InfrastructureSA

20-Year State Infrastructure Strategy
Discussion Paper

June 2019

infrastructure.sa.gov.au

The Government has ambitious growth targets for South Australia but this must be achieved in a way that makes South Australia a more sustainable and resilient community and preserves the things that we value about being South Australian.

Infrastructure has a critical role in unlocking economic opportunity through providing access to markets and improving productivity. However, it goes beyond pure economic infrastructure to also include our schools, hospitals, prisons, courthouses and sporting and cultural facilities – the assets that enable the services that go to our social fabric and make South Australia the place that it is, allowing our communities to thrive.

All these assets are long-term and will have far-reaching impacts as to how we live, across society and for generations. It is therefore important that we have a long-term, integrated plan that will set South Australia up for a prosperous future.

This Discussion Paper aims to kick off this process. It sets the scene across regions and sectors, identifies commonalities, explores possible factors that may arise in the medium to long term and poses key questions. The aim is to enable South Australians to collectively consider this important subject as Infrastructure SA develops the 20-Year State Infrastructure Strategy.

Contents

Foreword by Chair

This Discussion Paper marks the beginning of a critical aspect of our work in developing the 20-Year State Infrastructure Strategy. It is designed to formally spark a constructive dialogue – with every person, business, industry, community and government organisation, research body, think tank and anyone else who can help – to ensure efficient infrastructure is available at the right time in the right place to unlock South Australia's potential.

Getting South Australia's longer-term planning right means starting with a clear, accurate and consistent understanding of how we're faring at present, our aspirations and what we wish to preserve and improve about our liveability. It requires us to recognise the ways in which communities, regions and industry sectors throughout South Australia are likely to change and grow over the next 20 years.

The Government has adopted an ambitious Growth Agenda, seeking 3% economic growth and population growth in line with the national average. Strategic and efficient planning, delivery and management of infrastructure will be fundamental to achieving these targets. Having the right infrastructure in place will enable our people, businesses and regions to be better connected, both physically and digitally, to new markets and opportunities. This will lower the cost of doing business in South Australia and ensure our communities maintain their liveability. It will also enable access to the social services necessary to support a growing population.

This means considering not just short-term infrastructure additions to address gaps and opportunities but also ways to optimise existing assets through better management, upgrades or repurposing for flexibility. This is particularly compelling in light of limited land banks and restrictions in our built-up areas, not to mention the finite nature of available funding and financing.

The latter also necessitates fresh thinking about possible funding sources, and ideas relating to policy, program and technology solutions are encouraged where these would make more sense. It would also be unwise to ignore likely disruption due to climate change, rapid trends stemming from new technologies and demographic shifts such as an ageing population.

This Discussion Paper covers these issues and more, and I hope it compels readers to adopt a holistic approach in considering how different aspects of the State's infrastructure can better fit together – right from the outset at the planning stage through to construction and operation – to build integrated cities and regions, productive economic precincts and places, and vibrant communities that are sustainable and far greater than the sum of their parts.

The Infrastructure SA Board and staff looks forward to participating in what is sure to be eye-opening, enlivened and productive discourse.

Anthony F Shepherd, AO
Chair of Infrastructure SA

Introduction

Infrastructure SA brings independence to infrastructure planning

Infrastructure SA (ISA) is an independent advisory body tasked with ensuring South Australia has robust long-term planning and transparent decision-making for critical public and supporting private infrastructure projects across the State.

To do this, ISA will provide independent advice to assist the South Australian Government to plan, identify and prioritise the delivery of major infrastructure across the State. That includes establishing clear goals and measuring outcomes over the long term from the projects or initiatives ISA supports – from reductions in travel time and healthcare waiting lists, to better support for jobseekers and businesses through apprenticeships and traineeships as well as for South Australia's vibrant cultural scene. Done right, this will support economic growth, social wellbeing and sustainable environmental management.

Developing a 20-Year State Infrastructure Strategy (the Strategy) is an immediate priority for ISA. The Strategy will set the long-term vision for infrastructure development in South Australia (SA) and provide the overarching framework to identify and prioritise South Australia's current and future infrastructure needs, as well as provide guidance on how to most effectively address those needs.

With this view, ISA is undertaking a high-level examination of options for potential new development, ways how the State can maximise its existing asset base and what policy changes can be introduced to unlock opportunities, remove barriers and drive private sector investment.

Established on 26 November 2018 under the Infrastructure SA Act 2018, ISA is governed by a Board which combines expertise from public and private sectors and reports directly to the Premier of South Australia.

A broad and inclusive definition of infrastructure

ISA is deliberately taking a broad definition of what constitutes infrastructure so that all forms of physical infrastructure that support the activities of the economy and social systems are considered:

> **Infrastructure is the physical assets and structures that enable the services necessary to sustain or enhance the economy and liveability of South Australia.**

This includes road, rail and ports, health, cultural, sports, tourism and education facilities, and energy, water and waste utilities. Increasingly, it includes digital connectivity infrastructure and other physical assets that can act as enablers for industry and other sectors of the economy. Both public and privately-owned infrastructure are in scope.

The first 20-Year State Infrastructure Strategy due early 2020

The Strategy will define the challenges and opportunities that the State is likely to face over the next 20 years and take a deep dive into specific infrastructure priorities and approaches at a sectoral level to address these. Importantly, it will consider both metropolitan and regional perspectives to deliver a true state-wide Strategy.

Its framework will enable the Government to plan and make decisions in relation to policies, programs and projects to ensure that the State has the infrastructure it needs to:

- grow the economy
- create jobs
- improve liveability for all South Australians, and
- provide sustainable environmental stewardship.

A strategy that fits with the SA Growth Agenda and other key plans

The South Australian Growth Agenda is a key priority for the South Australian Government and will articulate its priorities and objectives encompassing the public sector, business and the broader community to achieve higher rates of economic growth and prosperity for the State.

A key aspect of this microeconomic policy agenda is an ambitious annual economic growth target of 3% – a scenario that must not only be considered but, more importantly, supported as part of any planning process. Achieving this growth will require more investment, more jobs, a larger population and better infrastructure to support and improve quality of life for South Australians. Thus, the strategy will consider a dual role for infrastructure where it will both address growth and be a catalyst for it.

The Strategy will also work within other key government policies, strategies and plans, including the 30-Year Plan for Greater Adelaide. ISA's work will include examination of priority projects for government.

Discussion Paper, conversation starter

Developing a relevant and effective strategy can't be done in isolation. That's why ISA is consulting with all levels of government, as well as infrastructure providers and users from industry, business and the community to inform the Strategy.

This Discussion Paper is an important opener as it provides an opportunity for ISA to communicate its starting position, values and the paradigm through which it will approach the complex nature of infrastructure.

It includes various baselines that ISA's thinking will be premised upon, including the current state of infrastructure in South Australia, the particularities of Adelaide, the role and future of regions, and broader Australian and global social, economic, technological and environmental contexts.

The Discussion Paper is intended to be thought-provoking and challenging, and to provide guidance to invite submissions from a wide range of stakeholders. It therefore includes key questions for consideration, particularly in relation to trade-offs, which are an inevitable part of any budget and time-constrained prioritisation process.

Submissions are welcome (see p 36) and must be received by **close of business Wednesday 31 July** to inform timely development of the Strategy.

Comparative economic outlook
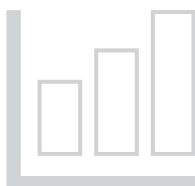
Slight slowdown in global economic growth

Around the world, the trend towards globalisation and increased interdependencies via trade continues, but has moderated recently, with tensions over trade elevating, uncertainties in established and emerging markets rising, and financing conditions tightening.[i]

In the medium to longer term, growth in emerging markets and continued growth in South-East Asian markets will play an increasingly important role. The World Bank's global growth forecasts show growth moderating from 3.0% in 2018-19 to 2.9% and 2.8% in 2019-20 and 2020-21, respectively.[ii]

Growth flattening in Australia

Domestically, the Australian economy's transition from the investment and export boom has continued for the past five years, with broader-based business and public investment, strong spending in housing and sustained household consumption all playing a role in supporting the 26-year run of uninterrupted economic growth.

However, recent cooling in housing markets and tightening in lending markets have tempered expectations around growth. Export earnings for commodities such as iron ore and coal, coupled with favourable interest and exchange rates, continue to support growth, but uncertainty and downside risks remain.

The Reserve Bank of Australia's forecasts indicate growth is expected to moderate in the current financial year (from 2.8% in 2017-18 to 2.5% in 2018-19) before regaining some momentum (to 2.75%) in 2019-20.[iii]

South Australia defying expectations

The South Australian economy is open, diverse and relatively small in a global sense. Valued at over $100 billion, it features a range of competitive strengths, advantages built on our natural resources and environment – such as agriculture, food, wine, mining and tourism – and also enabled by technology and skilled workforce – including international education, creative industry, defence and space, advanced manufacturing and emerging high-tech sectors.

South Australia's economic performance has tended to trail national growth rates, as illustrated in Figure 1 below (noting this growth is higher than 10-year averages for the US and UK (0.8%), European Union (0.3%) and Japan (0.1%)).

Figure 1:
Economic growth, 2008-09 to 2017-18 (chain volume measures)
Source: ABS, Deloitte
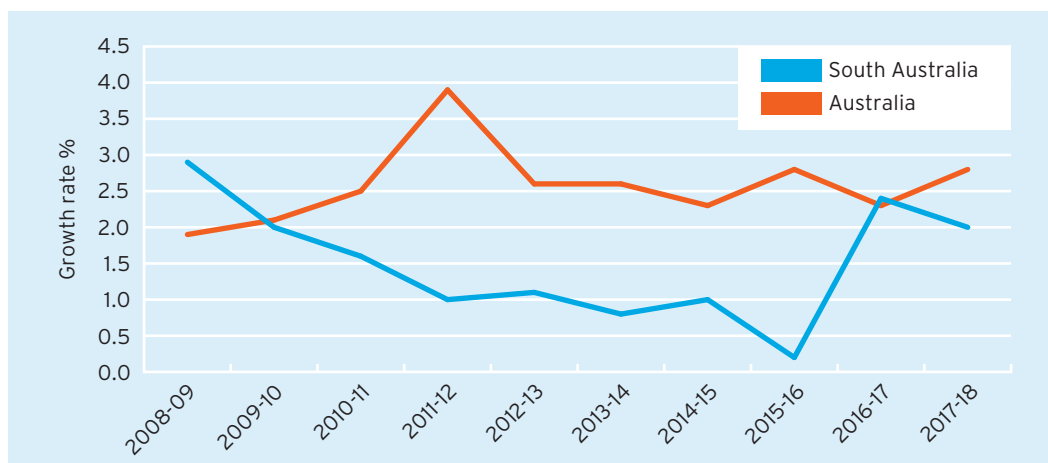
It has, however, been stronger in recent years aligning closer to the long-term average, with the transition away from car manufacturing towards a broader industry base playing a role:

- Strong growth in defence, food and services.
- Strong spending by consumers and in housing construction.
- Greater urbanisation and increasing density in the inner-metropolitan area.
- Sustained investment by the public sector (including in public infrastructure).
- Soft (yet positive) population growth.
- Mixed results in agriculture, with winter crops returning average to below average yields in recent years.
- Growth in services exports (particularly in international education and tourism).

Figure 2:
Composition of industry value added to the South Australian economy, 1998-99 and 2017-18*

Source: ABS, Deloitte

*Other items include contributions to gross value added made by ownership of dwellings, net taxes and statistical discrepancies.
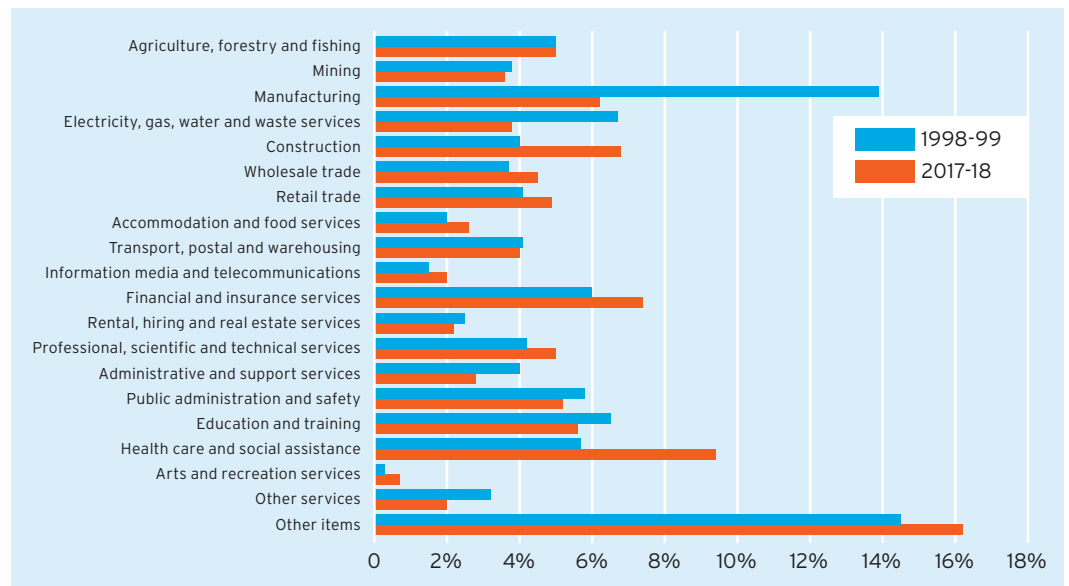

A recent review of economic growth influences in South Australia undertaken by Stephen Joyce recommended that the South Australian Government "should clearly define the likely growth industries for the state over the next five to ten years based on comparative advantage and likely investor interest". From this, the South Australian Government has commenced a detailed review of key industries with the potential to enable higher levels of economic growth to be realised into the future.[iv]

Figure 3:
GSP growth forecasts, 2017-18 to 2021-22

Source: Department of Treasury and Finance, Deloitte
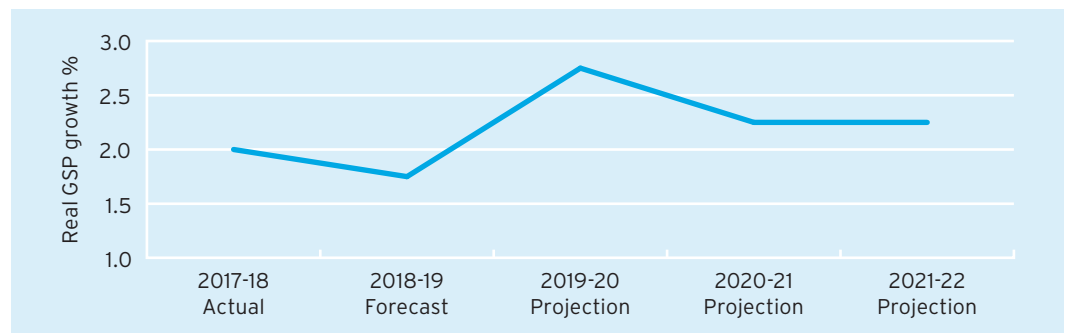
Implications

As with any geographic area, South Australia's economic climate is impacted by regional and global factors. These will have profound implications for the nature of work being undertaken and the markets in which the output is sold. This will then determine what infrastructure is required and where, and the order of priority.

Strong trade and export performance

The performance of trade and trade-exposed industries contributes significantly to the South Australian economy – both through the consumption of intermediate inputs and the creation of revenue and value through export sales.

South Australia's primary industries provide a representative case study, with the agriculture, aquaculture, food, wine and forestry industries generating approximately $22.5 billion in revenue in 2016-17, accounting for 57% of the State's merchandise exports.[v]

South Australia's regions play an important role, driving export sales through agricultural and mining output, and by providing important drawcards for tourism and the visitor economy. Home to about 30% of the State's population, non-metropolitan areas account for 60-70% of the State's exports (in 2016-17[vi]). Gross regional product (GRP) has continued to grow, rising at an annualised rate of 3.2% in nominal terms in the five years to 2016-17.[vii]

Figure 4:
Economic activity by region, 2016-17

Source: Department of Treasury and Finance

Share of State total (%)	GRP	Employment
Adelaide Metro Area	74.9	75.1
Murray and Mallee	3.7	4.0
Limestone Coast	3.7	3.8
Yorke and Mid-North	3.5	3.7
Eyre and Western	3.4	3.3
Barossa, Light & Lower North	3.4	3.2
Adelaide Hills	2.9	2.9
Far North	2.0	2.0
Fleurieu and Kangaroo Island	1.9	2.0

Much of this growth has been driven by strengthening commodity prices and increasing capital productivity, however many regional centres and towns have struggled to grow, or even maintain, population levels.[viii]

Changes in the terms of trade and factors impacting trade will have considerable impacts on South Australia's economy. These include trade agreements (and disputes), regulatory and other non-tariff barriers, exchange rates, relative price movements and efficient paths to market.

Implications

The quality of infrastructure is critical in providing efficient access to markets for goods and services produced in South Australia and sold around the world, and consequentially the competitiveness of the South Australian economy. Thus, investment in regions despite relatively low population density is critical, and this will be a consideration when balancing investment between cities and regions.

Emerging pathways to growth

There is a range of emerging opportunities that can support significant growth in the State's economy in the coming decades. Many relate to external changes in the global economy, such as the growing middle class in Asia. There are also opportunities available to South Australia specifically as a result of the particular assets and characteristics that exist locally.

What infrastructure investment would make the biggest impact to unlocking economic growth in South Australia in the next 0-5, 5-10 and 10-20 years?

South Australia's ability to realise growth from these sorts of opportunities will depend on the competitiveness of local firms – determined, in part, by the quality of the State's infrastructure.

The following are key examples of growth opportunities:

- The Australian Government's Naval Shipbuilding Plan, involving approximately $90 billion of investment in new ships and submarines, and considerable expenditure on sustainment and related programs.
- Growing demand for premium food and agribusiness products, with trends towards quality, health, appellation and traceability creating opportunities for local producers.
- Continuing growth in the health and social assistance sector through the rollout of the National Disability Insurance Scheme and broader demographic shifts towards an ageing population.
- Significant energy and resource projects, including:
  - iron ore deposits in the Eyre Peninsula and Woomera Protected Area, and other locations
  - copper and other mineral projects and prospects at Olympic Dam and other locations
  - conventional and unconventional gas projects in the Arckaringa and other basins, and
  - various renewable energy generation projects in the Mid North and Far North of the State.
- Tourism is considered one of Australia's top five super-growth sectors and is a vital contributor to South Australia's economy. It currently delivers $6.8 billion in visitor expenditure and directly employs more than 36,000 South Australians.
- South Australia's industrial future will also be shaped by the global digital innovation trend over the next 20 years, which will bring a range of new opportunities to the State, such as the Australian Space Agency and the Cooperative Research Centre for Smart Satellite Technologies.
- International student numbers are growing each year. The State hosts approximately 36,000 overseas students annually and contributes more than $1.2 billion. The State Government and the international education sector are actively working to target growth.
- The creative industries are not only one of the most rapidly growing sectors of the State's economy, they are also a highly transformative one in terms of income generation, job creation and export earnings.

Implications

Realising the full potential of these opportunities will require effective, integrated infrastructure networks as they are needed, including transport and logistics, and digital connectivity to enable and facilitate these activities. The ability to deliver these networks as they are required will be pivotal in ensuring such opportunities are realised and not missed.

Population growth challenges
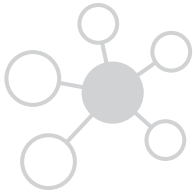
Representing approximately 7% of the Australian population, South Australia was home to some 1.71 million people in 2016. According to ABS forecasts, it will not pass two million people until around 2041, based on current trends. South Australia's performance in terms of population growth has lagged behind the nation in recent times, averaging 0.8% (compared with 1.6%) in the five years to June 2018.[ix] With its population growing at half the average national annual rate, the State's population will continue to fall as a share of Australia's population.

What strategies should be adopted to ensure Adelaide maintains its liveability as it grows?

One of the key drivers influencing South Australia's population growth and demographics is net migration flows interstate and overseas. By ABS estimates, in 2017 South Australia experienced a net loss of over 6,000 people interstate, primarily Victoria, over 50% of which were in the 20-34-year age cohort.[x] This weighs heavily on South Australia's population growth.

How would Adelaide's infrastructure need to change if its population hit two million?

The South Australian Government's pursuit of 3% economic growth is predicated on appropriate population levels to attract and retain talent and build the local skills base. Thus, the Government's Growth Agenda includes expanding migration into the State via the establishment of two new Designated Area Migration Agreements (DAMA): The Adelaide Technology and Innovation Advancement Agreement and Regional South Australia DAMA. These arrangements are aimed at assisting a range of industries, including agriculture, forestry, hospitality, tourism, health and construction among others, to fill critical employment gaps and drive economic growth.

Closely linked to population growth is employment growth, where increases in population lead to higher overall household consumption, creating new demand and spending throughout the economy. It's not surprising then that South Australia's employment growth for the corresponding period was 1.2% per annum, compared with 2.2% nationally.

Implications

While increases in population will positively impact growth and employment, it will also increase aggregate demand (and timing) for infrastructure. For example, if South Australia's population growth had equalled the national average (1.6% per annum) over the five years to June 2018, South Australia would have an extra 73,133 people sharing its infrastructure, which would have had profound impacts on infrastructure requirements going forward, likely requiring new management plans or investment in new capacity.

It is important for South Australia to get on the front foot and have the long-term strategies in place to plan for population growth so we do not confront the issues of congestion experienced interstate.

In the shorter term, driving population growth is the Government's focus, for which disciplined planning, optimisation and implementation of infrastructure will be a catalyst.

Growing dominance of data and technology
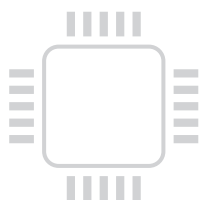
Industry 4.0 will enable unprecedented access to knowledge and the development of more advanced business models and processes. Increasing digital connectivity will further increase our global engagement, creating opportunities for growing businesses to collaborate and export.

Developments in digital technologies are providing greater access to, and currency of, information as well as automation of processes. This creates opportunities for:

How can South Australia best prepare its infrastructure to be able to adapt to and embrace future technological disruptions?

- greater access/connectivity through network upgrade (metro/regional) – fibre, towers, satellite, data management
- end-point utilisation to improve business capability (metro/regional) – technology test labs, GigCity Hubs, Big Data
- cyber security, and
- energy smart grids for industrial use to integrate digital technologies, low emissions energy generation, energy efficient control systems and storage to reduce energy costs and improve reliability and security.

These benefits are enabled by networks of internet-connected devices embedded in infrastructure (remote sensing) and leveraging personal and other wi-fi connected devices (Internet of Things, Bluetooth, etc).

How can technology and data be embraced to improve quality of life?

Regardless of industry or job type, people are becoming increasingly reliant on the vast amounts of data being collected, stored and converted into information and analysis to inform their day-to-day activities. The production and dissemination of this data occurs across vast, interconnected networks of sensors, satellites, cables and data centres, among other technologies.

Advancing connectivity, network flexibility and coverage will be fundamental to ensure South Australia reaps the benefits of new technologies as they emerge. This includes regional coverage and connectivity to ensure equal opportunities for all South Australians.

Access to real-time information via new forms of readily available technology is also changing consumers' expectations with regard to the availability of services and information.

Implications

To realise these opportunities, we need well planned and maintained:
- digital infrastructure (fibre, wi-fi, 5G, analytics hardware)
- integration and transitions of legacy systems
- human capital – people able to use and interact with these technologies, and
- regulation to keep pace with change.

Our people

The make-up and distribution of South Australia's population plays a major role in shaping its infrastructure requirements. It can also work the other way, where the nature of infrastructure can profoundly influence where people choose to work and live.

South Australia's population trends pose a number of challenges and are likely to place increasing stress on existing infrastructure and require additional assets. It can be argued that these trends are actually a response to the existing infrastructure settings.

An ageing population

In South Australia, as in many parts of the world, older people are accounting for an increasing share of the population. South Australia's population is older in comparison to the broader Australian population. In 2017, the ABS estimated that the share of South Australians aged 65 years or more accounted for a little over 18% of the State's population – approximately 3% higher than the national figure.

Economically, an ageing population presents both challenges and opportunities. On the one hand, an ageing population results in a shrinking of the productive workforce, with people exiting the labour force as they retire. This places a greater burden on remaining workers to maintain a growing tax base, economy and living standards. On the other hand, a smaller labour force has the potential to generate additional employment opportunities for younger workers. Older people also demand goods and services in certain industry sectors, specifically those relating to health care and social assistance and, as a growing share of the population, will create growth for those sectors.

Figure 5 shows the anticipated age profile of the population over the next 30 years, which has implications for providing infrastructure and services to support this growing cohort. The graphic also shows that all age cohorts increase during the period, including school-aged children.

Figure 5:
Our Changing Age Structure (medium series)

Source: Department of Planning, Transport and Infrastructure
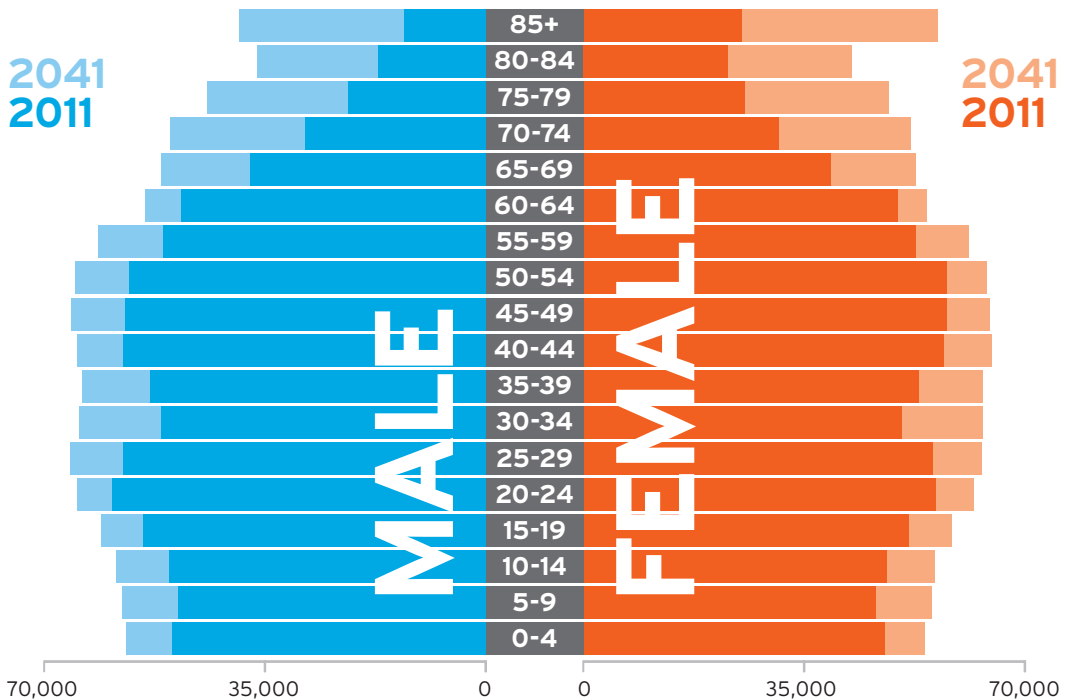
Society is also redefining how people live as they get older, with more people choosing to pursue active lives beyond traditional retirement age and opting to remain in their homes as long as they are able.

Implications

An ageing population will necessitate a range of supporting infrastructure to deliver services for this cohort. Demand will increase in both metropolitan and regional areas for:

- a range of health services
- suitable accommodation options that can be adapted for accessibility and independence, and
- new models of transport to better enable the economic and social participation of older people.

How should infrastructure be planned in increasingly urban environments with ageing populations?

An increasingly urban population

In line with global trends, South Australia is increasingly becoming more urbanised, with much of its population growth over the last decade concentrated in and around the Greater Adelaide region, while population growth in the State's regional centres has experienced moderate to lower growth on average. The 30-Year Plan for Greater Adelaide (2010) noted targets for a 15-year supply of zoned urban land on the fringe and through infill and renewal opportunities. The 2017 update of this plan noted that analysis of emerging trends and evidence suggested that greater numbers of people were choosing to live closer to the city in varied forms of housing, with 2010 infill targets being met well ahead of the 15-year target and approximately 76% of Greater Adelaide's new housing growth being in established suburbs. Consumption over that period of broad hectare land was also much lower than forecast.

Implications

Larger urban centres with greater densities require a shift toward holistic long-term systems-based planning with a deep understanding of the dependencies between infrastructure sectors.

Expansive regions, contracting populations

The population of the Greater Adelaide region in the 10 years to 2018 grew at an average annual rate of 0.9%, compared to 0.6% for other areas. What these figures disguise, however, is that the fastest growing regional areas are those that sit just outside the traditional Greater Adelaide metropolitan region – including townships such as Murray Bridge to the east, Victor Harbor to the south, and Tanunda and Nuriootpa to the north. Whyalla, too, is poised for major growth which may require a rapid scaling up of infrastructure and services to support it.

Providing infrastructure to vast regional and remote areas with a small diverse population base to support it is increasingly inefficient. This difficulty has been exacerbated by a withdrawal of key services in some areas as operations that previously contributed to regional economies, such as banks and government agencies, centralise operations and/or transition business models to online environments. This is creating significant equity issues and impacts on community sustainability.

While major advances in digital communication and systems that provide for 'virtual' services independent of location could promote employment in these regional and remote communities, these benefits have yet to eventuate at any significant scale.

Implications

The model for providing infrastructure to South Australia's expansive regions needs to be reviewed. This could include new economic models or innovative technology solutions.

First Peoples of Australia

Aboriginal* South Australians have diverse interests in land-use planning and infrastructure requirements. As both land holders and users of infrastructure in urban, regional and remote South Australia, Aboriginal people have a wealth of historical and cultural knowledge, which can greatly enrich outcomes for all. Whilst engaging with South Australia's key Aboriginal stakeholders such as Aboriginal land holding bodies, Aboriginal communities, organisations and native title groups, all efforts must be respectful and collaborative to improve health, housing, education and employment outcomes for Aboriginal South Australians through community-appropriate land use planning and much needed infrastructure.

Implications

Infrastructure planning that is designed to meet future community needs and is inclusive of both Aboriginal and non-Aboriginal Australians will be informed by valuable local, cultural and historical insights. As with all infrastructure, efforts will benefit from coordinated approaches across all levels of government and through potential partnerships with Aboriginal land holding bodies, community organisations and the private sector.

Our new arrivals

South Australia is a net beneficiary of overseas migration. In 2017, net overseas migration buoyed South Australia's population with some 12,000 new arrivals, offsetting losses interstate and resulting in a net contribution of around 6,000 people.[xi] While many of these net arrivals are international students arriving on temporary visas, almost half were permanent migrants, representing an important driver of population growth. New State Government programs have been developed to further attract skilled migrants to metropolitan and regional South Australia (see p 10).

Implications

Infrastructure investment that supports and attracts further business investment could help to stem this outflow by increasing the number of labour market entry points for young workers into skilled employment pathways and high value-add jobs. There is also the potential for today's international students becoming tomorrow's residents, a source of skilled labour and population growth.

Having the necessary infrastructure in place to welcome and support new migrants to make the transition, particularly those from non-English speaking backgrounds, is essential to having migrants establish themselves and their families in South Australia.

Our place

A great place to live into the future

Adelaide and regional South Australia offer many advantages compared to other capital cities. Housing continues to be relatively affordable, with the median dwelling price and cost of living in Adelaide being the lowest of mainland capitals. South Australia's Mediterranean climate produces premium food and wine, and its natural environment puts tourism offerings on residents' doorsteps. More than 20% of the State consists of parks and reserves.

Infrastructure that improves the liveability of South Australia is good for its residents and essential for attracting businesses looking to improve worker amenity and to support new migrants. This includes access to quality school and higher education institutions, world-class hospitals and health services, cultural offerings and vibrant urban environments, sporting and recreational facilities, as well as access to open, green, natural spaces. This is particularly relevant to regional areas with growing industries and declining populations.

South Australia's economy and the wellbeing of all South Australians is dependent on how well its environment is managed, which includes protecting natural assets and preparing for climate change. Infrastructure development, management and use has considerable environmental impacts through the use of energy-intensive materials and potential for waste generation during its lifecycle. Responsible sourcing and use of materials, energy efficiency within the sourcing of inputs to manufacturing processes, distribution of finished products and the waste management at end-of-life helps to reduce environmental impacts.

The presence of certain infrastructure such as major arterials and structures can also significantly affect the amenity of places and communities, making this an important design consideration.

Implications

Infrastructure supports the growth and wellbeing of a population – both directly, through health, education, recreational, community and cultural institutions, as well as indirectly through creating a sense of place and facilitating economic activity. Projects must be prioritised according to their ability to build the capacity and competitiveness of our economy and enhance South Australia's liveability. They must also be aligned to leverage off each other and private sector investments.

Effective sustainability measures must be fostered through appropriate government policy and regulation, as well as public education on the appropriate use of infrastructure. Consideration also needs to be given to ensure green infrastructure (open space, parks, walking trails, playgrounds, bike paths) are appropriately accommodated to support liveability objectives as the population and cities grow.

An endlessly compelling destination for visitors

South Australia is renowned for its fantastic food and wine, and accessible coastal and natural experiences. Known as the Festival State, it offers a huge line-up of world-class events, festivals and conferences bringing visitors from around the globe each year.

Adelaide is one of the most liveable cities globally, with comparative advantages in climate, amenity, retail and commercial services and cost of living. There are excellent arts and convention facilities and hosting of key festivals, with the Adelaide Fringe now the largest fringe festival in the world.

South Australia also enjoys world-class sporting facilities. The Supercars event has been voted best street motorsport event and the world's second largest internationally accredited motorsport facility is located at Tailem Bend.

Implications

Ensuring that visitors can reach the State for business or leisure travel is a critical element of the visitor economy.

Adequate and well-maintained infrastructure is critical for the sustainable growth of regions and a safe and enjoyable visitor experience. Improving and maintaining infrastructure can open up new possibilities and remove barriers to growth.

How can infrastructure provide resilience against, bushfires, drought, flooding, sea level rises and the like?

Building resilience to climate change

Globally, human activity is driving a number of different types of climate and other environmental change. The Intergovernmental Panel on Climate Change estimated human activities to have caused 1.0°C of global warming above pre-industrial levels, with this likely to reach 1.5°C between 2030 and 2052 if current trends continue. Climate change has the capacity for profound impact, including record temperatures, increasing droughts, storms and bushfires, coastal erosion and rising sea levels. While government and businesses are used to dealing with weather events on occasion, continued warming presents a mega-trend that will impact the physical environment in which economies and communities exist and the ways they function.

Given South Australia's most highly developed urban areas are adjacent to its coastline, the impacts of increased storms, cyclones, storm surges, erosion and inundation will be widely felt.

Implications

Infrastructure is at the forefront of climate change adaptation, with risks to food security and essential services should supply chain logistics and access be compromised. Infrastructure of the future must not only help make society more resilient to climate change by providing networks that accommodate an increase in extreme weather events, but each asset must be resilient in its design and structural integrity to withstand these impacts.

Our regions

The regional and remote areas of the State have very low population densities with only a small number of urban centres providing key services and employment. While regional infrastructure comes at a much higher cost per capita compared to more populous metropolitan areas, there are both safety and social equity issues to be considered. The regions are also responsible for 60-70% of exports and will remain a key economic driver of the State.

What strategies should the Government adopt to ensure the necessary infrastructure is in place so our regions can thrive?

Regional industries predominantly operate in the tourism, energy, resources, defence and agricultural sectors, demonstrating varying stages of development and sophistication across localities. There is a clear opportunity in South Australia's regions for infrastructure to act as a key economic enabler, unlocking efficiencies, increasing capacity and providing access to domestic and international markets.

While the following discussion examines needs in terms of broad regional areas, the requirement for integrated utilities (power, water, communications) by communities and the resources and agricultural sectors is common to all, as is the need for quality education arising from industry sector growth and employment generation.

Barossa

About 4% of South Australia population lives in the Barossa and between 2000/01 and 2014/15 its population increased by 25% (compared to 11.5% for the State), with this elevated trajectory likely to continue.

The top five sectors contributing to employment were manufacturing, health and community services, agriculture, forestry and fishing, retail, and education and training.

In 2014/15 agriculture and food manufacturing was responsible for 39% of GRP and 38% of jobs, while the wine industry represented 21% and 22%, respectively. Tourism made up 13% of export value while manufacturing and agriculture, forestry and fishing were 46% and 26%, respectively.

RDA Barossa has identified a number of priority projects:

- Northern Adelaide Irrigation Scheme and Associated Infrastructure
- Kingsford Industrial Estate
- North East Bypass of Gawler
- Electrification of Rail to Gawler
- Barossa Hospital with Airstrip
- International Equine Centre.

Far North

Home to one-fifth of South Australia's Aboriginal community, this region comprises Port Augusta, Roxby Downs, Flinders Ranges, Coober Pedy and Outback local government areas. It is dominated by the resources sector, with active mining and oil/gas development from Moomba in the north-east to copper mining and processing at Prominent Hill and Olympic Dam in the north-west. One-third of the State's resources stock is covered by the Woomera Prohibited Area and expanding defence testing activities.

There is potential to provide energy infrastructure for the development of identified renewable energy zones in its south to strengthen the regional power network, as well as planned infrastructure corridors and improved capacity all-weather road and rail transport supply chain infrastructure to meet mining and energy sector demand.

RDA Far North has prioritised the following infrastructure projects:

- Strzelecki Track Sealing
- Security of National Transport Links to Perth and Darwin – Yorkey's Crossing
- Flinders Ranges Retirement Facility/Lifestyle Village.

Hills, Fleurieu & Kangaroo Island

Home to about 8% of the State's population and with growth exceeding the State's average, the region is experiencing infrastructure challenges around Mt Barker and along the southern Fleurieu coast. The population is generally well educated and qualified, but with limited jobs locally there is a high level of commuting out of the region for work. Kangaroo Island faces unique access issues that impact competitiveness and social participation. The region is highly susceptible to bushfire, flooding and coastal erosion.

Agriculture, forestry and fishing, tourism, mineral resources and manufacturing (inc. food and wine) dominate, and health and education sectors are growing.

RDA Adelaide Hills, Fleurieu and Kangaroo Island has identified a number of priority projects:

- Duplication of Victor Harbor Road
- Southern Off and On Ramps at Verdun, South Eastern Freeway
- Public Transport – Goolwa/Victor Harbor – Seaford Rail
- Upgrade Mount Barker – Strathalbyn Road.

Limestone Coast

Traditional agriculture-based activities in the Limestone Coast have expanded to include manufacturing, forestry, tourism, engineering, transport, retail, health, education and service industries. Exports include dairy, wine, meat and seafood.

The region is faced with increasing competition due to globalisation in the context of an ageing population, lack of a skilled workforce and inadequate infrastructure.

RDA Limestone Coast has identified a number of infrastructure priorities:

- Green Triangle Freight Action Plan Update
- Limestone Coast Road-Bridge Life Extension/ Replacement
- Mount Gambier Airport Redevelopment.

Murraylands & Riverland

Dominated by primary production, South Australia's largest food bowl produces 25% of agricultural GRP. Murray Bridge is the largest regional centre and the River Murray is essential for irrigation and tourism. Major tourism developments include The Bend Motorsport Park at Tailem Bend and the expansion of Monarto Zoo.

The region is well serviced by transport routes and gas pipelines, however suffers from a skills shortage exacerbated by limited local higher education facilities.

RDA Murraylands and Riverland has prioritised the following infrastructure projects:

- Reducing Food Waste and Loss
- One River Murray Authority (including river-related infrastructure)
- Lake Albert – Coorong Connector
- Community Owned Tertiary Education Centre.

Whyalla & Eyre Peninsula

This highly productive region produced $2.63 billion in exports in 2015-16 which mostly comprised agriculture, mining and manufacturing. Other key sectors are health and community services, retail, and fishing and aquaculture. Sectoral diversification is expected to include energy, defence and tourism, though this is likely to be limited to only a few of the region's 11 council areas.

Limited access to a high-volume direct-loading export port has been identified as a constraint on the region's economic development, along with a shortage of human capital, where close to one-third of young people leave the region each year to pursue employment or further study and about 15% of the workforce is qualified at the diploma-level or higher. The recent closure of the Eyre Peninsula rail is also putting additional pressure on the road network.

Potential expansion at the Whyalla Steelworks could create a step-change in the demand on infrastructure and needs to be considered.

RDA Whyalla & Eyre Peninsula has prioritised the following infrastructure projects:

- 6-Star $500m International Holiday Resort
- Competitive Export Pathways for Primary Industries
- Super School in Whyalla Education & Training Precinct
- Energy Transmission and Generation on EP.

Yorke & Mid North

This region's economy is largely based on agriculture, forestry and fishing, followed by health care and social services, retail, manufacturing, and education and training, with potential for mining and tourism. Quality road, rail and port infrastructure would be key enablers for each. There is also potential for some highly prospective resources, particularly in the Braemar Province.

The region is home to two gas turbine power stations and the largest installed capacity of wind farms in the State (approximately 980MW).

RDA Yorke & Mid North has prioritised the following infrastructure projects:

- Highway One Upgrade (Port Wakefield)
- Upper Eastern Spencer Gulf Port
- Port Pirie Gas Pipeline Duplication
- Bowmans Intermodal Expansion.

Cross-sectoral considerations: a systems approach

Before we examine needs on a sector-by-sector basis, there are challenges to consider that span across infrastructure sectors and which call for a systemic response. An integrated or systems-based approach ensures interactions and relationships are working within the same strategic context, vision and common planning assumptions. This maximises the likelihood of identifying and exploiting potentially valuable interdependencies and guards against infrastructure being developed in isolation, particularly in regional locations, thus missing opportunities and creating inefficient and discordant outcomes.

Developing a 20-Year State Infrastructure Strategy that informs and is informed by the 30-Year Plan for Greater Adelaide, the regional volumes of the Planning Strategy and the South Australian Growth Agenda is part of the systems approach and underpins strategic integration and alignment. Each is a living document and a valuable resource for planning the development of South Australia's cities, regions and precincts. Similar to these whole-of-government strategic pieces, agency and industry strategic plans (e.g. State Planning Commission's Strategic Plan 2019-2020) should also be considered as part of integrated infrastructure planning, tested through appropriate early stakeholder consultation.

Better integration of land use and infrastructure planning

As populations continue to grow and become more urbanised, government and developers are having to find smarter ways to accommodate more people in developed areas. The resulting shift towards higher amenity, medium density metropolitan living, notionally supported by well-established and well-functioning public transport, requires city and town planning activities to adopt more holistic approaches to planning, including moving from a project planning approach towards place-based and precinct planning.

What factors should be considered when making inevitable trade-offs about investment in public infrastructure in the context of funding constraints?

Development of precincts must consider the multifaceted nature of inhabitants and visitors, so that they are located in close proximity to employment links and key services such as retail, education, health care and entertainment. Precinct planning provides an integrated approach which, if done well, can expedite development, drive innovation and build cohesive communities.

Affordable housing, too, needs to be a consideration for both master-planned urban renewal development sites and as part of land re-use opportunities alongside transport projects. Achieving this requires effective co-ordination and integration between the various infrastructure providers across the full range of services. Providers include state and local government, as well as the private sector. Clear and effectively managed governance arrangements must be adopted as part of any collaborative process to develop and maintain infrastructure.

South Australia has unique challenges with urban density, as Greater Adelaide is spread over a larger land mass than other similarly populated cities. The 30-Year Plan for Greater Adelaide recognises the environmental, social and economic costs of fringe growth that leads to urban sprawl:

- Increasing congestion and car dependency.
- Adding to cost of living pressures.
- Limited access to essential services and facilities.
- Excessive consumption of natural resources.
- Increased cost of infrastructure.

The plan focuses on creating a new walkable urban form, representing a shift away from continuing the urban sprawl to building a more liveable, competitive and sustainable region. The plan is intended to contain the outward growth of the metropolitan area and avoid the ongoing consumption of highly productive agricultural and horticultural land on the urban fringe.

How can we best plan and accommodate the infrastructure needed to create vibrant and economically productive precincts?

While higher density living can support a range of benefits, it requires an effective set of planning and governance tools to ensure it functions in a positive way. In preparing for future growth, South Australia has an opportunity to build inner-urban density. Doing so will enable existing low-density suburbs to become more walkable, mixed-use medium-density communities which are better serviced by transport, services and amenities. This would require different approaches to infrastructure that focus on developing more efficient urban environments, effectively planned transport corridors, better and more efficient use of existing infrastructure, and an increased emphasis on urban infill for new housing in urban areas.

CASE STUDY

A vibrant new regional hub for Melbourne

The Sunshine National Employment and Innovation Cluster is set to become a major jobs centre in Melbourne's west. Located in one of Victoria's industrial hubs, it can leverage a host of existing businesses and regional institutions, and well-developed services that include key rail and road networks connecting it to the CBD, high-growth Western suburbs (and the western region more broadly), Tullamarine Airport and the Port of Melbourne.

There are currently 14,600 people employed in the precinct and planned growth will see it becoming a major provider of education, heathcare, medical research, retail and transport services.

The Victorian Planning Authority (VPA) is working in partnership with local council, state government agencies and business and community stakeholders to progress land use changes, development and infrastructure investment in accordance with Plan Melbourne, the Victorian Government's metropolitan planning strategy.

The precinct's strategic outcomes are:

1. Utilise place-based management bodies to drive progressive improvements to job centres

2. Deliver an integrated transport network linking pools of workers with the key job centres in the Sunshine Cluster

3. Build key missing links in the shared trail and cycle path network

4. Facilitate amenity improvements through targeted works in the public realm

5. Unlock land for jobs through land use plans for key employment centres.

Improving infrastructure planning and prioritisation

In assessing an infrastructure need, the temptation to jump straight to the preferred solution should be avoided. This does not reflect best practice and can result in sub-optimal outcomes. It can also create the expectation that the big build is the only way to respond to a challenge or opportunity and discourages decision-makers from seeking out more innovative solutions that provide taxpayers better value for money in an environment of limited funding.

Improving infrastructure planning and prioritisation involves thorough evidence-based qualitative assessment and business case development, including demonstration of problems/needs through data analysis and demand modelling where appropriate. This process better enables the right initiatives to be funded at the right time and place.

The first step should be a detailed assessment of the problem or opportunity in order to fully understand the nature and root cause of the problem. Only then should a list of potential solutions be generated, including those that involve no or little capital expenditure. It is possible that the problem can be addressed, or the opportunity achieved, with a low-cost option. The preferred option is only selected after a rigorous meeting of key threshold tests, and evaluation of the net costs and benefits of all options is undertaken using cost-benefit analysis. To further support good decision-making, the business case should be publicly released for community feedback.

Authentic stakeholder engagement, both at a strategic and project-specific level, is critical to first understand the needs of industry and the community and then to continue the dialogue on how these needs will be met. It also provides further opportunities to integrate and coordinate with others.

Developing and publishing an infrastructure pipeline of projects that have been rigorously assessed and prioritised as outlined above – which ISA plans to do through its five-year Capital Intentions Statement – will send a clear message to industry and the community of the government's short- to medium-term investment plans. This approach provides further avenues of communication and coordination to engender a greater degree of confidence among private-sector investors.

Optimise current assets through better asset management

Insufficient maintenance expenditure of existing and new infrastructure assets, while saving money in the short-term, can end up costing more over an asset's lifecycle if it requires a major unplanned mid-life refurbishment or has to be replaced earlier than expected. Effective asset management can extend the useful life of assets and delay or avoid expensive investment in new assets. Sometimes the best outcome can be to re-invest in upgrading existing assets rather than creating new ones. Effective management of assets is contingent upon careful consideration of life-cycle costs, which include the cost of acquiring an asset, operating it and disposing of it at the end of its useful life.

How can South Australia better manage demand on current infrastructure?

Better use of existing assets should always be a project option considered in development of a business case. Typically much cheaper than a big new build, they involve relatively minor improvements. Examples include additional turning lanes at intersections, creating clearways on arterial roads to add another lane during peak periods, expanding existing schools by building vertically rather than constructing new schools in already developed areas, and using Intelligent Transport Systems to improve the efficiency of road networks. It may also include redeveloping health facilities' floor space for new models of service delivery.

Infrastructure sharing can also reduce the amount of investment needed to address a problem or realise an opportunity and helps ensure that infrastructure is developed at the optimal scale. For example, schools could function after-hours as community hubs, and the grain and mining industries could collaborate on identifying and developing new multi-user bulk port facilities. An oft-cited example of a forgone opportunity to share infrastructure is the parallel railways built in the Pilbara region of Western Australia to link iron ore mines with Port Hedland.

Funding, financing and procurement alternatives

Even if all of the cross-sectoral reforms outlined in this section are implemented, South Australia's future infrastructure program will still require significant levels of funding. Government's ability to bankroll all of this investment is limited due to competing calls for funds and related financial requirements to manage debt within fiscal affordability limitations. Considering alternate models for funding, financing and procuring infrastructure can provide optimal whole-of-life value-for-money outcomes for infrastructure investment.

What opportunities are there to better leverage private investment to drive public infrastructure development?

The potential to leverage commercial opportunities must be considered early in infrastructure planning processes. Once a preferred infrastructure solution has been identified it is often seen as too late to effectively and efficiently retrofit commercial opportunities. Given their potential to influence solution design and the overall viability and affordability of solutions through contributions enabled, commercial opportunities must be assessed early in options and business case development.

As is the case with all goods and services, the cheapest upfront solution is not always the best outcome. Being aware of the evolution of funding, financing and procurement trends on the Eastern Seaboard and globally is a key facet of Infrastructure SA's mandate. This will be explored further with relevant stakeholders moving forward and formally through the upcoming 20-Year State Infrastructure Strategy.

Infrastructure sector considerations

In preparing an integrated and holistic 20-Year Strategy, specific sectors where infrastructure plays a key role must be considered. South Australia's blend of a single dominant large city, with its associated urban environment, and significant regional and remote areas containing industry, agriculture, communities and services present quite different infrastructure requirements and inherent challenges for these sectors.

Improved integration across sectors and locations is a must, with the creation of precincts seen as key. These can form the basis for linkages between urban and regional infrastructure – vital for equitable access to markets and services.

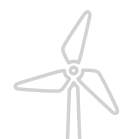| Culture, Sport & Tourism | P25 |
Digital	P26
Education	P27
Health	P29
Justice	P30
Transport	P31
Utilities	P34

Culture, Sport & Tourism

Current state

South Australians have access to a high standard of cultural, sporting and recreational resources and events. The State also offers a wide range of tourism assets, especially in the areas of food and wine, and nature-based and cultural tourism, and the city is the gateway to outback tourism in the State's north. The visitor economy sector is an important driver of economic activity, with expenditure growing to $6.8 billion in 2018, up 3% from the previous year.

Recent developments

Adelaide has experienced a period of significant renewal of its cultural, tourism and sporting assets with redevelopment of Adelaide Oval and the Riverbank precinct.

The South Australian Government has approved a proposal to upgrade and expand Her Majesty's Theatre in Adelaide, which is currently in progress. The theatre's existing 970-seat capacity will be expanded with a 1,472-seat auditorium spread over three levels. The revamp will also include rejuvenated foyers and a spacious backstage area.

The Adelaide Festival Centre is undergoing a $90 million redevelopment as part of the Festival Plaza precinct transformation. It will receive major structural and façade upgrades, which will be the most significant works undertaken at the centre since it opened in 1973.

A Museum of Discovery has opened at the University of South Australia and a new Heysens Gallery at Hahndorf and a Carrick Hill visitor centre are planned.

The planned Australian Space Discovery Centre will act as a tourism drawcard for Adelaide.

Future focus

The State Government is currently preparing three key strategy documents that will seek to identify the needs and future requirements for this sector:

Arts Plan – Due to be finalised in mid-2019, this plan will take a comprehensive review of the State's arts, cultural and creative sector to provide an evidence-based analysis to inform future decision making. Initiatives that the Plan will consider are the Aboriginal Art and Cultures Gallery to be located at Lot Fourteen and potential solutions to manage the State's cultural sector storage into the future.

State Sports and Recreation Infrastructure Plan – Due for completion in the second half of 2019 this plan will consider potential implications of hosting the 2026 Commonwealth Games, should the State Government proceed with a bid. It will also have a broader scope, encompassing grassroots activity to major infrastructure.

State Tourism Plan 2030 – This plan outlines priority action areas aimed at growing the size and impact of the visitor economy in South Australia. In addition to the ongoing development of individual experiences and improvements to accommodation supply, connectivity is a priority, with accessibility for interstate and international visitors being critical. Both access to the State by air and the ability to travel to and between regional tourism experiences will be considered.

It's important to note that these plans will be all-of-state focused, rather than Adelaide-centric, and have or will involve extensive consultation. ISA will give full consideration to each plan in developing its 20-Year Strategy to support this important sector.

What challenges and opportunities does South Australia have in supporting our cultural, sporting and tourism activities to ensure our global competitiveness and vibrancy as a location?

Digital

Current state

Digital accessibility is foundational to enabling an effective digital economy to drive economic and social impact. Yet South Australia currently lags behind other Australian states. With about 81% of households accessing the internet in 2016,[xii] full scalability of digital economy activity and benefits remains hindered. Even the base digital ability of the South Australian workforce, which is on par with the Australian average, sits below larger economies such as New South Wales and Victoria. South Australia also holds the slowest average upload speed across the nation (1.6Mbps).

Adelaide is Australia's first officially recognised GigCity, with two complementary initiatives helping to transform Adelaide into a highly-connected centre where digital economy opportunities abound.

The South Australian Government's GigCity Adelaide Program offers ultra-fast internet connectivity at speeds of up to 10 Gigabit per second (Gbps), to over 280 businesses in 21 designated innovation precincts across metropolitan Adelaide. Its objective is to attract high-tech businesses, entrepreneurs and start-ups to Adelaide, increasing competitiveness and removing the barriers of distance. The Government is also actively exploring the extension of the GigCity network to Whyalla and Mount Gambier.

The Adelaide City Council's Ten Gigabit Adelaide is a further initiative supporting South Australia's move towards greater digital connectivity. Being delivered by a partnership between TPG and the City of Adelaide, the network will be capable of delivering a high-speed and affordable fibre-optic data network that will enable businesses and organisations in the City of Adelaide to share and receive high volumes of data at speeds of up to 10 Gigabits per second.[xiii]

Further improvements in digital connectivity, especially in regional areas with lower levels of connectivity, have the potential to contribute economic and social benefits. It was found that on average, an increase of 10% in fixed or mobile broadband penetration can yield an average GDP increase of 0.8% and 1.5%, respectively.[xiv]

The State's infrastructure assets include copper networks, fibre-optic cable networks, mobile telephone and wireless internet towers (3G/4G) and satellites, exchanges or points of interconnect (POIs) and data centres. The majority of digital assets are owned and operated by the private sector.

Recent developments

The South Australian Government has outlined a vision to have the highest rate of business start-ups in Australia within a decade. Key physical infrastructure assets important to supporting the growth of entrepreneurship over a 20-year timeframe are considered to be intellectual, communications and knowledge infrastructure, plus regional hubs.

In terms of mobile coverage, funding for 70 new mobile phone base stations has been announced since 2013 as part of the Federal Government's Mobile Black Spot Program, which aims to improve mobile coverage in regional and remote communities. The Commonwealth has also announced a further $160 million for the Regional Connectivity Program.

Future focus

South Australia is currently exploring 5G opportunities and Adelaide plans to become one of the first cities in Australia to be deployed with 5G technologies.[xv]

Government can undertake the following to support the development of advanced high-speed and reliable connectivity, and increasing capacity networks:

- Commit to actions that promote the long-term growth of the digital economy.
- Remove impediments to the expansion of digital infrastructure.
- Consider modern and stable policies to encourage investment and innovation throughout the digital economy.
- Adopt regulatory best practice.
- Seek to stimulate demand for digital solutions.
- Build the capability and workforce to supply digital expertise and innovation to the economy through skills and training.

What services are we likely to use in the future that will require supporting digital infrastructure?

Education

Current state

Adelaide has a reputation as Australia's 'Learning City'. Home to three well-established local universities (Flinders University, The University of Adelaide and the University of South Australia) as well as two prestigious international universities (Carnegie Mellon University and Torrens Universities – part of Laureate International Universities).

The Vocational Educational and Training (VET) sector in South Australia includes technical and further education (TAFE) institutes, adult and community education providers and agricultural colleges, as well as private providers, community organisations, industry skill centres and commercial and enterprise training providers.

The school sector in South Australia includes early childhood learning and 511 public and 219 non-government schools that cater for Reception to Year 12. The early education sector comprises a mix of public sector, private sector and community providers.

Recent developments

The South Australian Government continues to make significant investments in upgrading existing education facilities and constructing new facilities across the State. Current investments include two new Birth to Year 12 schools in Adelaide which each comprise 100 inclusive spaces for students with a disability, as well as a new Whyalla High School. There are also capital works to improve facilities at 99 government schools and provide additional capacity to support the transition of Year 7 to high school ($877.2m) plus an extra $13m for flexible learning spaces.

The State Government has also partnered with Telstra to deliver the SWiFT program: Schools With internet Fibre Technology will connect 99% of the State's public schools to high-speed fibre optic cable throughout 2019 and 2020. The program will also provide high-speed internet for the remaining public schools using other technology solutions.

Changes are already happening in the way learning areas are planned so that teachers and students are not limited by physical space or location. The ability – through remote access technology and online screen sharing options – to teach and learn anywhere and anytime is now a fundamental part of the planning process for any new facilities. This has opened up the opportunity to connect and collaborate with contemporaries, learning institutions and businesses from across the country and around the globe. The use of 'flipped classrooms' is now a common pedagogical model in schools where the instructional content is delivered online.

Teachers also have the capacity to use adaptive learning approaches and teaching methods like problem-based learning, in conjunction with industry partners. This mirrors real-world scenarios and adapts to individual students' abilities rather than delivering a one-size-fits-all approach. Meanwhile, technology offers greater opportunities for regional schools to deliver a broader curriculum.

How will changing delivery models in education and training impact infrastructure requirements?

Globally, the recent emphasis on STEAM education – science, technology, engineering, arts and design, and maths – aims to foster students' creative and innovative capabilities. STEAM is designed to better prepare them for an increasingly high-tech workforce and to equip them to better handle the new and complex challenges that the future is likely to hold. This has led to entirely new approaches to school design that tend to favour open and flexible spaces to create connections across different academic areas and levels of learning.

Since 2014, the Australian Government has embarked on a significant reform of the VET system to improve the quality, job outcomes and status of VET necessary for the system to adapt to future skills need. This is expected to evolve to ensure VET continues to deliver the skills required by industry and meets the needs of the economy.

On a state level, the VET sector also reflects evolving methods of teaching that include online delivery, on-the-job training and adoption of simulation technology that replaces the need for some physical assets. An example is the issue of simulated welding equipment that can be rolled into a standard classroom, as required, that teaches the skills without the use of purpose-built welding facilities.

The State Government has a strategic focus to attract an increased number of international students across the education sector. A new state-of-the-art International Centre for Tourism, Hospitality and Food Studies being established in the heart of the city at the Lot Fourteen site is expected to contribute.

Future focus

The State Government, along with the Catholic and Independent Schools sector, will need to consider future demand for additional primary and secondary education facilities in new urban and existing high-growth areas. This must be anticipated and met in response to changing demographics and consumer preferences.

The public education sector is also planning for the transition of Year 7 to high school, which will impact on the capacity of existing high schools to respond and the flow-on effects to the primary sector.

Across the sector, in addition to in-classroom assets, there will be a requirement for high-speed broadband internet networks to deliver on future requirements and opportunities that technological innovations such as remote access technology and online screen sharing options offer. Access to technology across public and private, and metropolitan and regional schools, will enable all children to experience a broader curriculum in the classroom.

As technology evolves and the need for post-secondary education changes in response to rapidly evolving industry needs, the asset base for both the university and the VET sectors will need to become flexible in the use of assets, including opening them up for external use and consider, where appropriate, disposal of assets no longer required.

An example is Flinders Village, which is planned at Flinders University, Bedford Park. This will transform and extend the education campus into a transport, retail, accommodation and research hub. Its new research centre will collaborate with neighbouring hospitals and the Tonsley district, while other facilities include 3,000 new student beds and a boutique shopping centre. The university has attracted significant private investment to facilitate this development, including purchasing 7ha of Crown land to make it freehold.

Health

Current state

The health and wellbeing of South Australians equates to quality of life and a strong social fabric. Meanwhile, health services are a significant part of our economy.

Health facilities have high costs and utilise complex technologies to provide safe and high-quality services and programs. Consistency of access across metropolitan, peri-urban, regional and remote areas creates challenges, especially given the ageing asset base in regional and country areas.

The South Australian Health and Biomedical Precinct in the Adelaide CBD is one of the largest precincts of its type in the Southern Hemisphere, spanning hospital, university research and the South Australian Health and Medical Research Institute (SAHMRI). This precinct provides an opportunity to position Adelaide as a global leader in health and biomedical research and development, and advanced manufacturing capabilities.

Developments underway

SA Health and Wellbeing's current ageing asset base of $6.7b is being constantly refurbished and upgraded.

Current major projects include the:

- $96m upgrade of the Modbury Hospital
- $270m Stage 3 redevelopment of The Queen Elizabeth Hospital
- $50m new Emergency Department for Lyell McEwin Hospital, and
- $80m upgrade of the Repat Hospital Precinct.

The Government has proposed a relocation of the Women's and Children's Hospital and a business case is currently being prepared. There is also a new 340-bed private hospital with a 24-hour emergency department being built in the Adelaide CBD by Calvary Healthcare to replace its aging Wakefield facility.

Future focus

New health infrastructure is increasingly difficult to plan, given constant technological innovation, increasing sophistication of hospitals, changing models of care to meet consumer expectations and external factors, physical site constraints for metropolitan hospitals, and the relative isolation of regional and remote healthcare facilities.

New infrastructure should be flexible, scalable, adaptable and consider whole-of-life sustainability.

Key infrastructure developments and changes to clinical delivery may include:

- redevelopment, expansion and refurbishment of major hospitals and forensic mental health
- facilities to manage increasing rates of chronic medical conditions consistent with an ageing population, including prevention and primary health initiatives
- increased investment into medical and biomedical industries to support commercialisation of products and services
- new facilities for associated rehabilitation and outpatient services for increased efficiencies to reduce hospital admission rates
- remote health clinics linked to larger facilities such as hospitals via high-speed digital connections to allow health professionals to interact in real-time with remote patients and make diagnoses based on visual information and other sources
- new ambulance stations in growth corridors and peri-urban areas
- monitoring and providing intervention remotely to patients at home with the use of wearables, apps and other mobile medical devices for tracking and reporting personal medical data, and
- updates to delivery models such as telehealth services, which can reduce the load on physical health facilities and have the potential to deliver better services in regional and remote areas but require appropriate infrastructure to ensure services are at national and global standards across the State.

With the National Disability Insurance Scheme (NDIS) roll out, there are challenges associated with the need for the NDIS to interact with the health system at all stages and levels. As it matures, the NDIS will need to ensure against fragmented care for consumers and prevent confusion as to what health services are delivered, if any, on behalf of NDIS participants.

What complementary infrastructure can be built to support better health outcomes across the population?

Justice

Current state

The justice system spans policing through to courts, corrections and rehabilitation, and is the cornerstone of an effective and functioning democratic society. The courts system includes both civil and criminal courts and is comprised of the Supreme, District and Environment, Resources and Development (ERD), Magistrates, Coroners, Youth, and Wardens Courts. Court services are provided using 30 sites across metropolitan and regional South Australia, including both staffed and circuit courts. Several sites are co-located with SAPOL.

The Department for Correctional Services (DCS), which is responsible for the safe, secure and humane management of offenders and provides opportunities for rehabilitation and reintegration, currently manages nine prisons and 16 community correctional centres across metropolitan and regional areas.

Developments underway

The need for criminal court facilities in the short to medium term is currently being addressed by the Higher Courts Redevelopment Project which will see Adelaide's existing 10 criminal jury court capacity within the Sir Samuel Way Building increase to 13.

In the corrections system, 1,341 new bed spaces have been constructed since 2008/09, with construction of a further 350 beds planned to come on line progressively across the system by the end of 2021.

DCS has taken a system-wide approach to reduce reoffending by 10% by 2020. Policy approaches include innovative step-down and transitioning solutions linked to employment and housing programs, and providing training and higher value prison industries to create seamless employment pathways.

It has also taken a policy and technology approach to managing demand for correctional facilities by improving data sharing that supports alternatives to custody on a risk management basis.

Future focus

While DCS continues to explore and consider alternative programs to custody and has a strategic focus on reducing reoffending, the need for justice system services is expected to grow as population grows.

- Beyond the short to medium term, the need for new Adelaide-based criminal court facilities should be considered. A longer-term vision for the civil courts will also be required.
- The State's prisons are currently at capacity and some have been assessed as beyond their economic life. New infrastructure is projected to be required by 2024 to avoid capacity shortages.

- Technology is expected to play an increasing role across the sector. A modern prison system will rely on the use of technology and reliable high-speed internet connectivity to manage demand, systems and resourcing, and is expected to be a key feature of any new facilities constructed. The ability of older prison buildings and systems to adapt to new technology is likely to be a growing issue that will impact on asset utilisation, maintenance and demand management. Alternative custody programs and step-down programs will depend on reliable technology and internet connectivity for GPS monitoring for successful implementation.
- Any new correctional facilities will need to be constructed to respond to DCS policies for in-prison employment and training programs to improve rehabilitation outcomes, in addition to providing modern health facilities. The health services in correctional facilities also need to plan for and respond to mental health issues and a growing ageing population.
- With increased use of technology such as videoconferencing in courts, more elements of human participation in the justice process are expected to be uncoupled from the need to physically appear in a court building. The requirement for fixed court infrastructure is, therefore, expected to change with the pace of technology. This may open up alternative uses for court buildings in some areas, or the opportunity for shared space to maximise the use of assets.

What infrastructure is required to support our justice system and emergency services across the state?

Transport

Current state

Transport infrastructure plays a critical role in supporting economic growth through connecting businesses to markets, lowering the cost of doing business in South Australia through efficient supply chains and improving workforce participation by making it easier for people to get to work. Transport infrastructure also shapes cities and communities and improves liveability through better connectivity. It comprises long-term assets, hence it is vital to take a long-term integrated approach to planning to maximise benefits.

South Australia has an extensive transport network, including nearly 100,000 km of sealed and unsealed roads. Of this, the State Government manages 23,000 kms and local government 75,000 kms. Such a large road network comes with a large maintenance task.

Our major export ports are mostly operated by the private sector, with the Port of Adelaide and six regional ports being acquired by Flinders Ports in 2001 under a 99-year lease. Port Bonython remains in State Government ownership.

Adelaide Airport Limited purchased long-term leases for Adelaide and Parafield Airports from the Commonwealth in 1998. The eight key regional airports with direct services to Adelaide are mainly the responsibility of local government.

While metropolitan passenger rail remains in State Government ownership, interstate and intrastate rail lines are operated by the private sector and the Australian Rail Track Corporation.

The transport needs and challenges in Adelaide are quite different to regional SA. Adelaide's population growth, changes in work patterns and consumer transport choices continue to put pressure on congestion. While it does not have the level of congestion experienced in Sydney or Melbourne, average speeds across Adelaide's metropolitan network have been steadily decreasing for the past 10 years, with the annual urban speed in central Adelaide deteriorating by 1.1% per year in that period. The Australian Infrastructure Audit (2015) estimated that the cost of delay in Adelaide will increase from what was approximately $1b in 2011 to $4b in 2031 in the absence of any additional capacity. Long-term strategies must ensure Adelaide is able to ready its network before congestion starts to negatively impact on liveability and the economic functioning of the city in a material way.

Adelaide has a diverse public transport network consisting of a contracted bus system (including the O-Bahn Busway), metropolitan railways (with diesel and electric lines), and approximately 16.5 km of tram network. However, Adelaide also has one of the lowest levels of public transport patronage on mainland Australia at approximately 8% of metropolitan weekday passenger vehicle travel. There have also been recent changes to transport business models with the rise of point-to-point services, e-scooters and new technologies such as autonomous vehicles.

Key freight routes within Adelaide run between the north, south and western parts of the city. This leads to a convergence of freight to the west of central Adelaide to connect with the port and the industrial north-west, where light and heavy commercial vehicles constitute over 20% of all traffic. With the freight task anticipated to increase, a continuing trend to bigger and more productive freight vehicles and a 24/7 operating environment, it is critical that this freight connectivity is supported by the right investments and protected by the encroachment of incompatible land uses.

Regional South Australia has large expanses to cover, with 11% of Australia's local roads within South Australia. The National Transport Commission recently identified South Australia's road and rail freight task increasing by 2.6% per annum. However, it is important that the appropriate transport infrastructure is in place to ensure that our agricultural products and mineral and energy resources are efficiently serviced and able to access export markets. About 85% of South Australia's merchandise exports are either agricultural or resource-based and these sectors will continue to be an important driver in the State's economic growth. Appropriate transport infrastructure is also an important asset for regional tourism, which accounts for 40% of the State's total visitor spend.

Last but not least, road safety is an important aspect that needs to be considered in road design and investment, with a 2018 road toll of 80, and 47 fatalities to date this year (as at 21 May 2019). A disproportionate number of fatalities occur in regional South Australia.

A modern transport system for agriculture

It is estimated that the cost of road freight services from the farm gate to market may account for up to 21% of the indicative farm gate value of products. In planning for a road transport system that better meets the existing and future needs of agriculture, a partnership approach between Primary Producers SA (PPSA), Primary Industries and Resources SA (PIRSA) and the Department of Planning, Transport and Infrastructure (DPTI) was adopted as part of a Change@SA project.

As users of regional and rural road freight services, the primary production community was asked its view on how

South Australia's road transport could be made more effective and efficient. A survey instrument was used to seek input on the movement of agricultural machinery on public roads, route extensions and allowable trailer combinations, and short-distance or 'last mile' access to properties or facilities.

Over 680 responses were received, providing a clear picture of road access issues relating to the use of high-productivity heavy vehicles in agriculture. Of the issues raised, 90% related to areas outside the Adelaide metropolitan area with significant implications for growth in regional economies.

Project outcomes to date:

7,200 KM OF NEW FREIGHT ROUTES HAVE BEEN ADDED TO THE RESTRICTED ACCESS VEHICLE NETWORK, **INCLUDING 3,760 KM OF OUTBACK TRACK ACCESS**

$80 million IN INDUSTRY ESTIMATED BENEFIT FOR BOTH THE TRANSPORT INDUSTRY AND PRIMARY PRODUCERS   AS AT JANUARY 2018

65 PROJECTS COMPLETED

INTRODUCTION OF **TRI-AXLE DOLLIES** IN ROAD TRAIN COMBINATIONS

THE UPGRADE OF ACCESS TO A NUMBER OF VITERRA SITES HAS ALLOWED **IMPROVED EFFICIENCY** FOR PRODUCERS AT HARVEST

LOG BOOK EXEMPTION **REDUCED WORKLOAD**

Source: Primary Producers SA, *Improving Road Transport for Primary Production Project*, February 2018

Developments underway

DPTI and the Australian Government are delivering a range of infrastructure projects across South Australia to continue to provide an efficient, reliable and safe transport system underpinning economic growth and supporting liveable communities.

Many projects along the South Road Corridor such as the Torrens to Torrens, Darlington, Northern Connector and Regency to Pym projects are either completed or due to be completed by the end of 2019. This will complete 68 km of the 78 km corridor. The South Australian Government is currently finalising a business case for the remaining 10 km which the Commonwealth has committed $2.7 billion towards.

Others major infrastructure projects are contributing to the State's development agenda:

- The completion of Oaklands rail crossing to alleviate road congestion, improve rail efficiency and improve safety for Morphett and Diagonal roads.
- Commencement of the Gawler Rail Line Electrification project to deliver a faster, cleaner and more reliable service offering improved levels of customer service.
- Approval of the duplication of the Joy Baluch Bridge as an important link in the National Land Transport Network at Port Augusta. This project provides access across the Spencer Gulf for commuter, commercial and freight vehicles in the northern region of South Australia. It is also a key tourist connection to the Eyre Peninsula, northern South Australia and beyond.
- Approval of the Port Wakefield overpass and highway duplication project to relieve congestion, reduce travel time and enhance safety.
- Commencement of a program of projects from the Urban Congestion Fund to reduce congestion in urban areas. Future projects include upgrades to the following intersections:
  - Cross Road – Fullarton road
  - Goodwood, Springbank and Daws Roads
  - Portrush Road – Magill Road.
- Approval of a range of initiatives under the Roads of Strategic Importance program to ensure our key freight roads efficiently connect agricultural and mining regions to ports, airports and other transport hubs. Projects include roads from Port Augusta to Perth, Melbourne to Mildura, Renmark to Gawler and within the Green Triangle.

- Approval for construction in 2019 for dredging in the Outer Harbor channel to enable the accommodation of larger vessels into the region.
- The potential for further development at Adelaide Airport to enable economic and employment growth through a range of measures including the redirection of freight and taxi traffic, growing national and international freight and passenger air traffic, and expansion of airport employment precincts in retail and service industries.

From 1 July 2019, the South Australian Public Transport Authority (SAPTA) will assume responsibility for delivering more customer-focused public transport that improves customer satisfaction, grows patronage and reduces service costs.

Future focus

The Strategy will need to consider long-term plans and options to address the following needs and challenges:

- Increasing congestion within Adelaide (potentially through strategic investment at particular intersections and the ring routes, increasing patronage on public transport to decrease individual car trips, as well as utilising technology and other transport strategies).
- New technologies such as electric vehicles and autonomous vehicles as well as new service delivery models such as mobility-as-a-service.
- Ways to shape the urban form and create vibrant precincts.
- Improve efficiency of the freight supply chain and ensure that businesses have appropriate access to markets.
- Meeting the significant asset maintenance obligation on both state and local government road networks.
- The right freight transport infrastructure to unlock future economic growth opportunities.

How can South Australia take the lead on reducing emissions from transport?

Utilities

Current state

Utilities provide the essential services of power, gas, water and waste management. These services are fundamental to the liveability of a community, and ensuring they are affordable and reliable is not only a social issue but also important for the economic development of South Australia.

The electricity sector has been undergoing a significant transition in recent years in an absence of a consistent bi-partisan national energy policy. This has been particularly challenging for South Australia which has been experiencing the highest average cost of electricity in Australia. South Australia has been leading the nation in the transition to renewable energy with significant investment in large-scale wind and solar farms as well as significant uptake in household rooftop solar and the 100MW Hornsdale Power Reserve built by Tesla. Advances in technology are bringing down the cost of renewable energy but this transition is also occurring at a time when the cost of gas for gas-fired generation is at unprecedented highs and forecasts for energy consumption are flat.

These dynamics are likely to continue to be a significant constraint to ensuring South Australia has a sustainable, affordable, reliable and secure energy market.

The State is supplied gas from the Moomba area through the Moomba to Adelaide pipeline and from the South East through the SEAGas pipeline. A lateral pipeline provides gas to key industries in Port Pirie and Whyalla. The latest Gas Statement of Opportunities from Australian Energy Market Operator suggest there will be sufficient gas network capacity in South Australia until 2023.

South Australia's water and wastewater networks and treatment have a 160-year history in providing quality potable water supplies across urban and regional areas. Water is sourced from the River Murray, underground bores and reservoirs. With South Australia being the driest state, treated wastewater systems supplement supply for agriculture and public parklands.
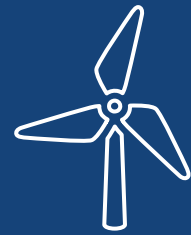
Developments underway

There are more than 1.7 GW of energy storage projects at various stages of development across wind, solar, pumped hydro, bioenergy and hydrogen. Recently, regulatory approval was given to strengthen the transmission network on the Eyre Peninsula, and the Australian Energy Regulator is currently assessing a regulatory investment test for transmission for a proposed new interconnector with NSW.

SA Water continues to invest in both the potable water and wastewater network and is constructing the pipeline network for the Northern Adelaide Irrigation Scheme. SA Water is also investing significantly to reduce its energy consumption, with an aim to be a net zero consumer of electricity.

Future focus

Further changes in national energy market policy and advances in technology will continue the transition of the electricity market within South Australia. Further investment in grid-scale storage and interconnection are likely, and distributed energy systems or micro grids are likely to be adopted. Battery technology will continue to develop and emerging technologies such as hydrogen may have an impact on both the electricity market as well as the distributed gas network.

It is important that thorough strategic planning is conducted to ensure that South Australia can be provided with affordable, reliable and secure power as the market continues to evolve.

A reliable water supply to meet the State's needs requires:

- water network renewals and smart management systems
- water treatment plant upgrades
- major trunk supply pipelines from the River Murray, and
- key water quality upgrades at facilities.

Waste volumes from cities are forecasted to increase, however this may be offset by new technologies and processing methods. There will need to be investment in new resource recovery centres and waste management systems to reduce reliance on landfill, with organic waste links to bioenergy generation solutions and other circular economy strategies.

What options are there to establish a reliable, decarbonised energy system that presents export opportunities?

References

i   World Bank Group, *Global Economic Prospects: Darkening Skies*, January 2019, http://www.worldbank.org/en/publication/global-economic-prospects, accessed 18 April 2019.

ii   Ibid.

iii   Reserve Bank of Australia, *Statement on Monetary Policy*, February 2019, Chapter 5 'Economic Outlook', https://www.rba.gov.au/publications/smp/2019/feb/economic-outlook.html, accessed 18 April 2019.

iv   Joyce, S. (2019, February). *Review of the South Australian Government's International and Interstate Engagement Bodies and Functions*. Retrieved from Department of Premier & Cabinet website: https://www.dpc.sa.gov.au/?a=47887

v   Reserve Bank of Australia, *Statement on Monetary Policy*, February 2019, Chapter 5 'Economic Outlook', https://www.rba.gov.au/publications/smp/2019/feb/economic-outlook.html, accessed 18 April 2019. Government of South Australia, State Budget 2018-19, Budget Statement, Chapter 8 'Regional South Australia'.

vi   Government of South Australia, *State Budget 2018-19, Budget Statement*, Chapter 8 'Regional South Australia'.

vii   Ibid.

viii   Australian Bureau of Statistics (2019), *Regional Population Growth, Australia*, cat. no. 3218.0, http://www.abs.gov.au/AUSSTATS/abs@.nsf/Explanatory%20Notes/3218.0/, accessed 18 April 2019.

ix   Australian Bureau of Statistics (2019), *Australian Demographic Statistics, September 2018*, cat. no. 3101.0, http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Sep%202018?OpenDocument, accessed 18 April 2019.

x   Australian Bureau of Statistics, cat. no. 3412.0, *Migration, Australia, 2017-18*, ABS.Stat (Beta)

xi   Ibid.

xii   Australian Bureau of Statistics (2018), *2016 Census QuickStats: South Australia*, https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/4, accessed 12 June 2019.

xiii   City of Adelaide. *Ten Gigabit Adelaide*. Available from: https://www.cityofadelaide.com.au/city-business/why-adelaide/adelaide-smart-city/ten-gigabit-adelaide

xiv   Katz, R. and Callorda, F. (2018) *The economic contribution of broadband, digitization and ICT regulation*, ITU Publications.

xv   Penn, A. (2018) *Turning on 5G in Adelaide, Canberra and Perth*. Available from: https://exchange.telstra.com.au/5g-adelaide-canberra-perth

Process for submissions

Submissions welcome

Infrastructure SA is keen to understand the needs and views of different communities, sectors and regions to help formulate a 20-Year State Infrastructure Strategy that engenders positive generational impacts by addressing big issues via wide-ranging and far-reaching initiatives.

We welcome submissions from anyone who would like to inform this process. Submissions can range from a simple letter to a more substantial document and should include evidence such as relevant data and documentation to support your views.

Submissions must be received by 5pm Wednesday 31 July 2019.

Publication of submissions

As this is a public process, all submissions should be provided as public documents that can be published on this website for others to read and comment on. Submissions will be published shortly after being received and remain here indefinitely as public documents.

If you wish to treat part of your submission as confidential in nature you will need to make a case for this. Confidential material should be clearly marked 'IN CONFIDENCE' and provided in a separate attachment to non-confidential material. The non-confidential part of your submission will be published online.

What is not required

- Please remove tracked changes, editing marks, hidden text and internal links from submissions.
- Do not send password protected files.
- We reserve the right to not publish material deemed offensive, potentially defamatory or out of scope.

Before you submit

Please check the following before making your submission:

- Personal details are not included in your submission unless necessary. All personal details (e.g. home and email address, signatures, phone, mobile and fax numbers) will be removed before submissions are published on the website.
- Submissions can be Microsoft Word (.docx) files or PDF files produced from Word or similar text-based software documents.

Submission options

We encourage you to lodge your submission online via:
infrastructure.sa.gov.au/get-involved

If you would prefer, you can post your submission to:

GPO Box 2343
Adelaide SA 5001

Posted submissions must be **received** by 5pm Wednesday 31 July 2019.

Got questions?

Please feel free to contact us for further information and advice before making your submission.

Email: infrastructure@sa.gov.au

Use your voice well

Infrastructure SA is here to understand and address key strategic issues with the potential for wide-ranging impacts.

If your say is regarding a relatively small project or specific locality, it may be more appropriate to approach your local council or the SA Department of Planning, Transport and Infrastructure.

To help ensure your eye is cast far enough towards the horizon towards the bigger picture, it's best to consider and address questions of a similar scope to those posed throughout the Discussion Paper:

What infrastructure investment would make the biggest impact to unlocking economic growth in South Australia in the next 0-5, 5-10 and 10-20 years?

How would Adelaide's infrastructure need to change if its population hit two million?

What strategies should be adopted to ensure Adelaide maintains its liveability as it grows?

How can technology and data be embraced to improve quality of life?

How can South Australia best prepare its infrastructure to be able to adapt to and embrace future technological disruptions?

How should infrastructure be planned in increasingly urban environments with ageing populations?

How can infrastructure provide resilience against bushfires, drought, flooding, sea level rises and the like?

What strategies should the Government adopt to ensure the necessary infrastructure is in place so our regions can thrive?

What factors should be considered when making inevitable trade-offs about investment in public infrastructure in the context of funding constraints?

How can we best plan and accommodate the infrastructure needed to create vibrant and economically productive precincts?

How can South Australia better manage demand on current infrastructure?

What opportunities are there to better leverage private investment to drive public infrastructure development?

What challenges and opportunities does South Australia have in supporting our cultural, sporting and tourism activities to ensure our global competitiveness and vibrancy as a location?

What services are we likely to use in the future that will require supporting digital infrastructure?

How will changing delivery models in education and training impact infrastructure requirements?

What complementary infrastructure can be built to support better health outcomes across the population?

What infrastructure is required to support our justice system and emergency services across the state?

How will technology change the transport system in South Australia?

How can South Australia take the lead on reducing emissions from transport?

What options are there to establish a reliable, affordable, decarbonised energy system in South Australia?

Contact

infrastructure.sa.gov.au