moreton Bay LGA have the largest probability of commuting to another LGA for work, with 41.3 per cent of residents commuting to the Brisbane LGA for work. The Logan LGA has the largest probability for residents to work outside their LGA with only 39.9 per cent of residents self-contained. Major work destinations for Logan residents include Brisbane LGA (39.7 per cent) and Gold Coast LGA (6.8 per cent).

Outside the Brisbane LGA, the most significant flow between different LGAs occurs between the Noosa and Sunshine Coast LGAs with employed residents in Noosa LGA showing an 18.2 per cent probability of commuting to the Sunshine Coast LGA for work. Other large flows include 17.4 per cent of employed residents in Somerset LGA who commute to the Ipswich LGA for work, and 17.3 per cent of employed residents in Lockyer Valley LGA commuting to the Toowoomba LGA.

Table 8.5: Commuting flows between the 12 LGAs of SEQ in 2016

Place of Residence	Place of Work												
	Brisbane	Gold Coast	Ipswich	Lockyer Valley	Logan	Moreton Bay	Noosa	Redland	Scenic Rim	Somerset	Sunshine Coast	Toowoomba	Total
Brisbane	482,723	6,664	11,646	342	17,995	14,684	117	6,143	353	192	1,173	637	542,672
Gold Coast	18,908	202,936	1,029	39	8,172	748	29	826	961	19	200	203	234,070
Ipswich	33,355	960	39,695	575	2,752	355	13	268	357	405	84	257	79,069
Lockyer Valley	1,271	74	1,358	8,417	131	42	3	26	27	379	20	2,724	14,466
Logan	52,338	8,984	3,533	114	52,636	681	8	2,396	1,338	22	109	102	122,254
Moreton Bay	78,311	884	617	29	1,083	90,401	78	429	33	420	2,657	171	175,085
Noosa	527	42	10	–	27	147	14,307	6	8	8	3,996	38	19,115
Redland	28,355	1,494	540	12	3,978	413	7	30,080	33	3	54	40	65,012
Scenic Rim	1,737	2,099	1,186	22	1,193	28	–	46	9,032	6	15	26	15,393
Somerset	1,247	42	1,608	452	103	452	5	11	13	4,355	49	130	8,470
Sunshine Coast	5,635	299	138	30	216	3,913	4,926	82	14	127	100,636	176	116,191
Toowoomba	924	165	196	997	69	59	9	18	13	44	58	63,066	65,618
Total	705,335	224,642	61,554	11,026	88,350	111,921	19,497	40,325	12,174	5,987	109,055	67,566	**1,457,426**

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Table 8.6: Probability of employed residents commuting to each LGA of work throughout SEQ in 2016

Place of Residence	Place of Work (per cent of employed residents)													
	Brisbane	Gold Coast	Ipswich	Lockyer Valley	Logan	Moreton Bay	Noosa	Redland	Scenic Rim	Somerset	Sunshine Coast	Toowoomba	Other	Total
Brisbane	84.6	1.2	2.0	0.1	3.2	2.6	0.0	1.1	0.1	0.0	0.2	0.1	4.9	100.0
Gold Coast	7.3	77.9	0.4	0.0	3.1	0.3	0.0	0.3	0.4	0.0	0.1	0.1	10.2	100.0
Ipswich	39.6	1.1	47.1	0.7	3.3	0.4	0.0	0.3	0.4	0.5	0.1	0.3	6.2	100.0
Lockyer Valley	8.1	0.5	8.6	53.4	0.8	0.3	0.0	0.2	0.2	2.4	0.1	17.3	8.2	100.0
Logan	39.7	6.8	2.7	0.1	39.9	0.5	0.0	1.8	1.0	0.0	0.1	0.1	7.4	100.0
Moreton Bay	41.3	0.5	0.3	0.0	0.6	47.7	0.0	0.2	0.0	0.2	1.4	0.1	7.6	100.0
Noosa	2.4	0.2	0.0	0.0	0.1	0.7	65.0	0.0	0.0	0.0	18.2	0.2	13.1	100.0
Redland	40.4	2.1	0.8	0.0	5.7	0.6	0.0	42.9	0.0	0.0	0.1	0.1	7.3	100.0
Scenic Rim	10.3	12.4	7.0	0.1	7.0	0.2	0.0	0.3	53.4	0.0	0.1	0.2	9.1	100.0
Somerset	13.5	0.5	17.4	4.9	1.1	4.9	0.1	0.1	0.1	47.0	0.5	1.4	8.6	100.0
Sunshine Coast	4.3	0.2	0.1	0.0	0.2	3.0	3.8	0.1	0.0	0.1	77.6	0.1	10.4	100.0
Toowoomba	1.3	0.2	0.3	1.4	0.1	0.1	0.0	0.0	0.0	0.1	0.1	88.6	7.8	100.0

Note: Other column includes people with no fixed work address, as well as those with a place of work outside SEQ.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Summary of origin-destination commuter flows: BCARR rings and sub-regions

Examining origin-destination commuter flows at the BCARR ring and sub-regions level shows the largest flows occur within the Greater Brisbane region. Table 8.7 shows all commuter flows between each origin-destination pair across SEQ. The largest individual flows are self-contained flows within the Middle Brisbane and Outer Brisbane rings with 219,170 and 230,077 commuters, respectively. In terms of flows between different rings/sub-regions, the largest flow describes employed residents in the Middle Brisbane ring commuting to the Inner Brisbane ring for work, with 137,950 total commuters. The flow of employed residents from the Outer Brisbane ring to the Middle Brisbane ring for work is also significant, with 126,857 commuters.

Large population bases in the Sunshine Coast and Gold Coast also demonstrated significant flows into the Greater Brisbane region. A total of 29,687 employed residents from the Gold Coast region commuted to work destinations across the three rings of Greater Brisbane, whilst 9,903 employed residents commuted to these same areas from the Sunshine Coast region. For origin-destination commuter flows outside the Greater Brisbane region, the largest flows occurred between Noosa and the Sunshine Coast. Employed residents in the Sunshine Coast region were responsible for 4,481 commuter flows into Noosa. Conversely, employed residents in the Noosa region accounted for 4,199 commuter flows into the Sunshine Coast.

Table 8.7 also indicates the total amount of employed residents and workers across the rings and sub-regions. Only the Inner Brisbane ring and Toowoomba were larger destinations than origins in terms of commuter flows. The Inner Brisbane ring was a destination for 308,074 commuters whilst only an origin for 133,807 commuters, demonstrating a worker to employed resident ratio of 2.3.

Table 8.8 describes the probabilities of employed residents in each ring/sub-region commuting to another ring/sub-region in SEQ. Self-containment flows across the various sub-regions of SEQ showed the highest probabilities, particularly those commuter flows within Toowoomba (83.9 per cent), Gold Coast (77.9 per cent) and Sunshine Coast (77.9 per cent).

There are high probabilities for employed residents in Greater Brisbane to commute across its various rings. For example, employed residents in the Middle Brisbane ring have a 32.1 per cent chance to commute to the Inner ring, while employed residents in the Outer Brisbane ring have a 26.6 per cent chance to commute to the Middle Brisbane ring for work.

There is a significant proportion of employed residents in Somerset who commute to Greater Brisbane for work, with a 23.5 per cent probability of commuting to the Outer Brisbane ring in particular. Other significant probabilities include employed residents from Noosa commuting to the Sunshine Coast (17.8 per cent) and employed residents in Lockyer Valley commuting to Toowoomba (16.5 per cent).

Table 8.7: Commuting flows between the BCARR rings and sub-regions of SEQ in 2016

Place of Residence	Place of Work										
	Inner Brisbane	Middle Brisbane	Outer Brisbane	Gold Coast	Sunshine Coast	Noosa	Toowoomba	Scenic Rim	Lockyer Valley	Somerset	Total SEQ
Inner Brisbane	91,869	33,472	6,522	1,318	332	36	117	77	43	23	133,807
Middle Brisbane	137,950	219,170	43,977	5,340	841	83	378	275	296	169	408,479
Outer Brisbane	65,505	126,857	230,077	12,323	2,897	104	419	1,754	720	849	441,510
Gold Coast	8,299	10,601	10,787	202,936	202	29	141	961	39	19	234,013
Sunshine Coast	2,711	2,866	4,326	299	99,761	4,481	131	14	30	127	114,750
Noosa	270	310	212	42	4,199	15,418	28	8	–	8	20,506
Toowoomba	334	444	286	139	43	8	48,844	7	944	26	51,079
Scenic Rim	517	1,221	2,453	2,099	15	–	23	9,032	22	6	15,387
Lockyer Valley	330	946	1,558	74	20	3	2,605	27	8,417	379	14,356
Somerset	306	946	2,173	42	49	5	99	13	449	4,355	8,437
Total SEQ	308,074	396,840	302,371	224,618	108,364	20,172	52,782	12,169	10,976	5,967	1,442,322

Notes: These values differ from the values shown in Table 8.5, which includes the whole of the Toowoomba LGA. This table includes only the urban parts of Toowoomba.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Table 8.8: Probability of employed residents commuting to each BCARR ring and sub-region of SEQ for work in 2016

Place of Residence	Place of Work (per cent of employed residents)											
	Inner Brisbane	Middle Brisbane	Outer Brisbane	Gold Coast	Sunshine Coast	Noosa	Toowoomba	Scenic Rim	Lockyer Valley	Somerset	Other	Total
Inner Brisbane	65.5	23.9	4.6	0.9	0.2	0.0	0.1	0.1	0.0	0.0	4.6	100.0
Middle Brisbane	32.1	51.0	10.2	1.2	0.2	0.0	0.1	0.1	0.1	0.0	5.0	100.0
Outer Brisbane	13.8	26.6	48.3	2.6	0.6	0.0	0.1	0.4	0.2	0.2	7.3	100.0
Gold Coast	3.2	4.1	4.1	77.9	0.1	0.0	0.1	0.4	0.0	0.0	10.2	100.0
Sunshine Coast	2.1	2.2	3.4	0.2	77.9	3.5	0.1	0.0	0.0	0.1	10.4	100.0
Noosa	1.1	1.3	0.9	0.2	17.8	65.3	0.1	0.0	0.0	0.0	13.2	100.0
Toowoomba	0.6	0.8	0.5	0.2	0.1	0.0	83.9	0.0	1.6	0.0	12.2	100.0
Scenic Rim	3.1	7.2	14.5	12.4	0.1	0.0	0.1	53.4	0.1	0.0	9.1	100.0
Lockyer Valley	2.1	6.0	9.9	0.5	0.1	0.0	16.5	0.2	53.4	2.4	8.9	100.0
Somerset	3.3	10.2	23.5	0.5	0.5	0.1	1.1	0.1	4.8	47.0	8.9	100.0

Note: Other column includes people with no fixed work address, as well as those with a place of work outside SEQ.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Major commuting flows in SEQ: between SA2s

Examination of origin-destination flows at the SA2 level shows that only 6 individual flows involve more than 3,000 commuters. All of these flows are self-contained flows and included Nambour in the Sunshine Coast LGA, Surfers Paradise in the Gold Coast LGA and Noosa Hinterland in the Noosa LGA as the three largest.

Focusing only on the flows between different SA2s, Brisbane City SA2 and Toowoomba – Central SA2 feature as predominant destinations for commuter flows. Figure 8.2 illustrates the major commuter flows into Brisbane City SA2 from surrounding SA2s. The largest individual flow occurs from employed residents in the New Farm SA2 commuting to Brisbane City for work, with 1,966 commuters. Employed residents from Newstead – Bowen Hills (1,803 commuters), Coorparoo (1,772 commuters), The Hills District (1,670 commuters) and Paddington – Milton (1,558 commuters) SA2s also have sizeable commuter flows to the Brisbane City SA2.

Of these flows, only The Hills District SA2 to Brisbane City SA2 involves SA2s from different LGAs – Moreton Bay LGA and Brisbane LGA, respectively. The four other commuter flows mentioned above are self-contained to the Brisbane LGA.

Figure 8.2: **Top 5 largest SA2 commuting flows to Brisbane City SA2 within SEQ in 2016**

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 8.3 shows the major origin-destination commuter flows around the Toowoomba – Central SA2. The largest individual flow involves employed residents in the Toowoomba – West SA2 commuting to Toowoomba – Central SA2 for work with 1,509 commuters. Other major commuter flows in the area involves employed residents from Darling Heights (1,465 commuters), Highfields (1,406 commuters), Toowoomba – East (1,385 commuters) and Wilsonton (1,286 commuters) SA2s all commuting to the Toowoomba – Central SA2 for work.

Figure 8.3: Top 5 largest SA2 commuting flows to Toowoomba – Central SA2 within SEQ in 2016

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Types of commuting flows between SA2s

This section provides information on the types of commuting flows occurring throughout SEQ at the SA2 level. The different types of flows have been presented for all of SEQ, as well as only the Greater Brisbane region. Each individual flow at the SA2 level has been classified as either occurring within a BCARR ring, or across these rings. Flows occurring across different rings have been further identified as either 'inwards' flows (e.g. from a sub-region in the Outer Brisbane ring, to a sub-region in the Middle Brisbane ring), or 'outwards' flows (e.g. from the Inner Brisbane ring to a sub-region in the Middle Brisbane ring). The rings used in this analysis are the BCARR rings previously discussed in this report, which include four separate rings: Inner Brisbane, Middle Brisbane, Outer Brisbane and Rest of SEQ.

Commuting flows that originate and terminate within the boundaries of the same ring have been classified as ambiguous in direction. Each of these flows has been further categorised into one of the following categories:

- Within the same SA2
- Different SA2, same sub-region, same ring
- To a different sub-region in the same ring
    - For those who live in Rest of SEQ
    - For those who live in Outer Brisbane
    - For those who live in Middle Brisbane

Table 8.9 illustrates the different types of flows across SEQ. In 2016, there were 1.44 million total commuter flows between SA2s within SEQ. The vast majority of these flows were ambiguous in direction with 65.7 per cent of all flows occurring within the same BCARR ring. Of these, 18.2 per cent of total flows were self-contained to the same SA2.

An additional 41.0 per cent of all flows were self-contained to the same sub-region but between different SA2s. The largest volume contributors to this category were flows from New Farm and Newstead – Bowen Hills SA2s to the Brisbane City SA2. Commuter flows between different sub-regions within the same BCARR ring contributed to a significantly smaller portion of total flows. Those commuter flows between different sub-regions within the Middle ring formed the largest portion of this category, with 4.2 per cent of total flows. Flows between different sub-regions across the Outer ring and the Rest of SEQ comprised only 1.2 per cent of all flows across the SEQ region.

Commuting flows classified as Inwards flows comprised a significant portion of all commuting flows at 26.5 per cent. The largest volume contribution to this category was the commuting flow from Coorparoo SA2 in the Middle ring to the Brisbane City SA2 in the Inner ring. Those flows classified as Outwards flows comprised only 7.8 per cent of total commuting flows across the region.

Table 8.9: Total commuting flows within SEQ by type of flow in 2016

Types of Commuting Flows	Number of Commuters	Proportion (per cent)
Inwards (across rings)	382,199	26.5
Outwards (across rings)	112,385	7.8
Ambiguous in direction (within a ring)	947,738	65.7
One region to another in Rest of SEQ	17,855	1.2
One sub-region to another in Outer ring	17,052	1.2
One sub-region to another in Middle ring	60,013	4.2
Within same SA2	261,892	18.2
Different SA2, same sub-region, same ring	590,926	41.0
Total	**1,442,322**	**100.0**

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Table 8.10 examines the total commuting flows within Greater Brisbane only. When compared with Table 8.9, it can be seen that the majority of both Inwards and Outwards type flows are contained within Greater Brisbane. Inwards commuting flows within Greater Brisbane comprise 22.9 per cent of total flows across SEQ, yet account for 34.6 per cent of flows within the Greater Brisbane region.

Table 8.10: Total commuting flows within only Greater Brisbane by type of flow in 2016

Types of Commuting Flows	Number of Commuters	Proportion of Greater Brisbane (per cent)	Proportion of total SEQ (per cent)
Inwards (across rings)	330,312	34.6	22.9
Outwards (across rings)	83,971	8.8	5.8
Ambiguous in direction (within a ring)	541,120	56.6	37.5
One sub-region to another in Outer ring	17,052	1.8	1.2
One sub-region to another in Middle ring	60,013	6.3	4.2
Within same SA2	144,316	15.1	10.0
Different SA2, same sub-region, same ring	319,739	33.5	22.2
Total	**955,403**	**100.0**	**66.2**

Note: Table includes only those who both live and work within Greater Brisbane.
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Proportion of employed residents who commute to the CBD: LGAs

This section provides information on the proportion of employed residents across SEQ who commute to the Brisbane CBD for work. For this purpose, Brisbane CBD has been defined as the combination of 3 SA2s in the Brisbane LGA. The three SA2s that comprise the CBD are Brisbane City, Fortitude Valley and Spring Hill.[28]

Table 8.11 summarises the proportion of employed residents from each of the 12 LGAs within SEQ who commute to the Brisbane CBD for work. Brisbane CBD is a significant work destination for SEQ, with almost 10 per cent of all employed residents working across the three SA2s of the CBD. Of these residents, the majority reside within the Brisbane LGA at nearly 75 per cent of all Brisbane CBD workers.

Table 8.11: **Proportion of employed residents who commute to Brisbane CBD by LGAs in 2016**

LGAs	Employed Residents	Work in Brisbane CBD	Proportion who commute to Brisbane CBD (per cent)
Brisbane	570,454	115,654	20.3
Gold Coast	260,550	4,622	1.8
Ipswich	84,281	5,093	6.0
Lockyer Valley	15,765	127	0.8
Logan	131,953	7,489	5.7
Moreton Bay	189,495	15,419	8.1
Noosa	22,009	123	0.6
Redland	70,165	4,899	7.0
Scenic Rim	16,927	261	1.5
Somerset	9,267	148	1.6
Sunshine Coast	129,638	1,400	1.1
Toowoomba	71,191	196	0.3
Total	**1,571,693**	**155,420**	**9.9**

Note: Brisbane CBD is defined as the combination of the Brisbane City, Fortitude Valley and Spring Hill SA2s.
Source: BCARR analysis of ABS Census of Population and Housing, 2016

The Brisbane LGA has the largest proportion of workers across the 12 LGAs of SEQ who commute to the Brisbane CBD for work (20.3 per cent). This is due to the proximity of residents within the LGA to the Brisbane CBD. Significant portions of employed residents from the Moreton Bay, Redland, Ipswich and Logan LGAs commute to the Brisbane CBD for work, ranging from 8.0 per cent for the Moreton Bay LGA to 5.7 per cent for Logan LGA.

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28 BCARR has defined the CBD using a functional approach. The definition starts with the central SA2, and adds adjoining SA2s that have a similar function to the central SA2, as reflected in a CBD-like industry structure and high job density. Using this functional approach, Sydney and Melbourne's CBDs contain 7 SA2s, Brisbane's contains 3, and Perth and Adelaide's CBDs both contain only the central SA2.

Proportion of employed residents who commute to the CBD: BCARR rings and sub-regions

Figure 8.4 illustrates the variation of the proportion of employed residents who commute to the CBD across the BCARR rings. Those employed residents living within the Inner Brisbane ring had the highest proportion who commute to the Brisbane CBD for work at 30.7 per cent of all employed residents. This proportion decreases to an average of 16.9 per cent across the Middle Brisbane ring, and decreases further to an average of 6.9 per cent across the Outer Brisbane ring. The Rest of SEQ ring features the smallest proportion of employed residents who commute to the Brisbane CBD at only 1.3 per cent.

There is a clear inverse relationship between the distance from Brisbane CBD and the proportion of employed residents who commute to the Brisbane CBD for work. This trend is highlighted by the results from the Toowoomba and Noosa sub-regions. As the two sub-regions furthest from the Brisbane CBD, the proportion of workers who commute there for work are only 0.3 and 0.6 per cent, respectively.

Figure 8.4: **Proportion of employed residents who commute to Brisbane CBD by BCARR ring in 2016**
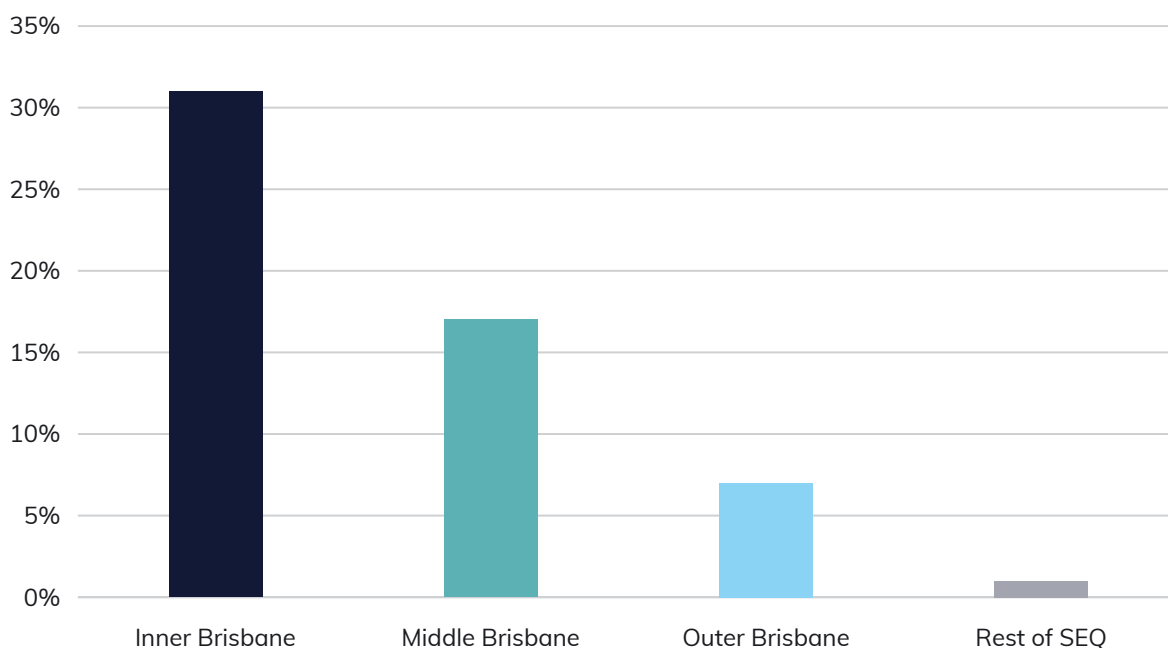
Note: Brisbane CBD is defined as the combination of the Brisbane City, Fortitude Valley and Spring Hill SA2s.
Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Proportion of employed residents who commute to the CBD: SA2s

Figure 8.5 shows the proportion of employed residents who commute to the Brisbane CBD across SEQ by SA2s. The SA2s with the largest proportions of employed residents commuting to Brisbane CBD for work all lie within the Inner Brisbane ring, with Brisbane City, Spring Hill and Fortitude Valley SA2s featuring proportions larger than 50.0 per cent. These SA2s stand out as they are the three SA2s that comprise the Brisbane CBD.

The New Farm and Newstead – Bowen Hills SA2s also feature large proportions of their employed residents commuting to the Brisbane CBD at 38.0 per cent and 36.3 per cent, respectively. Across sub-regions in the Outer Brisbane ring, The Hills District, Eatons Hill and Underwood SA2s showed significant proportions of their employed residents commuting to the CBD – ranging between 12.0 and 18.0 per cent.

SA2s across the Rest of SEQ ring showed minimal proportions of employed residents commuting to the Brisbane CBD for work. The Coomera and Glass House Mountains SA2s had among the largest proportions across this ring, with 4.0 and 3.1 per cent of all employed residents making the commute to the Brisbane CBD for work, respectively.

Figure 8.5: **Proportion of employed residents who commute to Brisbane CBD by SA2s of SEQ in 2016**

Note: Brisbane CBD is defined as the combination of the Brisbane City, Fortitude Valley and Spring Hill SA2s.

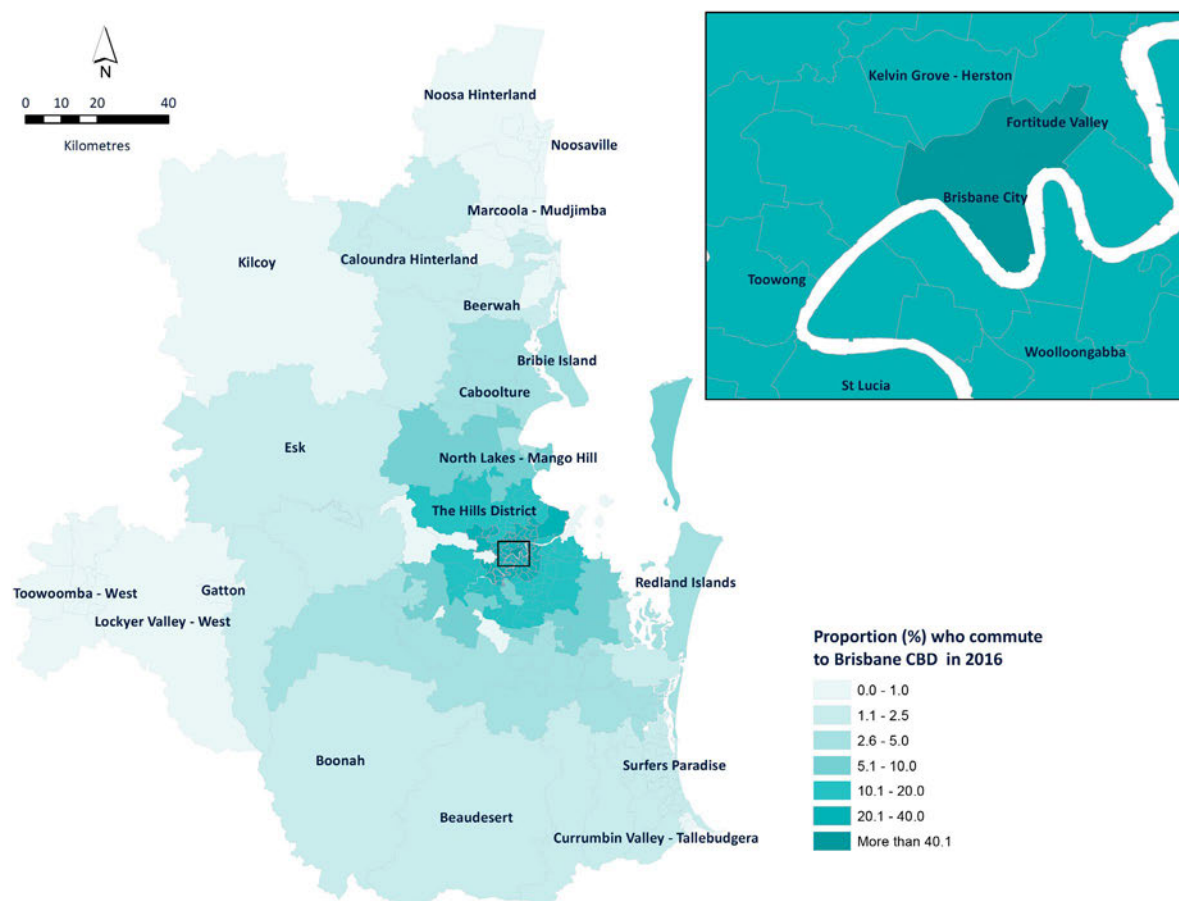Source: BCARR analysis of ABS Census of Population and Housing, 2016.

8.4 Commuting distance

Commuting distance was calculated based on the Distance to Work variable from the 2016 ABS Census. This is a range-based variable that presents the number of commuters whose commuting distance falls within a given range.

Those commuters with 'Nil distance' or 'not applicable' have been excluded from the analysis. In addition, commuting distances above 250km have been excluded. The assumption is that 250km encompasses all reasonable daily commuting distances for road users. This approach is consistent with the method previously used to construct commuting distances for Australian cities in BITRE (2015). To convert each distance range to a distance value in order to construct an average, the midpoint for each range was used.

Commuting distance across SEQ in 2016: LGAs

Table 8.12 shows average commuting distances by place of residence and place of work. For example, employed residents of Brisbane LGA travelled an average distance of 12.3km to work, while people whose place of work is in the Brisbane LGA had an average commuting distance of 17.9km.

Across the 12 LGAs of SEQ, the average commuting distance based on place of residence was 17.5km in 2016 (Table 8.12). Of the 12 LGAs, only two LGAs produced an average commuting distance lower than 17.5km – Brisbane LGA (12.3km) and Toowoomba LGA (16.8km). These results show that employed residents in these LGAs are on average, more likely to live closer to major employment destinations. These results are consistent with the high self-containment rates previously presented in this chapter for the Brisbane and Toowoomba LGA, showing that employed residents have a high probability of commuting within the LGA for work.

Conversely, LGAs that displayed significantly larger commuting distances based on place of residence were Somerset, Scenic Rim and Lockyer Valley. These LGAs produced average commuting distance for employed residents of 33.9km, 31.0km and 28.3km respectively.

Table 8.12: **Average commuting distances by LGAs of SEQ in 2016**

LGAs	Place of Residence (km)	Place of Work (km)
Brisbane	12.3	17.9
Gold Coast	19.3	16.3
Ipswich	20.9	19.5
Lockyer Valley	28.3	23.2
Logan	20.8	18.6
Moreton Bay	21.4	16.8
Noosa	21.9	17.3
Redland	19.3	13.9
Scenic Rim	31.0	23.3
Somerset	33.9	27.7
Sunshine Coast	21.1	17.0
Toowoomba	16.8	16.9
Total 12 LGAs	**17.5**	**17.6**

Note: BCARR's calculation of average commuting distance excludes individuals with zero commuting distance and those with a commuting distance of more than 250km.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

When looking at average commuting distance in terms of place of work, Redland LGA stands out as having the lowest average commuting distance with 13.9km. Across the 12 LGAs of SEQ, average commuting distance was 17.6km. Average commuting distance for the Brisbane LGA exceeds 17.6km, with workers commuting an average distance of 17.9km. The result is consistent with the larger number of workers than employed residents in Brisbane LGA showing a high propensity for the workforce to commute from outside the LGA.

The Somerset, Scenic Rim and Lockyer Valley LGAs remain outliers for average commuting distance by place of work, with average commuting distances of 27.7km, 23.3km and 23.2km respectively.

Commuting distance across SEQ in 2016: BCARR rings and sub-regions

Commuting distances showed significant variations across the BCARR rings of SEQ, particularly between the place of residence and place of work classifications, as illustrated in Figure 8.6. In terms of place of residence, the average commuting distance across SEQ was 17.4km. The Inner Brisbane ring is a noticeable outlier for place of residence commuting distance with employed residents only commuting 8.7km to work, on average. This is likely due to their proximity to major employment destinations, namely the Brisbane CBD.

Across the four BCARR rings, there is a clear trend of average commuting distance tending to increase for employed residents the greater the distance from Inner Brisbane. The Middle Brisbane ring produced an average commuting distance based on place of residence of 13.7km – lower than the average commuting distance for Outer Brisbane residents of 20.6km. Employed residents in the Rest of SEQ displayed the longest average commuting distance across the four BCARR rings at 24.3km.

Commuting distances based on place of work vary less across the BCARR rings than by place of residence. Across the four rings, Inner Brisbane produced the lowest average commuting distance of 17.0km compared to the Rest of SEQ, which produced the longest average commuting distance of 19.8km. The significantly larger variation in commuting distance based on place of residence suggests that place of residence is a greater factor is dictating individual commuting distance than place of work.

Figure 8.6: **Average commuting distance by BCARR rings across SEQ in 2016**
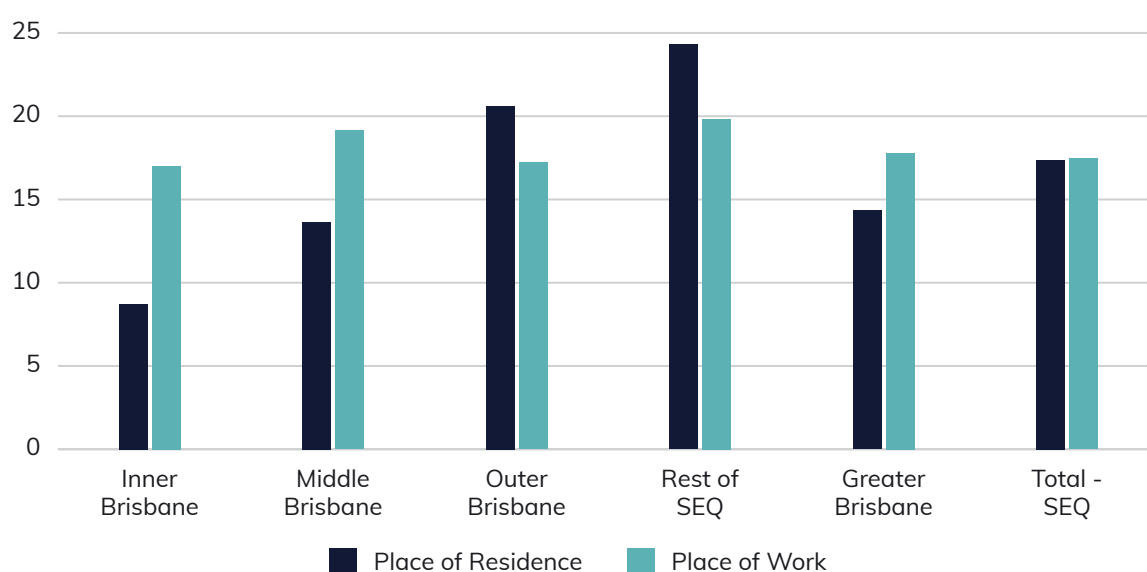
Note: BCARR's calculation of average commuting distance excludes individuals with zero commuting distance and those with a commuting distance of more than 250km.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Between the two measures of commuting distance, the Inner Brisbane ring showed the largest difference with employed residents commuting 8.3km less than workers on average. In contrast, workers within the Rest of SEQ commuted 4.5km less on average than employed residents in the region.

Commuting distance across SEQ in 2016: SA2s

At the SA2 level, large variation in commuting distance exists for both place of residence and place of work measures. Figure 8.7 shows the differences in average commuting distance by place of residence across SEQ. Particular SA2s in the Inner Brisbane sub-region show lower commuting distances. The Spring Hill, Brisbane City and Fortitude Valley SA2s (those that comprise the Brisbane CBD) stand out with employed residents in these areas commuting 5.6km, 6.3km and 6.4km on average, respectively.

The five longest and five shortest average commuting distances across all SA2s are summarised in Table 8.13. Esk and Lockyer Valley – East SA2s demonstrated the longest average commuting distances for their employed residents of 36.5km and 35.6km respectively. Only 13 SA2s produced an average commuting distance for employed residents in excess of 30km, with these SA2s concentrated amongst the Outer Brisbane and Rest of SEQ rings.

Table 8.13: **Top 5 SA2s with longest and shortest average commuting distances for place of residence of SEQ in 2016**

SA2 of residence	Sub-region of residence	Commuting Distance (km)
Top 5 SA2s (Longest)		
Esk	Somerset	36.5
Lockyer Valley – East	Lockyer Valley	35.6
Lowood	Somerset	34.9
Woodford – D' Aguilar	Moreton Bay	34.4
Jimboomba	Logan	33.8
Top 5 SA2s (Shortest)		
Spring Hill	Inner Brisbane	5.6
Brisbane City	Inner Brisbane	6.3
Fortitude Valley	Inner Brisbane	6.4
South Brisbane	Inner Brisbane	7.2
Auchenflower	Inner Brisbane	7.4

Note: BCARR's calculation of average commuting distance excludes individuals with zero commuting distance and those with a commuting distance of more than 250km.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 8.7: Average commuting distance across SEQ SA2s as place of residence in 2016
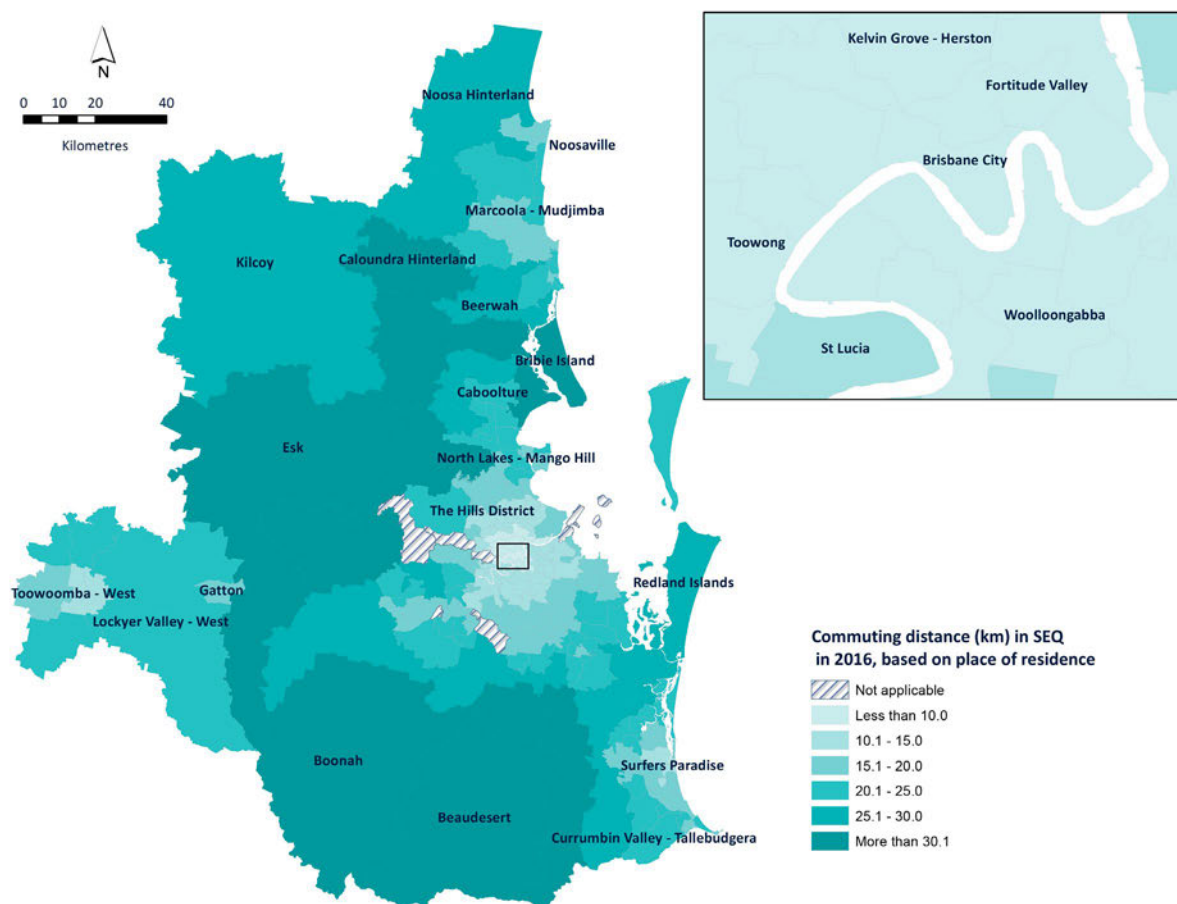
Note: BCARR's calculation of average commuting distance excludes individuals with zero commuting distance and those with a
            commuting distance of more than 250km.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Average commuting distance is less varied for place of work than place of residence at the SA2 level. As illustrated in Figure 8.8, workers in the Norman Park SA2 experienced the shortest average commuting distance of 9.3km, as compared to workers in the Brisbane Port – Lytton SA2 who faced an average commuting distance of 35.0km. The Brisbane Airport SA2 also demonstrated a long average commuting distance (about 29.6 km) for its workers. The long commuting distances for both port and airport workers is due to the specialised nature of the employment precinct.

Figure 8.8: Average commuting distance across SEQ SA2s as place of work in 2016
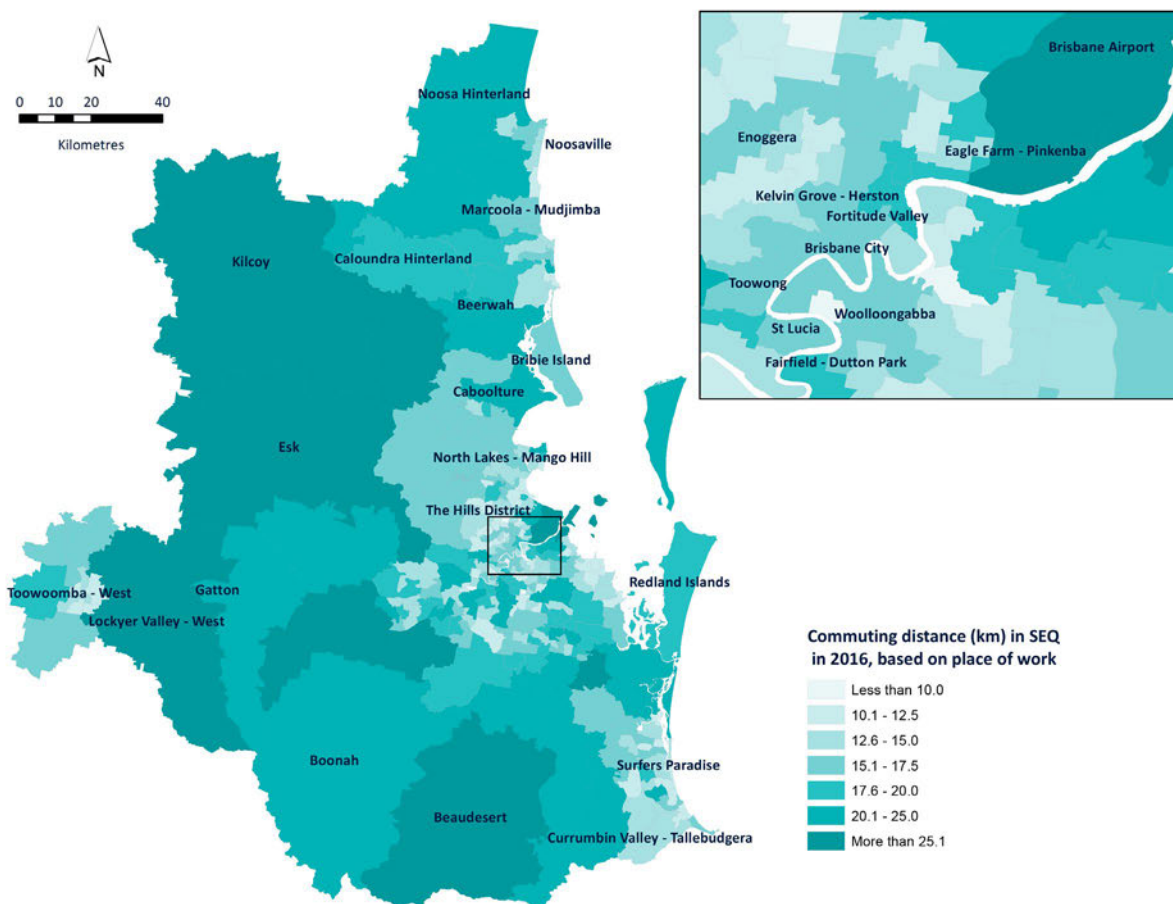
Note: BCARR's calculation of average commuting distance excludes individuals with zero commuting distance and those with a commuting distance of more than 250km.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Table 8.14 summarises the longest and shortest commuting distances for places of work at the SA2 level across SEQ. Unlike the previous table, the longest and shortest SA2 are distributed throughout the various BCARR rings. While Brisbane Port and Brisbane Airport SA2s demonstrated high commuting distances for their workers, other SA2s in the Middle Brisbane ring featured very short commuting distances. Middle Park – Jamboree Heights, Chermside West and Robertson SA2s were among only five SA2s to produce an average commuting distance for their workers below 10.0km.

Table 8.14: **Top 5 SA2s with longest and shortest average commuting distances for place of work of SEQ in 2016**

| SA2 of employment	Sub-region of employment	Commuting Distance (km)
Top 5 SA2s (Longest)		
Brisbane Port – Lytton	Middle East	35.0
Kilcoy	Somerset	31.5
Ripley	Ipswich	30.5
Brisbane Airport	Middle North	29.6
Rosewood	Ipswich	29.3
Top 5 SA2s (Shortest)		
Norman Park	Inner Brisbane	9.3
Highgate Hill	Inner Brisbane	9.5
Middle Park – Jamboree Heights	Middle West	9.6
Chermside West	Middle North	9.8
Robertson	Middle South	9.9

Note: BCARR's calculation of average commuting distance excludes individuals with zero commuting distance and those with a commuting distance of more than 250km.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

8.5   Changes in commuting flows

The information presented in Chapter 5 showed that the largest absolute increase in employed residents from 2016 to 2021 was for the Gold Coast SA4 (44,700), while Inner Brisbane, Logan-Beaudesert and Ipswich each added between 24,000 and 30,000 new employed residents. The Gold Coast and Inner Brisbane regions tend to have high self-containment, so it is likely there were very substantial increases in commuter flows within those two regions. Significant increases in commuter flows within Logan and Ipswich, and between Gold Coast and Logan are also likely. The rate of growth of employed residents was highest for Inner Brisbane, Logan-Beaudesert and Ipswich SA4s (which were each between 17 and 19 per cent), and so we should expect relatively rapid growth in commuter flows originating in these regions between 2016 and 2021. The 2021 ABS Census of Population and Housing data was released by ABS in October 2022, after the completion of this research project.

BITRE has undertaken some historic research into trends in commuting flows in SEQ and other large Australian cities (BITRE 2013a, b). A common trend that was identified across all four cities between 2001 and 2006 was that inward commuting flows had a below-average rate of growth, so the proportion of all commutes that were inward commutes declined (BITRE 2013b). In Sydney, Melbourne and Brisbane, outward flows grew most rapidly. For SEQ, inward flows declined from 30.2 per cent in 2001 to 28.6 per cent in 2006 (BITRE 2013a), and the 26.5 per cent share for 2016 in Table 8.9 suggests it has fallen further since then.[29]

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29 Comparison of data across censuses needs to be treated with caution as changes in methodology can impact on estimates.

8.6 30-minute and 45-minute job access

This section analyses 30-minute and 45-minute job access across SEQ. Box 8.1 provides detail on the construction and interpretation of these measures. Job access within 30 and 45 minutes has been constructed at the LGA and SA2 level in SEQ. This section includes 30- and 45-minute job access analysis for the growth area SA2s, with HoustonKemp producing job access data for 2016, 2019 and 2020 (consolidation and expansion, see Box 8.1 for details). Due to the impacts of the pandemic on average road speed, this analysis will omit the results from 2020, focusing on the data presented for 2016 and 2019 only.

Box 8.1 What is 30-minute and 45-minute job access?

The economic consultancy firm, HoustonKemp, were commissioned by the Department to collect data describing the job access conditions within 30 minutes and 45 minutes for residents in a given SA2 or LGA. These job access indicators describe the average number of jobs within SEQ that a working-age resident can access by car within 30 or 45 minutes during the morning peak. Based on the average number of jobs accessible, a value for the proportion of total jobs accessible is provided for each SA2 and LGA.

Starting at the SA2 level, a population-weighted centre is calculated for each SA2, which is combined with estimated traffic speed data on individual roads during morning peak periods to form a commute area for each SA2 for both 30 minutes and 45 minutes. Based on census data, the number of jobs in each destination zone in SEQ (smallest area for which job counts are available) is calculated. By calculating the proportion of each destination zone that lies within an SA2's commute area, the number of jobs accessible can be estimated.

Taking a population-weighted average number of jobs available across all SA2s within a given LGA, an estimate for the average number of jobs accessible for residents within the LGA is collated. The number of jobs available in SEQ is held constant across years, so changes observed in job access represent changes in the road network and speeds observed over individual roads.

What is connectivity to growth areas?

For the purpose of this analysis, growth areas involve the 23 consolidation SA2s and 25 expansion SA2s previously identified, which have shown particularly high growth in recent years. Connectivity to growth areas has been presented in this chapter as the 30-minute and 45-minute job access indicators for each growth area – providing insight into the ability for current and future employed residents in these areas to access major employment destinations throughout SEQ.

What is the definition of consolidation and expansion SA2s?

Growth area SA2s are defined as those for which the population increased by over 1600 persons between 2016 and 2020. These growth areas SA2s are classified as either consolidation or expansion SA2s. Consolidation SA2s are the SA2s where development is occurring on land inside the existing urban area boundary. Expansion SA2s are the SA2s where development is occurring on land outside the existing urban area boundary.

30 and 45-minute job access: LGAs

30 minute job access

Figure 8.9 illustrates the average proportion of SEQ jobs available within 30 minutes for each of the 12 LGAs across SEQ between 2016 and 2019. On average, across the 12 LGAs, working age residents have access to 25.4 per cent of SEQ jobs in 2016 and 24.5 per cent in 2019.

For both 2016 and 2019, Brisbane LGA stands out in particular as the LGA with the highest job access indicators (49.1 per cent in 2016 and 48.1 per cent in 2019). The Logan LGA performs better on the job access indicators than the other LGAs in Greater Brisbane.

Outside Greater Brisbane, the Gold Coast and Sunshine Coast LGAs showed the strongest job access. For the Gold Coast LGA, 13.8 per cent of all jobs were accessible to working-age residents in 2016 and 13.2 per cent in 2019. Somerset and Scenic Rim LGAs showed the lowest access to jobs, with residents having access to roughly 1 per cent of all SEQ jobs within 30 minutes across both 2016 and 2019.

Generally, job access declined between 2016 and 2019 with 11 of the 12 LGAs showing a reduction in the proportion of jobs accessible within 30 minutes. Only the Moreton Bay LGA showed an increase in job access growing from 12 per cent in 2016 to 13 per cent in 2019. As jobs are held constant across the years, this increase represents a positive change in the road network or individual road speeds for residents in the Moreton Bay LGA.

The Logan and Redland LGAs experienced significant declines in job access over the three years. Both Logan and Redland LGAs saw a 4-percentage point decline in the average proportion of jobs accessible between 2016 and 2019, decreasing from 27.4 per cent to 23.1 per cent and 17.7 per cent to 13.9 per cent respectively.

Figure 8.9: 30-minute job access across the 12 LGAs of SEQ from 2016 to 2019
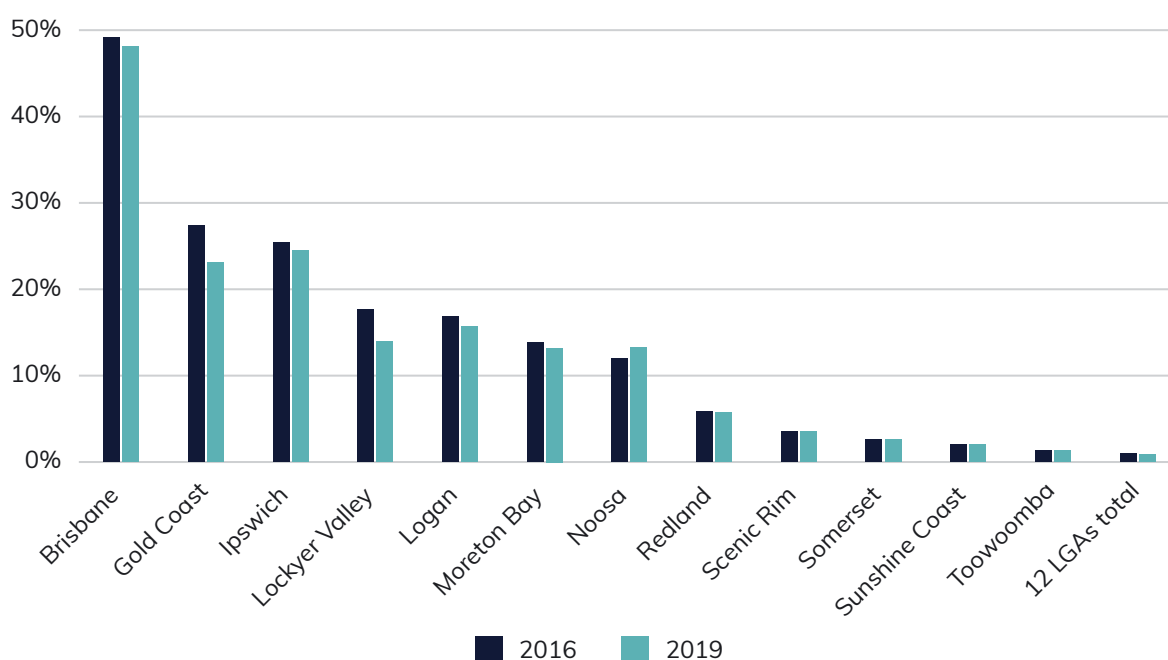
Source: Customised data based on HERE GPS speed probe data and ABS Census of Population and Housing 2016, provided by HoustonKemp.

45 minute job access

Figure 8.10 shows the proportion of SEQ jobs accessible within 45 minutes for working-age residents across the 12 LGAs between 2016 and 2019. Across the 12 LGAs, working-age residents in SEQ had access to an average of roughly 43.0 per cent of all SEQ jobs within 45 minutes in 2016 and 2019. Brisbane LGA demonstrated the strongest access to jobs across both 2016 and 2019 with residents having access to 65.8 per cent and 65.2 per cent of all SEQ jobs, respectively.

The four LGAs in the Outer Brisbane ring (Logan, Redland, Ipswich and Moreton Bay) also showed relatively strong job access indicators. Working-age residents of the Logan LGA had average proportions of accessible jobs similar to residents in Brisbane LGA at 64.9 per cent in 2016 and 60.9 per cent in 2019. LGAs further away from Brisbane showed notably lower 45-minute access to jobs. The Toowoomba LGA showed the lowest proportions of jobs accessible within 45 minutes with only 4.4 per cent of all SEQ jobs accessible in both 2016 and 2019.

Between 2016 and 2019, only the Moreton Bay and Lockyer Valley LGAs saw notable increases in 45-minute job access. The average proportion of jobs accessible within 45 minutes for Moreton Bay residents increased from 36.0 per cent to 40.6 per cent between 2016 and 2019.

The Logan and Redland LGAs both experienced significant decreases in 45-minute job access between 2016 and 2019, of around 4-percentage points.

Figure 8.10: 45-minute job access across the 12 LGAs of SEQ from 2016 to 2019

Source: Customised data based on HERE GPS speed probe data and ABS Census of Population and Housing 2016, provided by HoustonKemp.

Comparing 30-minute and 45-minute job access, the largest differences in job access are seen amongst the four LGAs of the Outer Brisbane ring (Logan, Redland, Ipswich and Moreton Bay). In 2016, residents in these four LGAs had access to more than twice as many jobs within 45 minutes than they had within 30 minutes. For example, residents in the Logan LGA only had access to 27.4 per cent of all SEQ jobs within 30 minutes in 2016, yet had access to 64.9 per cent within 45 minutes.

Residents within the LGAs across the Rest of SEQ ring saw significantly smaller differences in job accessibility between the 30-minute and 45-minute measures. The Gold Coast LGA exhibited the largest increase in the proportion of SEQ jobs accessible with an additional 8.8 per cent accessible within 45 minutes. The Toowoomba LGA showed the smallest increase in the proportion of SEQ jobs accessible with only an additional 0.9 per cent accessible within 45 minutes. These results show that an additional 15 minutes of commuting time for residents in these LGAs doesn't significantly improve their access to other major employment zones, particularly those centred in Greater Brisbane.

30 and 45-minute job access: SA2s

30 minute job access

At the SA2 level, there is large variability across both 30-minute and 45-minute job access indicators. Table 8.15 highlights the five SA2s with the largest proportion of jobs accessible across SEQ within 30 minutes. Each of these SA2s lie within either the Inner Brisbane or Middle Brisbane ring, showing strong job access for these areas within 30 minutes. The Murarrie SA2 in the Middle East sub-region had access to the largest proportion of all jobs in SEQ within 30 minutes at 56.6 per cent. Eagle Farm – Pinkenba, Annerley and Upper Mount Gravatt SA2s, all located in the Middle Brisbane ring also showed particularly high 30-minute job access. Hendra SA2 was the only SA2 from the Inner Brisbane ring amongst the five highest SA2s for 30-minute job access. Of the 332 SA2s in SEQ, only eight SA2s were able to access more than 55.0 per cent of all SEQ jobs within 30 minutes.

Table 8.15: Top 5 SA2s with the largest 30-minute job access across SEQ in 2019

SA2s	BCARR rings / Sub-regions	Average SEQ jobs accessible in 30 minutes	Proportion of SEQ jobs accessible in 30 minutes (per cent)
Murarrie	Middle East	840,542	56.6
Eagle Farm – Pinkenba	Middle North	830,650	55.9
Annerley	Middle South	821,729	55.3
Hendra	Inner Brisbane	820,806	55.3
Upper Mount Gravatt	Middle South	819,855	55.2

Source: Customised data based on HERE GPS speed probe data and ABS Census of Population and Housing 2016, provided by HoustonKemp.
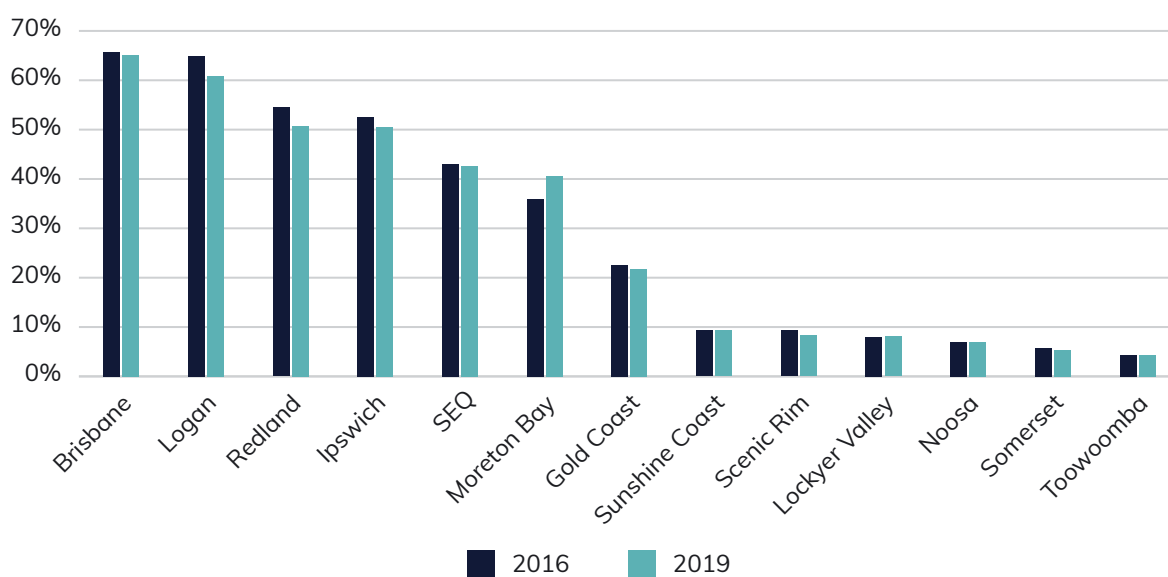
45 minute job access

Table 8.16 shows the SEQ SA2s with the highest 45-minute job access indicators. SA2s from the Logan and Middle South sub-regions performed noticeably well in 45-minute job access, with all SA2s shown in Table 8.16 located within these two sub-regions. Additionally, 19 of the 20 SA2s with the strongest 45-minute job access indicators were located within the Logan and Middle South sub-regions.

The Underwood and Springwood SA2s showed the highest 45-minute job access across all of SEQ, providing working-age residents with access to an average of 72.7 per cent and 71.4 per cent of all SEQ jobs within a 45-minute commute, respectively. These are two adjoining SA2s in the Logan LGA from which residents within 45 minutes will typically be able to access the CBD, as well as most of the Brisbane suburbs south of the river (including Ipswich) and much of the Gold Coast. Eight Mile Plains, Rochedale – Burbank and Wishart SA2s provided the highest 45-minute job access from the Middle South sub-region with each SA2 providing the average resident with access to more than 1,050,000 jobs.

Table 8.16: Top 5 SA2s with the largest 45-minute job access across SEQ in 2019

SA2s	BCARR rings / Sub-regions	Average SEQ jobs accessible in 45 minutes	Proportion of SEQ jobs accessible in 45 minutes (per cent)
Underwood	Logan	1,079,472	72.7
Springwood	Logan	1,060,085	71.4
Eight Mile Plains	Middle South	1,058,497	71.3
Rochedale – Burbank	Middle South	1,055,173	71.1
Wishart	Middle South	1,053,872	71.0

Source: Customised data based on HERE GPS speed probe data and ABS Census of Population and Housing 2016, provided by HoustonKemp.

30 and 45-minute job access: Consolidation and expansion SA2s

Consolidation and expansion areas are two different types of growth areas that have been identified at the SA2 scale, and are described in more detail in Chapter 4. In this section we consider whether 30- and 45-minute job access differ between the different types of growth areas in SEQ. Table 8.17 compares 30- and 45-minute job access across the three types of SA2. As a whole, the expansion SA2s have markedly lower 30-minute job access than the consolidation and remaining SA2s (at 15.3 per cent, versus 26.7 and 27.5 per cent, respectively). However, when it comes to 45-minute job access, the expansion areas can access 42.5 per cent of all SEQ jobs, which is above the average for consolidation areas (38.9 per cent) and only slightly below the average for the other (non-growth) SA2s (45.3 per cent).

Table 8.17: 30-minute and 45-minute job access in growth areas of SEQ in 2019

Growth area type	Proportion of SEQ jobs accessible in 30 minutes (per cent)	Proportion of SEQ jobs accessible in 45 minutes (per cent)
Consolidation	26.7	38.9
Expansion	15.3	42.5
Other	27.5	45.3
SEQ	24.5	42.7

Note: Consolidation is development occurring on land inside the existing urban area boundary. This was previously known as 'infill development' . Expansion is development occurring on land outside the existing urban area boundary. This was previously known as 'greenfield development' . As defined on page 175 (Figure 32, *Shaping SEQ*), the existing urban area is a statistical boundary used to measure consolidation and expansion development.

Source: Customised data based on HERE GPS speed probe data and ABS Census of Population and Housing 2016, provided by HoustonKemp.

Consolidation areas

There are 23 consolidation SA2s across SEQ. Table 8.18 presents the 30-minute and 45-minute job access for each consolidation area. For 30-minute job access, the consolidation SA2s of Brisbane City, Fortitude Valley, South Brisbane and Coorparoo showed the highest job access by providing residents with access to an average of 54 per cent of all SEQ jobs. Of these SA2s, the first three are located within Inner Brisbane, reflecting the region's strong 30-minute job access. The consolidation SA2s displayed a wide range of 30-minute job access, essentially falling into two groups:

- Consolidation SA2s in Inner and Middle Brisbane had 30-minute job access of 40.0 per cent or more.
- Consolidation SA2s in the Gold Coast, Sunshine Coast and Moreton Bay LGAs had job access of 16.1 per cent or less, with job access being particularly low in consolidation areas within the latter two LGAs.

Table 8.18: **30-minute and 45-minute job access for consolidation SA2s across SEQ in 2019**

SA2s	BCARR rings / sub-regions	Proportion of SEQ jobs accessible in 30 minutes (per cent)	Proportion of SEQ jobs accessible in 45 minutes (per cent)
Brisbane City	Inner Brisbane	**54.4**	**68.4**
Fortitude Valley	Inner Brisbane	53.8	67.8
South Brisbane	Inner Brisbane	53.7	66.7
Coorparoo	Middle South	53.7	67.0
Newstead – Bowen Hills	Inner Brisbane	52.0	67.2
Morningside – Seven Hills	Inner Brisbane	51.2	65.9
West End	Inner Brisbane	50.1	66.3
Calamvale – Stretton	Middle South	49.6	68.1
Forest Lake – Doolandella	Middle West	44.7	62.0
Taigum – Fitzgibbon	Middle North	40.5	61.9
Oxenford – Maudsland	Gold Coast	16.1	27.7
Robina	Gold Coast	13.4	17.3
Surfers Paradise	Gold Coast	13.4	17.5
Hope Island	Gold Coast	11.6	22.5
Biggera Waters	Gold Coast	11.5	19.3
Scarborough – Newport – Moreton Island	Moreton Bay	7.2	39.4
Mountain Creek	Sunshine Coast	6.7	10.8
Bli Bli	Sunshine Coast	6.4	8.4
Caboolture	Moreton Bay	6.2	25.1
Peregian Springs	Sunshine Coast	5.7	7.6
Wurtulla – Birtinya	Sunshine Coast	5.6	9.9
Caboolture – South	Moreton Bay	5.3	20.9
Bribie Island	Moreton Bay	**1.8**	**7.1**
Consolidation SA2s – Average		**26.7**	**38.9**

Source: Customised data based on HERE GPS speed probe data and ABS Census of Population and Housing 2016, provided by HoustonKemp.

For 45-minute job access, Brisbane City and Fortitude Valley SA2s continue to display relatively strong job access, providing residents with access to 68.4 per cent and 67.8 per cent of SEQ jobs, respectively. The Calamvale – Stretton SA2 from the Middle South sub-region also provided residents with access to 68.1 per cent of all jobs in SEQ. Again, 45-minute job access tends to be much lower for consolidation SA2s in the Gold Coast, Sunshine Coast and Moreton Bay LGAs. Particularly poor 45-minute job access in Bli Bli, Peregian Springs and Bribie Island SA2s contributed to the low overall job access values for consolidation SA2s.

Expansion areas

Table 8.19 shows the 30-minute and 45-minute job access for the 25 expansion SA2s identified across SEQ. For 30-minute job access, the Rochedale – Burbank and Pallara – Willawong SA2s showed relatively higher job access than other expansion SA2s, providing working-age residents with access to an average of 51.8 per cent and 47.2 per cent of all SEQ jobs respectively. Of the 25 expansion SA2s, 21 SA2s showed 30-minute job access below 20.0 per cent, providing residents with access to less than one in every five jobs across SEQ.

Table 8.19: 30-minute and 45-minute job access for expansion SA2s across SEQ in 2019

SA2s	BCARR rings / sub-regions	Proportion of SEQ jobs accessible in 30 minutes (per cent)	Proportion of SEQ jobs accessible in 45 minutes (per cent)
Rochedale – Burbank	Middle South	**51.8**	**71.1**
Pallara – Willawong	Middle South	47.2	64.5
Murrumba Downs – Griffin	Moreton Bay	31.1	61.8
Bellbird Park – Brookwater	Ipswich	22.4	57.9
Springfield Lakes	Ipswich	18.2	58.4
Boronia Heights – Park Ridge	Logan	17.2	59.0
Pimpama	Gold Coast	17.1	42.7
Dakabin – Kallangur	Moreton Bay	15.3	51.0
Ormeau – Yatala	Gold Coast	14.7	57.9
Redbank Plains	Ipswich	14.4	55.3
North Lakes – Mango Hill	Moreton Bay	14.4	50.3
Chambers Flat – Logan Reserve	Logan	13.6	60.3
Upper Coomera – Willow Vale	Gold Coast	13.4	28.9
Coomera	Gold Coast	13.2	28.4
Cashmere	Moreton Bay	11.6	45.8
Thornlands	Redland	11.4	54.5
Narangba	Moreton Bay	10.7	42.8
Ripley	Ipswich	7.4	41.2
Redland Bay	Redland	7.0	29.4
Greenbank	Logan	6.1	36.3
Caloundra – West	Sunshine Coast	5.8	10.8
Landsborough	Sunshine Coast	5.7	10.5
Jimboomba	Logan	5.6	30.8
Toowoomba – West	Toowoomba	4.1	**4.7**
Noosa Hinterland	Noosa	**2.9**	7.7
Expansion SA2s – Average		**15.3**	**42.5**

Source: Customised data based on HERE GPS speed probe data and ABS Census of Population and Housing 2016, provided by HoustonKemp.

For 45-minute job access, the Rochedale – Burbank SA2 showed the highest proportion of jobs accessible with 71.1 per cent. The Pallara – Willawong, Murrumba Downs-Griffin and Chambers Flat-Logan Reserve SA2s also showed particularly high 45-minute job access providing residents with access to more than 60 per cent of SEQ jobs on average.

Expansion SA2s showed relatively low 30-minute job access as a whole, averaging an accessible job proportion of 15.3 per cent across all 25 SA2s. This was due to 16 of the 25 expansion SA2s producing 30-minute job access indicators below 15 per cent. However, expansion SA2s performed notably better in 45-minute job access, averaging 42.5 per cent of jobs being accessible across the 25 SA2s. A key reason for the stronger 45-minute job access is the distribution of the expansion SA2s amongst those LGAs in the Outer Brisbane ring (Logan, Ipswich, Redland and Moreton Bay), all of which performed noticeably better in 45-minute job access measures.

8.7   Average commuting trip duration

This section analyses the average commuting trip duration for workers in Greater Brisbane. This section is based on data collected from the HILDA annual survey. For the purpose of this analysis, annual HILDA data has been collected from 2010 to 2019 and is not available at the LGA, BCARR ring or SA2 levels.

Figure 8.11 shows the time series data for average commuting trip duration between 2010 and 2019 for the Greater Brisbane area and the Rest of Queensland. Over the ten years, average commuting times in the Greater Brisbane area have grown slightly, increasing from 31 minutes in 2010 to 34 minutes in 2019. This growth has not been steady and consistent. Throughout the ten years, average commuting times peaked in 2017, reaching an average of 35 minutes for Greater Brisbane residents. The lowest average commuting trip duration was 29 minutes, occurring in 2013. Residents in the Rest of Queensland experienced consistently lower average commuting times between 2010 and 2019 – averaging 8 minutes shorter commuting trips over the ten-year period. Commuting trip duration in the Rest of Queensland remained relatively stable between 2010 and 2019, with commuters reporting average trip durations of 24 minutes in both 2010 and 2019.

Figure 8.11: **Average commuting trip duration in Queensland from 2010 to 2019**
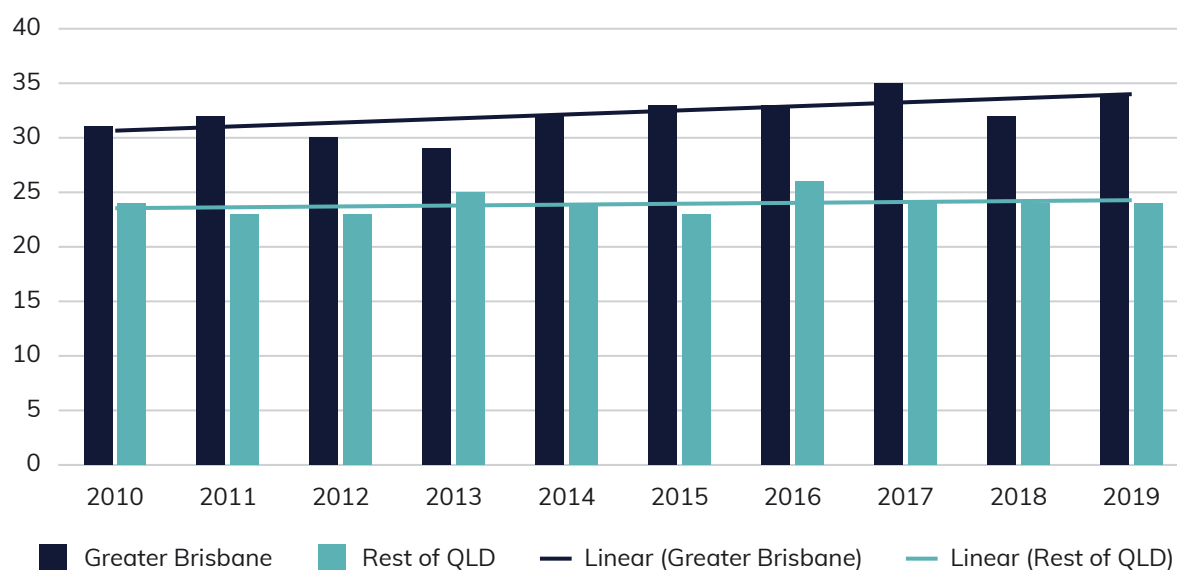
Source: BCARR analysis of Household, Income and Labour Dynamics in Australia (HILDA) annual survey, 2010 to 2019.

Figure 8.12 provides greater context for the average commuting trip duration in Greater Brisbane by comparing average trip duration between 2010 and 2019 with five other major Australian cities. Greater Brisbane's average commuting trip duration of 32.1 minutes over the ten-year period ranks third-longest amongst the six areas chosen. Only commuting trips in Greater Sydney and Greater Melbourne were longer than Greater Brisbane with an average of 37.2 and 34.0 minutes respectively.
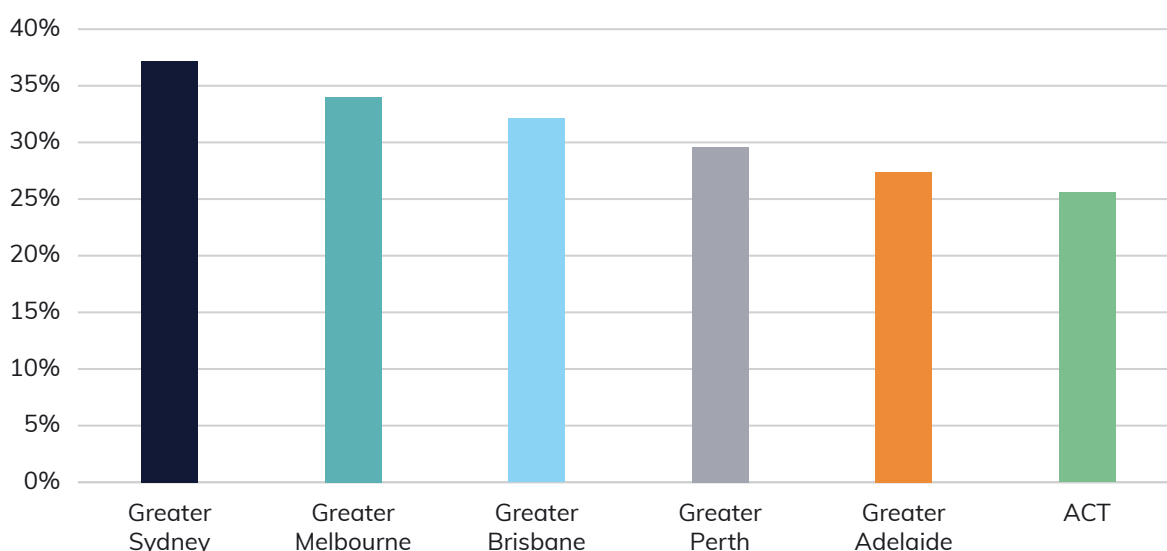
Figure 8.12: Average commuting trip duration between 2010 and 2019 for six major population areas

Note: The presented figure for each city is an average of the duration estimates for the 10 year period.
Source: BCARR analysis of data from the Household, Income and Labour Dynamics in Australia (HILDA) annual survey, 2010 to 2019.

8.8   Congestion Metrics

This section provides a brief insight into the current congestion levels within SEQ, focusing on the Greater Brisbane area. In addition to Greater Brisbane, other major population centres across SEQ, namely the Gold Coast, the Sunshine Coast and Toowoomba, have been considered where possible. The data sources considered include TomTom (see Box 8.2) and HoustonKemp congestion metrics.

HoustonKemp has collected a range of data exploring congestion levels experienced in large population centres across Australia. Of this data, one of the indicators collected calculates the proportion of the road network in a given city or town that is congested. Figure 8.14 shows the proportion of the road network congested amongst Australia's seven capital cities over 38 weeks in 2019. HoustonKemp also provided data for this indicator during 2020. This data has been omitted from the analysis due to the significant impacts of COVID–19 restrictions on congestion data.

Of the seven capital cities, Greater Melbourne has shown consistently higher levels of congestion across its road network – reaching a maximum of 19.5 per cent of the road network congested. Greater Brisbane ranks fairly well according to this indicator, with only Greater Darwin and Greater Hobart producing consistently lower levels of congestion across their respective road networks.

Through 2019, Greater Brisbane experienced an average congestion of 10.7 per cent of its total road network, comparable to the level of congestion in Greater Perth of 11.4 per cent. However, this result is considerably lower than the average congestion across Greater Melbourne of 18.3 per cent, Greater Sydney of 14.4 per cent, and Greater Adelaide of 14.3 per cent.

Box 8.2 A snapshot of Brisbane congestion in 2021 – TomTom

TomTom, a large digital navigation company, collects a wide range of data on road incidents, traffic, emissions and congestion. The TomTom traffic Index, produced by the company, provides real-time insight into the movement patterns on both a local and global scale.

According to the TomTom Traffic Index, Brisbane ranks 131 in the world for congestion – with a reported congestion level of 25 per cent in 2021. This result shows that average travel times across the city in 2021 were 25 per cent longer compared to baseline non-congested conditions. The only Australian city to rank higher than Brisbane was Sydney at 97, with a congestion level of 28 per cent in 2021. Gold Coast had similar levels of congestion to Brisbane, with a reported congestion level of 24 per cent in 2021.

Figure 8.13 shows the average traffic during a working day between 2019 and 2021 in April. In 2021, traffic levels returned to a similar level experienced in 2019. Evening traffic levels for the month of April appear to have grown beyond the 2019 baseline. Over 2021, commuters in Brisbane lost 108 hours by driving during rush hour conditions – an increase on the 107 hours from 2019.

Figure 8.13: Brisbane traffic levels during the month of April through 2019 – 2021

Changes in working days travel patterns in 2019–2021
What did the traffic on an average working day look like each month across the years?
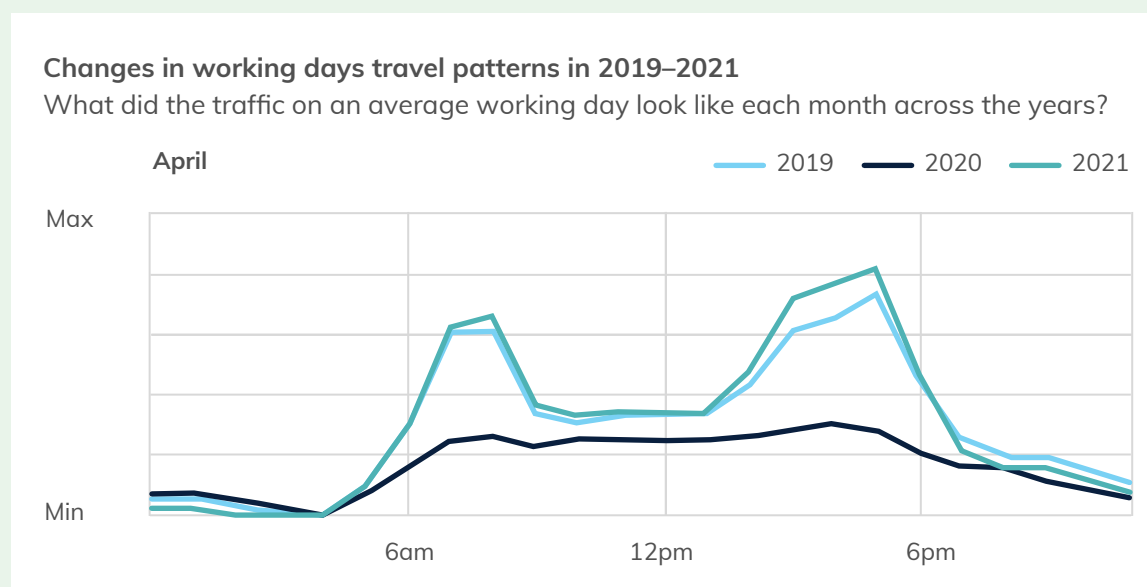
Source: TomTom analysis of traffic levels (2022).

Figure 8.14: Percentage of congested roads amongst Australian capital cities through 2019
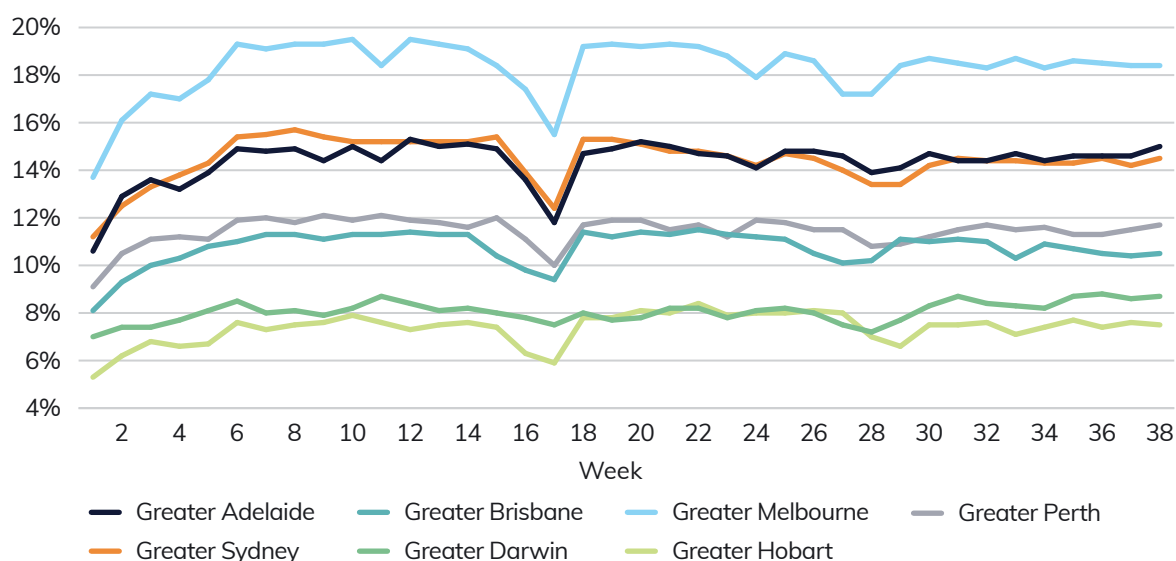
Source: BCARR analysis of congestion metric data provided by HoustonKemp (2020).

Figure 8.15 provides additional insight into the congestion levels experienced in Greater Brisbane in 2019 by comparing it with other major population centres in SEQ. Among the four areas in SEQ for which data was collected, Gold Coast – Tweed Heads showed the highest congestion levels over 2019. Average congestion in Gold Coast – Tweed Heads of 11.4 per cent of its road network exceeds the average of 10.7 per cent in Greater Brisbane.

The road networks throughout Toowoomba and the Sunshine Coast showed lower average congestion levels in 2019. An average congestion of 9.9 per cent experienced in Toowoomba is reasonably comparable to the level of congestion in Greater Brisbane. The Sunshine Coast showed significantly less congestion than the other three population centres throughout 2019, producing an average of 5.9 per cent across the dataset.

Figure 8.15: Percentage of congested roads between major population centres in SEQ through 2019
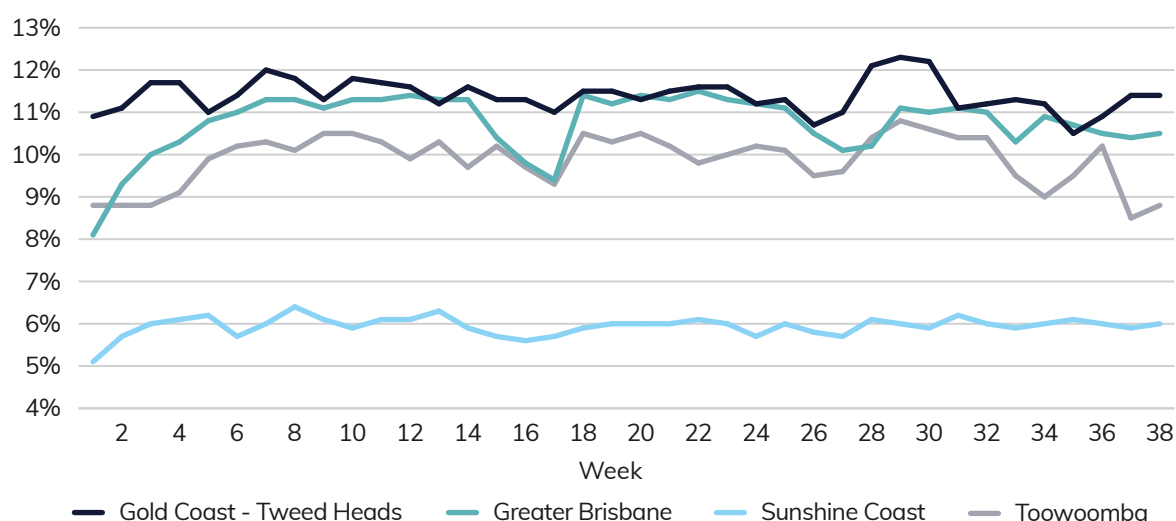
Source: BCARR analysis of congestion metric data provided by HoustonKemp (2020).

8.9 Conclusion

This chapter analysed the movement of workers and employed residents within the SEQ region. Across the 12 LGAs of SEQ, over 70 per cent of employed residents work within their LGA of residence. Toowoomba and Brisbane LGAs possessed the highest self-containment rates across the region at 88.6 and 84.6 per cent respectively.

In 2016, total commuter flows within SEQ were 1.44 million. Of these commuter flows, the majority remained within their respective BCARR ring at 65.7 per cent of all flows. Particularly important within this category of commuter flows were flows to a different SA2 in the home sub-region, which accounted for 41.0 per cent of all commuter flows in SEQ. Overall, 26.5 per cent of commuter flows operated across rings in an inward direction and 7.8 per cent operated across rings in an outward direction.

Employed residents in the SEQ region have an average commuting distance of 17.5km. As commuting distance increased with distance away from the Inner Brisbane ring, employed residents in Outer Brisbane and the Rest of SEQ experienced significantly longer average commuting distances of 20.6km and 24.3km respectively. In terms of commuting trip duration, employed residents in Greater Brisbane faced an average duration of 31.0 minutes in 2019. This value ranks Greater Brisbane behind only Greater Melbourne and Greater Sydney in terms of total trip duration.

This chapter also provided some initial insight into the congestion levels in Brisbane and across SEQ. According to data provided by TomTom, Brisbane ranks 131 in the world for total congestion reporting a congestion level of 25 per cent in 2021. The available congestion metrics show that congestion in the Gold Coast is similar to that in Brisbane, but the Sunshine Coast has relatively low congestion levels.

Commuting times and congestion levels are commonly considered to be important contributors to the liveability of a city. The next chapter explores the liveability of SEQ in greater depth, focusing on how access to social infrastructure and services varies across the region.

CHAPTER 9

LIVEABILITY

ⓘ Key points

- This chapter presents data on three key indicators of liveability from the Australian Urban Observatory (AUO): access to services and social infrastructure (including health, education, arts and culture infrastructure, and community and sports infrastructure), walkability and access to public open space.

- In 2018, for all of the social infrastructure indicators, Brisbane LGA achieved the highest scores (0.47 for access to health infrastructure, 0.65 for education, 0.34 for arts and culture and 0.08 for community and sports – see Box 9.2).

- Toowoomba consistently performed well on all of the social infrastructure measures: ranking second for access to education (0.55) and arts and culture (0.29); and third for access to health (0.35) and community and sports infrastructure (0.05).

- Of the other LGAs, Somerset did well for access to health infrastructure (0.36) and Scenic Rim did well for access to community and sports infrastructure (0.05). Both of these LGAs came second only to Brisbane on these indicators.

- For all of the social infrastructure measures, Inner Brisbane achieved the best results, followed by Middle Brisbane. The expansion growth areas (new and developing areas) scored lower than consolidation (infill) growth areas and other (non-growth) areas.

- In 2018, the LGAs that scored highest on the walkability index were Brisbane (1.29) and Gold Coast (0.48). The LGAs that scored lowest were Scenic Rim (−3.58), Somerset (−4.04) and Lockyer Valley (−5.40). SEQ achieved a score of 0.15 (see Box 9.3).

- Inner Brisbane scored much higher on the walkability index (3.29) than the next highest region, Middle Brisbane (0.59). Outer Brisbane was the least walkable region (−0.82).

- The expansion growth areas scored lower than consolidation growth areas and other areas for walkability (1.12, 1.69 and 0.09, respectively).

- In 2018, 54.5 per cent of dwellings in SEQ had access to public open space. Redland, Noosa and Gold Coast residents had the best access to public open space (64.9 per cent, 60.7 per cent and 58.7 per cent of dwellings, respectively).

- Inner Brisbane scored lowest on this indicator (52.3 per cent). Middle and Outer Brisbane both scored 55.1 per cent.

- The expansion growth areas scored lower than consolidation growth areas for access to public open space, but slightly higher than other areas (56.5 per cent of dwellings in expansion areas had access to public open space, compared with 58.4 per cent of dwellings in consolidation areas and 53.6 per cent in other areas).

- Overall, at the LGA scale, Brisbane scored highest on the access to services and walkability metrics, but was outperformed by Redland, Noosa, Gold Coast and Moreton Bay on access to public open space. In relation to the Brisbane rings, Inner Brisbane scored highest on access to services and walkability metrics, followed by Middle Brisbane. Outer Brisbane achieved the lowest scores for these indicators, however, for access to public open space it did slightly better than Inner Brisbane and was comparable with Middle Brisbane.

- The expansion growth areas scored lower than consolidation growth areas for all of the indicators, but did slightly better than other areas for access to public open space.

9.1 Introduction

Liveability is not defined consistently in the research literature. It may include factors such as access to services and amenities, availability of public open space, walkability, housing affordability and social connectedness.

This chapter presents data on three key indicators of liveability from the Australian Urban Observatory (AUO) (Box 9.1): access to services and social infrastructure (including health, education, arts and culture, and community and sports infrastructure), walkability, and access to public open space. Access to public open space and walkability are important as they provide physical activity and recreation opportunities and facilitate social interaction. These factors can have a positive impact on physical and mental health. Access to health and education services are important to all citizens, and people must have access to these in the areas in which they live. Arts and culture, and community and sports infrastructure provide opportunities for social engagement and community participation. These can be vital factors in attracting and retaining people and ensuring vibrant and sustainable communities.

This chapter will examine each of these indicators in turn. Data are presented by LGAs, BCARR rings and sub-regions, SA2s, and growth areas (for details, please see chapters 1 and 4, sections 1.3 and 4.3). As described in Chapters 1 and 4 (sections 1.3 and 4.3), SEQ growth areas have been divided into 'consolidation' and 'expansion' areas. Consolidation is development occurring on land inside the existing urban area boundary, previously known as 'infill development' . Expansion is development occurring on land outside the existing urban area boundary, previously known as 'greenfield' development. As defined in *ShapingSEQ* (Figure 32, Queensland Government 2017), the existing urban area is a statistical boundary used to measure consolidation and expansion development.

Moreton Bay is a diverse LGA and has been divided into Moreton Bay North and Moreton Bay South. This enables a more nuanced analysis of the characteristics of this LGA. Moreton Bay North consists of SA2s falling under 313 Moreton Bay-North (SA4) (except for Kilcoy, which is part of Somerset), and Moreton Bay South consists of SA2s belonging to 314 Moreton Bay-South (SA4).

Box 9.1: What is the Australian Urban Observatory and liveability data?

The Australian Urban Observatory (AUO) is a digital platform that measures and maps key aspects of liveability across Australia's 21 largest cities. It is located within the Centre for Urban Research at RMIT University.

The indicators use OpenStreetMap road network and points of interest data, and address points from the Geocoded National Address File (G-NAF) to identify and measure proximity to destination points.

The AUO covers urban areas of SEQ, that is, areas that are defined as 'urban' or 'other urban' according to the ABS classification of Section of State (SOS). Areas are only included if they have at least 5 dwellings and more than 10 people at the Mesh Block level. Areas where people do not live, such as parklands, industrial estates and commercial areas are excluded.

Only a small proportion of the Mesh Blocks in the regional LGAs of Lockyer Valley, Scenic Rim and Somerset are captured due to their rural nature. Therefore, only the urban parts of these LGAs are covered in this chapter.

More information about the AUO and the methodology used to compile the liveability indicators can be found on the AUO website: https://auo.org.au/about/

Housing affordability is another important component of liveability, and while it is not covered in this chapter, housing affordability was analysed in some detail in Chapter 4. To gain a broader perspective on liveability, the results of this chapter should be considered in conjunction with the housing affordability findings from Chapter 4.

9.2 Access to services: social infrastructure

This set of indicators consists of four types of social infrastructure: health, education, arts and culture, and community and sports. These are measures of physical proximity only and do not cover factors such as quality, cost or affordability. See Box 9.2 for information on how these indicators are measured. Each indicator will be discussed in turn.

Box 9.2: How is access to social infrastructure measured?

The table below shows the types of services (destination points) that are included in the Social Infrastructure Index developed by the AUO. Binary indicators were used to record the presence (=1) or absence (=0) of the 16 types of social infrastructure destinations (Davern et al. 2017). The index has been divided into four subdomains: arts and culture (3 service types); community and sports (3 service types); education (4 service types) and health (6 service types). The maximum score that can be obtained for health infrastructure is 6 as there are 6 different service types, the maximum that can be obtained for education is 4, and the maximum for both arts and culture and community and sports is 3. For this report, BCARR have scaled the scores to a value between 0 and 1 to allow for comparison between indicators.

Infrastructure type	Destination	Distance
Arts and culture infrastructure	Museum/Art gallery	3200m
	Cinema/Theatre	3200m
	Library	1000m
Community and sports infrastructure*	Community centre	1000m
	Public swimming pool	1200m
	Sports facility	1000m
Education infrastructure	Childcare	800m
	Out of school hours care	1600m
	Government primary school	1600m
	Government secondary school	1600m
Health infrastructure	Residential aged care facility	1000m
	Dentist	1000m
	General practitioners (GP)	1000m
	Maternal, child, family health centre	1000m
	Other community health care centre	1000m
	Pharmacy	1000m

*   Private sport and recreation services are not included in this indicator.

Access to health infrastructure

Access to health infrastructure: SEQ LGAs

In 2018, the LGAs that scored the highest for access to health infrastructure were Brisbane (0.47), Somerset (0.36) and Toowoomba (0.35) (Figure 9.1). Redland (0.24), Ipswich (0.20) and Lockyer Valley (0.18) scored the lowest. The score for the whole of SEQ was 0.36.

It is not surprising that Brisbane LGA has scored highly on this indicator, consisting of the inner and middle areas of a major capital city and having the highest population size and density of all the LGAs (see Table 3.12). While Toowoomba doesn't have a particularly high population density, it is a major regional centre which may explain its high score for this measure.

Somerset has an ageing population and this could account for its high rank on this indicator – as health services are needed to accommodate an older cohort. As shown in Chapter 3, the proportion of the population aged 65 and over is 20.8 per cent, which compares with 15.5 per cent for all 12 LGAs. In addition, the population of this age group grew by 21 per cent between 2016 and 2020, the second fasted growing LGA with respect to this cohort. The town centre of Kilcoy has a regional hospital, a residential aged care facility, two aged care services and a range of other health services. While some of these services will not be captured in this measure (e.g., hospital) it does suggest that Kilcoy is well–served in this area.

Sunshine Coast and Scenic Rim also did relatively well on this indicator and have high proportions of persons aged 65 and over (20.7 per cent and 21.4 per cent, respectively) (see Chapter 3). Of concern is the low ranking of Noosa which has the highest proportion of older persons of all the LGAs (26.3 per cent). This suggests that Noosa is lacking in this area. Ipswich has the lowest proportion of persons aged 65 and over and is ranked second lowest on the health infrastructure index, however, it has the highest growth rate for this group (23.5 per cent) which may foreshadow increasing demand for health services in the future.

Figure 9.1: Access to health infrastructure by LGAs of SEQ in 2018
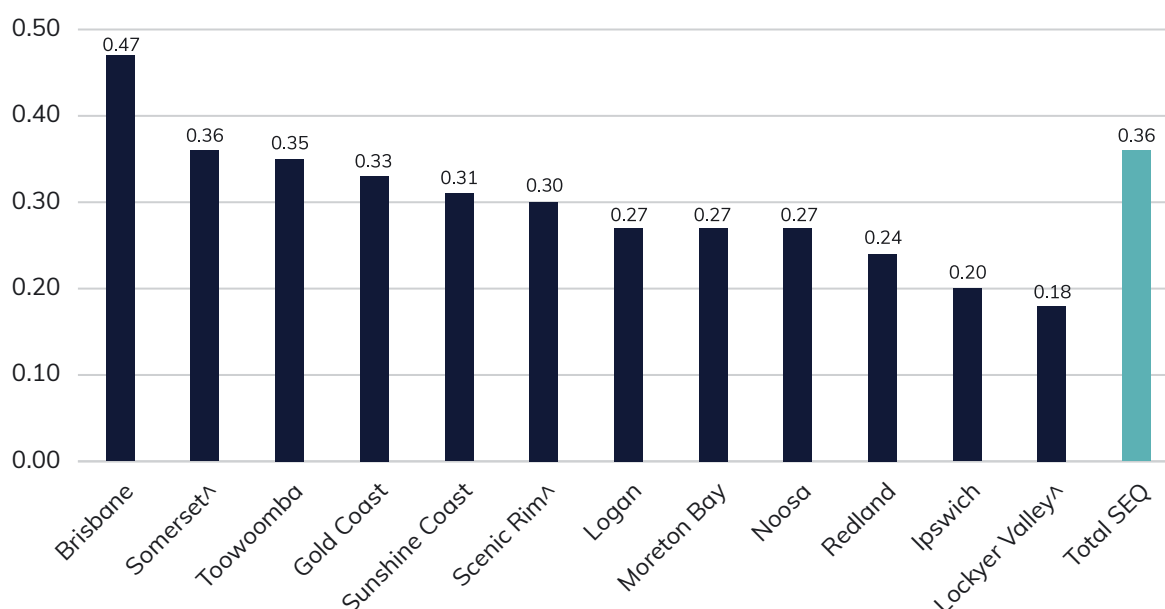
Note:

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to health infrastructure: BCARR rings and sub-regions

Inner and Middle Brisbane had the best access to health infrastructure (0.65 and 0.42, respectively) (Table 9.1 and Figure 9.2). Outer Brisbane scored the lowest (0.25). Moreton Bay North scored higher than Moreton Bay South (0.29 compared with 0.24).

Table 9.1: Access to health infrastructure by SEQ rings and sub-regions in 2018

BCARR rings/sub-regions	Health infrastructure score
INNER Brisbane*	0.65
MIDDLE Brisbane – TOTAL*	0.42
Middle East	0.39
Middle North	0.45
Middle South	0.45
Middle West	0.35
OUTER Brisbane – TOTAL	0.25
Ipswich	0.20
Redland	0.24
Logan	0.27
Moreton Bay	0.27
Moreton Bay North	0.29
Moreton Bay South	0.24
TOTAL – GREATER BRISBANE	0.37
Rest of SEQ	0.32
Gold Coast	0.33
Sunshine Coast	0.31
Noosa	0.27
Toowoomba (urban part)	0.35
Scenic Rim^	0.30
Lockyer Valley^	0.18
Somerset^	0.36
TOTAL – SOUTH EAST QUEENSLAND	0.36

Notes:

* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^ Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Figure 9.2: Access to health infrastructure by SEQ rings in 2018
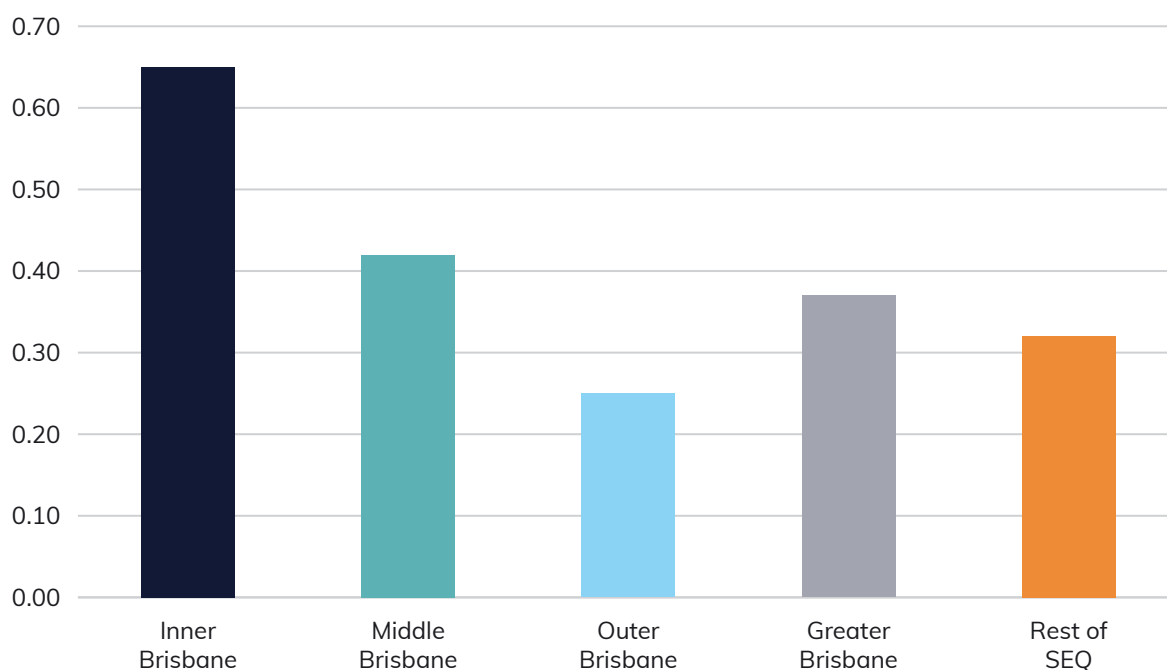
Source: BCARR analysis of data from the Australian Urban Observatory

Access to health infrastructure: SA2s

The map below (Figure 9.3) shows areas of high access to health infrastructure for Inner and Middle Brisbane. The Gold Coast coastal strip (Southport-North, Mermaid Beach and Coolangatta) also had good access, as did Kilcoy in Somerset, Redcliffe and surrounding areas in Moreton Bay North, and the urban areas of the Sunshine Coast (Caloundra and Maroochydore). Table 9.2 shows the top 10 SA2s. Areas of low access include Elimbah, Upper Caboolture and Morayfield in Moreton Bay North, Samford Valley in Moreton Bay South, Diddillibah-Rosemount in Sunshine Coast, Cambooya-Wyreema in Toowoomba, Greenbank in Logan and Ripley in Ipswich.

Figure 9.3: **Access to health infrastructure by SA2s in SEQ in 2018**
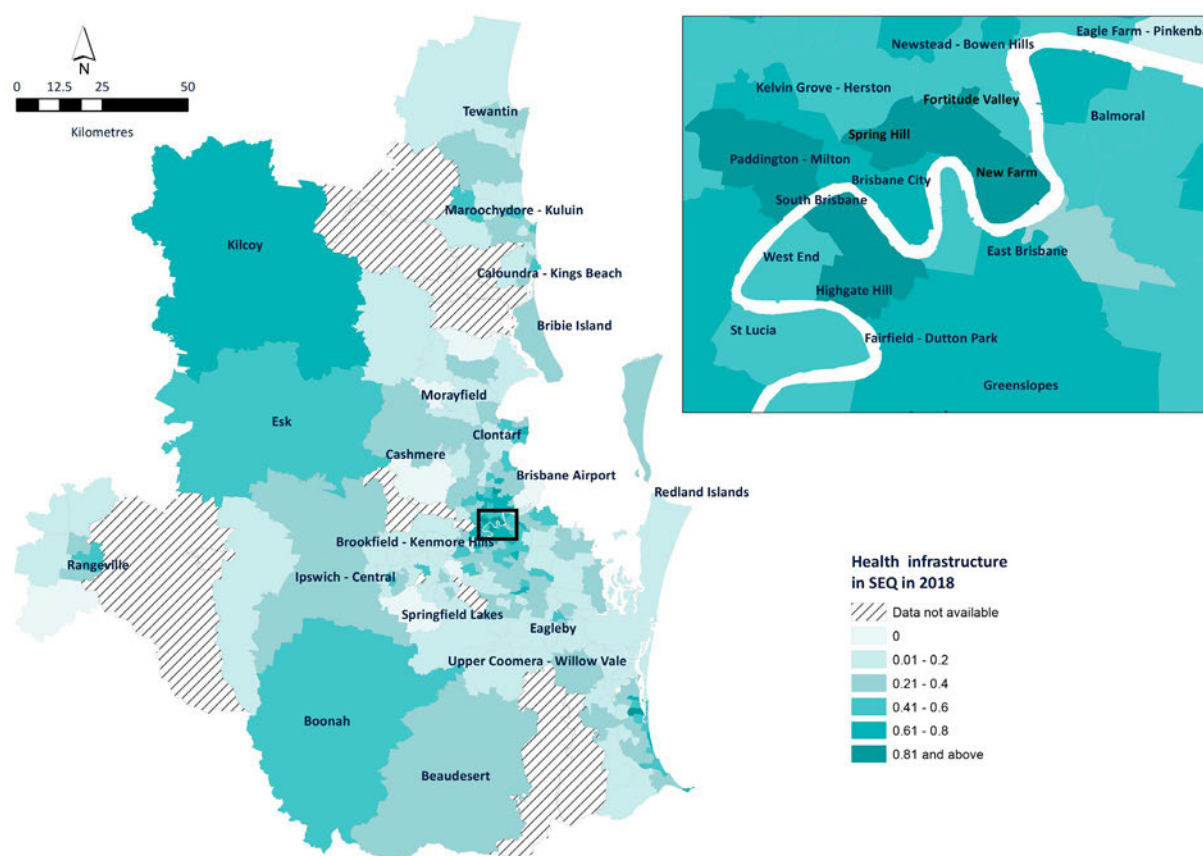
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.2: **Top 10 SA2s with highest access to health infrastructure in SEQ in 2018**

SA2s	BCARR rings/sub-regions	Health Infrastructure score
Spring Hill	Inner	0.93
New Farm	Inner	0.87
Chermside	Middle North	0.85
Highgate Hill	Inner	0.85
South Brisbane	Inner	0.83
Fortitude Valley	Inner	0.83
Paddington – Milton	Inner	0.81
Southport – North	Gold Coast	0.81
Annerley	Middle South	0.79
Auchenflower	Inner	0.77

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to health infrastructure: growth areas

Table 9.3 shows the overall scores for the consolidation and expansion areas, while Tables 9.4 and 9.5 show the scores for each SA2 within the consolidation and expansion areas.

Table 9.3: **Access to health infrastructure in growth areas of SEQ in 2018**

Growth area type	Health Infrastructure score
Consolidation	0.39
Expansion	0.15
Other (non-growth)	0.38

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.4: **Access to health infrastructure by SA2 consolidation growth areas in 2018**

SA2s	BCARR rings/sub-regions	Health Infrastructure score
Biggera Waters	Gold Coast	0.63
Bli Bli	Sunshine Coast	0.10
Bribie Island	Moreton Bay North	0.33
Brisbane City	Inner	0.76
Caboolture	Moreton Bay North	0.28
Caboolture – South	Moreton Bay North	0.20
Calamvale – Stretton	Middle South	0.32
Coorparoo	Middle South	0.72
Forest Lake – Doolandella	Middle West	0.18
Fortitude Valley	Inner	0.83
Hope Island	Gold Coast	0.20
Morningside – Seven Hills	Inner	0.50
Mountain Creek	Sunshine Coast	0.12
Newstead – Bowen Hills	Inner	0.57
Oxenford – Maudsland	Gold Coast	0.13
Peregian Springs	Sunshine Coast	0.06
Robina	Gold Coast	0.34
Scarborough – Newport – Moreton Island	Moreton Bay North	0.31
South Brisbane	Inner	0.83
Surfers Paradise	Gold Coast	0.49
Taigum – Fitzgibbon	Middle North	0.23
West End	Inner	0.56
Wurtulla – Birtinya	Sunshine Coast	0.15

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

For access to health infrastructure in 2018, the expansion growth areas scored much lower than the consolidation growth areas and other (non-growth) areas (0.15, 0.39 and 0.38, respectively). As will be discussed in subsequent sections of this chapter, this is a typical pattern that emerges for all of the indicators. This may be related to the fact that the expansion areas are newly developed areas and have yet to establish or attract services.

Table 9.4 shows the SA2s that comprise the consolidation growth areas. The health infrastructure scores ranged from 0.83 in South Brisbane to under 0.2 in Forest Lake-Doolandella, Wurtulla-Birtinya, Oxenford-Maudsland, Mountain Creek, Bli Bli and Peregian Springs. The scores for the SA2s that comprise the expansion growth areas ranged from 0.32 in Dakabin-Kallangur, to 0 in Pallara-Willawong, Greenbank and Ripley (Table 9.5).

Table 9.5: **Access to health infrastructure by SA2 expansion growth areas in 2018**

SA2s	BCARR rings/sub-regions	Health Infrastructure score
Bellbird Park – Brookwater	Ipswich	0.11
Boronia Heights – Park Ridge	Logan	0.24
Caloundra – West	Sunshine Coast	0.19
Cashmere	Moreton Bay South	0.13
Chambers Flat – Logan Reserve	Logan	0.02
Coomera	Gold Coast	0.15
Dakabin – Kallangur	Moreton Bay South	0.32
Greenbank	Logan	0.00
Jimboomba	Logan	0.04
Murrumba Downs – Griffin	Moreton Bay South	0.15
Narangba	Moreton Bay North	0.16
Noosa Hinterland	Noosa	0.19
North Lakes – Mango Hill	Moreton Bay South	0.14
Ormeau – Yatala	Gold Coast	0.07
Pallara – Willawong	Middle South	0.00
Pimpama	Gold Coast	0.04
Redbank Plains	Ipswich	0.12
Redland Bay	Redland	0.23
Ripley	Ipswich	0.00
Rochedale – Burbank	Middle South	0.02
Springfield Lakes	Ipswich	0.18
Thornlands	Redland	0.15
Toowoomba – West	Toowoomba (part)	0.10
Upper Coomera – Willow Vale	Gold Coast	0.20

Notes: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3. AUO data are unavailable for the SA2 locality of Landsborough in Sunshine Coast.

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to Education infrastructure

Access to education infrastructure: LGAs

Similar to the pattern noted above with regard to access to health infrastructure, Brisbane and Toowoomba scored highest on this indicator (0.65 and 0.55, respectively) (Figure 9.4). Logan is the next highest scoring LGA (0.52), and this is not surprising as it has a high child population (23.0 per cent of the population aged 0–14 years, compared with 19.1 per cent for all 12 LGAs) (see Chapter 3). Ipswich and Moreton Bay have also done well on this indicator and have high school-aged cohorts (23.8 and 20.5 per cent, respectively).

The LGAs that scored the lowest on this indicator were Somerset (0.32), Lockyer Valley (0.23) and Noosa (0.22). Noosa has the lowest proportion of children aged 0–14 years (15.6 per cent), while Somerset and Lockyer Valley are close to the average (around 19 per cent).

Figure 9.4: **Access to education infrastructure by LGAs of SEQ in 2018**
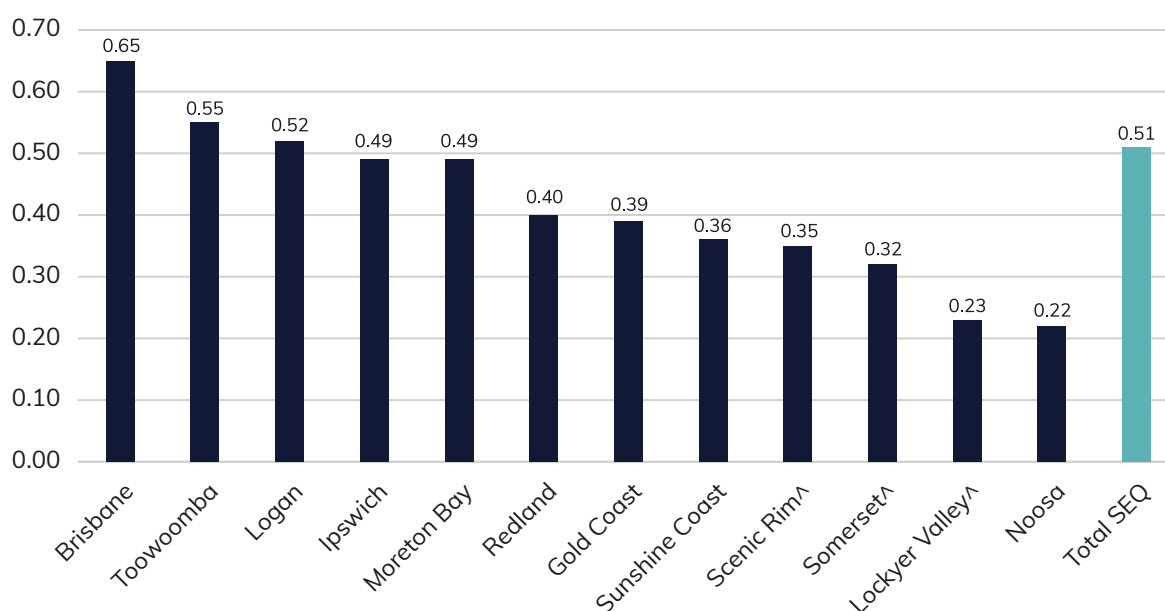
Note:

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to education infrastructure: BCARR rings and sub-regions

Inner and Middle Brisbane scored the highest for access to education infrastructure (0.73 and 0.62, respectively) (Table 9.6 and Figure 9.5). Outer Brisbane and Rest of SEQ scored the lowest (0.48 and 0.39, respectively). Moreton Bay South scored slightly higher than Moreton Bay North (0.50 compared with 0.48).

Table 9.6: **Access to education infrastructure by SEQ rings and sub-regions in 2018**

BCARR rings/sub-regions	Education infrastructure score
INNER Brisbane*	0.73
MIDDLE Brisbane – TOTAL*	0.62
Middle East	0.54
Middle North	0.65
Middle South	0.62
Middle West	0.59
OUTER Brisbane – TOTAL	0.48
Ipswich	0.49
Redland	0.40
Logan	0.52
Moreton Bay	0.49
Moreton Bay North	0.48
Moreton Bay South	0.50
TOTAL – GREATER BRISBANE	0.57
Rest of SEQ	0.39
Gold Coast	0.39
Sunshine Coast	0.36
Noosa	0.22
Toowoomba (urban part)	0.55
Scenic Rim^	0.35
Lockyer Valley^	0.23
Somerset^	0.32
TOTAL – SOUTH EAST QUEENSLAND	0.51

Notes:

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Figure 9.5: **Access to education infrastructure by SEQ rings in 2018**
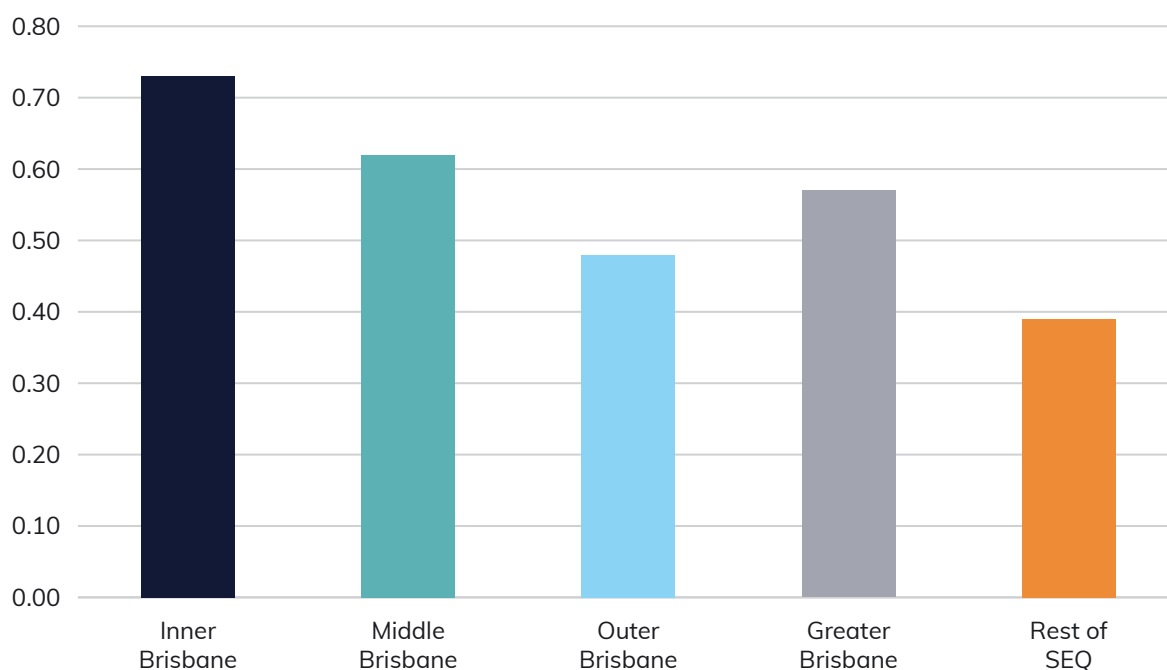
Source: BCARR analysis of data from the Australian Urban Observatory

Access to education infrastructure: SA2s

Areas with high access to education infrastructure can be seen in Inner and Middle Brisbane (Figure 9.6). Other areas with good access include Clontarf and Redcliffe in Moreton Bay North, several areas in Logan (Logan Central, Eagleby, Waterford West, Springwood and Kingston), the central areas of Toowoomba and Ipswich, and Kilcoy in Somerset (see Table 9.7 for the top 10 SA2s). Areas of lower access include Jacobs Well and Main Beach in Gold Coast, Munruben and Greenbank in Logan, Noosa Heads and Peregian Beach in Noosa, Elimbah in Moreton Bay North, Samford Valley in Moreton Bay South and Diddillibah-Rosemount in Sunshine Coast.

Figure 9.6: Access to education infrastructure by SA2s in SEQ in 2018
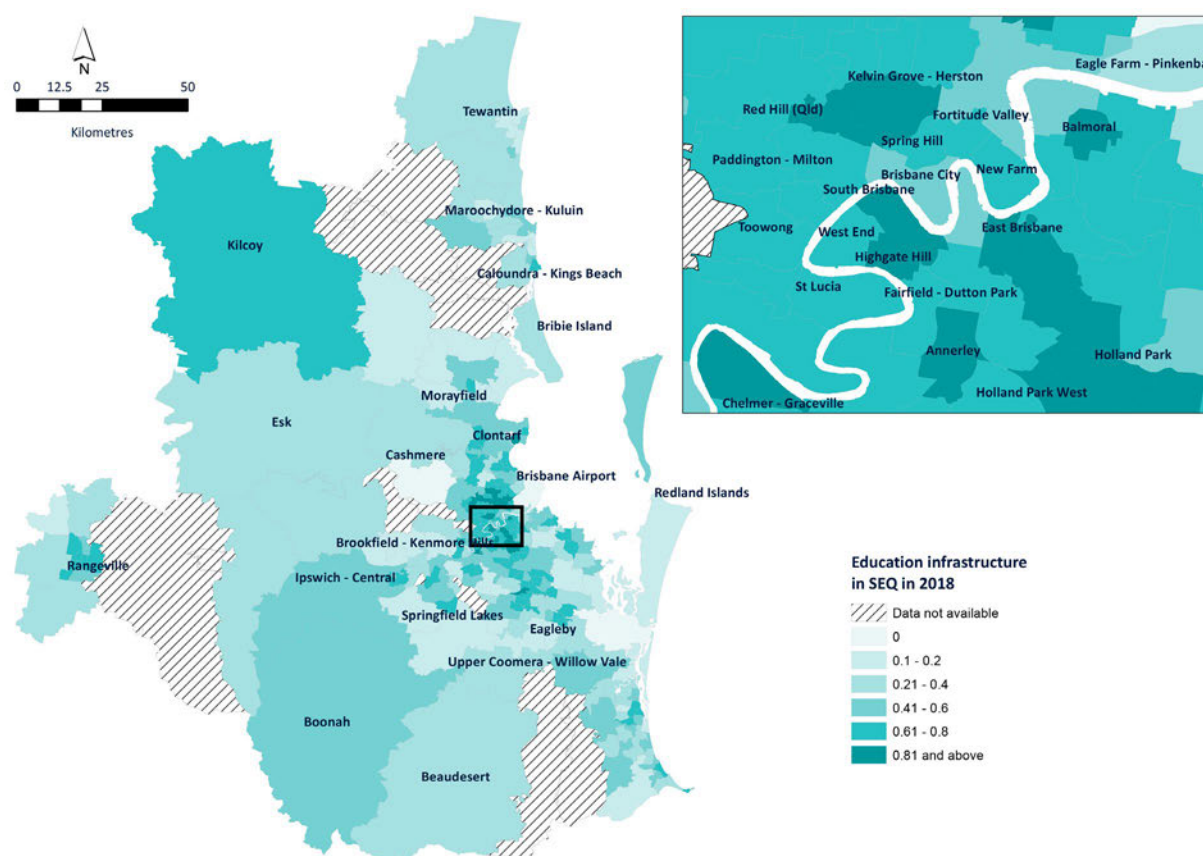
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.7: Top 10 SA2s with the highest access to education infrastructure in SEQ in 2018

SA2s	BCARR rings/sub-regions	Education Infrastructure score
Balmoral	Inner	0.99
Wooloowin – Lutwyche	Inner	0.94
South Brisbane	Inner	0.93
Corinda	Middle West	0.91
Holland Park	Middle South	0.90
Chermside West	Middle North	0.90
Logan Central	Logan	0.89
Clayfield	Inner	0.88
Clontarf	Moreton Bay North	0.88
Mitchelton	Middle West	0.87

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to education infrastructure: growth areas

The score for consolidation growth areas was 0.47 and the score for expansion areas was 0.37 (Table 9.8). Both were lower than the score for other (non-growth) areas (0.53). For the SA2 consolidation growth areas, scores ranged from between 0.93 for South Brisbane and under 0.20 for Surfers Paradise, Hope Island and Wurtulla-Birtinya (Table 9.9). For the expansion growth areas, scores ranged from 0.60 in Dakabin-Kallangur and Springfield Lakes to under 0.20 in Pallara-Willawong, Ripley, Redland Bay and Greenbank (Table 9.10).

Table 9.8: Access to education infrastructure in growth areas of SEQ in 2018

Growth area type	Education Infrastructure score
Consolidation	0.47
Expansion	0.37
Other (non – growth)	0.53

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.9: Access to education infrastructure by SA2 consolidation growth areas in 2018

SA2s	BCARR rings/sub-regions	Education Infrastructure score
Biggera Waters	Gold Coast	0.47
Bli Bli	Sunshine Coast	0.32
Bribie Island	Moreton Bay North	0.29
Brisbane City	Inner	0.59
Caboolture	Moreton Bay North	0.58
Caboolture – South	Moreton Bay North	0.47
Calamvale – Stretton	Middle South	0.29
Coorparoo	Middle South	0.84
Forest Lake – Doolandella	Middle West	0.60
Fortitude Valley	Inner	0.74
Hope Island	Gold Coast	0.10
Morningside – Seven Hills	Inner	0.80
Mountain Creek	Sunshine Coast	0.41
Newstead – Bowen Hills	Inner	0.57
Oxenford – Maudsland	Gold Coast	0.39
Peregian Springs	Sunshine Coast	0.43
Robina	Gold Coast	0.32
Scarborough – Newport – Moreton Island	Moreton Bay North	0.45
South Brisbane	Inner	0.93
Surfers Paradise	Gold Coast	0.18
Taigum – Fitzgibbon	Middle North	0.52
West End	Inner	0.79
Wurtulla – Birtinya	Sunshine Coast	0.08

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.10: Access to education infrastructure by SA2 expansion growth areas in 2018

SA2s	BCARR rings/sub-regions	Education Infrastructure score
Bellbird Park – Brookwater	Ipswich	0.42
Boronia Heights – Park Ridge	Logan	0.45
Caloundra – West	Sunshine Coast	0.20
Cashmere	Moreton Bay South	0.22
Chambers Flat – Logan Reserve	Logan	0.26
Coomera	Gold Coast	0.41
Dakabin – Kallangur	Moreton Bay South	0.60
Greenbank	Logan	0.02
Jimboomba	Logan	0.27
Murrumba Downs – Griffin	Moreton Bay South	0.42
Narangba	Moreton Bay North	0.45
Noosa Hinterland	Noosa	0.30
North Lakes – Mango Hill	Moreton Bay South	0.45
Ormeau – Yatala	Gold Coast	0.35
Pallara – Willawong	Middle South	0.18
Pimpama	Gold Coast	0.36
Redbank Plains	Ipswich	0.50
Redland Bay	Redland	0.16
Ripley	Ipswich	0.17
Rochedale – Burbank	Middle South	0.43
Springfield Lakes	Ipswich	0.60
Thornlands	Redland	0.28
Toowoomba – West	Toowoomba (part)	0.22
Upper Coomera – Willow Vale	Gold Coast	0.41

Notes: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3. AUO data are unavailable for the SA2 locality of Landsborough in Sunshine Coast.

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to arts and culture infrastructure: SEQ LGAs

Brisbane and Toowoomba have again scored the highest for this indicator (0.34 and 0.29), Gold Coast and Scenic Rim have also done well (0.21 each). The LGAs with the lowest scores were Sunshine Coast (0.11), Lockyer Valley (0.06) and Redland (0.05).

The high score for Gold Coast may be related to its function as a tourist and entertainment precinct. This LGA features several cinemas, art galleries and museums.

Figure 9.7: Access to arts and culture infrastructure by LGAs of SEQ in 2018

Note:

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to arts and culture infrastructure: BCARR rings and sub-regions

Inner Brisbane (0.63) scored substantially higher than the other sub-regions for access to arts and culture infrastructure. Outer Brisbane scored the lowest (0.14) (Table 9.11 and Figure 9.8). Moreton Bay North scored higher than Moreton Bay South (0.17 and 0.06, respectively).

Table 9.11: **Access to arts and culture infrastructure by SEQ rings and sub-regions in 2018**

BCARR rings/sub-regions	Arts and Culture score
INNER Brisbane*	0.63
MIDDLE Brisbane – TOTAL*	0.24
Middle East	0.02
Middle North	0.26
Middle South	0.31
Middle West	0.18
OUTER Brisbane – TOTAL	0.14
Ipswich	0.19
Redland	0.05
Logan	0.18
Moreton Bay	0.12
Moreton Bay North	0.17
Moreton Bay South	0.06
TOTAL – GREATER BRISBANE	0.25
Rest of SEQ	0.19
Gold Coast	0.21
Sunshine Coast	0.11
Noosa	0.16
Toowoomba (urban part)	0.29
Scenic Rim^	0.21
Lockyer Valley^	0.06
Somerset^	0.13
TOTAL – SOUTH EAST QUEENSLAND	0.23

Notes:

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   Only a small proportion of Mesh Blocks are captured for these LGAs. Lockyer Valley and Somerset have been excluded from the community and sport indicator due to data quality issues, likely the result of low coverage of these areas.

Source: BCARR analysis of data from the Australian Urban Observatory.

Figure 9.8: **Access to arts and culture infrastructure by SEQ rings in 2018**
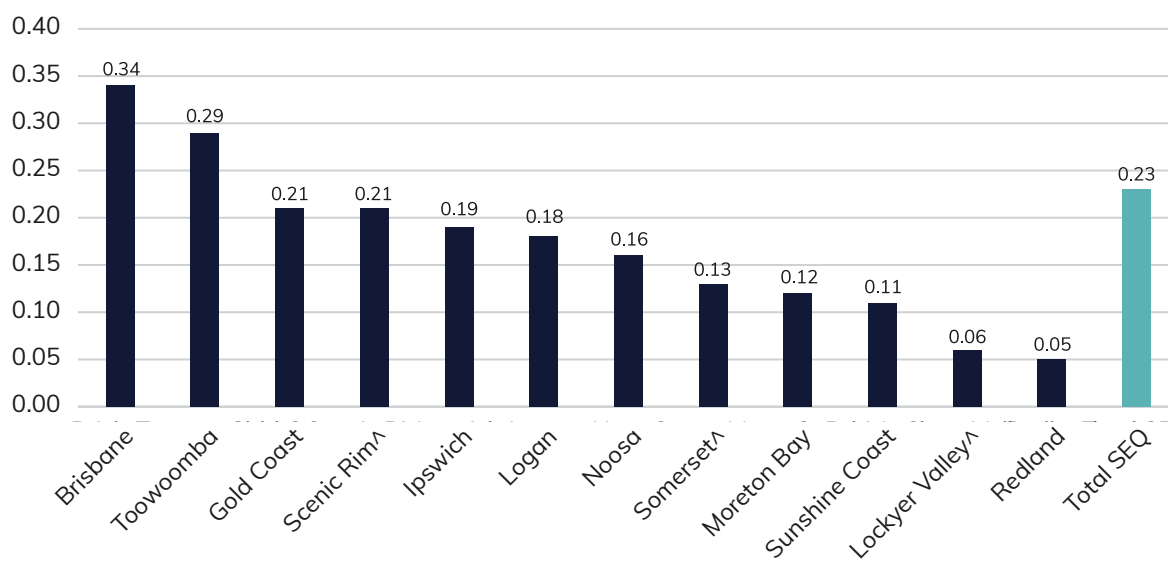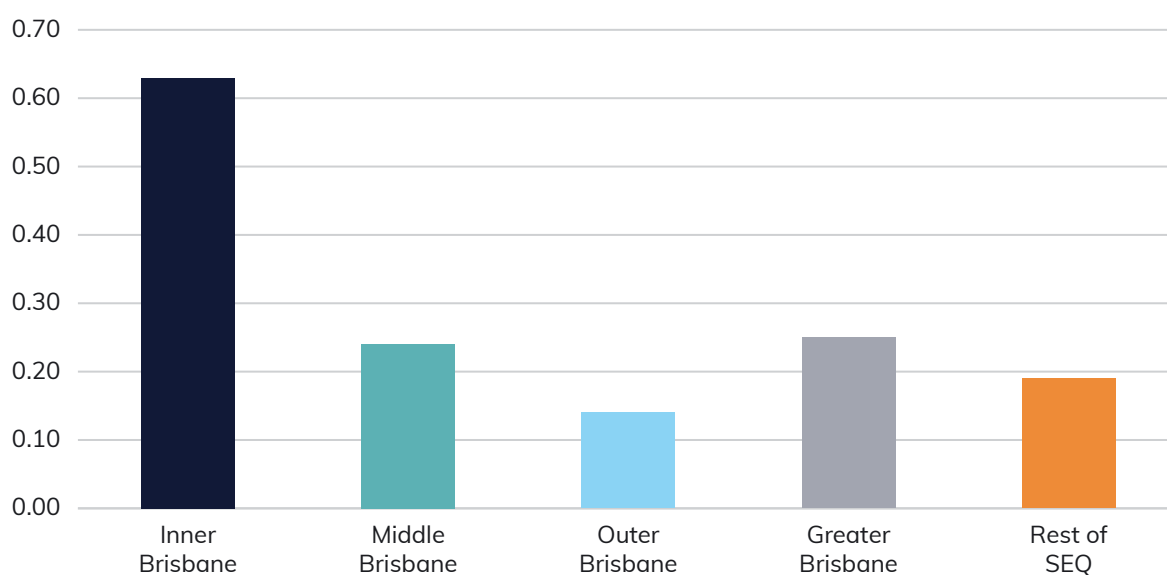

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to arts and culture infrastructure: SA2s

The SA2s around Inner Brisbane had the best access to arts and culture infrastructure (Figure 9.9). Ipswich-Central also had good access, as did: Redcliffe in Moreton Bay North; Beenleigh and Mount Warren Park in Logan; Surfers Paradise and Main Beach in Gold Coast; and the central areas of Toowoomba (Toowoomba-East and Darling Heights). Table 9.12 shows the top 10 SA2s.

The areas with low access include: much of the Sunshine Coast (except for the central band stretching west from Maroochydore); outer areas of Moreton Bay North; northern areas of the Gold Coast and Currumbin Valley; outer Ipswich; some of the outer areas of Logan including Greenbank and Crestmead; and Toowoomba West.

Figure 9.9: Access to arts and culture infrastructure by SA2s in SEQ in 2018
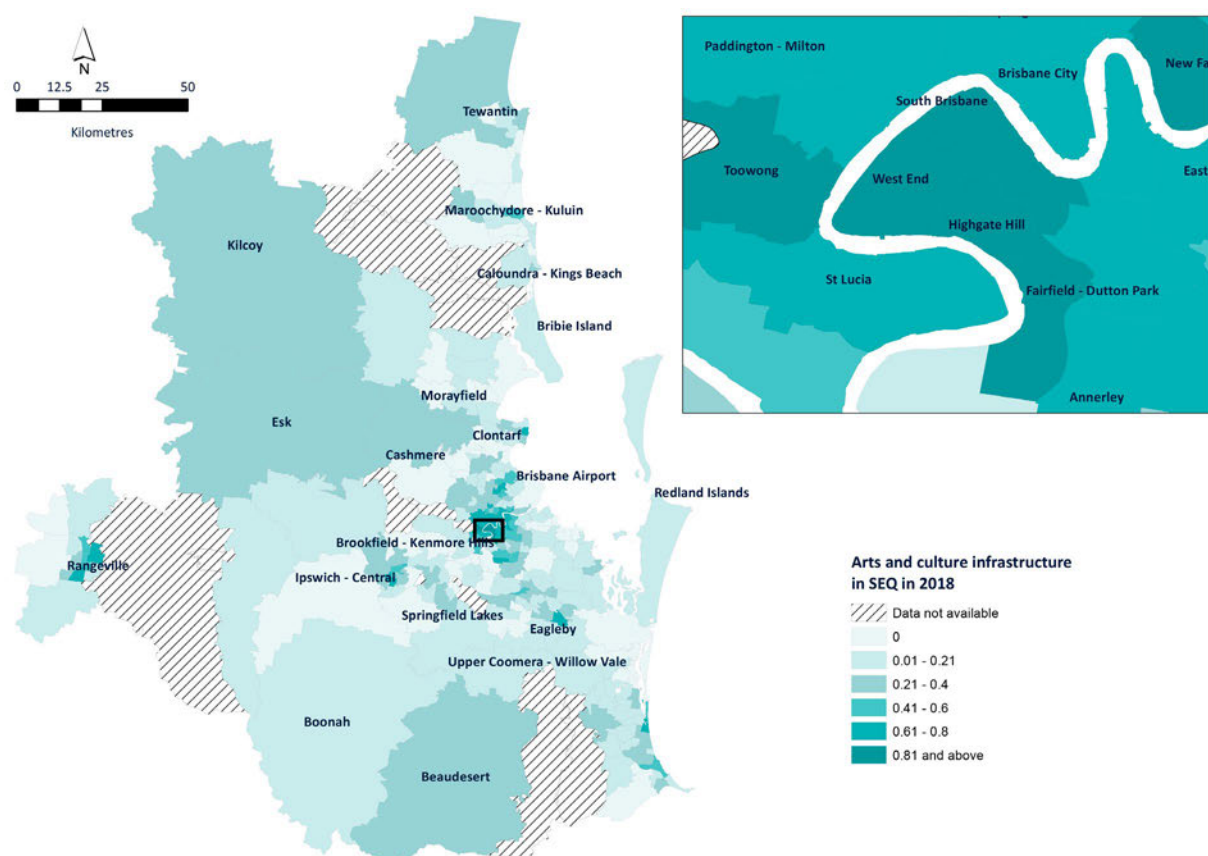
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.12: Top 10 SA2s with the highest access to arts and culture infrastructure in SEQ in 2018

SA2s	BCARR rings/sub-regions	Arts and Culture Infrastructure score
South Brisbane	Inner	0.87
Toowong	Inner	0.85
Highgate Hill	Inner	0.84
West End	Inner	0.82
Fairfield – Dutton Park	Middle South	0.82
New Farm	Inner	0.81
Brisbane City	Inner	0.80
Woolloongabba	Middle South	0.79
Greenslopes	Middle South	0.77
Ipswich – Central	Ipswich	0.76

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to arts and culture infrastructure: growth areas

For arts and culture infrastructure, the consolidation growth areas (0.32) scored much higher than the expansion growth areas (0.07) and other (non-growth) areas (0.24) (Table 9.13). For consolidation growth SA2s, South Brisbane, West End and Brisbane City scored the highest (0.87, 0.82 and 0.80, respectively) (Table 9.14). There were several SA2s that scored 0, including four SA2s from Sunshine Coast. Scores for the expansion growth areas were much lower, ranging from 0.26 for Noosa Hinterland to 0 for several SA2s (Table 9.15). Three of the lowest scoring SA2s were from Moreton Bay South.

Table 9.13: Access to arts and culture infrastructure in growth areas of SEQ in 2018

Growth area type	Arts and Culture Infrastructure score
Consolidation	0.32
Expansion	0.07
Other (non – growth)	0.24

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.14: Access to arts and culture infrastructure by SA2 consolidation growth areas in 2018

SA2s	BCARR rings/sub-regions	Arts and Culture Infrastructure score
Biggera Waters	Gold Coast	0.33
Bli Bli	Sunshine Coast	0.00
Bribie Island	Moreton Bay North	0.18
Brisbane City	Inner	0.80
Caboolture	Moreton Bay North	0.14
Caboolture – South	Moreton Bay North	0.00
Calamvale – Stretton	Middle South	0.02
Coorparoo	Middle South	0.56
Forest Lake – Doolandella	Middle West	0.00
Fortitude Valley	Inner	0.67
Hope Island	Gold Coast	0.00
Morningside – Seven Hills	Inner	0.60
Mountain Creek	Sunshine Coast	0.00
Newstead – Bowen Hills	Inner	0.68
Oxenford – Maudsland	Gold Coast	0.14
Peregian Springs	Sunshine Coast	0.00
Robina	Gold Coast	0.35
Scarborough – Newport – Moreton Island	Moreton Bay North	0.19
South Brisbane	Inner	0.87
Surfers Paradise	Gold Coast	0.66
Taigum – Fitzgibbon	Middle North	0.14
West End	Inner	0.82
Wurtulla – Birtinya	Sunshine Coast	0.00

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.15: Access to arts and culture infrastructure by expansion growth areas in 2018

SA2s	BCARR rings/sub-regions	Arts and Culture Infrastructure score
Bellbird Park – Brookwater	Ipswich	0.21
Boronia Heights – Park Ridge	Logan	0.00
Caloundra – West	Sunshine Coast	0.16
Cashmere	Moreton Bay South	0.00
Chambers Flat – Logan Reserve	Logan	0.00
Coomera	Gold Coast	0.08
Dakabin – Kallangur	Moreton Bay South	0.00
Greenbank	Logan	0.00
Jimboomba	Logan	0.07
Murrumba Downs – Griffin	Moreton Bay South	0.00
Narangba	Moreton Bay North	0.25
Noosa Hinterland	Noosa	0.26
North Lakes – Mango Hill	Moreton Bay South	0.02
Ormeau – Yatala	Gold Coast	0.02
Pallara – Willawong	Middle South	0.00
Pimpama	Gold Coast	0.00
Redbank Plains	Ipswich	0.02
Redland Bay	Redland	0.02
Ripley	Ipswich	0.00
Rochedale – Burbank	Middle South	0.00
Springfield Lakes	Ipswich	0.24
Thornlands	Redland	0.05
Toowoomba – West	Toowoomba (urban part)	0.00
Upper Coomera – Willow Vale	Gold Coast	0.14

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
          AUO data are unavailable for the SA2 locality of Landsborough in Sunshine Coast.
Source: BCARR analysis of data from the Australian Urban Observatory.

Access to community and sports infrastructure: SEQ LGAs

The LGAs that scored highest for access to community and sports infrastructure were Brisbane (0.08), Scenic Rim (0.05) and Toowoomba (0.05) (Figure 9.10). The LGAs that scored lowest were Noosa, Redland and Ipswich (all scored 0.01). The score for the whole of SEQ was 0.04.

It is interesting that while Brisbane is again the highest scoring LGA, Scenic Rim, one of the smallest LGAs, has scored slightly higher than Toowoomba. The main town centre of Beaudesert has an olympic-sized swimming pool and houses a range of sporting clubs and associations (Scenic Rim Regional Council 2022). This may reflect the way in which sporting associations often play an important role in small regional towns in relation to supporting social capital and community engagement (Tonts 2005).

Figure 9.10: **Access to community and sports infrastructure by LGAs of SEQ in 2018**

Note:

^   Only a small proportion of Mesh Blocks are captured for these LGAs. Lockyer Valley and Somerset have been excluded due to data quality issues, likely the result of low coverage of these areas.

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to community and sports infrastructure: BCARR rings and sub-regions

Inner Brisbane had the best access to community and sports infrastructure (0.12), which was higher than Middle Brisbane (0.07), Rest of SEQ (0.02) and Outer Brisbane (0.02) (Table 9.16 and Figure 9.11). Moreton Bay North scored higher than Moreton Bay South (0.05 compared with 0.02).

Table 9.16: **Access to community and sports infrastructure by SEQ rings and sub-regions in 2018**

BCARR rings/sub-regions	Community and Sports infrastructure score
INNER Brisbane*	0.12
MIDDLE Brisbane – TOTAL*	0.07
Middle East	0.03
Middle North	0.04
Middle South	0.11
Middle West	0.06
OUTER Brisbane – TOTAL	0.02
Ipswich	0.01
Redland	0.01
Logan	0.02
Moreton Bay	0.03
Moreton Bay North	0.05
Moreton Bay South	0.02
TOTAL – GREATER BRISBANE	0.06
Rest of SEQ	0.02
Gold Coast	0.02
Sunshine Coast	0.02
Noosa	0.01
Toowoomba (urban part)	0.05
Scenic Rim^	0.05
Lockyer Valley^	–
Somerset^	–
TOTAL – SOUTH EAST QUEENSLAND	0.04

Notes:

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   Only a small proportion of Mesh Blocks are captured for these LGAs. Lockyer Valley and Somerset have been excluded from the community and sport indicator due to data quality issues, likely the result of low coverage of these areas.

Source: BCARR analysis of data from the Australian Urban Observatory.

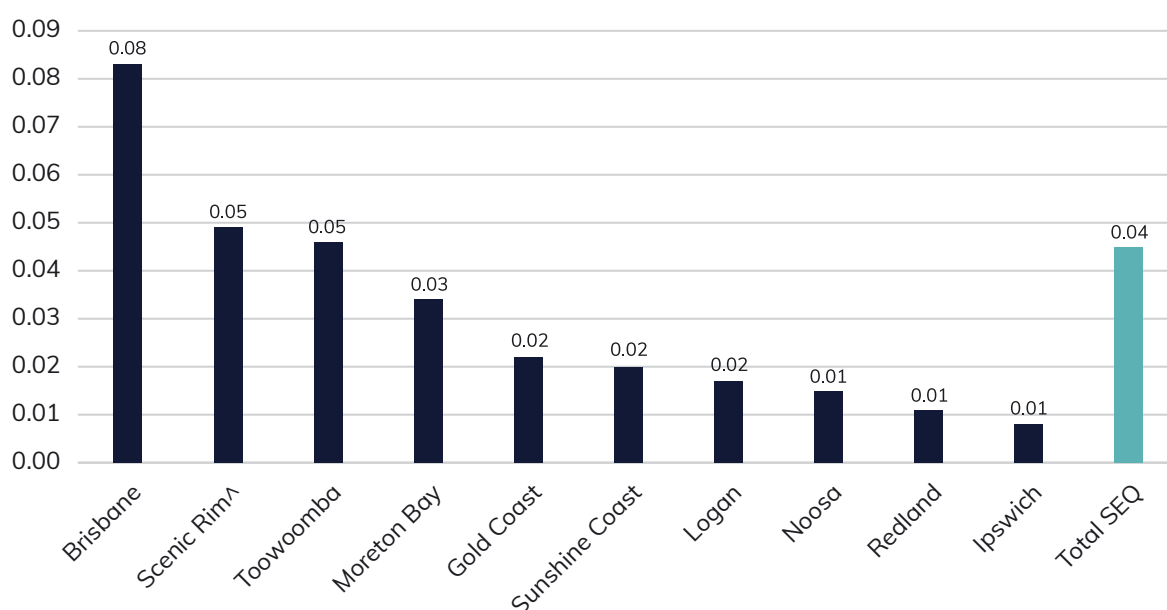**Figure 9.11:** **Access to community and sports infrastructure by SEQ rings in 2018**
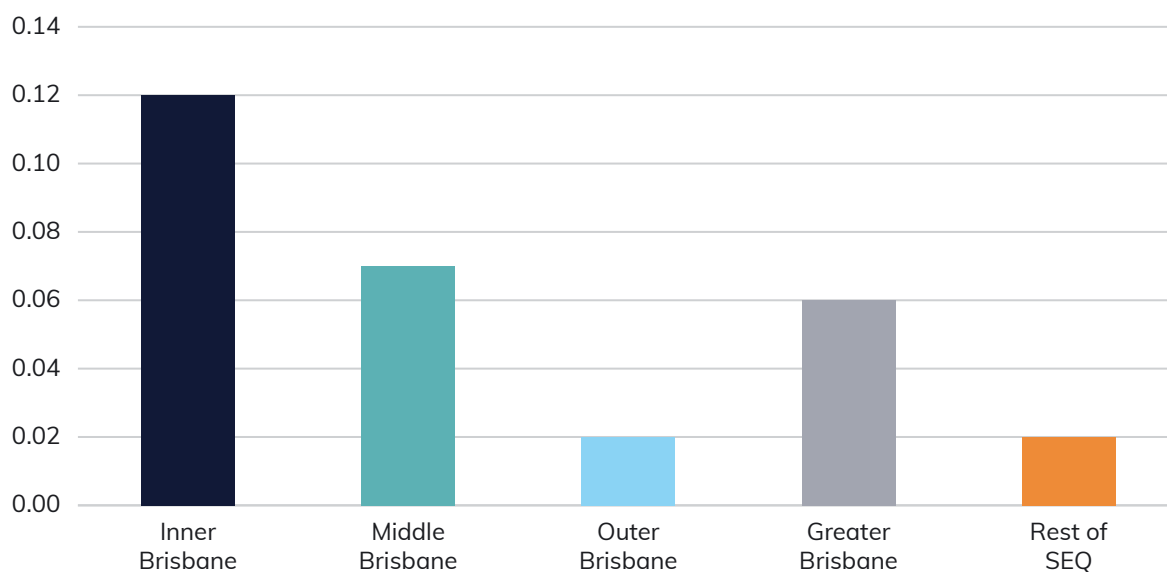
Source: BCARR analysis of data from the Australian Urban Observatory.

Access to community and sports infrastructure: SA2s

The map below (Figure 9.12) shows the highest scoring SA2s centred around Inner Brisbane (see Table 9.17 for the top 10 SA2s).

Figure 9.12: **Access to community and sports infrastructure by SA2s in SEQ in 2018**
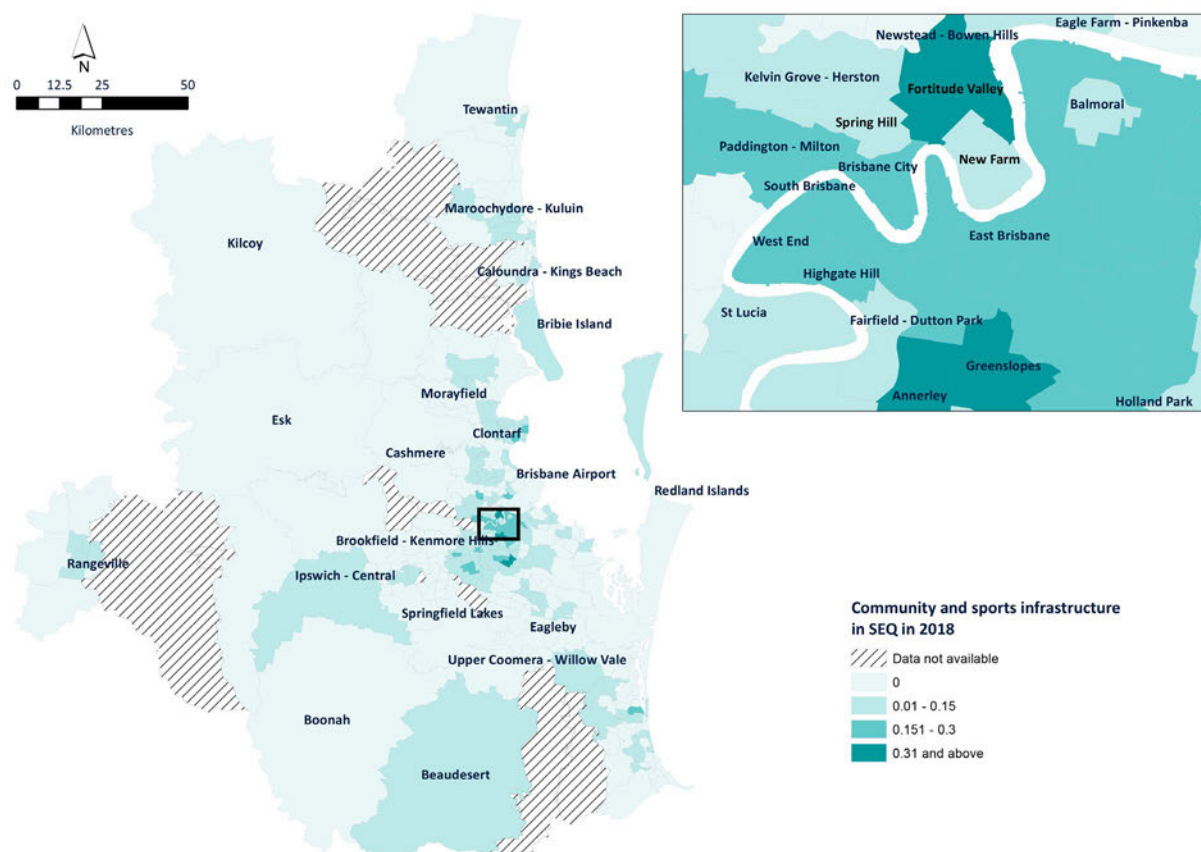
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.17: Top 10 SA2s with highest access to community and sports infrastructure in SEQ in 2018

SA2s	BCARR rings/sub-regions	Community and sports Infrastructure score
Sunnybank	Middle South	0.37
Annerley	Middle South	0.33
Fortitude Valley	Inner	0.33
Newstead – Bowen Hills	Inner	0.31
Macgregor (Qld)	Middle South	0.30
Greenslopes	Middle South	0.30
East Brisbane	Inner	0.28
Brisbane City	Inner	0.28
South Brisbane	Inner	0.26
Corinda	Middle West	0.26

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to community and sports infrastructure: growth areas

The consolidation growth areas (0.08) scored much higher than expansion growth areas (0.01) and other (non-growth) areas (0.04) (Table 9.18). The highest scoring SA2s from the consolidation growth areas were Fortitude Valley (0.33) and Newstead-Bowen Hills (0.31) (Table 9.19). Several SA2s scored 0, including all of the Sunshine Coast SA2s and most of the Gold Coast SA2s. Only two expansion SA2s scored above 0 – Upper Coomera – Willow Vale (0.08) and North Lakes – Mango Hill (0.01) (Table 9.20).

Table 9.18: Access to community and sports infrastructure in growth areas of SEQ in 2018

Growth area type h area type	Community and sports Infrastructure score
Consolidation	0.08
Expansion	0.01
Other (non – growth)	0.04

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.19: Access to arts and culture and community and sports infrastructure by SA2 consolidation growth areas in 2018

SA2s	BCARR rings/sub-regions	Community and sports Infrastructure score
Biggera Waters	Gold Coast	0.00
Bli Bli	Sunshine Coast	0.00
Bribie Island	Moreton Bay North	0.04
Brisbane City	Inner	0.28
Caboolture	Moreton Bay North	0.03
Caboolture – South	Moreton Bay North	0.04
Calamvale – Stretton	Middle South	0.00
Coorparoo	Middle South	0.23
Forest Lake – Doolandella	Middle West	0.00
Fortitude Valley	Inner	0.33
Hope Island	Gold Coast	0.00
Morningside – Seven Hills	Inner	0.18
Mountain Creek	Sunshine Coast	0.00
Newstead – Bowen Hills	Inner	0.31
Oxenford – Maudsland	Gold Coast	0.00
Peregian Springs	Sunshine Coast	0.00
Robina	Gold Coast	0.03
Scarborough – Newport – Moreton Island	Moreton Bay North	0.00
South Brisbane	Inner	0.26
Surfers Paradise	Gold Coast	0.00
Taigum – Fitzgibbon	Middle North	0.08
West End	Inner	0.21
Wurtulla – Birtinya	Sunshine Coast	0.00

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.20: Access to community and sports infrastructure by expansion growth areas in 2018

SA2s	BCARR rings/sub-regions	Community and sports Infrastructure score
Bellbird Park – Brookwater	Ipswich	0.00
Boronia Heights – Park Ridge	Logan	0.00
Caloundra – West	Sunshine Coast	0.00
Cashmere	Moreton Bay South	0.00
Chambers Flat – Logan Reserve	Logan	0.00
Coomera	Gold Coast	0.00
Dakabin – Kallangur	Moreton Bay South	0.00
Greenbank	Logan	0.00
Jimboomba	Logan	0.00
Murrumba Downs – Griffin	Moreton Bay South	0.00
Narangba	Moreton Bay North	0.00
Noosa Hinterland	Noosa	0.00
North Lakes – Mango Hill	Moreton Bay South	0.01
Ormeau – Yatala	Gold Coast	0.00
Pallara – Willawong	Middle South	0.00
Pimpama	Gold Coast	0.00
Redbank Plains	Ipswich	0.00
Redland Bay	Redland	0.00
Ripley	Ipswich	0.00
Rochedale – Burbank	Middle South	0.00
Springfield Lakes	Ipswich	0.00
Thornlands	Redland	0.00
Toowoomba – West	Toowoomba (urban part)	0.00
Upper Coomera – Willow Vale	Gold Coast	0.08

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
        AUO data are unavailable for the SA2 locality of Landsborough in Sunshine Coast.

Source: BCARR analysis of data from the Australian Urban Observatory

9.3 Walkability

Walkability is a measure of the extent to which people can 'move around their local neighbourhoods to complete everyday activities' (AUO 2022). It encompasses three key factors: proximity to services of daily living (something to walk to), street connectivity and dwelling density. See Box 9.3 for more information on how this indicator is measured.

Walkability: LGAs

In 2018, SEQ scored 0.15 on the walkability index (Figure 9.13). The LGAs that scored highest were Brisbane (1.29), Gold Coast (0.48) and Sunshine Coast (−0.35). The LGAs that scored lowest were Scenic Rim (−3.58), Somerset (−4.04) and Lockyer Valley (−5.40).

It is likely that population density is a factor here, as dwelling density it is a component of the walkability measure (Box 9.3). The two highest scoring LGAs (Brisbane and Gold Coast) have the highest population densities (see Chapter 3).

Box 9.3: How is walkability measured?

The walkability index is calculated as the sum of normalised scores for three factors: local neighbourhood street connectivity, dwelling density and daily living score (Gunn et al., 2017). Street connectivity is calculated as the number of intersections within the local walkable neighbourhood. Dwelling density is the number of (estimated) dwellings reachable within the local walkable neighbourhood. The AUO estimates dwelling locations by taking the number of dwellings in a Mesh Block and assigning them proportionally to all the GNAF address points within the Mesh Block. A daily living score is based on access to three kinds of basic amenities including a public transport stop, a supermarket, and a convenience location (including convenience stores, newsagents and petrol stations—places where people can get basics like milk and a newspaper) (AUO 2021).

A score of zero on the walkability index represents the mean at the Mesh Block level. The score for each LGA is a weighted average of all the Mesh Blocks in the LGA.

Figure 9.13: Walkability by LGAs of SEQ in 2018
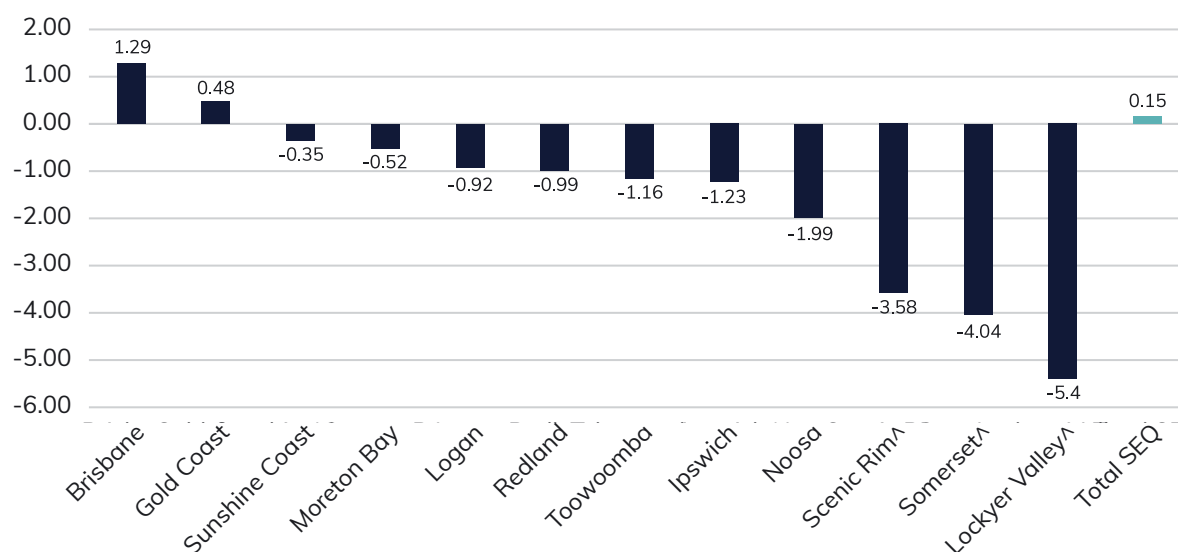
Note:

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory

Walkability: BCARR rings and sub-regions

Inner Brisbane scored substantially higher on the walkability index (3.29) than the next highest region–Middle Brisbane (0.59) (Table 9.21 and Figure 9.14). Outer Brisbane was the least walkable region (–0.82). Moreton Bay South scored higher than Moreton Bay North (0.12 compared with –0.99).

Table 9.21: Walkability by SEQ rings and sub-regions in 2018

BCARR rings/sub-region	Walkability index
INNER Brisbane*	3.29
MIDDLE Brisbane – TOTAL*	0.59
Middle East	0.23
Middle North	0.82
Middle South	0.85
Middle West	0.12
OUTER Brisbane – TOTAL	–0.82
Ipswich	–1.23
Redland	–0.99
Logan	–0.92
Moreton Bay	–0.52
Moreton Bay North	–0.99
Moreton Bay South	0.12
TOTAL – GREATER BRISBANE	0.33
Rest of SEQ	–0.19
Gold Coast	0.48
Sunshine Coast	–0.35
Noosa	–1.99
Toowoomba (urban part)	–1.16
Scenic Rim^	–3.58
Lockyer Valley^	–5.40
Somerset^	–4.04
TOTAL – SOUTH EAST QUEENSLAND	0.15

Note:

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Figure 9.14: Walkability by SEQ rings in 2018

Source: BCARR analysis of data from the Australian Urban Observatory.

Walkability: SA2s

The map below (Figure 9.15) shows highly walkable areas around Inner and Middle Brisbane, the coastal strips of Sunshine Coast and Gold Coast, the coastal areas of Moreton Bay (surrounding Clontarf), and central Toowoomba (see Table 9.22 for top 10 SA2s). Areas of lower walkability are evident in Wamuran and Elimbah (upper Moreton Bay North), areas of Logan (Greenbank, Logan Village and Munruben), Gowrie in Toowoomba, Currumbin Valley in the Gold Coast, and Karalee in Ipswich.

Figure 9.15: Walkability in SA2s of SEQ in 2018
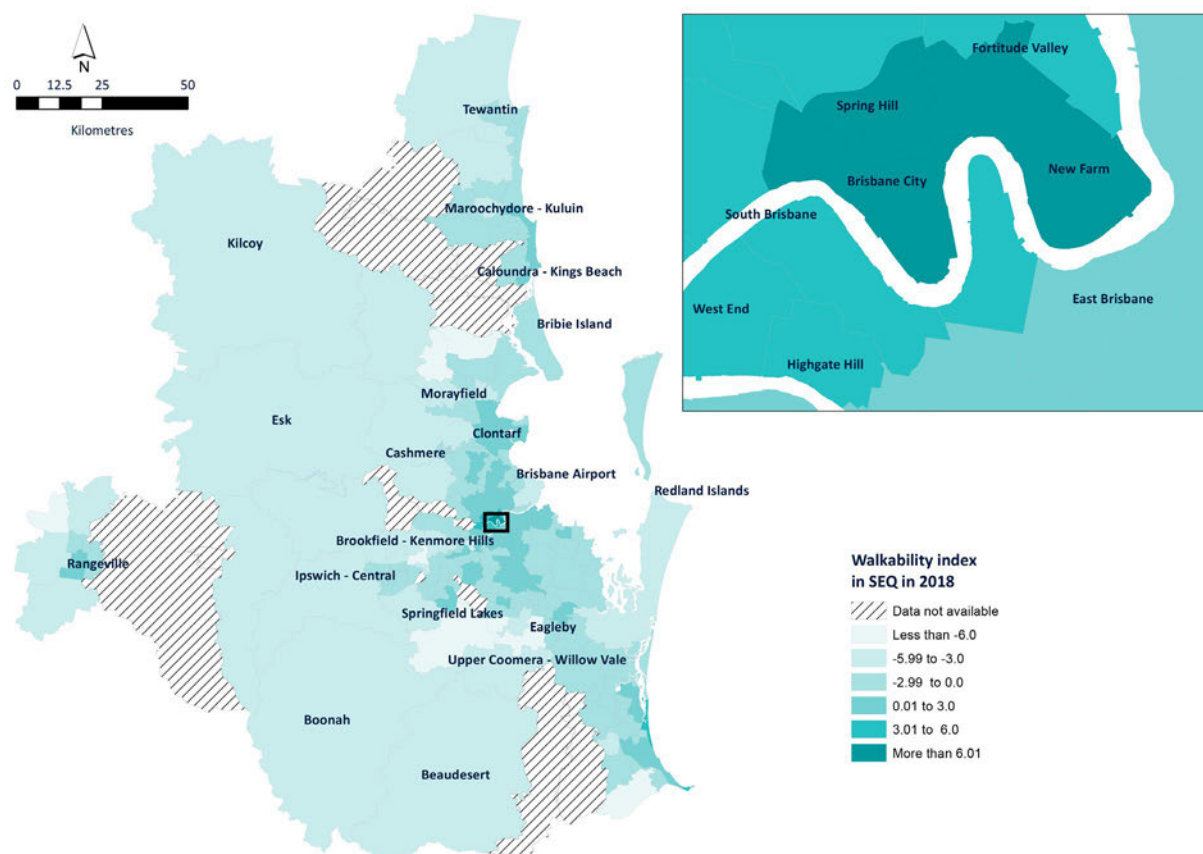
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.22: Top 10 SA2s with the highest walkability scores in SEQ in 2018

SA2s	BCARR rings/sub-regions	Walkability Index
Fortitude Valley	Inner	6.82
Brisbane City	Inner	6.80
Spring Hill	Inner	6.67
New Farm	Inner	6.10
Newstead – Bowen Hills	Inner	5.78
Surfers Paradise	Gold Coast	5.76
Kangaroo Point	Inner	5.19
South Brisbane	Inner	4.66
Main Beach	Gold Coast	4.47
West End	Inner	4.31

Source: BCARR analysis of data from the Australian Urban Observatory.

Walkability: SA2 growth areas

The consolidation growth areas scored higher than the expansion growth areas and other (non-growth) areas (1.69, 1.12 and 0.09, respectively) (Table 9.23). Table 9.24 shows the SA2s for the consolidation growth areas. Scores ranged from 6.82 for Fortitude Valley in Inner Brisbane to −2.19 for Bli Bli in Sunshine Coast. For the expansion areas, walkability scores ranged from 1.19 for North Lakes-Mango Hill in Moreton Bay South, to −6.95 for Greenbank in Logan (Table 9.25).

Table 9.23: Walkability by growth areas in SEQ in 2018

Growth area type	Walkability Index
Consolidation	1.69
Expansion	−1.12
Other (non – growth)	0.09

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.24: Walkability by SA2 consolidation growth areas in 2018

SA2s	BCARR rings/sub-regions	Walkability Index
Biggera Waters	Gold Coast	1.89
Bli Bli	Sunshine Coast	−2.19
Bribie Island	Moreton Bay North	−0.64
Brisbane City	Inner	6.80
Caboolture	Moreton Bay North	−1.22
Caboolture – South	Moreton Bay North	−0.71
Calamvale – Stretton	Middle South	1.17
Coorparoo	Middle South	2.05
Forest Lake – Doolandella	Middle West	1.43
Fortitude Valley	Inner	6.82
Hope Island	Gold Coast	−1.52
Morningside – Seven Hills	Inner	1.82
Mountain Creek	Sunshine Coast	−0.08
Newstead – Bowen Hills	Inner	5.78
Oxenford – Maudsland	Gold Coast	−1.57
Peregian Springs	Sunshine Coast	−1.76
Robina	Gold Coast	0.69
Scarborough – Newport – Moreton Island	Moreton Bay North	−1.52
South Brisbane	Inner	4.66
Surfers Paradise	Gold Coast	5.76
Taigum – Fitzgibbon	Middle North	2.42
West End	Inner	4.31
Wurtulla – Birtinya	Sunshine Coast	0.70

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.25: Walkability by SA2 expansion growth areas in 2018

SA2s	BCARR rings/sub-regions	Walkability Index
Bellbird Park – Brookwater	Ipswich	−1.05
Boronia Heights – Park Ridge	Logan	−1.37
Caloundra – West	Sunshine Coast	−0.08
Cashmere	Moreton Bay South	−1.47
Chambers Flat – Logan Reserve	Logan	−5.41
Coomera	Gold Coast	−0.81
Dakabin – Kallangur	Moreton Bay South	0.91
Greenbank	Logan	−6.95
Jimboomba	Logan	−4.57
Murrumba Downs – Griffin	Moreton Bay South	0.91
Narangba	Moreton Bay North	−0.44
Noosa Hinterland	Noosa	−4.90
North Lakes – Mango Hill	Moreton Bay South	1.19
Ormeau – Yatala	Gold Coast	−2.52
Pallara – Willawong	Middle South	−0.07
Pimpama	Gold Coast	−2.05
Redbank Plains	Ipswich	−0.75
Redland Bay	Redland	−1.72
Ripley	Ipswich	−4.18
Rochedale – Burbank	Middle South	−2.33
Springfield Lakes	Ipswich	0.98
Thornlands	Redland	−1.23
Toowoomba – West	Toowoomba	−3.88
Upper Coomera – Willow Vale	Gold Coast	−0.71

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
         AUO data are unavailable for the SA2 locality of Landsborough in Sunshine Coast.
Source: BCARR analysis of data from the Australian Urban Observatory.

9.4   Access to public open space

The AUO defines public open space as 'areas such as parks and recreational reserves, public gardens, nature reserves, civic areas and promenades' (AUO, 2022) that are publicly available for everyone to use. An important aspect of this definition is that public open spaces do not only include green areas such as parklands and nature reserves, but other spaces that may not necessarily have coverage of green canopy. It is also important that such areas are publicly accessible.

There are many benefits to having such spaces in urban environments. Parks and green spaces can support environmental health, create opportunities for recreation and physical activity, facilitate social interaction and have a positive impact upon health and well-being (Davern et al. 2017). Civic spaces that may not include green areas, such as town squares, are also important as they are places where people can gather together, thus affording social benefit.

Box 9.4: How is public open space identified?

GIS analysis was used to identify areas of public open space (POS) greater than 1.5 hectares in area. Access points are not available for Australian POS so the AUO generates potential access points every 20 metres along the road network to create a national POS dataset. POS geometries are then buffered by 20 metres, and any potential access points that intersect those buffers, are treated as an access point. Areas of open space, and those which may be considered publicly accessible, were identified using a detailed set of morphological criterions.

The score for this indicator is a measure of the percentage of dwellings within 400m of public open space greater than 1.5 hectares.

Access to public open space: LGAs

In 2018, 54.5 per cent of dwellings in SEQ had access to public open space (Table 9.16). Redland, Noosa and Gold Coast residents had the best access to public open space (with scores of 64.9 per cent, 60.7 per cent and 58.7 per cent, respectively).

The LGAs that scored lowest on this measure were Scenic Rim (40.9 per cent), Somerset (16.2 per cent) and Lockyer Valley (13.0 per cent). These results may seem surprising as these LGAs are in semi-rural or regional areas and may include rural properties or bushland. Such areas, however, may not be publicly accessible or able to be identified as such (see Box 9.4).

Figure 9.16: **Access to public open space by LGAs of SEQ in 2018**
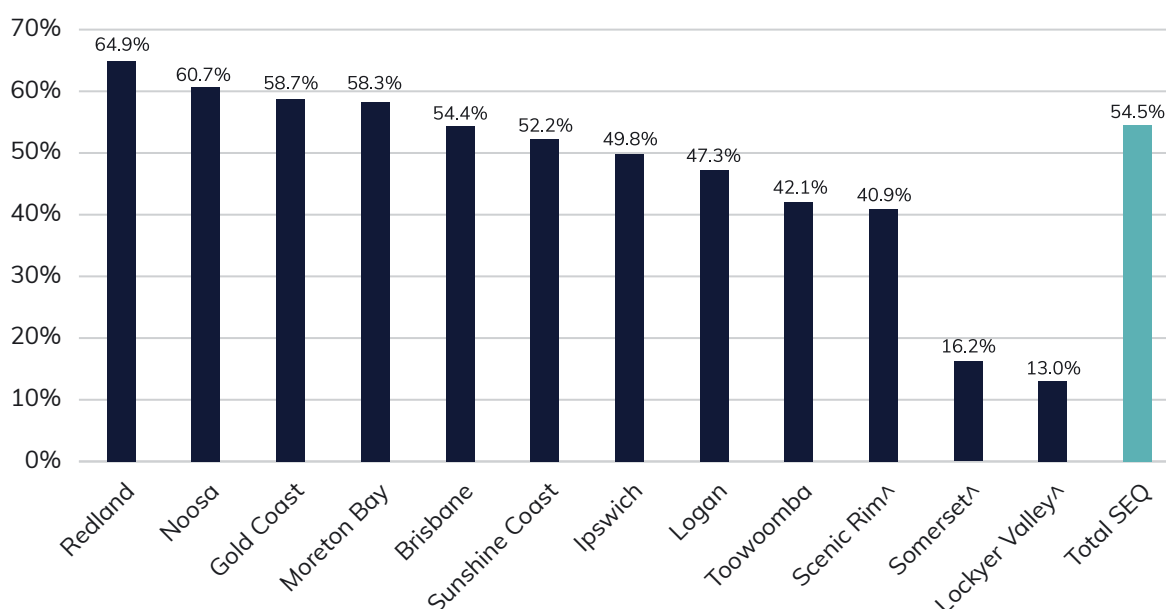
Note:

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to public open space: BCARR rings and sub-regions

Figure 9.17 shows that there was little difference with regard to the rings and sub-regions, with Middle and Outer Brisbane scoring the highest (55.1 per cent and 54.8 per cent, respectively), and Inner Brisbane scoring the lowest (52.3 per cent) (Table 9.26). However, it must be noted, that there was a great deal of variation within the sub-regions: ranging from between 52.5 and 58.3 per cent for Middle Brisbane, between 47.3 and 64.9 per cent for Outer Brisbane, and between 13.0 and 60.7 per cent for the Rest of SEQ. Moreton Bay South scored substantially higher than Moreton Bay North (61.7 per cent compared with 55.8 per cent).

Table 9.26: Access to public open space by SEQ rings and sub-regions in 2018

BCARR rings/sub-regions	Access to public open space (per cent of dwellings)
INNER Brisbane*	52.3
MIDDLE Brisbane – TOTAL*	55.1
Middle East	57.2
Middle North	55.0
Middle South	52.5
Middle West	58.3
OUTER Brisbane – TOTAL	54.8
Ipswich	49.8
Redland	64.9
Logan	47.3
Moreton Bay	58.3
Moreton Bay North	55.8
Moreton Bay South	61.7
TOTAL – GREATER BRISBANE	54.7
Rest of SEQ	54.2
Gold Coast	58.7
Sunshine Coast	52.2
Noosa	60.7
Toowoomba (urban part)	42.1
Scenic Rim^	40.9
Lockyer Valley^	13.0
Somerset^	16.2
TOTAL – SOUTH EAST QUEENSLAND	54.5

Notes:

*   The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^   Only a small proportion of Mesh Blocks are captured for these LGAs.

Source: BCARR analysis of data from the Australian Urban Observatory.

Figure 9.17: **Access to public open space by SEQ rings in 2018**
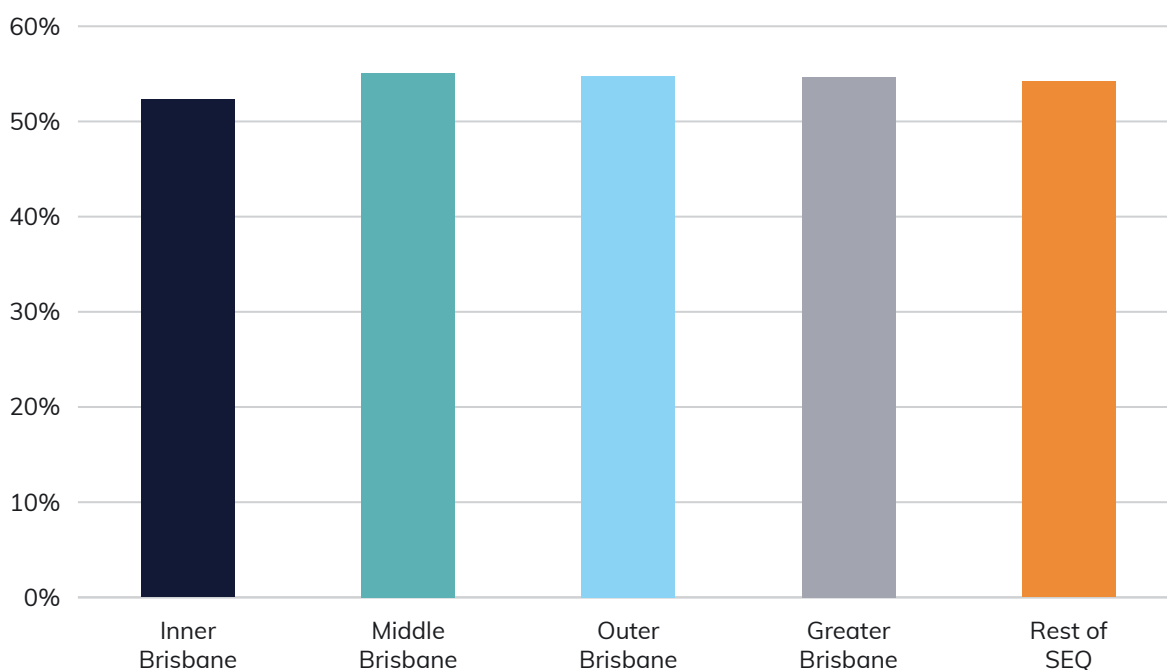
Source: BCARR analysis of data from the Australian Urban Observatory.

Access to public open space: SA2s

Figure 9.18 shows the distribution of scores for the SA2s. As can be seen, the SA2s around Middle Brisbane scored the highest, with areas of good access to public open space extending south through Logan and Redland to the coastal areas of the Gold Coast. Redland Islands and Bribie Island scored well, as did the coastal areas of the Sunshine Coast and Noosa (see Table 9.27 for the top ten SA2s).

SA2s with lower access included areas of Moreton Bay North (Woodford-D' Aguilar, Morayfield and Elimbah), the outer SA2s in Toowoomba (Gowrie, Cambooya-Wyreema, Toowoomba-West and Highfields), the southern inland areas of the Gold Coast (Highland Park, Worongary-Tallai and Currumbin Valley-Tallebudgera), Lowood (south Somerset) and Lockyer Valley-East, and Logan Village and adjacent Greenbank.

Figure 9.18: Access to public open space by SA2s in SEQ in 2018
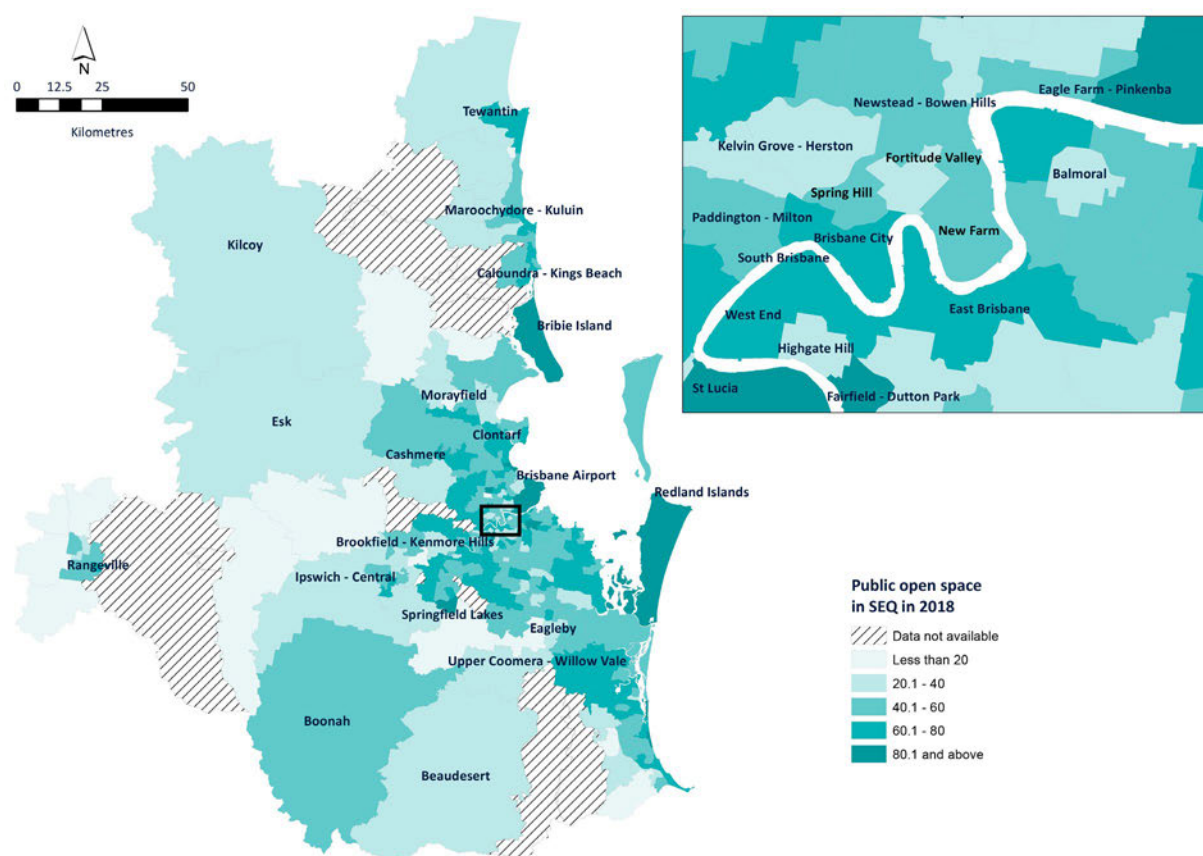
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.27: Top 10 SA2s with the highest access to public open space in SEQ in 2018

SA2s	BCARR rings/ sub-regions	Public open space score (per cent of dwellings)
Redland Islands	Redland	99.3
Bribie Island	Moreton Bay North	99.3
Eagle Farm – Pinkenba	Middle North	95.5
Sandgate – Shorncliffe	Middle North	86.6
Tingalpa	Middle East	83.7
Chermside West	Middle North	82.5
St Lucia	Middle West	82.5
Fairfield – Dutton Park	Middle South	81.7
Mermaid Beach – Broadbeach	Gold Coast	81.7
Main Beach	Gold Coast	81.2

Source: BCARR analysis of data from the Australian Urban Observatory.

Access to public open space: growth areas

Table 9.28 shows the results for the growth areas. Both scored higher than other (non-growth) areas (58.4 per cent, 56.5 per cent and 53.6 per cent, respectively). For the SA2 consolidation growth areas, scores ranged from 99.3 per cent in Bribie Island to below 30 per cent in Biggera Waters, Bli Bli and Peregian Springs (Table 9.29). For the SA2 expansion areas, scores ranged from 80.8 per cent in Springfield Lakes to 14.1 per cent in Greenbank (Table 9.30).

Table 9.28: Access to public open space in growth areas of SEQ in 2018

Growth area type	Access to public open space (per cent of dwellings)
Consolidation	58.4
Expansion	56.5
Other (non – growth)	53.6

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.29: Access to public open space by SA2 consolidation growth areas in 2018

SA2s	BCARR rings/ sub-regions	Access to public open space (per cent of dwellings)
Biggera Waters	Gold Coast	27.0
Bli Bli	Sunshine Coast	26.4
Bribie Island	Moreton Bay North	99.3
Brisbane City	Inner	75.3
Caboolture	Moreton Bay North	49.8
Caboolture – South	Moreton Bay North	47.2
Calamvale – Stretton	Middle South	51.6
Coorparoo	Middle South	34.9
Forest Lake – Doolandella	Middle West	65.8
Fortitude Valley	Inner	31.3
Hope Island	Gold Coast	59.3
Morningside – Seven Hills	Inner	40.2
Mountain Creek	Sunshine Coast	69.4
Newstead – Bowen Hills	Inner	57.9
Oxenford – Maudsland	Gold Coast	79.6
Peregian Springs	Sunshine Coast	3.71
Robina	Gold Coast	45.3
Scarborough – Newport – Moreton Island	Moreton Bay North	49.6
South Brisbane	Inner	71.0
Surfers Paradise	Gold Coast	76.8
Taigum – Fitzgibbon	Middle North	66.8
West End	Inner	62.1
Wurtulla – Birtinya	Sunshine Coast	70.8

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
Source: BCARR analysis of data from the Australian Urban Observatory.

Table 9.30: Access to public open space by SA2 expansion growth areas in 2018

SA2s	BCARR rings/sub-regions	Access to public open space (per cent of dwellings)
Bellbird Park – Brookwater	Ipswich	49.6
Boronia Heights – Park Ridge	Logan	40.1
Caloundra – West	Sunshine Coast	51.1
Cashmere	Moreton Bay South	60.9
Chambers Flat – Logan Reserve	Logan	49.3
Coomera	Gold Coast	72.5
Dakabin – Kallangur	Moreton Bay South	57.0
Greenbank	Logan	14.1
Jimboomba	Logan	26.0
Murrumba Downs – Griffin	Moreton Bay South	70.7
Narangba	Moreton Bay North	63.9
Noosa Hinterland	Noosa	23.3
North Lakes – Mango Hill	Moreton Bay South	68.6
Ormeau – Yatala	Gold Coast	47.9
Pallara – Willawong	Middle South	69.8
Pimpama	Gold Coast	68.4
Redbank Plains	Ipswich	66.4
Redland Bay	Redland	65.1
Ripley	Ipswich	21.7
Rochedale – Burbank	Middle South	43.1
Springfield Lakes	Ipswich	80.8
Thornlands	Redland	61.6
Toowoomba – West	Toowoomba (urban part)	19.4
Upper Coomera – Willow Vale	Gold Coast	73.6

Note: Details of consolidation and expansion areas are available in chapters 1 and 4, in sections 1.3 and 4.3.
        AUO data are unavailable for the SA2 locality of Landsborough in Sunshine Coast.
Source: BCARR analysis of data from the Australian Urban Observatory.

9.5 Conclusion

Brisbane LGA scored highest for all of the AUO liveability indicators except access to public open space. The most highly liveable areas, in particular, were centred around Middle and Inner Brisbane. Toowoomba also did well on many of the indicators, scoring in the top three for all of the social infrastructure measures. While population size and density may be a factor in accounting for the success of Brisbane, this is not the case with Toowoomba, which may have relatively good access to services due to its historical function as a regional centre.

With regards to health and education infrastructure, it is evident that population structure may be a factor relevant to outcomes. Although Brisbane and Toowoomba were the highest scoring LGAs for these indicators, there are other LGAs that did well which may be related to particular demographic characteristics. Somerset, Sunshine Coast and Scenic Rim, for example, scored well on the health index and these LGAs have older populations. The LGAs with large school–aged cohorts (Logan and Ipswich) scored high on the education index.

While Brisbane and Toowoomba again achieved good results in relation to arts and culture, and community and sports infrastructure, Gold Coast and Scenic Rim did respectively well on these indicators reflecting their unique local characteristics.

In relation to access to public open space, some outer and regional LGAs (Redland, Noosa, Gold Coast and Moreton Bay) achieved the best results. Brisbane and Gold Coast scored highest for walkability, and this may be related to population density.

Outer Brisbane, lagged behind Middle and Inner Brisbane for access to social infrastructure and walkability. It achieved better results, however, for access to public open space – nudging slightly ahead of Inner Brisbane and matching Middle Brisbane.

Notably, the expansion growth areas scored lower than consolidation growth areas and other (non-growth) areas for most indicators. One reason for this, is that as developing or new areas, expansion areas have yet to establish or attract a full range of services.

The implications of this will be discussed in the next chapter, where these and other findings are examined in relation to challenges and opportunities for the future growth and development of SEQ.

CHAPTER 10

IMPLICATIONS OF GROWTH AND CONCLUSION

Key points

- SEQ is expected to reach 5.41 million population by 2041, which is a 44 per cent increase on 2020. This growth is expected to be concentrated in the Ipswich and Gold Coast LGAs, which will each add over 300,000 new residents.

- This population growth will have significant implications for housing, jobs and skills, transport and connectivity, and liveability in SEQ over the coming decades.

- SEQ is projected to add more than 800,000 new dwellings between 2016 and 2041, with the Brisbane, Ipswich and Gold Coast LGAs each projected to add between 146,000 and 156,000 new dwellings.

- Some of the housing implications of accommodating population growth in the way envisaged by the *ShapingSEQ* strategic plan include 60 per cent of new dwellings being located in the existing urban area (consolidation), a shift to more medium and higher density forms of housing, and an ongoing trend towards smaller lot sizes.

- Much of SEQ's future population growth is expected to be concentrated in outer suburban areas that currently offer relatively poor access to services and low walkability to local residents.

- Consolidation growth has far more positive outcomes than expansion growth for resident's level of access to services, access to public open space and walkability. However, housing affordability tends to be better in non-coastal outer-suburban expansion areas.

- The population growth anticipated for SEQ through to 2041 means SEQ will need around one million new jobs. The main industry sources of employment growth are expected to be Health care and social assistance (227,300) and Professional, scientific and technical services (160,000).

- The Brisbane LGA is expected to accommodate 45 per cent of employment growth (on a place of work basis), despite contributing only 19 per cent of SEQ's population growth between 2016 and 2041. The Moreton Bay, Logan and Ipswich LGAs are expected to contribute a much smaller share of SEQ's jobs growth than its population growth.

- This imbalance suggests that many of the future residents of these three outer LGAs will need to spend significant time commuting into the Brisbane LGA to access jobs. The results highlight the importance of initiatives to improve transport connections and facilitate the development of employment precincts in these suburban growth areas.

- In the short term, Professionals are expected to show the most employment growth of all occupations and strong growth is also expected in employed persons with bachelor degrees and higher qualifications. With a more educated and higher-skilled workforce, SEQ will be better prepared to adopt technological advancements.

- Commuter travel in SEQ is currently very car dependent, with the areas that are projected to grow most strongly over the next two decades typically having very low public transport use. Significant and timely investment in public transport will help reduce congestion and manage the impacts of growth on the existing road network.

- The areas that are projected to experience the largest increases in population from 2020 to 2041 (such as Ripley, Greenbank and Coomera) are all located relatively close to at least one of the Queensland Government's five key economic corridors. These corridors contain SEQ's major employment precincts.

10.1   Introduction

This study aims to pull together the evidence on how jobs, connectivity and liveability are functioning in the SEQ region, and by doing so, assist in identifying areas where more focus is needed to improve outcomes. To do this the chapter aims to link the findings of the individual chapters and understand their connections.

Queensland Government projections show that the population of SEQ is anticipated to grow to 5.41 million people by 2041, requiring more than 800,000 new dwellings and around 1 million new jobs (Queensland Government 2017, 2018a, 2019). This chapter discusses some of the implications of this future population growth in SEQ. It draws together the evidence on current and future focal points for population growth in SEQ, and explores consequences for housing, housing affordability, jobs, skills, liveability, transport and commuter flows.

10.2   Population growth in SEQ

Between 2016 and 2020, the SEQ region added more than 300,000 new residents, with the main growth LGAs being Brisbane (88,247), Gold Coast (59,888) and Moreton Bay (40,347). However, the Ipswich LGA had the highest rate of population growth, averaging 3.5 per cent growth per annum, compared to 2.1 per cent growth for SEQ as a whole.

SEQ's recent strong growth is expected to continue over coming decades. According to the latest Queensland Government projections, SEQ is expected to add 1.64 million new residents between 2020 and 2041, and reach 5.41 million population (Queensland Government 2018a). Figure 10.1 provides further detail on the composition and location of that projected population growth.

Figure 10.1: Projected population growth of SEQ from 2020 to 2041

SEQ is expected to add **1.64 million new residents** between 2020 and 2041, which is a **44 per cent increase**.

The Ipswich LGA is projected to add **327,804 new residents** from 2020 to 2041, the largest growth in the SEQ region. This is a 142 per cent increase on its 2020 population.

The Gold Coast LGA is projected to add a further **308,495 residents**, while the City of Brisbane LGA is expected to add 278,150 new residents.

Logan, Moreton Bay and Sunshine Coast LGAs are each expected to add between **180,000 and 220,000 new residents**.

Of the SEQ LGAs, Noosa (**14.9 per cent**), Toowoomba (**19.9 per cent**) and Redland (**20.0 per cent**) are projected to have the **lowest rates of growth**.

The Scenic Rim, Somerset and Lockyer Valley LGAs are each expected to have fewer than 25,000 new residents, but this represents significant **growth of 38–55 per cent** on the existing population base.

The largest projected **population increases** for SA2s are for Ripley in the Ipswich LGA (**116,575**), and for Greenbank (**74,109**) and Jimboomba (5**7,890**) in the Logan LGA.

The proportion of the SEQ **population aged 65 and over** is expected to increase from **15.5 per cent in 2021** to **20.3 per cent in 2041**.

Source: BCARR analysis of Queensland Government population projections (medium series), 2018.

10.3 Implications of population growth for housing

The demand for new housing is primarily driven by new household formation, which is loosely connected to population growth. The source of population growth (i.e. migration or births) is key to whether new housing will be required, while life course changes and second home construction are other important contributors. Nevertheless, over the long-term, the locations in which population growth is expected to occur in SEQ should be quite closely connected to the locations in which dwellings growth occurs.

According to the latest Queensland Government housing projections, more than 800,000 new dwellings will be required in SEQ to accommodate its population growth between 2016 and 2041 (Queensland Government 2019). Figure 10.2 illustrates how these extra dwellings are projected to be distributed across the 12 LGAs. It presents the Queensland Government's 2019 projections alongside the 2017 projections from *ShapingSEQ*, as only the latter include a split between consolidation and expansion areas.

According to the latest (2019) projections, the Brisbane LGA is expected to add the most new dwellings (155,200), closely followed by the Gold Coast LGA (150,900) and the Ipswich LGA (146,000). Note that this is a different order to the population projections summarised in Figure 10.1, but that simply reflects the longer time period, with the dwelling projections having a 2016 baseline.

Figure 10.2: **Projected growth in dwellings for SEQ LGAs from 2016 to 2041**
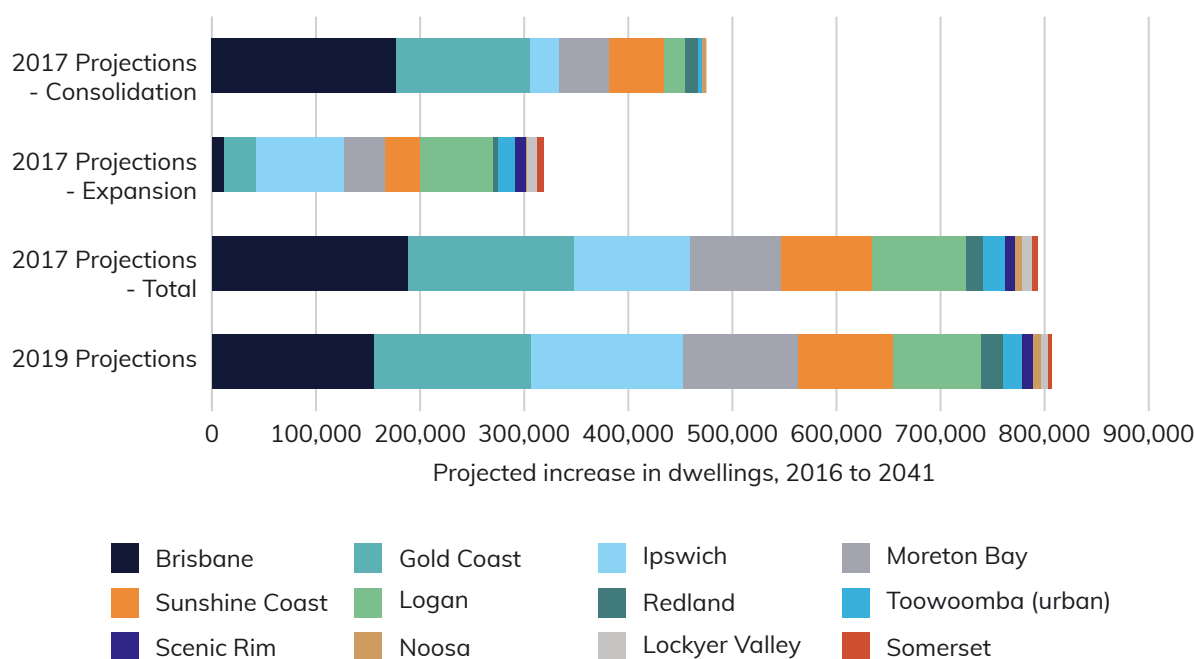
Note: In the 2019 projections, the projections for Toowoomba relate to the entire LGA, not just its urban extent. The 2019 projections do not distinguish between consolidation and expansion areas.

Sources: Queensland Government (2019, 2017).

While Figure 10.2 shows that the projected increase in dwellings for SEQ was revised slightly upwards by the Queensland Government between 2017 and 2019, there are some notable differences in the two sets of projections with respect to where the new dwellings will be located. Specifically, in the 2019 projections (relative to the 2017 projections), the Brisbane LGA is projected to accommodate around 33,000 fewer dwellings, while the Ipswich and Moreton Bay LGAs are now expected to accommodate a larger proportion of dwellings growth.

From 2016 to 2021, 59 per cent of SEQ's residential building approvals were within the existing urban area boundary, and thus reflect consolidation rather than expansion growth. This suggests that the *ShapingSEQ* consolidation target of 60 per cent is feasible in the short term. However, ongoing achievement of this consolidation target is likely to become more challenging over time as pre-identified infill opportunities are completed.

Some further implications of accommodating population growth in the way envisaged by the *ShapingSEQ* strategic plan include a shift towards more medium and higher density forms of housing and a continuation of the ongoing trend towards smaller lot sizes.

Figure 10.2 shows that consolidation development is expected to be concentrated in the Brisbane and Gold Coast LGAs, With respect to consolidation development, *ShapingSEQ* aims to focus new housing development in and around activity centres and to achieve increased residential densities in SEQ's centres (Queensland Government 2017). It also aims to deliver a greater range of 'missing middle' forms of housing, which would boost overall densities.[30]

In contrast, SEQ's expansion development is expected to be concentrated in the Ipswich and Logan LGAs (see Figure 10.2). Figure 10.3 presents a map of projected increases in population between 2020 and 2041, which is overlaid with the major expansion areas identified by the Queensland Government in *ShapingSEQ*. The major expansion areas are the main areas in which the Queensland Government plans to accommodate expansion (i.e. greenfields) housing development in SEQ in the period to 2041. The major expansion areas include:

- Ipswich: Springfield, Ripley, Walloon/Rosewood
- Logan: Flagstone/Flinders, Park Ridge, Yarrabilba
- Moreton Bay: Caboolture West
- Redland: Southern Redland Bay
- Sunshine Coast: Caloundra South, Beerwah East, Palmview
- Gold Coast: Coomera, Ormeau.

Not surprisingly, the map shows a close connection between the areas that are expected to accommodate the largest population increases to 2041 and the areas that are being planned to accommodate new greenfields housing development. However, some of these major expansion areas are expected to still have a lot of remaining capacity in 2041, particularly the Ripley Valley (30,000 extra dwellings) and Greater Flagstone (19,000 extra dwellings).

There are some supply-side risks that have recently emerged that could impact the construction of new housing in SEQ and how that aligns with targets. Rising material and labour costs and supply difficulties have created challenges across the country, with a number of significant housing construction firms ceasing operations over the last year (Raphael 2022). Skill shortages are also an issue for the industry nationally, with Labourers and Technicians and trades workers having the lowest proportion of advertised vacancies filled across all occupations (National Skills Commission 2022b). Building firms may choose to manage those risks by pivoting to smaller scale residential developments.

The SEQ population is expected to age significantly in coming decades. This ageing of the population will lead to changes in housing preferences and may result in a need for new, more diverse forms of housing. While older Australians generally prefer to age in place in the family home, some may be seeking affordable options for downsizing (Productivity Commission 2015).

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30 "'Missing middle' is a form of housing that offers greater density and diversity in a manner compatible with surrounding lower density residential environments. Most 'missing middle' housing is oriented toward the street or laneway. It covers housing types between detached houses and high-rise, and may include 'Fonzie' flats (a small, self-contained apartment on the same land as a house), 'plexes' (duplexes, triplexes, quadplexes etc), row/terrace housing and medium-rise apartments." (Queensland Government 2017 p44).

Figure 10.3: Projected population increase from 2020 to 2041 and major expansion areas
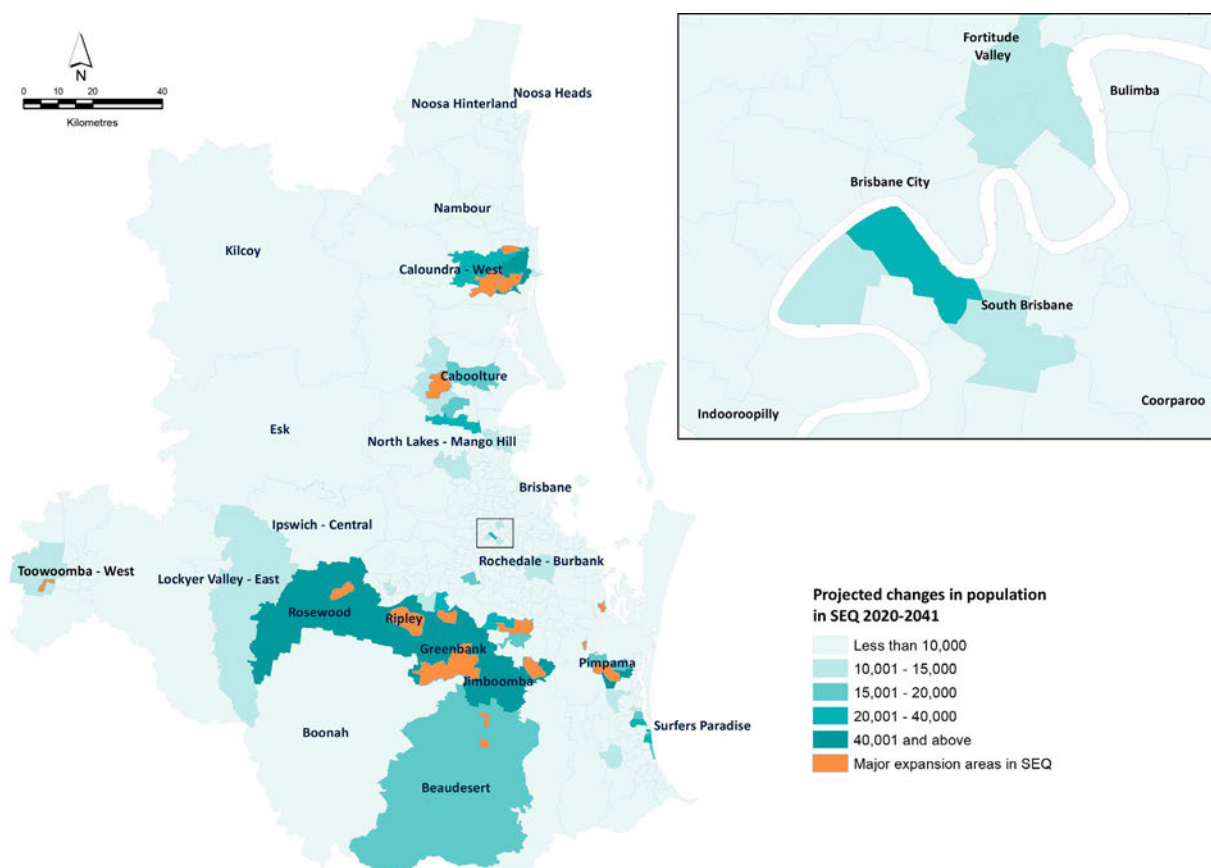
Sources: Queensland Government (2018) population projections – medium series and Queensland Government (2017).

10.4   Implications of population growth for liveability

This section discusses the implication of population growth for liveability. Here liveability includes access to services, as discussed in chapter 9 and housing affordability, as discussed in chapter 4.

Access to services

Since SEQ's future population growth is expected to be concentrated in the Ipswich, Gold Coast and Brisbane LGAs, the level of access to services experienced by existing residents of these LGAs is pertinent.

The Brisbane LGA scored highest of the 12 SEQ LGAs on the 4 access to services metrics (health, education, community and sports, and arts and culture) and the walkability metric, but was outperformed by several LGAs on access to public open space. Therefore, the liveability implications of future growth in the Brisbane LGA appear fairly positive, so long as expansion of service provision keeps pace with the growing population. It does however, highlight a need for future infill development in the Brisbane LGA not to occur at the expense of existing public open space.

The Gold Coast LGA was ranked below Brisbane on all the metrics apart from access to public open space. However, the Gold Coast LGA typically outranked the Ipswich LGA, and ranked relatively

highly on walkability (2nd), access to public open space (3rd) and access to health services (4th). The Ipswich LGA ranked in the bottom half of the SEQ LGAs for 4 of the 6 measures, but performed relatively strongly with respect to access to education services (for which it was ranked 4th, compared to 7th for Gold Coast). The Ipswich results highlight how a significant proportion of SEQ's future population growth will be concentrated in outer suburban areas that currently offer relatively poor access to services and low walkability to local residents. This would be expected to negatively impact the quality of life of residents.

For this study, BCARR identified a set of growth SA2s that added significant population between 2016 and 2020, and categorised them as consolidation growth areas if they were within the existing urban area boundary and expansion growth areas if they were outside it. Figure 10.4 shows that the expansion growth areas scored lower than consolidation growth areas for all of the access to services indicators, reflecting a limited range of services being established in these newly developing suburbs in their early stages of development. There is less of a gap between the expansion and consolidation areas for education services than for the other types of services, reflecting the relatively early establishment of primary schools in many greenfields developments. The expansion areas also scored lower than the consolidation areas on walkability and access to public open space.

Clearly, consolidation growth has more positive outcomes than expansion growth for resident's level of access to services, access to public open space and walkability. However, this higher level of access does come at a cost, which will be discussed in the upcoming section on housing affordability.

Figure 10.4: Access to services metrics for expansion and consolidation growth areas
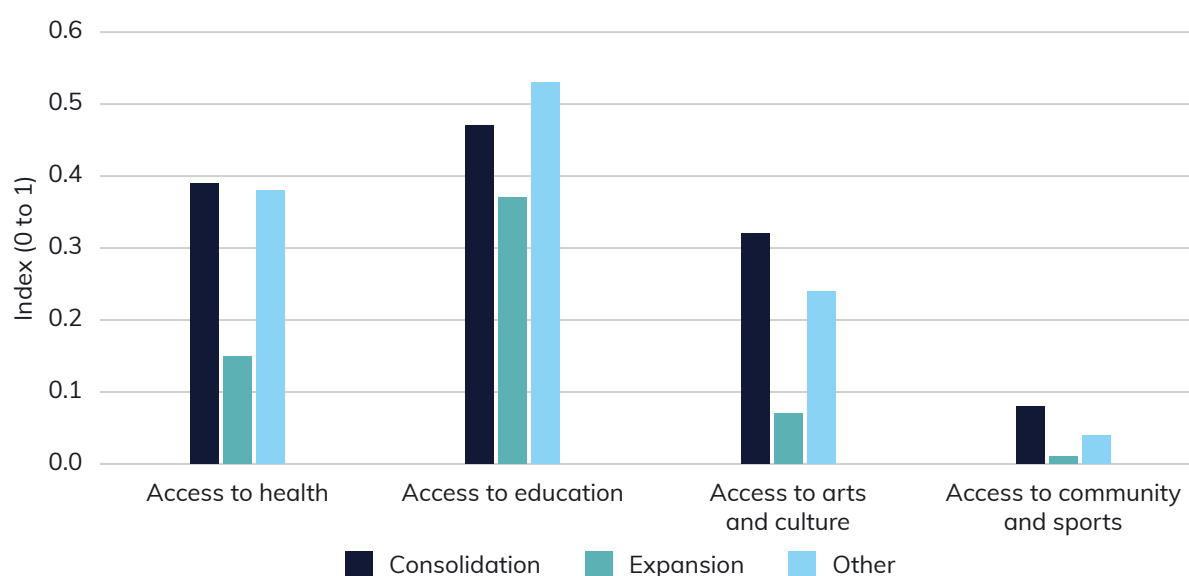
Note: Consolidation and expansion growth areas were identified at SA2 scale, based on population growth between 2016 and 2020, and using the Queensland Government's existing urban area boundary.

Source: BCARR analysis of data from the Australian Urban Observatory, Queensland Government (2017) and ABS Cat. 3218.0 (March 2021 release).

Table 10.1 presents the access to services, access to public open space and walkability metrics for the SA2s that are projected to have the largest population increases between 2020 and 2041. The consolidation growth area of Surfers Paradise performs most strongly on walkability, access to health services and access to arts and culture. The expansion areas tend to perform poorly on walkability and access to community and sports infrastructure, but have varying scores across the other metrics. Many of the expansion areas score relatively well on the access to education metric, with the SA2s that are at an earlier stage of development (i.e. Ripley, Greenbank) having a lower score than more progressed developments.

Springfield Lakes is a standout in Table 10.1, scoring higher than the other expansion areas on access to education, access to arts and culture, and walkability. Many of the other expansion areas are at an earlier stage of development, and the availability of services in these areas is likely to increase over time as the area's population expands. However, the initial residents of expansion areas will generally experience quite limited access to services, and improved alignment of growth with the establishment of services will deliver better outcomes for residents.

Table 10.1: Access to services metrics for SA2s with top projected population increase between 2020 and 2041

SA2	Access to health services	Access to education services	Access to arts and culture	Access to community and sports	Walkability index	Access to public open space (per cent)
Ripley	0.00	0.17	0.00	0.00	−4.18	21.71
Greenbank	0.00	0.02	0.00	0.00	−6.95	14.13
Jimboomba	0.04	0.27	0.07	0.00	−4.57	25.96
Coomera	0.15	0.41	0.08	0.00	−0.81	72.46
Rosewood	0.25	0.50	0.00	0.05	−4.03	25.49
Caloundra – West	0.19	0.20	0.16	0.00	−0.08	51.08
Springfield Lakes	0.18	0.60	0.24	0.00	0.98	80.83
Bellbird Park – Brookwater	0.11	0.42	0.21	0.00	−1.05	49.62
Surfers Paradise	0.49	0.18	0.66	0.00	5.76	76.84

Note: The four access to services metrics are an index, with values lying between 0 and 1, with higher values representing better access. In the walkability index 0 represents the mean. Growth areas identified based on Table 3.22, but the Landsborough SA2 is omitted from the table because it was not captured in the AUO dataset.

Source: BCARR analysis of data from the Australian Urban Observatory and Queensland Government (2019).

Housing affordability

Housing affordability is considered part of liveability for this study, and incorporates rental affordability as well as home ownership/mortgage affordability.

Rental affordability is an issue that impacts a significant proportion of SEQ households, more so than home ownership affordability. Within SEQ, rental affordability issues are particularly pronounced on the Gold Coast. The Gold Coast LGA is expected to experience the second largest population increase in SEQ between 2020 and 2041, after Ipswich.

The dwelling price to income ratio provides a guide to affordability for prospective home owners. The Noosa, Sunshine Coast, Middle South and Gold Coast sub-regions have the highest dwelling price-to-income ratios and are the least affordable. The Ipswich LGA has the lowest dwelling price-to-income ratio and is more affordable. Its current affordability to prospective home owners is relevant given that the Ipswich LGA is projected to contribute the largest share of SEQ's population increase through to 2041. The key future growth areas of Ripley and Springfield have some of the lowest dwelling price-to-income ratios in SEQ.

Higher levels of amenity and better access to services will tend to be reflected in higher land and house prices. Land is priced more highly around the city centre and declines with distance from the CBD (Kulish, Richards and Gillitzer 2011). The inner and middle rings of Brisbane have the best access to services and walkability in SEQ, while access to services is lower in Brisbane's outer ring and the Rest of SEQ.

Housing affordability, and rental affordability in particular, is a problem impacting many SEQ residents. Interest rate increases in 2022 have created some uncertainty around the longer-term impacts on housing affordability. For SEQ, the underlying drivers of housing demand remain strong, with no sign of migration flows from the southern states abating.

# 10.5 Implications of growth for employment and skills

Where in SEQ will those jobs be located?

ShapingSEQ anticipates that changing technologies will cause a fundamental shift in the locational distribution of employers and jobs in SEQ over time (Queensland Government 2017). It aims to locate more jobs where people live and in Regional Economic Clusters (RECs), the regional activity centre network, Knowledge and Technology Precincts (KTPs) and Major enterprise and industrial areas (ibid). More recently, the SEQ Economic Foundations paper identified the five economic corridors that will be key to realising the ambitions for employment growth in SEQ. These corridors link the RECs, key urban growth areas and export gateways, and are mapped in Figure 5.9.

ShapingSEQ contains some guidance on the potential spatial distribution of jobs growth in SEQ through to 2041 (Queensland Government 2017). These employment growth projections are on a place of work basis and were prepared by Queensland Treasury in 2016, using a 2010–11 baseline. They do not reflect up-to-date information on the SEQ economy, and need to be treated with corresponding caution. Nevertheless they do provide some indication of where employment growth might be expected to be concentrated over the long-term.

Figure 10.5 presents the projected change in employment for the 2016 to 2041 period and compares it to the Queensland Government's population projections from 2018. Between 2016 and 2041, SEQ's projected growth in employment is 0.95 million persons (Queensland Government 2016). While the Brisbane LGA is expected to have a similar population increase to the Ipswich and Gold Coast LGAs between 2016 and 2041, Figure 10.5 shows that it is expected to accommodate a much larger proportion of jobs growth than the other two LGAs.

- The Brisbane LGA is expected to contribute 19 per cent of SEQ's population growth between 2016 and 2041, but it is expected to accommodate 45 per cent of employment growth (on a place of work basis).

- Gold Coast is expected to contribute 19 per cent of both population and jobs growth.

- The outer suburban growth LGAs of Moreton Bay, Logan and Ipswich (as well as the Sunshine Coast), are expected to contribute a much smaller share of SEQ's jobs growth than its population growth.

Figure 10.5: Projected growth in employment and population from 2016 to 2041

Projected change in employed persons, 2016 to 2041 █ Projected change in population, 2016 to 2041 █
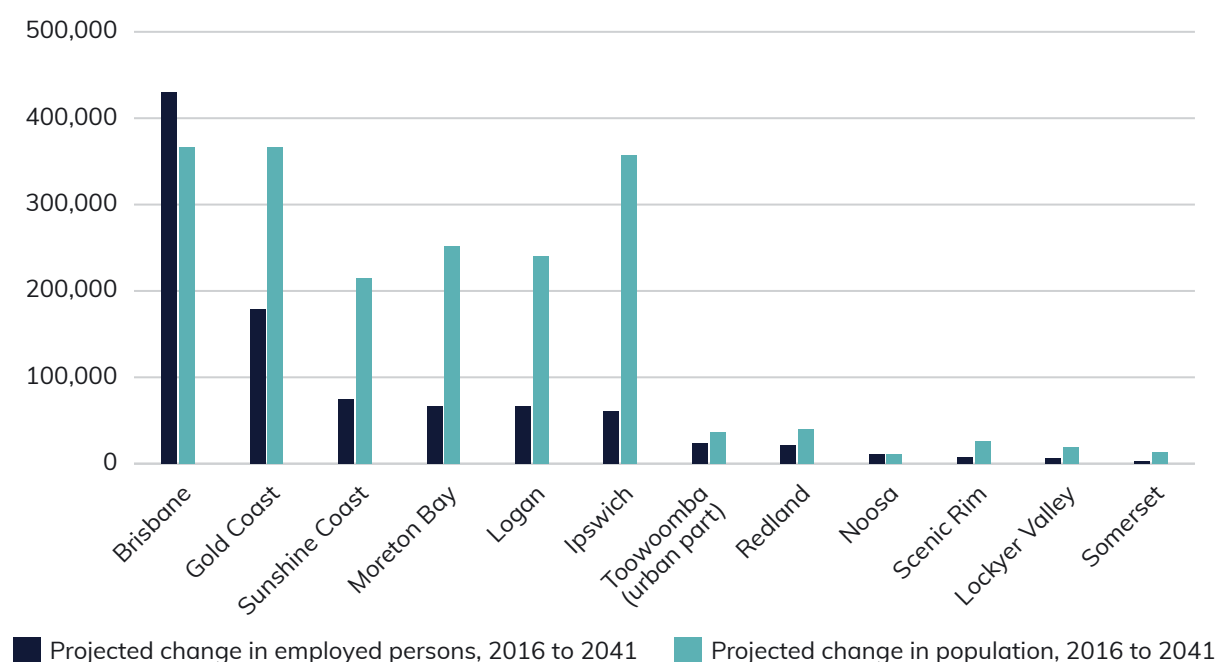
Note: Employment projections are on a place of work basis. The employment projections were prepared prior to the population projections, and will reflect different inputs and assumptions. Projected population growth differs from that presented in Chapter 3 as a 2016 baseline has been used to align with the employment projections (whereas a 2020 baseline is used in Chapter 3, e.g. Table 3.20).

Sources: Queensland Government 2018 population projections (medium series); Queensland Government 2016 employment projections.

This imbalance suggests that many of the future new residents of these outer LGAs will need to spend significant time commuting into the Brisbane LGA to access employment. The imbalance is particularly pronounced for the Ipswich LGA which is projected to account for 18 per cent of SEQ's total population growth but just 6 per cent of employment growth between 2016 and 2041. The results highlight the importance of initiatives to facilitate the development of employment precincts in these outer suburban growth areas, in order to better provide employment opportunities for local residents. Relevant examples include the Ipswich, North Lakes-Mango Hill and Yatala-Stapylton-Beenleigh RECs, and in the longer term the Bromelton State Development Area.

Chapter 5 showed how jobs are not evenly distributed throughout SEQ, but instead are concentrated in Inner Brisbane and in suburban industrial precincts and specialised centres. Some LGAs have plenty of jobs, and attract commuters from further afield, while others do not have sufficient jobs for local residents. There are 6 SEQ LGAs which are expected to add over 180,000 residents between 2020 and 2041 (with the remaining 12 LGAs each adding less than 35,000 new residents). Table 10.2 shows the 2016 ratio of local workers to employed residents for these six significant growth LGAs. The Brisbane LGA is home to many more jobs than needed to employ its local residents, while the Gold Coast and Sunshine Coast both have only a slight deficit of local employment opportunities.

Moreton Bay currently offers only 60 local jobs for every 100 employed residents, and so the projected growth of 181,522 new residents will present significant challenges in terms of boosting local employment opportunities, pressures on the transport network (particularly the key routes to central Brisbane) and impacts on the quality of life of residents. Both Logan and Ipswich LGAs currently offer around 70 local jobs for every 100 employed residents, and the substantial population growth projected for these LGAs may pose similar challenges. However, the Logan LGA currently has relatively good commuter connectivity, enabling residents to access many jobs in neighbouring LGAs within a 45 minute drive.

Table 10.2: **Ratio of workers to employed residents in LGAs with significant projected population increases from 2020 to 2041**

LGA	Ratio of local workers to employed residents, 2016	Projected population increase, 2020 to 2041
Ipswich	0.74	327,804
Gold Coast	0.90	308,495
Brisbane	1.25	278,150
Logan	0.68	212,342
Moreton Bay	0.60	210,963
Sunshine Coast	0.86	181,522

Note: The ratio of local workers to employed residents averages less than one, mainly because about 5 per cent of workers do not have a fixed address of work.

Source: BCARR analysis of ABS Census of Population and Housing, 2016 and Queensland Government 2018 population projections (medium series)

The strong employment growth forecast for the Professional, scientific and technical services and Health care and social assistance industries (National Skills Commission 2021; Queensland Government 2020a and 2016) is likely to flow through to jobs growth in the Brisbane Capital City precinct and health-oriented employment precincts throughout SEQ (e.g. South Brisbane, Chermside, Ipswich, Southport).

What types of jobs will be created?

Significant population growth typically flows through to create employment growth in population-serving industries, such as Retail trade, Accommodation and food services, Education and training, and Health care and social assistance. Employment in residential building construction, an important component of the Construction industry, is also partly dependent on population growth. Therefore, over the period to 2041, we should expect to see ongoing growth in these industries in the six growth LGAs listed in Table 10.2, and particularly in Ipswich and Gold Coast, which have the largest projected population growth.

Between 2016 and 2041, the Queensland Government predicts that the main industry source of employment growth in SEQ will be Health care and social assistance (227,300), followed by Professional, scientific and technical services (160,000) and Construction (130,100) (Queensland Government 2016). Professional, scientific and technical services is expected to be the main source of growth for employed persons working in the Brisbane LGA. In Gold Coast, Sunshine Coast, Ipswich and Moreton Bay, the Health care and social assistance industry is expected to be the main source of employment growth. In the Logan LGA, the Construction industry is expected to be the main contributor (ibid).

Further sets of state government projections focus on how the skills of the Queensland workforce will change over a five-year timeframe, identifying that Professionals show the most employment growth of all occupations (Queensland Government 2020a), and showing strong growth in those with bachelor degrees and higher qualifications (Queensland Government 2021). Currently, jobs for those with university qualifications are heavily concentrated in the Brisbane LGA (and specifically in the Inner Brisbane ring). However, the future population growth slated for the remaining 11 SEQ LGAs will increasingly involve university-qualified workers, many of whom would prefer to work close to home rather than commute into inner Brisbane for work. In Sydney, office parks (e.g. Norwest) have been set up in suburban locations where they can gain access to an educated and skilled workforce, and this may become an option in SEQ in the future as the resident workforce of the growth LGAs becomes increasingly skilled.

In general, countries or cities with a greater portion of their population with higher educational qualifications and skilled workforces see faster economic growth than countries or cities with less-educated and less-skilled workers (Tuli et al., 2019). With technological advancement, cities are becoming more competitive around the world. With a better-qualified and higher-skilled workforce, SEQ will be better prepared to adopt technological advancements.

The pandemic was also associated with an increase in working from home, and while the incidence of working from home has declined from its initial COVID peak, Chapter 7 showed it remained above pre-pandemic levels in SEQ into early–2022. The incidence of working from home is significantly higher for the Brisbane LGA than the other SEQ LGAs. Working from home capability and uptake tends to be highest for Professionals, Managers and Clerical and administrative workers (Vij et al. 2021). While it is not yet clear where things will settle post-pandemic, there is the potential for working from home arrangements to have an expanded role into the future, particularly for traditionally office-based jobs.

# 10.6 Implications of growth for commuter transport and connectivity

Commuter travel in SEQ is highly car dependent. The Brisbane LGA is the least car dependent of the SEQ LGAs, with a 70 per cent private vehicle mode share and an 18 per cent public transport mode share for the journey to work (see Table 7.3). All of the remaining significant growth LGAs (i.e. Gold Coast, Ipswich, Logan, Moreton Bay and Sunshine Coast) are relatively car dependent, with a private vehicle mode share of between 83 and 87 per cent and a public transport mode share of between 2 and 9 per cent.

As Figure 10.5 showed, the strong population growth in the Ipswich, Moreton Bay, Logan and Sunshine Coast LGAs through to 2041 is expected to generate significant out-commuting by residents of these LGAs, due to limited new job creation within these LGAs. This will create significant pressures on the existing transport network, including the motorway connections to central Brisbane, while likely increases in congestion and travel times will impact the quality of life of residents. Such impacts could be mitigated by investment in the capacity and efficiency of the transport network or by facilitating the development of employment precincts within those LGAs.

ShapingSEQ aims to prioritise public transport and active transport, so that people can move around the region in a healthier, more efficient and sustainable way (Queensland Government 2017). Figure 10.6 shows the vision for 2041 of a strategic transport system that connects people, places and employment efficiently with high-frequency passenger transport services. That vision leads to long-term public transport investment priorities that include:

- Cross River Rail
- Frequent public transport services to major expansion areas, such as Caboolture West and Yarrabilba
- Ipswich to Springfield public transport corridor
- Extension of light rail from Broadbeach to Coolangatta and new connection linking Broadbeach to Robina
- Establishing high frequency public transport services from Maroochydore to Caloundra to Beerwah (ibid).

Figure 10.6: ShapingSEQ's vision for the strategic public transport system in 2041
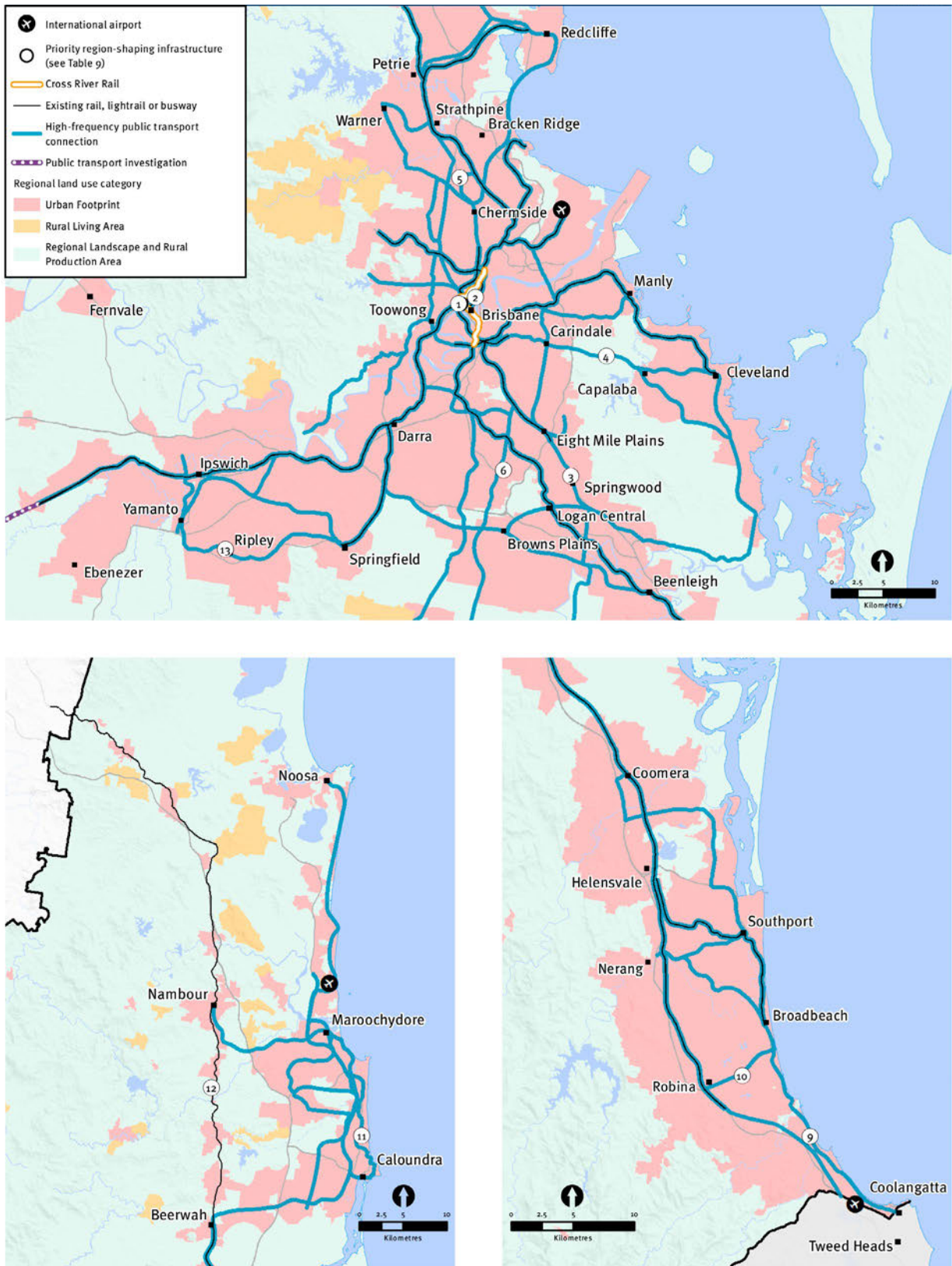
Source: *ShapingSEQ* Figure 4a (Queensland Government 2017).

Figure 10.7 shows the public transport and active transport mode shares as of 2016 for the 10 SA2s that are projected to add the most population between 2020 and 2041. These growth SA2s can be grouped into 3 different categories based on their development type and public transport use:

- Higher density infill development with above-average public transport and active transport use: Surfers Paradise

- Expansion area with above-average public transport use: Springfield Lakes and Bellbird-Brookwater[31]

- Expansion area with limited public transport use: Ripley, Rosewood, Greenbank, Jimboomba, Coomera, Landsborough and Caloundra West.

Surfers Paradise is obviously quite a different case from the other growth SA2s. Its high-density housing coupled with significant local employment is conducive to active travel and it is well served by the frequent Gold Coast Light Rail.

The opening of the Springfield Railway Line in 2013 provides residents of Springfield Lakes and Bellbird-Brookwater with a frequent, high-capacity public transport option to central Brisbane. While these two growth areas already have a significant population base, much more growth is expected. The initial investment in the rail connection is already reflected in the commuting behaviour of local residents, in contrast to the other expansion SA2s in which residents are more reliant on cars to access their jobs.

Figure 10.7: Public transport and active transport mode shares for top ten future growth areas
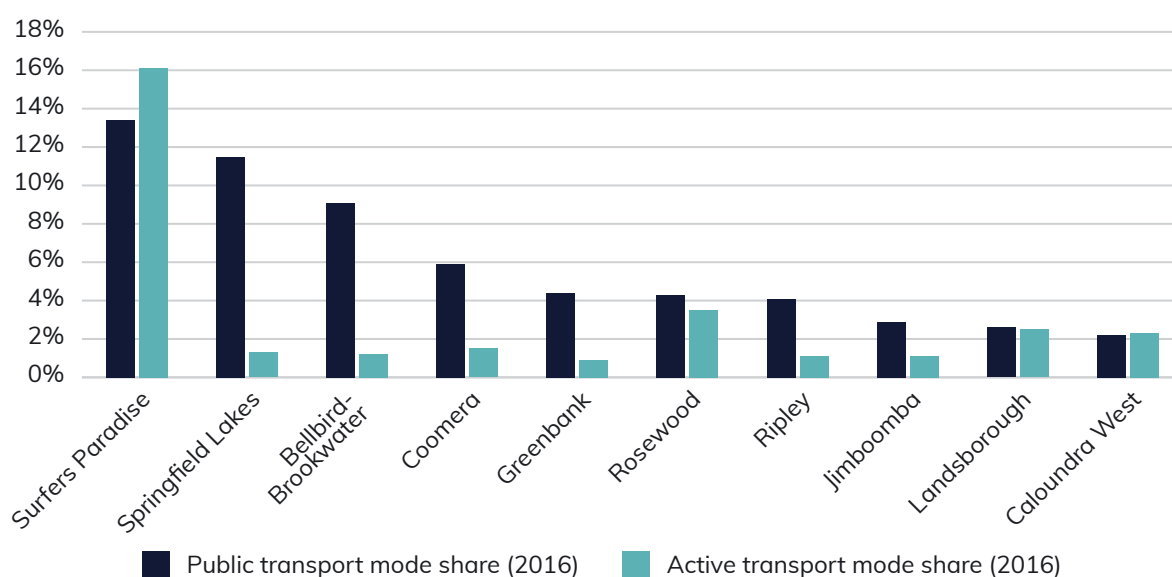
Note: Growth areas identified based on Table 3.22.
Source: BCARR analysis of ABS Census of Population and Housing place of usual residence data.

Numerous studies have highlighted the limited and/or delayed delivery of transport infrastructure and services as a major challenge for new greenfields suburbs (Kroen et al 2021; Victorian Auditor General 2013). Delbosc et al. (2015) highlights the need for early delivery of public transport services in new fringe areas, as transparency about when services will be delivered will enable home buyers and renters to make informed decisions about what locations will support their family's needs. Where public transport is not available, car-based commuting behaviours can

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31 While Bellbird-Brookwater does not exceed the SEQ public transport mode share of 10.0 per cent, it is well above the average for the Outer ring of 7.8 per cent.

become entrenched. To help manage the impacts of future population growth on SEQ's road network, consideration should be given to early investment in new or upgraded public transport connections to major expansion areas.

Public transport use declined in SEQ, and other Australian cities, during the pandemic due to health and safety reasons, and has not yet returned to pre-pandemic levels. Public transport patronage in SEQ stood at 73 per cent of pre-pandemic patronage, as of August 2022 (Bailey 2022). The increased public concerns about the health and safety of public transport use are something of a setback to the *ShapingSEQ* plans for prioritising public transport, that would not have been foreseen back in 2017. However, it is not yet clear how persistent this behavioural change will be.

Table 10.3 presents some summary measures of commuter connectivity for the six significant growth LGAs. The Brisbane LGA is relatively self-contained, with residents having good job access and relatively short commuting distances. The Gold Coast and Sunshine Coast LGAs are also relatively self-contained, but commuting distances are higher and residents only have access to a small proportion of SEQ's jobs. The Ipswich, Logan and Moreton Bay LGAs all have much lower self-containment, with around 40 per cent of employed residents commuting into the Brisbane LGA for work. Commuting distances are correspondingly high, but residents can access around half of SEQ's jobs within a 45 minute commute. This reinforces the previous point that the large-scale population increases predicted for these three LGAs will be likely to generate a significant increase in long-distance commuter flows towards the Brisbane LGA in the morning peak (and reverse flows in the afternoon peak), unless the spatial distribution of SEQ's employment is fundamentally transformed.

Table 10.3: Selected indicators of commuter connectivity for SEQ's significant growth LGAs

LGA of residence	Self-containment rate, 2016 (per cent)	Other key destinations (share>5 per cent), 2016	Average commuting distance, 2016 (km)	30-minute job access, 2019 (per cent)	45-minute job access, 2019 (per cent)
Brisbane	85	nil	12	48	65
Gold Coast	78	Brisbane (7 per cent)	19	13	22
Ipswich	47	Brisbane (40 per cent)	21	16	51
Logan	40	Brisbane (40 per cent), Gold Coast (7 per cent)	21	23	61
Moreton Bay	48	Brisbane (41 per cent)	21	13	41
Sunshine Coast	78	nil	21	6	9

Note: The self-containment rate is the proportion of employed residents of the LGA who have a fixed work address in the LGA. The 30 and 45 minute job access measures capture the proportion of total SEQ jobs that can be accessed by residents of the LGA by road within the specified time.

Source: BCARR analysis of ABS Census of Population and Housing, 2016, as presented in Chapter 8.

The analysis in Chapter 8 highlighted how the expansion growth areas tended to have much lower 30 minute job access than either the consolidation areas or the remaining SA2s. However, the expansion areas were not at a disadvantage with respect to 45 minute job access. Over the 20 year period to 2041, as the residential growth front shifts further outwards, this may no longer remain the case.

Figure 10.8 presents the projected population increase for SA2s through to 2041, and overlays that with the five key employment corridors from the SEQ Economic Foundations paper. These corridors contain nearly all the major employment precincts of SEQ as identified in Chapter 5. Some of these growth SA2s are directly located on one of the corridors, and all are located within a 10km drive of a corridor.

The Jimboomba and Greenbank SA2s are an interesting case, as although the planned Greater Flagstone and Yarrabilba residential growth areas are located along the South-West corridor, this corridor is an emerging one, and does not currently contain any significant employment precincts.

The limited current availability of jobs is reflected in employed residents travelling an average distance of 34km to work from Jimboomba and 30km from Greenbank in 2016. The sequencing of residential development at Greater Flagstone and Yarrabilba with economic development at the Bromelton State Development Area will be a key driver of transport and commuting outcomes.

Figure 10.8 Projected increase in population of SEQ SA2s from 2020 to 2041 and five key employment corridors
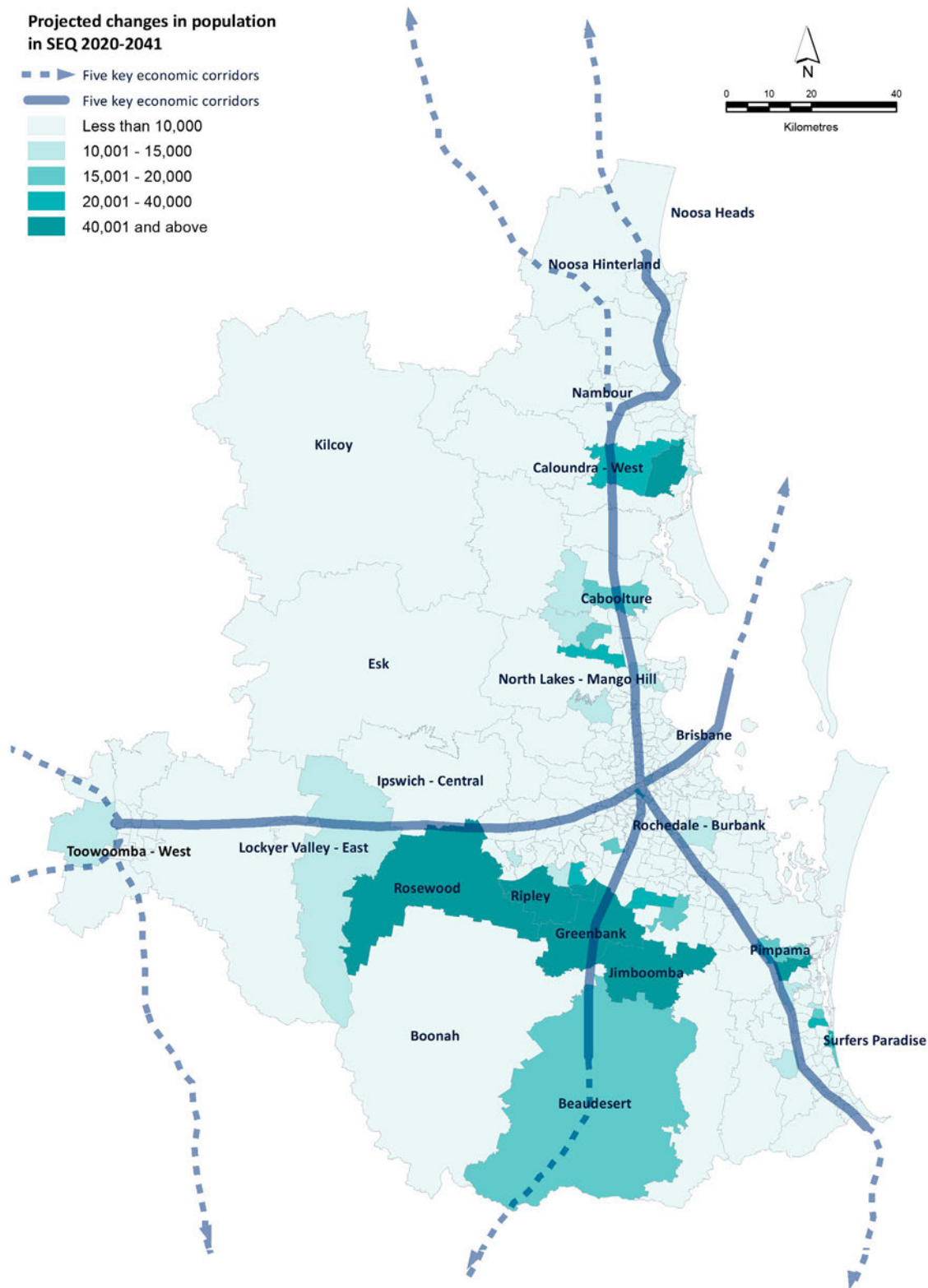
Source: BCARR analysis of Queensland Government 2018 population projections – medium series and Figure 4.9 from the SEQ Economic Foundations paper (Queensland Government 2018a).

10.7   Conclusion

This report aims to provide an evidence base on the spatial distribution of population and population growth, housing, jobs and skills, connectivity and liveability within SEQ. This research will support the process of sustainably accommodating an additional 1.64 million people through efficient land use, housing diversity and residential density.

The evidence base built for this study can be used to monitor how population, jobs, connectivity and liveability evolve in response to government initiatives. This study provides evidence of recent spatial development trends in SEQ and compares the reality of those trends to the strategic direction for the region's growth set out in the Queensland Government's recent regional plans. In addition, the report also identifies some implications of this population growth for housing, jobs, transport, connectivity and liveability.

This report summarises the population distribution, population growth and population projections for the SEQ region. Brisbane, Gold Coast and Moreton Bay LGAs have contributed significantly to recent population growth. The most densely populated sub-regions were in Inner Brisbane and the Gold Coast, and the largest increases in density also happened in these two sub-regions. By 2041 the population is projected to reach 5.41 million, a 44 per cent population increase over 21 years. Much of this additional population is projected to be accommodated in the Ipswich, Gold Coast and Brisbane LGAs. Also, SEQ is projected to have a much older population by 2041.

Currently, most of the LGAs in the SEQ region are dominated by separate, low-density, detached housing types, except in the Brisbane, Gold Coast and Sunshine Coast LGAs. Between 2016 and 2021, 59 per cent of residential building approvals were for separate houses in SEQ, which indicates some shift towards higher density forms of residential development since 2016. This shift has been most pronounced in the Brisbane and Gold Coast LGAs. Median lot sizes are also getting smaller across the SEQ region.

SEQ is expected to add 60 per cent of its new dwellings through consolidation rather than expansion between 2016 and 2041. The Brisbane and Gold Coast LGAs are expected to add the most dwellings through urban consolidation, while Ipswich and Logan are likely to add the most dwellings through urban expansion. These two LGAs – Ipswich and Logan – have the most available land identified for future development.

Jobs are heavily concentrated in Inner Brisbane. As of 2016, 48 per cent of SEQ's employed persons had a place of work in the Brisbane LGA and 16 per cent worked in the Gold Coast LGA. The outer suburban LGAs of Redland and Moreton Bay had insufficient jobs to employ local residents. Between 2016 and 2021, the Gold Coast, Inner Brisbane and Ipswich SA4s had SEQ's strongest growth in employed residents.

The Brisbane LGA is expected to accommodate 45 per cent of SEQ's jobs growth between 2016 and 2041, despite contributing only 19 per cent of SEQ's population growth. The Moreton Bay, Logan and Ipswich LGAs are expected to contribute a much smaller share of SEQ's jobs growth than its population growth. The implications of this spatial imbalance include more lengthy commutes and increased congestion. The results highlight the importance of initiatives to improve transport connections and facilitate the development of employment precincts in these suburban growth areas.

The Health care and social assistance industry is the top employing industry in SEQ, except in Brisbane Inner City and Brisbane West, where Professional, scientific and technical services is the top employing industry. The industries with the largest projected employment increases in SEQ from 2016 to 2041 are Health care and social assistance, Professional, scientific and technical services and Construction.

Inner Brisbane has the most skilled workforce in the SEQ region, with the highest proportions of Managers and Professionals. Gold Coast has had the largest increase in Managers and Professionals over the last 5 years, followed by Inner Brisbane. Professionals are projected to have the most significant increase of all occupations by 2024. SEQ is also projected to become

more educated in the future, with a large increase of people with Bachelor's degrees and higher qualifications. With a more educated and higher-skilled workforce, SEQ will be better prepared to adopt technological advancements.

In terms of transport, private vehicle was the most dominant commuter transport mode and public transport was less widely used in SEQ. Inner Brisbane residents used public transport the most. As mentioned earlier, Inner Brisbane has the highest concentration of employment too. This is a common trend in Australian cities and most of the developed nations in the world, and SEQ is not an exception. The areas of SEQ that are projected to grow most strongly over the next two decades typically have very low current public transport use, and there may be a role for timely investments in public transport to these areas to help manage the impacts of growth on the existing road network.

Public transport and private vehicle use both declined dramatically in 2019–2020 due to the COVID–19 pandemic outbreak and associated restrictions on movement, and public transport use has not yet returned to pre-pandemic levels. Similarly, while the incidence of working from home has dropped from its peak during the pandemic, it remains well above pre-pandemic levels.

Across the 12 LGAs of SEQ, over 70 per cent of employed residents work within their LGA of residence, with Toowoomba and Brisbane LGAs possessing the highest self-containment rates. Employed residents of Outer Brisbane and the Rest of SEQ experienced significantly longer average commuting distances than residents of Inner Brisbane. The available congestion metrics show that congestion in the Gold Coast is similar to that in Brisbane, but the Sunshine Coast has relatively low congestion levels.

The Brisbane LGA scored highest for most of the access to services indicators. The most highly liveable areas in SEQ, in particular, were centred around Middle and Inner Brisbane. Outer Brisbane lagged behind for many of the access to services indicators. The expansion growth areas scored lower than consolidation growth areas for all six liveability indicators, reflecting expansion areas not yet establishing or attracting a full range of services. This is a common scenario in Australia, where houses are laid out first, then social and other services flow with a significant lag, and SEQ follows the same pattern.

Housing affordability varies across SEQ, but compared to rental stress, mortgage stress is low. The Gold Coast LGA is the least affordable for renters, while the Logan and Scenic Rim LGAs have the highest proportion of households with mortgage stress. The available evidence suggests that rental affordability issues in the Gold Coast and some other SEQ locations have become more pronounced over the last 12 months. Housing affordability (as measured by the ratio of house prices to income) is lower in Inner Brisbane and the Gold Coast and more affordable in outer Brisbane. This, however, is a trade off. If people would like to live closer to the established areas and have good access to services, they are likely to need to pay more for housing. This is also a common picture in Australia, and SEQ is not an exception.

The implications of adding 1.64 million new residents to SEQ over the next two decades are far-reaching. This chapter is by no means comprehensive, but has highlighted some of the implications for housing, jobs and skills, transport and connectivity, and liveability in SEQ, as well as some of the inter-connections between these factors. A particular focus has been exploring the spatial distribution of growth throughout SEQ and how its impacts are likely to play out spatially.

10.8 Limitations and future directions

The report does not make use of the 2021 ABS Census of Population and Housing data, from which initial data was released in June 2022, with further data released in October 2022. The majority of this report was drafted before the release of the relevant census data, and analysis of the 2021 census data was outside of the scope of the study.

A range of issues lie beyond this study's scope, including digital connectivity, freight movements, sustainability (including biodiversity) and major infrastructure projects (e.g. rail, road, water). There is also very limited analysis of urban planning, governance and leadership issues in this report. In order to fit the project within available resourcing, it was necessary to focus on a targeted set of research questions that fell within BCARR's areas of expertise. Through the consultation process for this research report, there was also interest expressed in topics such as community housing and the implications of an ageing population, that lie beyond the scope of the existing study.

The COVID–19 pandemic has had major impacts on working patterns, international and internal migration flows, skill shortages, fuel costs and housing affordability in Australia and throughout the developed world. This Department has partnered with other organisations to conduct research into the future of remote work arrangements (Vij et al. 2021) and post-pandemic settlement patterns (iMOVE 2022). BCARR will use this and other research to monitor the ongoing and expected future impacts for SEQ and other Australian cities.

END MATTER

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List of abbreviations and acronyms

Abbreviation	Meaning
ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
ANZSCO	Australian and New Zealand Standard Classification of Occupations
AQF	Australian Qualifications Framework
ASGS	Australian Statistical Geography Standard
AUO	Australian Urban Observatory
BCARR	Bureau of Communications, Arts and Regional Research
BITRE	Bureau of Infrastructure and Transport Research Economics
Cat.	Catalogue number of source citation
CBD	Central Business District
CTT	Cities Transformation Taskforce
DZ	Destination zones
e.g.	For example
ERP	Estimated Residential Population
et al.	Et alia. Used to cite sources with more than 3 authors
etc.	Et cetera. Used at the end of a list to indicate that similar items are included
G-NAF	Geocoded National Address File
HILDA	Household, Income and Labour Dynamics in Australia
ibid.	In the same place – used to indicate reference is from same source as previous reference
ICT	Information and Communications Technology
km²	Square kilometre
KTP	Knowledge and Technology Precinct
LFS	Labour Force Survey
LGA	Local Government Area
m²	Square metre
N/A	Not applicable
NCPF	National Cities Performance Framework
nec	Not elsewhere classified
nfd	No further details
NPD1	Neighbourhood Development Plan 1
NSC	National Skills Commission
NZQF	New Zealand Qualifications Framework
PDA	Priority Development Area
POR	Place of usual residence
POS	Public open space
POW	Place of work
PWD	Population-weighted density

Abbreviation	Meaning
RAI	Rental Affordability Index
REC	Regional Economic Cluster
RPC	Regional Planning Committee
SA1	Statistical Area Level 1
SA2	Statistical Area Level 2
SA4	Statistical Area Level 4
SEQ	South East Queensland
SIP	State Infrastructure Plan
SOI	Statement of Intent
SOS	Section of State

Appendix A

Appendix A provides the complete list of industries that are included under the definition of knowledge intensive industries developed based on the Australian and New Zealand Standard Industrial Classification (ANZSIC) (ABS 2006). The report uses a group of knowledge industries comprising 126 sub-industries (see Table A.1) from eight broad industries.

Table A.1: List of Knowledge Intensive Industries from the Australian and New Zealand Standard Industrial Classification (ANZSIC)

Knowledge intensive industries list
Professional, Scientific and Technical Services
Accounting Services
Advertising Services
Architectural Services
Architectural, Engineering and Technical Services, nfd
Computer System Design and Related Services
Corporate Head Office Management Services
Engineering Design and Engineering Consulting Services
Legal Services
Legal and Accounting Services, nfd
Management Advice and Related Consulting Services
Management and Related Consulting Services, nfd
Market Research and Statistical Services
Other Professional, Scientific and Technical Services nec
Other Professional, Scientific and Technical Services, nfd
Other Specialised Design Services
Professional Photographic Services
Professional, Scientific and Technical Services (except Computer System Design and Related Services), nfd
Professional, Scientific and Technical Services, nfd
Scientific Research Services
Scientific Testing and Analysis Services
Surveying and Mapping Services
Veterinary Services
Information Media and Telecommunications
Book Publishing
Broadcasting (except Internet), nfd
Cable and Other Subscription Broadcasting
Data Processing and Web Hosting Services
Data Processing, Web Hosting and Electronic Information Storage Services, nfd
Directory and Mailing List Publishing
Electronic Information Storage Services

Knowledge intensive industries list
Free-to-Air Television Broadcasting
Information Media and Telecommunications, nfd
Internet Publishing and Broadcasting
Internet Service Providers and Web Search Portals
Internet Service Providers, Web Search Portals and Data Processing Services, nfd
Libraries and Archives
Library and Other Information Services, nfd
Magazine and Other Periodical Publishing
Motion Picture and Sound Recording Activities, nfd
Motion Picture and Video Activities, nfd
Motion Picture and Video Distribution
Motion Picture and Video Production
Motion Picture Exhibition
Music and Other Sound Recording Activities
Music Publishing
Newspaper Publishing
Newspaper, Periodical, Book and Directory Publishing, nfd
Other Information Services
Other Publishing (except Software, Music and Internet)
Other Telecommunications Network Operation
Other Telecommunications Services
Post-production Services and Other Motion Picture and Video Activities
Publishing (except Internet and Music Publishing), nfd
Radio Broadcasting
Software Publishing
Sound Recording and Music Publishing, nfd
Telecommunications Services, nfd
Television Broadcasting, nfd
Wired Telecommunications Network Operation
Financial and Insurance Services
Auxiliary Finance and Insurance Services, nfd
Auxiliary Finance and Investment Services, nfd
Auxiliary Insurance Services
Banking
Building Society Operation
Central Banking
Credit Union Operation
Depository Financial Intermediation, nfd
Finance, nfd

Knowledge intensive industries list
Financial and Insurance Services, nfd
Financial Asset Broking Services
Financial Asset Investing
General Insurance
Health and General Insurance, nfd
Health Insurance
Insurance and Superannuation Funds, nfd
Life Insurance
Non-Depository Financing
Other Auxiliary Finance and Investment Services
Other Depository Financial Intermediation
Superannuation Funds
Education and Training
Higher Education
Technical and Vocational Education and Training
Tertiary Education, nfd
Public Administration and Safety
Central Government Administration
Defence
Domestic Government Representation
Foreign Government Representation
Government Representation, nfd
Justice
Local Government Administration
Public Administration and Safety, nfd
Public Administration, nfd
Public Order, Safety and Regulatory Services, nfd
State Government Administration
Health Care and Social Assistance
Allied Health Services, nfd
Ambulance Services
Chiropractic and Osteopathic Services
Dental Services
General Practice Medical Services
Health Care and Social Assistance, nfd
Medical and Other Health Care Services, nfd
Medical Services, nfd
Optometry and Optical Dispensing
Other Allied Health Services

| Knowledge intensive industries list |
| --- |
| Other Health Care Services nec |
| Other Health Care Services, nfd |
| Pathology and Diagnostic Imaging Services |
| Physiotherapy Services |
| Specialist Medical Services |
| **Manufacturing** |
| Aircraft Manufacturing and Repair Services |
| Communication Equipment Manufacturing |
| Computer and Electronic Equipment Manufacturing, nfd |
| Computer and Electronic Office Equipment Manufacturing |
| Electric Cable and Wire Manufacturing |
| Electric Lighting Equipment Manufacturing |
| Electrical Equipment Manufacturing, nfd |
| Medical and Surgical Equipment Manufacturing |
| Other Electrical Equipment Manufacturing |
| Other Electronic Equipment Manufacturing |
| Other Professional and Scientific Equipment Manufacturing |
| Photographic, Optical and Ophthalmic Equipment Manufacturing |
| Professional and Scientific Equipment Manufacturing, nfd |
| **Arts and Recreation Services** |
| Creative Artists, Musicians, Writers and Performers |
| Creative and Performing Arts Activities, nfd |
| Museum Operation |
| Performing Arts Operation |
| Performing Arts Venue Operation |

Note: The above listing is based on 4 digit industry classification as applied in the 2016 ABS Census of Population and Housing.
Source: ABS (2006), Tuli and Hu (2019)

Appendix B

Appendix B identifies 24 major employment precincts in SEQ in 2016 by place of work. Appendix B, Figure B.1 maps the 24 major employment precincts as shown below.

Figure B.1: **24 major employment precincts in SEQ as of 2016**
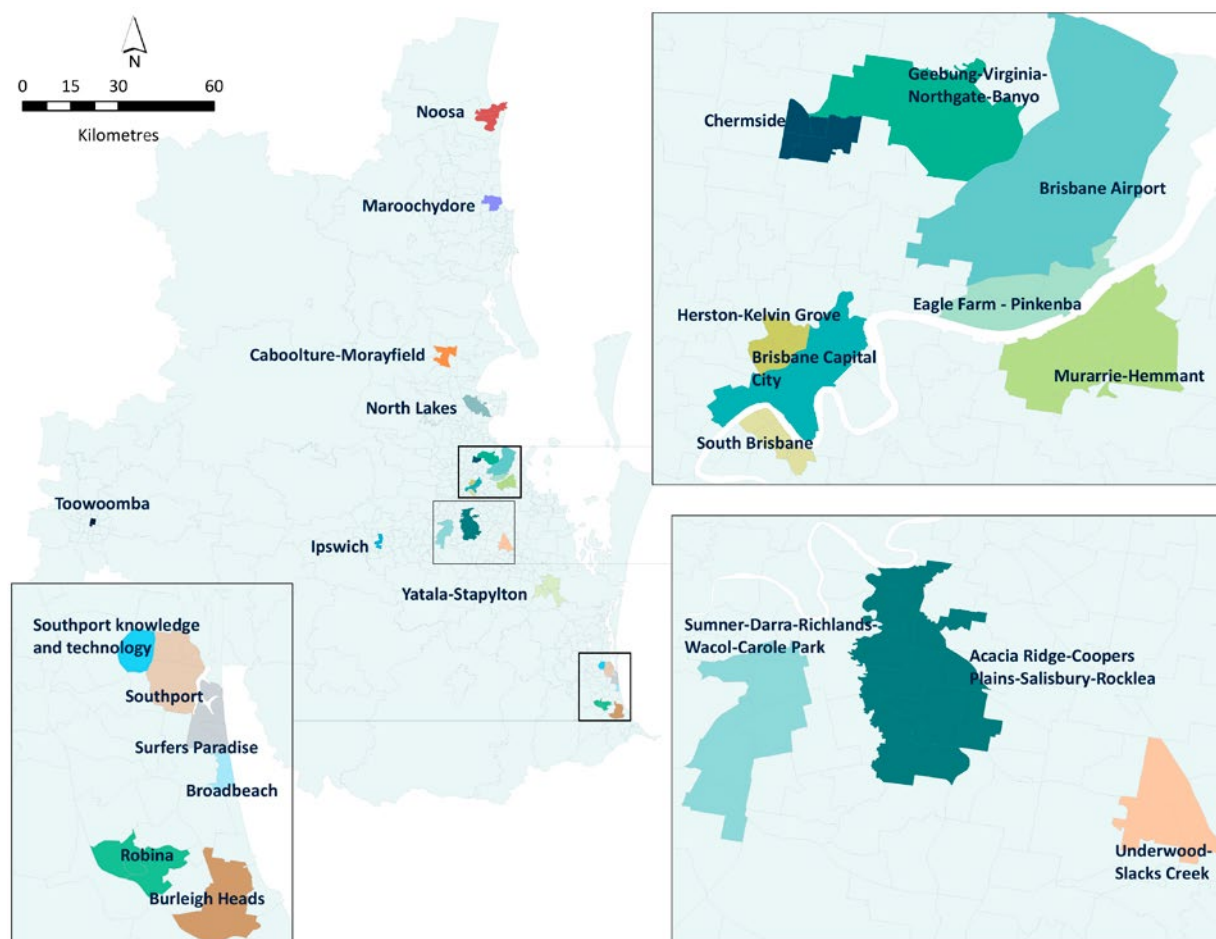
Source: BCARR analysis of ABS Census of Population and Housing, 2016 place of work data for destination zones (extracted from Tablebuilder Pro) and key employment precincts identified in SEQ Regional Plan 2017.

Appendix C

Table C.1: List of 4 digit occupations under Managers major group from the Australian and New Zealand Standard Classification of Occupations (ANZSCO)

Managers unit groups
Chief Executives and Managing Directors
General Managers
Legislators
Aquaculture Farmers
Crop Farmers
Livestock Farmers
Mixed Crop and Livestock Farmers
Advertising, Public Relations and Sales Managers
Corporate Services Managers
Finance Managers
Human Resource Managers
Policy and Planning Managers
Research and Development Managers
Construction Managers
Engineering Managers
Importers, Exporters and Wholesalers
Manufacturers
Production Managers
Supply, Distribution and Procurement Managers
Child Care Centre Managers
Health and Welfare Services Managers
School Principals
Other Education Managers
ICT Managers
Commissioned Officers (Management)
Senior Non-commissioned Defence Force Members
Other Specialist Managers
Cafe and Restaurant Managers
Caravan Park and Camping Ground Managers
Hotel and Motel Managers
Licensed Club Managers
Other Accommodation and Hospitality Managers
Retail Managers
Amusement, Fitness and Sports Centre Managers
Call or Contact Centre and Customer Service Managers
Conference and Event Organisers
Transport Services Managers
Other Hospitality, Retail and Service Managers

Source: ABS ANZSCO 2013.

Table C.2: **List of 4 digit occupations under Professionals major group from the Australian and New Zealand Standard Classification of Occupations (ANZSCO)**

Professionals unit groups
Actors, Dancers and Other Entertainers
Music Professionals
Photographers
Visual Arts and Crafts Professionals
Artistic Directors, and Media Producers and Presenters
Authors, and Book and Script Editors
Film, Television, Radio and Stage Directors
Journalists and Other Writers
Accountants
Auditors, Company Secretaries and Corporate Treasurers
Financial Brokers
Financial Dealers
Financial Investment Advisers and Managers
Human Resource Professionals
ICT Trainers
Training and Development Professionals
Actuaries, Mathematicians and Statisticians
Archivists, Curators and Records Managers
Economists
Intelligence and Policy Analysts
Land Economists and Valuers
Librarians
Management and Organisation Analysts
Other Information and Organisation Professionals
Advertising and Marketing Professionals
ICT Sales Professionals
Public Relations Professionals
Technical Sales Representatives
Air Transport Professionals
Marine Transport Professionals
Architects and Landscape Architects
Surveyors and Spatial Scientists
Fashion, Industrial and Jewellery Designers
Graphic and Web Designers, and Illustrators
Interior Designers
Urban and Regional Planners
Chemical and Materials Engineers

Professionals unit groups
Civil Engineering Professionals
Electrical Engineers
Electronics Engineers
Industrial, Mechanical and Production Engineers
Mining Engineers
Other Engineering Professionals
Agricultural and Forestry Scientists
Chemists, and Food and Wine Scientists
Environmental Scientists
Geologists, Geophysicists and Hydrogeologists
Life Scientists
Medical Laboratory Scientists
Veterinarians
Other Natural and Physical Science Professionals
Early Childhood (Pre-primary School) Teachers
Primary School Teachers
Middle School Teachers (Aus) / Intermediate School Teachers (NZ)
Secondary School Teachers
Special Education Teachers
University Lecturers and Tutors
Vocational Education Teachers (Aus) / Polytechnic Teachers (NZ)
Education Advisers and Reviewers
Private Tutors and Teachers
Teachers of English to Speakers of Other Languages
Nutrition Professionals
Medical Imaging Professionals
Occupational and Environmental Health Professionals
Optometrists and Orthoptists
Pharmacists
Other Health Diagnostic and Promotion Professionals
Chiropractors and Osteopaths
Complementary Health Therapists
Dental Practitioners
Occupational Therapists
Physiotherapists
Podiatrists
Audiologists and Speech Pathologists \ Therapists
General Practitioners and Resident Medical Officers
Anaesthetists

Professionals unit groups
Specialist Physicians
Psychiatrists
Surgeons
Other Medical Practitioners
Midwives
Nurse Educators and Researchers
Nurse Managers
Registered Nurses
ICT Business and Systems Analysts
Multimedia Specialists and Web Developers
Software and Applications Programmers
Database and Systems Administrators, and ICT Security Specialists
Computer Network Professionals
ICT Support and Test Engineers
Telecommunications Engineering Professionals
Barristers
Judicial and Other Legal Professionals
Solicitors
Counsellors
Ministers of Religion
Psychologists
Social Professionals
Social Workers
Welfare, Recreation and Community Arts Workers

Source: ABS ANZSCO 2013.