GROWTH MANAGEMENT PROGRAM

LAND SUPPLY REPORT FOR GREATER ADELAIDE

PlanSA

Background & Context

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Government of South Australia
Attorney-General's Department

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Government of South Australia
Attorney-General's Department

TABLE OF CONTENTS

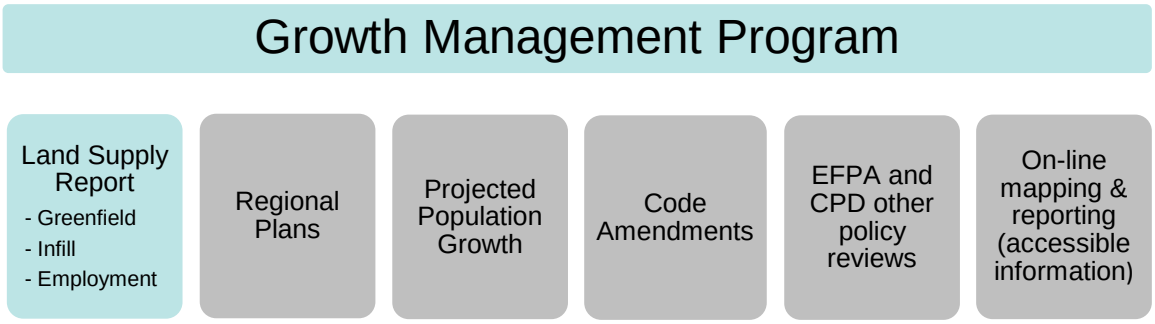
LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

A key role of the Planning and Land Use Services (PLUS) directorate of the Attorney General's department is the management and oversight of growth within Greater Adelaide, as well as regional South Australia. An evidence base around current and projected growth is crucial to support the planning process.

The Land Supply Report (LSR) for Greater Adelaide is a component of our Growth Management Program and provides data and information on land supply and demand. This was formerly called the Metropolitan Growth Management (MGM) Program but has been re-named to better reflect its role in the broader management of growth and development across the State. The overall Growth Management Program is outlined below and includes the following components:



This document focuses on the land supply component of the Growth Management Program.

1.1 What is the Land Supply Report?

The monitoring of land supply and demand is a core activity of the PLUS. This work includes analysis of:

- Urban development trends
- Population growth and projections
- Land supply and demand analysis
- Housing construction activity.

The LSR is an important part of this work and provides a point in time analysis of residential and employment land development trends, projected demand and land supply in Greater Adelaide. This information will be used as an evidence base to determine the capacity of the land use planning system to provide an adequate supply of appropriate land to meet market demand.

The LSR is an evidence based report to assist in strategic decision making. It will be considered along with other important inputs such as: environmental outcomes, accessibility, cost of servicing, protection of valued agricultural land and other strategic priorities, when considering land supply for residential and employment purposes.

Market trends and demand preferences will be constantly monitored so that the LSR can be reviewed and updated regularly.

1.2 Study area

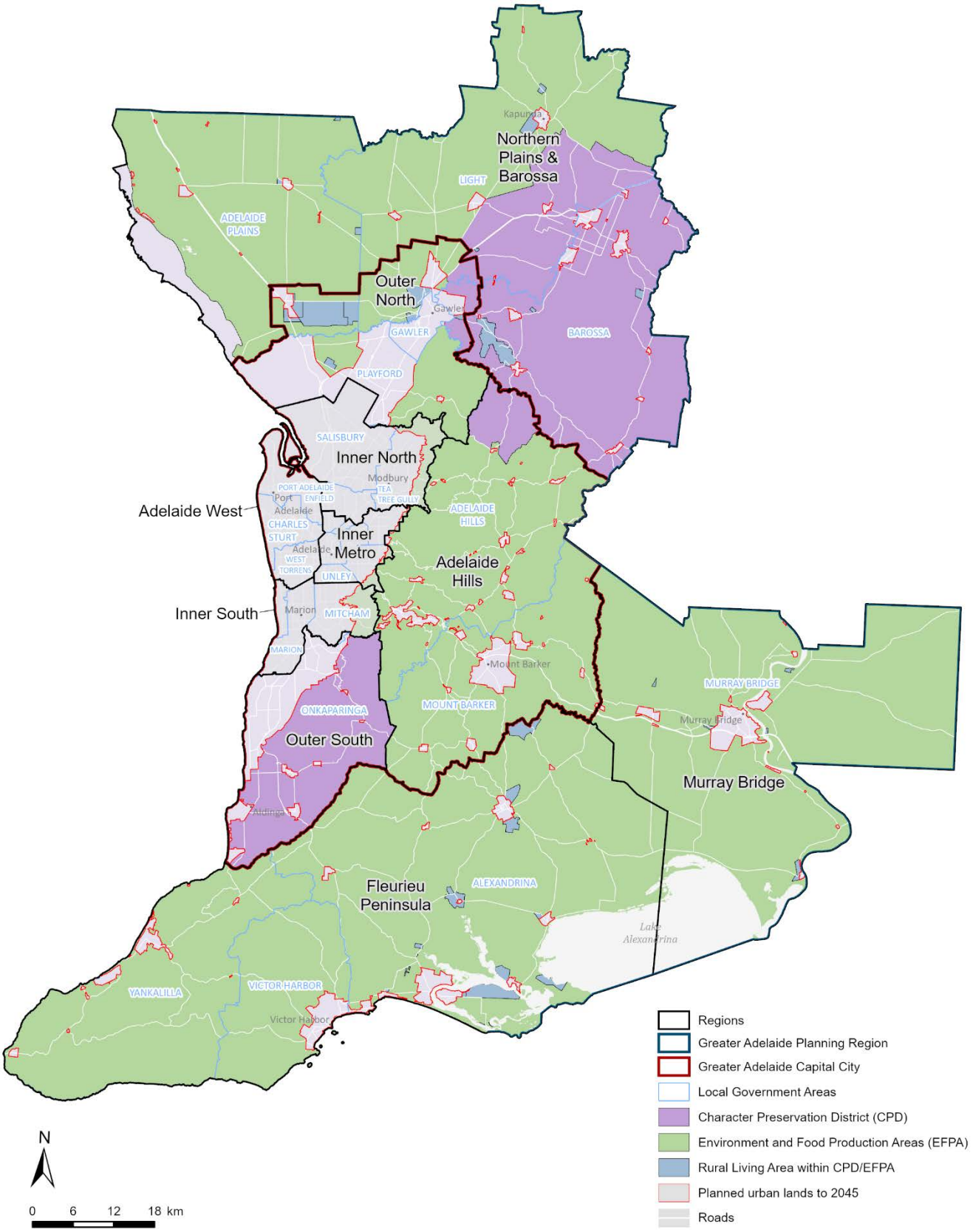
The study area for the LSR analysis is the Greater Adelaide Planning Region (GAPR), referred to as Greater Adelaide in this document (see Figure 1). Given the geographical size of the overall study area and the variety of characteristics within it, it has been divided into ten regions to manage the analysis and reporting, as shown in Table 1.

The Australian Bureau of Statistics' (ABS) defined Greater Adelaide Capital City (GACC) region represents the contiguous urban area and is now widely used for national comparisons of capital city performance. This boundary is also identified on Figure 1.

Table 1: Regions in Greater Adelaide

REGION	LOCAL GOVERNMENT AREA
Outer North	Adelaide Plains Council (in part), Barossa Council (in part), Town of Gawler, City of Playford and Light Regional Council (in part)
Inner North	City of Port Adelaide Enfield (in part), City of Salisbury and City of Tea Tree Gully
Adelaide West	City of Charles Sturt, City of Port Adelaide Enfield (in part) and City of West Torrens
Inner Metro	Adelaide City Council, City of Burnside, City of Campbelltown, Norwood Payneham & St. Peters Council, City of Prospect, City of Unley and City of Walkerville
Inner South	City of Holdfast Bay, City of Marion and City of Mitcham
Outer South	City of Onkaparinga
Adelaide Hills	Adelaide Hills Council and District Council of Mount Barker
Fleurieu Peninsula	Alexandrina Council, City of Victor Harbor and the District Council of Yankalilla
Murray Bridge	Murray Bridge Council
Northern Plains & Barossa	Adelaide Plains Council (in part), Light Regional Council (in part) and Barossa Council (in part)

Figure 1: Study area



1.3 How does it work?

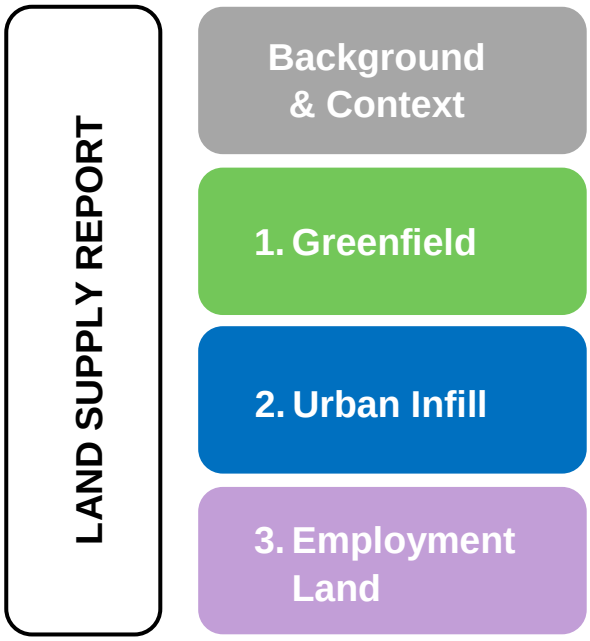
The LSR has a 10-year time horizon from 2020 to 2030. This time line is shorter than *The 30 Year Plan* time frame to allow for an agile response to the changing housing market. Movement in consumer trends and the economic and social impact resulting from significant world events like the COVID-19 pandemic will continue to influence these trends.

The study area for the LSR is the same as the Greater Adelaide Planning region as identified within *The 30 Year Plan for Greater Adelaide – 2017 Update* (see Figure 1).

The LSR, as shown in Figure 2, consists of 4 parts:

- LSR Background & Context
- Part 1 - Greenfield land supply and demand;
- Part 2 - Urban infill development and supply;
- Part 3 - Employment trends and land supply.

Figure 2: Land Supply Report structure



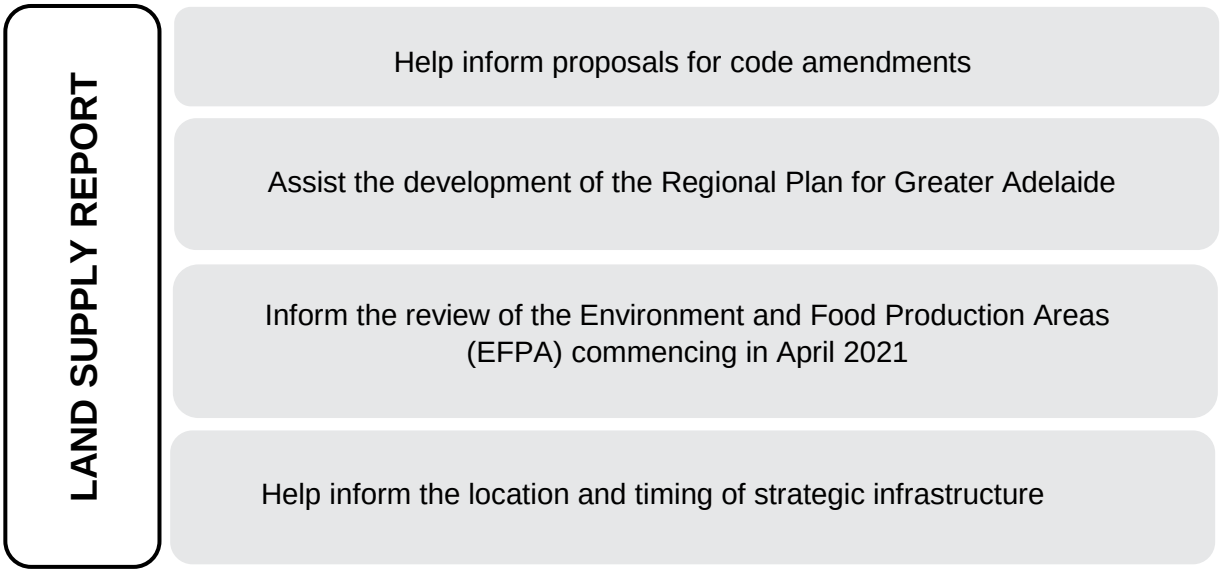
1.4 How will it be used?

The LSR will be used to provide background information and a point in time analysis of development trends, land supply and projected dwelling demand. This information will be used as an evidence base to determine the capacity of the land use planning system to provide an adequate supply of appropriate land to meet this demand.

Figure 3 summarises how the report will be used by the State Planning Commission and the Department. In particular, the report will provide base line data to help inform deliberations on the rezoning of land for residential and employment activities. Consequently, the LSR will need to be regularly reviewed and updated to keep pace with the changing nature of land use and different land use demands.

In regard to the supply of current and future residential and employment land, the LSR only considers the planned urban lands and strategic employment lands identified in *The 30 Year Plan for Greater Adelaide - 2017 Update* (Plan), it does not predict supply beyond that identified in the Plan.

Figure 3: How the LSR will be used



2. CONTEXT

2.1 Overview

The Land Supply Report provides an analysis and point in time stocktake of land supply and demand for residential and employment purposes. This is the inaugural report and regular updates are planned.

For the LSR, both a medium and high series population projection have been used to provide a range of possible growth scenarios. The high scenario was included because it is possible for the current growth rate to accelerate due to policy changes introduced to achieve population growth targets. It is also possible for the rate to slow significantly in the short to medium-term for a range of reasons, with the COVID-19 pandemic providing a good example of this.

2.2 Strategic context

The Planning, Development and Infrastructure Act (2016) creates a number of planning instruments and requirements that include state planning policies, regional plans and the Planning and Design Code. This report provides population and dwelling demand data for Greater Adelaide and helps inform these instruments about the adequacy of land supply and the need for new growth areas.

The strategic context for the LSR is also provided by *The 30 Year Plan for Greater Adelaide - 2017 Update* and the policy discussion papers released by the State Planning Commission to inform the Planning Reform process. These include:

- The Blueprint for South Australia's Planning and Design Code
- The Integrated Movement Systems Discussion Paper
- The Natural Resources & Environment Discussion Paper
- The People & Neighbourhood Discussion Paper
- The Productive Economy Discussion Paper.

Further details about these documents can be found on the South Australian Planning Portal. (View PlanSA).

2.3 Population change in South Australia

South Australia's population is highly urbanised with around 83% (just over 1.4 million people) living in the Greater Adelaide Planning Region. Our population has grown at a steady rate over the past decade, driven mainly by overseas migration.

Regular monitoring of recent population change and analysis of demographic trends provides the basis from which population projections[1] for South Australia and its regions are developed. It is these projections that have informed the future dwelling demand estimates used in the LSR. While the population projection process and outputs remains valid, COVID-19 has proven to be a major disruptor for both overseas and interstate migration and as a result some variance from the published projections is expected in the short-term.

[1] https://plan.sa.gov.au/state_snapshot/population#future_population

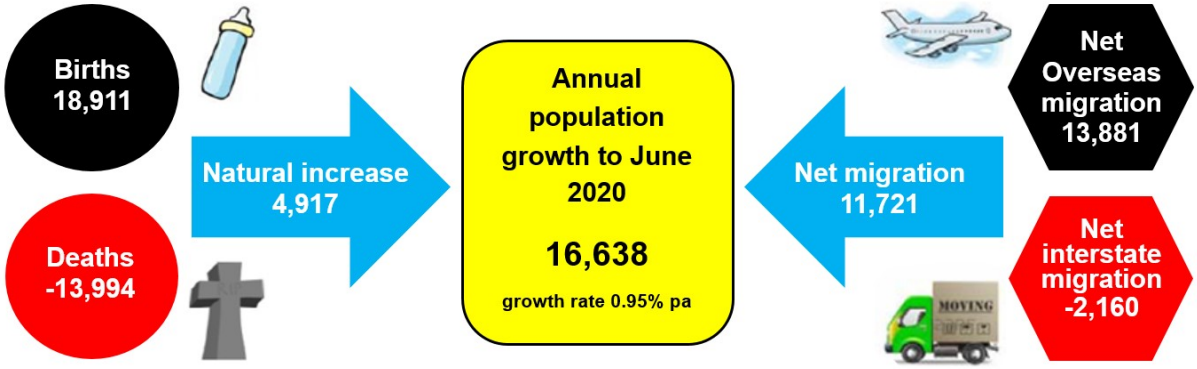
Recent population change and the projected impacts of COVID-19 on population growth, in both Australia and South Australia, are addressed in the following sections.

Recent Population Change

Population change is driven by net migration (overseas and interstate) and natural increase (births and deaths). Change in these components determines the amount and rate by which South Australia's population grows. The most recent data for the 12 months to June 2020 (refer Figure 4) shows that:

- The overall population gain was 16,600 (0.95%). This is the highest annual rate of growth since 2010.
- Net overseas migration (NOM) was 13,900 persons. This is slightly less than the 15,100 achieved in the year ended June 2019 mainly due to the early impacts of COVID-19 on overseas migration.
- An improved annual net interstate migration (NIM) loss to just under 2,100 persons, as a result of positive quarterly growth in the June quarter. This is a significant improvement on the previous year (loss of around 4,000). This improvement is expected to continue in the short-term as more people return to South Australia, and fewer people leave.

Figure 4: Components of population change, South Australia 12 months to June 2020



Source: ABS Catalogue 3101.0, Australian Demographic Statistics.

Regular monitoring of the trends and movements in these components is critical for both understanding the current drivers of population change but also for projecting future population growth, and subsequent dwelling demand.

The impact of COVID-19 on population growth

AUSTRALIA

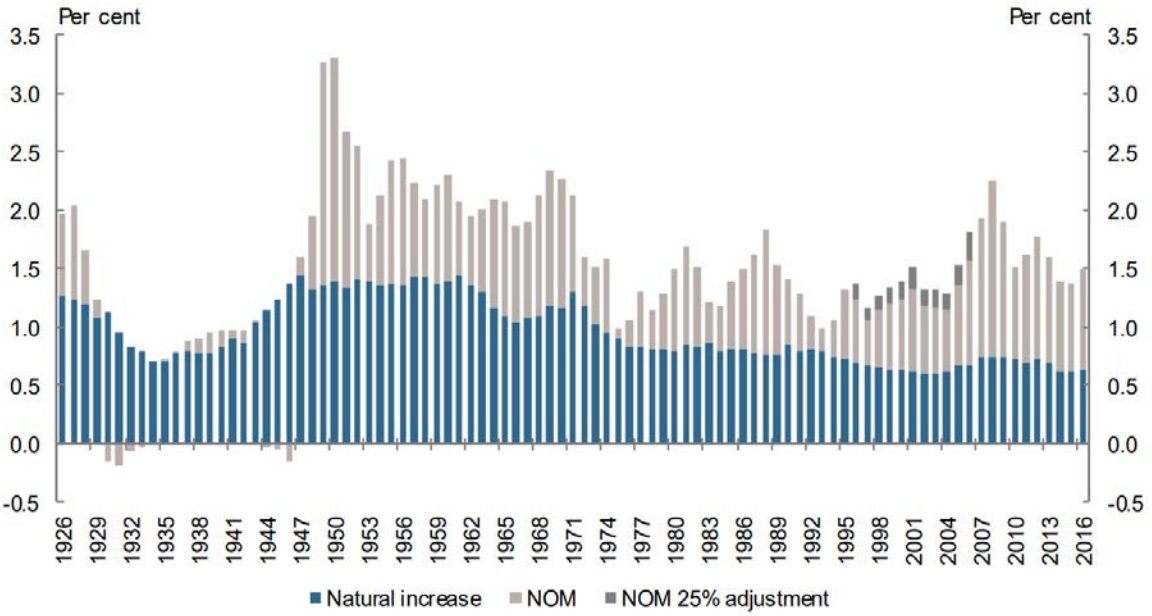
Net overseas migration (NOM)

The closure of Australia's international borders from 20 March 2020 has effectively halted the flow of new migrants from overseas and it currently remains uncertain when these restrictions will be eased. This uncertainty has been reflected in the NOM forecasts prepared by the Centre for Population[2] for the 2020/21 Commonwealth budget which assume that overseas migration will remain low through the remainder of 2021, and into 2022. As a result, Australia's population growth rate in the short-term is expected to be significantly reduced due to the pandemic.

[2] The National Centre for Population was established in 2019 to provide a focal point for population research, analysis and forecasting to ensure a consistent and plausible evidence base is available. www.population.gov.au

Figure 5 shows the relative contribution of NOM and natural increase to population growth, and also shows that Australia's growth rate has fluctuated widely from the 1920s. Up until the late 1990s natural increase was the most significant contributor to population growth, however, since then we have become increasingly reliant on overseas migration for growth. Over the last decade NOM has contributed around 60% of Australia's population growth.

Figure 5: Components of Australia's population growth, 1926-2016



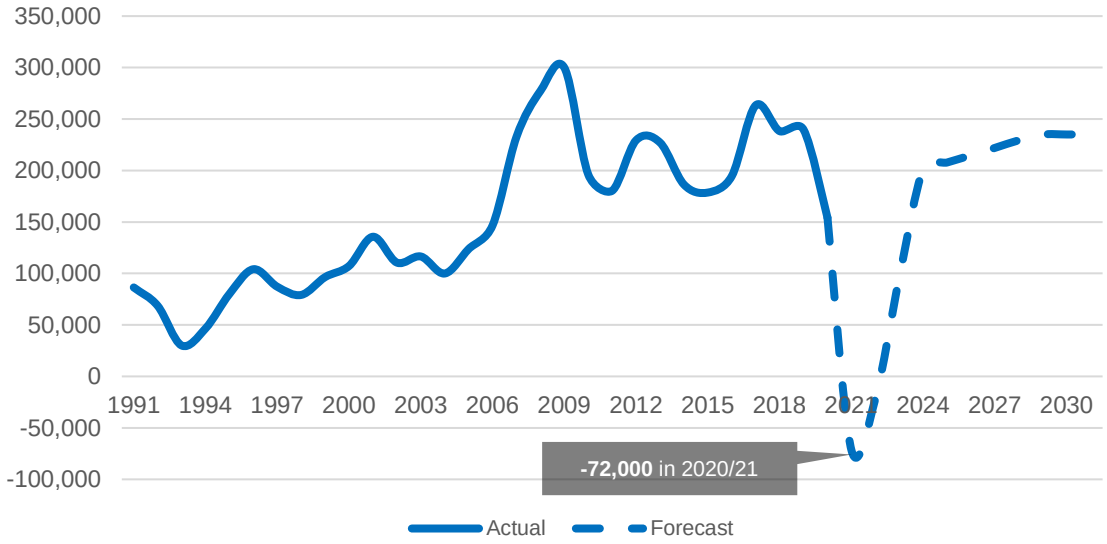
Source: Shaping a Nation: Population growth and immigration over time. www.population.gov.au

The rises and falls in both NOM and natural increase shown in Figure 5 can be linked with policy changes, economic conditions and extraordinary events. The COVID-19 pandemic is one such event and it is forecast[3] that in 2020/21, Australia could record its first negative overseas migration outflow (-72,000) since World War II. This is due to a restricted number of arrivals and the assumption that onshore migrants and temporary visa holders will continue to depart as normal.

Figure 6 shows the steady rise in NOM since the early 1990s and the extent to which it is forecast to fall in 2020/21. By 2023/24, NOM is projected to recover back to around 200,000 under a 'central' growth scenario[4]. While this plays out, natural increase is projected to be the main driver of population growth and will account for more than 60% of Australia's population growth for the first time since the 1990s.

[3] National Centre for Population, Population Statement, December 2020
[4] Ibid

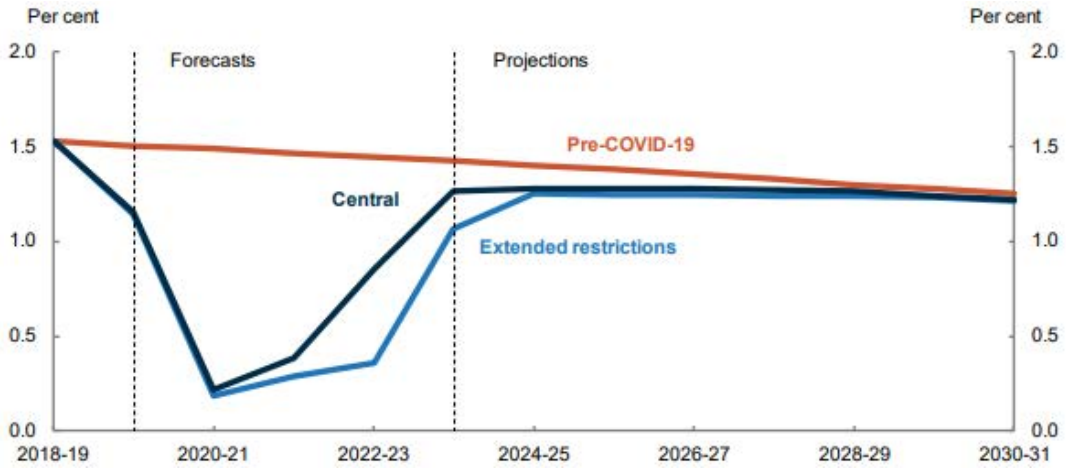
Figure 6: Actual and forecast NOM – 1990/91 to 2030/31



Source: Australian Demographic Statistics ABS Cat.3101, Centre for Population - *Population Statement* December 2020

In terms of Australia's short-term projected growth the Centre for Population (2020) has modelled both a 'central' case and an 'extended restrictions' case where overseas migration is projected to remain negative into 2022/23. By 2030/31, the estimated difference in total population between the pre-COVID-19 forecast and the 'extended restrictions' case is estimated to be around 1.3 million people.

Figure 7: Projected population growth rates for Australia – pre- and post-COVID-19



Source: Australian Demographic Statistics ABS Cat.3101, Centre for Population - *Population Statement* December 2020

Net interstate migration (NIM)

While NOM is the primary driver of national population growth the movement of people between, and within, states/territories is also an important component of population change.

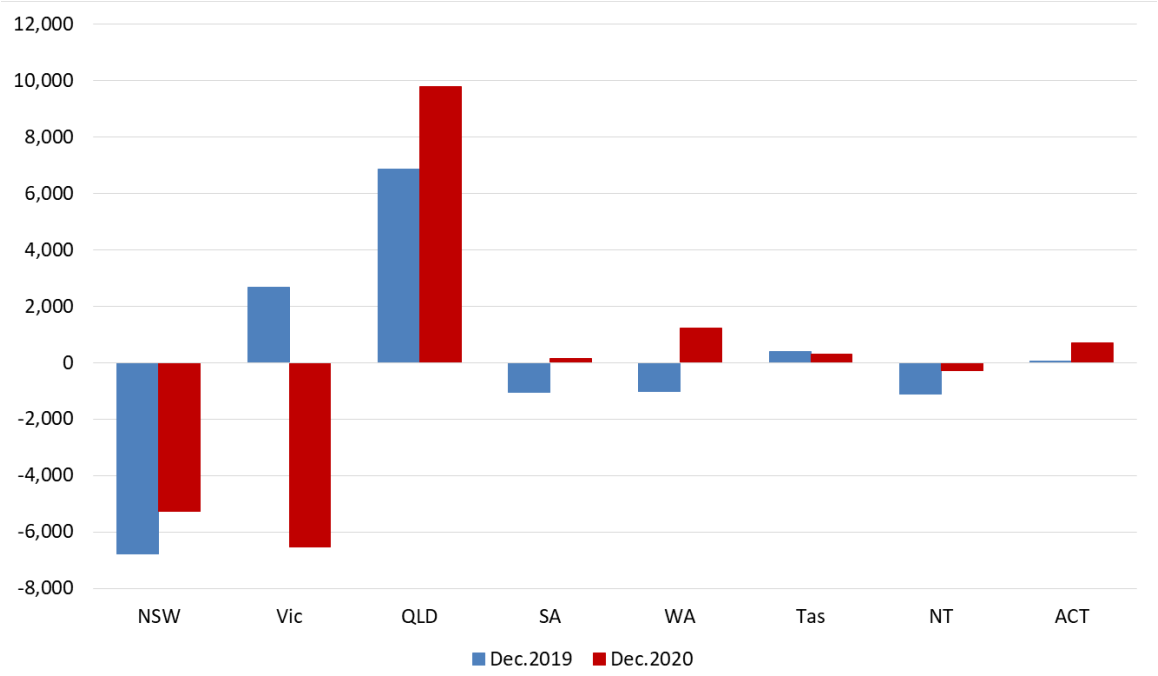
With regard to interstate migration the Centre for Population makes the following observations:

- In 2018/19, the annual interstate migration rate was 1.6% of households. This is expected to fall in the near term as a result of COVID-19 enforced border closures restricting interstate movements.
- Peri-urban regions and towns with good access to capital city areas are likely to continue to grow strongly mainly due to COVID-19.

The following comparison of NIM by state/territory for the December quarters of 2019 and 2020 reveals some of the early impacts of COVID-19:

- South Australia recorded a positive NIM gain of 134 in December 2020, compared to a loss of 1055 in December 2019.
- Victoria has shifted from positive NIM in 2019 to a loss of more than 6,500 persons in December 2020.
- More people have moved to Queensland during the COVID-19 pandemic.

Figure 8: Net interstate migration by state/territory – December quarter 2019 and 2020

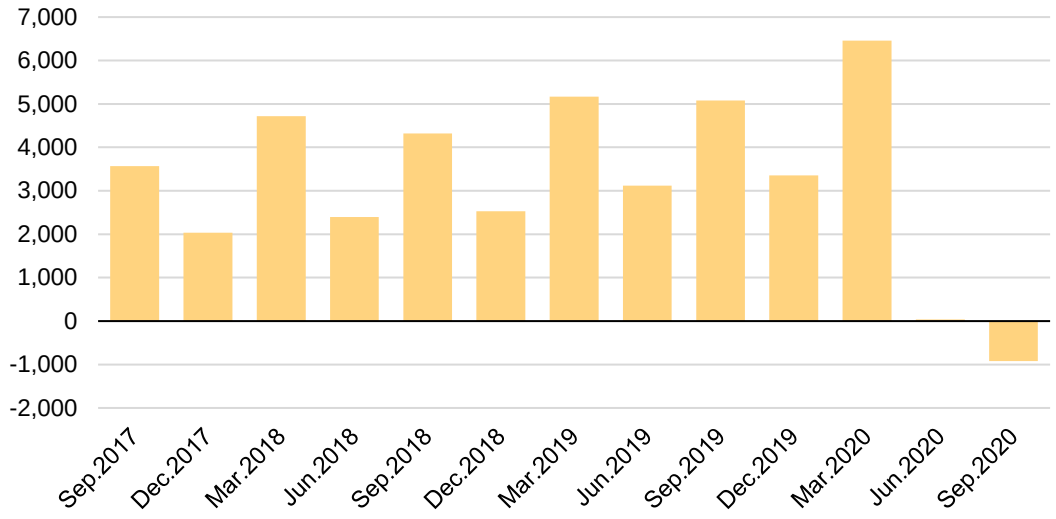


SOUTH AUSTRALIA

Net overseas migration

In South Australia NOM is our most significant population growth component and over the past decade has averaged around 14,000 per annum. It is expected that the COVID-19 related NOM impacts at the national level will flow through to all states and territories, and South Australia's share of the national NOM figure is likely to be significantly lower in the short-term. This has been confirmed by the latest data from the ABS which shows that NOM has dropped from over 6000 in the March quarter to a net loss of 920 in the September quarter of 2020 (Figure 9).

Figure 9: Net Overseas Migration (NOM) by quarter, South Australia



NOTE: December quarter 2020 data due for release on 17 June 2021.

Net interstate migration

With regard to NIM, the COVID-19 pandemic has produced two quarters of positive NIM gain in South Australia which is in stark contrast to the persistent quarterly NIM losses experienced over many years. Figure 10 highlights the following:

- Persistent quarterly NIM losses of around 1,000 persons per quarter from December 2017 to December 2019.
- Significantly improved NIM in March quarter 2020 due to the early COVID-19 related return of ex-residents from interstate and also a reduced number of the younger population moving interstate for study and employment.
- A positive NIM gain since the June quarter of 2020. This is the first time South Australia has experienced positive quarterly gains since September 2002.

Figure 10: Net Interstate Migration (NIM) – quarterly to December 2020

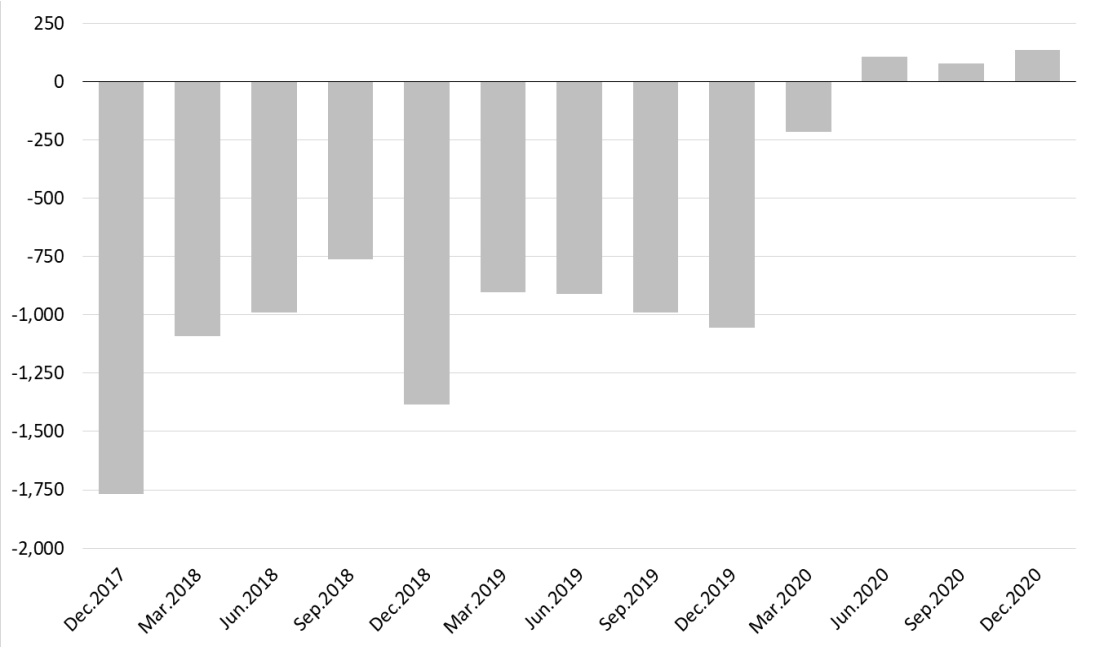
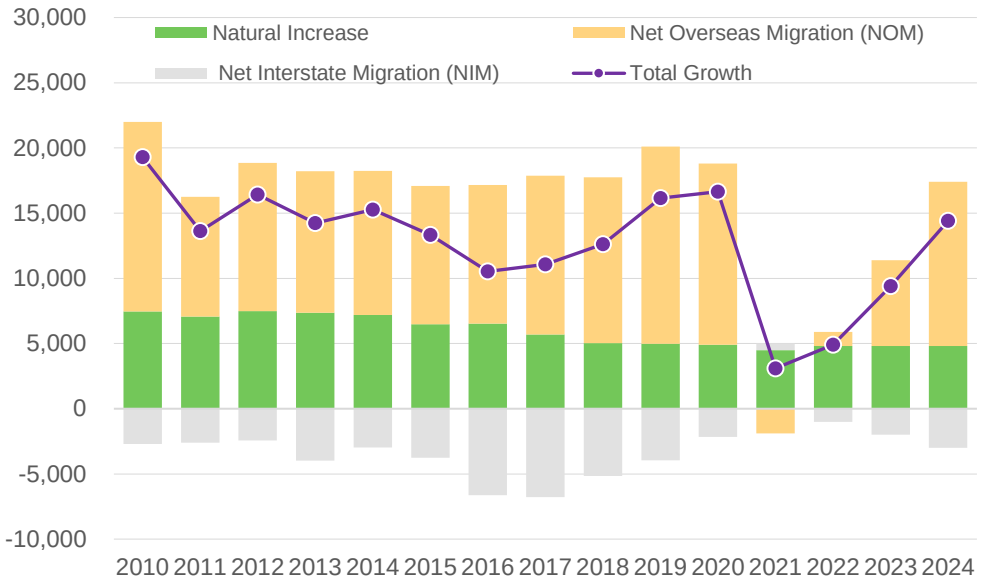


Figure 11 shows historical population growth by component from 2010 to June 2020, and projected growth to 2024. It is based on the most recently published ABS data and the COVID-19 impacted projections released by the Centre for Population in December 2020[5]. The key points to note from the chart are:

- The relatively steady pattern of growth in each of the components up until June 2020.
- Our reliance on overseas migration for population growth.
- The positive change in interstate migration in 2021. This will help to counter the more significant loss of growth from overseas migration in the short-term.
- The impact of reduced NOM on our overall population growth over the next few years.

Figure 11: Historical and projected population change – South Australia



COVID-19 Summary

NOM is a critical component of Australia's historical and future growth and its temporary absence as a result of the COVID-19 pandemic will impact on overall growth at the national level, as well as on the internal distribution of population within Australia.

While the projections and analysis prepared by the Centre for Population (2020) provide a sound basis for a shared understanding of the impacts of COVID-19, it also acknowledges the inherent uncertainty as summarised below.

> "*The ways in which the COVID-19 pandemic will shape our future are still uncertain. The projections in this first Population Statement, as with all projections, rely heavily on the assumptions underpinning them. A number of factors influence these projections of future population; primarily domestic and global economic conditions and the timing of decisions to impose or remove restrictions on domestic and international borders. It has, therefore, been important to apply expertise and judgment in estimating the effects of the pandemic on future population in a rapidly changing environment*" (p. 5)

[5] In South Australia, the Centre for Population projected negative NIM for SA in 2020/21. The most recent ABS data for the September quarter 2020 shows that NIM is already higher than their projections hence a positive NIM gain of 500 is assumed for 2020/21.

Projected population growth 2020 to 2030

Despite the anticipated COVID-19 impacts on population growth in the short-term, this version of the LSR will continue to use a current medium and high growth projection to allow us to develop base case scenarios for the next 10 years. These scenarios will be reviewed and updated as further data becomes available.

Population projections (based on the 2016 census) for South Australia and regions were completed in 2019, for the period from 2016 to 2036. These projections are based on a series of assumptions about change in the components of growth; NIM, NOM and natural increase. These assumptions were developed in partnership with other government agencies as being a plausible basis for producing a high, medium and low series of projections.

Table 2 summarises the projected population growth for the 10 regions of Greater Adelaide over the period 2020 to 2030[6]. Both the medium and high projection series are used to show the range of possible growth outcomes.

Exactly how COVID-19 will impact on our population growth rate in the next 10 years is very difficult to establish at this point in time. However it is highly likely that we will see below average population growth for the next few years for the following reasons:

- NOM is likely to remain extremely low for as long as our international borders are closed.
- NIM is likely to remain slightly positive in the short-term due to return migration from interstate, and fewer people moving for study, employment and family reasons
- Natural increase will remain steady and be the major contributor to growth in the short-term
- Both NOM and NIM are assumed to return to pre-COVID levels from 2022/23.

Table 2: Projected population growth 2020 to 2030

REGION	MEDIUM	HIGH
Outer North	26,900	36,700
Inner North	26,500	32,800
Adelaide West	21,700	33,700
Inner Metro	17,000	28,400
Inner South	14,700	16,400
Outer South	13,200	20,300
Adelaide Hills	6,400	8,500
GREATER ADELAIDE CAPITAL CITY (GACC)	**126,400**	**176,800**
Fleurieu Peninsula	7,100	9,300
Murray Bridge	2,300	3,600
Northern Plains & Barossa	3,200	5,400
PERI-URBAN AREA	**12,600**	**18,300**
TOTAL	**139,000**	**195,100**

[6] DPTI population projections, 2019

Demographic trends likely to influence urban development

In addition to the broad population changes occurring through overseas and interstate migration, there are other demographic trends that are likely to shape future urban development in South Australia as outlined below:

- We have the nation's second highest proportion of people aged over 65 years. By 2030, this cohort is projected to increase by 86,600 people or 26%.
- Our population aged 80+ is expected to increase by over 30,000 (a 45% increase) in the Greater Adelaide region by 2030.
- Our rate of natural increase is slowly declining which is caused by an ageing population (increasing death rate) and generally lower fertility rates.
- We typically lose around 4,000 people annually to interstate destinations (although the latest data reveals that this has been stalled as a result of COVID-19). Around two-thirds of these losses are young adults aged 20-39 years, many of whom are educated professionals migrating elsewhere for employment. COVID-19 has seen this trend reversed for now.
- Recently arrived overseas migrants have a strong tendency to initially settle in the inner and middle parts of metropolitan Adelaide. This is helping to drive strong housing demand in these areas.
- The number of people per household continues to decline and lone person households are projected to show the greatest increase over the next 10 years.
- Over 57% of households in South Australia have only one or two residents. Lone person households, single-parent and couple-without-children families have all increased over the past two decades due to ageing, the increasing number of overseas students and increases in family breakdowns. In contrast, the number of couple-with-children families has fallen.
- While population growth in the peri-urban and regional towns surrounding our capital cities has been steady in recent years. During the COVID-19 pandemic, the growth in many peri-urban and well connected regional towns has accelerated.

2.4 Residential development trends

This section outlines the key residential development trends that are likely to influence our future urban form. The different types of development described below, and their relative shares, are a key metric used by the LSR to estimating future demand by development type.

Development types

Greenfield

Greenfield land supply includes land that is currently zoned for residential use, and land identified for future urban development in *The 30-Year Plan for Greater Adelaide - 2017 Update*. This land is generally located on the metropolitan fringe or in townships (i.e. Mount Barker) (refer to Figure 12).

Township

Townships are urban centres separated from the built up areas of Metropolitan Adelaide and distributed throughout the Environment and Food Production Areas (EFPA) (refer back to Figure 1). A number of the larger townships (e.g. Victor Harbor, Goolwa & Strathalbyn) have significant tracts of Greenfield land.

General Infill

General infill (or minor infill) occurs within the established urban area of Metropolitan Adelaide and typically involves the demolition of older dwelling stock and/or the re-subdivision of land parcels to accommodate new dwellings, often at higher densities.

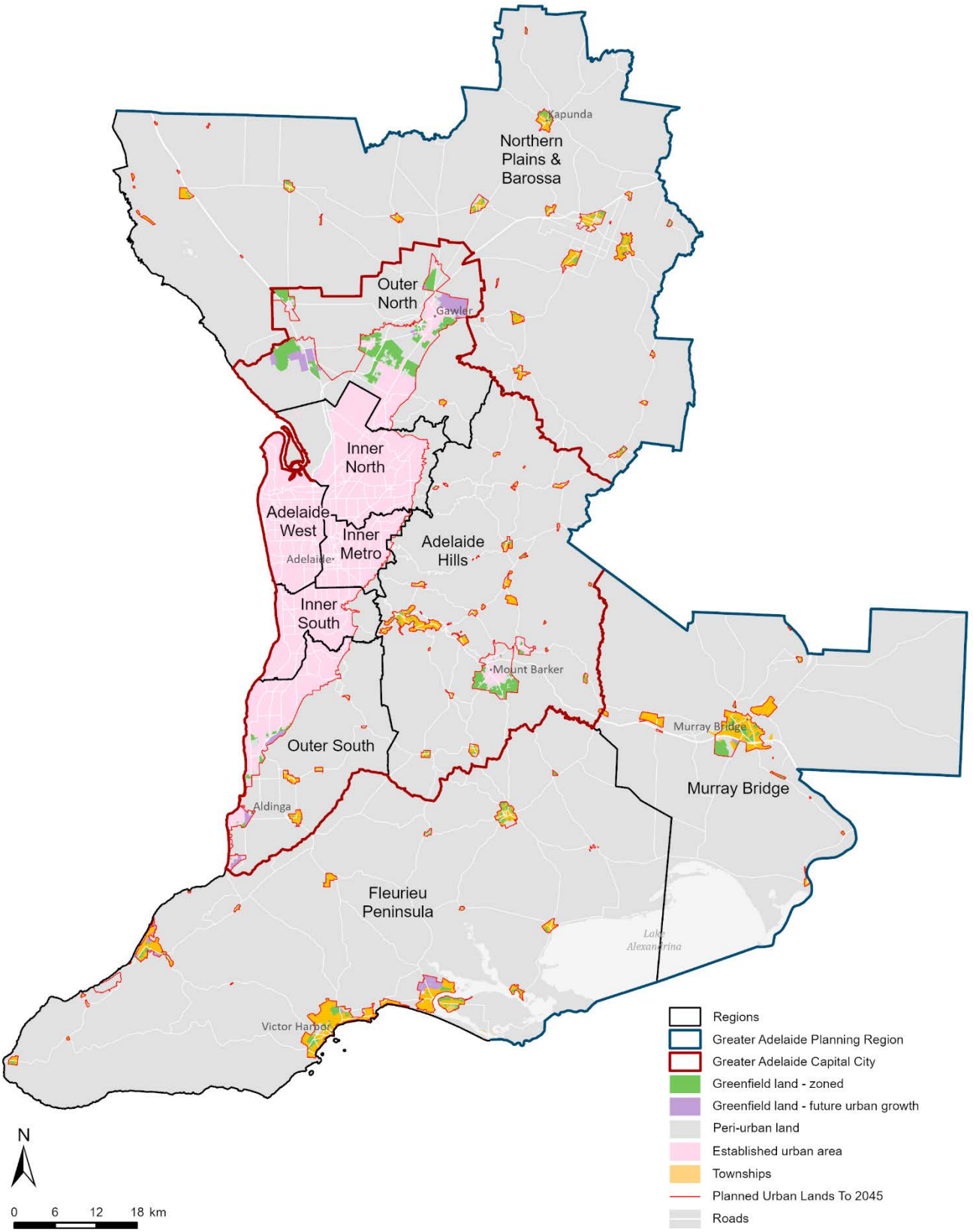
Strategic Infill

Significant residential development on land within the established urban area of Metropolitan Adelaide. Strategic infill development includes; major apartment developments in corridors and the Central Business District (CBD), the redevelopment of “brownfield” sites (i.e. Lightsview, Bowden, AAMI Stadium) and aged care developments.

Peri-urban

Peri-urban development refers to residential development beyond the extent of the established urban area of Metropolitan Adelaide and not within zoned Greenfield land or Townships. It includes larger rural living and lifestyle allotments in the hills and regional areas as well as all residential development located outside the *Planned Urban Lands 2045* (refer to Figure 12).

Figure 12: LSR Development Area map



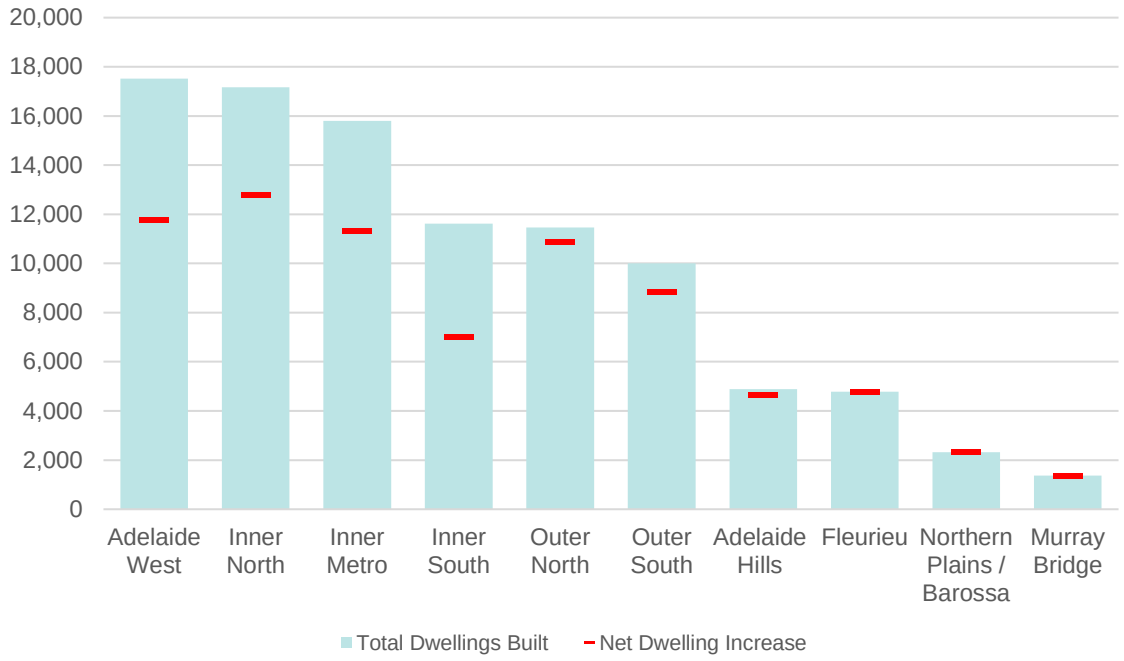
Historic dwelling construction, 2010 to 2020

Between 2010 and June 2020, a gross total of 96,900 dwellings were constructed across Greater Adelaide, at an average rate of 9,200 completions a year. Taking into account demolitions over the same period, this has resulted in a net increase of 76,700 dwellings, at an average annual rate of 7,300.

Figure 13 shows the total number of dwellings built and the estimated net dwelling increase for each region between 2010 and 2020. From the chart the following trends are noteworthy:

- The Adelaide West region recorded the highest number dwellings built (17,500). In net terms, the actual dwelling stock increase was much less at around 11,800 dwellings. In this region, for each addition to the dwelling stock, 1.5 dwellings were built.
- In the Adelaide Inner South region, 11,600 dwellings were built for a net increase of 6,800. In this region, for each addition to the dwelling stock, 1.65 dwellings were built.
- In the Adelaide Inner North region, 16,700 dwellings were built for a net increase of 12,500 dwellings. In this region, for each addition to the dwelling stock, 1.35 dwellings were built. The lower ratio is due to the volume of supply coming from the large master planned developments at Mawson Lakes and Lightsview.
- In both the Outer North and Adelaide Hills regions the majority of dwelling are built on Greenfield land. As a result the difference between the number of dwellings built and the net increase is much smaller.

Figure 13: Dwellings built and net dwelling increase, LSR regions 2010 – June 2020



HomeBuilder Stimulus Grant

In response to the COVID-19 pandemic and its potential impact on the housing industry, the Australian government introduced its HomeBuilder stimulus package on 4 June 2020.

The HomeBuilder Grant is made available to eligible owner-occupiers (including first home buyers) who build a new home, substantially renovate an existing home, or buy an off the plan/new home, where the contract is signed between 4 June 2020 and 31 March 2021 inclusive. The amount available is:

- $25,000 where the contract is signed between 4 June 2020 and 31 December 2020.
- $15,000 where the contract is signed between 1 January 2021 and 31 March 2021.

Preliminary data (early February 2021) shows that the grant has provided a significant short-term boost for housing demand in South Australia with the number of grant applications far exceeding expectations.The latest monthly building approvals data to December 2020 provides further evidence of this boost with an almost 70% increase in detached house approvals since July 2020[7].

While the HomeBuilder stimulus has boosted short term housing demand, the longer term impacts on housing demand are not yet clear. Housing demand is dependent on population growth which is being significantly impacted by stalled overseas migration.

[7] ASB building approvals to December 2020, released 3/2/2021 https://www.abs.gov.au/statistics/industry/building-and-construction/building-approvals-australia/latest-release

Development share

The development share is the proportion of dwellings built within each development type (Greenfield, Township, General Infill, Strategic Infill and Peri-urban). Both a gross and net development share have been calculated to demonstrate the difference between the total number of dwellings built and the net dwelling increase (i.e. taking demolitions into account).

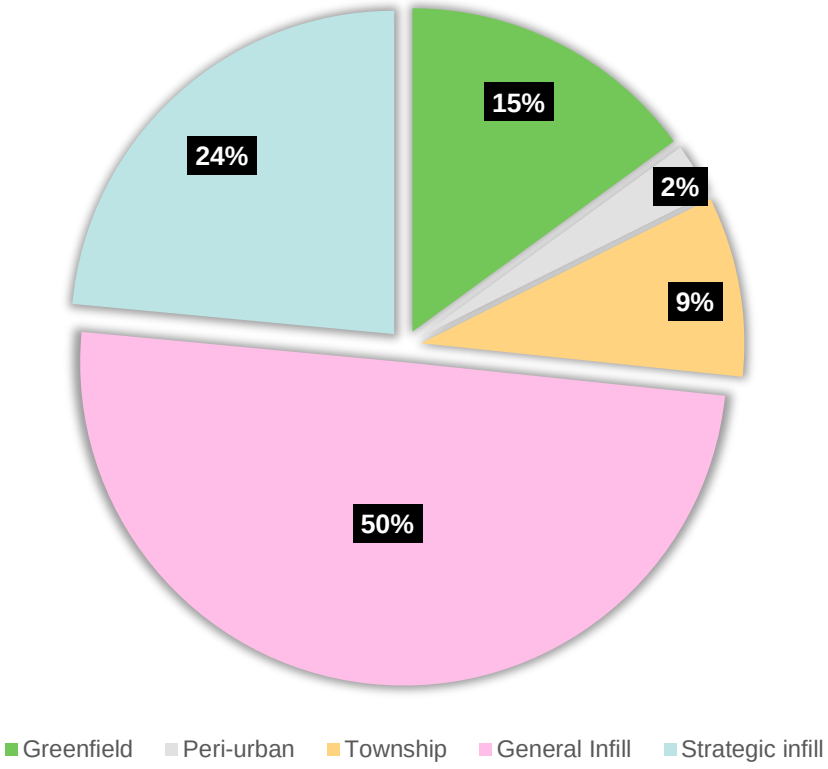
Total dwellings built (gross)

The total (gross) number of dwellings built is the best indicator of housing construction activity because it includes the dwellings built to replace demolitions. This is what is published by the Australian Bureau of Statistics in its monthly building approvals

Analysis of the total number of dwellings built between 2010 and 2020 (Figure 14) for the Greater Adelaide Planning region reveals:

- Approximately 50% of dwelling construction occurs in small scale general infill projects across metropolitan Adelaide (mostly in the inner and middle suburbs).
- 24% of dwellings comes from strategic infill sites which consist of; major apartment developments in corridors and the CBD, the redevelopment of “brownfield” sites (i.e. Lightsview, Bowden, AAMI Stadium) and aged care developments.
- New dwellings constructed in Greenfield developments contribute 15% of our dwelling stock. The Greenfield land supply is located in the Outer North, Outer South and Adelaide Hills (Mt Barker) regions. A further 9% of dwellings are constructed in Townships across Greater Adelaide.
- 2% of housing construction occurs in the peri-urban areas of Greater Adelaide.

Figure 14: Dwellings built (gross) by development type, Greater Adelaide 2010 – June 2020



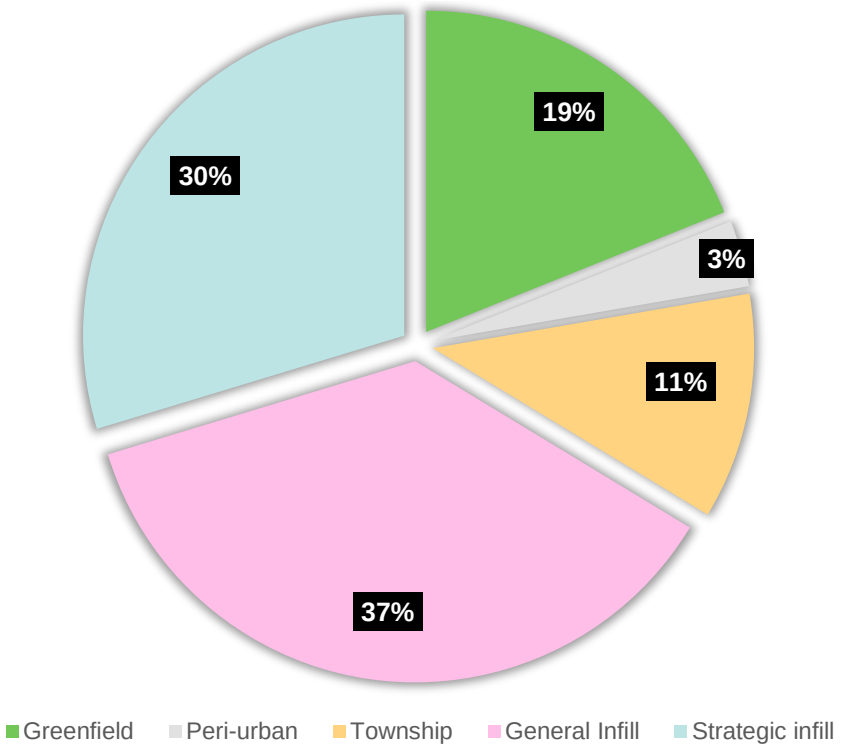
Net dwelling stock increase

The net dwelling increase provides a reliable measure of the stock of dwellings available for occupancy because it excludes replacements for demolished dwellings. The net dwelling increase has been used to calculate the development shares used throughout the LSR.

Analysis of the net dwelling increase by development type between 2010 and 2020 (Figure 15) reveals that:

- General infill contributes 37% of the net dwelling increase across Greater Adelaide (mostly in the inner and middle suburbs).
- 30% of the net dwelling increase comes from strategic infill.
- Dwellings constructed in Greenfield developments contribute 19% of our dwelling stock. Greenfield land supply is located in the Outer North, Outer South & Adelaide Hills (Mount Barker) regions.
- Townships contribute a further 11% and the majority of this is considered to be a form of Greenfield development.

Figure 15: Net dwelling increase by development type, Greater Adelaide 2010 – June 2020



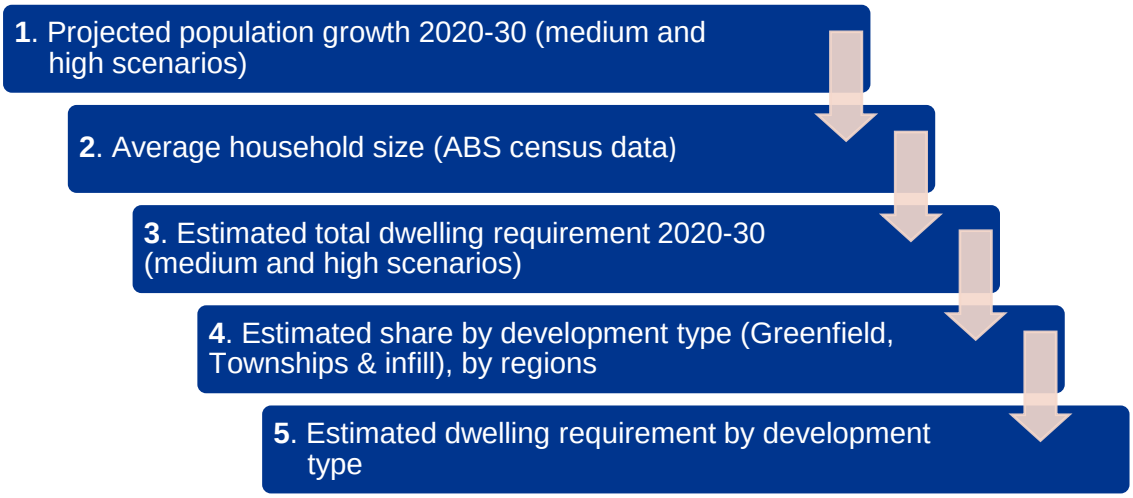
Estimated dwelling requirement 2020 to 2030

The estimated dwelling requirement for each region over the period 2020 to 2030 is based on the following inputs:

- Projected population growth from 2020 to 2030 for each region – medium and high growth (Table 2).
- Average household size of occupied private dwellings (2016 census).
- Dwelling occupancy rates for each region.
- Development share by region.

Figure 16 outlines the process used to convert projected population growth to an estimated total dwelling requirement, and then to an estimated requirement from each development type.

Figure 16: Process for estimating the dwelling requirement between 2020 and 2030



The total estimated dwelling requirement for each region is summarised in Table 3. It represents the amount of new housing needed to meet the demand generated by population growth and underlying household formation trends. For example, for the medium growth scenario around 64,000 dwellings will be required across Greater Adelaide over the next 10 years to accommodate a projected population increase of 137,000 people (Table 2).

Table 3: Total estimated dwelling requirement 2020 to 2030

REGION	MEDIUM	HIGH
Outer North	12,000	16,400
Inner North	12,000	14,000
Adelaide West	10,600	15,700
Inner Metro	8,300	13,600
Inner South	5,100	7,200
Outer South	6,100	8,900
Adelaide Hills	3,000	4,000
GREATER ADELAIDE CAPITAL CITY (GACC)	**57,100**	**79,800**
Fleurieu Peninsula	4,100	5,200
Murray Bridge	1,100	1,600
Northern Plains & Barossa	1,300	2,200
PERI-URBAN AREA	**6,500**	**9,000**
TOTAL	**63,600**	**88,800**

Changing settlement patterns

- Adelaide's spread to the north and south of the city has dominated housing growth over many decades. However more recent trends show that a greater number of people are choosing to live closer to the city in varied forms of housing.

- Currently more than 67% of Greater Adelaide's new housing growth is occurring as infill within the established metropolitan suburbs. General infill, mainly from the demolition and re-subdivision of the existing dwelling stock, contributes around 37% of this amount.
- As a result of increased demand for infill development, the overall composition of South Australia's housing stock is slowly changing to accommodate the needs of modern families and households at various life-cycle stages.

Increased housing density

- An indicator of our increased housing density is the average gross dwelling yield from Greenfield land developments. In 2010 the yield was 10 lots per hectare however by 2019 the average gross dwelling yield had increased to 12.3 lots per hectare with many new Greenfield sites now achieving well in excess of 15 lots per hectare.
- Increased demand for infill housing and significant numbers of new dwellings being built in the Inner North and the Adelaide West are also gradually increasing the density in a number of inner suburbs.

2.5 Employment trends

What is employment land?

Historically, the term 'industrial land' was used to refer to land providing employment outside of the activity centre network and CBD. In times where manufacturing made up a significant proportion of the total employment in South Australia (and absorbed a substantial quantity of demand for employment lands), use of this terminology was entirely appropriate.

In recent years, however, the range of activities taking place within these precincts has broadened significantly beyond just manufacturing. In recognition of this, the term 'employment land' has emerged as a more appropriate way to classify these formerly 'industrial' precincts. Referring to these precincts as 'employment land' more accurately summarises their role and function as locations for jobs across a wide range of sectors.

The role of employment land

Sustainable urban regions must accommodate a range of functions to support the liveability of communities. This includes the provision of accessible employment lands which contribute to the growth of the state economy, and drive economic growth and wealth creation.

Employment lands provide employment opportunities not typically available in commercial or retail centres, whilst also being necessary for the expansion of key growth sectors such as defence and advanced manufacturing. They also support the ancillary functions that underpin everyday economic activities in all sectors. Ensuring sufficient supply of employment land is vital in promotion of a more productive local economy.

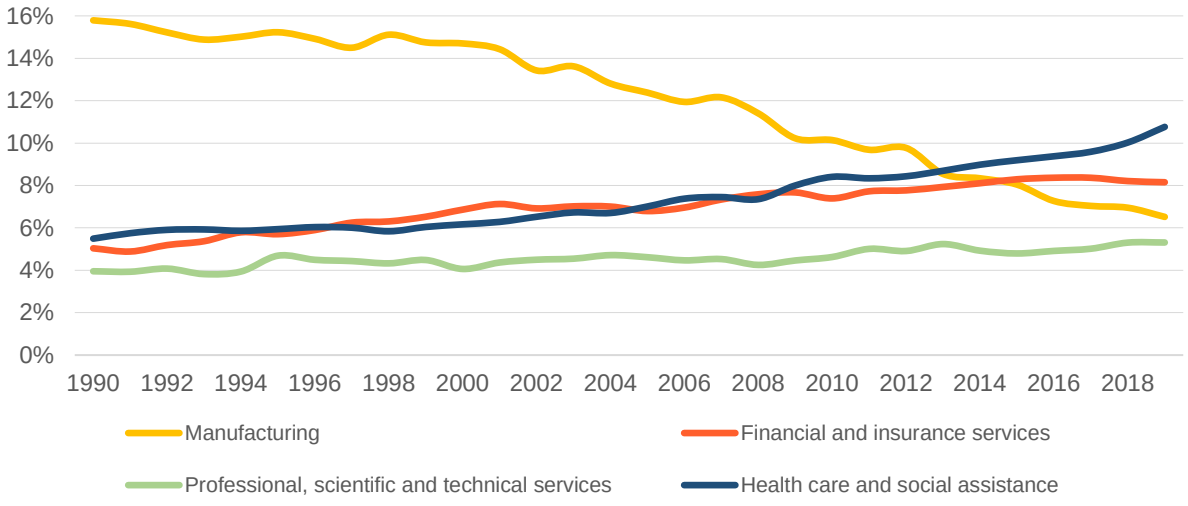
Employment land trends

Decline of traditional manufacturing

The share of output attributable to manufacturing in Australia has declined substantially in recent decades, due to increased global competition and local economic reform. South Australia's economy has been particularly impacted by the loss of such manufacturing jobs (e.g. General Motors Holden, Hills Industries, and Mitsubishi).

Figure 17 shows the decline in importance of traditional manufacturing in South Australia by comparing the share of Gross State Product to key service sectors. In South Australia, traditional manufacturing's share of state outputs has declined from 16% in 1990 to around 6% today.

Figure 17: Share of Gross State output, manufacturing compared to key service sectors, 1990 - 2020



Source: ABS

Growth of advanced manufacturing and other knowledge intensive activities

With relative strengths in education and research, a large stock of human capital, a 'manufacturing culture' and institutional stability, South Australia is well-positioned to support growth in knowledge intensive forms of 'advanced manufacturing'. These activities generally involve the use of innovative and leading edge technologies to streamline the manufacturing process. So, while the manufacturing sector overall is contracting, advanced manufacturing represents an opportunity for growth.

Advanced manufacturers have very different requirements to more traditional forms of manufacturing, with proximity to universities, skilled workers, public transport and central Adelaide relatively important (e.g. Tonsley).

Defence

South Australia has a competitive advantage in the provision of defence-related activities. These activities occur across a number of domains, including:

- Maritime
- Systems and cyber
- Aerospace
- Land
- Research, and
- Space

New defence businesses will be attracted by agglomeration economies linked to the presence of existing businesses, skilled workforce, and the likelihood of ongoing Government support.

Also important will be the ongoing provision of employment lands in locations and formats desired by the industry.

Diversification of use

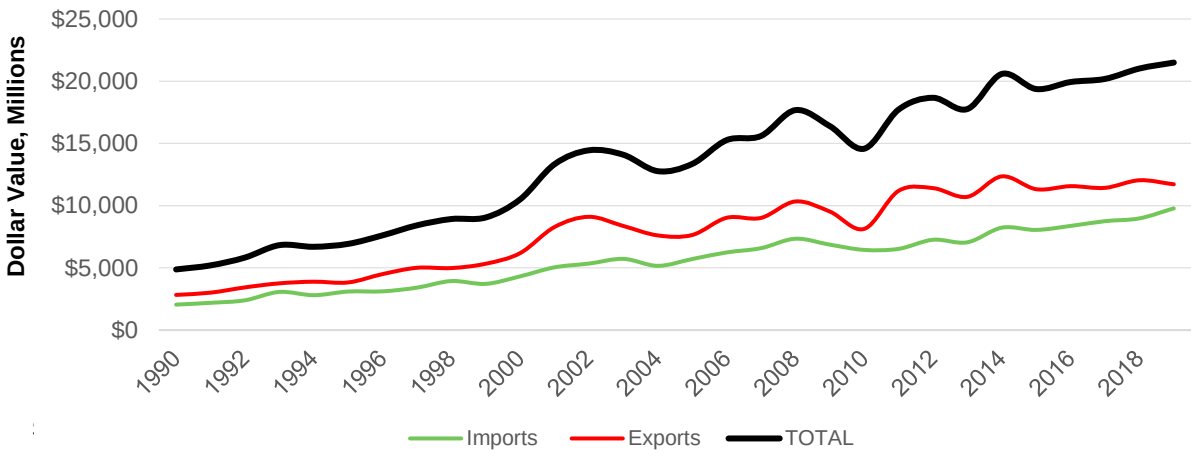
In recent years, the diversity of business types locating within employment precincts has grown. These include freight and logistics, building and construction supplies, and increasingly, businesses involved with the provision of services, as well as retailers. In addition, a shift away from highly polluting industries means a strict separation of uses is no longer as important and a broader range of uses can be facilitated within employment lands.

This presents opportunities for the coexistence of diverse uses, including manufacturing, in new urban forms. It also represents a threat, with permissive employment land provisions potentially leading to the 'crowding out' of strategically important activities in some precincts by uses that generate higher returns for landholders (i.e. retail, residential).

Increased consumption and global trade

Growth in global trade has impacted the function of employment lands across Australia and Greater Adelaide. Rising household wealth has meant greater demand for goods from national and also overseas producers. In addition, there has been increasing demand for Australian-made goods from global markets. Figure 18 shows the increasing value of exports and imports to and from South Australia over the last 20 years.

Figure 18: South Australian import / export volumes, 1990 - 2020



Together, these factors have led to an increase in the amount of land dedicated to the storage and distribution of goods, particularly in employment lands with good access to strategic freight routes and trade gateways.

The role of new infrastructure in reshaping urban geographies

Linked to new patterns of production and evolving markets, Governments are recognising the need to invest in new infrastructure to ensure that urban economies are positioned to prosper in the new economy. These infrastructure investments typically reflect the need to improve accessibility and to reduce the cost associated with accessing global markets, and to generate productivity improvements that improve the competitiveness of local products.

In the Greater Adelaide context, the establishment of a North-South Corridor (Figure 19) will reduce the costs of doing business in South Australia by improving links between businesses and reducing travel times and costs, and, in doing so, help local producers remain globally competitive. In doing so it also amounts to a reconfiguration of Greater Adelaide's economic geography and is likely to lead to a shift in demand preferences across its employment lands.

Figure 19: North-south corridor

3. INFRASTRUCTURE

3.1 Overview

Infrastructure is a key enabler of urban development and the LSR considers the various tiers of infrastructure planning, provision and coordination. This section presents the higher level strategic directions and aspirations of the 20 year State Infrastructure Strategy prepared by Infrastructure SA, and also provides an update on the trunk infrastructure capacities, forward plans and challenges faced by the key utilities (SA Water, SA Power Networks [SAPN]) and the Department for Infrastructure and transport (DIT).

Some additional information about local infrastructure arrangements and deeds is provided, where applicable, in the regional analysis sections.

3.2 Infrastructure SA

In May 2020 Infrastructure SA released a *20-Year State Infrastructure Strategy*[8]*,* the first of its kind, which sought set priorities and directions for infrastructure investment in order to support and facilitate, amongst other things, population growth.

The release of this strategy subsequently lead to the publication of the *Capital Intentions Statement 2020*[9] (CIS), which identified infrastructure priorities for the State over the next 5 years. Relevant to population growth within the identified study area are:

- Water for growth
- Key economic corridor planning studies
- Passenger transport.

Some of the relevant projects identified for further consideration within the CIS include:

- Completion of the north-south corridor
- Extension of tram services in the CBD
- An underground rail link in the CBD
- Completion of the Gawler rail electrification
- An extension of the O-Bahn between Tea Tree Plaza Interchange and Golden Grove
- Grade separations at major metropolitan intersections
- Development of the LeFevre Peninsula.

In addition to this, we have consulted with relevant infrastructure agencies as part of the LSR to further identify and obtain an understanding on high level infrastructure capacities, funding models and delivery. A high level summary of those discussions is provided in the sub-sections herein.

The co-ordinated provision of trunk infrastructure (i.e. strategic level, shared infrastructure that services large catchments) to identified urban growth areas is vital to sustainable orderly urban development. Key components of sound infrastructure planning include:

[8] Infrastructure SA, *20-Year State Infrastructure Strategy*, May 2020
[9] Infrastructure SA, *Capital Intentions Statement 2020*, May 2020

- **Identification** of infrastructure needs is critical to forward planning, especially for agencies which are subject to regulatory requirements which dictate pricing and capital expenditure over a set period of time.
- **Co-ordination** between levels of government, infrastructure agencies and developers will help inform likely pressures, future needs and opportunities for synchronisation of work programs to minimise disruptions on local communities.
- **Funding** models which are agile, adaptable and transparent will provide greater clarity and assurances to levels of government, infrastructure agencies, developers and local communities.
- **Delivery** of critical infrastructure in a co-ordinated and timely manner which will facilitate growth, whilst supporting existing residents and communities by minimising time lags in delivery.

3.3 Water Network

SUPPLY	DEMAND	CONSTRAINTS
27,000kms of water mains	**485,500** metropolitan meters	Working within a 4 year regulatory period
4 desalination plants	**208,000** regional meters	Age of infrastructure in established urban areas
32 reservoirs	**220** billion litres of potable water a year	Effectiveness of funding models
43 water treatment plants		

System Supply

SA Water currently manages and maintains one of the longest supply networks in the Southern Hemisphere, with more than 27,000kms of water mains supplying 220 billion litres of potable water every year.

The system is regulated by the *Essential Services Commission of South Australia (ESCOSA)* which requires SA Water to operate in four year regulatory cycles. This process dictates pricing and capital expenditure for each 'regulatory' period, the current period of which runs from 2020-2024.

System Demand

There are over 693,000 meters connected to the system, the majority of which are located within Metropolitan Adelaide and Fleurieu Peninsula. Continued maintenance and growth of this network will be required to support projected growth within the Metropolitan Adelaide and Fleurieu Peninsula regions over the next ten years. The key infrastructure elements which support this projected growth are:

- Augmentation agreements for the 2020-2021 period, which will fund required infrastructure upgrades for the following areas:
  - Mount Barker (Adelaide Hills)
  - Skye (Inner Metro)
  - Roseworthy (Outer North)
- Multiple funding agreements that are in place, or in negotiation, to provide services to Greenfield development fronts in a timely and orderly manner.
- The *North-South Interconnection System Project* (NSISP) which provides system flexibility in instances where water needs to be diverted from one part of the system to the other (i.e. use of the desalination plant).
- Upgrades to the Happy Valley treatment plant which will increase capacity for the southern part of Adelaide.

System Challenges

The following system constraints have been identified:

- Trunk infrastructure in more established urban areas is aged and was not designed to accommodate the increased demands currently being generated by urban infill.
- The monitoring of urban infill 'hot spots' to ensure sufficient lead time to identify, plan, fund and construct required upgrades has proven difficult.
- Current funding models need to be reviewed to improve competitiveness and procedural fairness to land owners and developers whilst also obtaining required funds for new and upgraded infrastructure.

3.4 Waste Water Network

SUPPLY	DEMAND	CONSTRAINTS
8,900kms of pipework	**456,000** metropolitan meters	Working within a 4 year regulatory period
693 pump stations	**66,600** regional meters	Connection to mains sewer system is not mandatory
26 water treatment plants	**250** mega litres treated per day	Effectiveness of funding models

System Supply

SA Water maintains over 8,900kms of sewer mains, the majority of which are located within the Metropolitan Adelaide area. Pricing and capital expenditure are regulated through ESCOSA and contained to 4 year 'regulatory' cycles.

There are some parts of Metropolitan Adelaide and Fleurieu Peninsula which are not connected to SA Waters mains sewer system, and are instead reliant upon other service providers or on-site storage systems.

System Demand

There are over 522,600 meters connected to the system in the State, the majority of these are located within Metropolitan Adelaide and the Fleurieu Peninsula. The three major wastewater treatment plants in Metropolitan Adelaide are Bolivar, Glenelg and Christies Beach, which process over 250 mega litres of sewage a day.

Projected population growth over the next ten years will continue to place pressures on the existing network whilst demand for new connections and trunk infrastructure in growth areas increases.

Key infrastructure elements supporting this projected growth include:

- Providing main sewer services to properties located within the Tea Tree Gully Council area which currently rely upon on-site storage systems.
- Increase to the Bolivar wastewater treatment plant capacity.
- Network augmentation to Bolivar South.
- Augmentation agreements for the 2020-2021 period, which will fund required infrastructure upgrades for the following development fronts:
    - Angle Vale (Outer North)
    - Buckland Park and Virginia (Outer North)
    - Roseworthy (Outer North)
    - Victor Harbor (Fleurieu Peninsula)

System Challenges

The following system constraints have been identified:

- It is not mandatory for new Greenfield development fronts to connect to the SA Water sewer network, such has been the case for recent developments at Two Wells and Sellicks Beach.
- Identifying urban infill 'hot spots' with sufficient time to plan, fund and construct required upgrades within the 4 year regulatory cycle continues to prove difficult.
- Current funding models often impose high upfront costs on the first developers within a region / growth front, which can deter them from uptake into the system.

3.5 Electricity Network

SUPPLY	DEMAND	CONSTRAINTS
11kV across metropolitan Adelaide	**900,000** existing customers	Oldest distribution network in the country
52 transmission connection point substations	**66,600** regional meters	Highest rate of roof top solar in the world
		Managing reverse flows

System Supply

SA Power Networks ('SAPN') is the licensed Distribution Network Service Provider (DNSP) for South Australia. The distribution network is the oldest in the National Electricity Market (NEM) with a large portion built between the 1950s and 1970s, presenting challenges with regards to system reliability and funding for required upgrades[10].

Pricing and capital expenditure are regulated by ESCOSA in the same way SA Water is, with the current regulatory period ending in June 2025. Capital expenditure on SAPN infrastructure for this period is capped at just over $1.6 billion, averaging out to just over $330 million a year (financial year).

System Demand

SAPN is responsible for supplying approximately 900,000 residential and business customers across the State. Supply is distributed through 52 transmission connection substations, which for the most part are jointly managed with ElectraNet.

- Forecasts suggest that by as early as 2024 the State's total demand could be met entirely by rooftop solar systems during periods of low demand.
- Given minimal operational demand during the middle of the day, there will be periods in the future where the State will be a net exporter of energy to other States in the National Electricity Market (NEM).
- This will be assisted by the construction of the NSW interconnector ('Project Energy Connect'), which will involve the construction of a new 330 kilovolt (kV) above ground transmission line with approximately 800 megawatts (MW) transfer capacity[11].

System Challenges

- The industry is in transition, with South Australia at the forefront.
- The uptake of rooftop solar is the highest in the world, with more than 30% of domestic or business users comprising some form of system. This has resulted in 'reverse flows' to the electricity grid.
- The battery storage market is continuing to grow as it becomes more economically viable, however, the impacts of this is still unknown.
- The demand for electric vehicles is anticipated to accelerate in the next 5-10 years, with significant uncertainty regarding the scale and timing.

[10] SAPN, Distribution Planning Report Overview, 3 July 2020
[11] www.projectenergyconnect.com.au

3.6 Transport Network

The Department for Infrastructure and Transport (DIT) is responsible for funding and maintaining the States transport network. This network includes urban and regional road networks, freight (road, rail and ports), public transport and active transport infrastructure (cycling and walking).

An overview of these different components is provided herein, along with an overview of the system demands, challenges and priorities over the next ten years to 2030.

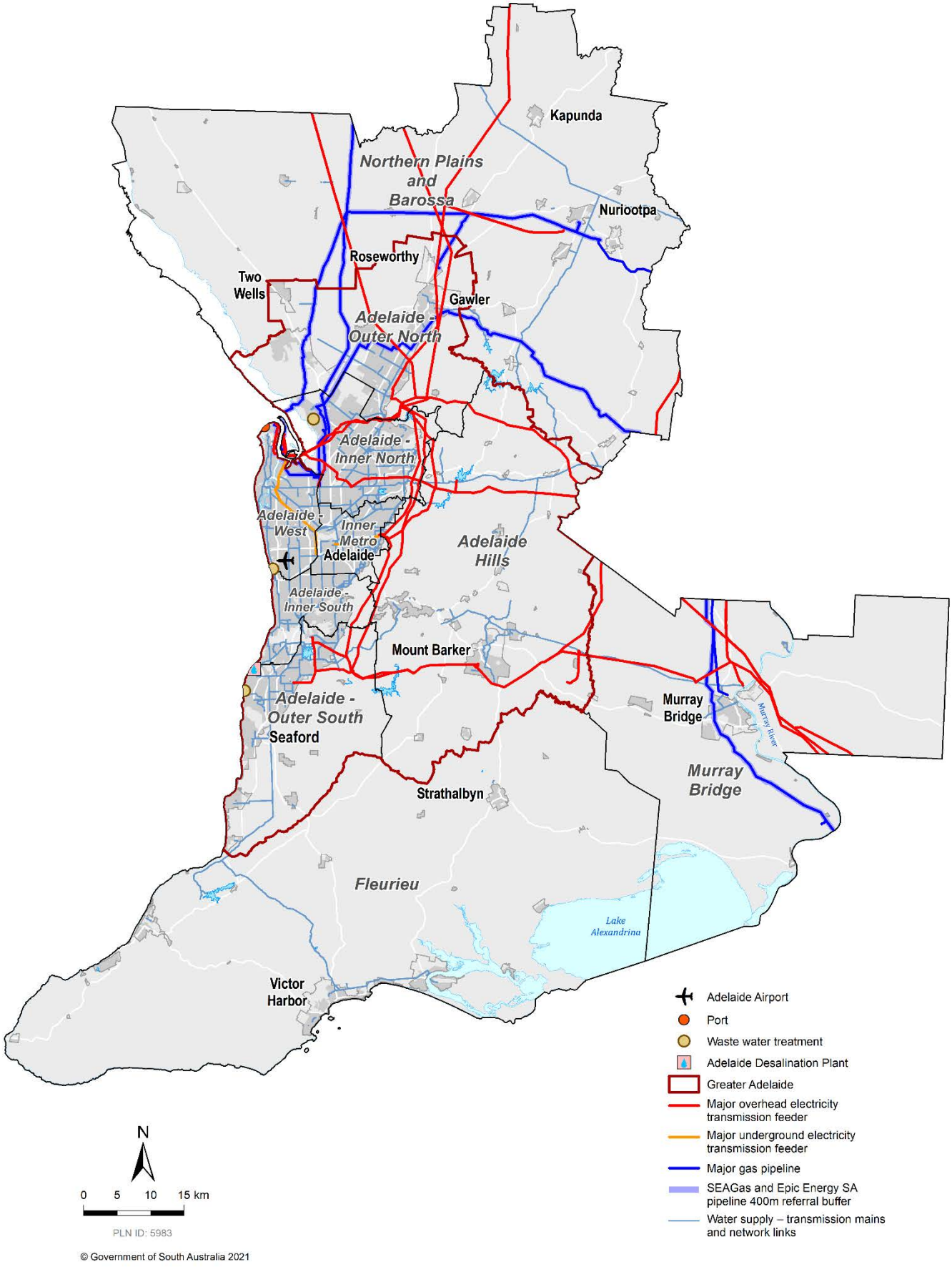
Table 4: Transport network systems overview

SYSTEM DEMAND	SYSTEM CHALLENGES	SYSTEM PRIORITIES
Urban Road Network		
▪ **85% of total trips are made by using a motor vehicle** ▪ **COVID-19 pandemic will like see this share increase, at least in the short term** ▪ **Lack of public transport options in the outer regions of Adelaide and the Fleurieu Peninsula will continue to drive demand**	▪ Average traveling speeds have steadily been decreasing over the last 10 years ▪ Approximately 150 signalised intersections within GACC are at, or above capacity ▪ Level crossings continue to contribute to increased congestion	▪ Complete the north-south corridor now the final alignment option has been released ▪ Level crossing removals on key routes and corridors ▪ Focus on projects which offer secondary benefits such as improvements to public transport or freight movement
SYSTEM DEMAND	**SYSTEM CHALLENGES**	**SYSTEM PRIORITIES**
Freight Network		
▪ **Road freight accounts for 77% of total freight movement, only 5% is moved by rail and the rest by sea** ▪ **A total 226 million tonnes of freight was transported in 2018, 88% of which was domestic trade** ▪ **87% of freight movements don't cross state borders**	▪ First and last mile issues due to loads and dimensional restrictions ▪ Average speeds across the road network have steadily decreased over the last 10 years	▪ Finalisation of the north-south corridor now the final alignment option has been released ▪ The missing east-west link providing connection from the South Eastern Freeway to the North South corridor
SYSTEM DEMAND	**SYSTEM CHALLENGES**	**SYSTEM PRIORITIES**
Public Transport Network		
▪ **8% of all travel occurs on public transport modes** ▪ **Buses account for approximately 75% of all public transport trips, with trains accounting for a further 20% and trams the remainder**	▪ Understanding the role of Bus Rapid Transport in Metropolitan Adelaide ▪ High frequency services are impacted by traffic congestion	▪ Upgrade priority park-n-ride facilities ▪ Target high frequency bus corridors for minor works which improve movement and congestion

SYSTEM DEMAND	SYSTEM CHALLENGES	SYSTEM PRIORITIES
▪ **Fixed line, high frequency services are the most attractive**	▪ COVID-19 pandemic has reduced patronage numbers / demand, at least in the short term	▪ Identify priorities for future public transport investment

SYSTEM DEMAND	SYSTEM CHALLENGES	SYSTEM PRIORITIES
Active Transport		
▪ **4% of journeys to work are made using active forms of travel** ▪ **75% of cyclists travel up to 10km and 50% of walkers up to 2.5kms** ▪ **Active transport modes to work has declined over the last decade as a percentage of journey**	▪ Making active travel a viable and attractive alternative ▪ Limited funding in key infrastructure ▪ Ensuring the safety of vulnerable road users (i.e. cyclists on main arterial roads)	▪ Develop a strategy that maps an optimal integrated network for connections between residential and employment areas ▪ Co-ordinate projects in alignment with public transport works ▪ Creation of dedicated corridors

Figure 20: Infrastructure Map

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