

# 1

## Introduction

Australia, perennially labelled the ‘Lucky Country’, stands in a position of strength.

Twenty-eight years of uninterrupted economic growth has supported the development of a highly educated population, a robust economy and a diverse culture. Infrastructure has been a fundamental component of this success story, supporting a world-class standard of living that is rightly a source of national pride.

But looking forward, Australia faces an unprecedented period of uncertainty.

The compounding issues of a changing climate, digital disruption, a deepened dependence internationally on trading partners in Asia, and increasing political polarisation within established democratic nations is reshaping global institutions and norms.

Closer to home, population growth, an ageing demographic structure, and the persistent shift within the economy towards services and knowledge-based industries, are fundamentally reshaping our day-to-day lives.

This climate of uncertainty is defined by three interrelated dynamics:

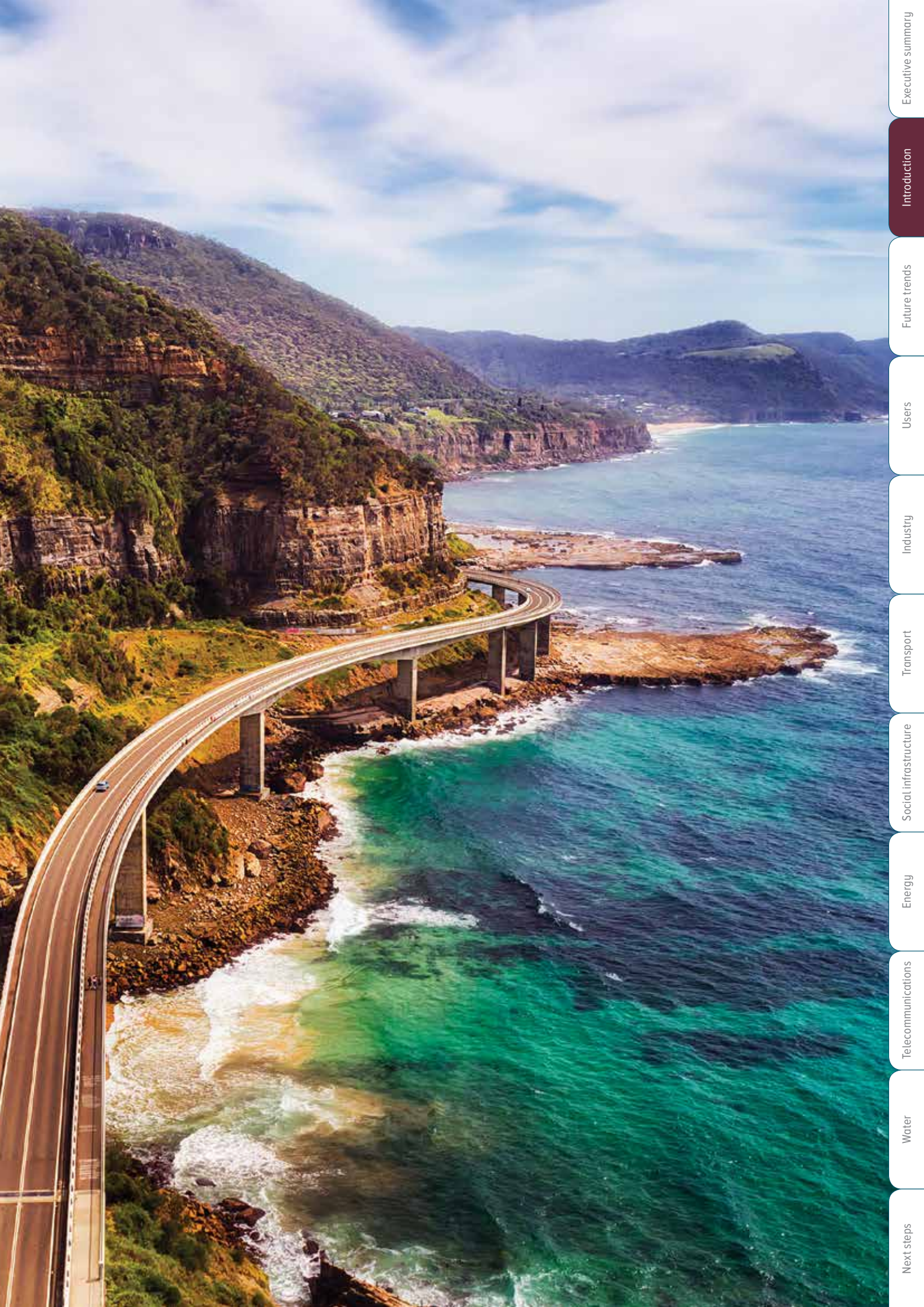
- The rapid pace of change
- Increasing social, economic and global interdependencies
- The proliferation of complex policy challenges.

Together, these have material implications for our infrastructure, which as a result of its nature is delivered over long project gestations and if well designed, and well maintained, will operate for many generations.

Infrastructure is central to our quality of life. It connects us to economic, education and social opportunities. It supports our health, safety and security. It provides us with the essential services we rely on – from energy, water, and telecommunications, to social infrastructure such as hospitals, schools and parks.

But looking to the future, user needs are evolving and in coming decades, our infrastructure will look very different to today. The *Australian Infrastructure Audit* is a timely opportunity to take stock of the most important issues facing our infrastructure as we prepare for a future that is set to be fundamentally different to what we have experienced in the past.





Next steps

Water

Telecommunications

Energy

Social infrastructure

Transport

Industry

Users

Future trends

Introduction

Executive summary



This setting of uncertainty has formed the foundational principle for Infrastructure Australia in developing the Audit. It has provided the lens through which we have assessed the current capacity of our existing networks and assets, and identified the challenges and opportunities the sector faces in the coming 15 years.

Traditionally, an audit is a list of what we know, and some general conclusions about the gaps, perceived or real. This Audit seeks to go much further, and in doing so may challenge some expectations. Our assessment, however, is that the current circumstances call for this approach.

## 1.1 A future of greater uncertainty

### The day to day lives of Australians are changing rapidly

Rapid and frequent change to the way we live, work and do business is an increasingly accepted norm for most Australians. A range of interrelated factors drive the constant and rapid pace of change, including:

- **Rapid developments in technology and science:** In the past century, the pace of technological development and uptake has increased dramatically, fundamentally disrupting basic everyday activities, such as how we communicate, how we get around, how we generate and distribute energy, and how we purchase goods and services.
- **The restructuring of the Australian and global economies:** Our economy is changing. Over the past three decades, the focus of the national economy has transitioned from manufacturing to services and future industry growth is expected across the services, renewable energy, health and aged care sectors. Primary industries will remain important, however globally the growth of the Asian middle class will provide opportunities for a broader range of Australian businesses.

- **Shifting societal demographics and preferences:**

The demographic profile of our population is shifting. The millennial generation is now the largest cohort of the population in terms of size and is increasingly influential. This shift, combined with technology advancement, is driving changes in Australians' preferences. We are leading increasingly connected lives, and displaying preferences for personalised experiences and a broader reflection of values that are aligned with our own.

The pace and scale of change has fundamental implications for how Australia plans for its future. The next few decades are likely to hold more change, and more uncertainty about the nature of that change. In this context, planning for the future requires an understanding of how the world is changing, how our needs are likely to change with it and a level of flexibility in order to adapt to changes that are disruptive and difficult to predict.

### The world is more interdependent than ever before

The day-to-day lives of Australians are increasingly interconnected. The rapid uptake of consumer technologies means we can now easily connect to fellow Australians and the rest of the world, with implications for all facets of life, including: access to information and the transfer of ideas, the way we produce and consume goods and services, and the nature and location of our work.

The increasing interconnectedness and globalisation of economic activity means that the performance of our economy is also fundamentally tied to rest of the world. In 2016-17 two way trade in Australia totalled \$735 billion, and accounted for almost 40% of our economy.<sup>1</sup> This will increase, as the growth of the middle class in the Asia Pacific region creates increasing opportunities for Australian businesses.

More broadly, the emergence of complex challenges and disruptive new technologies, has rapidly increased the connections and co-dependency of different sectors of the economy and different parts of the community. The result is that action in one sector or location has increasing implications for another.

These interdependencies have created clear benefits. More than ever before, Australians enjoy greater access to people, products, and ideas. But it has also rapidly increased the complexity of life and the issues we face.

The result is there is an increasing degree of uncertainty about the impacts of decisions and future outcomes, and an increasing requirement for new, more coordinated ways of doing things, which reflect the greater levels of interconnectedness.

### Australia faces a complex set of policy challenges

Australia's governments, the private sector and the community are grappling with a uniquely complex set of policy challenges. For example:

- Australia's population is rapidly growing, ageing and urbanising, with implications for the demand for infrastructure and services, and the structure of Australia's economic geography.
- Australia's environment faces a wide range of costs from the impacts from human activity and the effects of climate change.
- Certain groups within the Australian community are caught in a cycle of intergenerational disadvantage.

While challenges like these are vastly different in content and scope, they share common defining characteristics, including:

- Having multiple causes and many interconnections to other issues
- Impacting a wide range of often conflicting stakeholders
- Requiring action within and between many levels of governments, and across the economy, ranging from communities to corporations to individuals
- Having no clear solution and unable to be solved by traditional approaches.<sup>2</sup>

Complex policy problems themselves are not new but the number and scope of these challenges that Australia, and the world, currently face is unprecedented. The result is that there is a high degree of uncertainty within the Australian community about how and when these issues will be resolved. The scope and scale of these challenges is also calling into question the traditional methods used by governments to address problems and requiring decision makers to adopt innovative, cross-sectoral and flexible ways to find solutions.

## We need to think differently about our infrastructure

There is enormous potential for our infrastructure to improve the living standards of each and every Australian. Infrastructure can ease the pressures of growth, catalyse development and enable Australia to compete on a global stage. It can enhance the quality of life of every Australian, and support the growth and success of our businesses. But in the context of increasing complexity, rapid change and growing interdependencies, we need to evolve the way we plan for Australia's infrastructure to embrace uncertainty.

Historically infrastructure planning has sought to predict future conditions and then provide the requisite infrastructure to meet anticipated future demand. Looking to the future, Australia requires a more robust approach. Rather than projecting forward the status quo, our infrastructure planning should enable an ambitious vision for the country, anticipate and adapt to change, manage risk, and deliver infrastructure that improves our quality of life.

Infrastructure Australia has reflected this shift in long-term planning practices, and adopted a methodology that aims to prepare Australia for the future.

## 1.2 What has changed since the 2015 Audit

Under the *Infrastructure Australia Act 2008*, our governing legislation, Infrastructure Australia is responsible for strategically auditing Australia's nationally significant infrastructure, and developing 15-year rolling Infrastructure Plans that specify national and state-level reform priorities.

Infrastructure Australia's first Audit, released in 2015, was the first national picture of our infrastructure and the challenges it faced. The Audit served as the primary evidence base for the first *Australian Infrastructure Plan*, released in 2016, which provided 78 recommendations for reform, and a range of Reform Series policy papers. The Audit has also provided a point of reference for a range of proposed initiatives and projects on Infrastructure Australia's *Infrastructure Priority List*.

Since the release of the 2015 Audit, a range of national governments have delivered detailed assessments of their infrastructure capacities and needs. These include:

- *Thirty Year New Zealand Infrastructure Plan 2015*<sup>3</sup>
- *UK National Infrastructure Assessment*<sup>4</sup>
- *Project Ireland 2040*.<sup>5</sup>

## There have been major improvements since our last Audit and Plan

Since the release of the first Audit and Plan, Australia has witnessed a number of positive shifts in the way we plan, deliver and operate our infrastructure.

Australia's governments have shown a willingness to drive higher levels of infrastructure investment. Since 2015 over \$123 billion of work has commenced,<sup>6</sup> with a committed forward pipeline of over \$200 billion.<sup>7</sup>

There has been marked progress in the quality of city and regional planning processes. Increasingly, governments are integrating transport and land-use planning, and have preserved a number of strategically significant corridors for future infrastructure investment. Greater collaboration between jurisdictions has improved the quality of business cases. While, the continued creation of dedicated infrastructure agencies has helped strengthen the national pipeline of infrastructure investments.

At the same time critical regulatory changes have enabled new ways of delivering services in infrastructure markets.

### Ongoing challenges need to be resolved

In other key areas, there has been little or no progress against the findings of the Audit and the recommendations in the Plan, and new sector-based challenges have emerged.

In transport, the planned inquiry into road user charging reform is yet to commence, despite support from major road user groups and the inevitability of reductions in revenue from traditional sources of road funding (fuel excise), along with the inequity of the existing charging practice.

Population growth has become a major point of contention in infrastructure debates. Ageing assets have been put under growing strain, with rising road congestion, crowding on public transport and growing demands on social services such as health, education and housing. This prompted the Australian Government to develop a national population policy in 2018, despite having previously rejected the idea when it was recommended in the 2016 *Australian Infrastructure Plan*.<sup>8</sup>

The cost of energy has increased in recent years. A steep rise in network costs has driven energy bills 35% higher over the past decade, and up by 56% per unit of electricity consumed in real terms.<sup>9</sup> This has eroded some industries international competitiveness and added to cost of living pressures during a period of low wage growth. Despite record investment in renewable energy, the unanticipated closure of large power generators such as Hazelwood has caused uncertainty about network reliability in many parts of the country.

In telecommunications, the National Broadband Network (nbn) has faced issues regarding service quality. In the 4.8 million households in which it has activated,<sup>10</sup> services have not met the expectations of many users. This is particularly true in regional and remote areas that are reliant on satellite services – only 22% of premises that could connect to nbn satellite have done so.<sup>11</sup>

In the water sector, the past four years has seen mixed results. Many metropolitan utilities are increasing the sustainability and quality of their services through innovation, supporting the liveability of our cities. But many regional areas are suffering from growing water security fears as large parts of the country return to drought. Productive water has assisted strong growth in many agricultural products, but highly publicised failures in the Murray-Darling Basin, including mass fish kills in 2018 and 2019, have eroded public trust in water management and caused substantial harm to natural habitats and areas of cultural significance.

## 1.3 Objectives of this Audit

The time is right to reconsider how we deliver infrastructure, and how we can adapt existing networks to our changing needs. The *Australian Infrastructure Audit* is the starting point for this process.

The purpose of this Audit is to:

- Draw out the most important issues facing Australia's infrastructure over the next 15 years, and potentially beyond.
- Cover transport, energy, water, telecommunications and – for the first time – social infrastructure. We have taken a wide view of social infrastructure including schools and tertiary education, hospitals and aged care, social housing, justice and emergency services, arts and culture, as well as green, blue and recreational infrastructure.
- Identify challenges and opportunities facing each sector and creates a platform for change.
- Place users at the centre of decision making by considering access to infrastructure services as well as its quality and cost.
- Consider the experience of infrastructure services in different types of communities across Australia.

## The challenges and opportunities we identify are a call to action

The role of this Audit is not to present solutions. Before identifying solutions, it is important to have a clear understanding of the problems we are seeking to solve. Infrastructure has the potential to both ease the pressures of growth and provide a catalyst for development. However, in order to meet our diverse needs, we must first be clear on the role that infrastructure plays in each part of the country, and how this needs to adapt over time.

To do this, the Audit identifies issues, gaps, problems and untapped potential in the form of:



**Challenges:** Where a change in how we deliver infrastructure is required to avoid future costs or erosion of our quality of life or productivity.



**Opportunities:** Where infrastructure could unlock future growth and development, and improve quality of life or productivity beyond the status quo.

To assist the reader, throughout the document challenges and opportunities are identified by specific icons.

This distinction between challenges and opportunities is important to ensure infrastructure planners and proponents identify and progress infrastructure solutions that not only keep pace with community aspirations and demands, but create the potential to unlock step changes into the future.

These challenges and opportunities should help to guide infrastructure decisions on investments and reforms over the coming years. All require action to ensure Australia's infrastructure continues to support Australian households and businesses, and to deliver improvements in wellbeing.

## We aim to engage the community about the future of infrastructure

The Audit is designed to identify those areas that could potentially benefit from reform or investment. The Audit provides perspectives on the most significant issues for the diverse range of infrastructure users across the country. It will be successful if it generates broad community discussion on issues requiring attention and the potential responses to them.

To achieve this, the Audit is drafted to be relevant and easily accessible to a broad audience. This means it is not a conventional audit. We want everyone – from industry experts to members of the community – to be able to access the same evidence and engage in the discussion.

Instead of providing a list of what there is, we seek to:

- Give information about the most significant issues for each sector
- Guide and frame discussions using new evidence and the significant body of research undertaken by others
- Create a platform for the further analysis needed to support decisions.

### This Audit supports growth and development in northern Australia

The 2015 Northern Australia White Paper highlighted the immense opportunities for growth and development of our northern regions, across Queensland, Western Australia and the Northern Territory.<sup>12</sup>

Infrastructure Australia supported this work through the 2015 *Northern Australia Audit: Infrastructure for a Developing North*, which took a detailed look at the infrastructure assets and networks that support the north, and how these could be adapted to support growth.<sup>13</sup>

This Audit furthers this agenda by providing updated evidence on the challenges and opportunities of northern regions, and the role infrastructure could play in unlocking their potential. It does so by presenting a single, national infrastructure audit that identifies distinct challenges faced by northern Australia in the areas they are most significant.

Applying this national lens to northern Australia is critical to ensuring that unique challenges of the region are understood as part of the national infrastructure story. There are many similarities in what people across the country tell us they want and need from their infrastructure – physical and digital connectivity, affordability and accessibility of services, and long-term sustainability of their community. But many of the issues faced by northern Australia are distinct from those in other parts of the country, including vast distances between communities, low population densities and extreme weather.

The north also holds many notable strengths, including proximity to growing Asian markets, capacity to grow and untapped resources. Success in these regions can also bring much-needed improvements to the quality of life of many of Australia's most disadvantaged communities, while providing opportunities to celebrate Aboriginal and Torres Strait Islander cultures and support growth.

Being clear on the role of infrastructure in the north will be critical to achieving the vision laid out in the Northern Australia White Paper.

## 1.4 The approach of this Audit

Infrastructure Australia has taken a new approach to the development of the 2019 Audit.

Infrastructure Australia's first Audit sought to identify the biggest gaps in infrastructure service delivery, and introduced the concept of Direct Economic Contribution as a common measure of scale across sectors.

However, four years on, Australia is facing a very different outlook.

In response, Infrastructure Australia has evolved its approach to the development of the 2019 Audit:

- **The use of Direct Economic Contribution has not been continued.** This decision was based on feedback from our stakeholders. Instead, this Audit relies on conventional measures and existing databases wherever possible, as we seek to provide a broader perspective on Australia's infrastructure, with a balanced assessment of issues and an even weighting across each sector.
- **The 2019 Audit covers economic and social infrastructure.** This allows the Audit to present infrastructure in all its forms for the first time, enabling discussion across the full experience of users, and picking up on all the ways infrastructure shapes our lives.
- **A new three-stage methodology, informed by strategic foresight methods, has been adopted.** Infrastructure Australia has adopted a methodology that considers the broad range of factors influencing the future of Australia's infrastructure and considers a range of outcomes that could result.

The primary differences in approach between the 2015 and 2019 Audits are summarised in Table 1.



**Table 1:** The 2019 Audit builds on the work from 2015, but also takes a different approach

	2015 Audit	2019 Audit
<b>Format</b>	National Audit, divided by sector (Volume 1) and jurisdiction (Volume 2), and a separate <i>Northern Australia Infrastructure Audit</i>	A single, national Audit, divided by sector and including northern Australia
<b>Metrics</b>	Introduced Direct Economic Contribution to provide a single measure of scale across sectors	Conventional measures of scale and growth
<b>Focus</b>	Networks, assets and cross-sectoral issues	Infrastructure services and user outcomes, focusing on access, quality and cost
<b>Methodology</b>	Analysis-led, drawing out key issues	Theme and issue-led, informed by strategic foresight methods
<b>Outputs</b>	Findings	Challenges and opportunities, including where and when they will impact infrastructure

## Methodology

In the context of uncertainty, we have chosen to evolve the way we plan for Australia's infrastructure to embrace this unique setting.

Strategic Foresight is a new field of research that aims to understand the future in a way that does not simply extrapolate past trends to understand the future.<sup>14</sup> Instead, foresight methods use available knowledge and forecasting tools to understand plausible future events and, based on a balanced view of the different futures that may occur, enable robust decision making and investment. This approach is increasingly being used by governments in the United Kingdom, Finland, Singapore, and to a lesser degree Australia, to understand and plan for the future.<sup>15</sup>

In developing this Audit, Infrastructure Australia has applied a three-stage methodology, informed by strategic foresight methods, to understand Australia's infrastructure needs in the next 15 years.

## Stage 1: Horizon scanning

The starting point for Infrastructure Australia in undertaking this Audit was to understand the national and global forces that are likely shape Australia over the coming years and decades. These trends focus on shifts that are likely to transform how we live, and consequently what we need from infrastructure.

The trends we cover fall under the following categories:

- Quality of life and wellbeing
- Community preferences and expectations
- Cost of living and incomes
- Economy and productivity
- Population and participation
- Technology and data
- Environment and resilience.

These are outlined in the **Future Trends** chapter, and considered in each subsequent chapter.





## Stage 2: Interpretation and analysis

The next step was to apply these trends to the sectors of transport, water, energy, telecommunications and social infrastructure, to understand the likely future impacts and needs of these sectors. As part of this process we have applied two sets of lenses to understand future infrastructure needs within each sector.

### 1. A focus on user outcomes

This Audit seeks to put users at the centre of infrastructure issues, where they should be, and looks for ways that infrastructure could do more to meet their needs. The user outcomes we have focused on are:

- **Access:** The availability of services for households and businesses, and how easy it is to use them
- **Quality:** The standard of the service provided, covering capacity, reliability, efficiency and customer satisfaction
- **Cost:** The total cost impact on users, including upfront and ongoing charges for users, as well as the draw on taxpayer funds.

### 2. Impacts on different types of communities across Australia

Rather than adopt conventional state and territory boundaries, we have framed infrastructure needs by the type of community or area they serve. Sydney and Melbourne, for example, share more in terms of their infrastructure needs than Sydney and Broken Hill. We consider it more useful to group Broken Hill with cities of a similar scale, that share similar characteristics, and which play a similar role in their regions, such as Mount Isa and Kalgoorlie. Over time, cities could move between categories as their size and role change.

This Audit divides the country into four broad categories, each including different types of settlements:

1. **Fast-growing cities.** Large cities with dynamic economies, heavily connected to other major cities in the Asia-Pacific region, and with higher than average population growth, including:
  - *Major capitals:* Sydney, Melbourne, Brisbane and Perth.
2. **Smaller cities and regional centres.** Cities with economies that are largely dominated by a few industries and that typically provide a range of important services to their surrounding regions, including:
  - *Smaller capitals:* Adelaide, Canberra, Hobart and Darwin
  - *Satellite cities:* Cities within commutable distance of fast-growing cities, for example: Wollongong, Geelong, the Gold Coast and Mandurah
  - *Regional centres:* Cities that are home to more than 10,000 people (5th to 101st largest cities in Australia).<sup>16</sup>
3. **Small towns, regional communities and remote areas.** Smaller communities and townships that provide only smaller scale services, and are typically reliant on larger centres in their region, as well as the vast expanses outside of these communities, including:
  - *Small towns:* Centres with populations of fewer than 10,000 people and more than 200 people
  - *Regional communities:* Settlements with fewer than 200 people
  - *Remote areas:* All areas outside of recognised settlements, including connecting infrastructure.

The Audit also includes a focus on regions that have the potential to grow and develop through specific policy- or industry-led initiatives. These overlap with the geographic categories and include:

#### 4. Developing regions and northern Australia.

The Audit has identified prioritisation from policy makers and past development of these regions can impact on the path of their development:

- *Developing regions:* Regional areas with strong growth prospects, driven by growing demand for the resources and services it produces – or could produce – and which may require changes in infrastructure to help unlock this potential
- *Regions in transition:* Regional areas where industry composition is changing, leading to evolving infrastructure demands to ensure long-term prospects for employment and development
- *Northern Australia:* These include a mix of regions across the Northern Territory, and the northern parts of Queensland and Western Australia that were identified in the 2015 Northern Australia White Paper.

In order to support readers of the Audit, specific icons are used to identify relevant challenges and opportunities for each geography.

### Stage 3: Identifying challenges and opportunities

Based on this analysis, the Audit has identified a set of sector-based and cross-sectoral challenges and opportunities, which are issues, gaps, problems and untapped potential where infrastructure can play a role in improving Australians' lives and growing our economy.

For each challenge or opportunity, the Audit provides an estimate of when each will impact infrastructure services and users if no action is taken. Some may have a lasting impact, while others may only have an impact in the short or long term. These categories have been divided as:

- **Immediate term:** 0–5 years
- **Short term:** 5–10 years
- **Medium term:** 10–15 years
- **Long term:** 15+ years.

This reflects when impacts will take hold – not when action is required. Recommendations for appropriate action and their timing will be included in Infrastructure's Australia's next *Australian Infrastructure Plan* and *Infrastructure Priority List*.

These timing categories have been given specific icons, which are used throughout the document, in order to assist readers to identify relevant challenges and opportunities.

## We have relied on existing evidence where possible

A national picture of our infrastructure can never be comprehensive or complete.

- There is no single source of data on the current and future performance of our infrastructure networks and assets. Instead responsibility for generating and updating data is fragmented across a huge range of public and private sector institutions, who are each focused on a sub-section of infrastructure, and who each adopt different methodologies.
- There are clear gaps in the data that is available. Some parts of the country – particularly regional and remote areas – are not covered with great detail or clarity by existing datasets.
- Other forms of data need to be updated with more current information, and new or updated information becomes available every day, reflecting continuous changes in how services are being delivered and monitored.

Given these challenges, Infrastructure Australia has not sought to create a new single evidence base to support the analysis of the Audit. Instead we have drawn data from the tremendous knowledge and expertise among the agencies and Australians who plan, build, operate and maintain our assets and networks.

Where clear and reliable evidence exists, our aim has been to build on this work, rather than compete with it. While there are gaps in information in some sectors such as urban water, in other sectors such as energy, several agencies provide extensive data. In these cases, the role of the Audit is to draw out information in a way that reflects user experiences and identifies where there is a need for further attention.

We have commissioned a range of supporting papers to supplement the Audit evidence base. These are published on our website. These include:

- **Community perceptions of infrastructure:** Results from a survey of 5,000 Australians, which measured their views of infrastructure access, quality and cost and whether they have seen improvements or are likely to see improvements in these services. This survey also explored a range of topics related to infrastructure, including community views on population growth in their area, community consultation and planning processes.

- **Costs and affordability:** Measurement of infrastructure costs across all sectors, tracked over time, and expressed as a proportion of average household incomes across Australia.
- **Transport modelling:** Results from transport modelling for 2016 and projected to 2031 across road and public transport networks, with measures of access including to jobs and to social services for Australia’s six largest urban regions (conurbations): Sydney, the Hunter and the Illawarra, Melbourne and Geelong, Brisbane, the Gold Coast and Sunshine Coast, Greater Adelaide, Canberra and Queanbeyan, and Greater Perth.
- **Urban transport congestion and crowding:** Drawing from the transport modelling analysis, as well as other sources of evidence, Infrastructure Australia has developed a report that presents a national picture of urban transport networks, drawing out specific points of congestion and strain that will likely need to be addressed through investment or reform.
- **Community services obligations:** A national summary of subsidised funding arrangements for infrastructure across transport, energy, telecommunications and water infrastructure. This measures the value of these community service obligations, as well as their purpose and transparency.

Infrastructure has developed new tools to enable the visualisation of the data we have used to inform the Audit. This data includes online mapping, using the National Map, and an online dashboard and chart builder, all available at our website. These new tools showcase the evidence presented in this Audit, as well as a number of other pieces of research developed by and for Infrastructure Australia.

It is important to acknowledge that there are gaps in the data presented in this Audit. Our intention is to help plug these gaps over time, and to ensure the Audit reflects the full experience of infrastructure users across the country, and speaks in terms that matter to them. Over time, we hope the map and dashboard will be further developed to reflect a deepening, updated evidence base that will provide a point of reference for those in infrastructure sectors and the broader community.

## 1.5 How this Audit should be used

The *Australian Infrastructure Audit* should be used by a range of stakeholders to support long-term planning, inform better decision making and encourage robust engagement with the future of Australia’s infrastructure.

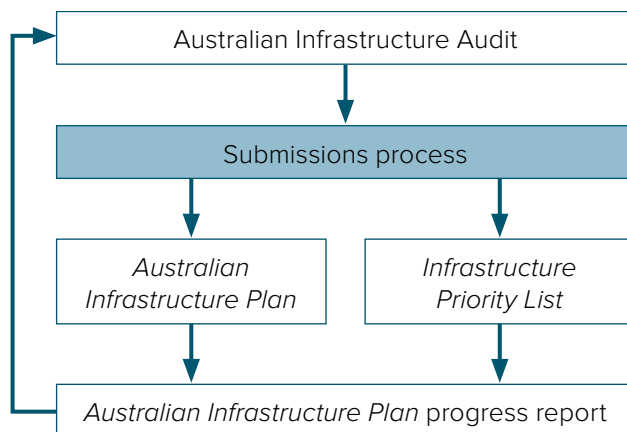
The document provides decision makers in government and industry with a serious evidence base of the challenges and opportunities facing our infrastructure. It should be used to inform their investment and reform decisions, and in turn deliver better outcomes for all Australians.

This Audit gives guidance to the community on the key issues likely to impact the quality, accessibility and cost of the infrastructure they use in their day-to-day lives. As such, it provides Australians with a new tool to understand the trends that are shaping our nation, and engage with government and industry to drive the infrastructure outcomes that best supports their vision for the future.

Importantly this Audit will also underpin Infrastructure Australia’s advice to governments, industry and the community over coming years. This Audit is the starting point for a refresh of Infrastructure Australia’s strategic planning framework (Figure 1), which will:

- Set out the ambition for Australia’s infrastructure over the next 15 years and beyond
- Identify a package of investment and reform actions
- Set a series of priorities against which our progress is tracked and reported on
- Be an input to the development of the *Infrastructure Priority List* and the assessment of the strategic case for project business cases.

**Figure 1:** The 2019 Audit builds on the work from 2015, but also takes a different approach





The next *Australian Infrastructure Plan* will consider each challenge and opportunity identified in this Audit that requires action via policy reform. The document will outline our recommendations for reform and where practical set clear targets against which we can measure progress. The *Infrastructure Priority List* will respond to challenges and opportunities that require action via infrastructure investment.

The process does not end there. Once the reform and investment priorities are set, Infrastructure Australia will track and publically report on progress through the *Australian Infrastructure Plan* progress report. A new report building on the objectives of Infrastructure Australia's *Prioritising Reform* report, the *Australian Infrastructure Plan* progress report will track Australia's progress against meeting the reform targets set by the Plan and progressing the potential investments highlighted in the *Infrastructure Priority List*.

## 1.6 How to read this Audit

The following chapters of the Audit are divided into four sections:

1. **Future Trends:** 2. *Future Trends* identifies the future national and global trends impacting Australia, and our infrastructure, over the next 15 years and beyond.
2. **Cross-sectoral chapters:** 3. *Infrastructure services for users*, and 4. *Industry efficiency, capacity and capability*, bring together the challenges and opportunities that are common across all sectors.
3. **Sector-based chapters:** 5. *Transport*, 6. *Social Infrastructure*, 7. *Energy*, 8. *Telecommunications*, and 9. *Water*, individually identify the challenges and opportunities relevant to each infrastructure type.

4. **Next steps:** 10. *Next Steps* provides information on how to provide feedback on the Audit and contribute the development of the forthcoming *Australian Infrastructure Plan* and the *Infrastructure Priority List*.

The content within each chapter has been structured around key issues. This means that each issue is explored in depth with a series of corresponding challenges and opportunities identified. The identification of major issues allows the consideration of the causes of challenges and opportunities, as well as their impacts on users and communities. Each issue begins with an 'At a glance' box to provide the reader with a quick snapshot of the key messages covered in the forthcoming section.

The challenges and opportunities are interspersed within each theme and listed at the end of each relevant chapter. Each challenge and opportunity includes the following elements:

- A description of the challenge or opportunity which has been written to give the reader a clear sense of what we've found and the implications in terms of the access, quality and cost of our infrastructure for users.
- An icon which denotes whether the findings applies to the geography of fast-growing cities, smaller cities and regional centres, or small towns, remote communities and areas.
- A time scale which shows when the challenge or opportunity will impact infrastructure services and users if no action is taken.

## References

1. Office of the Chief Economist 2018, *Industry Insights: Globalising Australia*, Australian Government, Canberra, p 4, available via: <https://publications.industry.gov.au/publications/industryinsightsjune2018/globalising-australia.html>.
2. Australian Public Service Commission 2007, *Tackling wicked problems: A public policy perspective*, Australian Government, Canberra, available via: [www.apsc.gov.au/tackling-wicked-problems-public-policy-perspective](http://www.apsc.gov.au/tackling-wicked-problems-public-policy-perspective).
3. NZ Treasury 2015, *Thirty Year New Zealand Infrastructure Plan 2015*, New Zealand Government, Wellington, available at: <https://treasury.govt.nz/publications/infrastructure-plan/thirty-year-new-zealand-infrastructure-plan-2015>.
4. National Infrastructure Commission 2018, *National Infrastructure Assessment 2018*, United Kingdom Government, London, available at: <https://www.nic.org.uk/publications/national-infrastructure-assessment-2018/>.
5. Department of Public Expenditure and Reform 2018, *Project 2040 National Development Plan 2018 – 2027*, Government of Ireland, Dublin, available at: <https://www.gov.ie/en/campaigns/09022006-project-ireland-2040/>.
6. Australian Bureau of Statistics 2019, *Engineering Construction Activity, Australia*, 'Table 38. Value of Work Done for the Public Sector, by Sector, States and Territories, Original', cat. no. 8762.0, Australian Bureau of Statistics, Canberra, available via: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8762.0Dec%202018?OpenDocument>.
7. Deloitte Access Economics 2019, *Investment Monitor March 2019*, Deloitte, Sydney, p 24, available via: [www2.deloitte.com/au/en/pages/media-releases/articles/investment-monitor.html](http://www2.deloitte.com/au/en/pages/media-releases/articles/investment-monitor.html).
8. Department of Infrastructure, Regional Development and Cities 2018, *Response to Infrastructure Australia's Australian Infrastructure Plan*, Australian Government, Canberra, available at: [https://infrastructure.gov.au/infrastructure/publications/index.aspx#anc\\_response-aip](https://infrastructure.gov.au/infrastructure/publications/index.aspx#anc_response-aip).
9. Australian Competition & Consumer Commission 2018, *Restoring electricity affordability and Australia's competitive advantage*, Australian Government, Canberra, p v, available at: <https://www.accc.gov.au/publications/restoring-electricity-affordability-australias-competitive-advantage>.
10. nbn 2019, *NBN Co weekly progress report*, nbn, 21 February 2019, <https://www.nbnco.com.au/corporate-information/about-nbn-co/corporate-plan/weekly-progress-report>.
11. nbn 2019, *NBN Co weekly progress report*, nbn, 21 February 2019, <https://www.nbnco.com.au/corporate-information/about-nbn-co/corporate-plan/weekly-progress-report>.
12. Department of Industry, Innovation and Science 2015, *Our north, our future: White paper on developing northern Australia*, Australian Government, Canberra, available at: <https://www.industry.gov.au/data-and-publications/our-north-our-future-white-paper-on-developing-northern-australia>.
13. Infrastructure Australia 2015, *Northern Australia Infrastructure Audit: Infrastructure for a Developing North*, Australian Government, Sydney, available at: <https://infrastructureaustralia.gov.au/policy-publications/publications/Northern-Australia-Infrastructure-Audit.aspx>.
14. CSIRO 2017, *Strategic foresight for regional Australia: Megatrends, scenarios and implications*, Australian Government, Canberra, p 70, available at: <https://www.csiro.au/en/Research/LWF/Areas/Social-economic/adaptive-social-economic-systems/Regional-foresight>.
15. Centre for Public Impact 2017, *Looking long term: how governments can use strategic foresight*, Boston Consulting Group, 20 April 2019, available via: [www.centreforpublicimpact.org/governments-can-use-strategic-foresight/](http://www.centreforpublicimpact.org/governments-can-use-strategic-foresight/).
16. Australian Bureau of Statistics 2018, *Regional Population Growth, Australia, 2016-17*, cat. no. 3218.0, Australian Bureau of Statistics, Canberra, available via: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3218.0Main+Features12016-17?OpenDocument>.

