

Infrastructure Priority List

Project and Initiative Summaries



A prioritised
list of nationally
significant
infrastructure
needs

Infrastructure Australia is an independent statutory body that is the key source of research and advice for governments, industry and the community on nationally significant infrastructure needs.

It leads reform on key issues including means of financing, delivering and operating infrastructure and how to better plan and utilise infrastructure networks.

Infrastructure Australia has responsibility to strategically audit Australia's nationally significant infrastructure, and develop 15-year rolling infrastructure plans that specify national and state level priorities.

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Cover image

Solar Farm, Onkaparinga, South Australia



Acknowledgement of Country

Infrastructure Australia acknowledges the Traditional Custodians of Australia, and pays respect to their Elders past, present and emerging. We pay respect to their continuing connection to land, and the continuation of their cultural, spiritual and educational practices.

In preparing for the future of our infrastructure, we acknowledge the importance of looking beyond the immediate past to learn from Aboriginal and Torres Strait Islander people's unique history of land management and settlement, art, culture and society that began over 65,000 years ago.

Note on the artwork

The artwork *Moving Along Pathways* was created by Kamilaroi/Gamilaraay artist Dennis Golding, specifically for Infrastructure Australia's first Reconciliation Action Plan. The artwork depicts examples of Australia's first infrastructure.

Pathways and river systems are prominent in the artwork and reference the pathways First Nations peoples formed on land and water for transport and communication of knowledge and stories. Images of waterholes, campsites and boomerangs within the artwork acknowledge First Nations cultural practices, technology and places for gathering that continue to be operated today.

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Chair's Foreword

Infrastructure Australia's 2021 *Infrastructure Priority List* is a comprehensive investment roadmap to support Australia's recovery from the COVID-19 pandemic.

This year's Priority List features 44 new infrastructure proposals for our cities, regions and remote communities. It provides a \$59 billion pipeline of investments ready for delivery and nationally significant priorities for Australia's governments to progress in the near, medium and longer term.

This year's edition considered infrastructure proposals that respond to the many challenges Australia has been facing, including the recent and ongoing drought, the 2019–2020 bushfires and the COVID-19 pandemic. As part of the national recovery effort, Infrastructure Australia has taken a leading role in efforts to streamline and harmonise assessment processes for infrastructure investments. We aim to act as a collaborative partner in this, working closely with Australia's governments, infrastructure delivery agencies and other infrastructure bodies to support the efficient and timely delivery of infrastructure projects.

The Priority List highlights opportunities to **drive economic development in regional communities**. It puts a strong focus on regional infrastructure service

quality, including improving digital connectivity and internet quality in regional areas and investment to support digital health services in regional and remote Australia as immediate investment priorities.

We have also highlighted opportunities to develop **gateways to support our international competitiveness**, a priority for Australia as we recover from the economic impacts of the pandemic. New investment opportunities include:

- Western Sydney Freight Line and Intermodal Terminal (NSW)
- Rail access to Webb Dock (Vic)
- Australian Marine Complex infrastructure capacity (WA)
- Port of Burnie capacity (Tas)
- Hobart Port precinct capacity improvements (Tas)
- Common user infrastructure at the Middle Arm Precinct (NT).

Investing in **new sources of energy** is a priority for the nation. Recognising this opportunity, the Priority List features new energy proposals, including:

- expanding the role for renewable energy in the National Electricity Market
- delivering enabling infrastructure for hydrogen exports
- investing in dispatchable energy sources to ensure the reliability and security of our energy networks
- identifying a program of works to provide renewable energy or hybrid generation and new storage solutions to remote communities in the Northern Territory.

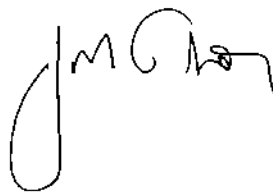
We are pleased to see progress towards **improving water security** across Australia, but there is still more to do. With nationally significant challenges around strategic planning for water capture, use and management, the Priority List continues to highlight the need for urgent investment to improve water security. This includes investment to:

- support water supply and resilience for Perth (WA)
- deliver integrated land use and water cycle management in South Creek (NSW) and more broadly for Greater Sydney water security (NSW)
- secure and utilise productive water, as recognised in new initiatives for Bowen Basin productive water supply (Qld), South East Melbourne recycled water supply infrastructure upgrades (Vic) and Barossa Valley Region water supply (SA).

We are pleased to include a significant number of new proposals for South Australia and the Northern Territory this year. This reflects our ongoing commitment to working with infrastructure delivery agencies across the country to support quality proposal and business case development.

We are committed to providing timely, transparent and evidence-based investment advice for governments at all levels. We are continually working to improve the Infrastructure Australia Assessment Framework and our business case evaluation process to support robust decision-making and ensure high-quality projects are progressed efficiently.

I thank all of you who have contributed to this edition of the *Infrastructure Priority List*. Developing the Priority List is a collaborative effort. We rely on your expertise and support to develop this robust pipeline of infrastructure investments that can benefit all Australian communities and support our national prosperity.



Julieanne Alroe
Chair, Infrastructure Australia



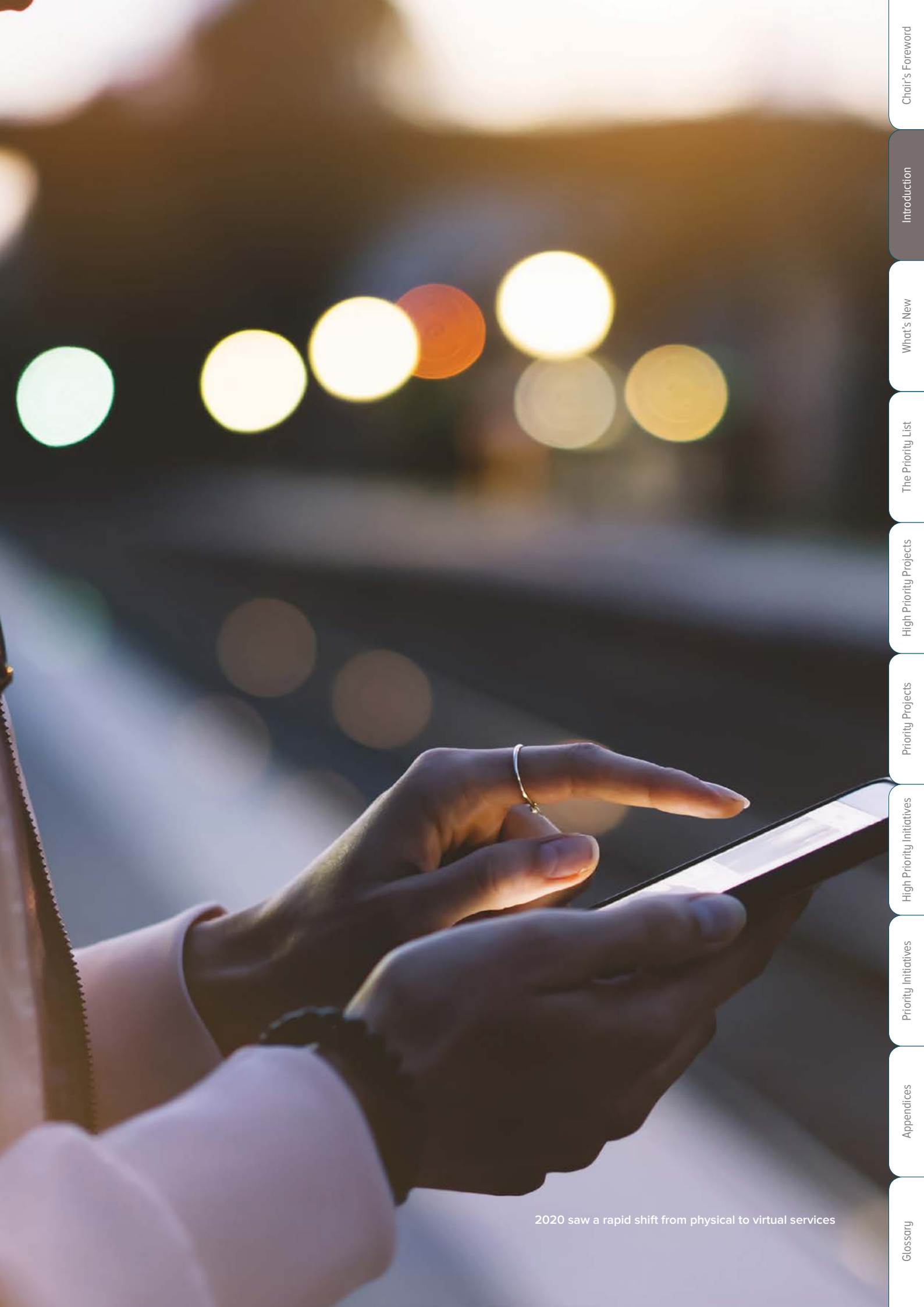
Cranes in industrial site

Introduction

The *Infrastructure Priority List* provides a credible pipeline of nationally significant proposals for governments at all levels to choose from. It provides evidence-based advice to help decision makers identify Australia's spending priorities and deliver the infrastructure most needed by Australian communities.

Maintaining the Priority List is one of our primary responsibilities as the nation's independent infrastructure advisor. It directs Australia's governments to the projects and initiatives that will deliver world-class infrastructure services to all Australians across the energy, telecommunications, water, waste, social and transport sectors.

The Priority List is informed by our own independent research, as well as extensive collaboration with government, industry and the community. It is an essential reference point for Australia's governments to guide infrastructure decision-making, and support industry confidence and forward planning.



2020 saw a rapid shift from physical to virtual services

How we developed the February 2021 Infrastructure Priority List

The *Infrastructure Priority List* is a collaborative document. It is developed using our independent research, including data from the 2019 **Australian Infrastructure Audit** and more recent research, and submissions from state and territory governments, industry and the community. This year's Priority List drew on 124 new submissions received since the last edition's release in August 2020.

The 2019 *Australian Infrastructure Audit* is a strategic audit of Australia's infrastructure networks, conducted every five years. The Audit looks at the major challenges and opportunities facing Australia's infrastructure over the next 15 years and beyond, across transport, energy, water, telecommunications and social infrastructure. The data and findings of the Audit provide an evidence base for assessing the nation's infrastructure priorities.

This edition of the Priority List was developed at the end of 2020 and highlights investments to support Australia's infrastructure-led economic recovery from the COVID-19 pandemic. The pandemic has driven sweeping changes in the way Australians use critical infrastructure.

In developing the Priority List, we drew on research we commissioned into how the pandemic changed the way we use infrastructure. We also drew on our independent research for the 2021 **Australian Infrastructure Plan**, which will make recommendations for reform needed over the next 15 years.

The Priority List is informed by our collaborative work with government and industry to support the recovery effort, including our collaboration with the infrastructure bodies network to develop the **Common principles of infrastructure recovery**.

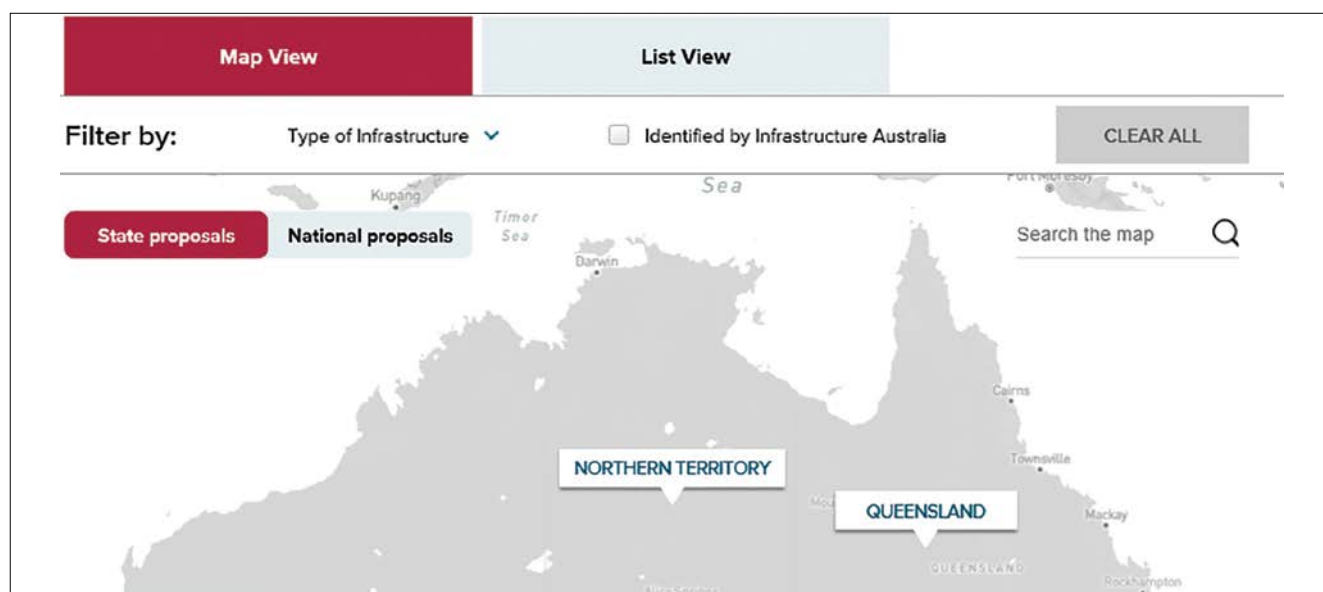
Our assessment of proposals for inclusion on the Priority List is guided by our publicly available **Assessment Framework**. This detailed framework guides us, and those submitting to us, on how to identify nationally significant problems and opportunities, and how to consider strategic merit, value for taxpayers and deliverability.

Through this transparent process, we identify infrastructure needs and guide governments towards infrastructure investments that will deliver the best value for communities.

Keeping the Priority List up to date

Infrastructure Australia accepts submissions to the *Infrastructure Priority List* at any time. While this publication provides a detailed summary of the Priority List as at February 2021, we will continue to update the list throughout the year.

New projects are added to the Priority List as the Infrastructure Australia Board receives and considers project business cases. The Priority List is also reviewed and updated as proposals for nationally significant initiatives move through stages of development and delivery. This makes the Priority List a live document that evolves over time to meet emerging challenges and opportunities.



Interactive *Infrastructure Priority List* on the Infrastructure Australia website

The Priority List is available as an **interactive map** on the Infrastructure Australia website. The online map sets out a detailed view of infrastructure problems and opportunities identified around the country:

www.infrastructureaustralia.gov.au

The map provides the most up-to-date view of the nationally significant investments Australia needs to meet its infrastructure challenges, and is continually updated alongside the Priority List.

You can use the interactive map to search the Priority List based on your interests and to find proposals based on the state, territory or region where they would be delivered, the type of infrastructure they represent, and whether they were identified independently by Infrastructure Australia.

How we assess infrastructure proposals

We receive infrastructure proposals from proponents across the country and evaluate them against a rigorous evaluation framework, which is outlined in our publicly available Assessment Framework.

Routinely updated to ensure it remains current and user-friendly, the Assessment Framework aims to stimulate and support high-quality proposal development. It sets out our methodology for assessing proposals and explains the structured stages we expect proponents to work through to identify problems, analyse options and develop a business case. It provides guidance on how to prepare submissions for our evaluation and what evidence we need to see.

The Assessment Framework requires project proponents to show they have:

1. clearly identified the problem they are seeking to solve or the opportunity they are seeking to realise
2. undertaken detailed options analysis to consider a full range of innovative, deliverable solutions and developed shortlisted options through a structured process
3. prepared a robust business case that adequately justifies the strategic merit of the proposal, calculates all appropriate costs and benefits for each shortlisted option, and demonstrates how each option will be delivered.

This transparent process ensures confidence that every investment listed on the Priority List has clearly demonstrated its significance to the nation.

We update the Assessment Framework regularly to ensure it is practical to use and proponents have the clearest guidance possible to develop high-quality proposals. The next update to the Assessment Framework is due for release in 2021.

What makes a proposal nationally significant?

The *Infrastructure Australia Act 2008* (Cth) defines nationally significant infrastructure as infrastructure 'in which investment or further investment will materially improve national productivity'.

An infrastructure investment is nationally significant if, based on the evidence presented, the Infrastructure Australia Board expects the investment to have a material impact on national output by:

1. addressing a problem that would otherwise impose economic, social and/or environmental costs; or
2. providing an opportunity for realising economic, social and/or environmental benefits; or
3. both addressing a problem and providing an opportunity.

As a guide, for the purposes of assessing submissions to the Priority List, we apply a threshold value of \$30 million per annum (nominal, undiscounted) in measuring material net benefit, taking potential unquantified quality-of-life considerations into account.

We expect submissions to quantify the potential impacts of their proposal, supported with evidence. However, we recognise that some types of social and environmental impacts may not be readily quantifiable.

Proposals are considered against three criteria:

1. **Strategic fit** (how it aligns with government strategies and policies).
2. **Social, economic and environmental value** (what is the scale of the problem and what benefits does the proposal offer).
3. **Deliverability** (is the procurement and delivery approach sound).

How to read the Priority List

Proposals on the *Infrastructure Priority List* are divided into two broad groups:

- **Projects** are advanced proposals that have a full business case, which Infrastructure Australia has assessed as capable of addressing a nationally significant problem or opportunity and delivering robust economic, social or environmental outcomes. Projects remain on the Priority List until delivery or construction begins.
- **Initiatives** are proposals assessed and endorsed by the Infrastructure Australia Board that address a nationally significant problem, but need further development into a full business case. Infrastructure Australia includes Initiatives on the Priority List to indicate that further development and rigorous assessment of these proposals is a national priority.

These proposals are again divided into two categories, **High Priority** and **Priority**, to indicate the comparative significance of the problems or opportunities they address. We use these categories to direct decision maker’s attention to the most critical issues, while also offering a comprehensive view of all problems and opportunities of national significance.

By including initiatives alongside more advanced projects, and highlighting the most critical issues, we encourage decision makers to take proactive steps to develop solutions to future problems and opportunities, to think strategically about coordinated solutions, and preserve infrastructure corridors.

Some initiatives are more progressed than others. A **Stage 1 Initiative** identifies a problem or opportunity, while a **Stage 2 Initiative** identifies a shortlist of options to respond to that problem or opportunity.

For each proposal, we have also identified which geographic region will be impacted. The different categories of geography are detailed in **Table 1**.

The Priority List also includes information about timeframes for each proposal. For projects, the timeframe indicates the proponent’s estimation of when the project is likely to be delivered and operational. For initiatives, the timeframe refers to when the impacts of the problem or opportunity are likely to become nationally significant.

These timeframes are defined as:

- near term (0–5 years)
- medium term (5–10 years)
- longer term (10–15 years).

This publication includes a **one-page summary for each Project and Initiative**. The summaries for projects include details of when the business case was evaluated by Infrastructure Australia, as well as funding commitments, if they have been published. Initiative summaries include the date the initiative was first added to the list, so readers can track how initiatives have evolved over time.

Table 1: Geography categories used in the *Infrastructure Priority List*

	Fast-growing cities: Sydney, Melbourne, Brisbane and Perth.
	Smaller cities and regional centres: Smaller capital cities, satellite cities and regional centres home to more than 10,000 people.
	Small towns, rural communities and remote areas: Small towns with populations of fewer than 10,000 people and more than 200 people, regional communities with fewer than 200 people, and all remote areas outside of recognised settlements, including connecting infrastructure.
	Developing regions and northern Australia: Developing regions with strong growth prospects and where industry composition is changing, and northern Australia, including a mix of regions across the Northern Territory, and the northern parts of Queensland and Western Australia.

In the **What's new** section (page 12) we identify which projects and initiatives have been added or updated since the August 2020 update.

Projects that were previously included on the Priority List, but now have major work contracts signed and are being delivered, are listed in **Appendix A**.

A full **Glossary** of terms used in this publication is available at page 236.

Information about funding

The funding commitments quoted in project summaries are based on information provided to us by proponents. For some projects, committed funding exceeds the estimated capital cost. This is usually because the cost estimate was revised after the funding commitment was made. Not all projects with funding commitments are fully funded. Funding commitments are a matter for project proponents and governments.

How we drive better infrastructure decision-making

The *Infrastructure Priority List* is just one of the tools we use to strengthen the quality of infrastructure business cases across the country. To assure the quality of the Priority List, and in our broader role supporting best practice in the sector, we collaborate with proponents, government officials and their advisors to improve the quality of business case development and infrastructure service delivery nation-wide.

Since 2017, we have run a national series of workshops on business case development, which have been attended by more than 650 stakeholders. These workshops bring infrastructure professionals together to share tips and tools for developing infrastructure business cases, raising the standard of future infrastructure investments.

In these workshops we discuss best practice approaches for assessing nationally significant problems and opportunities, and how to identify optimum solutions that will deliver the desired outcomes, grounded in rigorous cost–benefit analysis. We provide similar support and guidance during our evaluation process.

Additionally, we developed the **Infrastructure Decision Making Principles** to provide a clear set of guidelines intended to drive greater transparency and accountability in infrastructure decision-making. These principles establish a benchmark for high-quality infrastructure decision-making and are embedded in the Assessment Framework, which guides our assessment of proposals for the Priority List.

The Principles recommend that project proponents identify potential infrastructure needs in response to quantified infrastructure problems, and invest in development studies to scope potential courses of action and associated risks. Proponents should consider a full range of options, particularly those that make better use of existing infrastructure, or pursue reform of regulatory and pricing settings.

Another principle is that project proponents should assess the viability of a range of funding options and look to minimise the call on public funds. Proponents should determine a fair funding split between taxpayers, users and other beneficiaries.

The Principles also highlight the importance of post-completion reviews in assessing a project's delivery against the expectations in the business case. Proponents should report on whether the strategic and economic case for a project has been realised over time, assess whether the project was delivered on time and on budget, and whether unforeseen risks emerged and were successfully managed. These reviews, often overlooked, provide important lessons for governments, industry and the community regarding what worked and what did not.

We will continue to work collaboratively with proponents to improve the quality of infrastructure business cases across the country and to develop best practice in the industry.

For more information on Infrastructure Australia's *Infrastructure Decision-making Principles*, visit www.infrastructureaustralia.gov.au

What's new

This section lists all new projects and initiatives featured in this edition. It also lists proposals that have been updated with new information since August 2020.

Some initiatives, for example, have been taken up by a new proponent or progressed to a new stage. Three proposals have progressed from initiatives to project proposals, now that they are supported by a full business case.

These additions and updates ensure that the *Infrastructure Priority List* remains an invaluable source of up-to-date guidance for Australia's governments on

the priority investments Australia needs over the next 15 years.

We were happy to see 10 projects graduate off the list this year and enter construction, together with a number of initiatives. Projects removed from the Priority List because they have commenced construction are listed in **Appendix A** (see page 230).

New proposals added to the Priority List since August 2020

Priority Projects (5)

Project name	Problem/opportunity description	Page
New South Wales		
Parkes Bypass	Connectivity between Melbourne and Brisbane	51
Prospect Highway Upgrade Reservoir Road to St Martins Crescent	Western Sydney road network capacity	53
Western Australia		
Armadale Road Bridge	Perth road network capacity	58
Bunbury Outer Ring Road	Western Australia regional freight network capacity	62
Australian Capital Territory		
Commonwealth Avenue Bridge Upgrade	Renewal of transport infrastructure in Canberra	66

High Priority Initiatives (13)

Initiative name	Problem/opportunity description	Page
National		
Enabling digital health services for regional and remote Australia	Social and telecommunications infrastructure to deliver digital health in regional areas	73
National Electricity Market Dispatchable energy storage for firming capacity	Firming generation for energy network security	75
National Electricity Market Renewable Energy Zone expansions	Increasing renewable energy generation	76

Initiative name	Problem/opportunity description	Page
Regional telecommunications transmission capacity	Telecommunications speed and reliability in regional areas	84
New South Wales		
Digital infrastructure to enable smart technologies in the Western Parkland City	Digital and smart infrastructure	92
Greater Sydney water security	Water supply and resilience for Greater Sydney	99
New South Wales social housing program	Social housing conditions in NSW	93
Parramatta Outer Ring Road capacity	Congestion on roads around Parramatta CBD	94
Western Sydney Freight Line and Intermodal Terminal	Freight connectivity in Western Sydney	98
Queensland		
South East Queensland level crossings congestion and safety	Congestion and safety on South East Queensland's urban road network	110
South Australia		
Adelaide's Outer Ring Route capacity	Congestion on roads around Adelaide CBD	117
South Australian road network maintenance	Maintenance backlog and preventative maintenance	116
Northern Territory		
Enabling infrastructure for developing the Beetaloo Sub-Basin	Supporting infrastructure for potential gas market opportunities	118

Priority Initiatives (26)

Initiative name	Problem/opportunity description	Page
National		
Enabling infrastructure for hydrogen exports	Supporting infrastructure for hydrogen exports	124
Melbourne to Adelaide freight rail improvements	Rail freight capacity constraint on the interstate rail network	126
Outback Way road access	National road connectivity and condition	129
New South Wales		
Broadmeadow precinct regeneration	Opportunity for precinct redevelopment and economic growth	152
Heathcote Road capacity and safety	Road network capacity and safety for Southern Sydney to Illawarra	145
M1 Pacific Motorway Byron Bay interchange capacity	Connectivity to Byron Bay	155
Mount Ousley Interchange capacity	Illawarra road network capacity	147
Newcastle Airport capacity expansion	Newcastle aviation capacity	156

Initiative name	Problem/opportunity description	Page
Victoria		
South East Melbourne recycled water supply infrastructure upgrades	Water supply and security in South East Melbourne	170
Rail access to Webb Dock	Rail connectivity to the Port of Melbourne	168
Queensland		
Bowen Basin productive water supply	Opportunity to develop industry and agriculture in the Bowen Basin and surrounding regions	183
Cairns Western Arterial Road capacity	Cairns road network capacity	178
Ipswich to Springfield transport capacity	Connectivity between Ipswich and Springfield	184
Western Australia		
Armadale, Midland and Fremantle rail lines capacity	Perth rail network capacity	188
Australian Marine Complex infrastructure capacity	Infrastructure constraints at manufacturing, fabrication and logistics precinct	189
Fremantle to Murdoch transport capacity	Connectivity between Fremantle and Murdoch	190
Perth level crossings congestion and safety	Congestion and safety on Perth's urban road network	194
Western Australia regional digital enhancement	Telecommunications infrastructure for regional Western Australia	200
South Australia		
Adelaide level crossings congestion and safety	Congestion and safety on Adelaide's urban road network	211
Barossa Valley Region water supply	Water security for agricultural production in the Barossa Valley	214
Northern South Australia productive water security	Water security for industry in Far North South Australia	213
Tasmania		
Hobart Port precinct capacity improvements	Port and wharf infrastructure capacity at Hobart Port	219
Port of Burnie capacity	Infrastructure capacity for large vessels at Burnie Port	220
Northern Territory		
Common user infrastructure at the Middle Arm Precinct	Infrastructure constraints at Middle Arm Precinct	227
Northern Territory large-scale solar generation	Opportunity for renewable generation of energy for domestic and export uses	228
Northern Territory remote community power generation program	Energy supply sources for remote Northern Territory communities	229

Proposals that have been updated

The following proposals have been updated since August 2020.

Priority Projects (1)

Project name	Reason/s for update	Page
South Australia		
Eyre Infrastructure Project Iron Road	Updated to reflect project development progress.	63

High Priority Initiatives (8)

Initiative name	Reason/s for update	Page
National		
Bulk water supply security	Scope refined to focus on bulk water supply, reflecting the progress of the National Water Grid Authority and research for the 2021 <i>Australian Infrastructure Plan</i> (under development). Formerly named 'National water strategy'.	70
Coastal hazards adaptation strategy	Scope broadened to include other coastal hazards. Formerly named 'Coastal inundation protection strategy'.	71
Mobile telecommunications coverage in regional and remote areas	Updated from Priority to High Priority Initiative.	74
National highway electric vehicle fast charging	Scope refined to focus on national highway network. Formerly named 'National electric vehicle fast-charging network'.	78
Town and city water security	Timeframe brought forward from 'various' to near term.	86
New South Wales		
Corridor preservation for Western Sydney Airport rail connections	Updated to reflect project development progress.	91
Victoria		
Melbourne outer northern suburbs to CBD capacity upgrade	Updated from Priority to High Priority, and timeframe brought forward from longer term to medium term following review of underlying evidence.	103
Western Australia		
Perth and south-western coast water security	Scope broadened to recognise non-potable water issues.	113

Priority Initiatives (15)

Initiative name	Reason/s for update	Page
National		
Connection between eastern gas markets and gas suppliers	Updated to reflect project development progress.	123
New South Wales		
Freight rail access to Port Kembla	Timeframe amended from near term to medium term following review of underlying evidence.	143
M6 Motorway Connection between the M1 Princes Motorway at Waterfall and the Sydney motorway network	Updated to reflect project development progress.	138
Picton Road safety and capacity	Timeframe brought forward from medium term to near term following review of underlying evidence.	148
Prospect Highway Upgrade Reservoir Road to St Martins Crescent	This Initiative has progressed to a Priority Project following review of the business case by Infrastructure Australia.	53
Sydney cruise terminal capacity	Timeframe amended from near term to medium term following review of underlying evidence.	141
Victoria		
Melbourne–Geelong rail capacity enhancement	Timeframe brought forward from longer term to medium term following review of underlying evidence.	169
Western Australia		
Armadale Road Bridge	This Initiative has progressed to a Priority Project following review of the business case by Infrastructure Australia.	58
Bunbury Outer Ring Road Bunbury Freight Access Enhancement Project	This Initiative has progressed to a Priority Project following review of the business case by Infrastructure Australia.	62
Pilbara ports capacity	Scope broadened to consider Pilbara region. Formerly named 'Port Hedland port capacity'. WA Government confirmed as proponent.	202
Western Australia agricultural supply chain improvements	Scope broadened to reflect wider opportunities. Formerly named 'Wheatbelt Secondary Freight Network improvements'. WA Government confirmed as proponent.	199
South Australia		
Adelaide public transport capacity and access	Scope broadened to reflect range of potential public transport opportunities. Formerly named 'AdeLINK tram network'.	212
South Australia High Productivity Vehicle network access	Scope broadened to consider state-wide opportunities. Formerly named 'Sturt Highway High Productivity Vehicle capacity enhancement, including Truro bypass'.	209
Tasmania		
Burnie to Hobart freight corridor improvement	Updated to reflect project development progress.	216
Northern Territory		
Darwin region water supply infrastructure upgrades	This Initiative has progressed from Stage 1 to Stage 2 initiative following review of the Stage 2 submission by Infrastructure Australia.	226



Road train in Northern Territory

The Priority List

This section contains the full list of projects and initiatives included on the 2021 *Infrastructure Priority List*.







Each proposal has been categorised according to its priority, location, timeframe, the type of issue it concerns and, for initiatives, the stage the proposal has reached. For further details on **how to read the Priority List** see page 10.

We have highlighted in the table all new projects and initiatives added since the last edition's release in August 2020.

Category key and description

	Access to Water	Improving the access and reliability of water collection, storage or distribution infrastructure for potable or non-potable purposes.
	Adaptation and Resilience	Enhancing the capacity and reliability of Australia's infrastructure networks to prepare for or regenerate after a particular shock and recover rapidly to the previous level of service or better.
	Asset Renewal	Replacing or refurbishing an existing asset to return it to its original level of service and extend its life.
	Corridor Preservation	Protection and early acquisition of land needed for future infrastructure delivery, to save on land purchase and construction costs.
	Efficient Markets	Lowering barriers-to-entry and fostering competition to make better use of resources and minimise costs for businesses and consumers.
	Efficient Urban Transport Networks	Addressing excess traffic movements on transport networks in Australia's cities and regions.
	Energy Transformation	Enabling or contributing to the transition to lower carbon-emission electricity generation and/or enabling access to reliable and cost-efficient energy.
	National Connectivity	Improving the ease of movement from one part of Australia to another, for people, goods and services.
	Remote Infrastructure	Delivery of quality services and infrastructure in remote areas of Australia to improve quality of life for residents and enhance opportunities for social and economic development.
	Regional Connectivity	Improving the ease of movement from one part of a region to another, for people, goods and services.
	Road Safety	Reducing the risk and number of crashes, injuries and deaths on Australia's roads.
	Social Infrastructure	The provision of facilities, spaces, services and networks that support the quality of life and wellbeing of our communities. This includes a variety of sectors: health and aged care; education; green and blue infrastructure (assets that incorporate natural vegetation and waterways), and recreation; arts and culture; social housing; justice and emergency services.

High Priority Projects

Project name	Problem/opportunity description	Delivery timeframe (years)	Category	Page
New South Wales				
M12 Motorway	Motorway capacity in Western Sydney	0-5		42
Sydney Metro: City & Southwest	Sydney rail network capacity	0-5		43
Western Sydney Airport	Sydney aviation capacity	5-10		44
Victoria				
M80 Ring Road upgrade	Melbourne M80 Western Ring Road congestion	0-5		45
North East Link	Connectivity between M80 and M3 in outer north-east Melbourne	5-10		46
Queensland				
Brisbane Metro	Brisbane inner-city public transport network capacity	0-5		47

Categories



Access to Water



Adaptation and Resilience



Asset Renewal



Corridor Preservation



Efficient Markets



Efficient Urban Transport Networks



Energy Transformation



National Connectivity



Remote Infrastructure



Regional Connectivity











Road Safety



Social Infrastructure

Priority Projects

Project name	Problem/opportunity description	Delivery timeframe (years)	Category	Page
National				
Inland Rail	Freight connectivity between Melbourne and Brisbane	5-10		50
New South Wales				
Parkes Bypass	Connectivity between Melbourne and Brisbane	0-5		51
Port Botany Rail Line Duplication and Cabramatta Passing Loop	Sydney freight rail network capacity	0-5		52
Prospect Highway Upgrade Reservoir Road to St Martins Crescent	Western Sydney road network capacity	0-5		53
More Trains, More Services Stage 2	Sydney rail network capacity	0-5		54
Queensland				
Gold Coast Light Rail Stage 3A	Extension of the existing Gold Coast Light Rail line from Broadbeach South to Burleigh Heads	0-5		55
Beerburrum to Nambour rail upgrade	Queensland north coast rail congestion	0-5		56
Peak Downs Highway Realignment Walkerston Bypass	Freight connectivity in north-east Queensland	0-5		57

Categories



Access to Water



Adaptation and Resilience



Asset Renewal



Corridor Preservation



Efficient Markets



Efficient Urban Transport Networks



Energy Transformation



National Connectivity



Remote Infrastructure



Regional Connectivity



Road Safety



Social Infrastructure

Priority Projects

Project name	Problem/opportunity description	Delivery timeframe (years)	Category	Page
Western Australia				
Armadale Road Bridge	Perth road network capacity	0-5		58
Bindoon Bypass	Freight connectivity between Perth and north-west Western Australia	0-5		59
METRONET High Capacity Signalling	Perth rail network capacity	0-10		60
Myalup–Wellington water project	Opportunity to develop industry and agriculture in south-west Western Australia	0-5		61
Bunbury Outer Ring Road Bunbury Freight Access Enhancement Project	Western Australia regional freight network capacity	0-5		62
South Australia				
Eyre Infrastructure Project Iron Road	Eyre Peninsula freight capacity	0-5		63
Tasmania				
University of Tasmania Hobart Science and Technology Precinct	Opportunity to stimulate economic growth and productivity in Tasmania	0-5		64
University of Tasmania Northern Transformation Program	Opportunity to stimulate economic growth and productivity in Tasmania	0-5		65
Australian Capital Territory				
Commonwealth Avenue Bridge Upgrade	Renewal of transport infrastructure in Canberra	0-5		66

Categories



Access to Water



Adaptation and Resilience



Asset Renewal



Corridor Preservation



Efficient Markets



Efficient Urban Transport Networks



Energy Transformation



National Connectivity



Remote Infrastructure



Regional Connectivity













Road Safety



Social Infrastructure

High Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
National					
Stage 1 Initiatives					
Bulk water supply security	Water supply and resilience for non-potable usage	0-5		Proponent(s) to be identified	70
Coastal hazards adaptation strategy	Sea-level rise, flooding and erosion impacts	0-15		Proponent(s) to be identified	71
Corridor preservation for East Coast High Speed Rail	Future rail connectivity between east coast capital cities	0-5		Proponent(s) to be identified	72
Enabling digital health services for regional and remote Australia	Social and telecommunications infrastructure to deliver digital health in regional areas	0-5		Proponent(s) to be identified	73
Mobile telecommunications coverage in regional and remote areas	Digital connectivity in regional areas	0-5		Proponent(s) to be identified	74
National Electricity Market Dispatchable energy storage for firming capacity	Firming generation for energy network security	0-15		Proponent(s) to be identified	75
National Electricity Market Renewable Energy Zone expansions	Increasing renewable energy generation	0-15		Proponent(s) to be identified	76
National Electricity Market Future connectivity and reliability	Connectivity of the National Electricity Market regions	5-15		Proponent(s) to be identified	77
National highway electric vehicle fast charging	Enabling infrastructure for electric vehicles	0-5		Proponent(s) to be identified	78
National road maintenance backlog	Maintenance backlog and preventative maintenance	0-5		Proponent(s) to be identified	79

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Road Safety



Social Infrastructure

High Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
National waste and recycling management	Waste management and recycling challenges	0-5		Proponent(s) to be identified	80
Network Optimisation Program Rail	National urban rail network congestion	0-5		Proponent(s) to be identified	81
Network Optimisation Program Roads	National urban road network congestion	0-5		Proponent(s) to be identified	82
Regional road network safety improvements	Safety on regional roads	0-5		Proponent(s) to be identified	83
Regional telecommunications transmission capacity	Telecommunications speed and reliability in regional areas	0-5		Proponent(s) to be identified	84
Remote housing overcrowding and quality	National remote housing conditions	0-5		Proponent(s) to be identified	85
Town and city water security	Water supply and resilience for town and city populations	0-5		Proponent(s) to be identified	86
New South Wales					
Stage 2 Initiatives					
Corridor preservation for Western Sydney Freight Line and Intermodal Terminal access	Future freight rail capacity to Eastern Creek intermodal and Sydney Main West Line	0-5		Business case development	87
Sydney Metro West Mass transit between Greater Parramatta and Sydney CBD	Connectivity between Parramatta and Sydney CBD	5-10		Business case development	88

Categories



Access to Water



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Remote Infrastructure



Regional Connectivity









Road Safety



Social Infrastructure

High Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Stage 1 Initiatives					
Corridor preservation for Outer Sydney Orbital road and rail/M9, and Castlereagh connection	Future connectivity between Western Sydney and Central Coast/Illawarra	0-5		Initiative identification and options development	89
Corridor preservation for Western Sydney Airport fuel pipeline	Future fuel connection to Western Sydney Airport	0-5		Initiative identification and options development	90
Corridor preservation for Western Sydney Airport rail connections	Future rail connections to Western Sydney Airport	0-5		Initiative identification and options development	91
Digital infrastructure to enable smart technologies in the Western Parkland City	Digital and smart infrastructure	0-5		Initiative identification and options development	92
New South Wales social housing program	Social housing conditions	0-5		Initiative identification and options development	93
Parramatta Outer Ring Road capacity	Congestion on roads around Parramatta CBD	0-5		Initiative identification and options development	94
Public transport capacity Parramatta Road and Victoria Road corridors	Congestion on Sydney's Parramatta Road and Victoria Road corridors	0-5		Initiative identification and options development	95
Regional NSW road network safety improvements	Safety on regional roads in New South Wales	0-10		Initiative identification and options development	96
Sydney rail network capacity	Sydney rail network capacity	0-5		Initiative identification and options development	97
Western Sydney Freight Line and Intermodal Terminal	Freight connectivity in Western Sydney	0-5		Initiative identification and options development	98

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High Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Greater Sydney water security	Water supply and resilience for Greater Sydney	5-10		Initiative identification and options development	99
Southern Sydney to CBD public transport enhancement	Connectivity between inner south urban growth area and Sydney CBD	5-10		Initiative identification and options development	100
Victoria					
Stage 1 Initiatives					
Corridor preservation for Melbourne Outer Metropolitan Ring Road/E6	Future connectivity between Melbourne outer south-west and outer north	0-5		Proponent(s) to be identified	101
Eastern Freeway and CityLink connection	Connectivity between Melbourne's Eastern Freeway and CityLink	0-5		Proponent(s) to be identified	102
Melbourne outer northern suburbs to CBD capacity upgrade	Melbourne outer northern suburbs access to CBD	5-15		Proponent(s) to be identified	103
Melbourne rail network capacity	Melbourne rail network capacity	5-10		Initiative identification and options development	104
Queensland					
Stage 2 Initiatives					
Ipswich Motorway Upgrade Rocklea to Darra (remaining sections)	Southern Brisbane–Ipswich road network capacity	0-5		Business case development	105
M1 Pacific Motorway capacity Eight Mile Plains to Tugun	Motorway capacity between Brisbane and the Gold Coast	0-5		Various stages	106

Categories



Access to Water



Adaptation and Resilience



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Road Safety



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High Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Stage 1 Initiatives					
Brisbane northern suburbs corridor capacity	Brisbane northern corridor capacity	0-5		Initiative identification and options development	107
Queensland National Land Transport Network maintenance	National Land Transport Network upgrade	0-5		Initiative identification and options development	108
Queensland regional road network safety improvements	Safety on regional roads	0-5		Initiative identification and options development	109
South East Queensland level crossings congestion and safety	South East Queensland urban road network congestion and safety	0-5		Initiative identification and options development	110
Port of Brisbane dedicated freight rail connection	Freight rail access to Port of Brisbane	5-10		Proponent(s) to be identified	111
Western Australia					
Stage 2 Initiatives					
Perth CBD to north corridor capacity	Perth northern corridor capacity	0-5		Various stages	112
Stage 1 Initiatives					
Perth and south-western coast water security	Water supply and resilience for Perth and south-western coast	0-5		Initiative identification and options development	113
Mitchell and Kwinana freeways upgrade	Perth road network capacity	0-10		Initiative identification and options development	114
Regional and rural WA road network safety improvements	Safety on regional and rural roads in WA	0-5		Initiative identification and options development	115

Categories



Access to Water



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High Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
South Australia					
Stage 1 Initiatives					
South Australian road network maintenance	Maintenance backlog and preventative maintenance	0-5		Initiative identification and options development	116
Adelaide's Outer Ring Route capacity	Congestion on roads around Adelaide CBD	5-10		Initiative identification and options development	117
Northern Territory					
Stage 1 Initiatives					
Enabling infrastructure for developing the Beetaloo Sub-Basin	Supporting infrastructure for potential gas market opportunities	10-15		Initiative identification and options development	118

Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
National					
Stage 2 Initiatives					
Advanced Train Management System implementation on the interstate rail network	Rail freight capacity constraint on the interstate rail network	0-5		Business case development	122
Stage 1 Initiatives					
Connection between eastern gas markets and gas suppliers	Constrained east coast gas supply	0-5		Proponent(s) to be identified	123
Enabling infrastructure for hydrogen exports	Supporting infrastructure for hydrogen	0-5		Proponent(s) to be identified	124

Categories

 Access to Water	 Adaptation and Resilience	 Asset Renewal	 Corridor Preservation
 Efficient Markets	 Efficient Urban Transport Networks	 Energy Transformation	 National Connectivity
 Remote Infrastructure	 Regional Connectivity	 Road Safety	 Social Infrastructure

Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Indigenous art and cultural facilities program	Opportunity for a national program of Indigenous art and cultural centres	0-5		Proponent(s) to be identified	125
Melbourne to Adelaide freight rail improvements	Rail freight capacity constraint on the interstate rail network	0-5		Initiative identification and options development	126
National Electricity Market Near-term optimisation	Optimisation of the National Electricity Market	0-5		Proponent(s) to be identified	127
Sydney–Canberra rail connectivity and capacity	Connectivity between Sydney and Canberra	0-5		Initiative identification and options development	128
Outback Way road access	National road connectivity and condition	5-10		Initiative identification and options development	129
East coast deep water container port capacity	Capacity for container ships on the east coast of Australia	10-15		Proponent(s) to be identified	130
New South Wales					
Stage 2 Initiatives					
A3 and A6 corridor capacity	Southern Sydney to Ryde road network capacity	0-5		Business case development	131
Active transport (walking and cycling) access to Sydney CBD	Inner city access to Sydney CBD	0-5		Business case development	132
Hawkesbury-Nepean Valley flood management	Flood mitigation in Hawkesbury-Nepean Valley	0-5		Business case development	133
Newell Highway upgrade	Connectivity between Melbourne and Brisbane	0-5		Business case development	134

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Energy Transformation



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Remote Infrastructure



Regional Connectivity



Road Safety



Social Infrastructure

Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Pacific Highway (A1) Coffs Harbour bypass	Connectivity between Sydney and Brisbane	0-5		Business case development	135
Pacific Motorway (M1) Extension to Raymond Terrace	Connectivity between Sydney and Brisbane	0-5		Business case development	136
South Creek integrated land use and water cycle management	Opportunity for integrated water cycle management benefits	0-5		Business case development	137
M6 Motorway Connection between the M1 Princes Motorway at Waterfall and the Sydney motorway network	Connectivity between Wollongong and Sydney	5-10		Business case development	138
New England Highway upgrade	Road connectivity between Sydney and Brisbane	5-10		Business case development	139
Northern Sydney Freight Corridor Stage 2 Additional track West Ryde to Rhodes and Thornleigh to Hornsby	Sydney freight rail network capacity	5-10		Business case development	140
Sydney cruise terminal capacity	Berthing capacity for cruise ships in Sydney	5-10		Business case development	141
Western Harbour Tunnel and Beaches Link	Sydney road network cross-harbour and Northern Beaches connectivity	5-10		Business case development	142
Stage 1 Initiatives					
Freight rail access to Port Kembla	Freight rail access to Port Kembla	5-10		Initiative identification and options development	143

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Great Western Highway improvements Katoomba to Lithgow	Road connectivity between Katoomba and Lithgow	0-5		Initiative identification and options development	144
Heathcote Road capacity and safety	Southern Sydney to Illawarra road network capacity and safety	0-5		Initiative identification and options development	145
Moorebank Intermodal Terminal road connections upgrade	Road network connectivity to Moorebank Intermodal Terminal	0-5		Initiative identification and options development	146
Mount Ousley Interchange capacity	Illawarra road network capacity	0-5		Initiative identification and options development	147
Picton Road safety and capacity	Road connectivity between Wollongong and south-west Sydney	0-10		Initiative identification and options development	148
Princes Highway safety and capacity Nowra, NSW to Victorian border	Connectivity between Nowra and Victorian border	0-5		Initiative identification and options development	149
Sydney CBD motorways optimisation	Inner Sydney road network capacity	0-5		Initiative identification and options development	150
Central Station redevelopment	Redevelopment of rail and station infrastructure at Central Station	5-10		Initiative identification and options development	151
Broadmeadow precinct regeneration	Opportunity for precinct redevelopment and economic growth	5-10		Initiative identification and options development	152
Western Sydney Airport public transport connections	Access to Western Sydney Airport	5-10		Initiative identification and options development	153

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
John Hunter Health and Innovation Precinct capacity	Capacity constraints and opportunity for new services	10-15		Initiative identification and options development	154
M1 Pacific Motorway Byron Bay interchange capacity	Connectivity to Byron Bay	10-15		Initiative identification and options development	155
Newcastle Airport capacity expansion	Newcastle aviation capacity	10-15		Initiative identification and options development	156
Newcastle–Sydney and Wollongong–Sydney rail line upgrades	Connectivity between Newcastle, Wollongong and Sydney CBD	10-15		Initiative identification and options development	157
Victoria					
Stage 2 Initiatives					
Melbourne Airport third runway	Melbourne aviation capacity	0-5		Business case development	158
Melbourne level crossings removal	Melbourne urban road network congestion	0-5		Various stages	159
Hurstbridge Line capacity	Melbourne rail network capacity	5-10		Business case development	160
Stage 1 Initiatives					
Cycling access to Melbourne CBD	Cycling access to Melbourne CBD	0-5		Initiative identification and options development	161
Frankston public transport connectivity	Public transport connectivity to Frankston	0-5		Initiative identification and options development	162

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Melbourne container terminal capacity and land transport access	Melbourne container terminal capacity	0-15		Initiative identification and options development	163
Cranbourne Line capacity	Melbourne rail network capacity	5-10		Initiative identification and options development	164
Melbourne Airport to the CBD public transport capacity	Public transport access to Melbourne Airport	5-10		Initiative identification and options development	165
Melton Rail Line upgrade	Melbourne rail network capacity	5-10		Initiative identification and options development	166
Public transport access to Fishermans Bend	Connectivity between Fishermans Bend growth area and Melbourne CBD	5-10		Initiative identification and options development	167
Rail access to Webb Dock	Rail connectivity to the Port of Melbourne	5-10		Initiative identification and options development	168
Melbourne–Geelong rail capacity enhancement	Melbourne–Geelong rail capacity	5-15		Initiative identification and options development	169
South East Melbourne recycled water supply infrastructure upgrades	Water supply and security in South East Melbourne	10-15		Initiative identification and options development	170
Queensland					
Stage 2 Initiatives					
Brisbane to Gold Coast transport corridor upgrades	Brisbane to Gold Coast transport capacity	0-5		Various stages	171

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Bruce Highway upgrade	Queensland coastal cities connectivity	0-10		Various stages	172
Cunningham Highway Yamanto Interchange to Ebenezer Creek	Cunningham Highway–Yamanto to Ebenezer/Amberley congestion	0-5		Business case development	173
Corridor preservation for Salisbury to Beaudesert rail connection	Future urban rail connection between Salisbury and Beaudesert	0-5		Business case development	174
Mount Isa–Townsville rail corridor upgrade	Mount Isa to Townsville rail capacity	5-10		Business case development	175
Stage 1 Initiatives					
Browns Plains to Beaudesert road capacity and safety	Brisbane road network capacity	0-5		Initiative identification and options development	176
Browns Plains to South East Busway public transport connectivity	Brisbane public transport capacity	0-5		Initiative identification and options development	177
Cairns Western Arterial Road capacity	Cairns road network capacity	0-5		Initiative identification and options development	178
Centenary Motorway capacity	Southern Brisbane to CBD road network capacity	0-5		Initiative identification and options development	179
Gold Coast rail line and station improvements Kuraby to Beenleigh	Brisbane to Gold Coast rail network capacity	0-5		Initiative identification and options development	180
Mooloolah River Interchange capacity and safety	Sunshine Coast road network capacity	0-5		Initiative identification and options development	181

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Warrego Highway east corridor improvements	Road connectivity between Brisbane and Toowoomba	0-5		Initiative identification and options development	182
Bowen Basin productive water supply	Opportunity to develop industry and agriculture in the Bowen Basin and surrounding regions	5-10		Initiative identification and options development	183
Ipswich to Springfield transport capacity	Connectivity between Ipswich and Springfield	5-10		Initiative identification and options development	184
Port of Gladstone land and sea access upgrade	Land and sea access to the Port of Gladstone	5-10		Initiative identification and options development	185
Queensland inland road network upgrade	Improvements for national, state and local roads in inland Queensland	5-10		Proponent(s) to be identified	186
Queensland inland freight route capacity and safety	Queensland freight network improvements	10-15		Initiative identification and options development	187
Western Australia					
Stage 1 Initiatives					
Armadale, Midland and Fremantle rail lines capacity	Perth rail network capacity	0-5		Initiative identification and options development	188
Australian Marine Complex infrastructure capacity	Infrastructure constraints at manufacturing, fabrication and logistics precinct	0-5		Initiative identification and options development	189
Fremantle to Murdoch transport capacity	Connectivity between Fremantle and Murdoch	0-5		Initiative identification and options development	190
Great Northern Highway improvements Broome to Kununurra	Road connectivity between Broome and Kununurra	0-5		Initiative identification and options development	191

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Land transport access between Karratha and Tom Price	Road connectivity between Karratha and Tom Price	0-5		Initiative identification and options development	192
Liquefied natural gas research facility	LNG capability and innovation	0-5		Initiative identification and options development	193
Perth level crossings congestion and safety	Perth urban road network congestion and safety	0-5		Initiative identification and options development	194
Perth south-east corridor capacity improvements	Perth transport network capacity	0-15		Initiative identification and options development	195
Road access improvements for remote WA communities	Constrained road access to remote Western Australia communities	0-5		Initiative identification and options development	196
South West Interconnected System transformation	Provision of affordable and reliable electricity services	0-5		Initiative identification and options development	197
Swan River crossing capacity	Perth road network capacity	0-5		Initiative identification and options development	198
Western Australia agricultural supply chain improvements	Western Australia freight network capacity	0-5		Initiative identification and options development	199
Western Australia regional digital enhancement	Telecommunications infrastructure for regional Western Australia	0-5		Initiative identification and options development	200
Perth Airport new runway	Perth Airport capacity	5-10		Initiative identification and options development	201

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Pilbara ports capacity	Opportunity for increased cargo imports and exports	5-10		Initiative identification and options development	202
South Coast Highway improvements Albany to Esperance	Road connectivity between Albany and Esperance	5-10		Initiative identification and options development	203
Canning Bridge crossing capacity and interchange	Perth transport network capacity	10-15		Proponent(s) to be identified	204
Perth container terminal capacity and land transport access	Perth container terminal capacity	10-15		Initiative identification and options development	205
South Australia					
Stage 2 Initiatives					
Adelaide North–South Corridor upgrade Remaining sections	Adelaide north–south urban road network capacity	0-5		Business case development	206
Strzelecki Track upgrade and mobile coverage	Access to Cooper Basin (South Australia)	0-5		Business case development	207
South Australian regional bulk port development	South Australia bulk port capacity	5-10		Business case development	208
Stage 1 Initiatives					
South Australia High Productivity Vehicle network access	South Australia road freight network capacity	0-5		Initiative identification and options development	209
Spencer Gulf crossing capacity	Road connectivity in Port Augusta	0-5		Initiative identification and options development	210

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Adelaide level crossings congestion and safety	Adelaide urban road network congestion and safety	5-10		Initiative identification and options development	211
Adelaide public transport capacity and access	Adelaide public transport capacity	5-10		Initiative identification and options development	212
Northern South Australia productive water security	Water security for industry in Far North South Australia	5-10		Initiative identification and options development	213
Barossa Valley Region water supply	Water security for agricultural production in the Barossa Valley	10-15		Initiative identification and options development	214
Gawler Craton rail access	Freight rail connection to Gawler Craton mineral province	10-15		Initiative identification and options development	215
Tasmania					
Stage 2 Initiatives					
Burnie to Hobart freight corridor improvement	Freight network planning	5-10		Business case development	216
Derwent River crossing capacity	Tasmania Derwent River crossing capacity	5-10		Business case development	217
Tasmanian irrigation schemes Tranche 3	Opportunity to develop industry and agriculture in Tasmania	5-10		Business case development	218
Stage 1 Initiatives					
Hobart Port precinct capacity improvements	Port and wharf infrastructure capacity at Hobart Port	0-5		Initiative identification and options development	219

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Port of Burnie capacity	Infrastructure capacity for large vessels at Burnie Port	0-5		Initiative identification and options development	220
Tasmanian sewerage infrastructure upgrades	Tasmanian waste-water treatment environmental compliance	0-5		Initiative identification and options development	221
Australian Capital Territory					
Stage 1 Initiatives					
Australian Institute of Sport modernisation	Sport and research social infrastructure	0-5		Initiative identification and options development	222
Canberra public transport improvements	Canberra public transport capacity	5-10		Initiative identification and options development	223
Northern Territory					
Stage 2 Initiatives					
Enabling infrastructure and essential services for remote NT communities Wadeye, Tiwi Islands, Jabiru	Infrastructure services for remote Northern Territory communities	0-5		Business case development	224
Tanami Road upgrade	Constrained access to the Tanami region	0-5		Business case development	225
Darwin region water supply infrastructure upgrades	Darwin water supply security	5-10		Business case development	226

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Priority Initiatives

Initiative name	Problem/opportunity description	Timeframe (years)	Category	Next steps	Page
Stage 1 Initiatives					
Common user infrastructure at the Middle Arm Precinct	Infrastructure constraints at the proposed Middle Arm Industrial Precinct	0-5		Initiative identification and options development	227
Northern Territory large-scale solar generation	Opportunity for renewable generation of energy for domestic and export uses	5-10		Initiative identification and options development	228
Northern Territory remote community power generation program	Energy supply sources for remote Northern Territory communities	5-10		Initiative identification and options development	229

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High Priority Projects

Summaries





Sydney metro track laying

High Priority Projects

M12 Motorway

Location

Western Sydney, NSW



Geography

Fast-growing cities

Category

Efficient urban transport networks

Indicative delivery timeframe

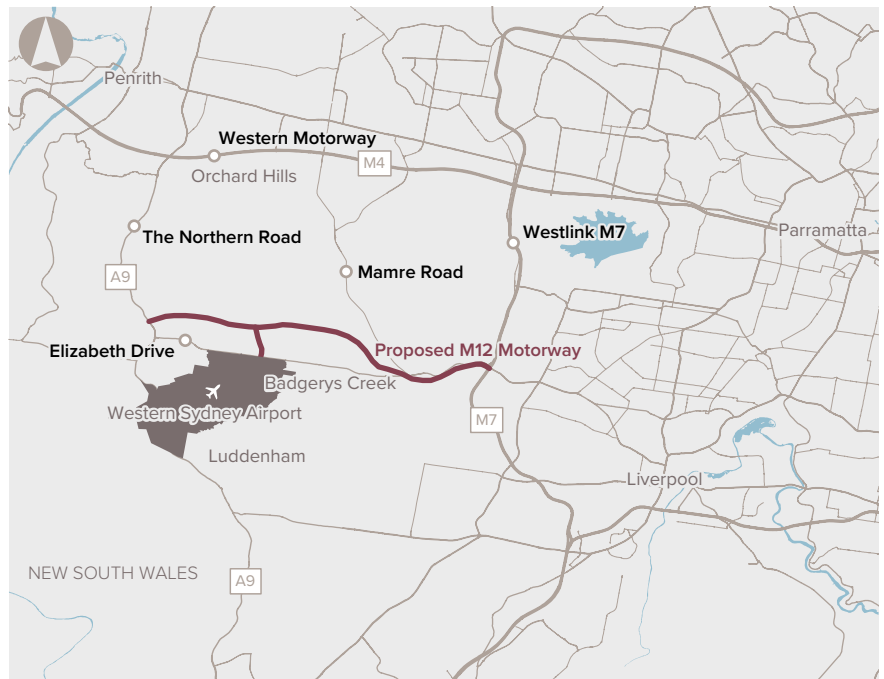
Near term (0–5 years)

Proponent

NSW Government

Evaluation date

18 June 2020



Problem to be addressed

The population in Western Sydney is anticipated to increase from 2.1 million in 2016 to 3.0 million by 2036. This growth and a number of planned developments, including the Western Sydney Airport, is expected to put significant pressure on the existing transport network, including the current main east–west route along Elizabeth Drive.

Traffic modelling undertaken by Transport for NSW indicates that the existing transport network will not be able to sufficiently and efficiently service future demand.

Additional pressure on the network is expected to increase safety risks, worsen travel outcomes and affect planning and development undertakings within the region.

Project description

The M12 Motorway will be a new 16 km dual-carriage motorway and is part of the Western Sydney Infrastructure Plan. It will connect the Westlink M7 Motorway to The Northern Road, which is a major north–south corridor and is undergoing a significant upgrade as a component of the Western Sydney Infrastructure Plan.

The motorway will have two lanes in each direction, a central median allowing future expansion to six lanes, and provide interchanges connecting The Northern Road, Western Sydney Airport and the M7 Motorway.

The project will also construct several bridges:

- across Kemps Creek, South Creek, Badgerys Creek and Cosgroves Creek
- across the M12 Motorway
- across the interchanges and other local roads.

The existing bridge across Ropes Creek and Villiers Road will also be widened.

The M12 Motorway also includes active-transport facilities and connections.

Local networks will be modified to connect across and around the motorway.

Economic, social and environmental value

Economic benefits of the project include travel-time savings and vehicle operating cost savings. Other benefits include road safety benefits, a reduction in travel-time variability.

The proponent's stated benefit–cost ratio is 1.8, with a net present value of \$1,170.7 million (7% real discount rate).

High Priority Projects

Sydney Metro: City & Southwest

Location

Northern, central and south-western Sydney, NSW



Geography

Fast-growing cities

Category

Efficient urban transport networks

Indicative delivery timeframe

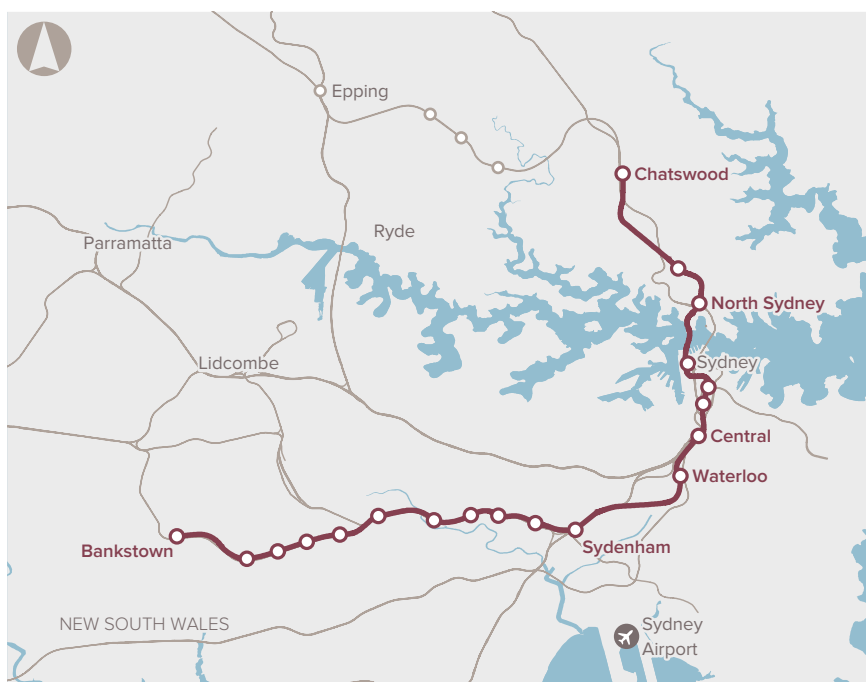
Near term (0–5 years)

Proponent

NSW Government

Evaluation date

14 June 2017



Problem to be addressed

The rail network servicing Sydney's CBD is currently near capacity at peak periods, and some key routes are expected to reach capacity in the early 2020s. By 2036, demand is expected to exceed network capacity, causing material impacts on service accessibility, dwell times, and crowding in stations and trains. This will affect the overall reliability of the rail network, particularly where it provides access to the CBD.

The cost of these transport network constraints has been estimated at \$2 billion in lost economic benefits per year between 2018 and 2048. A significant increase in transport capacity in key parts of the network, especially servicing the CBD and the corridor extending from the Airport through the CBD and north to Macquarie Park, will assist in realising employment growth and increased productivity.

Project description

This proposal is the second stage of the broader Sydney Metro project. It is a new 30 km metro line extension from the end of the Sydney Metro North West line at Chatswood, under Sydney Harbour, through new CBD stations and south-west to Bankstown. This includes new 15.5 km twin railway tunnels from Chatswood to Sydenham, and an upgrade of the existing T3 Bankstown Line to metro operations.

The project includes new underground metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, along with new underground metro platforms at Central Station. The project will increase rail capacity through the Sydney CBD, improve capacity and reliability on the rest of the rail network, and enhance resilience of the wider transport network by delivering a second harbour rail crossing.

Economic, social and environmental value

The project's major benefits will be for public transport users through travel-time savings and reliability improvements. New metro stations will improve accessibility to existing suburbs and precincts. The project will contribute to reducing rail and road congestion and enable housing and employment growth.

The proponent's stated benefit–cost ratio for conventional benefits is 1.3, with a net present value of \$2,775 million (7% real discount rate).

High Priority Projects

Western Sydney Airport

Location

Western Sydney, NSW



Geography

Fast-growing cities

Category

National connectivity

Indicative delivery timeframe

Medium term (5–10 years)

Proponent

Australian Government

Evaluation date

21 October 2016



Problem to be addressed

Sydney is Australia's primary aviation gateway, accounting for around 40% of international services, 43% of domestic services, and 45% of international air freight. The demand for flights in the Sydney region is forecast to continue to grow and exceed the capacity of Sydney (Kingsford Smith) Airport.

Airports are critical economic assets. However, Sydney's Kingsford-Smith Airport is constrained in its capacity to grow and meet demand over the next century. Constraints on Sydney's airport capacity would increase the cost of accessing Sydney, with a significant negative impact on Australia's economy and national productivity.

The 2015 *Australian Infrastructure Audit* identified the need for additional airport capacity in the Sydney Basin, and the February 2016 *Infrastructure Priority List* identified development of a Western Sydney Airport as a High Priority Initiative.

Project description

Western Sydney Airport (now Western Sydney International) will be a full-service airport catering for domestic and international passengers, as well as freight services, initially with a single 3,700 m runway capable of handling all aircraft and facilities for 10 million passengers per annum. Construction commenced in 2018 and the airport is scheduled to open in 2026.

Western Sydney International will be developed in stages as demand grows. A second runway is projected to be required around the 2050s. In the 2060s, the airport is expected to accommodate approximately 82 million passengers annually and become one of the largest gateways to Australia.

The Australian Government has committed to developing Western Sydney Airport through a Commonwealth company, Western Sydney Airport Company Limited.

This Commonwealth company will build and operate Western Sydney International. The Australian Government will act as the airport regulator and ensure the project meets all necessary design and environmental requirements, such as flight-path design and biodiversity. The Australian Government and NSW Government are planning and delivering road and rail connections to the airport.

Economic, social and environmental value

Addressing Sydney's airport capacity constraint will improve productivity and facilitate broader economic impacts such as increased trade, tourism and foreign direct investment. It will also provide wider economic benefits such as agglomeration benefits derived from improved connectivity between businesses (including the clustering of airport businesses).

The proponent's stated benefit–cost ratio is 1.9, with a net present value of \$5,441 million (7% real discount rate), not including wider economic benefits.

High Priority Projects

M80 Ring Road upgrade

Location
Melbourne, Vic

Geography
Fast-growing cities

Category
Efficient urban transport networks

Indicative delivery timeframe
Near term (0–5 years)

Proponent
Victorian Government

Evaluation date
7 September 2016



Problem to be addressed

The M80 Metropolitan Ring Road connects major population centres in Melbourne's north and west to the CBD and elsewhere, and facilitates access to Melbourne's port, airports and other major road corridors. Congestion on the M80 is increasing average travel times in the area, which imposes significant costs on business. Congestion also produces negative social and environmental impacts as a result of increased travel time and fuel consumption, and higher vehicle crash rates. Projected population and economic growth in centres to the west and north of Melbourne is likely to increase these problems.

The 2015 *Australian Infrastructure Audit* identified capacity constraints along the corridor as a significant problem, and found that without additional investment the annual cost of congestion along the corridor is projected to grow from \$86 million in 2011 to \$161 million in 2031.

Project description

The project proposes to complete three sections of the freeway that have yet to be upgraded. These are:

- Plenty Road to Greensborough Highway (2.4 km)
- Princes Freeway to Western Highway (7.9 km)
- Sydney Road to Edgars Road (4 km).

The project would widen the existing road to a minimum of three through-lanes in each direction, with auxiliary lanes between interchanges where required, and implement Intelligent Transport Systems infrastructure.

Construction of the Sydney Road to Edgars Road section has commenced and is expected to be completed in 2023. The Plenty Road to Greensborough Highway section is being delivered as part of the North East Link project due to the interface between the two projects.

Economic, social and environmental value

The project will deliver significant economic benefits in the form of travel-time savings and associated social and environmental benefits, including reduced fuel consumption costs and lower vehicle crash rates.

The proponent's stated benefit–cost ratio is 2.0, with a net present value of \$553 million (7% real discount rate).

High Priority Projects

North East Link

Location

North-east Melbourne,
Vic



Geography

Fast-growing cities

Category

Efficient urban transport networks

Indicative delivery timeframe

Medium term (5–10 years)

Proponent

Victorian Government

Evaluation date

18 October 2018



Problem to be addressed

There is currently a 'missing link' between the M80 Metropolitan Ring Road in Melbourne's north and the M3 Eastern Freeway–EastLink in Melbourne's east and south-east. The current route – using Greensborough Highway, Rosanna Road, Banksia Road and Bulleen Road, spanning approximately 9.5 km – is congested and operating close to capacity during peak periods, limiting commercial and freight transport activities.

Each day, these roads carry around 250,000 trips between the north-east and inner Melbourne, and around 340,000 orbital trips.

Further population growth in these areas, along with the future expansion of major industrial precincts in the north and south-east, will generate even higher traffic volumes, making local road congestion worse. Orbital trips are forecast to reach 440,000 per day by 2036, an increase of nearly 30%.

Project description

The North East Link project would create a new 11 km connection (including 5 km of three-lane twin tunnels) between the M80 Metropolitan Ring Road at Greensborough and the M3 Eastern Freeway at Doncaster. The project also includes:

- approximately 2.3 km of upgrades to the M80, and approximately 9.7 km of upgrades to the Eastern Freeway
- five new interchanges
- around 10.6 km of new bus lanes
- upgrades to Bulleen Road
- new walking and cycling paths.

Implementing managed motorway technology on the Eastern Freeway will ensure the freeway integrates effectively with the North East Link and keeps pace with increasing traffic volumes and changing travel demands.

Economic, social and environmental value

The project is expected to deliver large economic benefits, including travel time and reliability improvements, and environmental and safety benefits.

The proponent's stated benefit–cost ratio for the project is 1.3, with a net present value of \$2,187 million (7% real discount rate).

High Priority Projects

Brisbane Metro

Location
Brisbane, Qld

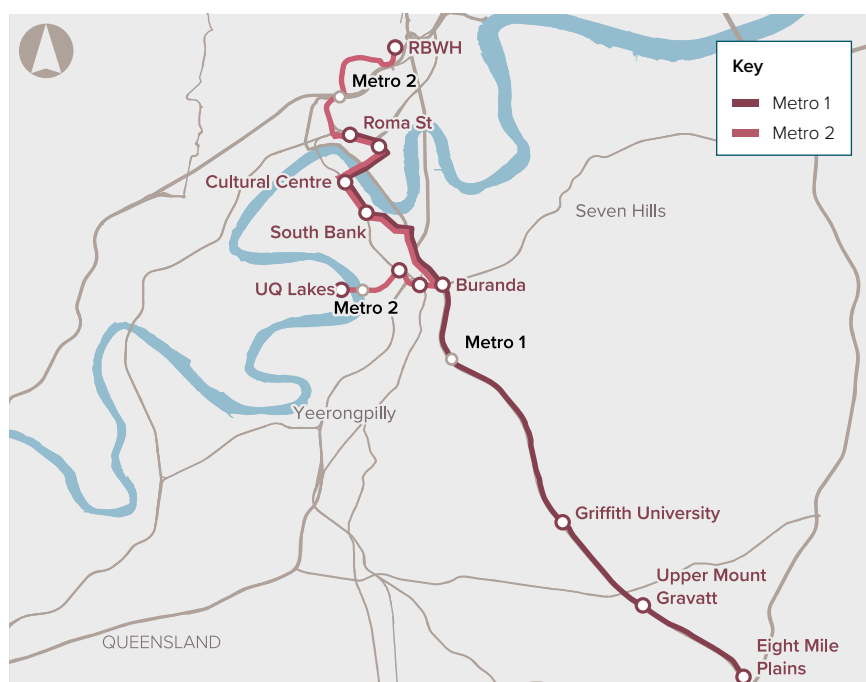
Geography
Fast-growing cities

Category
Efficient urban transport networks

Indicative delivery timeframe
Near term (0–5 years)

Proponent
Brisbane City Council

Evaluation date
16 February 2018



Problem to be addressed

Capacity constraints on the inner-city Brisbane bus network are leading to slower and less reliable public transport journeys. Demand for public transport is increasing, driven by employment growth centred in the inner city, while most population growth is occurring in middle-ring and outer suburbs. In 2016, an average of 368,000 passengers boarded buses each day in Brisbane. This is projected to grow to 581,000 passengers each day by 2031, a 58% increase.

The existing Brisbane busway network includes 25 km of dedicated bus corridor, but buses are delayed at key intersections where they compete with other traffic. This is leading to long bus queues and services not arriving on time. Bus stations are also congested, with limited platform capacity and inefficient customer boarding practices.

In the absence of additional public transport capacity, further strong growth in commuter trips into Brisbane from the fast-growing areas of South East Queensland will exacerbate congestion issues, resulting in nationally significant productivity losses.

Project description

Brisbane Metro will involve a set of infrastructure and non-infrastructure changes to bus services in inner Brisbane. The business case evaluated by Infrastructure Australia comprised removing key infrastructure bottlenecks on the busway network, including:

- designating Victoria Bridge as a green bridge and removing general traffic
- constructing a new underground station and a tunnel
- using longer, higher-capacity Metro vehicles with faster and easier boarding and alighting
- revised service patterns to increase frequency and truncate lower-use services.

The project will complement Cross River Rail by providing for interchange between the bus and rail networks at Boggo Road and at Roma Street.

Economic, social and environmental value

The project will deliver significant economic benefits in the form of travel-time savings, decongestion benefits, increased busway capacity and associated social and environmental benefits such as lower air pollution and greenhouse gas emissions through a mode shift from private to public transport.

The proponent's stated benefit–cost ratio is 2.4, with a net present value of \$1,235 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2017 business case) \$944 million (P90, nominal, undiscounted) | **Australian Government contribution** \$300 million | **State government contribution** To be determined | **Private sector contribution** To be determined.

Priority Projects

Summaries





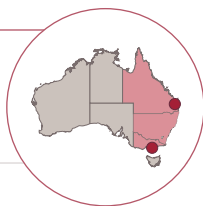
Brisbane's road network

Priority Projects

Inland Rail

Location

Melbourne to Brisbane
via inland NSW



Geography

National

Category

National connectivity

Indicative delivery timeframe

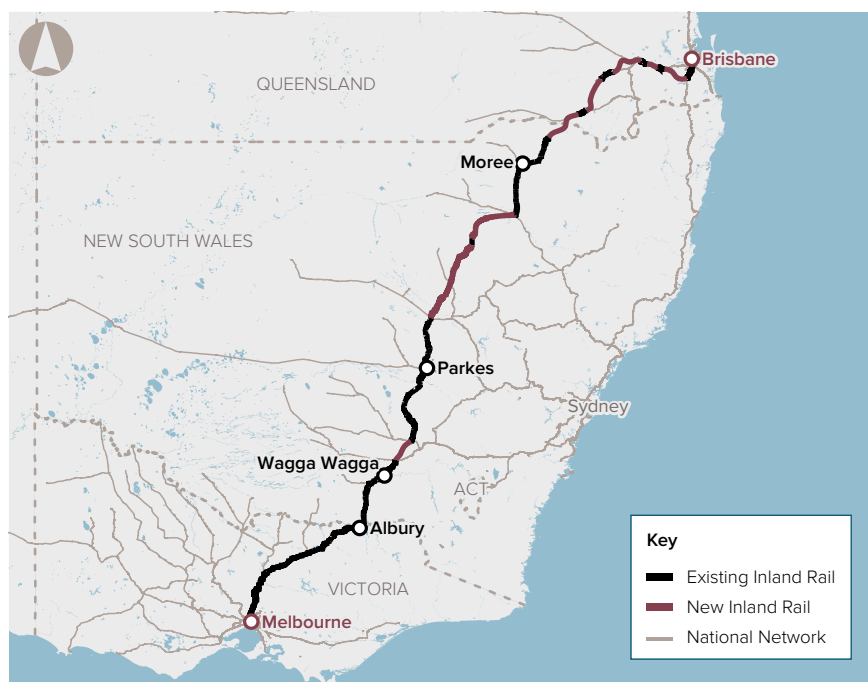
Medium term (5–10 years)

Proponent

Australian Government

Evaluation date

6 May 2016



Problem to be addressed

Demand for freight transport along the Melbourne to Brisbane corridor is expected to grow substantially over coming decades, from approximately 4.9 million tonnes in 2016 to around 13 million tonnes, or 1.1 million containers (twenty-foot equivalent units or TEUs), by 2050. This increased demand will require additional freight capacity in the corridor.

The current rail connection between Melbourne and Brisbane, via Sydney, cannot offer the transit times and reliability required by industry. This is largely a function of poor rail alignments and capacity constraints, particularly on the section between Sydney and Brisbane, and delays on freight transiting the Sydney metropolitan area. The current road connection between Melbourne and Brisbane via inland New South Wales offers faster transit times than rail via Sydney. However, much of the road is two-lane single carriageway, with limited passing lanes. Without additional capacity, transit times on this corridor will increase as freight volumes rise.

Project description

The project involves developing a freight rail line of approximately 1,700 km between Melbourne and Brisbane via inland Victoria, New South Wales and Queensland. Around 40% of the proposed route would be constructed as new railway, or converted from narrow gauge to dual gauge in Queensland. Existing narrow gauge connections between Brisbane and regional centres would be maintained. The remainder of the route would utilise and, where necessary, upgrade existing standard gauge track in Victoria and New South Wales.

The project will be delivered to achieve the service specification of a less than 24-hour transit time between Melbourne and Brisbane for the benchmark train, being a 21 tonne axle load, 115 km/h double-stacked and up to 1,800 m long train.

Trains operating the service would have capacity to carry up to 485 containers (TEUs) when capacity for longer 3,600 m, double-stacked trains is introduced over time.

Economic, social and environmental value

Key benefits of the proposed project include improved productivity, improved network efficiency and reliability, shorter transit times, safety improvements, sustainability benefits and reduced lifecycle costs.

The proponent's stated benefit–cost ratio is 1.1 (7% real discount rate).

Priority Projects

Parkes Bypass

Location
Parkes, NSW



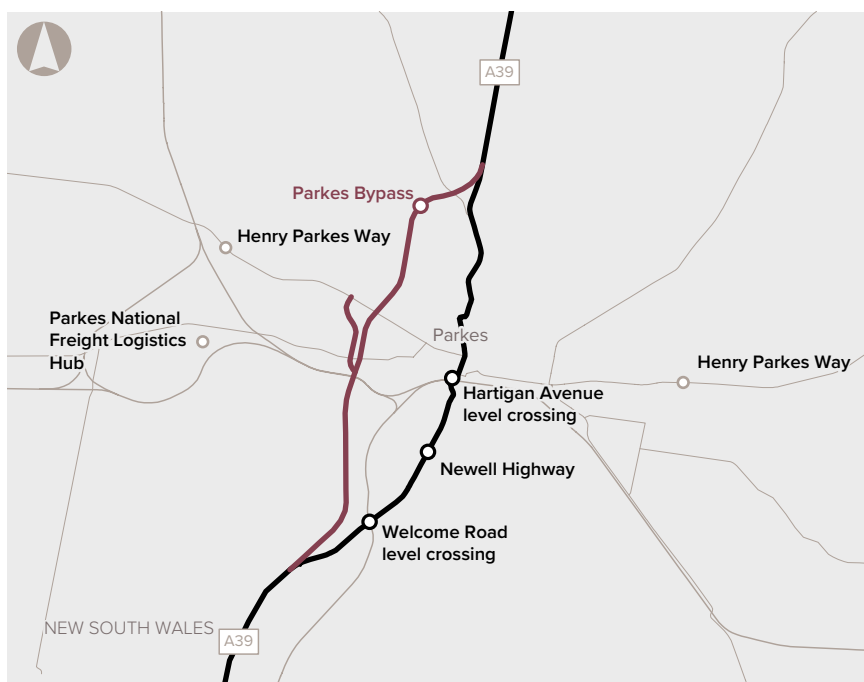
Geography
Smaller cities and regional centres

Category
National connectivity

Indicative delivery timeframe
Near term (0–5 years)

Proponent
NSW Government

Evaluation date
3 September 2020



Problem to be addressed

The Parkes Bypass is the final upgrade in the Newell Highway program to enable more efficient High Productivity Vehicles to use the entire highway.

The Newell Highway connects Melbourne and Brisbane. It is an important freight corridor for consumer goods and manufacturing materials, as well as agricultural goods within New South Wales.

The existing highway runs directly through the Parkes town centre. This limits the length of vehicles that can safely travel along the highway and contributes to congestion and safety risks in Parkes.

In the west of Parkes, the NSW Government is developing the Parkes Special Activation Precinct to leverage the Inland Rail project and the existing freight logistics hub. This precinct will also increase freight and commuter traffic in Parkes.

Project description

The business case is for a 10.5 km western bypass of Parkes, including bridges over existing railway lines, connections to the Parkes Special Activation Precinct, and upgrades to local roads.

The project has an estimated capital cost of \$175 million (P50, outturn costs) and is expected to be completed by 2024.

The project forms part of a broader program of work, and is strategically significant as the final section to be completed before High Productivity Vehicles can use the entire highway.

Upgrading the Newell Highway is recognised as a Priority Initiative on the *Infrastructure Priority List*.

The project also strongly supports the NSW Government's Parkes Special Activation Precinct. It will improve access to the precinct and enable freight vehicles to more easily access the Inland Rail at Parkes.

The project is also likely to enable more freight vehicles to use the Newell Highway, competing with Inland Rail for some freight movements.

Economic, social and environmental value

Benefits of this project include vehicle operating cost savings, along with travel-time savings, safety benefits, environmental benefits and residual value (that is, the estimated value of an asset at the end of its lease or the end of its life).

The proponent's stated benefit–cost ratio is 1.2, with a net present value of \$24 million (7% real discount rate).

Priority Projects

Port Botany Rail Line Duplication and Cabramatta Passing Loop

Location

Sydney, NSW

Geography

Fast-growing cities

Category

National connectivity

Indicative delivery timeframe

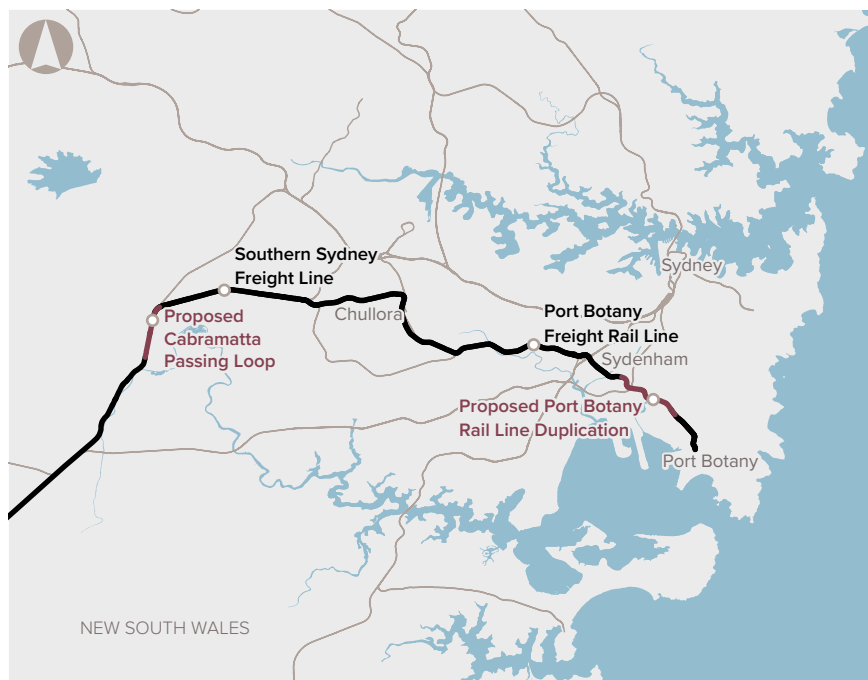
Near term (0–5 years)

Proponent

NSW Government

Evaluation date

20 February 2020



Problem to be addressed

The annual volume of shipping containers moving through Port Botany is expected to increase by 4.5 million twenty-foot equivalent units (TEUs) over the coming decades. Investment in on-dock rail infrastructure at Port Botany to increase its capacity, combined with growth in containerised rail freight demand at metropolitan intermodal terminals, will increase pressure on the Metropolitan Freight Network. In particular, demand is expected to exceed capacity on the Southern Sydney Freight Line (SSFL) and Port Botany Rail Line (PBRL) from 2026.

The Cabramatta Passing Loop will increase rail freight capacity on the SSFL by allowing freight trains travelling in either direction to pass each other, while the PBRL Duplication will enhance the reliability, flexibility and capacity for container freight operations to and from Port Botany. Undertaking both project components concurrently provides a necessary supply-chain solution to encourage freight owners to transport more containers by rail and help reduce road congestion.

Project description

The project will provide the capacity required to meet forecast rail demand generated by the Moorebank Intermodal Terminal, Enfield Intermodal Terminal, the St Marys Intermodal Terminal (from 2022), and future terminals, including a site planned near Western Sydney Airport. The proposed construction timeframe aligns and integrates with the design and construction of the Sydney Gateway (road) Project, located adjacent to Sydney Airport.

Economic, social and environmental value

Economic benefits of the project include road decongestion and road safety benefits. Other benefits include reduced vehicle emissions, resulting from more containers being moved by freight rail rather than by trucks.

The proponent's reported net present value for the project is \$429.7 million, with a benefit–cost ratio of 2.68 using a 7% real discount rate and P50 capital cost estimate.

Priority Projects

Prospect Highway Upgrade

Reservoir Road to St Martins Crescent

Location
Sydney, NSW

Geography
Fast-growing cities

Category
Efficient urban transport networks

Indicative delivery timeframe
Near term (0–5 years)

Proponent
NSW Government

Evaluation date
8 December 2020
(Updated February 2021)



Problem to be addressed

High traffic volumes and limited capacity on the Prospect Highway between Reservoir Road and St Martins Crescent are leading to congestion and safety issues.

The problems in the corridor affect general traffic, public transport users and freight. The proponent's traffic modelling shows that most of the trips affected by congestion are passenger and business vehicle trips.

The business case also reports that the reliability of the three bus services in the corridor degrades during peak periods. Meanwhile, the proponent states that there is a need to greatly increase the number of bus services in the region by 2045.

In addition to slow travel times, the route has a poor safety record with 73 reported injury crashes from July 2014 to June 2019 including four 'head on' collisions. The accident rate is more than 25% higher than the average rate for equivalent classes of road on Sydney's road network.

Project description

The project will upgrade a 3.6 km section of the Prospect Highway between Reservoir Road and St Martins Crescent, Blacktown.

The upgrade will provide a minimum four-lane divided road with a variable width central median strip. Dedicated bus lanes will be provided between Lancelot Street and St Martins Crescent.

In addition to the capacity expansion, the proposal also includes upgrading or altering 11 intersections, and widening or adding new pedestrian and cycling paths (shared paths).

Economic, social and environmental value

Economic benefits of the project include travel-time savings, vehicle operating cost savings for both private vehicles and commercial vehicles. Other benefits include crash cost savings.

The proponent's stated benefit–cost ratio is 6.4, with a net present value of \$945.3 million (7% real discount rate).

Priority Projects

More Trains, More Services

Stage 2

Location

Sydney, NSW

Geography

Fast-growing cities

Category

Efficient urban transport networks

Indicative delivery timeframe

Near term (0–5 years)

Proponent

NSW Government

Evaluation date

18 June 2020



Problem to be addressed

Strong economic and population growth in the Greater Sydney Region has significantly increased demand for rail services. In 2018, the T4 Illawarra, T8 Airport and South Coast lines catered for 410,000 round trips per day, or one-third of Sydney Trains customers.

In 2018, 75% of T4 AM peak services and 54% of T8 AM peak services operated above target operating capacity. This made these services the most and fourth-most crowded lines on the Sydney network respectively.

By 2060, Greater Sydney is expected to grow to 8 million people. Without intervention, this will continue to increase demand for rail services and expose the key capacity constraints of Sydney's transport network.

Project description

This project is Stage 2 of the multi-stage More Trains More Services (MTMS) Program to increase rail capacity across the Sydney network. MTMS Stage 2 will include enabling works on the T4 line, including:

- additional turnback capacity at Sydney's Central Station
- new crossovers at Erskineville and Hurstville
- station capacity upgrades and platform lengthening.

On the T8 Airport Line, the project will upgrade signalling, increase train maintenance storage capacity, and provide station upgrades and traction power upgrades.

In addition to the track and rail improvements, 17 eight-car double-deck suburban trains and 30 New Intercity Fleet cars will be procured.

It is expected that the project will result in more services to provide more regular and reliable services on the T4 and T8 suburban lines.

Economic, social and environmental value

The major economic benefits of the project are reduced crowding and delays from rail passengers, as well as benefits from encouraging more road users to take public transport.

The proponent's stated benefit–cost ratio is 1.4, with a net present value of \$890 million (7% real discount rate).

Priority Projects

Gold Coast Light Rail

Stage 3A

Location

Gold Coast, Qld

Geography

Smaller cities and regional centres

Category

Efficient urban transport networks

Indicative delivery timeframe

Near term (0–5 years)

Proponent

Queensland Government

Evaluation date

23 August 2019



Problem to be addressed

The Queensland Government expects the population of the Gold Coast to grow by approximately 60% to 928,000 people by 2041. This rapid population growth is creating increased demand for transport within the Gold Coast, between the Gold Coast and Brisbane, and more broadly in South East Queensland.

Poor public transport connectivity between Broadbeach and Burleigh Heads is resulting in significant road congestion and poor journey reliability. Without improvements to public transport connectivity, road traffic levels are expected to reach network capacity before 2031.

The Gold Coast population remains heavily car dependent, despite some increases in public transport trips in recent years.

Project description

To address these issues, the Queensland Government is proposing to extend the existing Gold Coast Light Rail line from Broadbeach South to Burleigh Heads. This project, known as Stage 3A, would replace existing bus services between Broadbeach South and Burleigh Heads with light rail services and implement a complementary urban renewal and economic development strategy in the corridor.

The strategic case for the project is largely dependent on the realisation of urban renewal and increased urban density. Furthermore, the strategic case depends on the project's ability to shift travel from cars to light rail. This typically requires the support of a proactive mode shift policy since travel times will be similar to existing bus services, even though light rail services should be more reliable and comfortable for passengers.

Economic, social and environmental value

The project's major benefits will be for road users through travel-time savings and operating costs. The project will also contribute benefits for public transport users through travel-time savings and amenity benefits.

The proponent's stated benefit–cost ratio is 1.1, with a net present value of \$56 million (7% real discount rate).

Priority Projects

Beerburum to Nambour rail upgrade

Location

Sunshine Coast to Brisbane, Qld



Geography

Fast-growing cities

Category

Efficient urban transport networks

Indicative delivery timeframe

Near term (0–5 years)

Proponent

Queensland Government

Evaluation date

18 June 2020



Problem to be addressed

Capacity issues on the North Coast Line between Beerburum and Nambour were identified as a priority in the Queensland Government's Moving Freight strategy, and the 2015 *Northern Australia Audit*. As Queensland's major north–south rail corridor, the line facilitates freight and passenger movements between Queensland's coastal population centres from Brisbane to Cairns. It will also be a key enabler of future public transport developments within the Sunshine Coast.

The 2015 *Northern Australia Audit* forecasted northern Queensland's population would grow by 1.9% on average per year to 2031, driving an expansion of the freight task along the north–south corridor.

Further to the south, the Sunshine Coast's population is expected to grow by two-thirds between 2016 and 2041, according to the South East Queensland Regional Plan 2017. The modelling undertaken for the business case suggests that passenger demand on this route could grow by over 3% per annum until 2036.

The existing rail line does not have enough capacity to meet future levels of passenger and freight demand. The route's configuration as a single track with limited passing loops constrains capacity on the line. Without rail network enhancements, increased commuter movements between the Sunshine Coast and Brisbane are likely to significantly increase traffic on the constrained Bruce Highway.

Project description

The proposed project is located on the North Coast Line between Beerburum and Nambour stations. The project involves duplicating the 20 km section from Beerburum to Landsborough, extending existing passing loops between Landsborough and Nambour, route realignments, level crossing removals, station improvements, park 'n' ride expansions and supporting works. The proposed upgrade would improve the efficiency of both passenger and freight services, and take pressure off the Bruce Highway.

Economic, social and environmental value

The project would deliver significant economic benefits in the form of travel-time savings, with associated social and environmental benefits including reduced air and noise pollution and lower vehicle crash rates.

The proponent's stated benefit–cost ratio is 1.5, with a net present value of \$262 million (7% real discount rate).

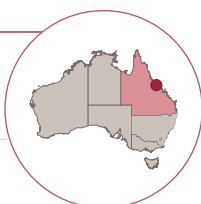
Priority Projects

Peak Downs Highway Realignment

Walkerston Bypass

Location

North-east Queensland



Geography

Small towns, rural communities and remote areas

Category

Regional connectivity

Indicative delivery timeframe

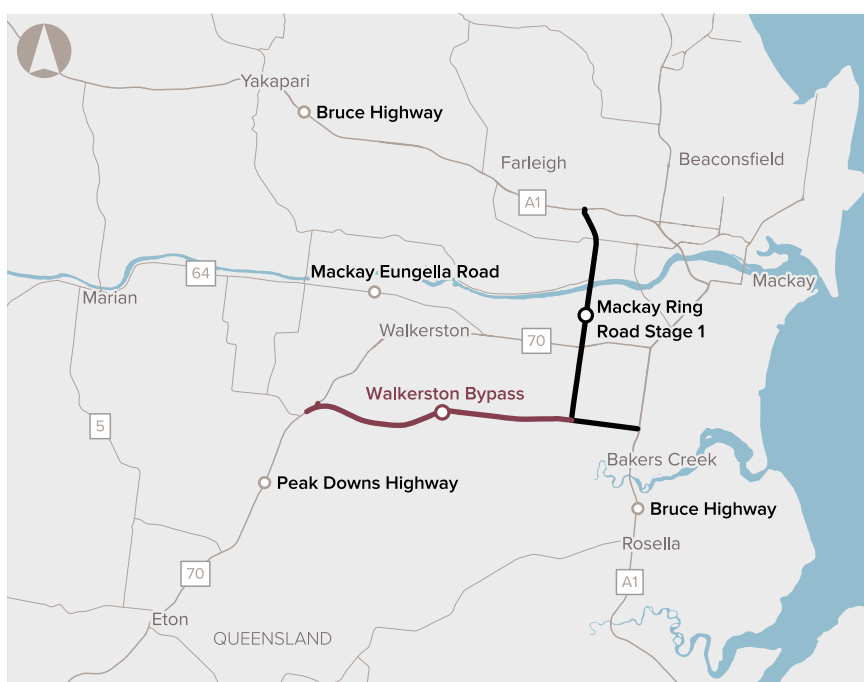
Near term (0–5 years)

Proponent

Queensland Government

Evaluation date

3 December 2019



Problem to be addressed

The Peak Downs Highway extends from the Bruce Highway in Mackay to the Gregory Highway in central Queensland, near the town of Clermont.

As the principal access to the Bowen Basin and Galilee Basin coal and energy provinces, the Peak Downs Highway is an important regional route. The Peak Downs Highway is used to transport essential mining inputs such as fuel, plant and equipment, construction materials and explosives. It is also used to transport raw sugar and petroleum.

Within Walkerston, the Peak Downs Highway passes through the town centre, which includes schools, community facilities and shops, resulting in poor amenity for the local residents. This section of the highway is also becoming congested, leading to longer travel times for commercial vehicles.

Project description

The proposed Walkerston Bypass project includes a 10.4 km realignment of the Peak Downs Highway, from west of Walkerston to the Mackay Ring Road at Stockroute Road.

In diverting traffic (including heavy and dangerous goods transport) away from Walkerston's main street, the new bypass will provide increased freight capacity, more direct connectivity for large vehicles, increased flood resilience, improved freight efficiency, and safety and amenity benefits for the local residents of Walkerston.

The project also creates an opportunity for urban expansion in the regional townships of Walkerston, Mirani and Ooralea under the Mackay, Isaac and Whitsunday Regional Plan (2012).

The project has strong strategic merit as it will improve connectivity in the region and directly support the realisation of the benefits from Stage 1 of the Mackay Ring Road, which is nearing completion.

Economic, social and environmental value

The estimated benefits from the project are travel-time savings, along with vehicle operating cost savings, safety benefits, environmental benefits and residual value (that is, the estimated value of an asset at the end of its lease or the end of its life).

A significant proportion of the vehicle operating costs and travel-time savings are attributed to commercial and freight vehicles, which is consistent with the aim to improve freight efficiency.

The proponent's stated benefit–cost ratio is 1.5, with a net present value of \$67 million (7% real discount rate).

Priority Projects

Armadale Road Bridge

Location
Perth, WA

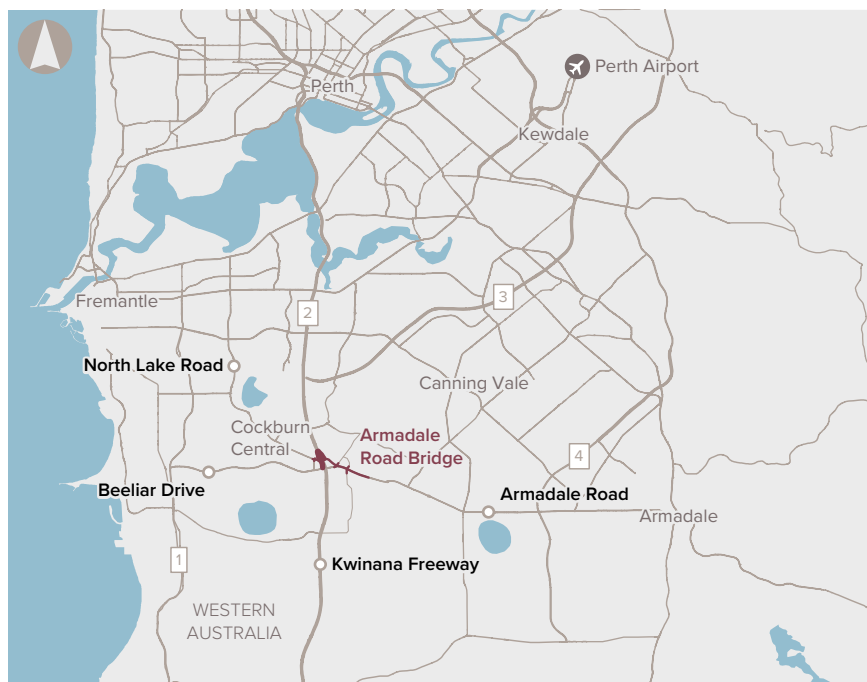
Geography
Fast-growing cities

Category
Efficient urban transport networks

Indicative delivery timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Evaluation date
8 December 2020
(Updated February 2021)



Problem to be addressed

The Cockburn Central area is projected to experience high population growth, with the number of people living in the City of Cockburn forecast to reach 170,000 by 2031, a 60% increase from 2016. Ongoing development and the rapid population growth in the City of Cockburn is significantly increasing the volume of traffic travelling to and through the area.

The Armadale Road/Beeliar Drive interchange is experiencing severe congestion and traffic volumes are growing through the Midgegooroo Avenue/Beeliar Drive intersection. Safety is also a significant challenge, with Armadale Road between Cockburn and Armadale ranked by the Royal Automobile Club of Western Australia as the state's sixth riskiest road.

Without intervention, the additional pressure from population growth is expected to worsen travel outcomes, increase safety risks, and may affect development plans within the region.

Project description

The Armadale Road Bridge proposal includes construction of a bridge over the Kwinana Freeway, with grade separated intersections between Armadale Road, and Solomon and Tapper roads.

Two lanes in each direction for free flowing regional traffic will be constructed from west of the Armadale Road/Solomon Road intersection to east of the Armadale Road/Tapper Road intersection.

The project also includes:

- north-facing on/off ramps and two-lane collector distributor roads on both sides of the Kwinana Freeway from Berrigan Drive to Armadale Road
- modifications to the existing Armadale Road/Ghostgum Avenue signalised intersection
- modifications to the existing North Lake Road/Midgegooroo Avenue signalised intersection
- two lane collector distributor roads adjacent to the regional traffic lanes between the Armadale Road/Solomon Road intersection and the Armadale Road/Tapper Road intersection.

Economic, social and environmental value

Benefits of the project include travel-time savings, vehicle operating cost savings and accident cost savings.

The proponent's stated benefit–cost ratio is 3.0, with a net present value of \$413 million (7% real discount rate).

Priority Projects

Bindoon Bypass

Location
South-west WA

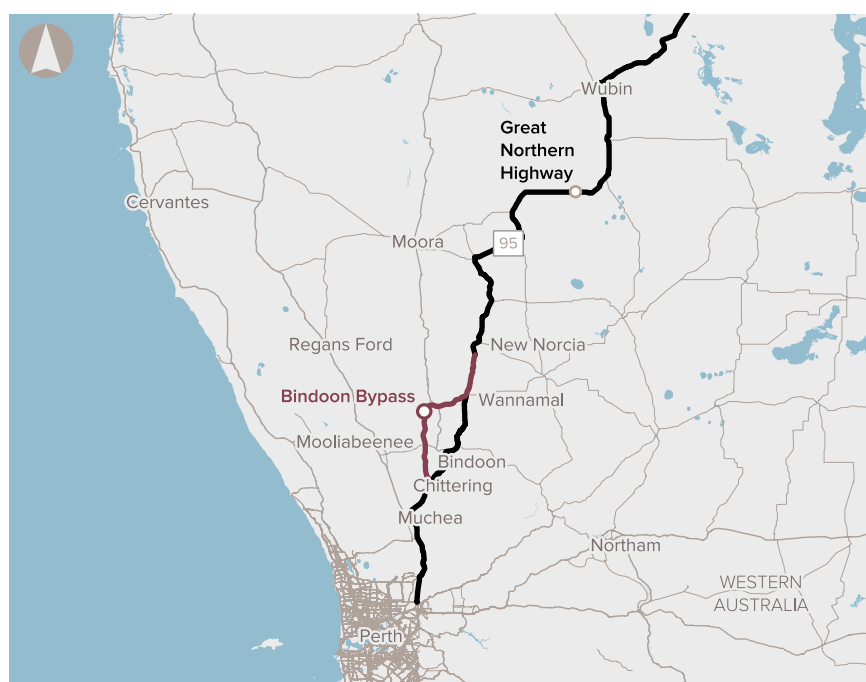
Geography
Small towns, rural communities and remote areas

Category
National connectivity

Indicative delivery timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Evaluation date
3 December 2019



Problem to be addressed

The Great Northern Highway forms part of the National Land Transport Network and provides a strategic freight link between the Perth metropolitan area and Western Australia's north-west.

The Great Northern Highway services Western Australia's growing mining, agricultural and northern tourist industries, carrying a mix of passenger and freight traffic. However, triple road trains (53.5 m trucks) travelling on the Great Northern Highway are restricted from the section of the highway between Wubin (276 km north of Perth) and Muchea (50 km north of Perth). These restrictions are caused by road alignments and gradient conditions that are unsuitable for triple road trains.

As a result, drivers are required to stop at Wubin to decouple and reconfigure their vehicles into smaller truck and trailer configurations, such as double road trains (or smaller) for this section of the highway.

This operation decreases freight productivity and efficiency since more truck trips are then required to deliver the same freight task, leading to an overall net increase in transport costs per unit of freight transported.

Project description

The proposed Bindoon Bypass would reduce vehicle kilometres travelled by enabling triple road trains to travel along the entire length of the corridor, thereby avoiding the need to stop and decouple at Wubin.

The proposed project area is 66 km in total length, including construction of 61.6 km of new highway and 4.4 km of improvements to the existing highway.

There is strategic merit for the project given the importance of the Great Northern Highway as a freight link between Perth's metropolitan area and Australia's north-west.

Economic, social and environmental value

The majority of the project's benefits are vehicle operating cost savings. There will also be travel-time savings, reduced environmental emissions and safety benefits through the removal of trucks from Bindoon town centre.

The proponent's stated benefit–cost ratio is 3.4, with a net present value of \$462 million (7% real discount rate).

Priority Projects

METRONET

High Capacity Signalling

Location
Perth, WA

Geography
Fast-growing cities

Category
Efficient urban transport networks

Indicative delivery timeframe
Near to medium term (0–10 years)

Proponent
Western Australian Government

Evaluation date
7 April 2020



Problem to be addressed

Perth's existing signalling and train control systems include ageing assets that are in some instances approaching life expiry and/or obsolescence.

The ageing infrastructure is currently causing safety, capacity and reliability issues on Perth's rail network, and will be pressured by the anticipated population growth in Perth.

The Western Australian Government's METRONET rail program aims to cater for this population growth by delivering new and extended railway lines and new stations. However, as the rail network expands, it will also increase pressure on the ageing signalling and train control systems will exacerbate the issues currently impacting the rail network.

Project description

The project will implement an Automatic Train Control system using modern, radio-based, high-capacity Communications-Based Train Control technology on all three line-groups of the Perth metropolitan railway network.

The scope of this project includes:

- replacing the existing 'fixed-block' signalling system with a 'moving-block' Communications Based Train Control system
- replacing the life-expired Automatic Train Protection system
- implementing Automatic Train Operation
- implementing Automatic Train Supervision and Regulation to replace the existing Train Control System.

The project also includes the construction of a purpose-built Rail Operations Centre, a back-up Signalling Equipment Room and an upgrade of the existing Alternate Train Control facility.

Economic, social and environmental value

Economic benefits of the project include shorter wait times, reduced train crowding, and travel-time savings for public transport users. Other benefits include reduced vehicle emissions and operating costs, health benefits, and road-safety benefits.

The proponent's stated benefit–cost ratio is 2.6, with a net present value of \$688 million (7% real discount rate).

Priority Projects

Myalup–Wellington water project

Location
South-west WA

Geography
Small towns, rural communities and remote areas

Category
Access to water

Indicative delivery timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Evaluation date
6 November 2017



Problem to be addressed

The Myalup–Wellington Water Project is a response to increased salinity in the Wellington Dam catchment and in the dam itself, and inefficiency in the water distribution network below the dam. Increased salinity and reduced reliability of groundwater has resulted in reduced high-yield fruit and vegetable agricultural activity in the Myalup Irrigated Agricultural Precinct (MIAP), and a progressive abandonment of agricultural activity in the Collie River Irrigation District, as growers return water entitlements.

The MIAP is a key part of Western Australia's agriculture industry, responsible for over 60% of the south west's horticultural production. It is considered integral to domestic supply and potential growth in Australian exports. Growers have expressed concerns about high salinity levels on their properties, and difficulty in achieving crop germination. They are also experiencing a shortage of water supply, which limits capacity for increased productivity and expansion.

The impacts of salinity and/or reduction in water allocations restrict production in the region and constrain potential export growth opportunities.

Project description

The proposed project is located in the south-west of Western Australia, approximately 200 km south of Perth, east of Bunbury. The project is made up of a number of integrated above and below dam components, targeted at reducing salinity in Wellington Dam and the surrounding area, and increasing the efficiency of water distribution infrastructure.

Economic, social and environmental value

Economic benefits include those for irrigators and water producers. Irrigators would benefit through increased production value due to an increase in the number of hectares farmed and a shift to more valuable products. The producer, Collie Water, would benefit from the sale of potable water to Water Corporation.

The proponent's stated benefit–cost ratio is 1.6, with a net present value of \$389 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2017 business case) \$394.1 million (nominal, undiscounted) | **Australian Government contribution** To be determined | **State government contribution** To be determined | **Private sector contribution** To be determined.

Priority Projects

Bunbury Outer Ring Road

Bunbury Freight Access Enhancement Project

Location

Bunbury, WA



Geography

Smaller cities and regional centres

Category

Regional connectivity

Indicative delivery timeframe

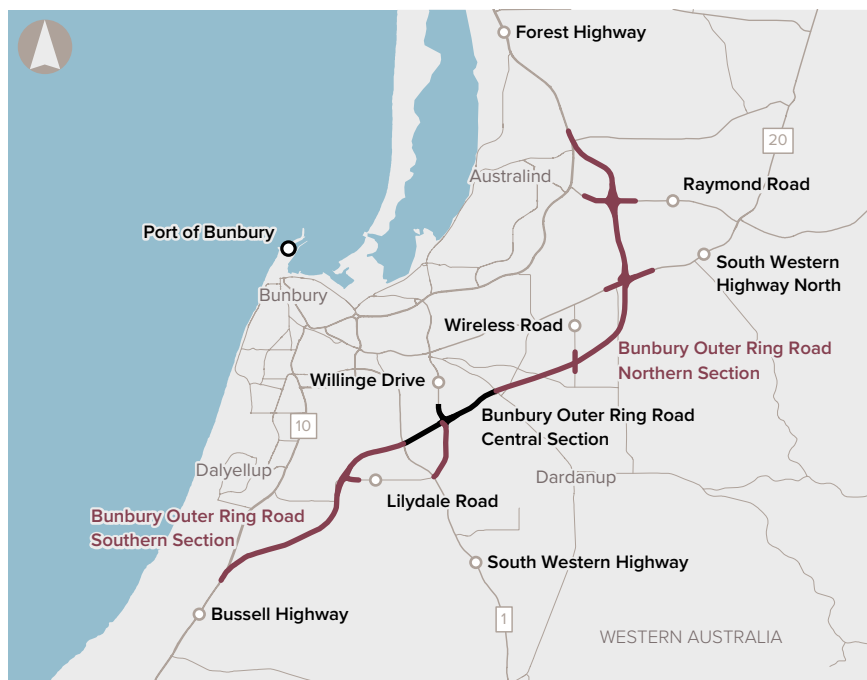
Near term (0–5 years)

Proponent

Western Australian Government

Evaluation date

8 December 2020
(Updated February 2021)



Problem to be addressed

Bunbury is one of the fastest growing regional cities in Australia. Its population is projected to grow by 1.6% on average from 175,900 in 2016 to 206,640 by 2026. Two of Bunbury's major industries, mining and tourism, place pressure on the local road network, with the road network near the Port of Bunbury carrying a mix of freight and light-vehicle traffic (including local, regional and tourist trips).

The current network does not separate traffic streams and has variable speed limits, which negatively impacts freight efficiency. Mixing freight and regional movements with local traffic negatively impacts on safety, amenity, tourism and urban development.

Freight routes in the South West region of Western Australia incorporate several at-grade rail crossings and intersections where speed limits have been reduced, impacting on overall network efficiency. These factors contribute to the increasing costs for freight operators and industry and have a detrimental impact on the local community.

Project description

The Bunbury Outer Ring Road comprises a 27 km, four-lane, grade-separated dual carriageway highway at the outer edge of Bunbury connecting the Bussell Highway to the Forrest Highway.

The project also consists of:

- grade separated interchanges at Forrest Highway (near Australind), Raymond Road, South Western Highway North, Wireless Road (Waterloo interchange), Willinge Drive, Lillydale Road and Bussell Highway (north of Lakes Road)
- grade separation at river crossings, rail crossings and local roads, including Clifton/Paris Road, South Western Highway, Boyanup-Picton Road
- construction of local access roads
- extension of Willinge Drive to South Western Highway.

Economic, social and environmental value

Economic benefits of the project include travel-time savings, vehicle operating cost savings for both private vehicles and commercial vehicles. Other benefits include crash cost savings and environmental benefits.

The proponent's stated benefit–cost ratio is 1.34, with a net present value of \$243 million (7% real discount rate).

Priority Projects

Eyre Infrastructure Project

Iron Road

Location

Eyre Peninsula, SA



Geography

Small towns, rural communities and remote areas

Category

Regional connectivity

Indicative delivery timeframe

Near term (0–5 years)

Proponent

Iron Road Ltd

Evaluation date

27 July 2016

(Updated February 2021)



Opportunity

Iron Road Ltd, a publicly listed company, is proposing to develop an iron ore mine in South Australia's Central Eyre Peninsula. The 2015 business case for this project expected the mine to produce 24 million tonnes per annum of 67% iron concentrate ore when operating at full capacity. The project would facilitate the transport of the ore from the mine to the coast, and its export through a deep-water port facility at Cape Hardy.

Project description

The 2015 business case proposed to develop a deep-water port at Cape Hardy, and a 148 km heavy-haul, standard gauge rail connection between the mine and the port. The proposed infrastructure would be available for other users ('open access'), including grain exporters and other miners in the region. The new rail line could potentially be connected to the National Rail Network.

Infrastructure Australia recommended the business case as a Priority Project, subject to the mine development proceeding.

The project is supported by the South Australian Government. In December 2019, the Australian Government committed \$25 million towards developing and constructing the first stage of the Cape Hardy port.

The Australian Government notes the Cape Hardy project will bring together agriculture, mining, renewable hydrogen, green manufacturing and indigenous business into a multi-user, multi-commodity manufacturing and export hub in South Australia.

Economic, social and environmental value

Without the port and rail infrastructure, the economic activity associated with the mine, and the royalties and tax receipts expected to be derived from it, would not be realised.

The proponent's stated benefit–cost ratio for the mine, rail and port infrastructure to Australia is 1.3, with a net present value of \$3,800 million (7% real discount rate), representing a public net benefit for this privately funded project.

Priority Projects

University of Tasmania

Hobart Science and Technology Precinct

Location

Hobart, Tas

Geography

Smaller cities and regional centres

Category

Social infrastructure

Indicative delivery timeframe

Near term (0–5 years)

Proponent

University of Tasmania

Evaluation date

9 February 2017



Problem to be addressed

Tasmania faces a number of economic challenges. The state's rate of economic growth is significantly below the Australian average. Unemployment is relatively high, productivity is relatively low, as are rates of higher education attainment and population growth.

Hobart's CBD lacks the scale and diversity necessary to support strong population and economic development in high-value industries. Increased densification and urban development in Hobart's CBD, coupled with development of science, technology, engineering and mathematics-related industries, may help attract new industries to locate in Hobart. This could, in turn, help increase economic and population growth.

The University of Tasmania's existing science, technology, engineering and mathematics facilities at the Sandy Bay campus are fragmented, and nearing the end of their usable life. The facilities struggle to attract Tasmanian students, and have very limited appeal to interstate and international students. The facilities lack the modern technical infrastructure that characterises a high-end research environment.

Project description

The project would relocate the University of Tasmania's Faculty of Science, Engineering and Technology from the existing campus at Sandy Bay to a purpose-built facility for education, research and training in the Hobart CBD.

The proposed 45,050 m² facility would initially accommodate 3,000 students and 700 staff. The university anticipates that the project would result in a 60% increase in undergraduate student demand, and enable improved research outcomes. The project would be supported by ongoing university and government programs and policies to increase higher education participation in Tasmania. The development would also contribute to the urban regeneration of Hobart's CBD.

The project is supported by the Tasmanian Government.

Economic, social and environmental value

The primary benefit of the project is derived from attracting new students to tertiary education. Other benefits include improved accessibility and amenity for existing students, research benefits and development of the Hobart CBD.

The proponent's stated benefit–cost ratio is 1.95, with a net present value of \$364 million (7% real discount rate).

Priority Projects

University of Tasmania

Northern Transformation Program

Location

Northern Tasmania

Geography

Smaller cities and regional centres

Category

Social infrastructure

Indicative delivery timeframe

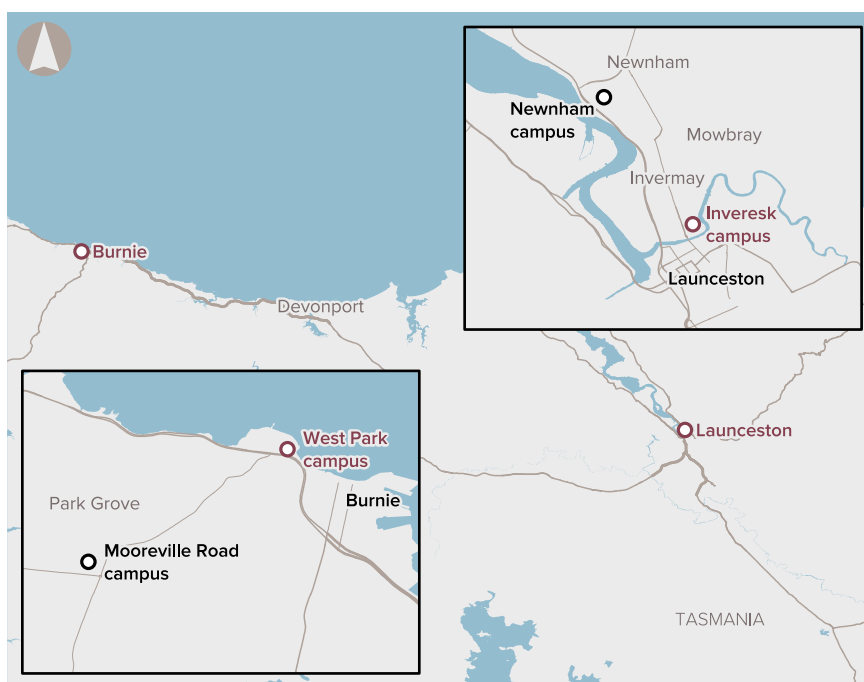
Near term (0–5 years)

Proponent

University of Tasmania

Evaluation date

13 June 2019



Problem to be addressed

The University of Tasmania operates campuses in Launceston and Burnie. These facilities are outdated, in inconvenient locations and limit the university's capacity to offer modern courses.

Together, these deficiencies have contributed to student enrolments falling and have limited the opportunity to improve social outcomes for northern Tasmania. Many residents are faced with the challenges of high unemployment and below-average levels of education, leading to low workforce participation and low economic growth compared with national levels.

Project description

The proposed \$300 million program includes relocating existing campuses in Launceston and Burnie to new inner-city locations, with state-of-the-art teaching and research facilities.

It also includes the delivery of new types of degrees and courses that better meet the needs of students and industry, including associate degrees, bachelor degrees and short courses.

There is substantial strategic merit in improving educational participation, which is often linked with improved living standards and higher levels of productivity.

Economic, social and environmental value

The largest estimated benefit from the project is the increase in the lifetime earnings and employability for new students who would not have otherwise obtained higher education.

The proponent's stated benefit–cost ratio is 2.41, with a net present value of \$483 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2019 business case) \$300 million (P90, nominal, undiscounted) | Australian Government contribution \$150 million | State government contribution \$75 million | Private sector contribution \$75 million.

Priority Projects

Commonwealth Avenue Bridge Upgrade

Location

Canberra, ACT

Geography

Smaller cities and regional centres

Category

Asset renewal

Indicative delivery timeframe

Near term (0–5 years)

Proponent

Australian Government

Evaluation date

3 September 2020



Problem to be addressed

Commonwealth Avenue Bridge is one of two major bridges crossing Lake Burley Griffin. It is a critical component of the transport network of Canberra and, more broadly, the Australian Capital Territory.

Located within Canberra's Parliamentary Zone, the bridge has considerable cultural and heritage value.

Traffic on the Commonwealth Avenue Bridge has grown substantially since its opening in the mid-1960s. Current traffic volumes on the bridge make it one of the busiest transport assets in Canberra. Peak-period traffic levels were effectively at capacity by 2017.

The bridge is ageing and has not undergone a significant upgrade since construction.

Project description

The proposed project will include structural upgrades that are required to meet relevant design standards for load capacity, traffic lane width, safety barriers, and active transport corridor width.

Upgrading the bridge will also extend the design life by 50 years. Other benefits include travel-time savings, vehicle operating cost savings, emissions savings and safety benefits for pedestrians, cyclists and vehicles.

The bridge forms part of the corridor for the planned extension of the Canberra Metro light rail network, which could include a separate structure between the spans.

Economic, social and environmental value

Benefits of this project include vehicle operating cost savings, along with travel-time savings, improved safety, and improvements for active transport users.

The proponent's stated benefit–cost ratio is 2.65, with a net present value of \$124.9 million (7% real discount rate).



High Priority Initiatives

Summaries





Port of Melbourne

High Priority Initiatives

Bulk water supply security

Location
National

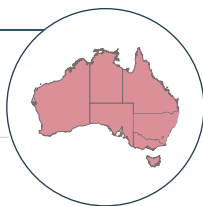
Geography
National

Category
Access to water

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2020
(Updated February 2021)



Problem

Australia's bulk water infrastructure is used for a variety of purposes, including drinking water, wastewater, farming, as well as industrial, environmental, recreational and cultural activities. Balancing these uses – and ensuring the health of streams, groundwater and ecosystems – is crucial for maintaining reliable access to water.

Water availability for non-potable use, particularly in high value irrigation areas across southern Australia, is reducing and becoming increasingly variable. Southern Australia, which includes the Murray-Darling Basin, supports a large proportion of Australia's high value irrigated agriculture. Future climate projections are for decreased rainfall across southern Australia with longer and more severe droughts.

In northern Australia, there are opportunities to increase the value of water supplied for irrigated agriculture, aquaculture, mining and industry and environmental, recreation and cultural water needs.

The water cycle is also being altered by changing climate, changes to run-off and evaporation due to land and forest management.

The 2019 *Australian Infrastructure Audit* identifies that a number of events (such as the Menindee fish kill) have undermined confidence in the governance and management of Australia's water resources. Balancing competing demands for water is challenging and can limit effective decision-making.

Without appropriate planning for these challenges, there could be severe water shortages or restrictions in many parts of the country.

The *Infrastructure Priority List* separately includes a High Priority Initiative for *Town and city water security*.

Proposed initiative

Potential options to address the problem include:

- making better use of existing water resources and water infrastructure
- investing in new water supply infrastructure, such as efficiency projects, new water storages and pipelines, managed aquifer recharge and desalination.

A mix of infrastructure and non-infrastructure responses will be required to address the problem and realise the opportunity.

Non-infrastructure responses include:

- water planning, management and use that aligns with National Water Initiative objectives
- measures to secure new and maintain existing export opportunities
- technology improvements and integrated long-term infrastructure planning that appropriately addresses demand and supply side uncertainty
- opportunities to improve the collection, consistency, reporting and use of information and data in the sector.

The National Water Grid Authority is working with the states and territories to deliver strategic planning for water infrastructure across the nation to support primary industries and unlock potential, promote the growth and sustainability of regional economies and build resilience.


A list of submissions received related to this initiative can be found in **Appendix B**.

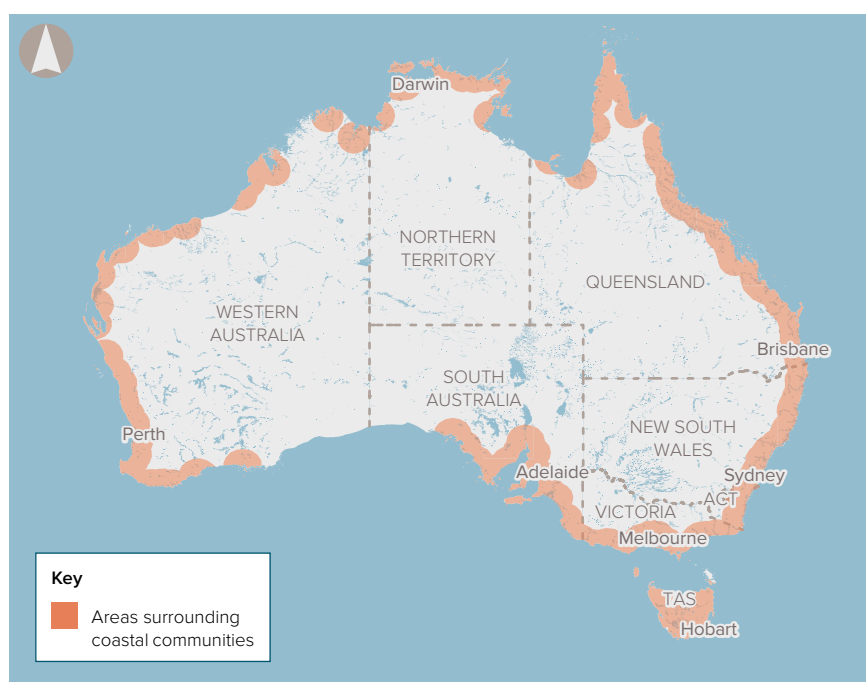
Next steps

Proponent(s) to be identified.

High Priority Initiatives

Coastal hazards adaptation strategy

Location	
National	
Geography	
National	
Category	
Adaptation and resilience	
Problem timeframe	
Various (0–15 years)	
Proponent	
Infrastructure Australia identified initiative	
Date added to the IPL	
February 2020	
(Updated February 2021)	



Problem

Rising sea levels over the 21st Century will put many of Australia's coastal cities and economic centres at risk of inundation (temporary or permanent flooding).

The United Nations' Intergovernmental Panel on Climate Change has adopted different Representative Concentration Pathways (RCPs) to model climate change, based on future greenhouse gas emissions levels. By the end of the century, the average sea level rise is projected to be between 0.3 m and 0.6 m in the lowest of the four scenarios (RCP 2.6), and by 0.6 m or more in the highest of the scenarios (RCP 8.5) and continue to rise for centuries.

Coastal erosion and inundation can damage residential, commercial and industrial property, as well as essential infrastructure. The average household costs of a flood up to 1 m are between \$60,000 and \$80,000. The costs of larger and sustained flooding leading to forced relocation would be greater.

Rising sea levels also have significant environmental consequences, such as coastal squeeze, where intertidal (seashore) habitats are disrupted and lost.

Proposed initiative

The initiative is for a proactive infrastructure strategy involving all levels of government. The strategy will need to consider which areas should be protected for continued use, modified to accommodate floods, or withdrawn from altogether.

Depending on these decisions, infrastructure options could include:

- nature-based methods
- buffer zones or physical barriers, such as seawalls to protect populations
- retreat and protect approaches
- infrastructure to facilitate early response to coastal hazard warnings and evacuations.

The strategy should also consider policy responses, such as actions to reduce exposure to coastal hazards, setting appropriate sea level rise benchmarks and planning controls for vulnerable areas.

Infrastructure Australia has received several submissions for localised coastal hazard issues. This initiative calls for higher-level program submissions that consider coastal hazards at a jurisdictional level.

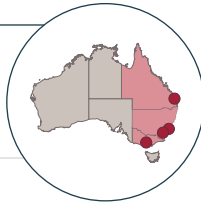
Next steps

Proponent(s) to be identified.

High Priority Initiatives

Corridor preservation for East Coast High Speed Rail

Location
Melbourne to
Brisbane via Sydney



Geography
National

Category
Corridor preservation

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2016



Problem

By 2075, the combined population of Melbourne, Sydney and Brisbane is projected to exceed 30 million people. The future demand for efficient, high-capacity transport services between major centres on Australia's east coast will likely exceed the capacity of existing and planned rail, road and aviation services.

Protecting a corridor would significantly increase options for future development of high speed rail infrastructure to meet future demand for inter-city and regional travel.

Modelling by Infrastructure Australia in 2017 estimates the net cost of protecting and acquiring the corridor as \$2.8 billion (2016 prices) using a 7% real discount rate.

Proposed initiative

This initiative proposes to confirm and begin the preservation of a corridor, based on the corridor set out in the Australian Government's High Speed Rail Study Phase 2, for a high speed rail link between Melbourne, Sydney and Brisbane.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Enabling digital health services for regional and remote Australia

Location
National

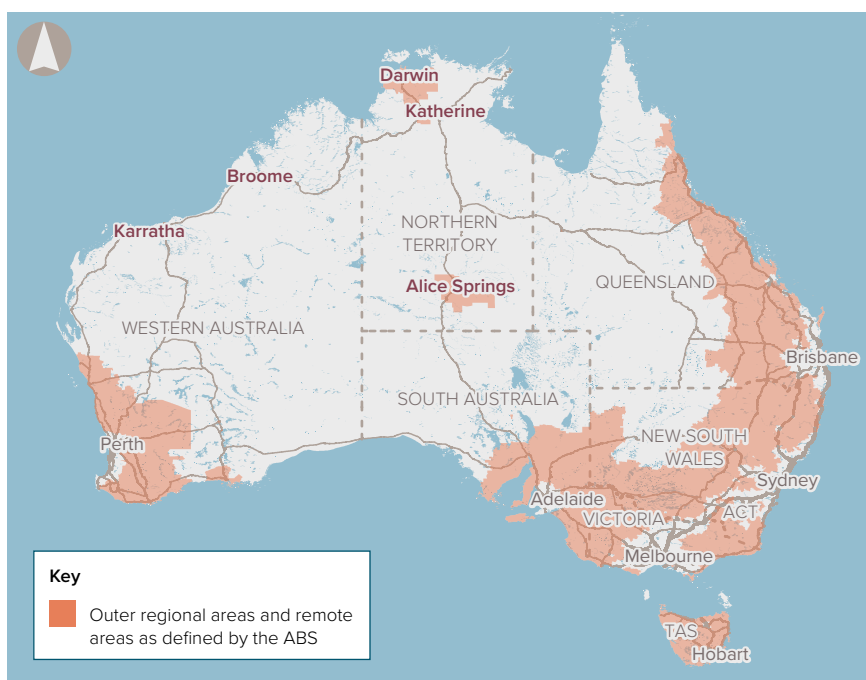
Geography
National

Category
Social infrastructure

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2021



Opportunity

Australians living in regional and remote areas experience worse health outcomes and access to health services than Australians in major cities.

Factors such as geographic spread, low population density, limited infrastructure and higher costs for delivering rural and remote healthcare can limit access to important health services.

The COVID-19 pandemic has accelerated the need for telehealth services. By November 2020, more than 3.2 million regional and remote Australians had accessed telehealth services.

The 2019 *Australian Infrastructure Audit* found that technological advancements are enabling health services to be more digitally-oriented, from patient care to record keeping and infrastructure management.

Digital health services use technology to collect and share health information. This improves the quality, cost and accessibility of health services and infrastructure. Technology-enabled out-of-hospital healthcare models include community, home-based and virtual care.

Enabling digital health technologies in regional and remote areas of Australia can improve equity of access and outcomes, reduce costs associated with delivering healthcare and reduce avoidable hospitalisations.

Proposed initiative

Potential options to address the initiative include enabling digital health in regional hubs to improve the accessibility of health services for Australians living in regional and remote areas.

This would require the upgrade of existing facilities in regional Australia, and training for the existing health workforce, to enable them to provide digital health services.

Suitable telecommunications infrastructure will also be required to enable the transmission of data and video to health facilities in regional Australia.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Mobile telecommunications coverage in regional and remote areas

Location

National

Geography

Small towns, rural communities and remote areas

Category

Regional connectivity

Problem timeframe

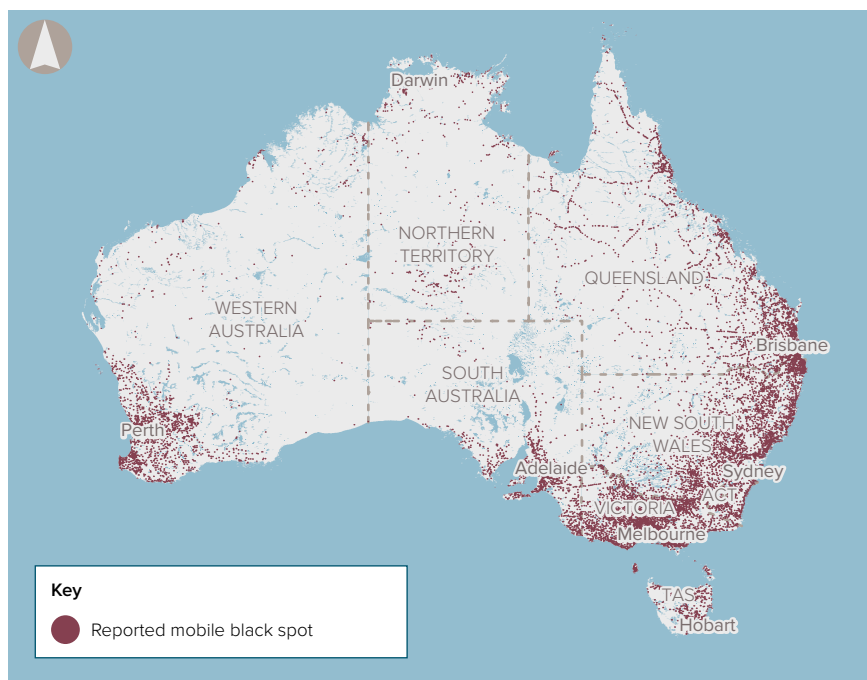
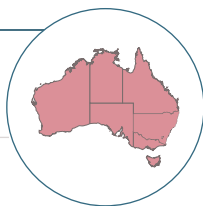
Near term (0–5 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2020
(Updated February 2021)



Problem

Many parts of Australia's regional and remote areas have no, or poor, mobile phone voice and data reception, affecting quality and reliability of services.

While Australia's mobile phone networks cover most individuals at home, there is limited service in many regional and remote areas (known as mobile blackspots) reducing mobile phone access for individuals when they travel and for some regional and remote communities.

Digital connectivity will become more important as the economy adjusts to the economic impacts of the COVID-19 pandemic, particularly for regional and remote communities.

The lack of connectivity disadvantages Australians in these areas who rely on mobile connections for social inclusion and access to services, such as health (for example, telehealth), education (for example, online distance education) and other welfare services, as physical services are often not cost effective to provide in these areas.

Access to reliable telecommunications can also be critical in emergency situations such as extreme weather, bushfires, flooding or serious trauma incidents, such as road accidents. A lack of mobile coverage can delay response times, thereby increasing the risk of lasting harm or loss of property. Improved coverage can benefit regional and remote business with access to new markets, business support services and technologies, such as digital farming practices. It also supports economic participation among isolated communities.

The 2019 *Australian Infrastructure Audit* acknowledges that mobile services in regional, rural and remote areas can be costly and poor quality, and that coverage gaps affect community safety, liveability and productivity.

The Australian Government is funding remote and regional mobile telecommunications improvements through programs such as the \$380 million Mobile Black Spot Program. The first five rounds of this program are funding the delivery of 1,229 new base stations in regional and remote Australia.

More work is required to fully address the issue.

Proposed initiative

The initiative is to improve the availability and quality of mobile services in certain regional and remote areas.

Locations for consideration for greater prioritisation should include the national transport network, regions with elevated risk of emergency or threat, as well as communities with barriers to economic and social participation (such as remote Aboriginal and Torres Strait Islander communities).

Next steps

Proponent(s) to be identified.

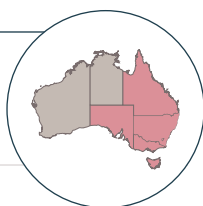
High Priority Initiatives

National Electricity Market

Dispatchable energy storage for firming capacity

Location

National Electricity Market



Geography

National

Category

Energy transformation

Problem timeframe

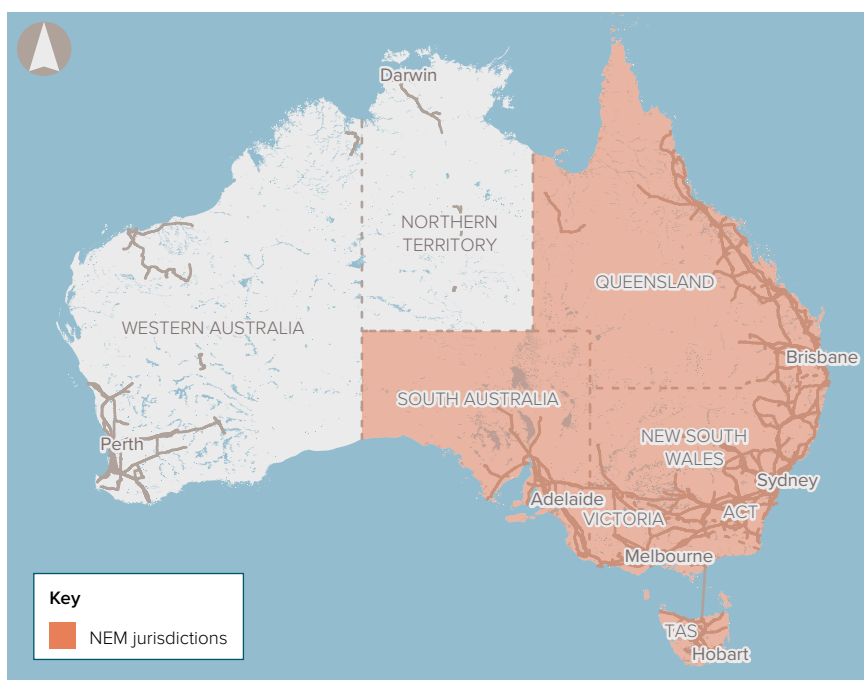
Various (0–15 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2021



Problem

The National Electricity Market (NEM) will require significant investments in dispatchable energy storage to support growing renewable energy generation and the future retirement of coal-fired generators.

The 2019 *Australian Infrastructure Audit* identified that new forms of large-scale energy storage are increasingly available, including pumped hydroelectric and battery assets.

Introduction of new firming capacity will complement variable renewable energy sources and support the transition to the new electricity mix. However, without sufficient dispatchable capacity, there is a risk of power outages and load shedding in the NEM.

Dispatchable storage can absorb energy in off-peak periods and release it when it is most needed to secure stability of the NEM.

The Australian Energy Market Operator has released the 2020 Integrated System Plan, which forecasts that 6–19 gigawatt (GW) of new dispatchable storage will be required by 2040. This is to firm up distributed energy sources and utility-scale variable renewable energy, such as solar farms.

Storage options range from large-scale investments (such as utility-scale pumped hydro) to smaller battery storage facilities.

The *Infrastructure Priority List* separately includes a High Priority Initiative for the expansion of Renewable Energy Zones in the NEM (see page 76).

Proposed initiative

Potential options to address the initiative include:

- distributed batteries
- large-scale battery energy storage systems
- utility-scale pumped hydro.

It is likely that a diverse mix of technologies will be required to support the NEM.

Next steps

Proponent(s) to be identified.

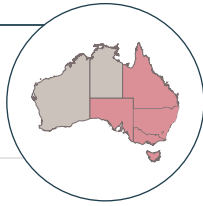
High Priority Initiatives

National Electricity Market

Renewable Energy Zone expansions

Location

National Electricity Market



Geography

National

Category

Energy transformation

Problem timeframe

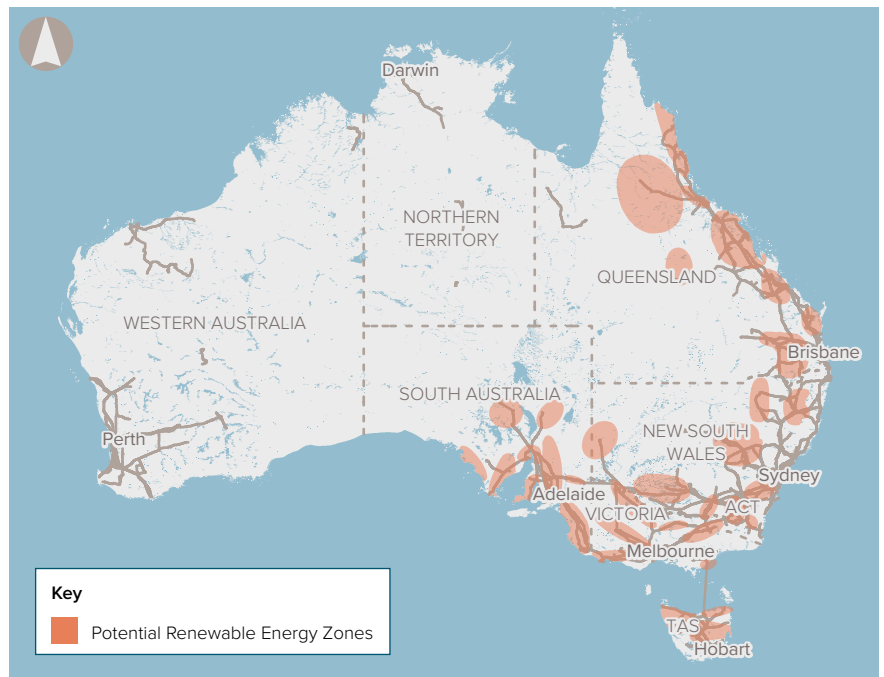
Various timescales (0–15 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2021



Problem

The National Electricity Market (NEM) will require significant new grid-scale renewable energy generators to replace retiring thermal generation facilities.

The Australian Energy Market Operator (AEMO) has released the 2020 Integrated System Plan (ISP), which forecasts that over 26 gigawatt (GW) of new grid-scale renewables will be required by 2040.

The ISP forecasts that most of this will be met by Renewable Energy Zones (REZs). These are areas with high-quality renewable energy resources, which are suitable for large-scale generation.

The 2019 *Australian Infrastructure Audit* found that coordinating investment in REZs will lead to lower wholesale and network costs for users over time.

Co-locating this investment means that the same transmission infrastructure can be used to reduce the overall amount of network investment needed.

The *Infrastructure Priority List* separately includes a High Priority Initiative for the future connectivity and reliability of the NEM, which includes transmission infrastructure to the REZs (see page 77).

Proposed initiative

Potential options to address the initiative include expansion of existing or new REZs across the NEM. The infrastructure within these REZs could include new large-scale wind, solar and hydro.

For the 2020 ISP, AEMO has identified 35 candidate REZs by considering a mix of resources, current and future transmission network capacities and cost, and other technical and engineering considerations.

In 2020, various state governments announced plans to establish 14 new REZs. These include five in New South Wales, six in Victoria and three in Queensland.

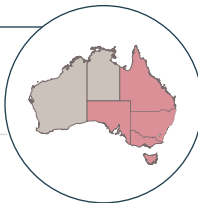
Next steps

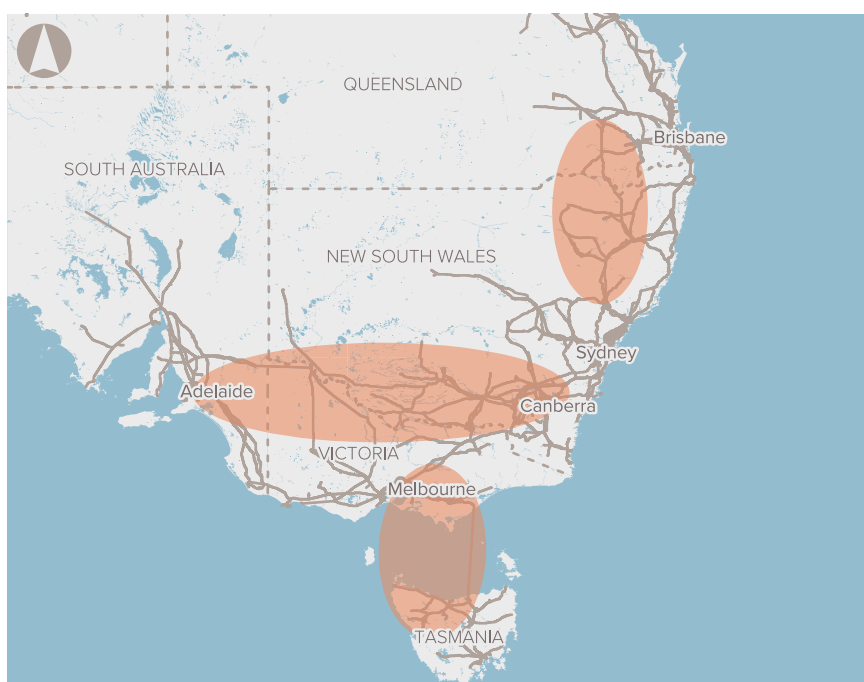
Proponent(s) to be identified.

High Priority Initiatives

National Electricity Market

Future connectivity and reliability

Location	
Geography	National
Category	Energy transformation
Opportunity timeframe	Medium to longer term (5–15 years)
Proponent	Infrastructure Australia identified initiative
Date added to the IPL	February 2019



Opportunity

The National Electricity Market (NEM) is undergoing a once-in-a-lifetime transition from thermal generation to intermittent renewables (such as wind and solar), complemented by firming generation (such as pumped hydro). By 2035, significant investment will be needed in renewable and firming generation and associated transmission to continue providing affordable, reliable and secure energy for users.

By 2040, over 26 gigawatts (GW) of large-scale renewable energy, backed up with up to 19 GW of new dispatchable resources, will be required to replace retiring coal-fired generation.

To ensure an orderly and cost-efficient transition, the transmission grid will need augmentation to balance generation resources and connect Renewable Energy Zones. Approximately 22 GW of new connection capacity is required in Renewable Energy Zones by 2040 to meet this growing need.

During this transition, the NEM will need to deliver greater volumes of generated and stored energy to meet changing patterns of consumer demand, balance intermittency, and increase system reliability and resilience by transmitting energy across and within regions.

The Australian Energy Market Operator, which operates the NEM, released an update to its Integrated System Plan (ISP) in 2020. The ISP was first released in 2018 and formed part of the evidence base for this initiative.

Short-term optimisation of the NEM is also identified as a Priority Initiative on the *Infrastructure Priority List*.

Proposed initiative

The 2020 ISP provides an actionable roadmap to guide governments, industry and consumers on investments needed for an affordable, secure and reliable energy future. The proposed initiative is to provide increased transfer capacity between regions and improve network access to energy storage locations and renewable energy sources. This includes:

- new and increased transfer capacity between regions, such as between Queensland and New South Wales, New South Wales and South Australia, and Tasmania and Victoria
- network access to energy storage locations
- network access to renewable energy sources.

Potential initiatives also include the Tasmanian Government's Second Bass Strait Interconnector project (also known as the 'Marinus Link'). This was previously listed on the *Infrastructure Priority List* as a longer-term Priority Initiative and is now captured under this broader initiative.

These potential medium- and longer-term investments are subject to change as the ISP is updated to reflect the dynamic nature of the power system and evolving technologies.

The investments and their timing will also be subject to regulatory assessment and any other processes required by governments.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

National highway electric vehicle fast charging

Location
National

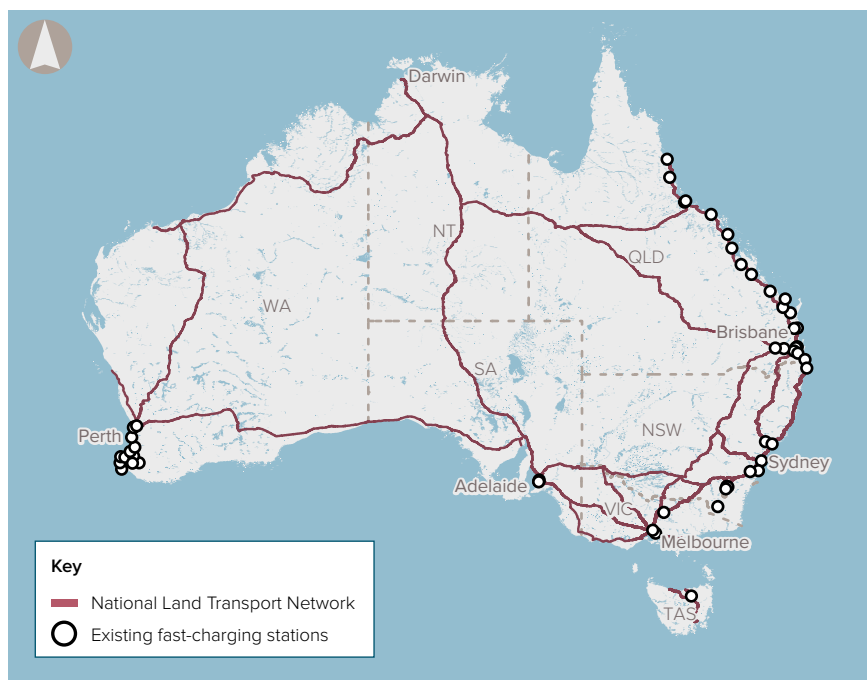
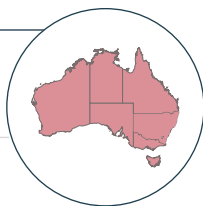
Geography
National

Category
National connectivity

Opportunity timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2019
(Updated February 2021)



Opportunity

By 2040, electric vehicles (EVs) are projected to account for 70% to 100% of new vehicle sales and at least 30% of the vehicle fleet in Australia. According to the Electric Vehicle Council, more than 19,500 EVs have been sold in Australia since 2011. In 2019, sales increased by 200%, with over 6,700 EVs sold.

Moving from internal combustion engines to electric vehicle technology will result in nationally significant fuel and maintenance cost savings, and environmental benefits.

However, lack of access to charging stations has been identified by over half of motorists as a key barrier to the adoption of EVs. Although there has been an increase in charging stations since 2018, partly supplied by the private sector, the latest information from the Electric Vehicle Council suggests that Australia currently has less than 2,500 public charging stations, of which approximately 350 are fast charging. Other key barriers to the adoption of EVs include the currently high vehicle prices, model availability, and the distance over which they can travel on a single charge.

Establishing a network of fast-charging stations on, or in proximity to, the national highway will help to overcome the 'access to charging facilities' barrier and reduce consumer anxiety about EV range. It is expected that the distance vehicles can travel on a single charge will continue to improve with technological advancements, and that vehicle prices will reduce as production scale increases and the cost of batteries reduces.

National policies and regulation to complement the roll-out of fast-charging infrastructure would reduce the risk of competing standards and redundant investments, and maximise inter-operability.

Proposed initiative

The initiative includes:

- developing a network of fast-charging stations on, or in proximity to, the national highway network to provide national connectivity
- developing policies and regulation to support charging technology adoption.

Complementary investment in network infrastructure may be required to ensure that the electricity generation and distribution network can provide reliable electricity supply for additional electric vehicle chargers.

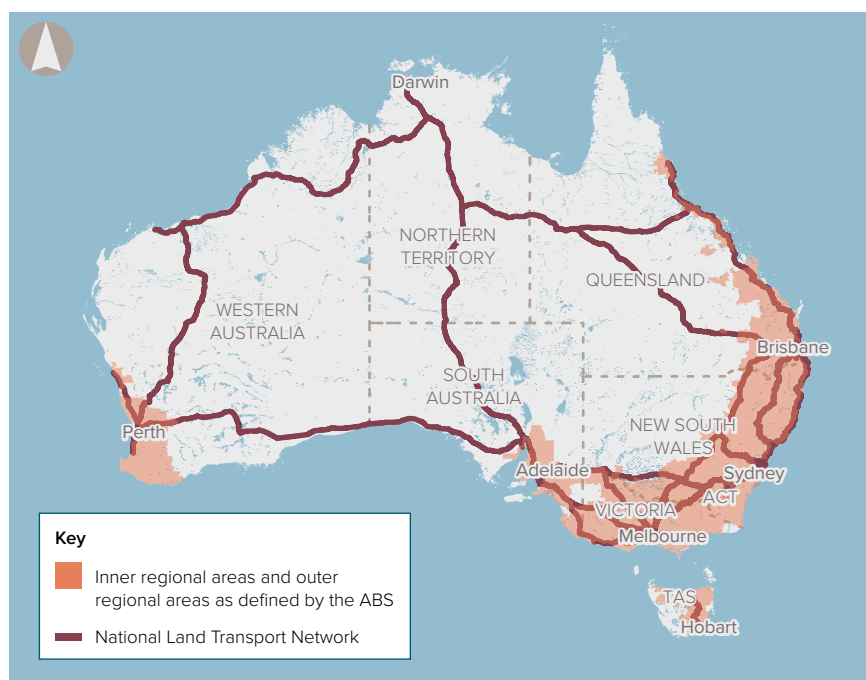
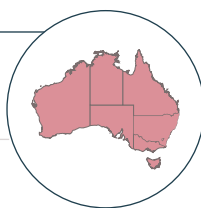
Next steps

Proponent(s) to be identified.

High Priority Initiatives

National road maintenance backlog

Location	National
Geography	National
Category	Asset renewal
Problem timeframe	Near term (0–5 years)
Proponent	Infrastructure Australia identified initiative
Date added to the IPL	February 2020



Problem

The cost of maintaining roads in Australia is growing and the overall maintenance backlog is increasing.

Australia's road network faces increasing demands from a growing population. Total vehicle kilometres travelled grew on average by 1.95% per annum between 1998 and 2018. The size of the network is also growing, with the expansion of existing roads and the construction of new ones.

Meanwhile, there is a limited link between funding for road services and the actual use of roads. This leads to funding challenges for ongoing maintenance, particularly where the capital expenditure of new roads is funded and future maintenance is not.

The 2019 *Australian Infrastructure Audit* identifies an underspend on historical maintenance, short budgetary and funding cycles, a lack of data and incentives, and inadequate reporting as factors contributing to maintenance backlogs across infrastructure sectors.

Proposed initiative

The initiative would address the road maintenance backlog across local, state and national roads. Key steps include:

- a comprehensive review of road condition across Australia
- prioritising and fixing roads in poor condition using a structured and evidence-based process
- considering reform options, including road regulatory reform and more structural reforms such as road-user charging.

There is also an opportunity to implement more pre-emptive maintenance. Early maintenance on assets such as pavement can significantly reduce future costs, if timed correctly.

This initiative requires action from local and state/territory governments to identify, categorise and prioritise the necessary responses in their areas of responsibility.

A Queensland National Land Transport Network (NLTN) maintenance initiative is separately included on the *Infrastructure Priority List* as the Queensland Government has developed a structured program approach to addressing the maintenance backlog for the sections of the NLTN in Queensland.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

National waste and recycling management

Location
National

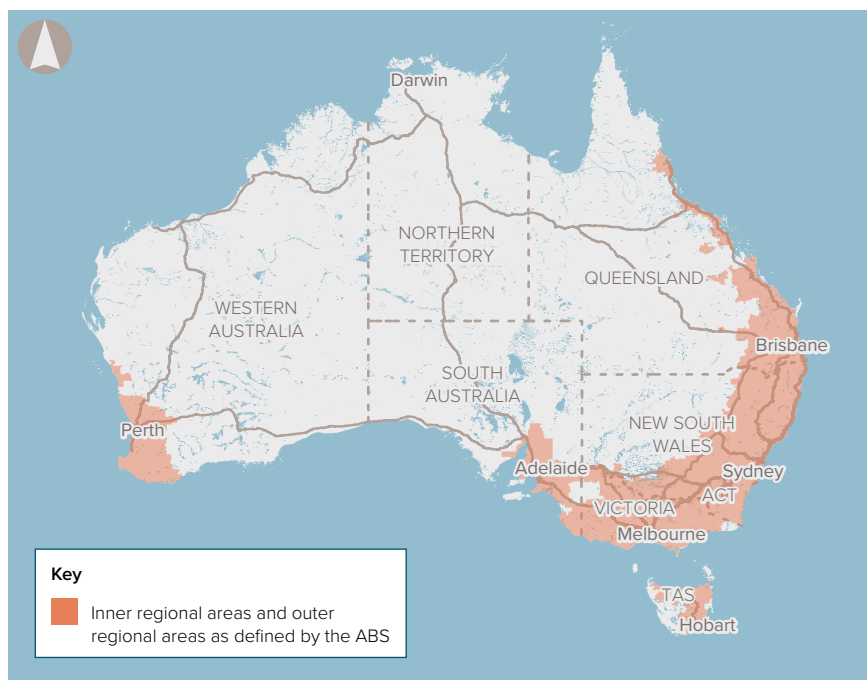
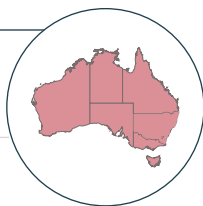
Geography
National

Category
Efficient markets

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2020



Problem

Around 67 million tonnes of waste was generated in Australia in 2016–17, of which 37 million tonnes (55%) was recycled. This is below the national resource recovery target of 80% by 2030, which was set in the 2019 *National Waste Policy Action Plan*.

Constraints on the collection and processing of recyclable waste – including product design and lack of sufficient demand – led to recyclable waste ending up in landfill, contributing to the shortfall. These constraints include:

- lack of space for transfer facilities
- the ability of material recovery facilities to process and sort co-mingled, highly contaminated waste (particularly for communities in remote and regional Australia)
- under-developed domestic reuse markets as a result of previous over-reliance on the export of waste to international markets.

In March 2020, all Australia's governments agreed to a ban on the export of waste-paper, plastic, glass and tyres. This means Australia must recycle an additional 650,000 tonnes of waste plastic, paper, glass and tyres onshore by 2024 putting further pressure on waste recovery and processing infrastructure.

The environmental costs of greenhouse gases and leachate from recyclable waste entering landfill are significant and are set to rise with a growing population.

In addition, limited landfill capacity and sorting facilities are increasing logistics costs as waste is being transferred greater distances for processing and disposal.

Proposed initiative

The initiative involves a coordinated strategy between all levels of government and the market to identify a program of investment in new waste recovery and reprocessing infrastructure. There is also an opportunity to use recycled content in infrastructure projects.

This aims to meet the long-term needs of Australians and to foster innovation and adoption of emerging technologies.

The Australian Government has committed \$190 million to a new Recycling Modernisation Fund, and nominated Recycling and Clean Energy as one of six National Manufacturing Priorities. These efforts aim to support investment in new infrastructure to sort, process and remanufacture materials such as mixed plastic, paper, tyres and glass.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Network Optimisation Program

Rail

Location
National

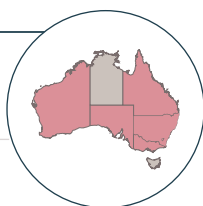
Geography
National

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2016



Problem

The 2019 *Australian Infrastructure Audit* found that the cost of road congestion and public transport crowding in Australia could increase from \$19 billion in 2016 to \$39.6 billion in 2031 without continued infrastructure investment. Although its root causes vary, this is a widespread problem across multiple corridors in Australian cities.

Addressing these problems through a program approach would enable the consistent use of data to maximise the productivity of smaller investments and enable a consistent definition of service levels across jurisdictions.

Proposed initiative

This initiative would involve a program of works focused on addressing capacity constraints and improving service levels on urban and regional rail networks, just as the *National Optimisation Program – Roads* initiative proposes to do for road networks. These works could use data and technology to improve network operations, including signalling, timetabling, level crossing upgrades, sectorisation of freight and passenger corridors, and segregation of express and local passenger services, where appropriate.

The initiative would identify and prioritise a program of works nationally to help maximise the existing productive capacity of the rail network, which could delay the need for some large-scale investments.

Appendix B provides a list of submissions received by Infrastructure Australia in relation to this program initiative.

This initiative was originally included on the *Infrastructure Priority List* under the combined Network Optimisation Program initiative and was subsequently separated in 2018.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Network Optimisation Program

Roads

Location	
National	
Geography	
National	
Category	
Efficient urban transport networks	
Problem timeframe	
Near term (0–5 years)	
Proponent	
Infrastructure Australia identified initiative	
Date added to the IPL	
February 2016	



Problem

The 2019 *Australian Infrastructure Audit* found that the cost of road congestion and public transport crowding in Australia could increase from \$19 billion in 2016 to \$39.6 billion in 2031 without continued infrastructure investment. Although its root causes vary, it is a widespread problem across multiple corridors in Australian cities. Addressing these problems will require multiple investments that are focused on productivity enhancing network optimisation, as well as continued investment in new capacity.

Proposed initiative

A Network Optimisation Program for roads would focus on addressing congestion on urban road networks with comparatively high public transport and freight use. These works could use data and technology to improve network operations by, for example, optimising traffic flow through intersection treatments, traffic light sequencing, clearways and incident management. The initiative would build on existing work being undertaken in this field to identify and prioritise a program of works nationally to help maximise the existing productive capacity of the road network, with a focus on urban motorways, major urban arterials and access to major centres. These works could delay the need for some large-scale investments.

Appendix B provides a list of submissions received by Infrastructure Australia in relation to this program initiative. This initiative was originally included on the *Infrastructure Priority List* under the combined Network Optimisation Program initiative and was subsequently separated in 2018.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Regional road network safety improvements

Location

National

Geography

Small towns, rural communities and remote areas

Category

Road safety

Problem timeframe

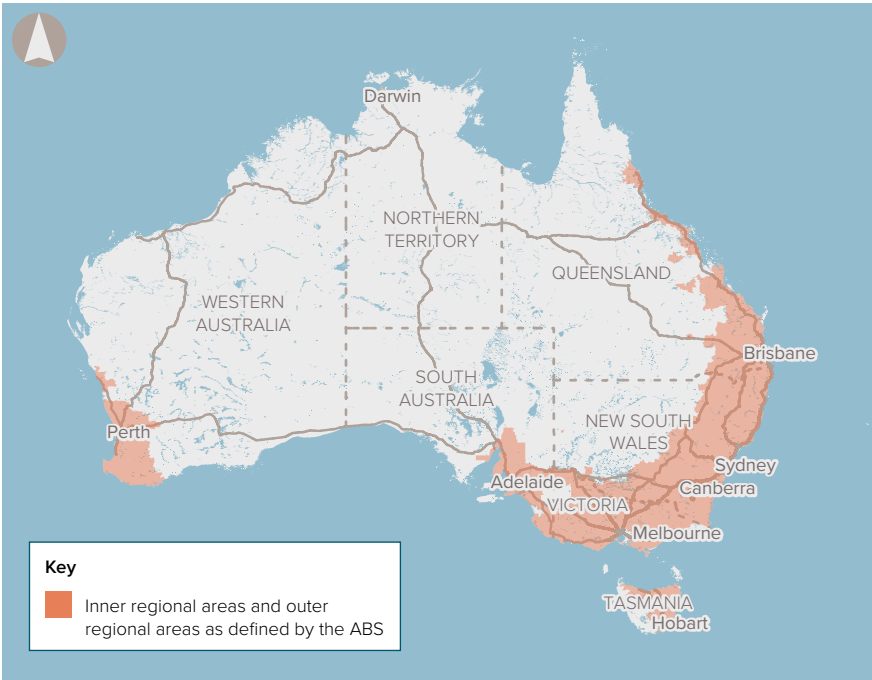
Near term (0–5 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2019



Problem

The poor quality of parts of Australia’s regional road network is resulting in a high number of crashes and fatalities. Between 2008 and 2016, 55% of road fatalities in Australia occurred in regional areas. Relative to population size, the number of fatalities in regional areas was over four times greater than for major cities over the same period.

While behavioural factors are a significant cause of road crashes, infrastructure deficiencies such as the curvature of roads are also a cause of accidents. Infrastructure can play an important role in mitigating the consequences of road accidents through features such as safety barriers and the appropriate placement of embankments, poles and other roadside objects.

There is a risk that the growing road freight task may exacerbate these road safety issues as more heavy vehicles travel on roads in regional areas.

Proposed initiative

This program initiative recognises the need to continue identifying, assessing and prioritising high-risk sections of regional roads across Australia. These sections could be addressed through targeted infrastructure improvements, such as alignment corrections and safety barriers, as well as modern road safety infrastructure technology to improve road safety outcomes.

The *Infrastructure Priority List* separately identifies the following High Priority initiatives that align with this program initiative:

- *Regional NSW road network safety improvements* (see page 96).
- *Regional and rural WA road network safety improvements* (see page 115).

There is also an opportunity to deliver road safety improvements alongside maintenance works on corridors, where it is efficient to do so. *National road maintenance backlog* is also recognised as a High Priority Initiative (see page 79).

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Regional telecommunications transmission capacity

Location
National



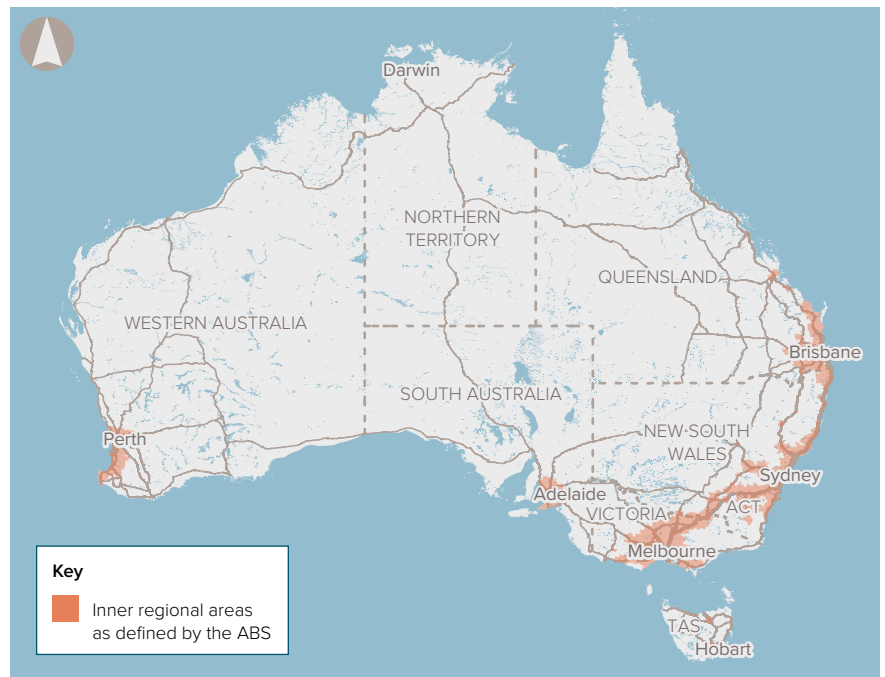
Geography
Smaller cities and regional centres

Category
Regional connectivity

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2021



Problem

The 2019 *Australian Infrastructure Audit* found that telecommunication services in regional Australia provide poor connectivity. Key issues include slow internet speeds, poor reliability and high prices.

There is a lack of competition to provide transmission to some regional centres with lower populations. This impacts both the value for money, capacity and quality of the transmission lines, which in turn inhibits fast and reliable internet connection.

This issue is a key contributing factor to the growing 'digital divide' between well connected and poorly connected areas of Australia. While there have been some improvements in market competition, many regional areas still face these issues and may not have access to future technologies such as 5G.

Access to high-speed internet provides a range of benefits, including better access to health (for example, telehealth) and education (for example, online distance education) services that are often difficult and costly to provide outside population centres.

Improved connectivity is likely to also benefit regional firms through greater access to markets and workers. It could also increase productivity of specific industries, such as agriculture through 'smarter' farming practices.

The *Infrastructure Priority List* separately includes a High Priority Initiative for mobile blackspots (see page 74). Extending transmission capacity can assist in enabling the construction of new telecommunication towers to address blackspots.

Proposed initiative

Potential options to address the initiative include:

- increasing shared use of the existing transmission network
- upgrading existing regional networks to allow faster digital connections
- investing in new transmission networks.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Remote housing overcrowding and quality

Location
National



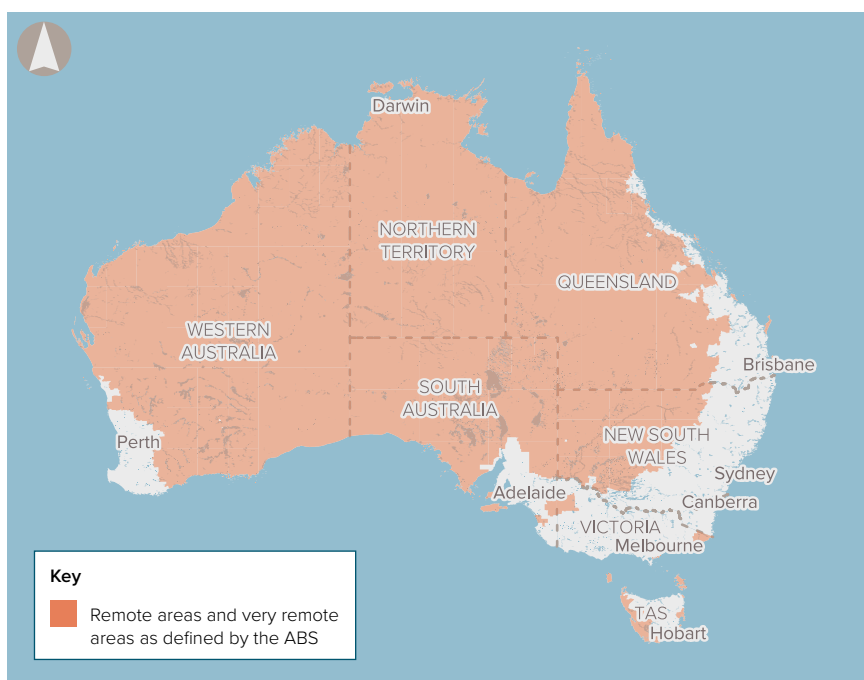
Geography
Small towns, rural communities and remote areas

Category
Social infrastructure

Opportunity timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2019
(Updated February 2021)



Opportunity

Relieving overcrowding and improving quality of housing in remote areas can significantly improve social, health, safety, education and employment outcomes for many Australians.

Based on 2016 Census data, approximately 25% of residents in remote and very remote areas of Australia identify as Aboriginal and/or Torres Strait Islander, of whom 42% reside in overcrowded or severely overcrowded housing.

Overcrowding is influenced by a range of factors including poor housing stock, a lack of affordable housing, insecure tenure and housing that is insufficient to meet cultural needs. Developing new housing can also be constrained by limited access to local essential services infrastructure such as water, sanitation and power supply.

Progress is being made to reduce the proportion of overcrowded remote houses – down from 52.1% in 2008 to 42% in 2016 according to the 2017 Remote Housing Review by the Australian Government, and projected to fall to 37.4% in 2018.

However, ongoing investment is necessary to ensure the gap continues to close, thereby reducing the high associated social and economic costs.

Proposed initiative

Appropriate housing underpins improved outcomes for Aboriginal and Torres Strait Islander peoples. The National Agreement on *Closing the Gap* (2020) centres on four key priority reforms and establishes 16 national socio-economic targets. These include housing, with the aim for 88% of Indigenous Australians to be living in appropriately sized (not overcrowded) housing by 2031.

Improving remote housing is likely to require a range of actions, including:

- addressing maintenance and utility deficiencies for existing and future housing stock
- renewing life-expired housing stock
- developing new housing stock
- addressing tenure issues and providing infrastructure to prepare for land development.

These actions will require Australia's governments to consider and closely engage with communities to understand which type of housing will best meet the needs and demographics of different communities in remote areas, including family, climate, cultural, lifestyle and intergenerational considerations.

Australia's governments should also consider complementary activities to attract commercial investment, land tenure reform and other programs that improve access to employment and social services.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Town and city water security

Location

National

Geography

National

Category

Access to water

Problem timeframe

Near term (0–5 years)

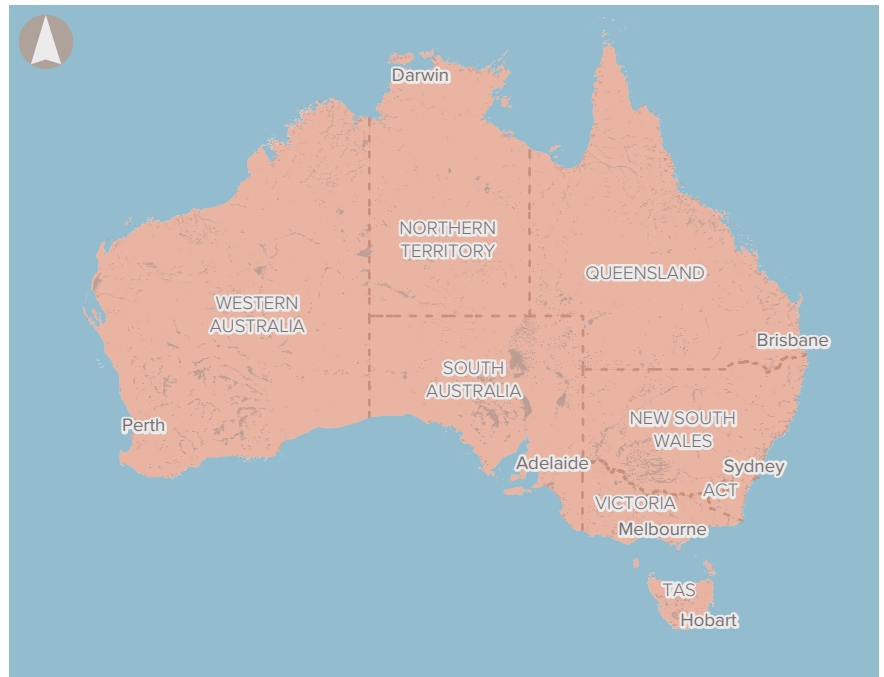
Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2020

(Updated February 2021)



Problem

Australia's urban water infrastructure is critical for the liveability and prosperity of more than 20 million people and 9 million connected properties in our towns and cities. It also serves industries, supporting growth in productivity and employment across the country.

The role of water in the public realm is also diverse. For instance, as well as drinking water, water plays an important role supporting urban cooling and amenity.

The 2019 *Australian Infrastructure Audit* found that the 'urban water sector faces challenges, including the impacts of climate change, population growth, ageing assets, and changing needs and expectations from users. Failure to adequately address these challenges could lead to rising water bills, as well as exposing users to risks of declining service quality and reliability'.

Without appropriately planning for these challenges, there could be severe urban water shortages or restrictions in many parts of the country.

For regional towns, water utilities often rely on a single supply source, with no physical link to an alternative bulk water supply. The lack of supply diversification creates further water security risks for these communities.

Proposed initiative

The initiative is for a mix of infrastructure and non-infrastructure responses, such as demand management, to efficiently meet agreed service standards for water security in Australia's towns and cities. Infrastructure interventions for towns and cities could involve new water sources, such as recycling and desalination.

Long-term urban water planning will need to be supported by stronger institutional arrangements, as recognised in the High Priority Initiative for *Bulk water supply security*, which is separately included on the *Infrastructure Priority List*.

Collaboration and knowledge sharing will also be important to achieve the best outcomes, taking into account the roles and responsibilities of state, territory and local governments.

Appendix B provides a list of submissions received by Infrastructure Australia in relation to this program initiative.

In 2019, the Australian Government established the National Water Grid Authority, which is collaborating with states and territories to identify, plan and deliver nationally important water infrastructure that increases the nation's water security for primary industry and supports regional growth.

A *Perth and south-western coast water security* initiative is separately included on the *Infrastructure Priority List*, as the Western Australian Government has provided detailed evidence of these issues in Perth.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Corridor preservation for Western Sydney Freight Line and Intermodal Terminal access

Location

Western Sydney, NSW



Geography

Fast-growing cities

Category

Corridor preservation

Problem timeframe

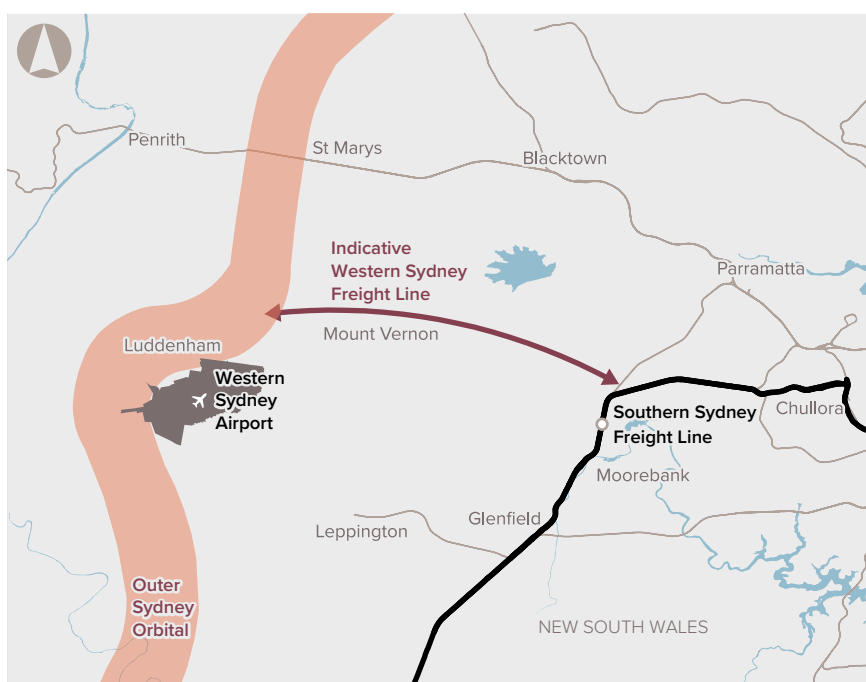
Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

The national land freight task is expected to grow by 86% between 2011 and 2031. The 2015 *Australian Infrastructure Audit* found that freight rail will need to play a growing role in the movement of goods between ports and inland freight terminals. The role of freight rail will be particularly important for containerised freight, with demand for container terminal port infrastructure projected to grow faster than Gross Domestic Product.

In 2018–19, approximately 18% of containerised freight handled at Port Botany was transported by rail. If this trend continues, congestion on Sydney's road network will increase as the number of trucks required to meet the growing freight task increases.

In order to facilitate a shift from road to rail for containerised freight movement in Sydney, additional capacity and higher levels of service are required on Sydney's rail freight network.

Modelling by Infrastructure Australia in 2017 estimates the net cost of protecting and acquiring the Western Sydney Freight Line (WSFL) corridor and intermodal terminal as \$3.6 billion (2016 prices) using a 7% real discount rate.

Proposed initiative

The proposed WSFL would be a dedicated rail freight line connecting Western Sydney to the Sydney Metropolitan Freight Network at the Southern Sydney Freight Line (SSFL). It would connect to intermodal terminals to service freight moving through Western Sydney from across New South Wales.

The core objective of the initiative is to reduce growth in truck movements on the Sydney road network and reduce delays to freight trains on the main Western Line, where passenger trains have priority. Preservation of the corridor is the first step to achieving this objective.

On 30 June 2020, the NSW Government announced and protected the final corridor for the western end of the WSFL. Work on finalising and protecting the eastern end of the corridor is underway.

Construction of the WSFL may also require capacity enhancement of the SSFL between the WSFL/SSFL junction and Sefton Park Junction.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Sydney Metro West

Mass transit between Greater Parramatta and Sydney CBD

Location
Sydney, NSW

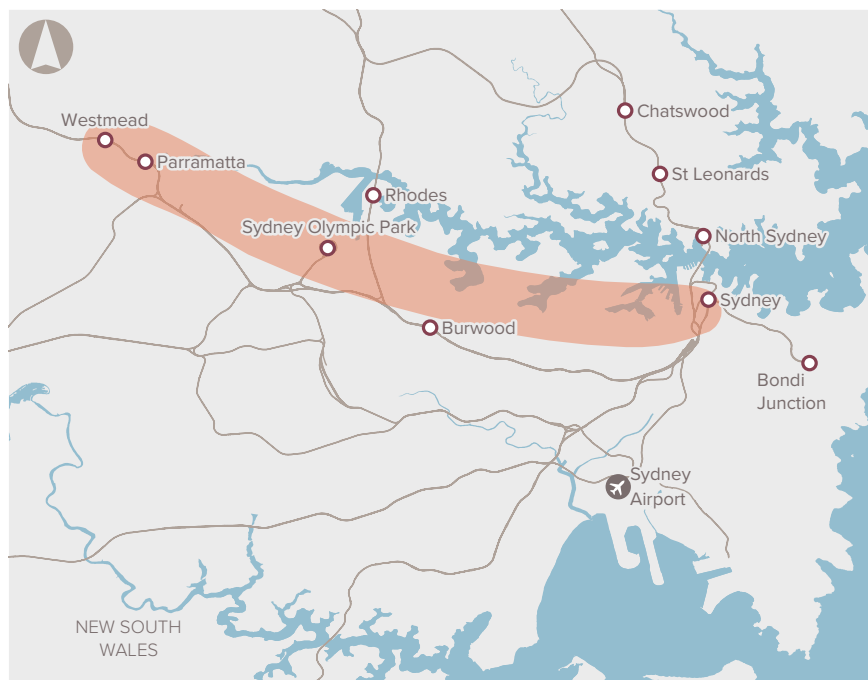
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
NSW Government

Date added to the IPL
February 2016



Problem

Demand for transport services in the corridor between Sydney CBD and Parramatta is high, and growing. This reflects high levels of employment and population growth along the corridor, and the corridor's role as a conduit for servicing growing transport demand between Western Sydney and the Sydney CBD.

Between 2016 and 2036, an extra 420,000 people and 300,000 jobs are expected to be located in the corridor between Greater Parramatta and central Sydney.

Future employment and population growth in the corridor will be largely driven in part by five key precincts: Westmead, Parramatta, Sydney Olympic Park, The Bays and Sydney CBD.

The 2015 *Australian Infrastructure Audit* projected that passenger demand on the existing T1 Western Line (which is more than a century old) would increase by about 50% between 2011 and 2031. In March 2019, the T1 Western Line moved on average over 20,000 people between 8 am and 9 am and operated at above 150% of seated capacity.

Proposed initiative

The initiative would provide a direct metro rail connection between Westmead and the Sydney CBD, linking communities not previously serviced by rail as well as supporting growth in areas between the two CBDs. This initiative has the potential to transform communities, create new ones and link them using a new state-of-the-art public transport system.

A new metro rail service would be able to move about 40,000 people an hour in each direction, and would work together with the T1 Western Line to service the growing needs of Western Sydney. This would effectively double the rail capacity of the Greater Parramatta to Sydney CBD corridor.

The initiative would be integrated with long-term transport and land use planning for Western Sydney, including rail needs currently being investigated around the future Western Sydney Airport.

The NSW Government is progressing planning for a metro connection between the Sydney CBD and Westmead. In October 2019, the NSW Government announced a preferred alignment and station locations.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Corridor preservation for Outer Sydney Orbital road and rail/M9, and Castlereagh Connection

Location

Western Sydney,
Illawarra, Central Coast,
NSW


Geography

Fast-growing cities

Category

Corridor preservation

Problem timeframe

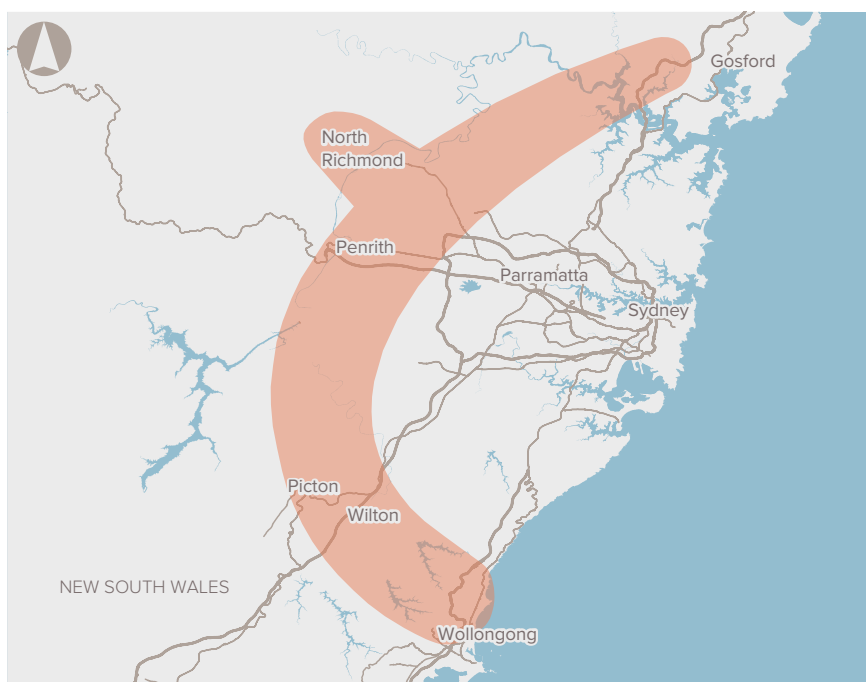
Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

Western Sydney, as well as areas north and south of Sydney, will need to accommodate large travel demand increases due to significant population and employment growth.

By 2031, an additional 140,000 people are expected to live in the Illawarra and Central Coast regions, and an additional 1 million people in Western Sydney. The broader Western Sydney Employment Area is expected to accommodate 378,000 new jobs in the long term.

Traffic modelling undertaken as part of the 2015 *Australian Infrastructure Audit* indicates that in 2031 parts of the existing outer Sydney road network will be at or above capacity, which is expected to result in congestion and long travel times.

In the absence of long-term planning and corridor protection, future infrastructure provision would be complex and costly.

Modelling by Infrastructure Australia in 2017 estimates the net cost of protecting and acquiring the corridor between Richmond and east of Picton as \$0.3 billion (2016 prices) using a 7% real discount rate.

Proposed initiative

In March 2018, the NSW Government publicly exhibited a planning study to identify and ultimately preserve a preferred alignment for a multi-modal transport corridor in Western Sydney, comprising a motorway, a north–south freight rail line, and, where practical, integrating a north–south passenger rail line.

The NSW Government has confirmed the preservation of the Castlereagh corridor (originally reserved in 1951) to allow for future improvements to road connectivity and transport efficiency within Greater Sydney and to regional areas west of Sydney.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Corridor preservation for Western Sydney Airport fuel pipeline

Location
Western Sydney, NSW

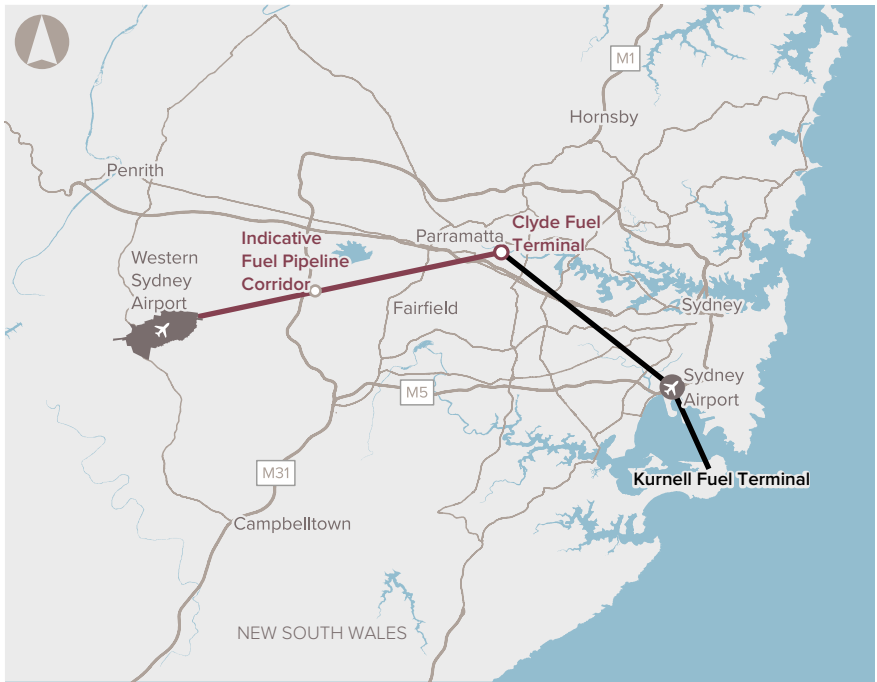
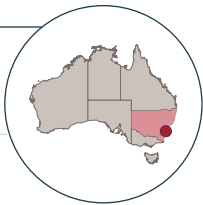
Geography
Fast-growing cities

Category
Corridor preservation

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2016



Problem

Western Sydney Airport is projected to commence operation by 2026. When operation reaches full capacity, the airport could potentially require 50 to 65 B double fuel tanker deliveries per day, which would add to congestion on Sydney’s urban road network. The reliance on fuel transportation by heavy vehicles could also generate congestion problems at the airport site, and contribute to delay costs along key freight corridors.

While a dedicated fuel pipeline is unlikely to be required upon the commencement of airport operations, the identification and preservation of a corridor will ensure a route for the pipeline is available when required.

Developing a fuel pipeline connection would enable efficient, safe and cost effective transportation of jet fuels in significant volumes.

Proposed initiative

Identify and preserve a corridor for a fuel pipeline connection between the Sydney fuel pipeline network and Western Sydney Airport.

The NSW Government is currently undertaking preliminary work to identify route options for a fuel pipeline connection.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia’s Assessment Framework).

High Priority Initiatives

Corridor preservation for Western Sydney Airport rail connections

Location
Western Sydney, NSW

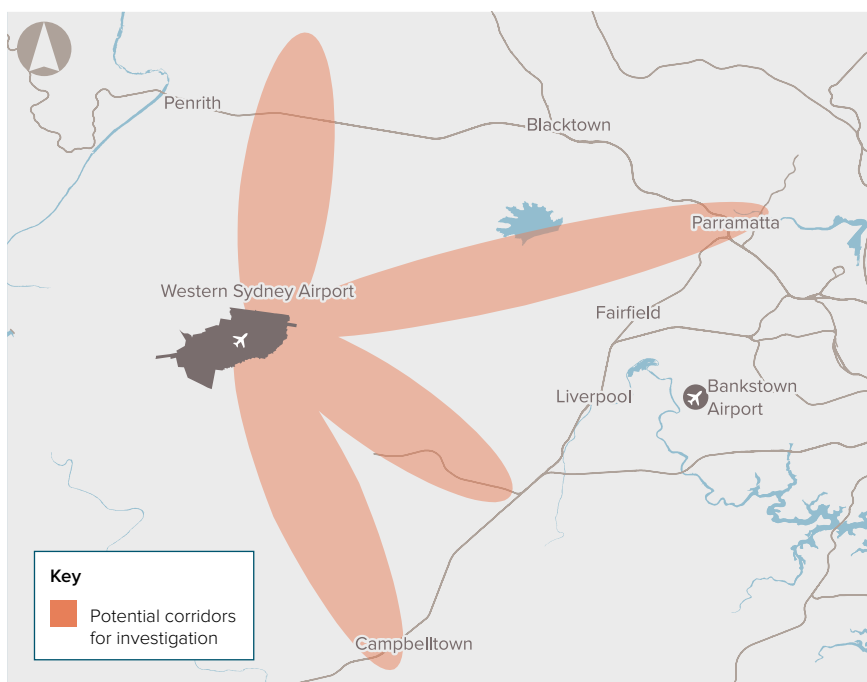
Geography
Fast-growing cities

Category
Corridor preservation

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2016
(Updated February 2021)



Problem

By 2036, Greater Western Sydney is expected to grow to 3 million people, up 20% from 2.5 million in 2020. Around half of all Sydney Basin residents are expected to be living in the region within 25 years. Preliminary analysis indicates that passenger demand at Western Sydney Airport could reach 10 million per year within five years from commencement of operations in the mid-2020s.

Provision of efficient transport options connecting Western Sydney Airport with other key hubs – such as the Sydney CBD, Parramatta, Western Sydney Employment Area, and North West and South West priority growth areas – is critical to avoid unnecessary travel delays and enable sustained economic growth.

Modelling by Infrastructure Australia in 2017 estimates the net cost of protecting and acquiring an indicative corridor from St Marys to the Western Sydney Airport, then to Macarthur and Leppington, as \$0.3 billion (2016 prices) using a 7% real discount rate.

Proposed initiative

Identify and preserve rail corridors connecting the Western Sydney Airport with the Sydney rail network.

The Australian Government and NSW Government jointly released a scoping study that considered six options for rail services to the Western Sydney Airport and the Western Parkland City. Three options have subsequently been shortlisted as part of a longer-term rail network for Western Sydney:

- a north–south line between Schofields and Macarthur via the airport
- an extension of the South West Rail Link
- an east–west line between the Western Sydney Airport and Parramatta.

The Australian Government and NSW Government are jointly funding the planning and delivery of Stage 1 of the north–south line to service Western Sydney Airport and the Western Parkland City, between St Marys and Bringelly. This would support growth in Western Sydney, including the new airport, by providing a transport link that can shape growth while providing fast and efficient transport accessibility.

A medium-term Priority Initiative for Western Sydney Airport public transport connections is separately included on the *Infrastructure Priority List*.

In June 2020, the NSW Government confirmed the final corridors for a north–south rail connection to the Western Sydney Airport and a south–west extension to Leppington.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Digital infrastructure to enable smart technologies in the Western Parkland City

Location

Western Sydney, NSW

Geography

Fast-growing cities

Category

Social infrastructure

Opportunity timeframe

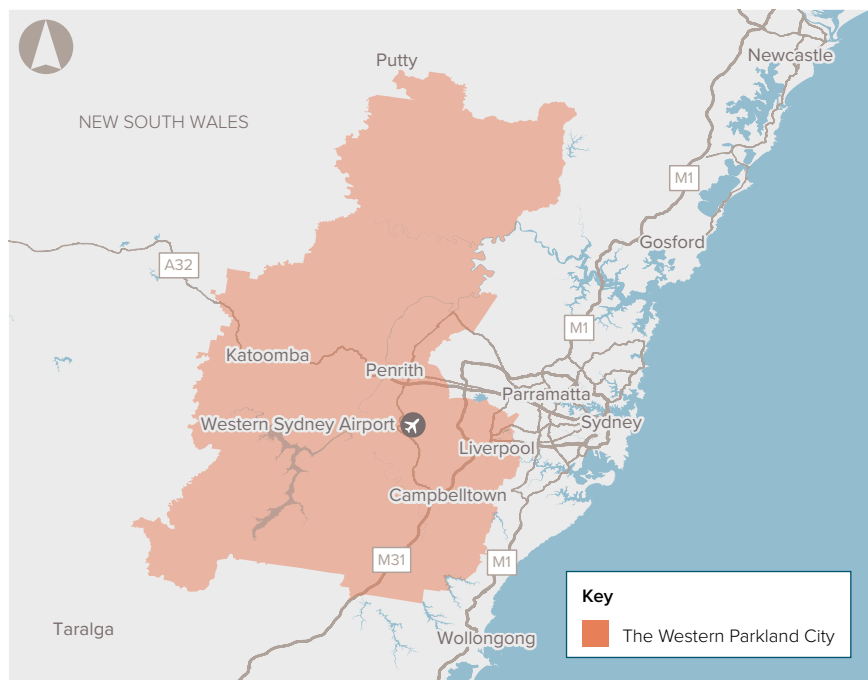
Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2021



Opportunity

The Western Parkland City is being developed as one of Greater Sydney's three cities. It will have a population of more than 1.5 million by 2036. There is an opportunity to invest in foundational digital infrastructure to enable it to be a digitally connected city.

The 2019 *Australian Infrastructure Audit* identified that integrating new technologies can enable substantial improvements in quality of life, productivity and service delivery.

Fast and reliable internet connections will be crucial to the development of the Western Parkland City as it seeks to attract people, businesses and jobs.

Providing digital infrastructure would enable the adoption of technologies that reduce travel times, reduce resource use and emissions, improve health and provide more ways for community members to access up to date information about services and developments in their city.

This opportunity is aligned with the NSW Digital Government Strategy, which aims to enhance customer experience and service delivery for people and businesses in New South Wales.

Smart city infrastructure can also enable technologies that help deliver NSW Government priorities relating to transport, the environment and urban development.

Proposed initiative

The initiative is for developing the digital foundations of the Western Parkland City to support future technological infrastructure, such as 5G and 6G antennas, public Wi-Fi networks and sensor networks.

Enabling infrastructure could include:

- smart street furniture
- smart poles that provide mobile internet access, street lighting and security cameras
- a high-capacity telecommunications transmission network.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

New South Wales social housing program

Location
New South Wales

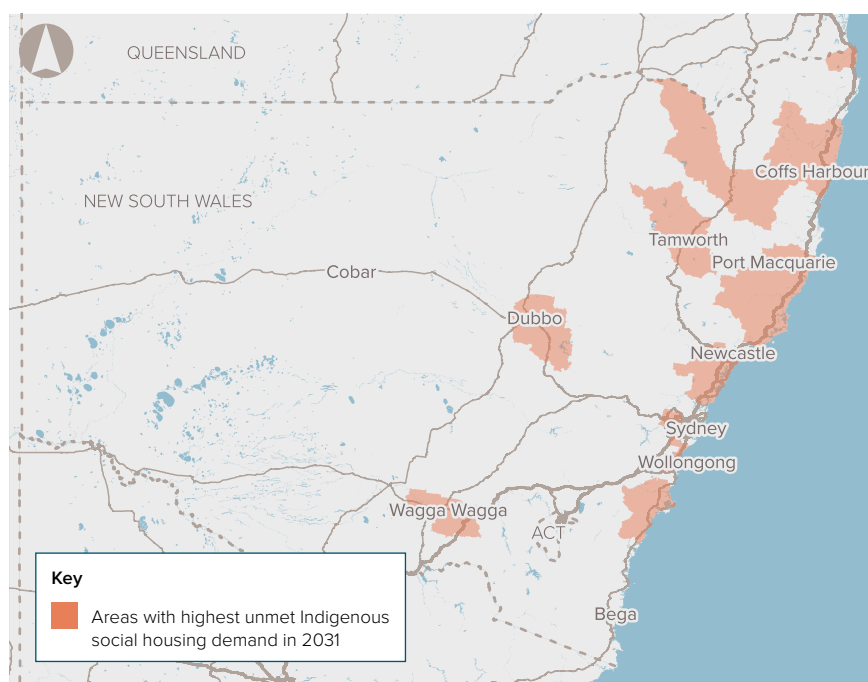
Geography
Small cities and regional centres

Category
Social infrastructure

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2021



Problem

Across New South Wales, demand for social and crisis housing is growing faster than supply. Growth in maintenance costs for the existing housing stock is also constricting available Commonwealth and state investment for new houses.

The past decade has seen a 37% increase in unmet priority social housing demand and a 70% increase in homelessness across New South Wales.

The 2019 *Australian Infrastructure Audit* identified that the social housing system in Australia is under pressure. There is a lack of funding, high maintenance costs from an ageing housing stock and increasing demand.

Without intervention, this issue is expected to worsen. Unmet demand for Aboriginal housing alone is expected to result in an undersupply of more than 12,500 homes by 2031.

This initiative relates to the national High Priority Initiative for *Remote housing overcrowding*, which was added to the *Infrastructure Priority List* in February 2019.

Proposed initiative

This initiative is for increasing the availability of social housing in New South Wales.

Growing the availability of housing is likely to involve a range of actions, including:

- addressing maintenance deficiencies for existing housing stock
- renewing life-expired housing stock
- developing new housing stock.

There is an opportunity to generate efficiencies by considering issues in supplying social and crisis housing for Aboriginal and Torres Strait Islander people together with other populations.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Parramatta Outer Ring Road capacity

Location
Parramatta, NSW

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2021



Problem

Parts of the Parramatta Outer Ring Road, which surrounds Parramatta CBD, are heavily congested in peak periods. This is resulting in motorists avoiding the outer ring road, and instead travelling through the Parramatta CBD, which contributes to congestion and impacts on amenity.

These issues are expected to worsen over time. The Greater Parramatta and Olympic Park area is projected to experience rapid population and employment growth, with an additional 113,000 jobs and 72,000 homes between 2016 and 2036.

The outer ring road is made up of the Cumberland Highway, the M4 Western Motorway and James Ruse Drive, which carries 60,000 to 70,000 vehicles on average per day.

The 2019 *Australian Infrastructure Audit* found that urban travel patterns are becoming increasingly complex, driven by economic, social, demographic and technological changes.

There is a risk of growing divergence between the way our networks are planned and designed, and the needs of customers. Failure to cater for changing patterns of travel could contribute to growing congestion in our fast-growing cities.

Proposed initiative

Potential options to address the initiative include:

- making better use of the existing infrastructure, such as with technology to improve traffic management
- improving or removing intersections
- bus network improvements.

If the initiative can encourage users to take the outer ring road, rather than travel through the Parramatta CBD, there may be an opportunity to improve amenity, public transport and active transport within the CBD.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Public transport capacity

Parramatta Road and Victoria Road corridors

Location
Sydney, NSW

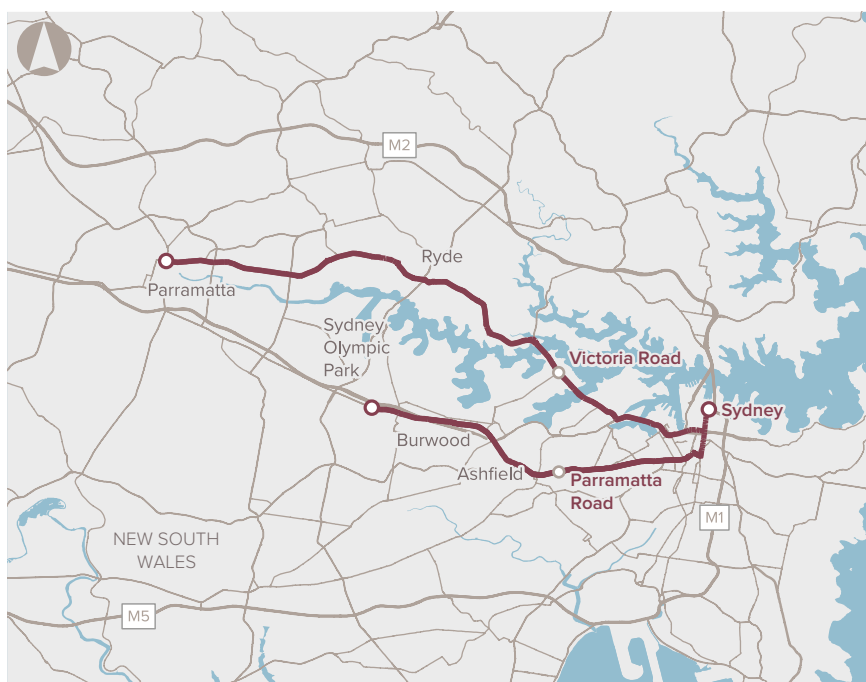
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2016



Problem

The 2019 *Australian Infrastructure Audit* identified that some of Sydney's most congested roads are along the Burwood to Sydney CBD via Parramatta Road corridor, and the Parramatta/Ryde/Sydney CBD via Victoria Road corridor. The cost of congestion in the greater Sydney region is projected to rise from \$8.1 billion in 2016 to \$15.9 billion in 2031. The need for public transport improvements for both corridors is identified in the NSW Government's Future Transport Strategy 2056.

The population of Local Government Areas (LGAs) along the Parramatta Road corridor will grow by approximately 116,000 people between 2016 and 2036.

The population of LGAs along the Victoria Road corridor will grow by approximately 68,000 people in the same period.

While both corridors are served by rail, and some sections are planned to be served by Sydney Metro West, other parts are only practically served by road. For these sections of the corridors, additional public transport capacity is required.

Efficient management of the transport network on these two corridors is a priority issue. Inadequate investment in public transport along these corridors will result in greater reliance on and use of private passenger vehicles, in turn leading to further road congestion and delays at the expense of economic efficiency.

Proposed initiative

The provision of high-capacity public transport infrastructure is potentially an effective method of improving connectivity along priority corridors and alleviating congestion on Sydney's urban transport network.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Regional NSW road network safety improvements

Location
New South Wales



Geography
Small towns, rural communities and remote areas

Category
Road safety

Problem timeframe
Near to medium term (0–10 years)

Proponent
NSW Government

Date added to the IPL
February 2019



Problem

Traffic volumes on the New South Wales (NSW) road network increased by 14% from 2008 to 2017. Freight traffic volumes are expected to nearly double from 2011 to 2031.

In 2018, crashes in NSW accounted for 31% of the Australian road toll.¹ Further, 34% of all Australian road fatalities involving a heavy vehicle occurred in NSW.

NSW is one of only two jurisdictions to experience an increase in fatalities per vehicle kilometre travelled between 2016 and 2017.

Road safety improvements can enable freight to move more effectively on the NSW regional road network and contribute to national economic performance. Without these improvements, the increase in road freight traffic could lead to increases in road crashes. While behavioural factors have a major influence on road safety, infrastructure improvements are important to achieving a safer road environment.

Proposed initiative

This initiative forms part of the national High Priority Initiative for *Regional road network safety improvements* (see page 83). It involves the introduction of modern road safety infrastructure technology and features, to improve road safety at high-risk locations.

Each year in NSW, over two-thirds of all fatalities occur on country roads.

In NSW, these locations have been identified, assessed and prioritised by the NSW Government based on road crash data and the impact of infrastructure deficiencies. Potential improvements include the introduction of new safety barriers, wide centre lines, and/or audio tactile line marking to attain a safe road cross section.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

¹ Bureau of Infrastructure, Transport and Regional Economics, 2018.

High Priority Initiatives

Sydney rail network capacity

Location
Sydney, NSW

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
March 2018



Problem

Rapid growth in demand for rail transport in the Sydney Basin is leading to passenger crowding and displacement on major parts of the Sydney rail network. Demand for rail trips in Greater Sydney increased significantly from 300 million trips in 2015, to 420 million trips in 2018 — an average of 7.6% growth each year.

Current forecasts predict that demand on the North Shore, Inner West and South, Airport and Illawarra lines will exceed capacity in peak times by 2021. The Western Line is expected to reach capacity in peak times by 2031.

Without significant additional capacity, crowding during peak periods will substantially impact on the reliability of the key lines by the mid-2020s.

In addition, signalling systems are reaching the end of their effective life, with unsustainable maintenance costs and high risk of asset failures, which could lead to passenger and operational disruption. Long travel times due to worsening congestion and reduced reliability will result in nationally significant losses in productivity.

Proposed initiative

Potential solutions to accommodate the strong future growth in rail patronage could include significant investment in new services, advanced signalling, infrastructure upgrades and additional fleet.

In June 2020, we listed More Trains More Services Stage 2 as a Priority Project. The proponent is investigating options for the remaining sections of the network.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Western Sydney Freight Line and Intermodal Terminal

Location

Western Sydney, NSW



Geography

Fast-growing cities

Category

National connectivity

Problem timeframe

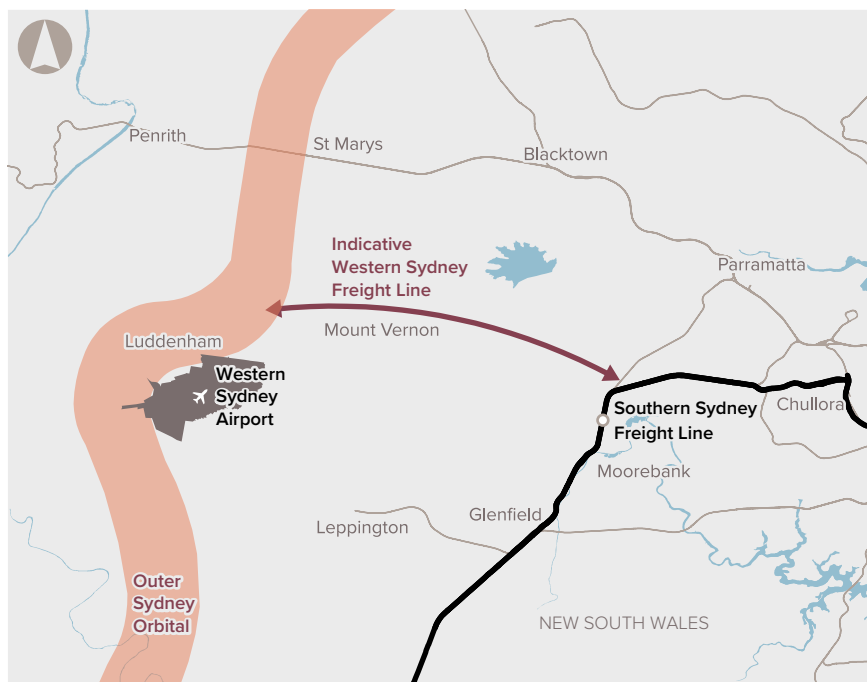
Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2021



Problem

Western Sydney is expected to experience rapid population growth, and a significant increase in freight volume. The total volume of freight that is coming to or from Western Sydney is expected to increase from 18.5 million tonnes in 2014 to 41 million tonnes by 2041.

Currently there is no freight rail serving the Western Sydney Employment Area, which is located close to the new Western Sydney International Airport (due to open in 2026). Without a freight rail link, this area will rely on road freight to transport goods to and from Port Botany.

Continued reliance on road transport is likely to result in higher transport costs, further congestion impacts on the Sydney road network and restricted access to international markets, via Port Botany.

The 2019 *Australian Infrastructure Audit* found that freight transport in our fast-growing cities is impacted by congestion, leading to increased costs. If this is not addressed, delays in our urban supply chains will become more common and costs will increase as our cities grow.

Corridor preservation for a Western Sydney Freight Line and Intermodal Terminal access has been included on the *Infrastructure Priority List* as a High Priority Initiative since 2016. On 30 June 2020, the NSW Government announced and protected the final corridor for the western end of the freight line. Work on finalising and protecting the eastern end of the corridor is underway.

Proposed initiative

Potential options to address the initiative include high-capacity freight connections and potential intermodal facilities to improve freight connectivity between Western Sydney and the Sydney Metropolitan Freight Network.

The initiative aims to reduce growth in truck movements on the Sydney road network and reduce delays to freight trains on the main Western Line, where passenger trains have priority.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Greater Sydney water security

Location
Greater Sydney, NSW

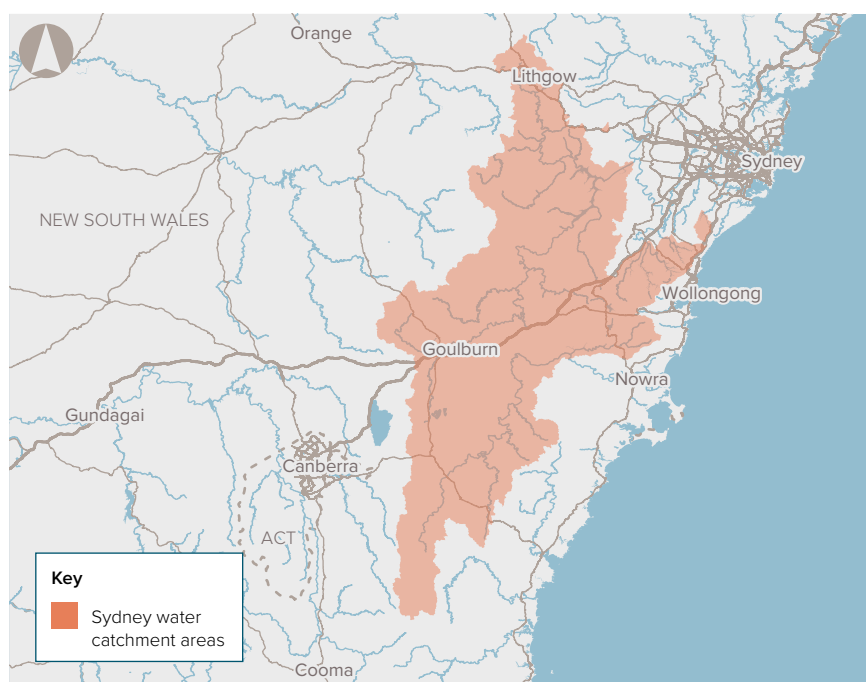
Geography
Fast-growing cities

Category
Access to water

Problem timeframe
Medium term (5–10 years)

Proponent
NSW Government

Date added to the IPL
February 2021



Problem

Greater Sydney's water security and supply will be challenged by climate variability and change, population growth and ageing assets. There are also growing community expectations that governments will improve waterway health and use more water for city greening and cooling. By 2040, Greater Sydney's population is forecast to grow by 1.9 million to 7.1 million people. This will grow to 8.3 million by 2056, with an estimated increase in annual water demand of 50% to 65%, or about 280 gigalitres (GL) to 360 GL per year.

The 2019 *Australian Infrastructure Audit* found that the urban water sector faces considerable risks, including the impacts of climate change, population growth, ageing assets, and changing needs and expectations from users.

Climate variability and change could increase the frequency, severity and longevity of drought. This could result in more frequent and severe water restrictions across Greater Sydney. This imposes costs on households, business, the community and the water service provider.

The *Infrastructure Priority List* separately includes a High Priority Initiative for *Town and city water security*, which recognises these challenges across Australia.

Proposed initiative

Potential options to address the initiative include better-use and new infrastructure investments, as well as non infrastructure responses such as demand management to efficiently meet this need.

The initiative aims to deliver long-term water security, water quality, amenity, recreation and public health outcomes for Greater Sydney.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Southern Sydney to CBD public transport enhancement

Location
Sydney Inner City, NSW



Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
NSW Government

Date added to the IPL
February 2016



Problem

The transport network between the Sydney CBD and the area south towards Sydney (Kingsford Smith) Airport lacks the capacity to effectively handle prospective population and jobs growth. The population of the Green Square Precinct is projected to grow from 33,000 in 2016 to 61,000 in 2031. While Green Square has a railway station on its western side, the north and east of Green Square Precinct make up a fast-growing inner residential area that is not directly served by rapid public transport.

Green Square forms part of the nation's largest bus transport task (Eastern Suburbs–South to Sydney Inner City), as identified in the 2015 *Australian Infrastructure Audit*. Due to road congestion, bus transport to the Sydney CBD from Green Square is slow and unreliable. Potential growth in bus transport, to service a larger population, will add to congestion close to the centre of Sydney.

With Green Square abutting the Sydney Airport precinct and close to the Port Botany precinct (which together generate more than \$10 billion per year in economic activity), there is also an opportunity to grow commercial activity, facilitated by reliable, rapid public transport.

Proposed initiative

A high-capacity rapid transport link, either bus or rail, incorporating new technology, would provide significant additional capacity between the Sydney CBD and the underserved parts of the Green Square Precinct.

The NSW Government's planning for Sydney Metro West includes consideration of a potential future station at Zetland.

The NSW Government is working with key external stakeholders, such as councils, Sydney Airport and NSW Ports to define short-term and longer-term future transport networks for trains, metro, light rail and bus. This will define the delivery of Future Transport Strategy 2056 for this rapidly growing part of the city.

The proponent for this initiative was previously the City of Sydney. The initiative was updated in February 2020 to list the NSW Government as the proponent.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Corridor preservation for Melbourne Outer Metropolitan Ring Road/E6

Location
Melbourne, Vic

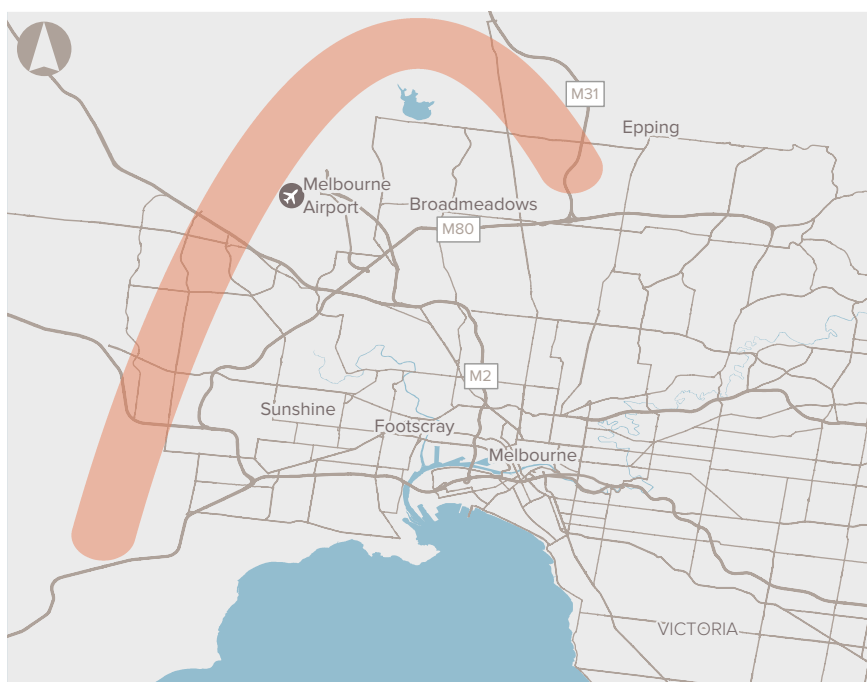
Geography
Fast-growing cities

Category
Corridor preservation

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2016



Problem

There is a need to preserve transport corridors to ensure that cost-effective transport infrastructure can be provided in the future. Preserving transport corridors is a multi-step process that includes defining the corridor, applying land use controls, and acquiring the land required for the corridor.

The Victorian Government has undertaken planning for the Outer Metropolitan Ring Road and E6 corridor, and defined the corridor through application of a Public Acquisition Overlay in 2010. This allows for compulsory acquisition of property when required. It also gives VicRoads rights to request refusal of development applications.

The early protection and staged purchase of land in the corridor is aligned with Infrastructure Australia's previous recommendations to the Council of Australian Governments, and consistent with the 2016 *Australian Infrastructure Plan*.

Modelling by Infrastructure Australia in 2017 estimates the net cost of protecting and acquiring the Outer Metropolitan Ring Road/E6 and site for the proposed Western Interstate Freight Terminal at \$2.3 billion (2016 prices) using a 7% real discount rate.

Proposed initiative

The initiative is corridor preservation for the Outer Metropolitan Ring Road and E6 in Melbourne. The corridor has provision for a freeway (four to six lanes in each direction) and four rail tracks. The land required for the corridor was defined and preserved in 2010 through a Public Acquisition Overlay. The next step in preserving the corridor is acquisition of land in the corridor as it becomes available.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Eastern Freeway and CityLink connection

Location
Melbourne, Vic

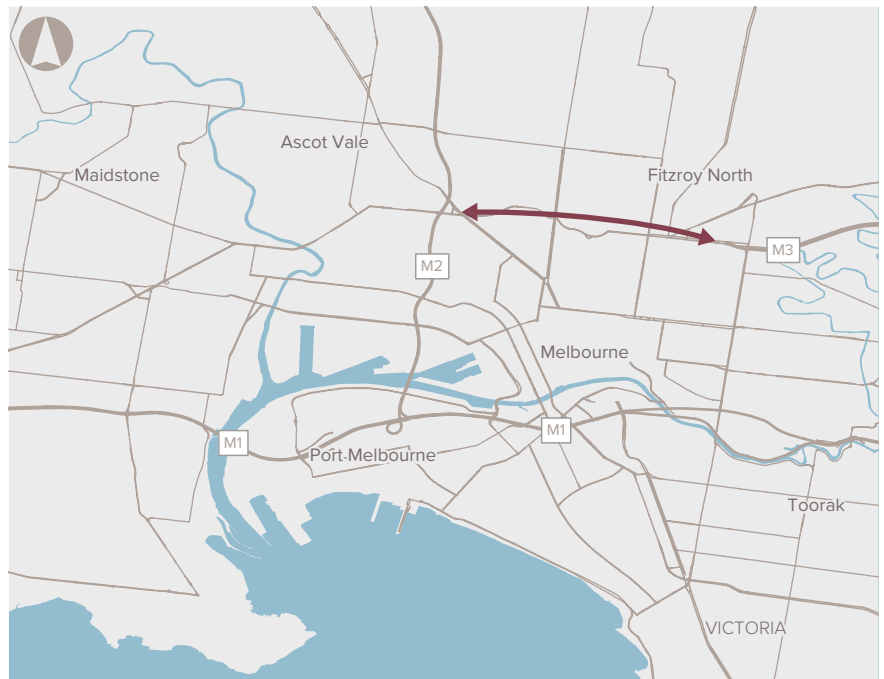
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2016



Problem

The 2019 *Australian Infrastructure Audit* identified the east–west corridor to the north of Melbourne’s CBD as one of Melbourne’s major congestion challenges. Vehicles travelling east–west between the Eastern Freeway and CityLink are forced to navigate the congested inner-city road network, or the heavily utilised M1 corridor to the south of the city. This results in congestion and delays on Melbourne’s urban road network for both passenger and freight vehicles. The Audit found that this corridor had the highest road congestion delay cost in Melbourne in 2016, with a delay cost of \$91 million. This is expected to worsen by 2031, with the delay cost projected to increase to \$131 million (2016 prices).

The Eastern Freeway only extends as far as Hoddle Street on the edge of the CBD, channelling the large volume of vehicles heading into and out of the city onto residential streets in the inner north.

Proposed initiative

An improved connection between the Eastern Freeway and CityLink would help to address congestion in the area.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Melbourne outer northern suburbs to CBD capacity upgrade

Location
Melbourne, Vic

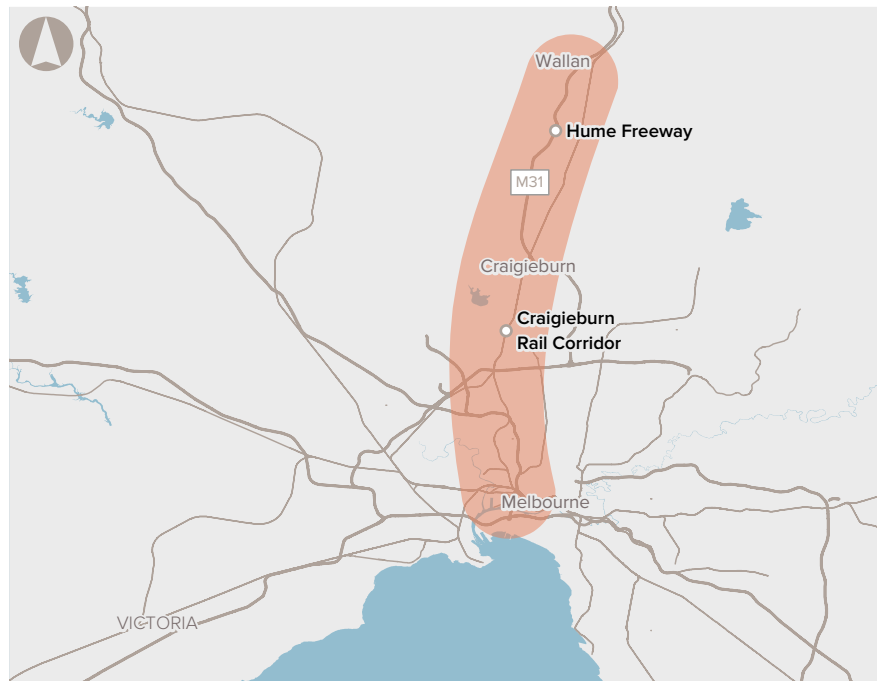
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2016
(Updated February 2021)



Problem

The Northern Growth Corridor covers a region 20 km to 50 km from central Melbourne. This corridor is expected to accommodate significant population and employment growth. By 2031, the corridor is forecast to have around 137,000 residents, an increase of approximately 70% from 2020.

Increasing population and employment growth has put pressure on the existing road and rail network in the corridor. The main road access is the Hume Freeway, and the rail access is via the Seymour Line.

The 2019 *Australian Infrastructure Audit* forecasts that daily vehicle movements on the Hume Freeway would grow from 54,577 in 2016 to 105,682 by 2031.

The Audit analysis shows that both AM and PM peak-period traffic volumes will be at capacity by 2031, causing congestion and significant delays along the corridor.

Rail patronage is forecast to increase from 700 to 9,000 trips per AM peak on a weekday.

Proposed initiative

This initiative would develop options to address demand for transport services in the corridor.

Next steps

Proponent(s) to be identified.

High Priority Initiatives

Melbourne rail network capacity

Location
Melbourne, Vic

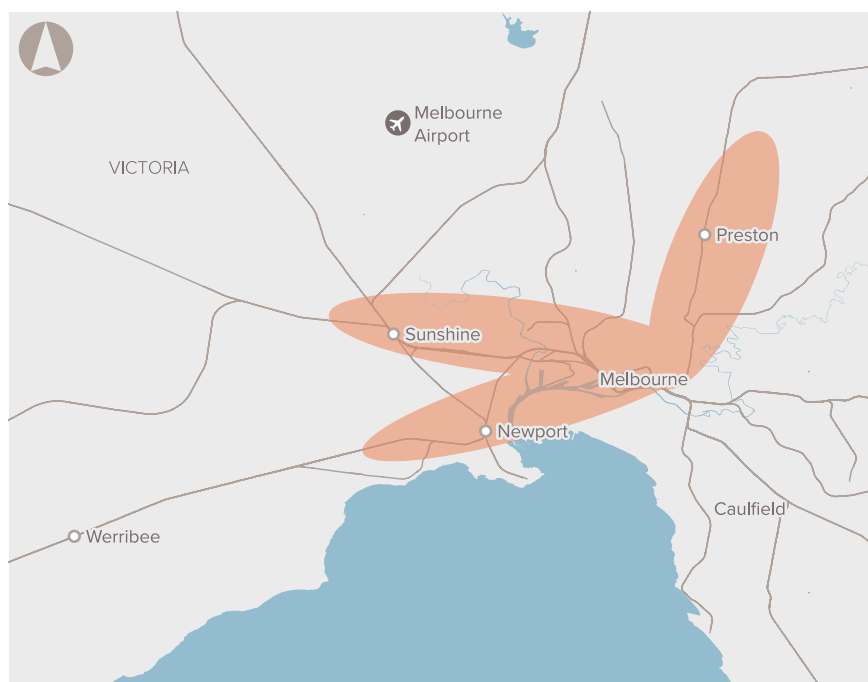
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
Victorian Government

Date added to the IPL
March 2018



Problem

Future growth of Melbourne's outer suburban population and the centralisation of jobs in the CBD will increase demand for Melbourne's rail network. While rail capacity in the south-east and north-west of the metropolitan area will increase through the Melbourne Metro Tunnel development, lines in the north-east, the west and the south-west will need additional capacity in the coming decades.

Modelling by Infrastructure Victoria indicates that, by 2031, demand on the South Morang line will exceed supply in the morning peak, with lines in the west and south-west also reaching capacity.

A more congested rail network will lead to nationally significant productivity losses associated with longer travel times and worsening conditions for passengers, with some passengers potentially switching to road vehicles and causing additional road congestion.

Increased rail capacity would encourage car users to switch to public transport, reducing environmental impacts and encouraging more people to walk to train stations.

Proposed initiative

Potential solutions to the emerging capacity constraints could include upgrading the signalling and rolling stock, and augmentations to key lines and stations on the network with the possibility of an additional tunnel through Melbourne's CBD, bypassing the city loop.

This initiative focuses on capacity constraints close to the Melbourne CBD. It is complementary to other separate Priority Initiatives for capacity constraints on the Melton, Cranbourne, Hurstbridge and Geelong lines, which service outer areas.

Next steps

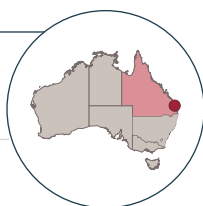
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Ipswich Motorway upgrade

Rocklea to Darra (remaining sections)

Location
Western Brisbane, Qld



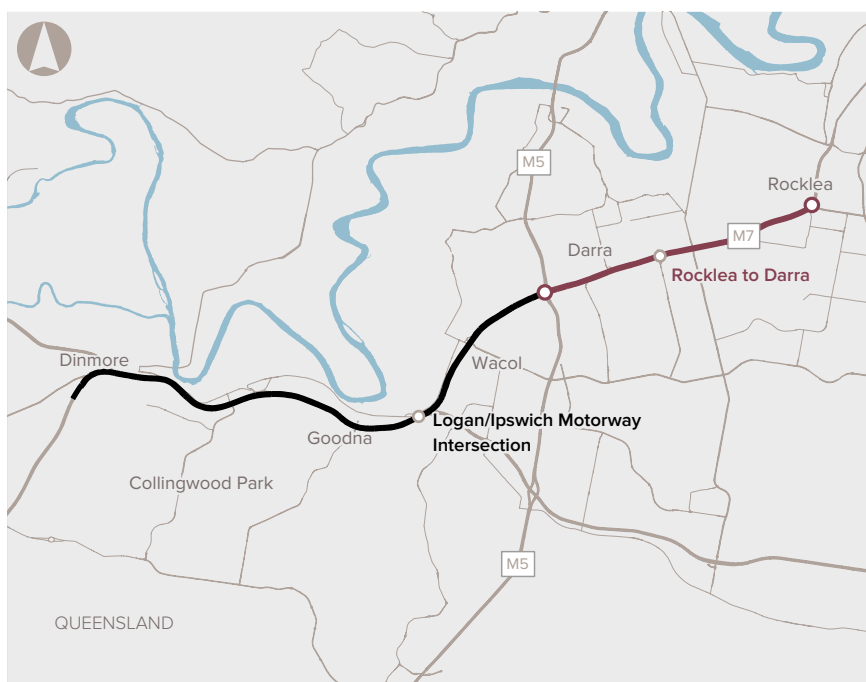
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Queensland Government

Date added to the IPL
February 2016



Problem

The Ipswich Motorway Corridor currently experiences congestion and extensive delays. Modelling undertaken for the 2019 *Australian Infrastructure Audit* estimates the direct cost of congestion along the corridor at around \$68 million in 2016, which is projected to increase considerably over time.

The problem results in inefficient freight movement. The Ipswich Motorway is one of the three busiest freight corridors in Queensland. The section between Rocklea and Darra is used by 10,000–12,000 heavy vehicles a day, representing 15–18% of all traffic.

Proposed initiative

The initiative proposes a suite of road upgrades along 7 km of the Ipswich Motorway between Rocklea and Darra, including:

- widening the corridor to six lanes
- improved flood immunity
- ramp rationalisation
- improved east–west local connectivity
- enhancement of cross motorway connections
- managed motorway treatments.

A business case for Stage 1c of the Initiative (Package 1) was assessed by Infrastructure Australia in May 2016, and the project is currently under construction.

Package 2 proposes the upgrade of the Oxley/Blunder Road interchange. The remainder of the initiative involves the widening and upgrading of the remaining section of the corridor.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

M1 Pacific Motorway capacity

Eight Mile Plains to Tugun

Location

South East Queensland



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Near term (0–5 years)

Proponent

Queensland Government

Date added to the IPL

February 2019

(Updated June 2020)



Problem

The M1 Pacific Motorway is a vital component of the National Land Transport Network and serves as the primary road corridor connecting Brisbane to the Gold Coast and south to New South Wales. The South East Queensland section of the M1 Pacific Motorway is the primary north–south arterial road that connects the key population and employment centres of Brisbane, Logan and the Gold Coast. The M1 also services and connects major transport hubs and industrial precincts, including the Gold Coast and Brisbane International Airports, and the Port of Brisbane.

The M1 Motorway is one of the busiest roads in Australia, carrying in excess of 150,000 vehicles per day, including over 12,000 heavy vehicles. The section of the motorway between Eight Mile Plains and Tugun cannot accommodate current traffic volumes and, as a result, experiences frequent and prolonged periods of congestion and nationally significant impacts on productivity.

This is exacerbated as vehicles travel in and out of Brisbane from the rapidly growing Gold Coast, northern New South Wales, and the growth areas of Coomera, Pimpama and Ormeau. It is also worsened by the lack of an alternative route when there are incidents on the motorway. By 2036, congestion impacts are expected to worsen and result in over 89,767 vehicle hours of delay each day.

Over the medium- to long-term, population growth is expected to remain strong in the Gold Coast area, while employment growth is expected to be strongest in Brisbane. Given this projection, the Eight Mile Plains to Tugun section of the M1 corridor will remain critical in connecting residential areas in the south to job prospects in Brisbane.

Proposed initiative

This program initiative focuses on resolving capacity, efficiency and safety issues on the following four sections of the motorway between Eight Mile Plains and Tugun:

- between Eight Mile Plains and Daisy Hill
- between Daisy Hill and Loganholme
- between Loganholme and Nerang
- between Varsity Lakes and Tugun.

Business cases for the sections between Eight Mile Plains and Daisy Hill, and between Varsity Lakes and Tugun, have been assessed by Infrastructure Australia and were separately listed as Priority Projects on the *Infrastructure Priority List*. There are now in delivery and included in **Appendix A**.

In June 2020, Infrastructure Australia assessed and approved a Stage 2 submission from the Queensland Government for the section between Loganholme and Nerang, as part of the Coomera Connector Project.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework), and complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Individual sections are at various stages of development.

High Priority Initiatives

Brisbane northern suburbs corridor capacity

Location
Brisbane, Qld

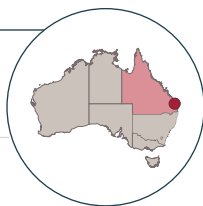
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Queensland Government

Date added to the IPL
April 2020



Problem

Residential growth in northern Brisbane, combined with employment growth primarily in the Brisbane CBD, is straining capacity on Brisbane's northern transport corridors. By 2041, 46% of people living in the Moreton Bay area north of Brisbane (about 141,000 people) are expected to commute to Brisbane for work.

Gympie Arterial Road is the main link between the Brisbane CBD and northern suburbs. Joining with the Gateway Motorway to become the Bruce Highway, it also provides access to the Sunshine Coast, and further north. In 2019, some sections of the Gympie Arterial Road carried more than 150,000 vehicles per day. Average weekday travel speeds along the road were 36km/h and 32km/h in the AM and PM peak periods respectively, and this congestion is expected to worsen over time.

Many people also travel between Brisbane and its northern suburbs via Sandgate Road and the Gateway Motorway (to the east of the Gympie Arterial Road) and via Beckett Road (to its west). All three of these alternative north–south routes face similar congestion pressures to the Gympie Arterial Road, which will continue to worsen over time.

Proposed initiative

The initiative is to improve the capacity of the transport corridors between the Brisbane CBD and northern suburbs. Options to address the initiative could include:

- upgrading intersections
- enhancing existing roads through additional lanes and smart technologies
- improving public transport options.

Potential upgrades should be considered in the context of an overall integrated program, as improvements to any of the north–south routes may reduce pressure on others.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Queensland National Land Transport Network maintenance

Location
Queensland

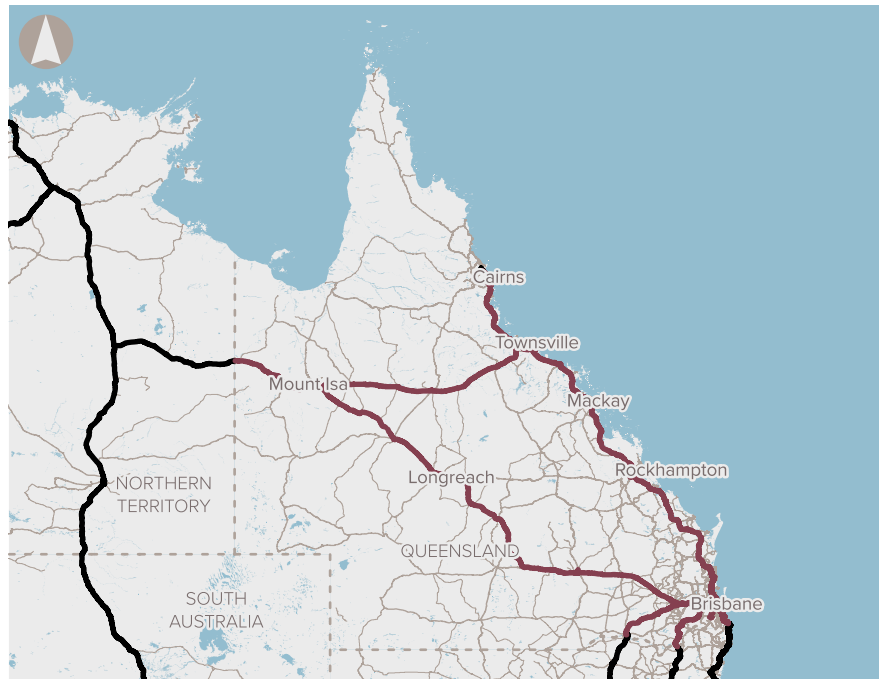
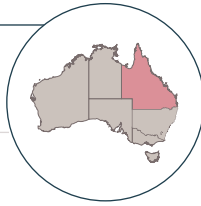
Geography
Smaller cities and regional centres

Category
Asset renewal

Problem timeframe
Near term (0–5 years)

Proponent
Queensland Government

Date added to the IPL
February 2020



Problem

The road component of the National Land Transport Network (NLTN) in Queensland has a significant maintenance and rehabilitation backlog. The poor condition of roads has increased costs to communities and the freight industry by increasing travel times, creating safety risks and reducing network resilience.

The NLTN in Queensland is made up of approximately 5,050 km of roads, 940 bridges and 1,260 major culverts, and carries almost half of all traffic travelling on Queensland's state-controlled road network.

The Queensland Government has identified some 885 km of the network as 'high priority' for maintenance or rehabilitation. Approximately 340 km of pavements and structures urgently require programmed maintenance, while 546 km require rehabilitation.

The Queensland Government expects the cost of addressing these issues to rise significantly if they are not addressed now.

This initiative is complementary to the High Priority Initiative for a *National road maintenance strategy*, which identifies road maintenance issues for national, state and local roads across Australia (see page 79).

Proposed initiative

The initiative is for a structured program approach to addressing the maintenance backlog for the NLTN in Queensland. It is likely to include:

- programmed maintenance, such as replacing road surfaces
- pavement rehabilitation
- bridge and culvert rehabilitation.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Queensland regional road network safety improvements

Location
Queensland



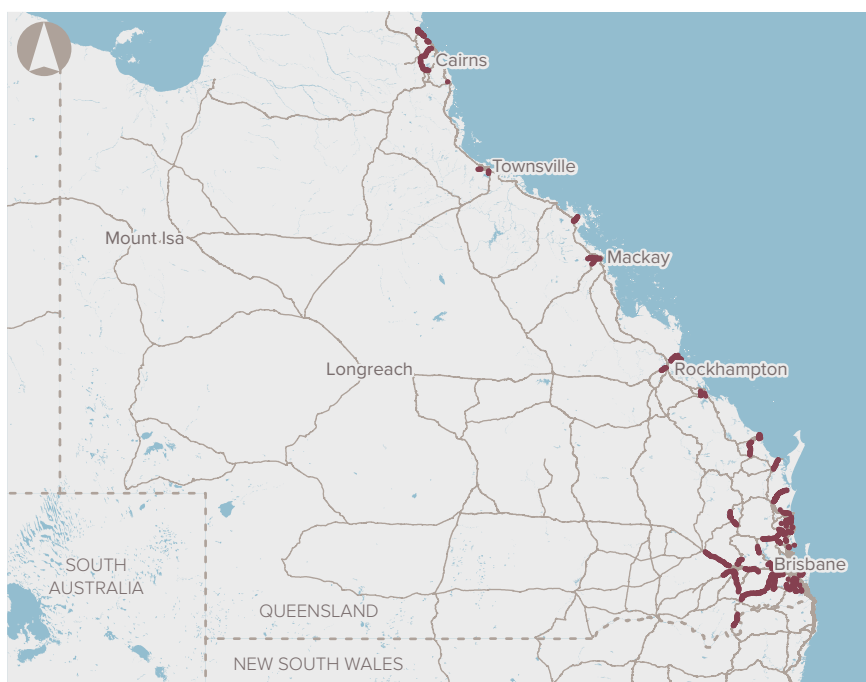
Geography
Smaller cities and regional centres

Category
Road safety

Problem timeframe
Near term (0–5 years)

Proponent
Queensland Government

Date added to the IPL
April 2020



Problem

Of the 219 lives lost on Queensland roads in 2019, over 70% of the crashes occurred in areas outside of the major cities.

The Queensland Government has identified sections of regional high-speed, two-lane highways that mostly have narrow shoulders, minimal separation between traffic, minimal safety features (such as audio-tactile line markings) and unprotected roadsides.

These sections of road make up 3% of Queensland's state-controlled road network by length, but 20% of vehicle kilometres travelled and 15% of 'fatal and serious injury' crashes.

Many of the identified roads are key freight routes servicing towns and cities along the coast. Growing populations in these towns and cities, along with rising freight demand, are likely to increase traffic volumes and potentially the number of crashes on these roads.

Proposed initiative

This initiative forms part of the national High Priority Initiative for *Regional road network safety improvements*.

Options to address the initiative could include:

- providing wider centrelines, centre barriers and increasing shoulder widths
- implementing audio-tactile line marking and roadside barriers
- improving the quality of high-risk intersections.

Options to improve each section of road in the program will need to take into account the unique characteristics and safety risks of those sections.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

South East Queensland level crossings congestion and safety

Location

South East Queensland

Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

Near term (0–5 years)

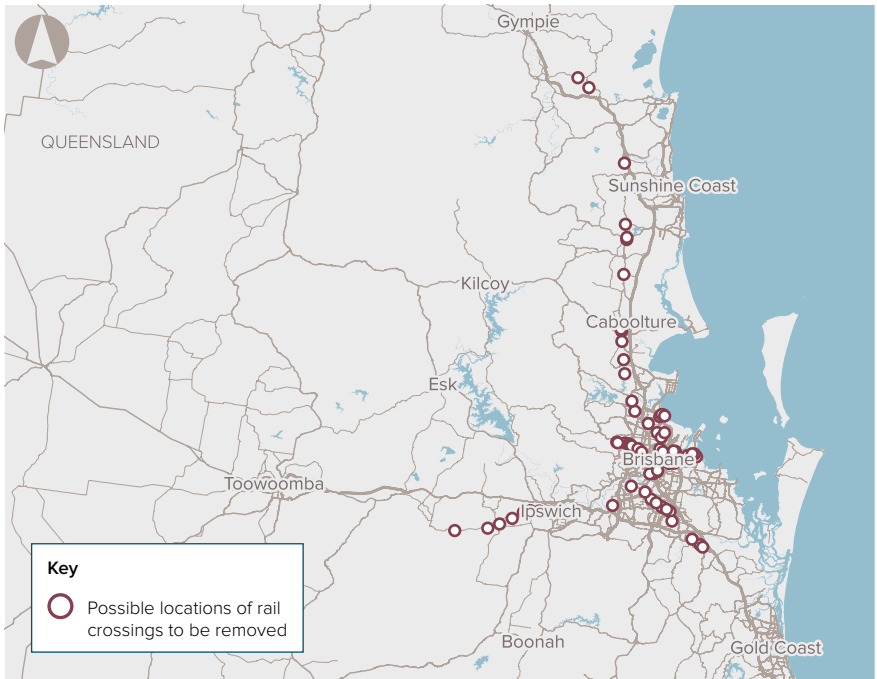
Proponent

Queensland Government

Date added to the IPL

February 2021





Problem

South East Queensland’s Citytrain network includes 65 level crossings. Most of these level crossings are in urban environments, which can lead to congestion and safety issues.

Level crossings provide important connectivity for vehicles, cyclists and pedestrians across train lines, but also result in increased road congestion, safety risks and disruption to local accessibility and movement.

Pedestrian and vehicle collisions and boom strike crashes can result in injuries or fatalities, as well as property damage and delays on the network.

There are over 1,200 daily rail services on the Citytrain network, and over 450,000 vehicles that travel through a level crossing on an average weekday in South East Queensland. This results in delays from boom gate closures.

Level crossings also create safety risks through near misses. They can also create barriers between different parts of a community and impact on local amenity.

Proposed initiative

The initiative could be addressed through a network-wide program to identify, prioritise and treat level crossings in South East Queensland. This would improve network efficiency, safety, and amenity for communities.

The program should consider a wide range of options to remove level crossings or minimise their impacts.

This could include traffic restrictions, road closures, demand management, removing level crossings, and potentially grade separations where warranted.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia’s Assessment Framework).

High Priority Initiatives

Port of Brisbane dedicated freight rail connection

Location
Brisbane, Qld

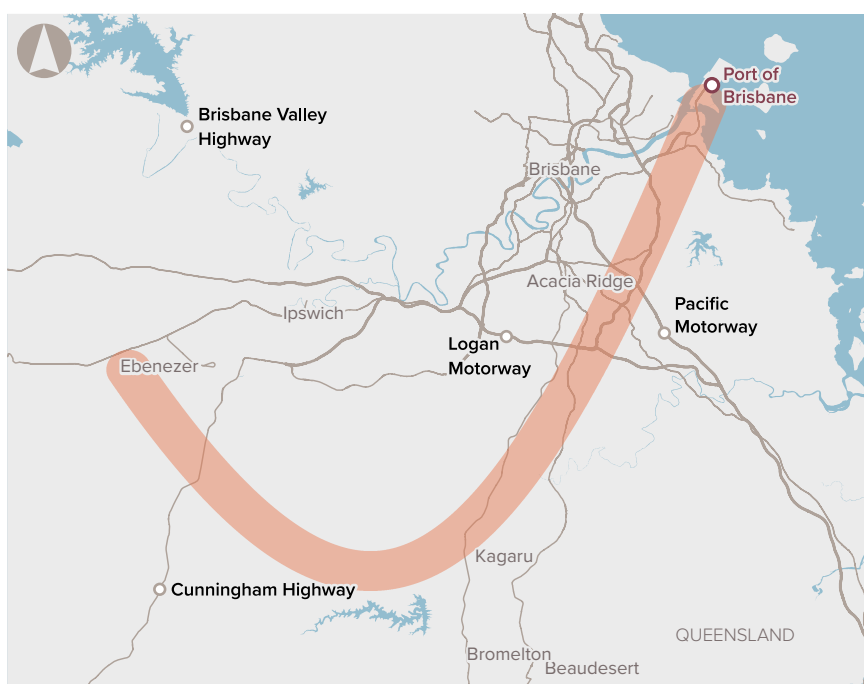
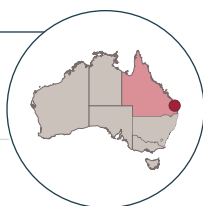
Geography
Fast-growing cities

Category
National connectivity

Problem timeframe
Medium term (5–10 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2016



Problem

By 2045, container trade at the Port of Brisbane is forecast to increase by 300%, representing an increase of 4.8% per year. The 2015 *Australian Infrastructure Audit* identified that growth at the Port of Brisbane is likely to become constrained by the lack of a dedicated freight rail connection.

Population growth in South East Queensland is creating congestion on both the road and rail networks, negatively impacting on the productivity of greater Brisbane and the Queensland economy as a whole.

The rail connection to the Port of Brisbane from the south is shared between passenger and freight trains on some sections.

Passenger trains take priority over freight trains, with freight trains constrained to operate to and from the port only during out of peak periods. As freight and passenger demand grows, the shared sections will become further constrained, and additional capacity for freight trains will be required.

The preservation and, ultimately, construction of a dedicated freight rail corridor would allow more freight movements to be removed from the road network, which would help alleviate congestion.

Proposed initiative

A future upgrade would seek to improve connectivity between the Port of Brisbane and freight terminals in the Brisbane region through preserving and, ultimately, delivering a dedicated freight rail corridor. This would aim to meet the projected increase in freight volumes, while facilitating a modal shift from road to rail.

The Australian Government and Queensland Government recently completed a joint study to define future service requirements and potential options to meet these requirements.

Next steps

Proponent(s) to be identified.

The Australian Government and Queensland Government have committed to undertake further planning to evaluate the short-listed options and identify a preferred option for corridor preservation, with the study commencing the third quarter of 2020.

High Priority Initiatives

Perth CBD to north corridor capacity

Location
Perth, WA

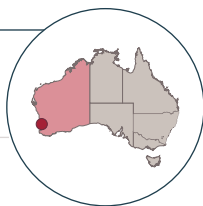
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2016



Problem

Traffic congestion in the Perth metropolitan region is impacting on the efficiency of the transport network.

The 2015 *Australian Infrastructure Audit* projected that transport delay costs in Perth are expected to grow at an average annual rate of around 11%, from \$2 billion in 2011 to \$16 billion in 2031.

In the absence of additional capacity, the northern corridor is likely to become the most congested corridor in Perth, with demand expected to exceed capacity well before 2031. The Audit estimated that delay costs on the corridor, including the Mitchell Freeway, Marmion Ave/West Coast Highway and Wanneroo Road, would reach \$2 billion (2011 prices) by 2031. While recent modelling scales back the projected rate of population growth in the region compared to the rate used in the Audit (reflecting the slower rate of growth in Western Australia following the mining boom) growth is still projected to average around 2.6% per year.

This growth will continue to drive increased demand for both road and public transport.

Proposed initiative

The Western Australian Government has completed upgrades along Marmion Avenue and Wanneroo Road and is currently finalising a business case for the proposed Mitchell Freeway extension to Romeo Road.

A business case for the Yanchep Rail Extension was evaluated by Infrastructure Australia in 2018 and previously included on the *Infrastructure Priority List* as a High Priority Project. This project will extend the Joondalup Line from Butler to Yanchep.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework), and complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Individual sections are at various stages of development.

High Priority Initiatives

Perth and south-western coast water security

Location
South-west, WA

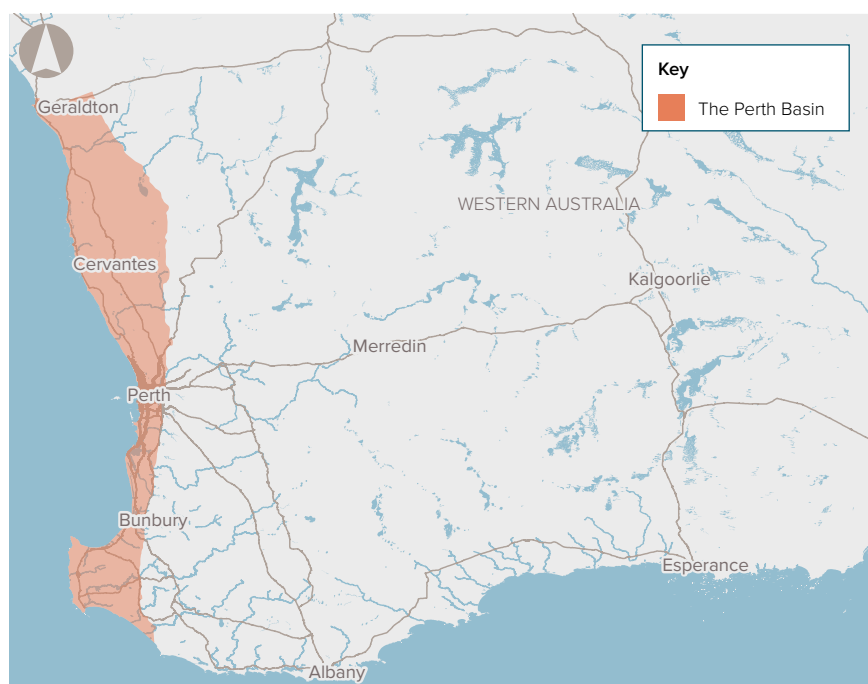
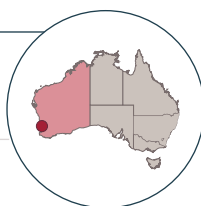
Geography
Fast-growing cities

Category
Access to water

Problem timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2020
(Updated February 2021)



Problem

Water sources in Perth and across Western Australia's south-western coast face considerable risks, including the impacts of climate change, population growth, ageing assets and changing needs and expectations from water users. Failure to address these challenges could lead to rising water bills, as well as exposing users to declining service quality and reliability.

Declining groundwater availability for non-potable uses also creates risks to urban livability; potentially constraining or increasing the costs of development where alternative water supplies are needed.

Perth's current water supply comprises a diverse portfolio of water sources, including surface water, groundwater, desalinated seawater and recycled water, serving a population in excess of 2.3 million in the Perth metropolitan area, and the Goldfields and Agricultural Water Supply area.

Streamflow entering Perth's water storages has dropped from a pre-1975 average of 420 giganlitres (GL) per year, to a post-1975 average of 184 GL per year. In 2015, streamflow dropped to 16 GL, or just 4% of the pre-1975 average.

The sedimentary aquifers along the south-western coast provide the bulk of urban water supplies and are similarly climate-impacted by declining recharge. Some areas have experienced a 15% decline in average rainfall, which has disproportionally lowered groundwater recharge.

Proposed initiative

In Perth, the initiative is for a program of water sourcing and water demand management initiatives to improve water security. This could include a mix of more conventional water sources, as well as more innovative reuse and recovery options, to provide additional sources of climate-independent potable and non-potable water.

Across the south-western coast, timely investments in groundwater use efficiency and infrastructure solutions in small-scale, locally integrated non-potable water supplies will provide water security for irrigating urban green spaces as well as water for commercial and industrial uses, and for agriculture in the urban fringes.

This initiative complements the national High Priority Initiative of *Town and city water security* (see page 86).

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Mitchell and Kwinana freeways upgrade

Location
Perth, WA

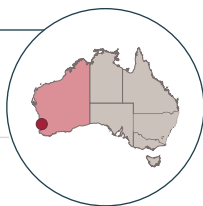
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near to medium term (0–10 years)

Proponent
Western Australian Government

Date added to the IPL
March 2018



Problem

The Mitchell and Kwinana freeways form the main north–south arterial road corridor through Perth, serving both commuter and freight trips. Congestion is already an issue along the corridor during peak hours, particularly at the Swan River crossing between Perth City and South Perth.

In the absence of additional capacity, the 2015 *Australian Infrastructure Audit* projected that the Mitchell Freeway would become the most congested corridor in Australia, with demand expected to exceed capacity well before 2031. While recent modelling scales back the projected rate of population growth in the region compared to the rate used in the Audit (reflecting the slower rate of growth in Western Australia following the mining boom) growth in the region will still increase congestion along the corridor.

Congestion is currently characterised by frequent stop–start conditions that are directly contributing to an increasing number of rear-end crashes and compromising road safety. The travel time delays associated with these events will increasingly result in nationally significant losses to productivity. However, in the inter-peak period, there is surplus capacity across the network. This suggests there is some scope for demand management to spread peak period transport flows.

Proposed initiative

This initiative proposes implementing Intelligent Transport System technologies to actively manage traffic flow on the Kwinana Freeway. This would enhance road capacity and improve safety, maximising the existing productive capacity of the road network and delaying the need for further large-scale investments in the corridor.

A number of projects to increase capacity on the Kwinana and Mitchell freeways are complete, including northbound widening of the Kwinana Freeway between Russell Road and Roe Highway, Manning Road onramp and the opening of the first component of the Smart Freeway. The Hutton Street to Cedric Street and Cedric Street to Vincent Street widening projects on the Mitchell Freeway are also complete.

This initiative was originally included in the *Infrastructure Priority List* as the *Mitchell and Kwinana Freeways – widening and smart freeways technology* initiative. It was updated in February 2019 to include other sections of the corridor.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Regional and rural WA road network safety improvements

Location
Western Australia



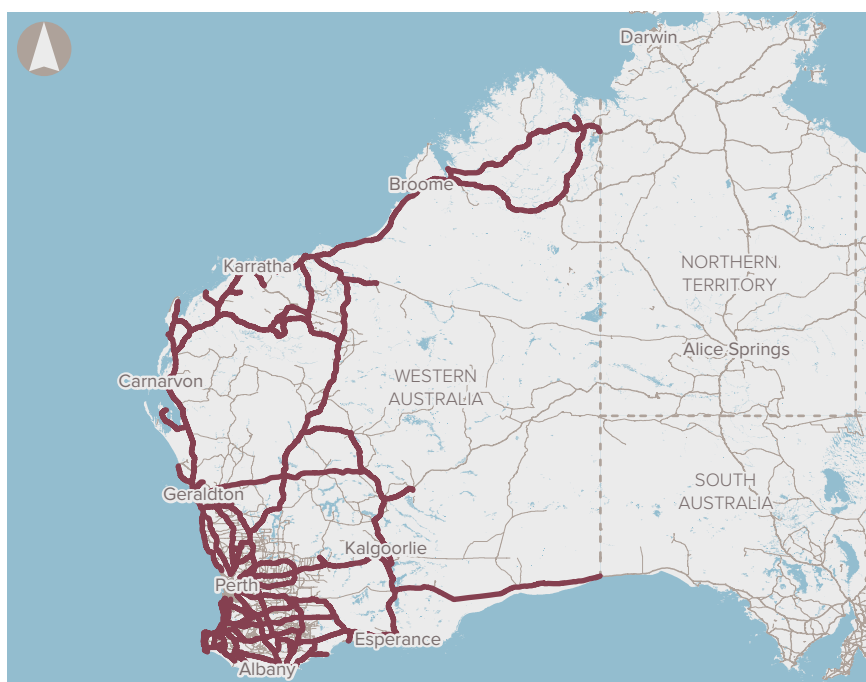
Geography
Small towns, rural communities and remote areas

Category
Road safety

Problem timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2020



Problem

Between 2008 and 2017, 61% of fatalities and 35% of serious injuries on the road network in Western Australia (WA) occurred in regional and rural areas.

Single vehicle, loss-of-control, run-off-road crashes constitute around a third of all serious casualty crashes on the WA road network. Infrastructure can play an important role in mitigating the consequences of these crashes. The relatively low cost measures of sealed road shoulders, wide centre lines and audible edge lines have been shown to substantially reduce the chance of these crash types.

The WA Government's Towards Zero Road Safety Strategy 2008–2020 targets a 40% reduction in road crash outcomes by 2020, which has the potential to save 11,000 people from being killed or seriously injured.

Proposed initiative

This initiative complements the national High Priority Initiative for *Regional road network safety improvements* (see page 83). It involves treatments such as sealing shoulders, wide centre lines and audio tactile line marking to attain a safer road cross section on the State's Highway and Main Roads regional and rural road network.

As at 2018, the WA Government had applied safety treatments to more than 1,465 km (8%) of the State's Highway and Main Roads regional and rural road network. The first phase of a significant regional road safety upgrade program was announced in 2020.

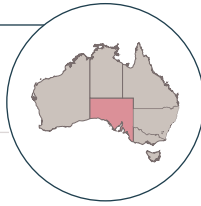
Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

South Australian road network maintenance

Location
South Australia



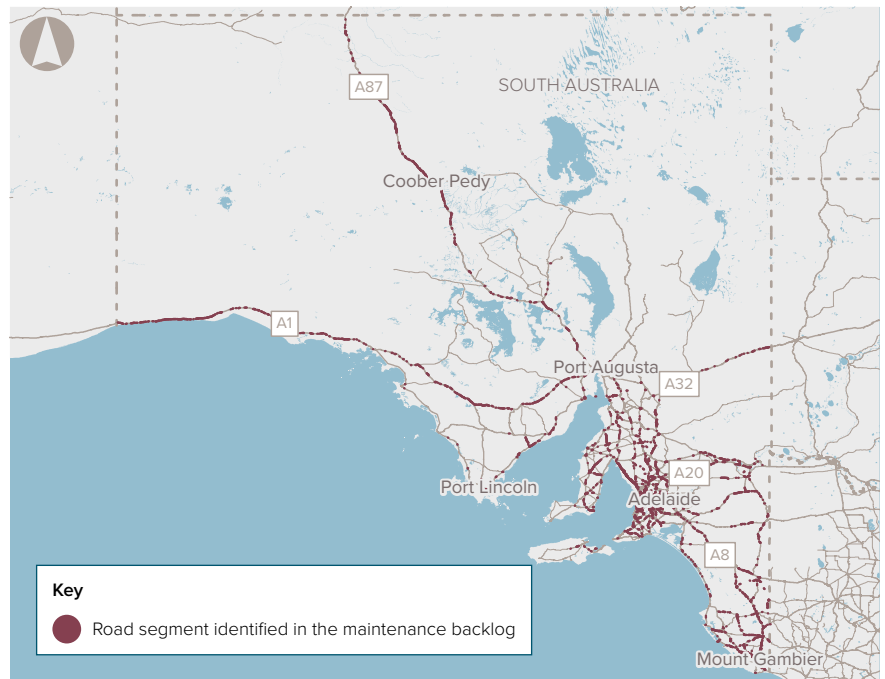
Geography
Smaller cities and regional centres

Category
Asset renewal

Problem timeframe
Near term (0–5 years)

Proponent
South Australian Government

Date added to the IPL
February 2021



Problem

There is a large and increasing backlog of maintenance on the national and state-owned roads in South Australia, which is increasing costs for road users.

Over 75% of these roads are life expired and the total backlog of priority works was estimated in 2019 at over \$700 million.

Roads in poor condition lead to higher vehicle operating costs, travel times, safety risks and potential resilience issues for traffic.

The 2019 *Australian Infrastructure Audit* found that a historical underspend on preventative maintenance, short budgetary and funding cycles, a lack of data and incentives, and inadequate reporting have contributed to a maintenance funding backlog across infrastructure sectors.

This initiative is complementary to the High Priority Initiative for a *National road maintenance strategy*, which is separately included on the *Infrastructure Priority List* and identifies road maintenance issues for national, state and local roads across Australia.

Proposed initiative

Potential options to address the initiative include a program of works to prioritise and invest in maintenance upgrades across the South Australian road network.

The prioritisation of road maintenance projects should consider technical, economic, risk, safety and policy criteria to optimise economic benefit and economies of scale.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Adelaide's Outer Ring Route capacity

Location
Adelaide, SA

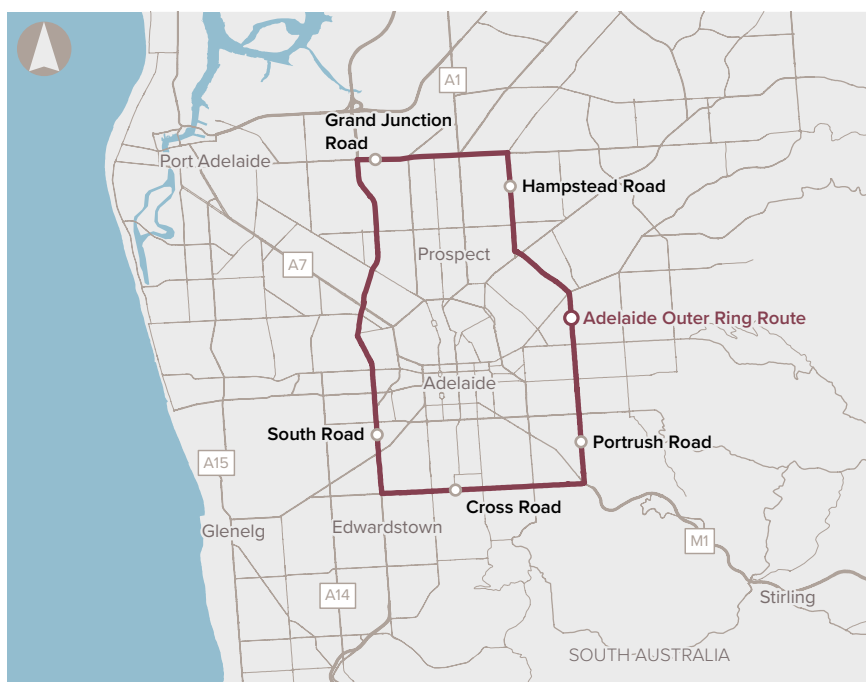
Geography
Smaller cities and regional centres

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
South Australian Government

Date added to the IPL
February 2021



Problem

Segments of Adelaide's Outer Ring Route, which surrounds inner Adelaide, are heavily congested in peak and non-peak periods.

This results in inefficient and less productive freight movements, reduced performance of the public transport system, longer travel times, and decreased safety for commuters and pedestrians.

Adelaide's Outer Ring Route includes six corridors that operate as the key freight route connecting the South Eastern Freeway, the Port of Adelaide, the Adelaide Airport, and intermodal terminals in northern Adelaide.

The North–South Corridor section of the Ring Route lies to the west of Adelaide CBD. The *Infrastructure Priority List* separately includes a Priority Initiative for *Adelaide North–South Corridor Upgrade (remaining sections)*.

In 2019, delays on the most congested sections of the Outer Ring Route increased travel times by more than 25%.

Cross-city traffic patterns, increasing land use densities and the location of schools create conflicts at several intersections along the route, and on arterial roads that feed into key locations, including the Adelaide CBD.

There are also roads that are constrained by property and heritage considerations that restrict expansion of the road corridor.

The 2019 *Australian Infrastructure Audit* found that urban travel patterns are becoming increasingly complex, driven by economic, social, demographic and technological changes. This creates a risk of growing divergence between the way our networks are planned and designed, and the needs of customers, as is the case for the Adelaide Outer Ring Route.

Proposed initiative

Potential options to address the initiative include:

- making better use of the existing infrastructure, such as with technology to improve traffic management
- improving or removing intersections
- bus network improvements
- targeted High Productivity Vehicle access improvements.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

High Priority Initiatives

Enabling infrastructure for developing the Beetaloo Sub-Basin

Location
Beetaloo, NT

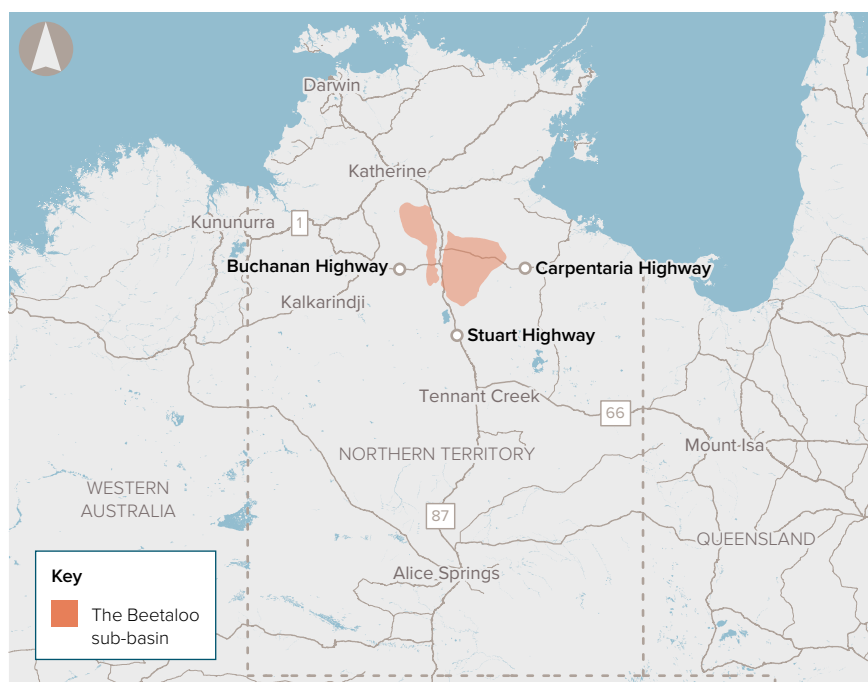
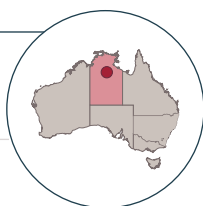
Geography
Developing regions
and northern Australia

Category
Regional connectivity

Problem timeframe
Longer term (10–15 years)

Proponent
Northern Territory Government

Date added to the IPL
February 2021



Opportunity

The Beetaloo Sub-Basin has been identified by industry as containing a significant quantity of gas that could be within economically feasible depths to extract.

Proportionate and timely investment in enabling infrastructure will support the development of this gas basin for export and domestic markets.

This supporting infrastructure (such as road, rail, aviation and utility infrastructure) could also benefit other users in the region.

The extent to which the opportunity is realised will depend largely on extraction costs, environmental impacts, and global trends and policies that impact the role of natural gas in the energy mix in Australia and overseas.

The Northern Territory Government has a vision to be a world class hub for gas production, manufacturing and services by 2030.

The 2019 *Australian Infrastructure Audit* identified that infrastructure could help to catalyse growth across northern Australia and unlock development across a range of industries.

The Audit also found that uncertainty prevents timely investment in long-term infrastructure such as electricity generation and gas pipelines. This increases risks and costs to users.

Proposed initiative

Potential options to address the initiative could include upgraded or new road, logistics, telecommunications and social infrastructure for the Beetaloo Sub-Basin.

Public investment should consider the role of government in stimulating the delivery of infrastructure by the private sector, compared with direct infrastructure funding, ownership and provision.

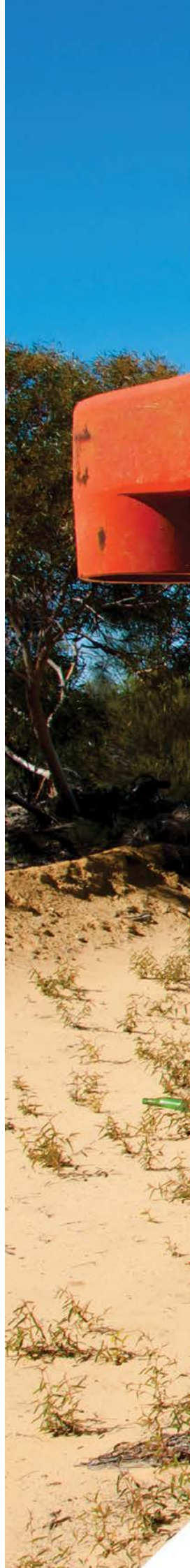
Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).



Priority Initiatives

Summaries





Waterpipe on Outback Highway, Western Australia

Priority Initiatives

Advanced Train Management System implementation on the interstate rail network

Location

Australian interstate rail network



Geography

National

Category

National connectivity

Problem timeframe

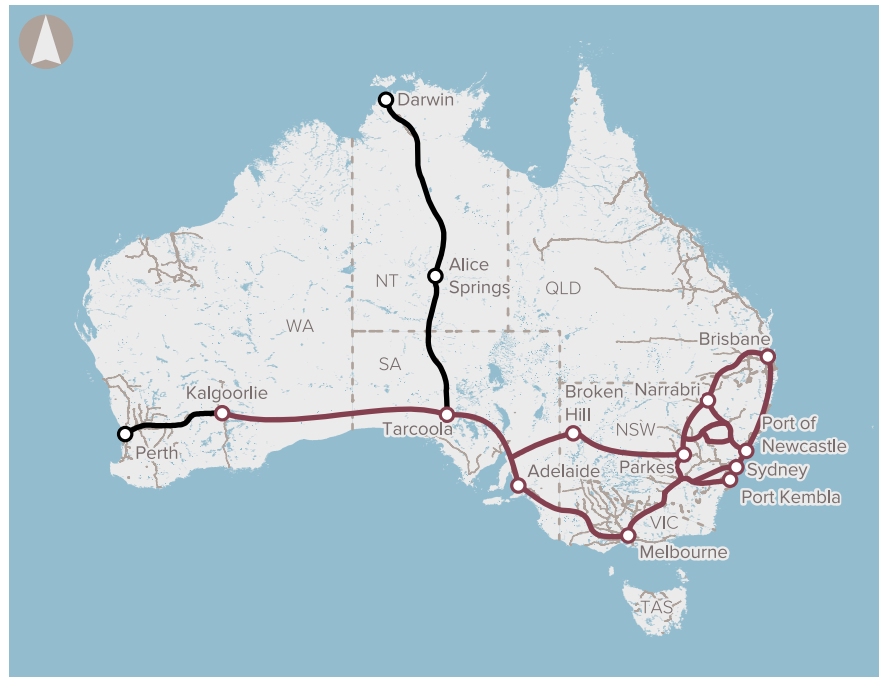
Near term (0–5 years)

Proponent

Australian Rail Track Corporation

Date added to the IPL

February 2016



Problem

Australia's interstate freight rail network comprises many long sections of single track. This restricts the number of train paths, reducing rail's competitiveness with road, and hindering rail's ability to meet growing freight movement demand. The interstate freight rail network needs to be enhanced to accommodate growth in the freight and passenger task, and improve efficiency and safety.

Proposed initiative

The Advanced Train Management System (ATMS) is a communications-based train control system that will replace line-side signalling, allowing:

- more train paths, to increase line capacity
- faster crossings, to reduce transit times
- improved rail safety
- improved system reliability
- reduced maintenance costs for signalling equipment.

ATMS will improve the safety and efficiency of train operations, and improve competition with road. It is proposed to be rolled out across the interstate rail network linking metropolitan centres and key national ports.

There is in-principle agreement to adapt ATMS to be inter-operable with the Digital Train Control System being implemented in some commuter networks.

Stage 1 of ATMS on the Port Augusta to Tarcoola corridor is now operational and being used as the Primary Safe working system.

Stage 2 of ATMS on the Tarcoola to Kalgoorlie corridor is now underway and building large-scale capacity for future deployment.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Connection between eastern gas markets and gas suppliers

Location

National

Geography

National

Category

Efficient markets

Problem timeframe

Near term (0–5 years)

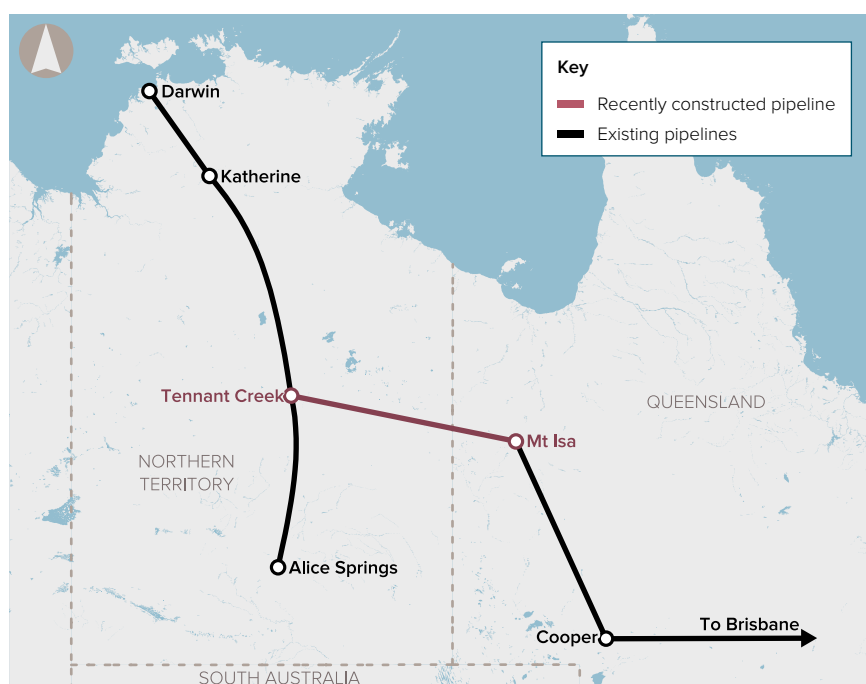
Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2016

(Updated February 2021)



Problem

The 2015 *Australian Infrastructure Audit* identified a potential gas supply shortfall in the eastern gas market as a result of increased domestic and export demand. Reduction in production in the Gippsland basin is also expected to contribute to the shortfall in supply.

In the absence of additional supply, this increased demand is expected to lead to higher prices. The Northern Territory has the potential to provide price-competitive gas, but is only linked to the eastern gas pipeline network at Mount Isa.

Providing a connected national energy market with sufficient capacity to supply domestic and foreign markets, withstand supply shocks and market forces, and contribute to Australia's broader environmental goals will support the resilience of the national economy.

Proposed initiative

The initiative proposes to develop infrastructure to connect Northern Australian gas reserves to the eastern gas markets.

A project to construct a pipeline between Tennant Creek and Mount Isa, connecting the Northern Territory gas supply with the eastern gas market, was completed in 2018. This provides some additional supply to the eastern states, and supports economic growth in the Northern Territory.

Additional pipeline connections are currently being considered, including connections between Alice Springs to Moomba and Alice Springs to Tennant Creek.

The feasibility of these initiatives will depend on future gas demand in the eastern states and the viability of new gas fields in the Northern Territory.

Next steps

Proponent(s) to be identified.

Priority Initiatives

Enabling infrastructure for hydrogen exports

Location

National

Geography

National

Category

Efficient markets

Opportunity timeframe

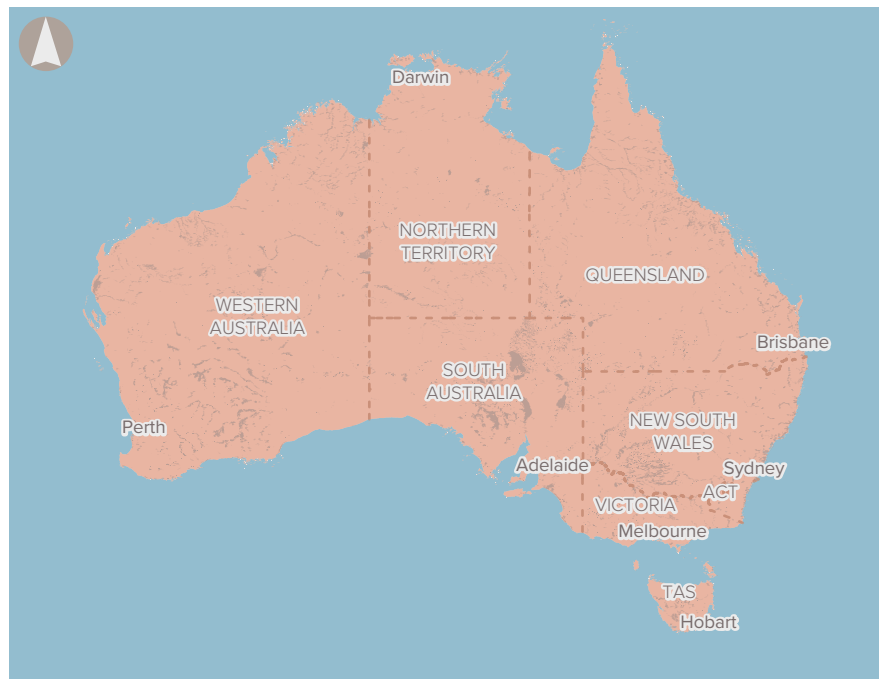
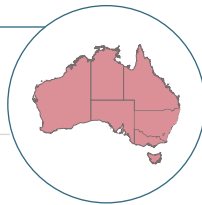
Near term (0–5 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2021



Opportunity

Australia's natural characteristics and experience in energy export could enable a large hydrogen export industry in Australia.

Internationally, there is growing interest in the production and use of green hydrogen as an energy source, as it produces no carbon emissions.

There is a significant opportunity to develop supply chains in Australia to meet potential demand in domestic and export markets.

The Australian Government and state and territory governments are planning for the development of a national hydrogen industry via the former COAG Energy Council, which published Australia's National Hydrogen Strategy in 2019.

In addition to participating in the development of the National Hydrogen Strategy, most states and territories have developed their own plans.

Challenges to growing a hydrogen export industry include:

- identifying and addressing infrastructure gaps in potential hydrogen supply chains
- developing hydrogen's cost effectiveness compared to other energy sources (this depends on the outcomes of current and future research and development)
- the availability of cheap electricity to manufacture hydrogen.

Proposed initiative

A National Hydrogen Infrastructure Assessment is being coordinated by the Australian Government. It will examine supply chain needs and is to be delivered before 2022.

Potential options to address the initiative include upgrades or new infrastructure for electricity and gas networks, water supply networks, refuelling stations, roads, rail and ports.

Next steps

Proponent(s) to be identified.

Priority Initiatives

Indigenous art and cultural facilities program

Location

National

Geography

National

Category

Social infrastructure

Problem timeframe

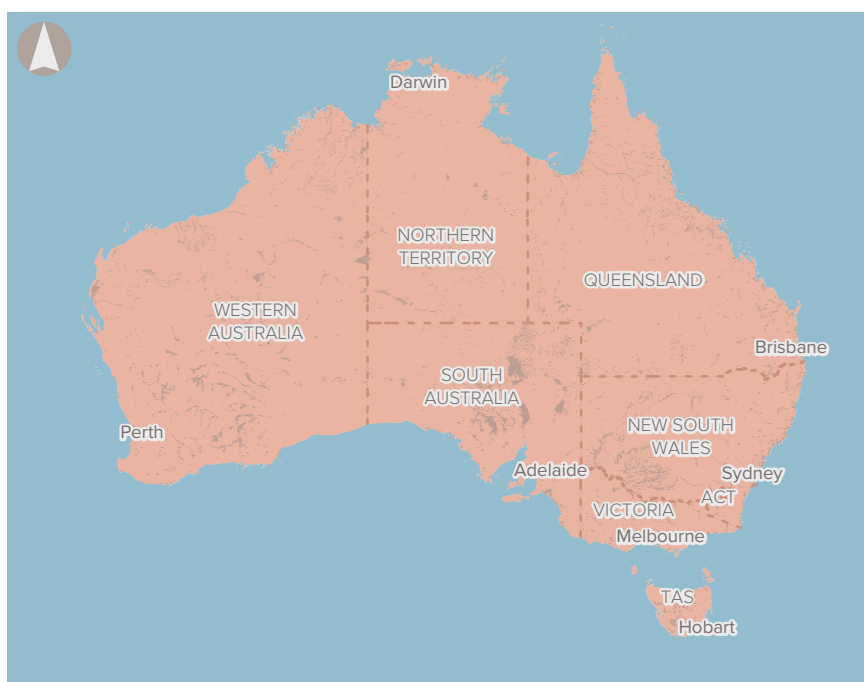
Near term (0–5 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2020



Opportunity

The 2019 *Australian Infrastructure Audit* recognised that arts and cultural infrastructure plays a key role in the social and economic empowerment of Aboriginal and Torres Strait Islander peoples. The Audit notes that many of the current facilities are no longer fit-for-purpose and suffer from poor maintenance.

Arts and cultural facilities support Aboriginal and Torres Strait Islander artists by creating more employment opportunities, supporting cultural practices, improving wellbeing, educating people on Aboriginal and Torres Strait Islander cultures, and potentially improving national identity. These positive outcomes are aligned to many of the national socio-economic targets listed under the new National Agreement on Closing the Gap (2020).

Further, there is high demand for Aboriginal and Torres Strait Islander culture and art in Australia from both domestic and international visitors. Currently, there are few dedicated art and cultural centres catering to this demand.

In addition to product promotion, showcasing Indigenous art through credible institutions reduces opportunities for the exploitation of Indigenous artists.

Proposed initiative

The opportunity is for a national program of Aboriginal and Torres Strait Islander art and cultural centres and galleries.

Many jurisdictions have taken steps towards developing these facilities:

- Infrastructure New South Wales recommended a flagship Indigenous Cultural Centre in 2014 that would be a hub to connect to other facilities.
- A similar proposal was made for Alice Springs in the Northern Territory and an Aboriginal Art and Cultural Gallery/Centre in the Perth Metropolitan Area in Western Australia.
- The South Australian Government is including an Australian National Aboriginal Art and Cultural Gallery in its renewal of the old Royal Adelaide Hospital site (now known as 'Lot Fourteen').

While there will be some competition between proposed facilities across multiple states and territories, there will be national benefit to providing dedicated facilities for the exhibition of Aboriginal and Torres Strait Islander art and culture.

Infrastructure Australia has received several submissions for individual art and cultural centres. This initiative calls for a coordinated program of art and cultural centres, which would ensure that facilities are sufficiently diverse to be complementary, encouraging visitation at multiple locations.

Next steps

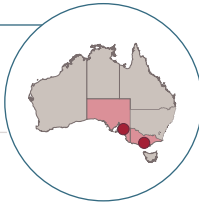
Proponent(s) to be identified.

Priority Initiatives

Melbourne to Adelaide freight rail improvements

Location

Melbourne to Adelaide



Geography

Small towns, rural communities and remote areas

Category

National connectivity

Problem timeframe

Near term (0–5 years)

Proponent

Australian Rail Track Corporation

Date added to the IPL

February 2021



Problem

The Melbourne to Adelaide freight rail corridor cannot carry double-stacked containers. This increases costs for operators and impacts on freight rail between Melbourne and Adelaide, and also to Perth.

Double-stacking containers on the Melbourne to Adelaide corridor could reduce above-rail operating costs by around 6%. It could also increase capacity by about 48%.

Double-stacking containers between Melbourne and Adelaide is not currently possible due to 1,020 structures that impact on clearance.

These include 229 significant obstructions, 218 signals and 573 minor obstructions that are preventing double stacking of containers on the corridor.

The significant obstructions include 35 road overbridges, one tram overbridge, seven tunnels in the Adelaide Hills and the bridge at Murray Bridge.

Proposed initiative

Potential options to address the initiative include removing or adjusting structures that impact on clearance to enabling double stacking of containers.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

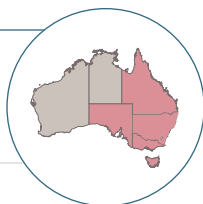
Priority Initiatives

National Electricity Market

Near-term optimisation

Location

National Electricity Market



Geography

National

Category

Efficient markets

Problem timeframe

Near term (0–5 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2019



Opportunity

The National Electricity Market (NEM) serves almost 90% of Australia's population. It faces significant challenges as electricity generation shifts away from thermal electricity generation, towards a more diverse but intermittent portfolio of fuels, such as wind and solar, backed up by dispatchable generation, such as pumped hydro. The power system is also adapting to changing patterns of consumer demand, predominately caused by the uptake of residential solar power.

This transition will need to be effectively managed to ensure the reliability, security and affordability of electricity for users.

In the near-term, there is an opportunity to optimise the NEM by increasing system connectivity, strength and transfer capacity.

Near term investments in supporting infrastructure, such as network capacity and systems services, will also create a more reliable and secure power system that can better withstand variable consumer demand and unplanned events.

The power system's resilience and reliability can also be enhanced by increasing the capacity to transmit electricity across regions, increasing fuel diversity and geographic coverage.

The Australian Energy Market Operator has released its updated 2020 Integrated System Plan (ISP), which was first released in 2018 and formed part of the evidence base for this initiative.

Medium- to longer-term uncertainty of managing the transition to a more diverse portfolio of fuels is also included in the *Infrastructure Priority List* as a High Priority Initiative.

Proposed initiative

The 2020 ISP has identified four categories of transmission projects – Committed, Actionable, Actionable with decision rules, and Future ISP projects. This initiative relates to the committed projects that would improve interconnections between NEM regions, and make better use of existing assets. These are critical to address cost, security and reliability issues, and are underway, having already received their regulatory approval. They include:

- increasing transfer capacity between the Queensland and New South Wales NEM regions
- transmission capacity to the Western Victoria Renewable Energy Zone
- South Australia system strength remediation, as recommended in the 2018 ISP.

Next steps

Proponent(s) to be identified.

Priority Initiatives

Sydney–Canberra rail connectivity and capacity

Location

National

Geography

National

Category

National connectivity

Problem timeframe

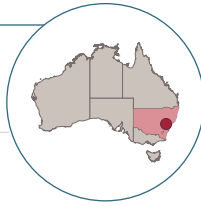
Near term (0–5 years)

Proponent

NSW Government and ACT Government

Date added to the IPL

February 2020



Opportunity

The Sydney to Canberra corridor plays a significant role in Australia's regional transport network.

However, the 320 km rail line between Sydney and Canberra is constrained by terrain and an alignment built to 19th century requirements, leading to slow train speeds and long journey times for passengers.

In-vehicle journey times between Sydney and Canberra are currently about 1 hour by air, 3 hours by car and over 4 hours by train. As a result, only 1% of people travelling between Sydney and Canberra choose to travel by train.

The number of people living between Canberra and Sydney is forecast to grow by 1.5% each year to 2036, increasing pressure on the road network and airports.

Improving rail services in this corridor would provide more transport options for travellers, improve travel-time reliability for rail passengers and reduce pressure on the air corridor.

Proposed initiative

The opportunity is for a range of potential upgrades to enable faster rail services between Sydney and Canberra to improve the customer experience, increase productivity and provide a competitive alternative to driving or flying.

These potential upgrades may include:

- track straightening and duplication
- track formation renewal
- electrification and signalling upgrades
- new rolling stock.

The initiative requires a coordinated approach between the ACT Government and NSW Government, as well as the Australian Government and the Australian Rail Track Corporation.

It should also consider the potential role of high speed rail in the future. Preserving a corridor for a high speed rail line on the east coast of Australia is separately included on the *Infrastructure Priority List* as a High Priority Initiative (see page 72).

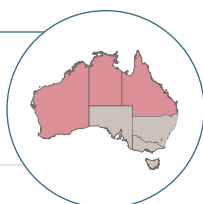
Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Outback Way road access

Location
Laverton,
WA to Winton, Qld



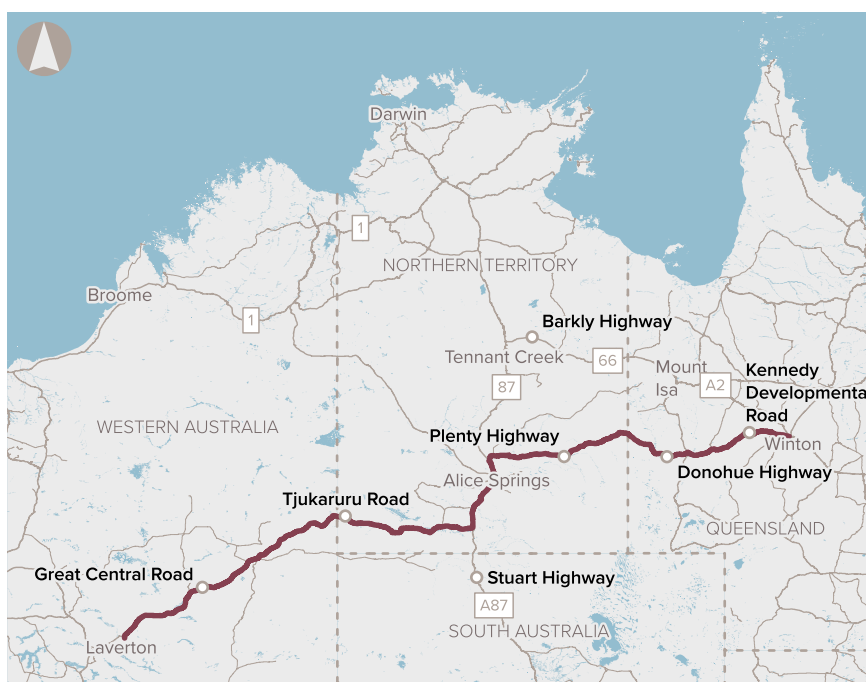
Geography
Developing regions and northern Australia

Category
National connectivity

Problem timeframe
Medium term (5–10 years)

Proponent
Outback Highway Development Council

Date added to the IPL
February 2021



Problem

The Outback Way is the only direct route that connects Western Australia to Queensland, and is an important piece of national transport infrastructure.

The inconsistent and poor condition of the road leads to long and unreliable travel times and higher safety risk for road users. Around half of the route is unsealed.

There are 13 remote and regional communities that directly rely on the Outback Way for the supply of essential goods and services. This is adversely affecting economic growth in many of these remote communities, further entrenching social disadvantage.

Outback Way also supports industries such as tourism, cattle, freight and mining. However, some operators have reported that they avoid travelling on the Outback Way due to its poor condition, instead taking alternative but much longer routes, such as the Barkly Highway.

The 2019 *Australian Infrastructure Audit* found that remote and regional supply chains are critical for industry and to supply communities with basic needs.

However, local governments often struggle to fund and maintain critical transport infrastructure. If this is not addressed, our agricultural supply chains and regional and remote communities will be vulnerable to delays, higher costs and extreme weather events.

Proposed initiative

This initiative is for improving the Outback Way, including its condition and resilience. Given the corridor is some 2,700 km long, the works should consider the most appropriate treatment for different sections.

In 2019, the Australian Government released the Outback Way Investment Strategy, which set out the Australian Government's approach for investing their \$330 million commitment to upgrade the route. As part of the investment strategy, \$100 million was committed in 2016 to fund 13 short-term priority projects and \$160 million was committed in 2018 to fund 12 medium-term priority projects.

Next steps

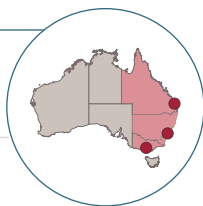
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

East coast deep water container port capacity

Location

East coast of Australia



Geography

National

Category

Efficient markets

Opportunity timeframe

Longer term (10–15 years)

Proponent

Infrastructure Australia identified initiative

Date added to the IPL

February 2020

(Updated June 2020)



Opportunity

Global shipping trends show a significant increase in the containerisation of cargo. This, in turn, is resulting in the size of container ships increasing. Globally, the capacity of container ships has increased to around 20,000 twenty-foot equivalent units (TEUs).

In the future, when container demands increase to appropriate levels, there is an opportunity for larger, more energy-efficient ships carrying more than 14,000 TEUs to serve Australian ports. This has the potential to create cost reductions and efficiency improvements.

As the vast majority of Australia's international freight is transported by ship, changes in supply chain efficiency would have a disproportionately large impact on competitiveness and consumers in Australia, compared with other countries.

While ports on the east coast of Australia have capacity to increase container throughput, investment will likely be required to ensure larger container ships can berth, transfer containers and have those containers taken to their destinations.

Given the complexity of port related supply chains and the lead time to identify and implement infrastructure, it is important to start planning for these changes.

Shipping companies prefer to service multiple ports along a route, therefore the capacity of all ports along that route will influence the choice of vessel.

Proposed initiative

The initiative is for infrastructure improvements that enable larger vessels access to Australian ports on the east coast.

In the first instance, options to make better use of existing infrastructure should be considered, such as channel deepening and wharf upgrades to existing ports. These may need to be supported by improved land-side access infrastructure. In the longer term, alternative options could also be explored, such as new port developments or transshipment opportunities.

This proposed initiative is for the east coast of Australia, as there is limited overlap between the west and east coast shipping routes. Westport in Western Australia is also developing a long-term port strategy that is considering options for deep water port access.

Given the preference of cargo ships to make multiple stops on a route, a network of deep water ports will likely be required, rather than a single port at a given location. This incentivises shipping lines to provide larger vessels to service Australia, which may generate economic efficiencies subject to the investment costs required to service these larger vessels. Any capital investment should be considered in the context of pricing arrangements to avoid impeding competition.

Next steps

Proponent(s) to be identified.

Priority Initiatives

A3 and A6 corridor capacity

Location
Sydney, NSW

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2019



Problem

The A3 and A6 corridors are major arterial roads that service north–south journeys for both freight and general traffic in Sydney. High traffic volumes on both corridors are leading to slow and unreliable trips, and are impacting on freight productivity, particularly during peak times. The 2015 *Australian Infrastructure Audit* identified the A3 between the M4 Motorway and Princes Highway, and the A6 between Sutherland and Ryde, as Sydney's second and fifth worst routes for congestion, as measured by delays per lane kilometre.

The A3 and A6 both connect to the M5 and M4 motorways. The A3 provides freight access between Sydney and the Sutherland Shire/Illawarra region, as well as to Sydney Airport, Port Botany and the Chullora and Enfield intermodal terminals. Up to 98,500 vehicles use the A3 each day at its busiest section – Concord Road at Rhodes.

The A6 serves as a key road transport link to the Bankstown Strategic Centre, and carries approximately 65,000 vehicles a day along Stacey Street near Bankstown.

Proposed initiative

Capacity constraints on the A3 and A6 corridors could be addressed through a range of initiatives, such as intersection upgrades and road widening. Potential upgrades should be considered in the context of an overall integrated program, as improvements to either of the corridors may also reduce pressure on the other.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Active transport (walking and cycling) access to Sydney CBD

Location
Sydney, NSW

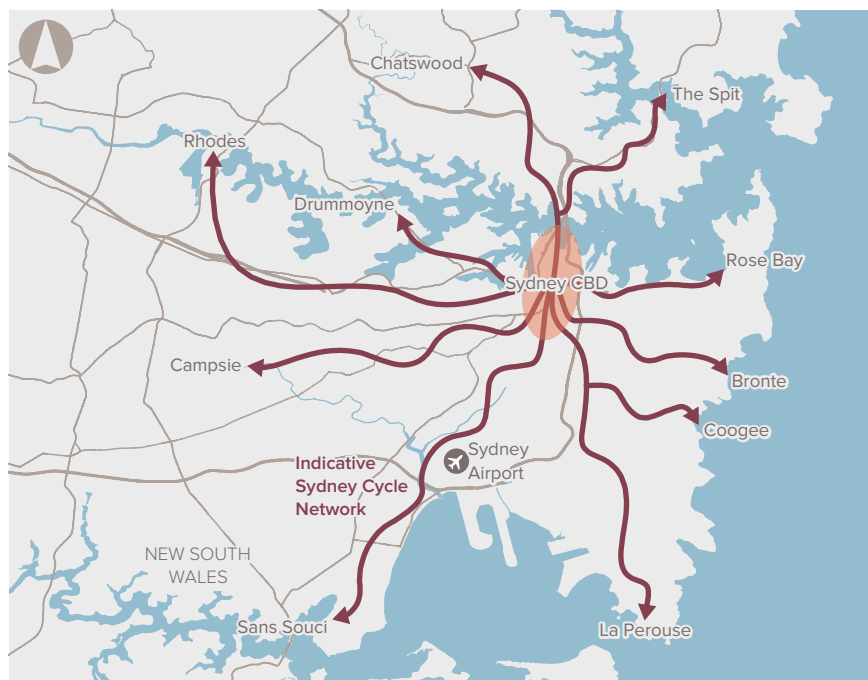
Geography
Fast-growing cities

Category
Efficient urban transport networks

Opportunity timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2016



Problem

The cost of congestion in Greater Sydney is estimated to increase from around \$8.1 billion in 2016 to \$15.9 billion in 2031. With a growing population and an increasingly centralised workforce, Inner Sydney is forecast to have the highest number of trips for any region in New South Wales.

Five of Sydney's most congested urban roads are located within a 10 km radius of Sydney's CBD. Some parts of the public transport network in Inner Sydney are also projected to reach or exceed current capacity by 2031.

There are more than 1 million daily short-distance trips (that is, less than 5 km) undertaken by private motor vehicles and taxis within 10 km of the Sydney CBD. However, safety concerns and disparate travel routes remain barriers to other forms of short-distance or active transport.

Proposed initiative

The initiative is for a network of safe cycling routes within a 10 km radius of the Sydney CBD, including dedicated cycling and shared cycling/walking paths. This network could use a mix of on-road and off-road cycleways, quiet local streets, green space connections and rail corridors.

As Sydney grows, there may be sufficient intra-regional trip volumes to support an extension of the network west to Parramatta.

The proponent for this initiative was previously the City of Sydney. The initiative was updated in February 2020 to list the NSW Government as the proponent.

In line with its *Future Transport Strategy 2056* vision, the NSW Government has planned a comprehensive network of cycleways within 10 km of metropolitan centres and within 5 km of strategic centres across Greater Sydney. This network has been co-designed with all councils in Greater Sydney.

Next steps

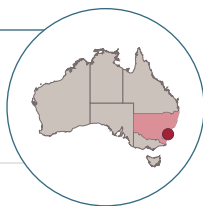
Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Hawkesbury-Nepean Valley flood management

Location

Hawkesbury-Nepean Valley, NSW



Geography

Fast-growing cities

Category

Adaptation and resilience

Problem timeframe

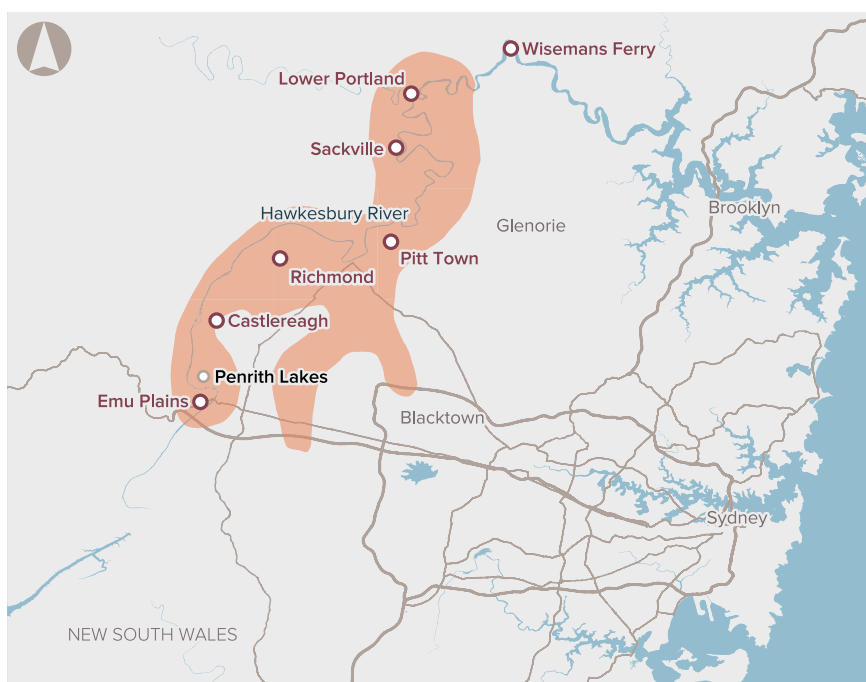
Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

There is increasing flood risk in the highly populated and major growth region of the Hawkesbury-Nepean Valley. Over the long term, the annual average cost of flood damage in the Hawkesbury-Nepean Valley is expected to be in the order of \$70 million.

Hawkesbury-Nepean Valley flood management represents a long-term infrastructure resilience challenge. Increasingly frequent extreme weather events, combined with the impacts of population growth in new and more densely populated areas, will likely require an increase in the level of resilience of some infrastructure networks. Infrastructure should be able to continue operating through minor disruptions, and recover quickly from major disruptions.

The largest flood on record in the Hawkesbury-Nepean Valley occurred in 1867, when the river level at Windsor reached 19.2 m above mean sea level, compared to the normal river level, which is less than 0.5 m above mean sea level. If the 1867 flood levels were to occur today, it is estimated that the total tangible damages could exceed \$3 billion. If a more extreme event were to occur, the total damages could approach \$8 billion (for a 1 in 1,000 year event).

Proposed initiative

The Hawkesbury-Nepean Valley Integrated Flood Management Strategy presents a series of initiatives and investments to reduce flood risk in the valley. Elements of the strategy being investigated and implemented include:

- flood mitigation infrastructure, including raising Warragamba Dam
- road infrastructure upgrades to improve flood evacuation capacity, such as culvert upgrades, new bridges, road raising and widening, and intersection upgrades
- a community engagement strategy
- improved governance and accountability to reduce flood risk through the integration of emergency, road and land use planning.

Next steps

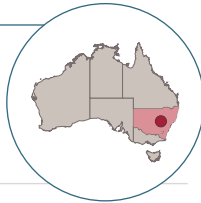
Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Newell Highway upgrade

Location

NSW section of
Melbourne–Brisbane
inland route



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

The Newell Highway is part of the National Land Transport Network. It is the principal inter-capital freight route between Melbourne and Brisbane, and is a critical link for regional producers in central and western New South Wales. Freight movements on the corridor are expected to grow strongly, supported by robust population growth in both Melbourne and Brisbane.

The efficiency of the route is constrained by localised congestion and flooding, deteriorating pavement and a lack of overtaking opportunities. Road alignment in several sections is also unsuitable for some High Productivity Vehicles.

These factors constrain freight productivity by increasing travel times and the number of vehicle journeys required, as well as reducing freight reliability.

Proposed initiative

The initiative seeks to improve several sections of the highway to support safe High Productivity Vehicle access, and improve safety and reliability.

The initiative will also consider first/last mile issues faced by High Productivity Vehicle operators in the corridor.

Realignment of a 6.5 km section of the highway at Trewilga was completed in February 2018.

Road widening from Boggabilla to Goondiwindi is complete, with road widening from Coonabarabran to Narrabri in progress.

Construction is also in progress on heavy duty pavement south of Boggabilla, the upgrade of the intersection with Mitchell Highway at Dubbo and on a program to deliver around 30 overtaking lanes.

Planning is in progress for a range of further works:

- bypasses of Parkes and Coonabarabran
- heavy duty pavement provision (North Moree, Narrabri to Moree)
- new Dubbo Bridge and realignment
- additional overtaking lanes
- improved flood immunity.

The NSW Government completed the Newell Highway Corridor Strategy in June 2019 and is progressively developing business cases for each element of this initiative.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Pacific Highway (A1)

Coffs Harbour bypass

Location

Coffs Harbour, NSW

Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

Connecting Sydney and Brisbane, the Pacific Highway is an important passenger and freight corridor, and is part of the National Land Transport Network. Currently, vehicles on the Pacific Highway must travel through the Coffs Harbour CBD. This increases freight and passenger vehicle travel times and increases the potential for conflict between heavy vehicles, passenger vehicles and pedestrians in this built-up area. The 2015 *Australian Infrastructure Audit* identified improving freight network efficiency as a key challenge for New South Wales.

Preliminary economic analysis estimates that the annual cost of the problem is in the order of \$55 million per year.

Proposed initiative

This initiative proposes constructing a bypass around Coffs Harbour. This would also include an upgrade to an existing section of highway to deliver a total of 13.2 km of motorway standard dual carriageway on the Pacific Highway.

To the north, 155 km of the Pacific Highway has been upgraded between Woolgoolga and Ballina, with sections opening in late 2020. This completes a minimum four-lane corridor between Sydney and Brisbane.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Pacific Motorway (M1)

Extension to Raymond Terrace

Location

Beresfield to Raymond Terrace, NSW



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

The Pacific Motorway/Highway is one of the most heavily used road corridors for freight in New South Wales. The highway is critical to the transport of freight between Sydney and Brisbane.

The section of the corridor between Black Hill and Raymond Terrace is also part of a strategic junction where the north–south traffic flows between Sydney and Brisbane cross the east–west traffic flows between Newcastle, including the Port of Newcastle, and the Hunter, New England and Central West and Orana regions.

Between John Renshaw Drive and Raymond Terrace, the highway is at arterial road standard with at-grade intersections, hindering the free flow of freight and commuter traffic.

Traffic speed during the morning peak is estimated to be 60 km/h by 2021, dropping to 23–39 km/h by 2031. In 2016, an average 22,000 vehicles used the route during the afternoon peak. This is expected to increase by 36% by 2031. The major growth drivers are the planned industrial developments at Black Hill, Tomago Road and Weakleys Drive. It is estimated that road network improvements could increase travel speed by around 20 km/h.

The current road network does not adequately cater for High Productivity Vehicles. Heavy vehicles travelling to and from Tomago industrial area and the Port of Newcastle are required to undertake contra-flow movements during the night. The use of High Productivity Vehicles to transport freight is estimated to generate significant productivity benefits.

It is estimated that these vehicles could perform the freight task with up to 37% fewer trucks and vehicle kilometres travelled compared to other vehicles.

Proposed initiative

The initiative proposes to upgrade the Pacific Highway between John Renshaw Drive and Raymond Terrace to motorway standard. The improved capacity, road standard and bypasses of Hexham and Heatherbrae would lead to productivity benefits from faster freight movements north–south in the Sydney–Brisbane corridor, and for intersecting east–west traffic flows between Newcastle, including the Port of Newcastle, and the Hunter, New England and Central West and Orana regions.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

South Creek integrated land use and water cycle management

Location
Sydney, NSW

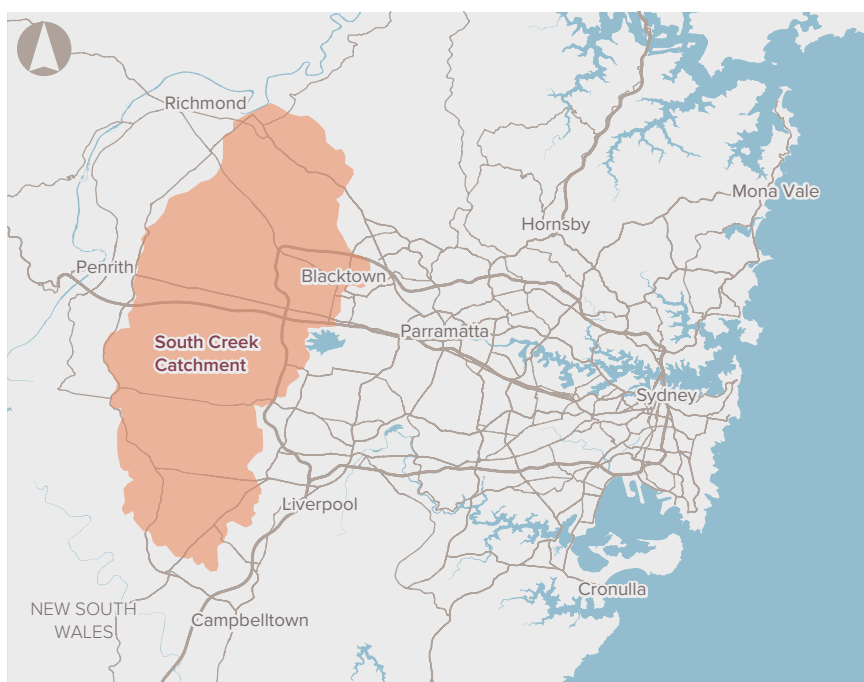
Geography
Fast-growing cities

Category
Access to water

Opportunity timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2020



Opportunity

The South Creek catchment is the hottest, driest and least-treed area of Sydney.

The population of the Western Parkland City, which is largely located in the catchment, is expected to increase to 1.5 million people by 2056.

The increase in population and related development could potentially create an urban heat island and degrade the local waterways and environment.

A significant investment is required to replace and augment water and wastewater infrastructure in this area to service future developments and avoid overwhelming legacy infrastructure.

There is an opportunity to integrate water infrastructure into land use and water cycle planning, which would provide significant economic benefit compared with traditional water cycle management approaches.

Proposed initiative

The initiative is to develop the South Creek Catchment in a way that maximises the opportunity for integrated land use and water cycle planning, to enhance the liveability and environmental quality of the area.

This includes the use of catalytic blue infrastructure (waterways and the facilities that support them) and green infrastructure (assets that incorporate natural vegetation), advanced water cycle management and investment in new or augmented water infrastructure.

The NSW Government is currently investigating different water recycling schemes and applications for both non-potable (for example, irrigation and industrial) and indirect-potable (for example, replenishing groundwater systems) reuse as part of the initiative.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

M6 Motorway

Connection between the M1 Princes Motorway at Waterfall and the Sydney motorway network

Location

Southern Sydney, NSW



Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

Medium term (5–10 years)

Proponent

NSW Government

Date added to the IPL

February 2016

(Updated February 2021)



Problem

There is no motorway standard route between the Sydney motorway network and the M1 Princes Motorway at Waterfall. Demand for road travel along this corridor is high and the arterial network is at capacity during peak periods. The three crossings of the Georges River, which together accommodate almost 200,000 trips per day, are at or close to capacity. These problems lead to long travel times, both because of slower speeds and intersections on arterial roads, and congestion.

The 2019 *Australian Infrastructure Audit* identifies the Sydney to Illawarra corridor as the second-most congested in Sydney for the AM and PM peaks in 2016, as measured by total vehicle delays. The Audit projects that in 2031 the corridor will still be the second-most congested in the PM peak, and the third-most congested in the AM peak.

Proposed initiative

The initiative proposes a motorway connection between the Sydney motorway network and the M1 Princes Motorway at Waterfall.

The NSW Government has committed to construct Stage 1 of the link between WestConnex (New M5) and President Avenue at Kogarah.

The Environmental Impact Statement for Stage 1 was placed on public exhibition in late 2018 and planning approval was granted in December 2019 by the NSW Department of Planning, Industry and Environment.

The NSW Government is in the process of tendering for the design and construction contract for Stage 1. This initiative was originally included in the *Infrastructure Priority List* as the 'F6 Extension'.

Next steps

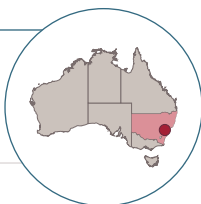
Proponent to complete business case development of remaining sections (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

New England Highway upgrade

Location

Belford to
Muswellbrook, NSW



Geography

Small towns, rural
communities and remote areas

Category

National connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

The New England Highway is part of the National Land Transport Network and is a major freight and passenger route, forming part of the inland Sydney–Brisbane corridor. The corridor services a high proportion of heavy freight vehicles and is the main road freight route between the Hunter Valley coalfields and the Port of Newcastle.

Under the existing alignment, the New England Highway passes through the centre of towns such as Singleton and Muswellbrook. Traffic congestion, reduced land freight transport productivity, safety issues (due to the mix of heavy vehicles and residential traffic in the town centres) and amenity issues are the principal problems. The current alignment also limits the extent to which High Productivity Vehicles can be mobilised along the route.

Proposed initiative

The initiative includes a number of potential projects to upgrade the New England Highway, including:

- bypasses of the towns of Singleton and Muswellbrook
- duplication between Belford and Singleton
- duplication between Singleton and Muswellbrook
- realignment at Rocky Cut (north of Scone).

The initiative is designed to aid the efficient movement of freight from regional exporters to the Port of Newcastle, which is essential to supporting economic growth and productivity in New South Wales.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Northern Sydney Freight Corridor Stage 2

Additional track West Ryde to Rhodes and Thornleigh to Hornsby

Location

Sydney, NSW

Geography

Fast-growing cities

Category

National connectivity

Problem timeframe

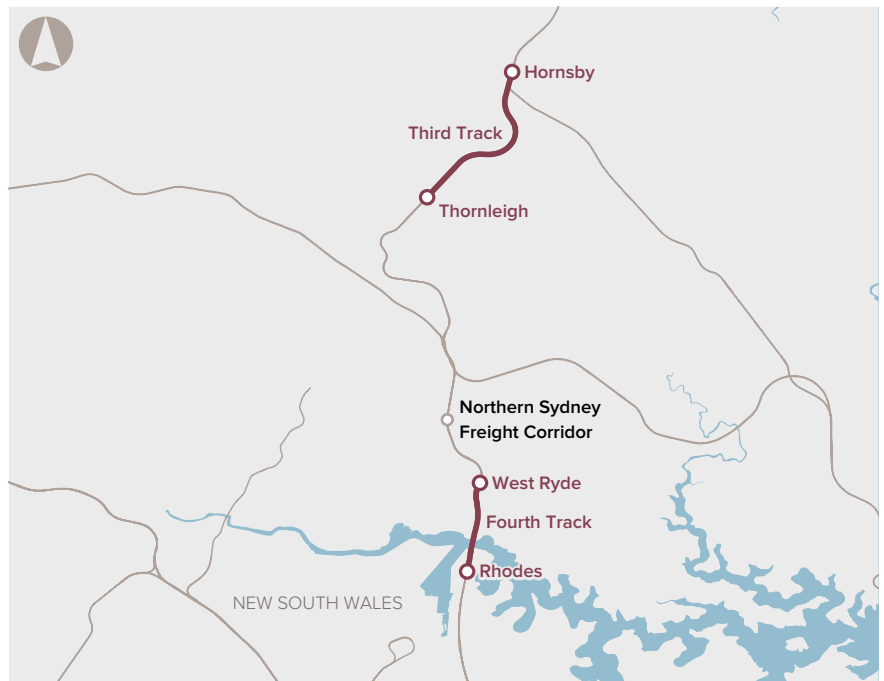
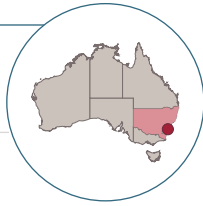
Medium term (5–10 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

Demand for rail freight in the Newcastle to Sydney corridor, using the Main North Rail Line, is projected to continue growing over the coming decades.

Stage 1 improvements to the Northern Sydney Freight Corridor have increased the corridor's capacity by 50%, from 29 to 44 freight trains each day. This will accommodate growth in demand for rail freight up until 2028. In the longer term, the Sydney metropolitan rail network will again become a point of bottleneck for the rail freight network, mainly because of priority given to passenger rail services.

Proposed initiative

A second package of infrastructure improvements in the corridor would build on the earlier package to deliver a significant increase to core period (5 am to 10 pm) rail freight capacity, along with improved average transit times for freight services. This would also improve freight and passenger service reliability along the Main North Rail Line between Strathfield in Sydney and Broadmeadow in Newcastle.

The candidate projects for the second package include Rhodes to West Ryde quadruplication and additional track capacity between Thornleigh and Hornsby (known as the Thornleigh to Hornsby Third Track project).

The NSW Government has completed a preliminary design for Rhodes to West Ryde quadruplication and Thornleigh to Hornsby Third Track. The scoping and timing of this work is currently being developed in conjunction with a response to the *Sydney rail network capacity* initiative, which is separately listed on the *Infrastructure Priority List*.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Sydney cruise terminal capacity

Location
Sydney, NSW

Geography
Fast-growing cities

Category
National connectivity

Problem timeframe
Medium term (5–10 years)

Proponent
NSW Government

Date added to the IPL
February 2019
(Updated February 2021)



Problem

There is insufficient berthing capacity for large cruise ships at Sydney's Overseas Passenger Terminal, particularly during the peak cruising season around the summer period. While there is capacity at the White Bay Terminal, it does not cater for the industry's shift towards larger ships, which cannot fit under the Sydney Harbour Bridge.

With 1.3 million Australian passengers in 2016, the number of Australian ocean cruise passengers has more than quadrupled across Australia since 2008, and almost doubled in the past five years. The amount of tourism expenditure from cruise ship activity in Australia was \$2.7 billion in 2016–17, of which approximately 58% of the economic impact was in New South Wales and primarily in Sydney.

A lack of capacity at Sydney's cruise ship terminals will impact on the growth of the Australian tourism industry, with some cruises citing the Sydney capacity constraint as the reason for not visiting Australia in the 2018–19 season.

COVID-19 has impacted on the demand for cruising across the world, and has potentially delayed the timing of terminal capacity constraints in Sydney.

Proposed initiative

Cruise terminal capacity constraints could be addressed through different initiatives:

- maximising the capacity of existing terminals by optimising scheduling, operations and pricing
- modifying existing non-passenger terminals to allow cruise ship usage
- developing new cruise terminals.

In line with the commitment outlined in the New South Wales Government's *Cruise Development Plan*, a Strategic Business Case was completed. It assessed the high-level viability of potential cruise terminal sites. In September 2019, the NSW Government started developing a detailed business case for the project. This has been put on hold for up to 18 months, given that the long-term impacts of COVID-19 on the cruise industry are yet to be determined.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Western Harbour Tunnel and Beaches Link

Location
Sydney, NSW

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
NSW Government

Date added to the IPL
February 2016



Problem

Travel demand across Sydney Harbour and onto the Northern Beaches is projected to increase, resulting in further congestion. Congestion on these corridors impacts on bus and private vehicle travel, with bus travel particularly impacted by congestion on the Spit Bridge/Military Road. The high levels of demand for existing infrastructure reflects the channelling of traffic onto the Sydney Harbour Bridge and Tunnel across Sydney Harbour, and the Spit Bridge and Roseville Bridge across Middle Harbour.

The 2019 *Australian Infrastructure Audit* ranks the North Sydney–Northern Beaches Corridor as the fourth most congested corridor in Sydney's PM peak periods during 2016, and forecast seventh most congested in 2031, as measured by total vehicle delays. The Gore Hill/Warringah Freeway/Sydney Harbour Bridge/Eastern Distributor Corridor is projected to become the 10th most congested corridor in Sydney in 2031.

Proposed initiative

The initiative proposes a motorway crossing underneath Sydney Harbour, connecting WestConnex with the Warringah Freeway, and a motorway connection from the Warringah Freeway and Gore Hill Freeway to Seaforth/Balgowlah on the northern side of Middle Harbour.

Next steps

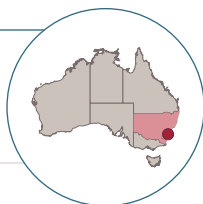
Business case under assessment (Stage 4 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Freight rail access to Port Kembla

Location

Illawarra/Southern Highlands region, NSW



Geography

Smaller cities and regional centres

Category

Regional connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

NSW Government

Date added to the IPL

February 2016

(Updated February 2021)



Problem

The 2015 *Australian Infrastructure Audit* identified that Port Kembla would face capacity constraints in the absence of any additional rail network improvements. Port Kembla is a significant economic asset. Maintaining efficient movement of freight to and from the port is a nationally significant challenge.

Additionally, there is a need to improve the efficiency and reliability of freight rail movements between the Illawarra and Greater Sydney, particularly between Port Kembla and the intermodal terminals in Western Sydney.

Around 60% of freight travelling to and from Port Kembla is transported by rail on either the Illawarra Line or the Moss Vale–Unanderra Line. Operations on the Illawarra Line are constrained by passenger rail services in the region, resulting in disruptions to freight scheduling. Freight services are often held for up to 11 hours as passenger services are given priority.

In the long term, Port Kembla's Outer Harbour development is expected to attract overflow container traffic from Port Botany. The NSW Government has stipulated that Port Kembla should generally not accept more than 120,000 Twenty-foot Equivalent Units per annum by road. This is around 10% of planned Outer Harbour container capacity. This is likely to lead to a significant increase in demand for rail services.

The development of Outer Harbour as Sydney's second international container terminal is likely to be the catalyst for substantial investment in rail capacity. This development is expected to occur around 2040.

Inadequate freight rail capacity may lead to a substantial increase in road freight, further constraining the Illawarra region's road network.

Proposed initiative

Improve freight rail access to Port Kembla. This could be through enhancements to the Illawarra and/or Moss Vale–Unanderra lines, or through future development of an alternative rail alignment to the port.

A project to extend the Mount Murray crossing loop along the Moss Vale–Unanderra Line has been completed. The extension supports trains up to 1 km long, improving accessibility for these trains to travel between Moss Vale and Port Kembla.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Great Western Highway improvements

Katoomba to Lithgow

Location

Central West, NSW

Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2020



Problem

The Great Western Highway connects the agricultural and mining sectors in the Central West and Orana regions with Greater Sydney and the port network in New South Wales. It forms part of the National Land Transport Network.

In 2011, 8.3 million tonnes of freight was moved to and from, and through the Central West and Orana by road.

The Great Western Highway currently passes through the centre of towns such as Blackheath and Mount Victoria. This leads to congestion, safety risks from heavy vehicles mixing with residential traffic, amenity impacts for residents, and additional travel costs for freight. The current alignment also limits the extent to which High Productivity Vehicles can be used along the route.

Proposed initiative

The initiative is to complete the duplication of the Great Western Highway. Over 100 km of the highway has been duplicated so far, leaving a 33 km gap between Katoomba and Lithgow.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Heathcote Road capacity and safety

Location
Sydney, NSW

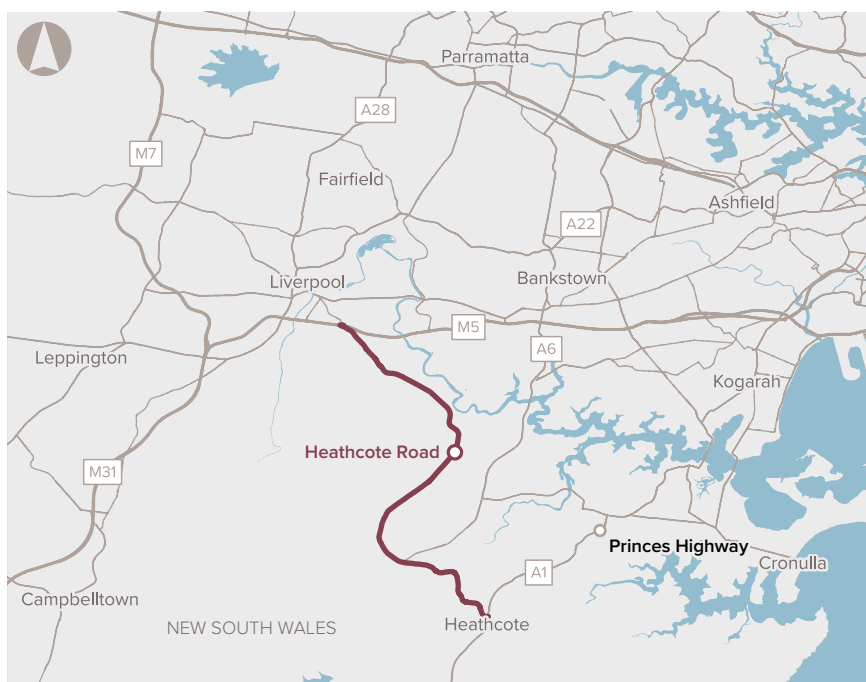
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2021



Problem

Heathcote Road is a 24.5 km arterial road connection between the M5 Motorway and A1 Princes Highway.

Heathcote Road links Southern Sydney, Greater Parramatta and Liverpool. It also connects motorists from the Illawarra region to the Sydney Metropolitan area.

The existing road is primarily a two-lane, two-way road with limited separation of opposing traffic flows. It also has poor sight lines for drivers and narrow shoulder widths.

The current road capacity and design is leading to congestion, poor reliability and safety issues, particularly around key intersections. Several sections of Heathcote Road have minimal overtaking opportunities.

In the five years between 2013 and 2018, there were 343 crashes along this corridor. Between 2013 and 2019, there were seven fatal crashes on Heathcote Road.

Road traffic on Heathcote Road is forecast to grow by over 30% by 2031, which is likely to worsen these problems.

The 2019 *Australian Infrastructure Audit* found that road safety performance is not on track to meet the objectives of the National Road Safety Strategy.

Proposed initiative

Potential options to address the initiative include:

- widening existing lanes, medians and road shoulders
- improving horizontal and vertical alignments
- adding lanes to support more traffic
- improving active transport infrastructure.

Next steps

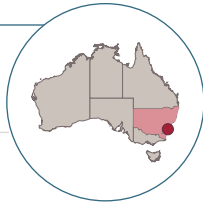
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Moorebank Intermodal Terminal road connections upgrade

Location

Western Sydney, NSW



Geography

Fast-growing cities

Category

Regional connectivity

Problem timeframe

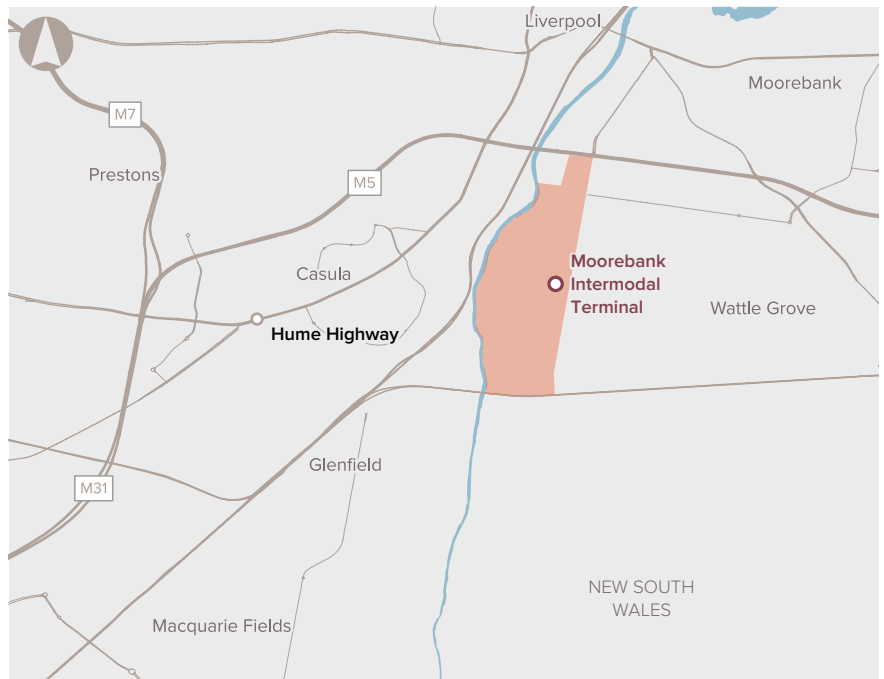
Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

The 2015 *Australian Infrastructure Audit* identified the M5 corridor – the key corridor linking the Moorebank Intermodal Terminal (MIT) and Port Botany – as highly economically significant. The delay cost per kilometre in the corridor is projected to be the 10th highest of any corridor in New South Wales in 2031, even after accounting for the duplication of the M5 East as part of WestConnex.

The development of the MIT presents an opportunity to moderate growth in freight traffic on the M5 corridor. However, it will generate additional freight traffic in the vicinity of the terminal. The current road network provides a single point of access to the freight precinct. This constraint could create significant 'last mile' congestion, affecting the efficiency of freight movements, and ultimately the effectiveness of the MIT itself.

The broader road network surrounding the MIT is currently highly congested, particularly sections of the M5, which has a poor safety record due to significant 'weaving' conflicts (where vehicles are weaving in and out of lanes to join or depart the motorway).

Proposed initiative

The initiative proposes a package of interrelated road infrastructure improvements to increase network efficiency and improve access to the MIT. The major components include:

- upgrades to the M5 interchanges at the Hume Highway and Moorebank Avenue to improve safety and capacity
- duplication and extension of Cambridge Avenue from Moorebank Avenue westward to the Hume Motorway (M31) to improve access and capacity.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Mount Ousley Interchange capacity

Location

Mount Ousley, NSW



Geography

Smaller cities and regional centres

Category

Efficient urban transport networks

Problem timeframe

Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2021



Problem

The high volume of traffic on the Mount Ousley section of the M1 Princes Motorway is leading to significant congestion in peak periods.

The interchange also has a comparatively high crash rate. This is particularly due to an at-grade right turn across the M1, large speed differentials between light and heavy vehicles, and the current off-ramp configurations that cause significant weaving movements. These issues make journeys slower and less reliable for general traffic, and also reduce freight efficiency.

The M1 Princes Motorway is the primary transport link between southern Sydney and the Illawarra, serving Port Kembla, Wollongong and the NSW South Coast. It is an important connection for a range of domestic and export markets, including coal, steel, agricultural producers and consumer goods.

In 2019, approximately 54,000 vehicles used this section of the M1 Princes Motorway per day, around 16% of which were heavy vehicles.

The 2019 *Australian Infrastructure Audit* found that regional, rural and remote road networks are less safe than other road networks. There is an opportunity to focus investments and policies on these areas.

Proposed initiative

Potential options to address the initiative include:

- adding or relocating on-ramps and off ramps
- new interchange configurations
- new service roads
- adding heavy vehicle safety ramps.

These works could also consider public transport and active transport improvements to encourage mode shift.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Picton Road safety and capacity

Location

Southern Sydney, NSW



Geography

Smaller cities and regional centres

Category

Regional connectivity

Problem timeframe

Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2019

(Updated February 2021)



Problem

The volume of passenger and heavy vehicles on Picton Road, combined with difficult topography, is causing significant delays and safety issues on the route. This is resulting in longer travel times and high crash rates.

Picton Road connects the M1 Princes Motorway near Mount Ousley in the east, with the M31 Hume Motorway at Wilton and Picton in the west. It is a key freight connection between Port Kembla and the Illawarra with Western Sydney, Canberra and Melbourne via the Hume Motorway.

The road carries over 20,000 vehicles a day, of which approximately 22% are heavy vehicles. Traffic volumes have grown historically at 4% to 5% per year and are expected to continue growing along the corridor with population growth, development in Western Sydney and growth at Port Kembla.

In the five years up to March 2019, there were seven fatal crashes and 26 serious injury crashes (which resulted in nine fatalities and 34 serious injuries). This is more than double the New South Wales average for the number of fatal and serious crashes per kilometre for similar type roads.

Land use changes planned at both Wilton and Greater Macarthur Growth Areas are expected to deliver an additional 60,000 homes nearby by 2040. When combined with the growing freight task, traffic volumes on Picton Road will continue to grow, which may further impact on travel times and crash rates.

In February 2021, the problem timeframe for the initiative was updated from medium term (5–10 years) to near term (0–5 years), in recognition of the growing problem costs.

Proposed initiative

Options to address capacity and safety issues on Picton Road include:

- minor short-term road upgrades such as providing central barriers
- improving horizontal alignment and upgrading intersections or adding signals
- additional capacity and overtaking opportunities, including the potential duplication of the corridor.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Princes Highway safety and capacity

Nowra, NSW to Victorian border

Location
South Coast, NSW

Geography
Smaller cities and regional centres

Category
National connectivity

Problem timeframe
Near term (0–5 years)

Proponent
NSW Government

Date added to the IPL
February 2020



Problem

The Princes Highway is the primary north–south connection between Greater Sydney, the City of Wollongong, the Illawarra–Shoalhaven region and the south coast of New South Wales. It carries a mix of freight and passenger traffic for local, long-distance and tourism trips.

Between Nowra and the Victorian Border, the highway experiences congestion, has a poor safety record and has freight productivity constraints. This is caused by the challenging topography, mass-limited bridges, and the two-lane, undivided road design, which offers limited overtaking opportunities.

An average of five fatalities and 40 serious injuries per year were recorded along the corridor over the last five years. Some sections are experiencing crash rates more than double the New South Wales median fatal and serious injury crash rate.

Proposed initiative

The Australian Government released the Princes Highway Corridor Strategy in November 2019, which considers the entire length of the highway across New South Wales, Victoria and South Australia. The strategy identified locations between Nowra and the Victorian Border as priorities for road and bridge upgrades, additional passing opportunities and bypasses.

The initiative is for a program of works to make the corridor safer, and more efficient and accessible. The Australian Government and NSW Government have committed funding towards the following components:

- bypass of Moruya
- duplication of sections of the Princes Highway between Jervis Bay Road and Sussex Inlet Road
- a bypass of Milton and Ulladulla
- planning for upgrades to the Princes Highway between Burrill Lake and Batemans Bay.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Sydney CBD motorways optimisation

Location

Sydney Inner City, NSW



Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

Near term (0–5 years)

Proponent

NSW Government

Date added to the IPL

February 2019



Problem

Motorways in the Sydney CBD are an integral part of the road network, providing through movements and access between the CBD and other major centres. Traffic on the motorways is unmanaged, and the roads are not performing effectively to cope with growing demand.

The roadways are currently congested during peak times, which has significant knock-on impacts on the broader road network. Further, the large number of events and incidents occurring on these roadways exacerbate congestion and unreliable travel times. This also results in more crashes, particularly during congested periods.

Without intervention, demand growth will lead to even higher levels of congestion, unreliability and frequency of crashes.

Proposed initiative

The initiative focuses on better use of existing assets to improve performance of the road network.

Potential responses include the provision of Intelligent Transport Systems and other technology to monitor traffic conditions, manage congestion and respond to incidents in real time.

The initiative is to improve journeys for road users by using real-time information, communication and traffic management tools to provide motorists with a safer, smoother and more reliable journey. The objectives of the project would be to:

- increase network resilience
- improve travel-time reliability, user experience and road safety
- reduce travel times, vehicle operating costs and environmental impacts
- optimise existing infrastructure assets.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Central Station redevelopment

Location
Sydney Inner City, NSW

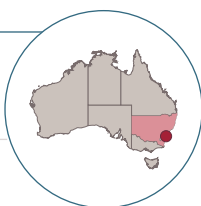
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
NSW Government

Date added to the IPL
February 2017



Problem

Central Station is Sydney's busiest transport interchange. It serves as a critical multimodal transport interchange for suburban and intercity rail services, country and interstate coaches, suburban buses and light rail services. In 2019, Central became an interchange point for the CBD and South East light rail line, and from 2024 Central will also be an interchange station for the Sydney Metro (rapid transit) service.

Day-to-day customer experience of the station is poor in terms of circulation, navigation, legibility, access, capacity and crowding. These problems are expected to get worse as total passenger movements are projected to increase by 67% between 2014 and 2036, and passenger interchanges between rail services in the morning peak are projected to increase by 106% in the same period.

Proposed initiative

The initiative comprises upgrades to rail and station infrastructure to support passenger movement and interchange. This includes access improvements to connect the new Metro station with the rest of Central Station, and other enhancements to the station's functionality. The NSW Government has commenced construction of Central Walk, a new underground pedestrian concourse at Central Station that will better connect passengers to trains, light rail and the new Sydney Metro underground platforms.

A proposed second stage of the initiative deals with the renewal of the broader station precinct. This second stage has not been assessed for inclusion on the *Infrastructure Priority List* at this time.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Broadmeadow precinct regeneration

Location
Newcastle, NSW

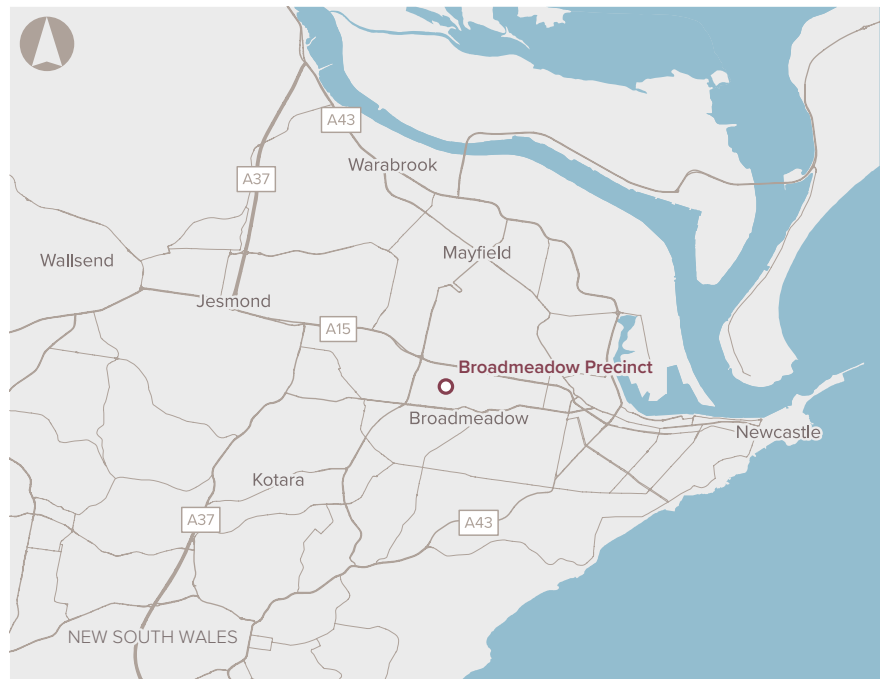
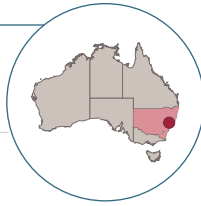
Geography
Smaller cities and regional centres

Category
Social infrastructure

Problem timeframe
Medium term (5–10 years)

Proponent
City of Newcastle

Date added to the IPL
February 2021



Opportunity

There is an opportunity to redevelop an existing sports and entertainment precinct five kilometres from the Newcastle CBD.

The existing 63-hectare precinct contains a variety of sporting facilities and serves some commercial uses. The site was first established in 1970 and most of the facilities are now reaching the end of their usable life.

The layout of the precinct and connectivity between facilities is poor. There is also an opportunity to make better use of underutilised land.

The initiative supports NSW Government plans to regenerate Broadmeadow as a sport and entertainment precinct, to stimulate growth and change in surrounding centres and residential areas.

The 2019 *Australian Infrastructure Audit* found that in areas outside of fast-growing cities, green, blue and recreation infrastructure is often fragmented across multiple assets and expensive to maintain.

Proposed initiative

Potential options to address the initiative include:

- new sports infrastructure, such as fields and arenas
- multi-purpose venues for other entertainment
- green infrastructure for local amenity
- residential and mixed-use development
- accessibility improvements within the precinct.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Western Sydney Airport public transport connections

Location

Western Sydney, NSW

Geography

Fast-growing cities

Category

Regional connectivity

Problem timeframe

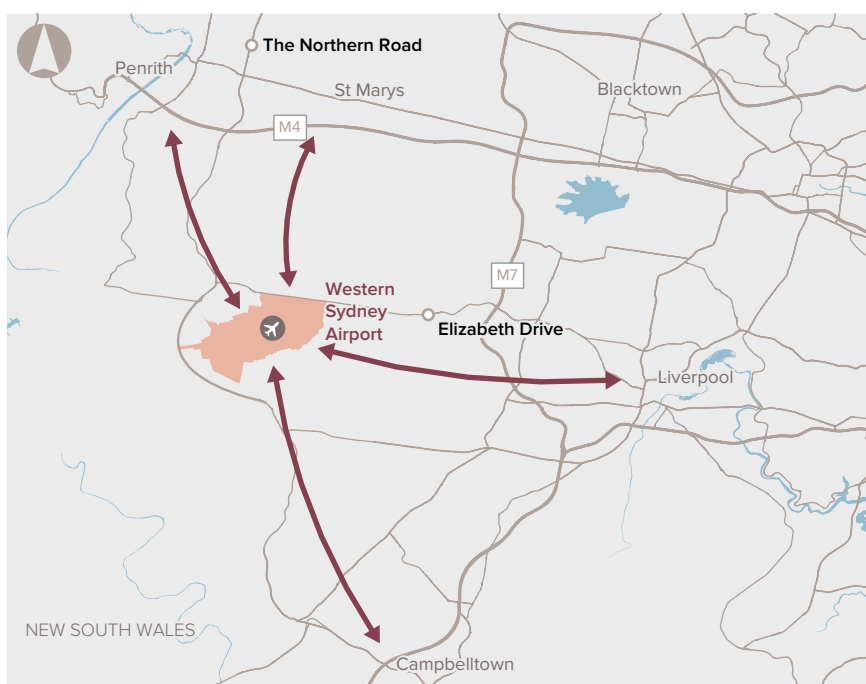
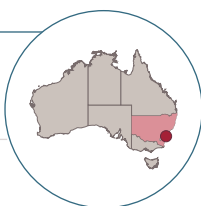
Medium term (5–10 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

As identified in the 2015 *Australian Infrastructure Audit*, meeting the Sydney region's future air passenger demand will require expansion of airport capacity beyond Sydney Airport. Much of this demand is expected to be absorbed by the Western Sydney Airport at Badgerys Creek.

Western Sydney Airport will require reliable public transport connectivity, appropriate to the level of demand, to service arriving and departing air passengers, as well as employees and airport, aviation, freight and related businesses. Demand for this connection will increase as the airport commences passenger operations, estimated to be from 2026. Fast and reliable bus connections using dedicated infrastructure, integrated with the broader Sydney rail and public transport network, can help minimise road congestion in Sydney's Western and South West Growth Areas during the construction of the airport, and following the commencement of operations.

Proposed initiative

The initiative would provide infrastructure to support bus connections between Western Sydney Airport and the nearby centres of Penrith, St Marys, Liverpool and Campbelltown. This will connect the airport to the broader Sydney rail and public transport network. Where demand warrants it, direct rail access to Western Sydney Airport could also be considered, such as the north–south rail connection committed to as part of the Western Sydney City Deal.

This initiative should be viewed as a potential complementary investment to preserving a rail corridor for connecting Western Sydney Airport, which is separately listed on the *Infrastructure Priority List*.

The Australian Government and NSW Government have jointly released a scoping study that identifies a longer-term rail network for Western Sydney, with services that would also provide connection to the Western Sydney Airport. This could include the proposed South West Rail Link extension.

Provision of high-quality public transport services from the opening of the airport will provide users with public transport travel choices and minimise reliance on cars. These types of services also provide an opportunity to guide land use planning and activation on key corridors.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

John Hunter Health and Innovation Precinct capacity

Location
Newcastle, NSW

Geography
Smaller cities and regional centres

Category
Social infrastructure

Problem timeframe
Longer term (10–15 years)

Proponent
NSW Government

Date added to the IPL
February 2020



Problem

The John Hunter Health Campus in Newcastle faces significant capacity constraints, with its average occupancy at 98%, compared with the usual benchmark of 85%.

The existing infrastructure is not suited for delivering contemporary and future digitally-enabled models of care. For example, operating theatres are undersized against current standards, limiting their ability to accommodate new technology and equipment.

The John Hunter Health Campus also has one of the busiest emergency departments in New South Wales. In 2018, the emergency department served over 81,000 presentations in a space originally designed for 47,000.

The 2019 *Australian Infrastructure Audit* recognises that the growing population and demand for health services is placing pressure on existing health infrastructure.

Proposed initiative

Potential options to address the problem include optimising the current facilities and operations alongside major upgrades or redevelopment of the campus.

There is also an opportunity to better integrate health, education, research and community services and infrastructure within the Newcastle Health and Innovation Precinct.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

M1 Pacific Motorway

Byron Bay interchange capacity

Location

Ewingsdale, NSW

Geography

Smaller cities and regional centres

Category

Efficient urban transport networks

Problem timeframe

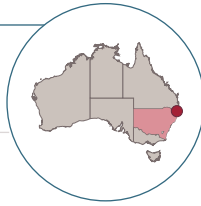
Longer term (10–15 years)

Proponent

Byron Shire Council

Date added to the IPL

February 2021



Problem

The intersection of M1 Pacific Motorway and MR545 is the key interchange to Byron Bay on the North Coast of New South Wales.

Commuter and tourism traffic is leading to growing congestion at this intersection, particularly during peak times. Traffic queues are often between 500 m to 2 km along the M1 to and onto the MR545.

Since 1999, traffic volumes have grown strongly by around 3% per year. This growth is expected to continue as tourism grows in the region. In 2019, an average of over 22,500 vehicles used the corridor each day.

In 2019, over 2.4 million people visited the Byron Shire, despite the population of Byron Shire being just under 35,000 residents.

While variable speed signs have been implemented to manage congestion, there is an increasing risk of vehicle crashes due to the excessive congestion and queueing.

The 2019 *Australian Infrastructure Audit* found that road safety performance is not on track to meet the objectives of the National Road Safety Strategy.

Proposed initiative

The initiative is for capacity improvements on the M1 Pacific Motorway interchange to Byron, which could include a range of configurations.

It should also consider capacity along the M1 Pacific Motorway and on Ewingsdale Road, which is the connection from the interchange to Byron Bay.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Newcastle Airport capacity expansion

Location
Newcastle, NSW

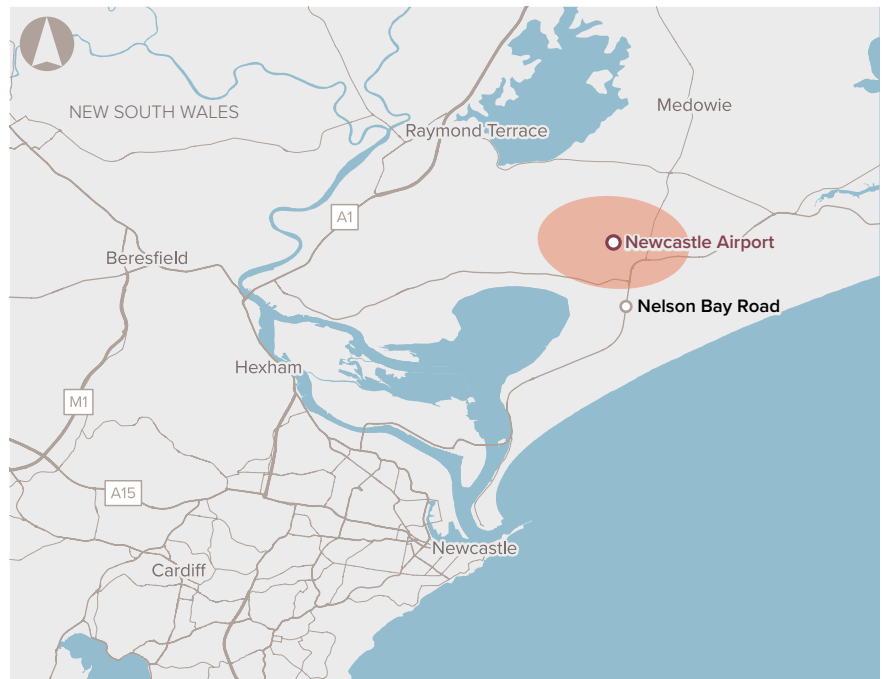
Geography
Smaller cities and regional centres

Category
Regional connectivity

Problem timeframe
Longer term (10–15 years)

Proponent
Newcastle Airport Pty Ltd

Date added to the IPL
February 2021



Problem

The runway at Newcastle Airport serves passenger and freight aircraft, as well as the Royal Australian Air Force's military operations, including the new F-35A fighter jets.

The terminal and runway cannot currently accommodate long-range, 'Code E' aircraft. Enabling 'Code E' aircraft to use the airport would expand the flight range from Oceania to the Middle East and the Americas.

The current limitations of the terminal and runway impacts inbound and outbound flights to domestic destinations and restricts access to international destinations in Oceania. This leads some passengers to commute to and from Sydney Airport for air travel.

More than 1.27 million passengers used the airport in 2019. Newcastle Airport forecasts this to grow to 2.6 million by 2036.

The airport is located at Williamstown, which has been designated by the NSW Government as a Special Activation Precinct. This precinct aims to create a defence and aerospace hub to service Royal Australian Air Force combat aircraft.

Upgrading Newcastle Airport would improve airfreight movements, reducing costs and travel times for freight that would have otherwise come via Sydney Airport.

Proposed initiative

Potential options to address the initiative include runway and terminal upgrades.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Newcastle–Sydney and Wollongong–Sydney rail line upgrades

Location

Newcastle–Sydney–
Wollongong, NSW



Geography

Fast-growing cities

Category

National connectivity

Problem timeframe

Longer term (10–15 years)

Proponent

NSW Government

Date added to the IPL

February 2016



Problem

Slow regional passenger rail speeds along the Newcastle–Sydney and Wollongong–Sydney rail lines result in lengthy travel times that are generally longer than car travel. Express services take 1 hour 28 minutes between Wollongong and Sydney, and 2 hours 37 minutes between Newcastle and Sydney.

This service level reduces accessibility to the Sydney employment market from the Wollongong and Newcastle regions, which have above average unemployment. It also limits opportunities to develop greater economic synergies between the three cities, which would benefit productivity.

Uncompetitive rail services also add to road congestion on key roads linking the three cities.

The current level of rail capacity and quality of service reflect a range of operational and infrastructure constraints, including winding alignments across the Hawkesbury River (Newcastle–Sydney) and the Illawarra Escarpment (Wollongong–Sydney).

Proposed initiative

The proposed initiative includes a range of options for improvements to the lines:

- an initial set of operational and fleet improvements
- targeted fixed infrastructure improvements (for example, new deviations to eliminate curvatures and flatten grades)
- a new rail crossing of the Hawkesbury River and Illawarra Escarpment
- station improvements and capacity enhancing track amplifications.

The Newcastle–Sydney and Wollongong–Sydney rail corridors were identified in the Australian Government's Faster Rail Connecting Capital Cities and Orbital Regional Centres prospectus, which was announced as part of the 2017–18 Budget. Subsequently, funding has been committed by the Australian Government and NSW Government to develop strategic business cases for faster rail between Sydney and Newcastle, and between Sydney and Wollongong.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Melbourne Airport third runway

Location

Melbourne Airport, Vic

Geography

Fast-growing cities

Category

National connectivity

Problem timeframe

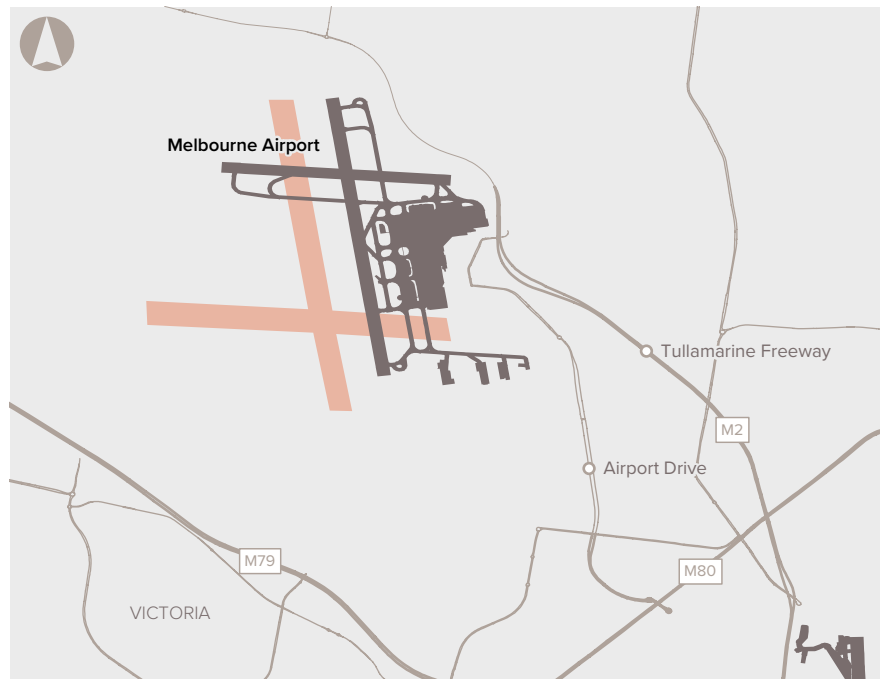
Near term (0–5 years)

Proponent

Melbourne Airport

Date added to the IPL

February 2016



Problem

Melbourne Airport is Australia's second busiest passenger airport, handling almost 35 million passengers and 245,000 aircraft movements in 2019. It is also Australia's largest domestic air freight hub. The airport's contribution to Gross State Product is forecast to increase from \$1.47 billion in 2013 to \$3.21 billion by 2033 (2012 prices), facilitating 23,000 jobs.

Demand at the airport is increasing and, by 2042, the airport anticipates facilitating 68 million passengers and 348,000 aircraft movements.

With its existing two-runway system, Melbourne Airport is expected to reach capacity during peak periods between 2020 and 2022.

This capacity constraint will inhibit the efficient functioning of the airport, leading to significant delays for passengers and freight, increasing fuel costs for airlines, increasing environmental emissions and consequential disruption to the Australian aviation network.

Proposed initiative

The initiative proposes a third runway to meet increased demand at Melbourne Airport. The three-runway system could facilitate at least 400,000 total aircraft movements at the airport per year, providing sufficient capacity to accommodate projected aircraft movements until around 2050.

In the longer term, Melbourne Airport has been planned and protected to operate a four-runway system.

Next steps

Melbourne Airport is currently developing a Major Development Plan for the third runway project in addition to undertaking a new statutory Master Plan 2022 for consideration by the Australian Government.

Priority Initiatives

Melbourne level crossings removal

Location
Melbourne, Vic

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Victorian Government

Date added to the IPL
February 2016



Problem

Melbourne's transport network includes approximately 180 road/rail level crossings. Road traffic at these level crossings is managed by boom gates that give priority to trains. Level crossings interrupt the flow of road traffic and contribute to congestion and delays on Melbourne's roads. The 2019 *Australian Infrastructure Audit* projected that the cost of road congestion in the Melbourne/Geelong area is expected to reach approximately \$10.4 billion by 2031.

As Melbourne's train network is modernised, longer and more frequent trains are planned to be introduced to the network to cater for increased demand. Longer and more frequent trains at level crossings will increase delays for road users.

Level crossings also introduce a 'conflict point' between rail and road traffic, which creates safety issues. Incidents at level crossings, including collisions and signal faults, impact the efficiency and reliability of Melbourne's transport network.

Proposed initiative

This initiative proposes to remove priority level crossings in Melbourne. The objective of the initiative is to deliver a more reliable, convenient, productive and safer transport system in Melbourne.

Next steps

The Victorian Government, through the Level Crossing Removal Authority, has committed to the removal of 75 level crossings across metropolitan Melbourne by 2025. In 2019, 30 level crossings had been removed, with planning and early consultation underway for the delivery of the remainder.

Priority Initiatives

Hurstbridge Line capacity

Location
Melbourne, Vic

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
Victorian Government

Date added to the IPL
February 2019



Problem

There is a growing need to provide more public transport in the north-eastern suburbs of Melbourne to accommodate rapid patronage growth on the Hurstbridge and Mernda rail lines, which connect at Clifton Hill.

The City of Whittlesea – including the suburbs of Thomastown, Mernda and Wollert – is one of the fastest growing regions in Australia, with its population projected to grow by 4.3% per year between 2011 and 2021. Travel demand in the Whittlesea corridor will grow strongly, with the annual patronage on the Mernda Line expected to increase by 9.1% per year between 2018 and 2021. This could lead to overcrowding and poor reliability on the Mernda Line.

As the timetables are interconnected, capacity of the Mernda Line is governed by constraints on the Hurstbridge Line, which includes single-line sections of track. In addition to track upgrades, the Hurstbridge Line also requires a more regular pattern of services, and improved connections to key precincts and employment clusters.

Proposed initiative

The Hurstbridge Line was upgraded in 2018 to duplicate track along some sections of the line, construct a new station and remove level crossings.

The capacity of the Hurstbridge Line and Mernda Line could be further improved by duplicating other single-track sections of the Hurstbridge Line, upgrading stations, and potentially enhancing other public transport modes along the corridor.

This initiative is complementary to the High Priority Initiative for *Melbourne rail network capacity*, which is also included on the *Infrastructure Priority List*.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Cycling access to Melbourne CBD

Location
Melbourne, Vic

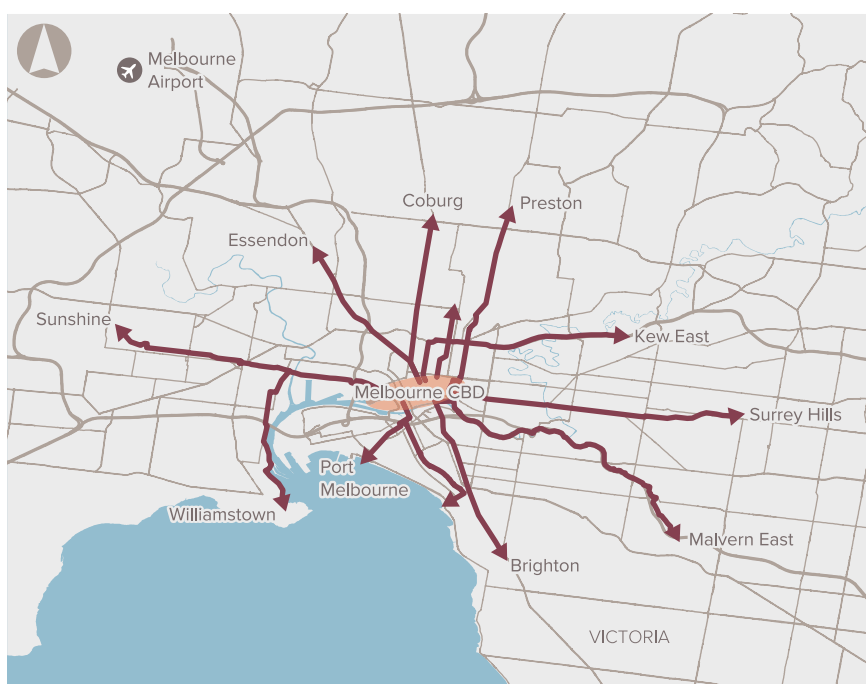
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Royal Automobile Club of Victoria

Date added to the IPL
February 2020



Problem

Inner Melbourne has the highest bicycle mode share in Victoria. However, there is substantial latent demand for cycling, with people choosing not to cycle because of safety concerns due to routes that are not connected and/or have poor separation from traffic.

Provision of dedicated cycling infrastructure for key cycling corridors in Inner Melbourne would encourage more people to cycle, helping to alleviate road network and public transport congestion and reduce the risk of conflict between road users.

An increasing number of people are choosing to use public transport rather than drive. Cycling can also help reduce congestion on the road network. However, recent research has revealed that most Victorians own and ride bicycles, but they don't cycle for transport, or into the Melbourne CBD for employment, because the bicycle network is not currently meeting community needs and expectations of a safer, lower-stress and better-connected network.

Proposed initiative

The initiative involves the provision of dedicated cycling infrastructure for key routes in Inner Melbourne to reduce congestion and improve safety and health outcomes.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Frankston public transport connectivity

Location
Melbourne, Vic

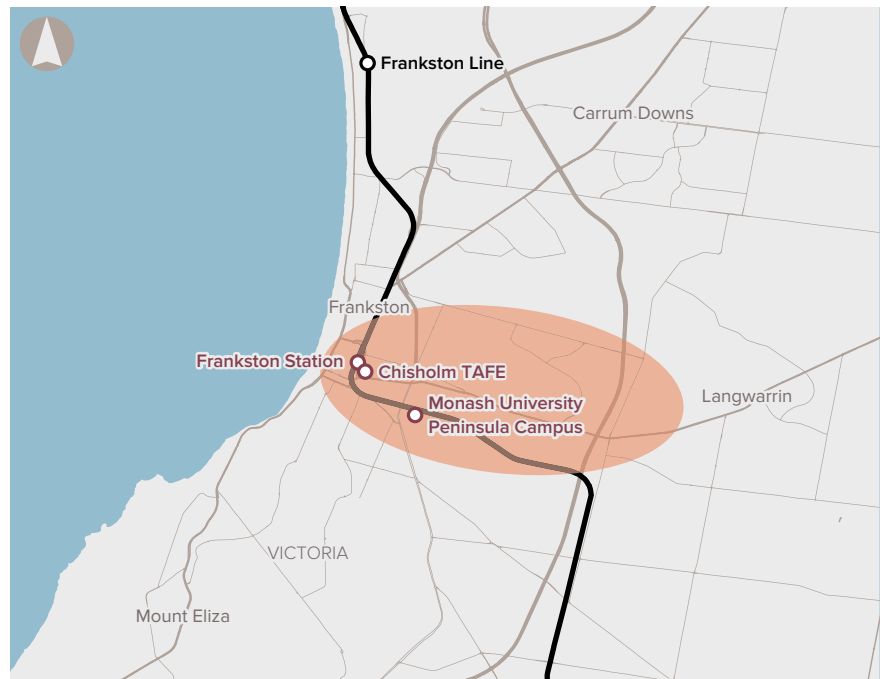
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Committee for Greater Frankston

Date added to the IPL
February 2020



Problem

Frankston is a major metropolitan activity centre in Melbourne's south-east, some 50 km from the city centre. It has a population of over 140,000 people.

To the east of Frankston, the Victorian Government is planning a major redevelopment of the Frankston Hospital. In addition, the campuses of both the Monash University and Chisholm TAFE are being redeveloped.

Buses serve the Frankston area, but these tend to have circuitous routes and poor integration with rail services. The Frankston Line provides rail access from Melbourne to the area and further south to the Mornington Peninsula. However, the line is not electrified to the south of Frankston Station.

Proposed initiative

The initiative is for public transport connectivity improvements to, and through, Frankston. A wide range of options should be identified and assessed to determine the optimal solution. These options could include or potentially be a combination of:

- optimising the existing bus network
- increasing bus service frequency and coverage
- upgrades to rail services and infrastructure.

These improvements should support major redevelopments to the east of Frankston. They should also consider active transport connectivity and parking requirements within the context of public transport improvements.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Melbourne container terminal capacity and land transport access

Location

Melbourne, Vic

Geography

Fast-growing cities

Category

National connectivity

Problem timeframe

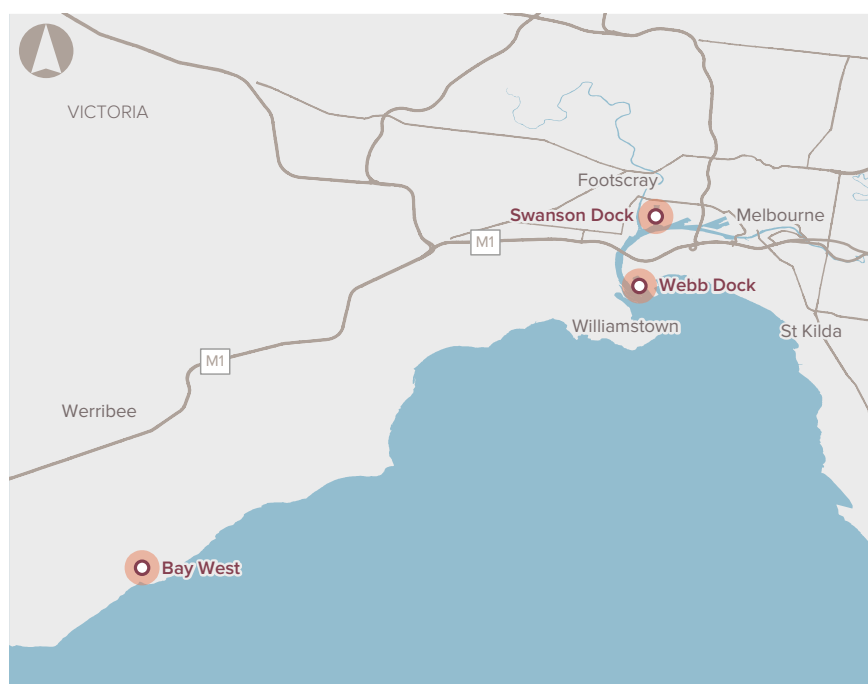
Various (0–15 years)

Proponent

Victorian Government

Date added to the IPL

February 2016



Problem

The Port of Melbourne is Victoria's busiest port and the largest container and general cargo port in Australia. Container traffic at the port is projected to grow by 2.6% per year, from 2.9 million Twenty Foot Equivalent Units (TEUs) in 2018 to around 9 million TEUs in 2050. The 2015 *Australian Infrastructure Audit* identified that, even with planned expansions, additional container terminal capacity will be required before 2031.

The development of additional container terminal capacity in Melbourne – with dedicated connections to the port, proposed metropolitan terminals, regional hubs and the national rail system – will help to alleviate congestion caused by road freight movements.

Currently, only around 10% of the Port of Melbourne's container trade is moved by rail, with no imported containers being moved by rail. This places significant pressure on the surrounding road network, which carries the remaining share. Given Melbourne's central role in Australia's freight supply chain, inadequate port capacity and transport access in Melbourne could have broader national consequences.

Proposed initiative

The initiative proposes planning and construction of additional container terminal capacity in Melbourne to cater for projected increases in containerised freight volumes and appropriate landside connections to ensure the efficient landside movement of these containers.

This initiative includes optimising the capacity of existing ports, as well as longer-term planning and potential site preservation for future facilities. Infrastructure Victoria has advised the Victorian Government that Bay West should be the preferred location for a second major container port.

This initiative was updated in February 2019 to include the near-term landside transport initiatives needed to support increased port capacity, including road and rail access from metropolitan, regional and national networks.

In 2020, Port of Melbourne Operations released the *2050 Port Development Strategy*, outlining options to improve port efficiency and capacity over 30 years.

The Victorian Government will also prepare a Victorian Ports Strategy to outline how Victoria's future exports and imports could be handled across current and future commercial ports. At the same time, the Victorian Government will undertake further planning work to confirm Bay West as the preferred site for a second major container port.

Access for higher capacity vessels should also be considered as part of this planning. A separate initiative for *East coast deep water container port capacity* is included on the *Infrastructure Priority List*.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Cranbourne Line capacity

Location
Melbourne, Vic

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
Victorian Government

Date added to the IPL
February 2019



Problem

Increasing development of residential properties, employment areas and town centres in Cranbourne and Clyde is increasing demand on the Dandenong Rail Corridor, which includes the Cranbourne and Pakenham lines.

The population in the Local Government Areas covering Dandenong, Cranbourne and Pakenham are expected to increase from 585,000 people in 2015 to 793,000 by 2031, which will place pressure on the existing rail services.

The Cranbourne Line is principally limited to a single track south of Dandenong, which impacts on the ability to:

- maintain service timetables, with current on-time performance regularly below 90%
- run more services, with the line currently limited to four services per hour during the AM peak
- realise the benefits specified by other major rail infrastructure investments.

Overcrowding, reduced punctuality and reduced reliability on the Cranbourne Line is estimated to cost \$154 million per year by 2036.

Proposed initiative

Duplication of 8 km of the Cranbourne Line between Dandenong and Cranbourne provides an opportunity to increase the number of services, reduce overcrowding, and improve punctuality and service reliability.

The line may be extended to Clyde in the future, although this is not part of the current initiative.

This initiative is complementary to the High Priority Initiative for Melbourne rail network capacity, which is also included on the *Infrastructure Priority List*.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Melbourne Airport to the CBD public transport capacity

Location
Melbourne, Vic

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
Victorian Government

Date added to the IPL
February 2016



Problem

The 2019 *Australian Infrastructure Audit* identified the corridor between the Melbourne CBD and Melbourne Airport as one of the most heavily congested in Melbourne. The Tullamarine Freeway was already operating at, or close to, capacity in 2016. Congestion affects traffic in both directions, particularly close to the airport terminal. Analysis completed as part of the Audit estimated that travel times to the airport during peak periods will increase substantially between 2016 and 2031 (even after the current project to widen the freeway is completed).

From 2016 to 2031, travel time by car in the morning peak from the airport to the city is projected to increase by eight minutes, from 52 minutes to 60 minutes, while travel times by car in the evening peak from the city to the airport are projected to increase by 10 minutes, from 42 minutes to 52 minutes.

Melbourne's population growth, combined with expected growth in passenger numbers at Melbourne Airport, will be key drivers of future congestion on the Melbourne CBD to Melbourne Airport corridor.

Proposed initiative

The Victorian Government, together with the Australian Government, has commenced planning for a rail link between Melbourne Airport and Melbourne's CBD through the development of the Melbourne Airport Rail (MAR) business case. A Strategic Appraisal was completed in mid-2018, which selected the Sunshine Route as the preferred route alignment for the MAR and a detailed business case is currently under development.

The MAR business case will be coordinated with the Melbourne Airport Land Access Strategy, which is investigating options to improve and strengthen road access and capacity, and to increase existing bus access and services to the airport.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Melton Rail Line upgrade

Location

Western Melbourne, Vic



Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

Medium term (5–10 years)

Proponent

Victorian Government

Date added to the IPL

February 2016



Problem

Melbourne's long-term growth strategy identifies Melton to Bacchus Marsh as a key growth area. The 2015 *Australian Infrastructure Audit* estimated that population growth in the Melton–Bacchus Marsh region will grow at an average annual rate of 3.9% per year between 2011 and 2031. This is the second-highest growth rate in Greater Melbourne.

The Audit identified the Melton–Bacchus Marsh region as an area in which high levels of additional transport activity is expected out to 2031. Audit data shows that demand on the Melton Line is projected to grow to around three times current capacity by 2031.

Currently, the line between Melton Station and Sunshine Station is operated by V/Line and is not part of the metropolitan network. This section of the line is not electrified, which limits higher-capacity trains being introduced on the line. The Melton Line currently lacks the capacity to service future population growth.

Proposed initiative

The proposed initiative would involve upgrading the Melton Line to expand capacity to service additional demand associated with population growth.

Options that may be considered as part of the upgrade include, but are not limited to:

- preservation of corridors for extensions and/or duplication of the Melton Line
- duplication of the Melton Line
- electrification of the Melton Line
- capacity upgrades where the Melton Line meets the metropolitan network at Sunshine Station (part of the Sunbury Line).

This initiative is complementary to the *Melbourne rail network capacity* High Priority Initiative and the Ballarat Line Upgrade project, which are also included on the *Infrastructure Priority List*.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Public transport access to Fishermans Bend

Location
Melbourne, Vic

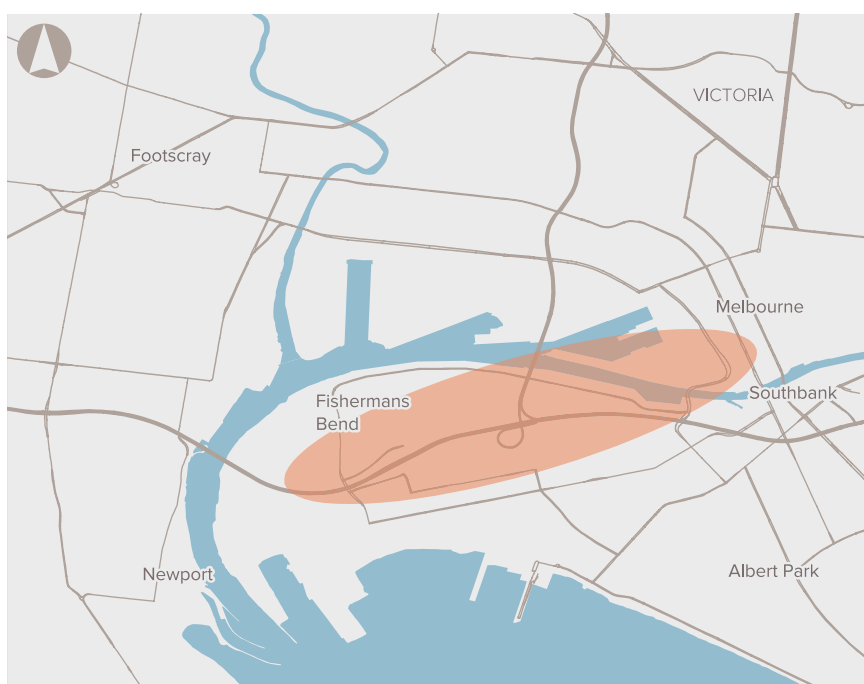
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
Victorian Government

Date added to the IPL
March 2018



Problem

Fishermans Bend, located south-west of Melbourne's CBD, is Australia's largest urban renewal project, covering an area of approximately 480 hectares. The precinct is planned to accommodate up to 80,000 residents and 80,000 jobs by 2050 according to the latest estimates.

This level of development would increase transport demand in and out of the precinct well beyond the capacity of current transport infrastructure. Access to Fishermans Bend is currently heavily dependent on car travel, reflecting the area's legacy of industrial land uses. Current public transport access to the area is limited to low-frequency bus services.

In the absence of additional public transport capacity, the transport network serving Fishermans Bend would become increasingly congested, limiting the site's potential as a location for residential and employment development. Increasing public transport capacity to the area would address a significant emerging capacity shortfall, and enable full development of the site, with nationally significant benefits to productivity.

Proposed initiative

This initiative proposes a high-capacity rapid transport link connecting Fishermans Bend with the Melbourne CBD. This could be an extension of Melbourne's tram/light rail network, or an alternative solution.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Rail access to Webb Dock

Location
Melbourne, Vic

Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
Port of Melbourne

Date added to the IPL
February 2021



Problem

The number of containers handled by the Port of Melbourne is forecast to grow from 3 million twenty-foot equivalent container units (TEUs) in 2019 to close to 9 million TEU by 2050.

The majority of this growth in containers will need to be delivered at Webb Dock. However, with the existing infrastructure, all freight to and from Webb Dock is carried by road. This results in increased congestion on the surrounding road network.

Road network capacity in and around the port precinct has limited capacity. Future growth in road demand will constrain efficient freight movements.

This will lead to higher costs for importers and exporters, reduced efficiency of trucking vehicles by service providers and reduced throughput for stevedores.

The 2019 *Australian Infrastructure Audit* found that freight transport in our fast-growing cities is impacted by congestion, leading to increased costs. If this is not addressed, delays in our urban supply chains will become more common and costs will increase as our cities grow.

The *Infrastructure Priority List* includes a Priority Initiative for *Melbourne container terminal capacity and land transport access*, which recognises the longer-term need to plan for and construct additional container terminal capacity in Melbourne.

Proposed initiative

Potential options to address the initiative include new rail connections to Webb Dock or reinstating the previously decommissioned rail corridor. The initiative aims to support container growth, maintain freight efficiency and reduce congestion on the surrounding road network.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Melbourne–Geelong rail capacity enhancement

Location

Melbourne–Geelong,
Vic



Geography

Fast-growing cities

Category

Regional connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

Victorian Government

Date added to the IPL

March 2018

(Updated February 2021)



Problem

Geelong is Victoria's second-largest city. Its population is projected to increase from 286,000 in 2016 to 445,000 by 2046. The existing passenger rail line between Melbourne and Geelong is expected to become capacity constrained in peak periods as more people travel between the two economic centres.

Limited capacity, and low train speeds resulting from the inability to run express services between the two centres, will limit Geelong's potential to grow as an economic hub to complement Melbourne. Increased rail capacity between the two cities, and faster travel times, would not only address emerging demand, but would also provide a nationally significant opportunity to facilitate growth in a key regional city.

Proposed initiative

There are a number of opportunities to address this emerging capacity gap. The current rail service is provided by diesel trains and has limited capacity. Electrification of the line would allow operation of higher capacity trains with increased reliability and inter-operability with the Melbourne metropolitan rail system. Duplicating the existing single-track pair would also allow for express services to operate through the suburban Melbourne sections of the line, providing faster journey times between Geelong and Melbourne. Current passenger rail services between Geelong and Southern Cross Station take approximately one hour at an average speed of between 70 and 80 km/h.

A faster rail service between Geelong and Melbourne is currently being assessed by the Victorian Government.

Future growth in the region will need to be monitored to determine the optimal timing for and scope of infrastructure upgrades for the corridor.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

South East Melbourne recycled water supply infrastructure upgrades

Location
Melbourne, Vic

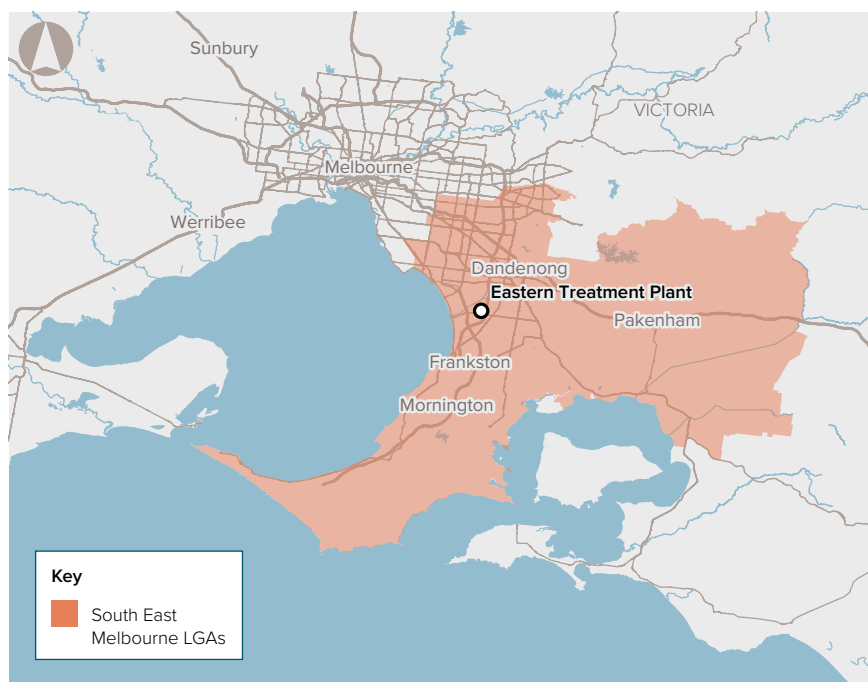
Geography
Fast-growing cities

Category
Access to water

Problem timeframe
Longer term (10–15 years)

Proponent
Greater South East Melbourne councils

Date added to the IPL
February 2021



Problem

Climate change, population growth and ageing assets present potential longer-term water security problems for Melbourne. Climate-independent water supply sources can help address the problem.

Melbourne's Eastern Treatment Plant produces over 130 billion litres of recycled water each year. Currently, about 95% (123 billion litres) of this water is treated and safely discharged into the Bass Strait.

There is an opportunity to re-use more of this water to safely irrigate high-value horticulture crops, parks, sporting fields and green open space, rather than using potable water for these purposes.

This can reduce overall demand for potable water and contribute to Melbourne's water supply security. Other potential benefits include reducing urban heat effects and increasing amenity, recreation, health, environmental and irrigated agriculture benefits.

The 2019 *Australian Infrastructure Audit* found that the urban water sector faces considerable risks, including the impacts of climate change, population growth, ageing assets, and changing needs and expectations of users.

Proposed initiative

The initiative could be addressed through a program of water infrastructure, planning, policy and management interventions to realise the value of rainfall-independent supply sources in South East Melbourne, and potentially other parts of Melbourne as well.

Next steps

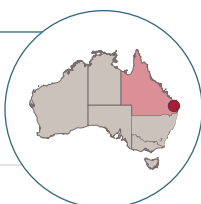
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Brisbane to Gold Coast transport corridor upgrades

Location

Brisbane–Gold Coast, Qld



Geography

Smaller cities and regional centres

Category

Efficient urban transport networks

Problem timeframe

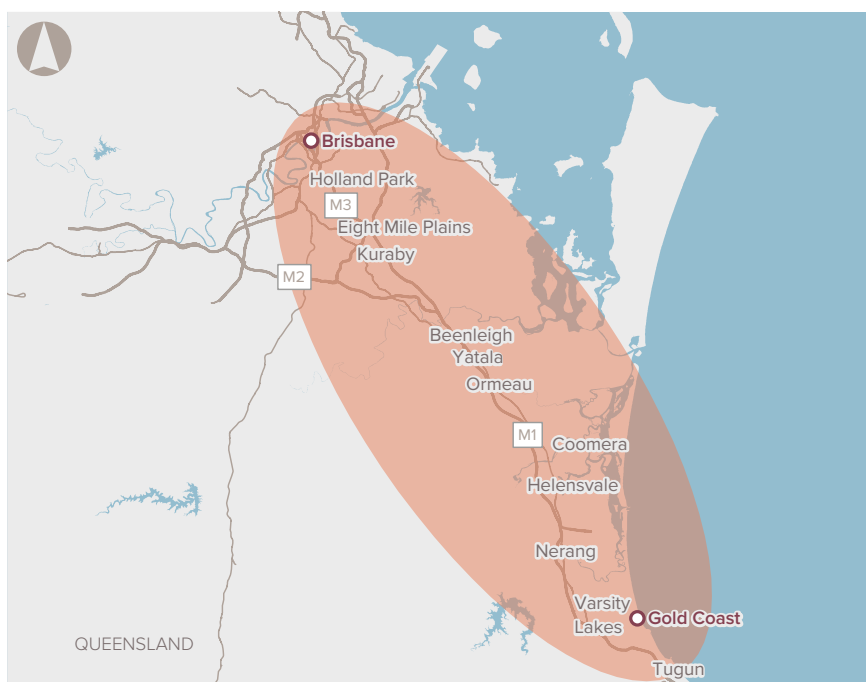
Near term (0–5 years)

Proponent

Queensland Government

Date added to the IPL

February 2017



Problem

The Brisbane to Gold Coast corridor is subject to high levels of demand, leading to congestion at peak and inter-peak times across both road and rail networks. The 2019 *Australian Infrastructure Audit* projected that, without intervention, the cost of congestion on key corridors in the Gold Coast region would increase by over \$700 million between 2016 and 2031.

On certain sections of the M1 Pacific Motorway, daily traffic volume exceeds 150,000 vehicles, around 40% of which is heavy and light commercial vehicles. During peak periods, users experience poor reliability and increasing journey times, particularly where congestion creates bottleneck sections. Road incidents are a major contributor to poor reliability, with over 12,000 incidents reported on this corridor annually.

In the absence of proper planning and investment, future growth in population, employment, tourism and freight will lead to an increase in the cost of congestion in the corridor, with an adverse impact on the region's productivity.

Proposed initiative

The initiative sets out a 10-year network wide program for upgrades to transport infrastructure in the corridor. It identifies 33 proposed infrastructure upgrades to the road, rail, cycling and bus transport networks to deliver more efficient, reliable and safe transport.

The *Infrastructure Priority List* separately identifies the following proposals that align with this program initiative:

- *Gold Coast Light Rail Stage 3A* (Priority Project)
- *M1 Pacific Motorway capacity: Eight Mile Plains to Tugun* (High Priority Initiative)
- *Gold Coast Rail Line and station improvements: Kuraby to Beenleigh* (Priority Initiative).

*Business cases for the M1 Pacific Motorway – Eight Mile Plains to Daisy Hill and the M1 Pacific Motorway – Varsity Lakes to Tugun were previously listed on the Infrastructure Priority List. There are now in delivery and included in **Appendix A**.*

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework), and complete business case development (Stage 3 of the Framework).

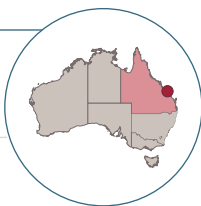
Individual upgrade projects are at various stages of development.

Priority Initiatives

Bruce Highway upgrade

Location

Brisbane to Cairns, Qld



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

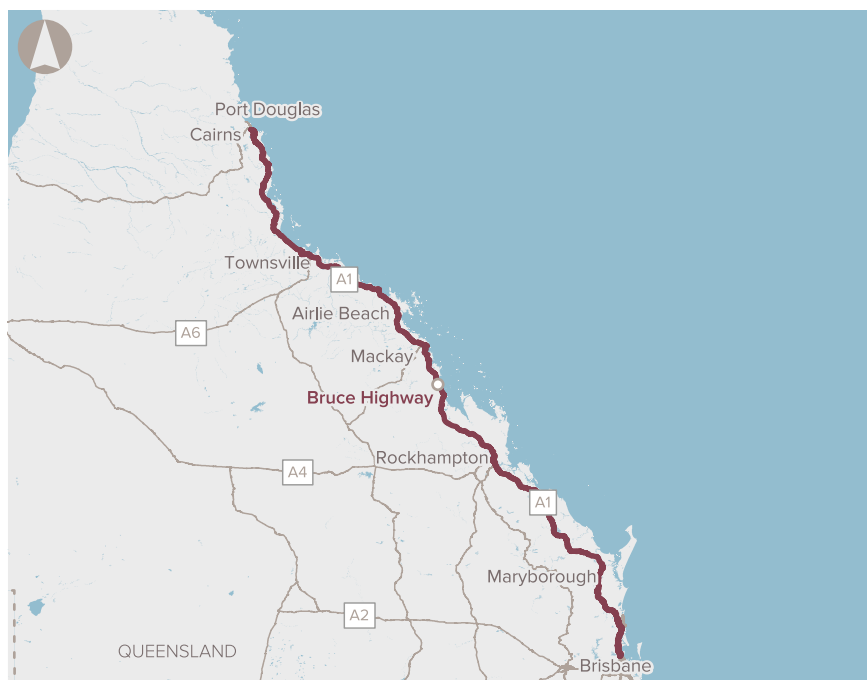
Near to medium term (0–10 years)

Proponent

Queensland Government

Date added to the IPL

February 2016



Problem

The Bruce Highway is Queensland's major north–south corridor, connecting coastal population centres from Brisbane to Cairns. The highway is part of Queensland's Priority Freight Network and forms part of the National Land Transport Network.

With Queensland's freight task expected to double between 2010–11 and 2025–26, the highway will have to accommodate a significant increase in freight volumes. The highway's roles in connecting regional centres and facilitating significant freight movement were identified as key regional priorities for Queensland in the 2015 *Australian Infrastructure Audit*.

The problems identified along the Bruce Highway include: safety concerns, poor flooding immunity, poor connectivity to regional centres and capacity constraints around key economic clusters.

The problems identified along the highway are largely driven by increased traffic volumes associated with population and economic growth, resulting in congestion around key economic hubs. This diminishes Queensland's freight productivity.

Proposed initiative

The initiative proposes progressive priority upgrades to the Bruce Highway to address specific capacity constraints, flood resilience and safety concerns. Major planned works include:

- Rockhampton Ring Road
- Burdekin deviation
- Ingham to Cardwell Range deviation.

Business cases for Cooroy to Curra (Section D), Edmonton to Gordonvale duplication, Maroochydore Road Interchange and the Caboolture to Steve Irwin section have been assessed by Infrastructure Australia and were separately listed as Priority Projects on the *Infrastructure Priority List*. These projects are now under delivery and are included in **Appendix A**.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework), and complete business case development (Stage 3 of the Framework).

Individual upgrade projects are at various stages of development.

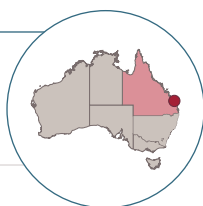
Priority Initiatives

Cunningham Highway

Yamanto Interchange to Ebenezer Creek

Location

Yamanto to
Ebenezer, Qld



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

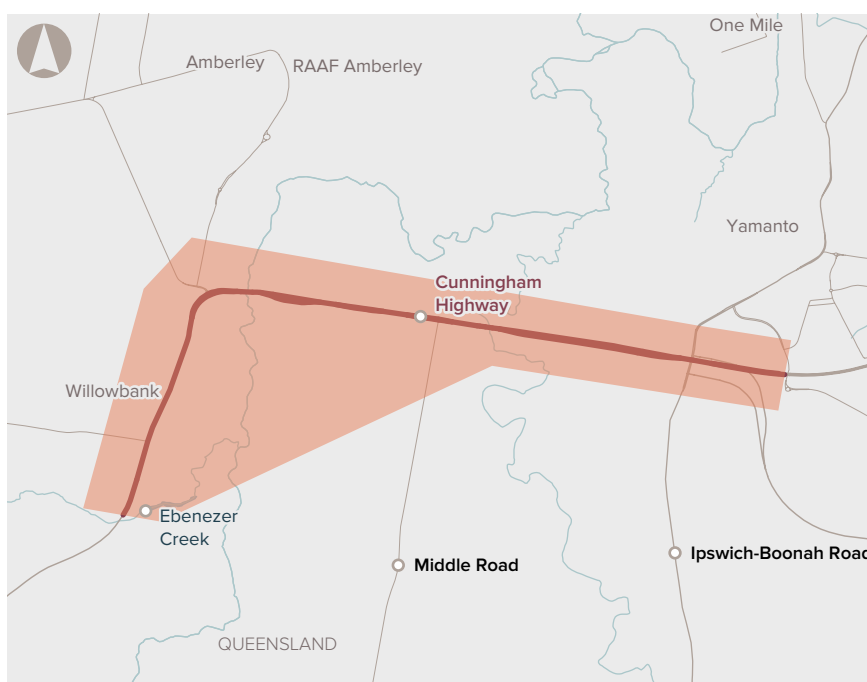
Near term (0–5 years)

Proponent

Queensland Government

Date added to the IPL

February 2016



Problem

The Cunningham Highway is a key interstate freight corridor that forms part of the Sydney to Brisbane inland corridor. It is part of the National Land Transport Network, and plays a significant role in transporting people and freight to and from Brisbane and the Port of Brisbane from the west. It records 2,700 heavy vehicle movements per day.

With the construction of the Port of Brisbane Motorway, and the recent upgrading of the Gateway Motorway South and the western Ipswich Motorway, the Cunningham Highway at Amberley is one of the few remaining 'pinch points' for interstate freight along the western corridor.

The identified 'pinch point' is the intersection of the Cunningham Highway and the Ipswich Rosewood Road. It results in high levels of congestion, particularly during the morning peak. Preliminary modelling suggests that the current direct cost of congestion at this location is approximately \$45 million per year.

The material impacts of the problem include declining levels of service, which reduces freight efficiency and through-traffic movements, as well as potentially limiting major developments planned for the area. The intersection does not meet current design standards, resulting in significantly higher than average crash rates. These problems are likely to worsen in the face of the significant population and freight growth expected in the region.

Proposed initiative

The initiative involves upgrades to a 4.75 km section of the Cunningham Highway between Warwick Road at Yamanto and Ebenezer Creek, including the Amberley Interchange. Specific capital works include a major off-line deviation with grade separation for the Amberley Interchange, additional capacity at the Amberley Interchange off-ramp, and a new service road between Coopers Road and Yamanto.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

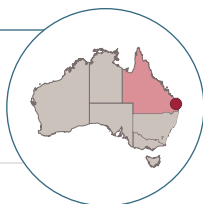
The business case was submitted to Infrastructure Australia for evaluation in 2017 and then withdrawn by the Queensland Government in July 2018.

Priority Initiatives

Corridor preservation for Salisbury to Beaudesert rail connection

Location

Salisbury to Beaudesert, Qld



Geography

Smaller cities and regional centres

Category

Corridor preservation

Problem timeframe

Near term (0–5 years)

Proponent

Queensland Government

Date added to the IPL

February 2017



Problem

South East Queensland's population is projected to increase by 2 million people between 2015 and 2041. Under current Queensland Government plans, much of this growth will be accommodated in the south-west of the region. The Logan Local Government Area (LGA) is expected to accommodate an additional 277,300 people by this time, and the Scenic Rim LGA is expected to accommodate an additional 22,200 people, bringing its population to 62,000. Further growth beyond 2041 is anticipated.

Without improvements to public transport, much of the associated growth in transport demand from this area will need to be accommodated on a road network that will become progressively more congested. Unless a corridor for improved rail transport is protected, opportunities to provide sufficient rail capacity could be 'built out'.

Proposed initiative

The 54 km proposed corridor would link Salisbury to Beaudesert in Brisbane's south-west region. The corridor largely aligns with the existing interstate rail line between Salisbury and Kagaru. The initiative aims to provide electrified passenger rail services, with 11 new stations, and additional space for duplication of the existing interstate freight line. A cycleway is also proposed along the corridor.

The initiative is close to the alignment for a section of the proposed east coast high speed rail line (also a corridor protection initiative on the *Infrastructure Priority List*). Subject to further design development, the initiative could be adapted to provide sufficient space for a high speed rail line.

The Australian Government and Queensland Government are jointly undertaking a business case to determine the rail requirements in the Salisbury to Beaudesert corridor. The business case will confirm the strategic objectives and issues within the corridor and identify potential options for corridor preservation and staging of investment.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Mount Isa–Townsville rail corridor upgrade

Location

Far North Queensland



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

Queensland Government

Date added to the IPL

February 2016



Problem

The current rail line between Townsville and Mount Isa is capacity constrained, with inefficient rail and terminal operations. These constraints include access to the Port of Townsville, short passing loop lengths and limited passing opportunities.

In its current form, the rail line does not have capacity to cater for the projected increase in demand for rail haulage from mines in the Mount Isa region to the Port of Townsville. Future demand on the line is, under a moderate scenario, estimated to be 20 million tonnes per year. In 2011, the line carried 6 million tonnes and had a theoretical capacity of 7.5 million tonnes.

Proposed initiative

The initiative proposes the following works:

- enhancements to western sections of the Mount Isa to Townsville Rail Corridor
- construction of a new Townsville Eastern Access Rail Corridor (TEARC) to provide direct access to export facilities at the Port of Townsville for longer trains.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

The Queensland Government completed a business case for the TEARC component of this initiative in 2018. The business case recommended that the TEARC corridor should be preserved so that it can be delivered in the future when sufficient demand is generated through the Port of Townsville.

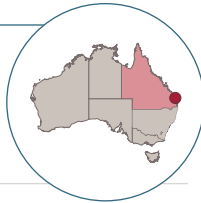
The Queensland Government is currently undertaking activities to preserve the corridor.

Priority Initiatives

Browns Plains to Beaudesert road capacity and safety

Location

Browns Plains
to Beaudesert,
Queensland



Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

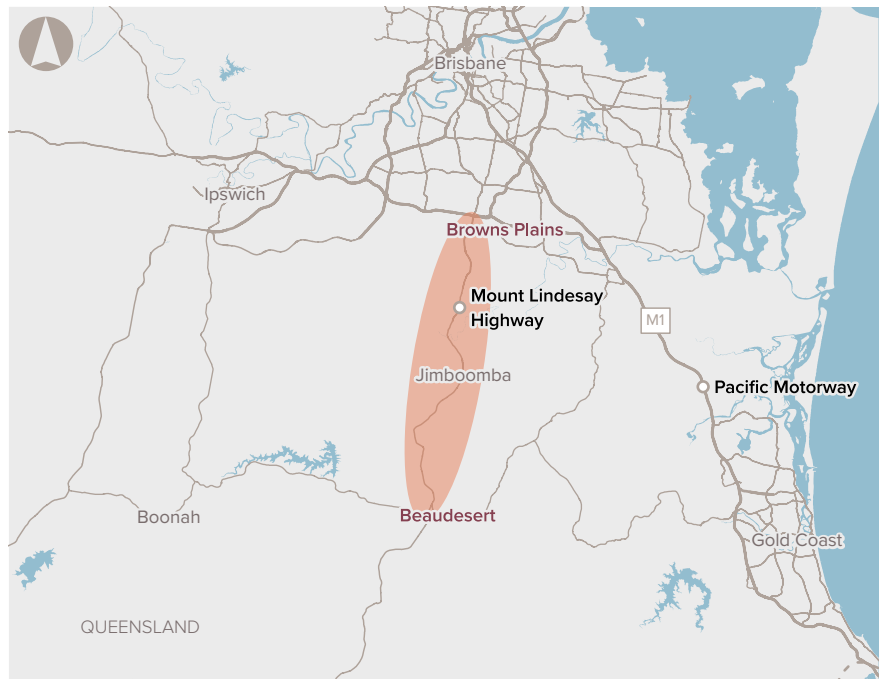
Near term (0–5 years)

Proponent

Queensland Government

Date added to the IPL

April 2020



Problem

The Mount Lindesay Highway is the primary corridor south-west of Brisbane between Browns Plains and Beaudesert. The standard and configuration of the highway is resulting in nationally significant capacity and safety issues.

Most of this 40 km route is a two-lane undivided highway, with only 7.5 km of dual carriageway. There are also sections of the highway that are vulnerable to flooding.

Traffic volumes vary along the highway, but are highest at the northern end where, in 2018, approximately 45,000 vehicles used the highway each day. During the AM peak periods in 2018, congestion delayed northbound traffic by an average of 27 minutes per vehicle. Between 2014 and 2018, there has been an average of 71 crashes each year, including 29 'fatal or serious injury' crashes.

Fast-growing populations in Jimboomba and Beaudesert, accompanied by a growing freight task, will exacerbate these issues if the capacity and safety of the corridor is not improved.

Proposed initiative

The initiative aims to improve the capacity and safety of the corridor between Browns Plains and Beaudesert. Options to address the initiative could include:

- widening existing lanes or constructing new lanes along the highway
- upgrading intersections
- improving the standard of the highway
- upgrading infrastructure for flood immunity.

The *Infrastructure Priority List* includes a separate Priority Initiative for corridor preservation for a *Salisbury to Beaudesert rail connection*, recognising the potential long-term transport options to service this region.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Browns Plains to South East Busway public transport connectivity

Location

Brisbane, Qld

Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

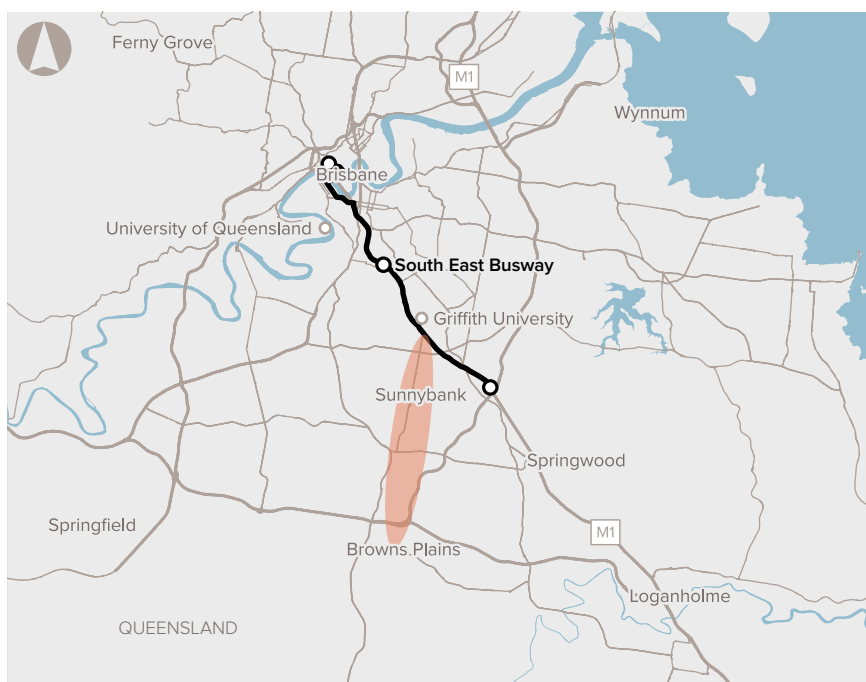
Near term (0–5 years)

Proponent

Queensland Government

Date added to the IPL

April 2020



Problem

The 14 km corridor between Browns Plains and the South East Busway is a major transport corridor for public transport, freight and private vehicle users.

Growing population and traffic demand will exacerbate capacity, reliability and safety issues currently impacting the corridor. This is partly due to the lack of bus priority infrastructure. There are only 3.3 km of inbound T3 lanes available for use in the northern section of the corridor and no bus priority infrastructure in the southern section. In 2019, the corridor carried an average of just over 140,000 vehicles each weekday. This included 18 buses per hour in the southern section of the corridor and up to 57 buses per hour in the northern section during peak periods. Apart from the grade-separated busways in metropolitan Brisbane, the northern section is the busiest bus corridor in Brisbane.

This corridor connects people living south-west of Brisbane to Griffith University, the University of Queensland, major shopping centres and hospitals. It also provides access to the Brisbane CBD via the South East Busway.

Proposed initiative

The initiative aims to improve the capacity, safety and public transport connectivity of the corridor between Browns Plains and the South East Busway. Options to address the initiative could include:

- improving bus priority, such as through dedicated or priority lanes
- improving bus and pedestrian infrastructure to encourage public transport use
- upgrading intersections and key public transport interchanges and stations
- encouraging public transport use through traffic signalling, reduced car parking and other measures.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Cairns Western Arterial Road capacity

Location
Cairns, Qld

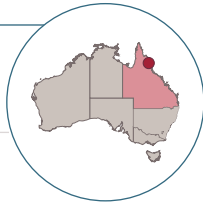
Geography
Smaller cities and regional centres

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Queensland Government

Date added to the IPL
February 2021



Problem

The Cairns Western Arterial Road provides important access for commuter, tourism and freight traffic. It also supports flood resilience in cases when the Captain Cook Highway is flooded. It is recognised as a key strategic corridor in the Queensland Government's Far North Queensland Regional Transport Plan (2019) that supports supply chains, regional productivity and access to markets.

While 8 km of the 14 km road has divided carriageways, the remaining 6 km is an undivided two-lane road. There is also limited separation between active transport, buses and general traffic, making active transport less attractive to users.

Approximately 42,000 vehicles use the busiest sections of the road each day, resulting in heavy congestion and queuing on the undivided sections of the road and at its intersections.

These issues are expected to worsen over time with Cairns's growing population and employment, which are forecast to increase by 43% and 52% respectively between 2021 and 2046.

Proposed initiative

Potential options to address the initiative include:

- optimising or upgrading intersections
- upgrades to the existing road, such as duplication
- improving bus and active transport options.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Centenary Motorway capacity

Location
Brisbane, Qld

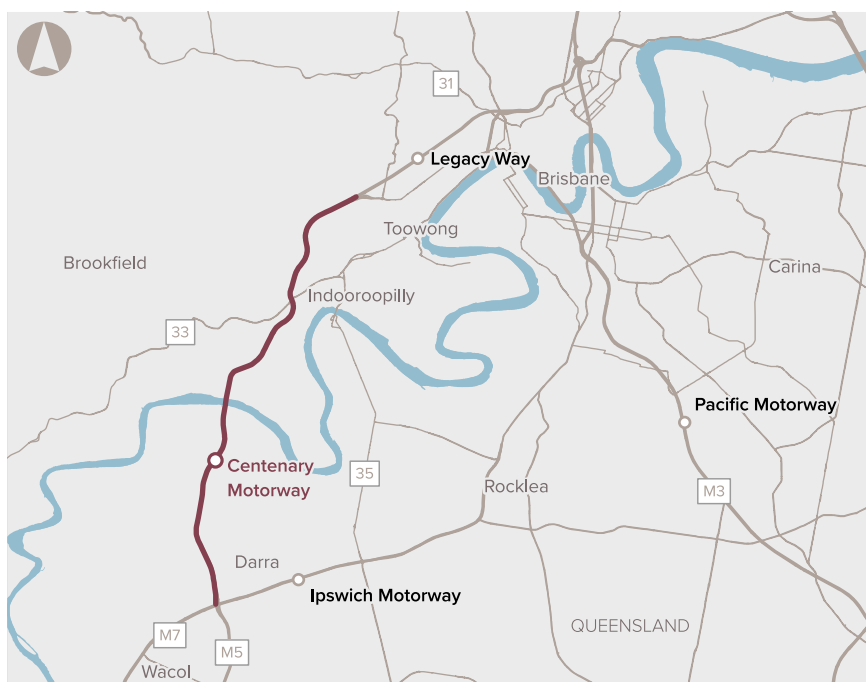
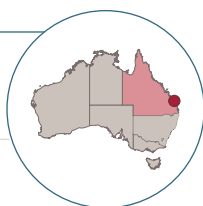
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Queensland Government

Date added to the IPL
February 2019



Problem

The Centenary Motorway corridor connects Brisbane's rapidly growing Western Corridor (Ipswich, Springfield and the Ripley Valley) to Brisbane's inner north and the CBD. Between the Ipswich Motorway interchange in the south and Toowong in the north there are high volumes of traffic along the corridor. These result in road congestion and poor trip reliability and road safety.

Projected population growth in the Western Corridor, combined with a growing number of people commuting from these areas to Brisbane's CBD for work, will exacerbate the problem in the future. Ipswich is expected to have the largest population growth of any Local Government Area within South East Queensland from 2016 to 2041 – with additional residents and 61,000 jobs.

Average weekday traffic on the Centenary Bridge was approximately 100,000 vehicles per day in 2016 and is estimated to rise to more than 150,000 vehicles per day in 2036. There were 192 crashes recorded on the Centenary Motorway between 2010 and 2016, and increasing congestion will contribute to further safety issues.

Proposed initiative

Options to improve capacity along the motorway include:

- intersection and on-ramp and off-ramp improvements
- implementing smart freeway technology
- road widening.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

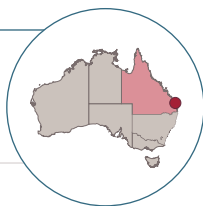
Priority Initiatives

Gold Coast rail line and station improvements

Kuraby to Beenleigh

Location

Kuraby to Beenleigh,
QLD



Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

Near term (0–5 years)

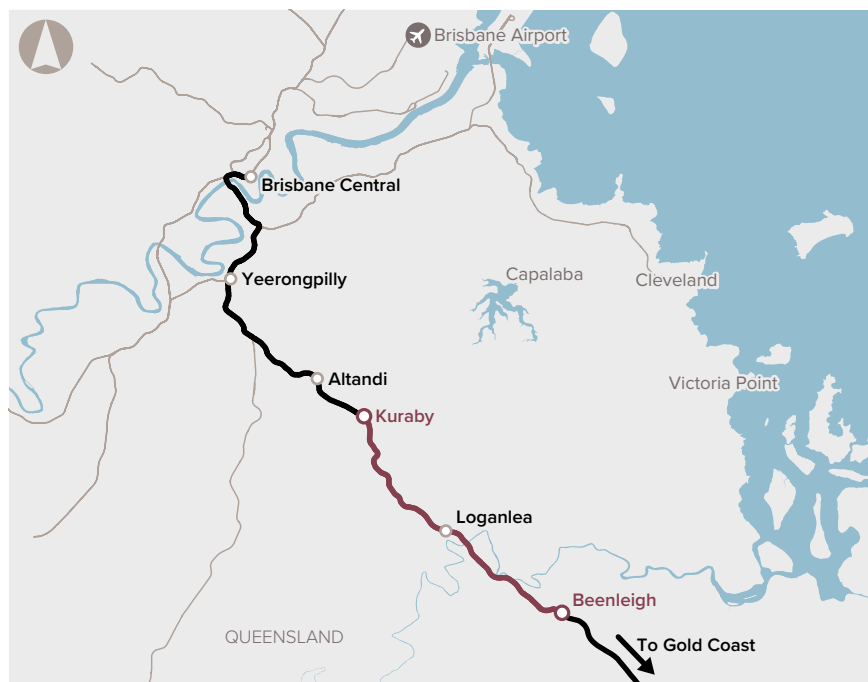
Proponent

Queensland Government

Date added to the IPL

March 2018

(Updated April 2020)



Problem

The Brisbane to Gold Coast rail line connects Gold Coast City and Logan City with the Brisbane CBD. The rail line moves approximately 20,000 passengers during the combined morning and afternoon peaks each day. The rail line has seen strong growth in passenger demand, driven by population growth in the Brisbane to Gold Coast corridor.

The existing rail line is two tracks south of Kuraby station and three tracks to its north. This line is subject to a range of constraints, including tight curves that limit line speeds, and level crossings and station infrastructure that limit additional tracks.

Express services between the Gold Coast and Brisbane must share a single track with 'all stops trains' between Kuraby and Beenleigh. This limits the number of services that can be provided to support growth in travel demand between the cities of Brisbane, Logan and the Gold Coast. These infrastructure and operational constraints are resulting in overcrowding during peak periods.

Failure to address these capacity constraints could lead to potential rail users choosing to use the already congested M1 Motorway. This would result in additional travel times, with nationally significant impacts on productivity.

Proposed initiative

Options for this initiative could include:

- rail line and station improvements between Kuraby and Beenleigh to allow for the separation of express and all stops services
- increased frequency for Beenleigh and Gold Coast services in both directions.

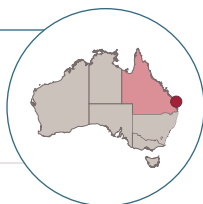
Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Mooloolah River Interchange capacity and safety

Location
Sunshine Coast,
Queensland



Geography
Smaller cities and regional centres

Category
Regional connectivity

Problem timeframe
Near term (0–5 years)

Proponent
Queensland Government

Date added to the IPL
April 2020



Problem

The Sunshine Motorway, Brisbane Road and Nicklin Way intersect at the Mooloolah River Interchange, connecting major employment, residential and commercial precincts on the Sunshine Coast.

Traffic demand is exceeding the capacity of the interchange and surrounding road network during peak periods. This congestion is exacerbated by the configuration of the interchange, which causes some drivers to weave across multiple lanes or take less direct routes to reach their destination.

The configuration and growing number of vehicles using the interchange is reducing average peak period speeds, which were modelled at approximately 36 km/h in 2019, compared with free-flow speeds of approximately 73 km/h. Between 2014 and 2018, 89 incidents were recorded at the intersection and access roads, including one fatality and 33 hospitalisations.

The 2019 *Australian Infrastructure Audit* estimated that the population of the Sunshine Coast would grow by around 120,000 people between 2016 and 2031, or 33% of its current population.

Proposed initiative

The initiative aims to improve the capacity and safety of the Mooloolah River Interchange, potentially through upgrading the access roads, entry/exit ramps and the configuration of the interchange. It could also include new road links or changes to local roads and the local public transport network if there is sufficient demand.

Next steps

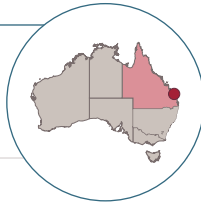
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Warrego Highway east corridor improvements

Location

Ipswich to Toowoomba,
QLD


Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Near term (0–5 years)

Proponent

Queensland Government

Date added to the IPL

February 2019



Problem

The Dinmore to Helidon Spa section of the Warrego Highway falls below modern safety standards, with a high average fatal crash rate of between three and 10 times that of a contemporary motorway standard. In addition, there is low flood immunity along this section of the highway, which significantly affects freight productivity and access for passenger movements.

The Warrego Highway is Queensland's principal east–west freight route. The section between Dinmore and Helidon Spa is the gateway to western Queensland and connects Darwin and Melbourne to the Port of Brisbane.

Strong freight growth to the Port of Brisbane, together with population growth, particularly around Ipswich, will place greater pressure on the highway.

Proposed initiative

The initiative involves upgrade of the Dinmore to Helidon Spa section of the Warrego Highway to improve road safety, capacity and flood immunity.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Bowen Basin productive water supply

Location

Bowen River catchment, Qld



Geography

Developing regions and northern Australia

Category

Access to water

Problem timeframe

Medium term (5–10 years)

Proponent

Bowen River Utilities

Date added to the IPL

February 2021



Problem

A constrained water supply is limiting the growth of agricultural, industrial and mining productivity in and adjacent to the Bowen Basin. Increasing the water supply can unlock additional agricultural land and facilitate a more robust water trading market with potential flow-on price reductions for mining and industrial water users.

There is also an integrated opportunity to explore pumped hydro storage within the local Renewable Energy Zones and increase resilience for the Whitsunday region's urban water supply.

The 2019 *Infrastructure Australia Audit* states water infrastructure could help to unlock economic opportunities when supported by evidence-based assessments that consider potential benefits, costs and risks for industry, local communities and the environment.

Proposed initiative

Potential options to address the initiative include:

- non-infrastructure options, such as demand management
- upgrading or making better use of existing water infrastructure assets
- new pipeline, weir and/or dam infrastructure if there is sufficient demand.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Ipswich to Springfield transport capacity

Location

Ipswich, Qld

Geography

Smaller cities and regional centres

Category

Efficient urban transport networks

Problem timeframe

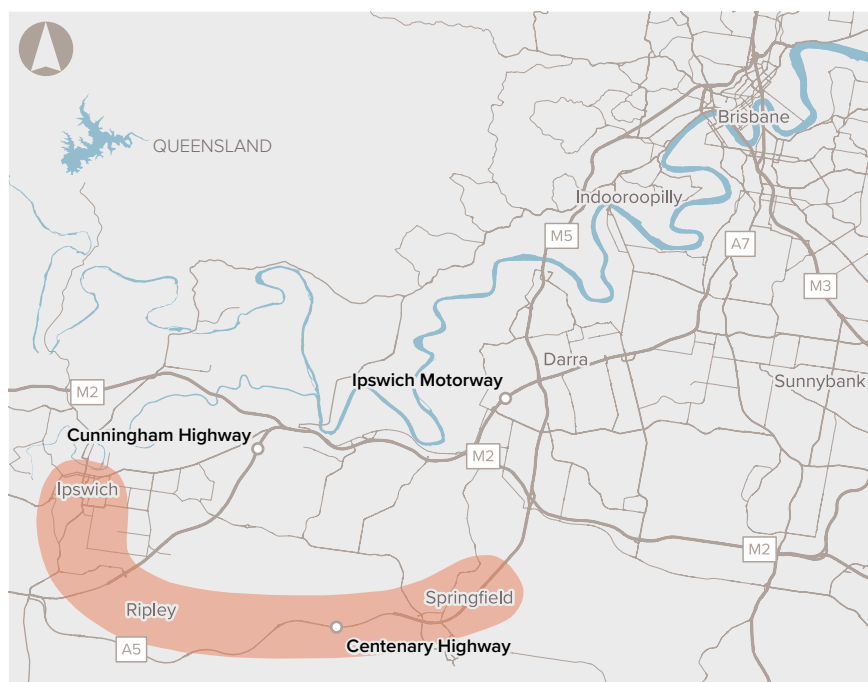
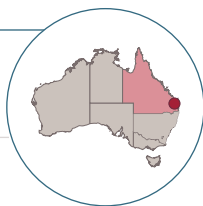
Medium term (5–10 years)

Proponent

Ipswich City Council

Date added to the IPL

February 2021



Problem

Rapid population growth in Ipswich is increasing demand on the corridor to Springfield – a nearby major activity centre.

The Queensland Government expects the population of the Ipswich Local Government Area to more than double from 222,000 residents in 2019 to 558,000 by 2041.

The Centenary Highway is a strategic road connection between Ipswich and Springfield, passing through the growth area of Ripley. The City of Ipswich forecasts the number of daily trips on the highway to grow from approximately 7,500 trips in 2016 to nearly 40,000 trips by 2036.

Existing public transport options between Ipswich and Springfield are not competitive with car travel times. Bus trips take between 1.5 to 3.5 times longer than the fastest on-road route.

The 2019 *Australian Infrastructure Audit* found that public transport service levels and access is lower in Australia's outer suburbs and regional centres. This results in lower public transport mode share, and a reliance on cars in these areas. Without action, people who live in these areas will continue to be reliant on their cars.

Proposed initiative

Potential options to address the initiative include:

- enhancing the existing road network
- optimising the existing bus network
- increasing bus service frequency and coverage
- providing other public transport modes, if there is sufficient demand.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Port of Gladstone land and sea access upgrade

Location

Gladstone, Qld



Geography

Smaller cities and regional centres

Category

Regional connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

Gladstone Ports Corporation

Date added to the IPL

February 2016



Problem

The 2015 *Australian Infrastructure Audit* found that growth in national mineral and gas exports will lead to significant growth in demand for regional highway, rail and port infrastructure. Improving connections to ports will be essential to supporting these industries.

In 2019–20, the Port of Gladstone had 1,868 ships call to transport 34 major cargoes, totalling over 122.5 million tonnes. The port's most recent 50-year plan (2012) envisages the port's capacity will ultimately grow to 250–300 million tonnes per year. The Audit noted that the Port of Gladstone handled around 7.5% of Australia's total bulk imports and exports (measured in gross mass tonnes) in 2012–13.

Gladstone Ports Corporation has identified a number of opportunities to invest in infrastructure to underpin growth in Central Queensland's mining, export and agricultural sector. These opportunities relate to land and sea access infrastructure designed to support productive supply chains to the Port of Gladstone.

The Queensland Government has recognised Gladstone as a priority port that will utilise the adjacent State Development area and key supply-chain infrastructure to support economic growth in Queensland.

Proposed initiative

The proposal covers a range of potential projects including:

- channel development to increase export capacity through the port
- upgrades to the heavy-vehicle corridors that link the port to the freight task
- development of new wharf facilities for emerging markets, including infrastructure for containerised freight and renewables
- new rail infrastructure to provide direct connections from Inland Rail and the Surat Basin to the port.

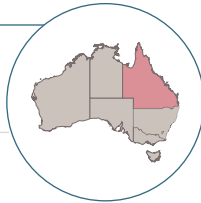
Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Queensland inland road network upgrade

Location
Queensland



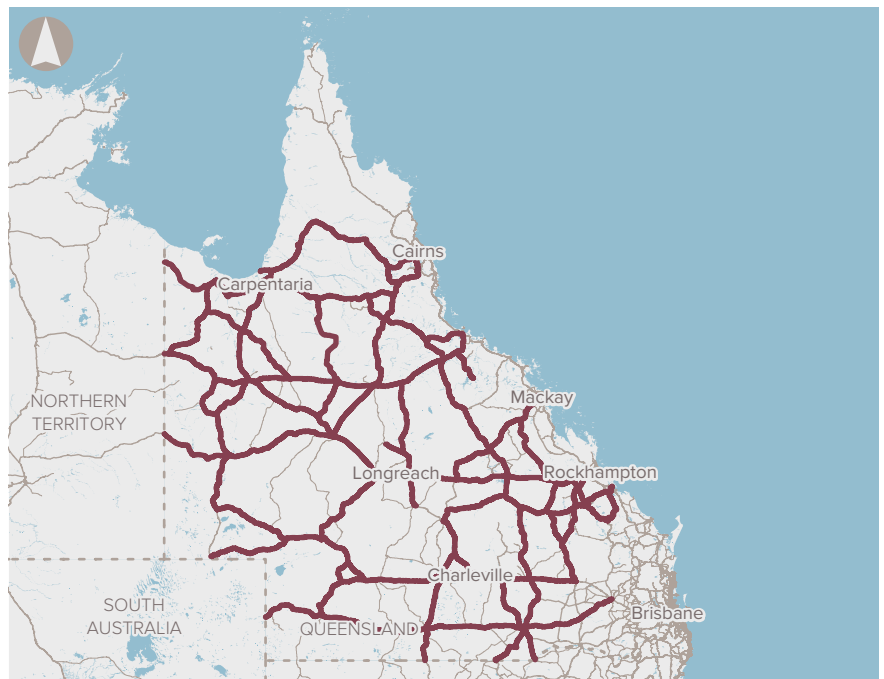
Geography
Small towns, rural communities and remote areas

Category
Regional connectivity

Problem timeframe
Medium term (5–10 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2020



Problem

Deteriorating roads and bridges in regional Queensland are increasing travel times, vehicle operating costs and safety risks. Flooding is also an issue for many of these roads.

Key routes affected by these issues include:

- the Warrego, Landsborough, Flinders, Barkly, Carnarvon, Dawson, Peak Downs and Capricorn highways
- the Kennedy Highway and Developmental Road
- the Gregory Highway and Developmental Road
- The Gulf Developmental Road.

Queensland's road freight network contains coastal and inland routes, with the inland routes being 10 times longer in total kilometres. In 2016–17, the Queensland freight task was estimated to be 170 billion tonne kilometres, with 65% moved by road. The freight task is projected to grow to over 200 billion tonne kilometres by 2030.

It is likely that growth in population, employment, tourism and freight volumes will exacerbate these safety and capacity issues, resulting in nationally significant productivity losses.

Proposed initiative

The initiative proposes a strategy that prioritises investment based on the goals of improving productivity and safety on regional Queensland roads, and sustaining regional communities.

The initiative includes improvements to address safety, surface issues, flooding, bridge strength and width, road alignments, widening and pavement sealing.

This initiative originated from a detailed submission by RDA Townsville and North West Queensland, the Secretariat of the Inland Queensland Roads Action Project, on behalf of all 34 funding partners, including 28 local governments, 5 RDA Committees and the Royal Automobile Club of Queensland.

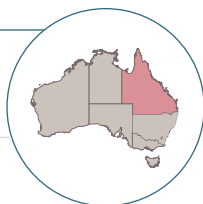
Next steps

Proponent to be identified.

Priority Initiatives

Queensland inland freight route capacity and safety

Location
Queensland



Geography
Small towns, rural communities and remote areas

Category
Regional connectivity

Problem timeframe
Longer term (10–15 years)

Proponent
Queensland Government

Date added to the IPL
April 2020



Problem

Queensland's Inland Freight Route, from Mungindi (at the New South Wales border) to Charter Towers in North Queensland is nearing capacity in some sections. In the long term, this route will struggle to meet the needs of the growing freight task, such as more frequent and heavier loads.

The 1,184 km Inland Freight Route is an important alternative north–south route to the Bruce Highway and North Coast rail line. It forms part of the Australian Government's Key Freight Network.

Many sections of the corridor have aged pavement, narrow seal widths and flooding vulnerabilities. This reduces the efficiency, productivity and safety of the route. There are also several bridges along the route that constrain the types of heavy vehicles that can be used.

The *Infrastructure Priority List* also includes a broader Priority Initiative for an Inland Queensland road network upgrade, which includes the Inland Freight Route.

Proposed initiative

The initiative aims to improve the productive capacity and safety of the Inland Freight Route, enhancing its role as an alternative to the Bruce Highway. This initiative could be addressed through:

- improving pavement condition
- implementing safety measures, such as increasing centrelines and road shoulders
- upgrading the road and bridge standards to support higher-mass and higher-productivity vehicles
- constructing additional lanes for some sections
- upgrading infrastructure for flood immunity.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Armadaale, Midland and Fremantle rail lines capacity

Location
Perth, WA

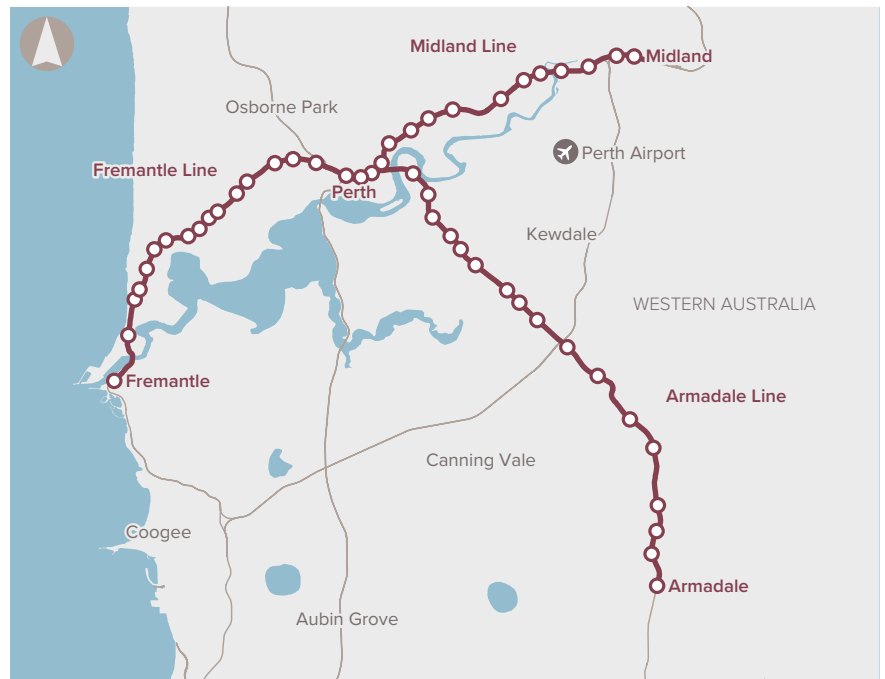
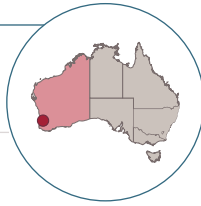
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2021



Problem

The Armadale, Midland and Fremantle rail lines are known as Perth's 'heritage lines'. They were built in the 19th Century and service well-established suburbs around Perth.

These lines experience significant peak-period demand, which is expected to grow as they serve areas with considerable infill targets.

Perth's passenger-rail network accommodated 61.54 million trips in 2018–19 and is a key access mode for commuters to and from Perth city.

The capacity of the heritage lines is insufficient to accommodate future growth. This will lead to crowding, passenger discomfort, unreliability and road congestion if people choose not to travel by rail.

Much of the signalling, rolling stock and station assets on the heritage lines are nearing obsolescence. This creates challenges in managing and operating the network and interface between the heritage lines and the newer Joondalup and Mandurah lines.

The 2019 *Australian Infrastructure Audit* found that densification in our largest cities is placing pressure on legacy networks like Perth's heritage lines.

Proposed initiative

Potential options to address the initiative include:

- investments to support the continued service of existing rolling stock
- enhancing existing train stations and platforms to accommodate longer and higher-capacity services
- ensuring trains can operate across multiple lines in the rail network
- complementary investments in train–bus interchanges and active-transport infrastructure.

Investing in existing infrastructure and new technologies could increase the capacity of Perth's heritage rail lines without the need for more expensive alternatives.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Australian Marine Complex infrastructure capacity

Location
Henderson, WA

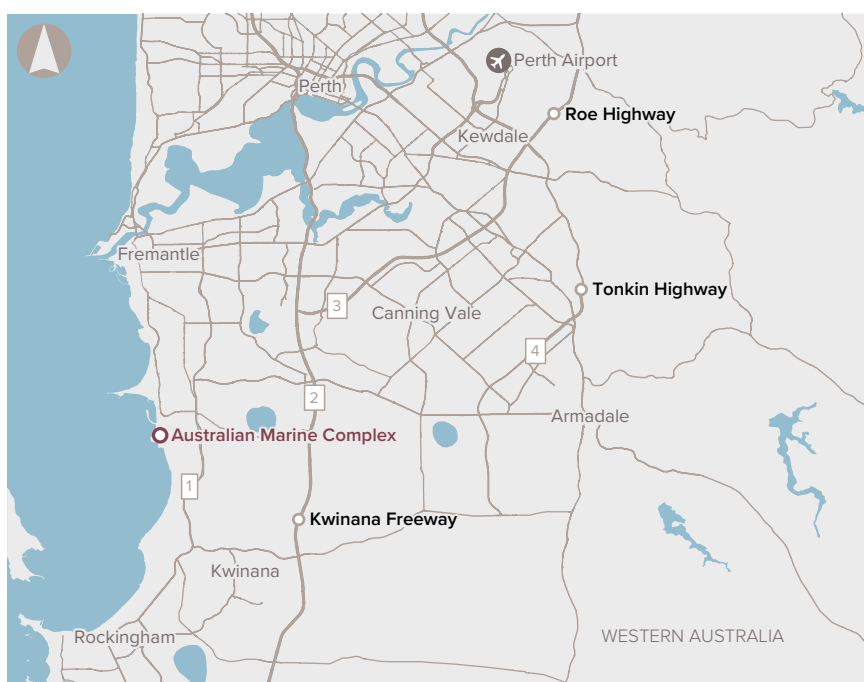
Geography
Fast-growing cities

Category
Efficient markets

Problem timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2021



Problem

Strong growth in demand for shipbuilding, vessel maintenance and sustainment, and infrastructure fabrication for the resource sector in Western Australia is placing pressure on the Australian Marine Complex (AMC) in Henderson.

The AMC is an integrated marine and industrial fabrication complex established to support the construction, development and maintenance of major projects and assets in the oil and gas, mining and shipbuilding industries. As the owner of the common user facility within the AMC, the WA Government provides infrastructure and services to assist bids on major commercial fabrication and assembly projects.

The existing complex is home to over 150 businesses. However, there is limited infrastructure capacity at the complex and the common user facility to support growing demand.

Without additional capacity at the AMC, overseas markets are likely to capture a significant amount of this demand. This would mean lost activity for the Australian economy.

Proposed initiative

Potential options to address the initiative include providing new berths, new covered fabrication halls and upgraded ship-lift and transfer infrastructure. These works could increase capacity at the AMC.

Other options include additional breakwaters and localised dredging to create a sheltered southern harbour. This could allow out-of-water maintenance and construction of vessels too large for the upgraded lift and transfer infrastructure.

There may also be a need to improve local transport access to and within the complex, particularly for oversized heavy vehicles.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Fremantle to Murdoch transport capacity

Location
Perth, WA

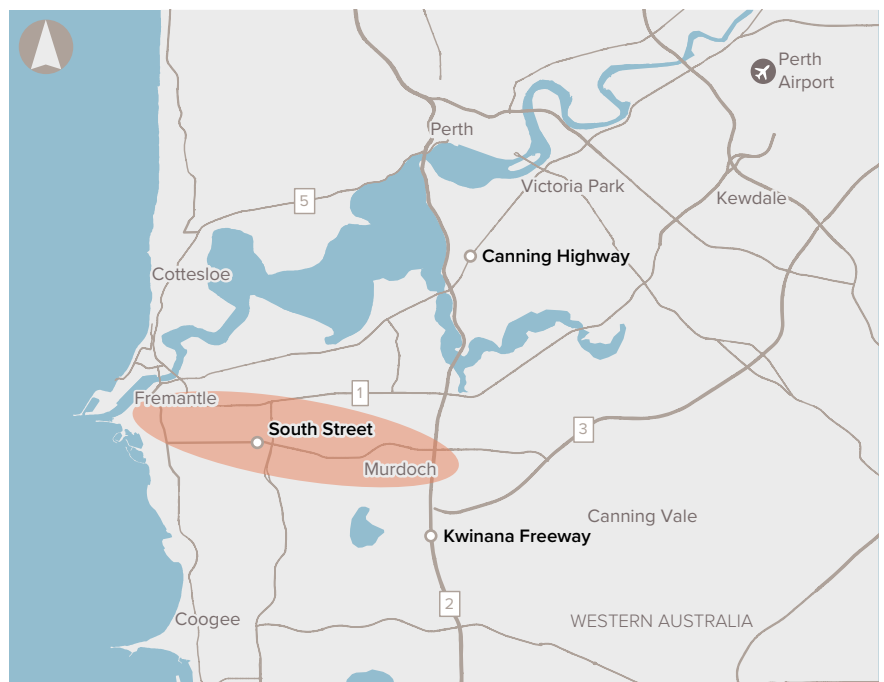
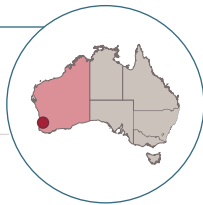
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
South West Group

Date added to the IPL
February 2021



Problem

South Street connects Fremantle and Murdoch, which are two major growth precincts within Perth.

The South Street corridor is congested and has relatively uncompetitive public transport options.

In 2017, network analysis from the WA Government indicated that South Street had the second-highest congestion costs per road-kilometre in Perth. These problems are expected to worsen over time with development in southern Perth.

The Murdoch Activity Centre is projected to grow to be the largest employment centre outside of the Perth CBD with 35,000 workers, 44,000 students and 22,000 residents.

The 2019 *Australian Infrastructure Audit* found that urban travel patterns are becoming increasingly complex, driven by economic, social, demographic and technological changes.

It is important to ensure that the planning and design of our networks reflect the needs of customers. Failure to cater for changing patterns of travel could contribute to growing congestion in fast-growing cities like Perth.

Proposed initiative

Potential options to address the initiative include:

- enhancing the existing road network
- improving bus services
- providing higher-capacity public transport options.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Great Northern Highway improvements

Broome to Kununurra

Location

North WA



Geography

Small towns, rural communities and remote areas

Category

National connectivity

Problem timeframe

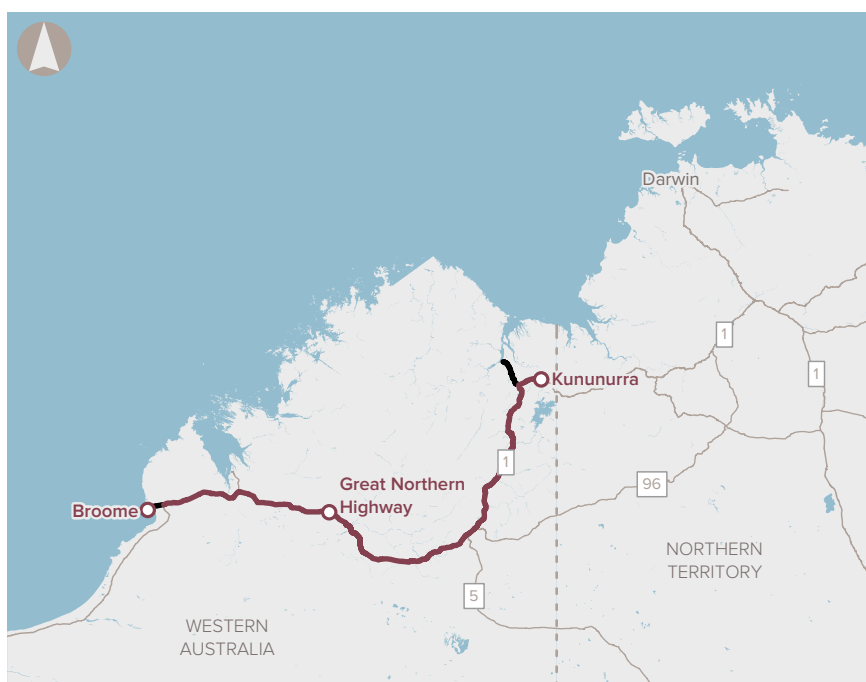
Near term (0–5 years)

Proponent

Western Australian Government

Date added to the IPL

February 2020



Problem

Long sections of narrow pavement and single-lane bridges create conflict between heavy vehicles and other traffic between Broome and Kununurra on the Great Northern Highway.

In the wet season, regular road closures disrupt supply chains for industry and add to the cost of operating in the Kimberley Region. These road closures mean there are unreliable connections between local communities and poor access to essential services.

The 2019 *Australian Infrastructure Audit* found that communities and businesses in remote areas are reliant on available infrastructure for their productivity and wellbeing.

The issues of flood resilience, accessibility and safety are a threat to continued economic and social growth in the northern region of Western Australia.

Proposed initiative

The initiative involves improvements to address safety, pavement and bridge strength and width, culvert rehabilitation and flooding resilience on sections of the Great Northern Highway between Broome and Kununurra.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Land transport access between Karratha and Tom Price

Location

Karratha and
Tom Price, WA



Geography

Developing regions and northern Australia

Category

Regional connectivity

Problem timeframe

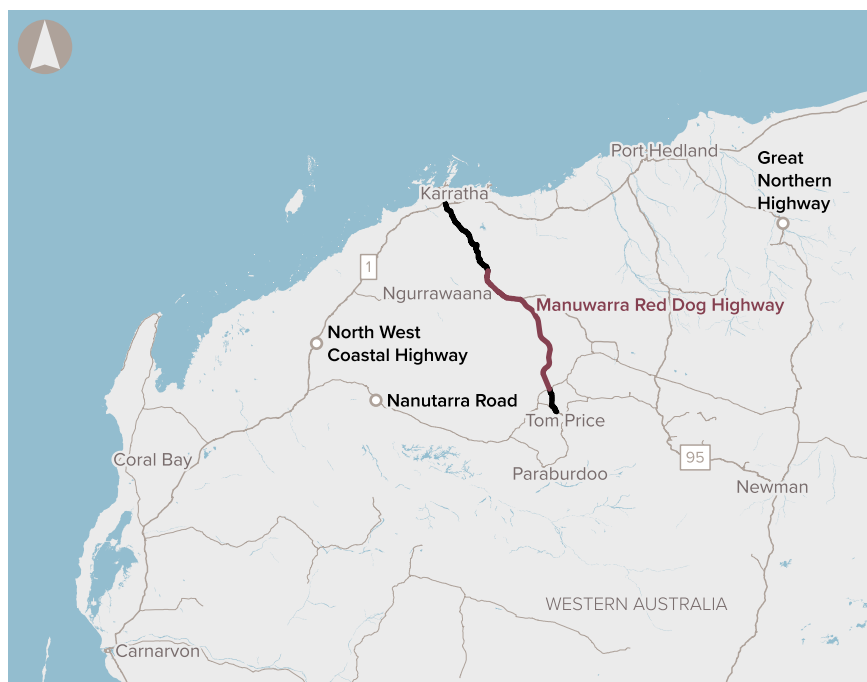
Near term (0–5 years)

Proponent

Western Australian Government

Date added to the IPL

February 2019



Problem

The Manuwarra Red Dog Highway links the key activity centres of Karratha and Tom Price, and provides access and connectivity to remote communities (including local Aboriginal and Torres Strait Islander communities), tourists, and businesses in the area. The highway is currently unsealed for 60% of its 276 km length. The 2015 *Northern Australia Audit* identified that the road has one of northern Western Australia's highest traffic volumes and growth rates.

The unsealed condition of the highway constrains mining, freight and tourism opportunities in the region, as well as contributing to a high road crash toll.

The 2019 *Australian Infrastructure Audit* noted that lower levels of infrastructure service in remote areas can reinforce social and economic inequalities.

The Audit also identified the highways having double-digit growth rates over the preceding nine years. The scale of the problem could therefore be expected to increase significantly over time.

Proposed initiative

Providing a sealed road that is resistant to weather events will improve access for local/remote communities and businesses throughout the year. It will also improve the potential to develop new mines in the area and provide capacity for increased road volumes and opportunities for increased tourism activity. Additionally, it would provide a shorter connection from Paraburdoo to Karratha via Tom Price.

The *Infrastructure Priority List* also includes a separate Priority Initiative to improve road access to remote Western Australian communities.

Several stages of the project are now under delivery. The Manuwarra Red Dog Highway was previously known as the Karratha–Tom Price Road before it was renamed in September 2020.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Liquefied natural gas research facility

Location
Perth, WA

Geography
Fast-growing cities

Category
Energy transformation

Opportunity timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2020



Opportunity

Australia is now one of the world's largest exporters of liquefied natural gas (LNG), with an estimated value of over \$50 billion in 2018–19. However, the cost of producing LNG in Australia is nearly twice that of comparable countries.

There are multiple reasons for the high production cost of Australian LNG, including remote resource locations and a relatively small population.

However, the risks of testing unproven solutions at a commercial scale within the LNG sector have contributed to persistent underinvestment in research and development, a slow rate of new technology adoption and a reliance on overseas technology providers, potentially stifling domestic innovation.

The 2019 *Australian Infrastructure Audit* found that Australia could provide global leadership and innovation in the energy sector by leveraging its natural resources and high-quality research institutions.

Proposed initiative

The initiative is for a national facility to develop and test new technologies with the potential to improve operational performance, as well as potentially increase process reliability and reduce production costs.

These improvements could have a range of benefits, including reducing methane emissions, increasing helium recovery and sales, and accelerating workforce training conducted in a live environment. The facility would operate through a cooperative research centre, with potential opportunities for open-access to subject matter experts.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Perth level crossings congestion and safety

Location

Perth, WA

Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

Near term (0–5 years)

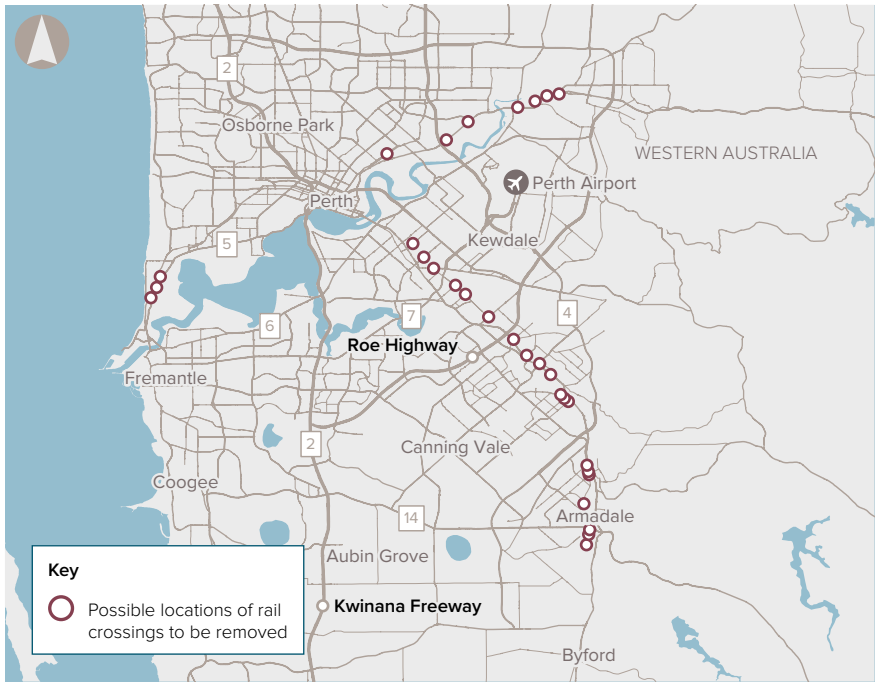
Proponent

Western Australian Government

Date added to the IPL

February 2021





Problem

There are 30 level crossings on Perth’s electrified passenger rail network, which services 72 stations across five lines.

Level crossings provide important connectivity for vehicles, cyclists and pedestrians across train lines, but also result in road congestion and safety risks.

Pedestrian and vehicle collisions and boom gate crashes can result in injuries or fatalities, as well as property damage and delays on both the road and rail networks.

Between 2000 and 2019, there have been close to 2,200 incidents, including recorded near-misses, at level crossings on the Fremantle, Midland and Armadale lines. The majority of these involved pedestrians.

Level crossings can create barriers between different parts of communities and impact on local amenity.

Perth’s growing population will lead to increased road traffic and demand for more train services, which will exacerbate these issues.

Proposed initiative

The initiative could be addressed by developing a network-wide program to identify, prioritise and remove level crossings in Perth. This would improve network efficiency, resilience, safety and amenity for communities.

The program should consider a wide range of options to remove level crossings or minimise their impacts.

This could include traffic restrictions, road closures, demand management, removing level crossings, and potentially grade separations where warranted.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia’s Assessment Framework).

Priority Initiatives

Perth south-east corridor capacity improvements

Location

Perth, WA

Geography

Fast-growing cities

Category

Efficient urban transport networks

Problem timeframe

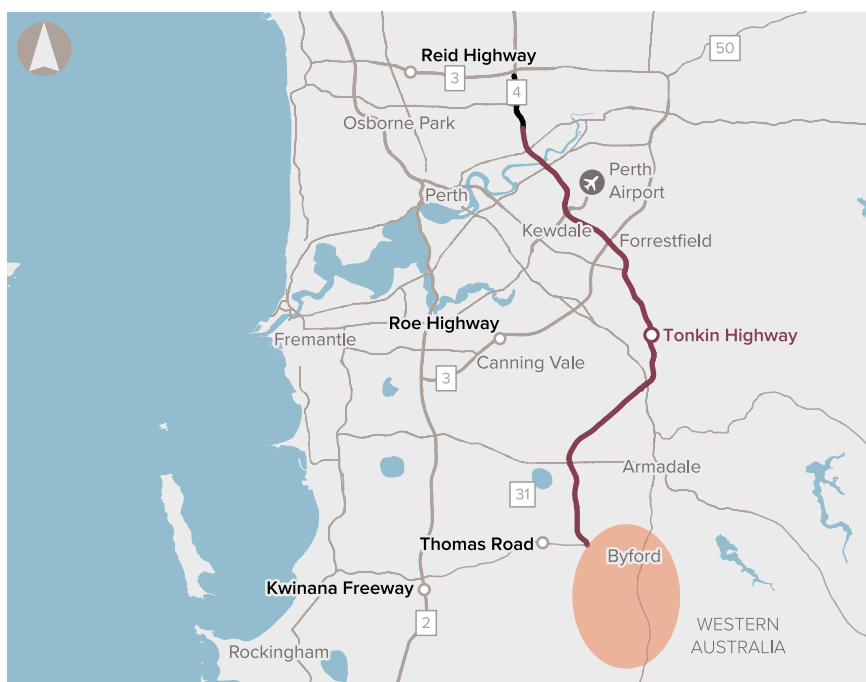
Various (0–15 years)

Proponent

Western Australian Government

Date added to the IPL

February 2019



Problem

Perth's south-east transport corridor is experiencing growing levels of congestion and road crashes as traffic volumes grow. This is being driven by population and economic growth, related to urban and industrial developments along the corridor.

The Tonkin Highway is a 44 km north–south highway and partial freeway that provides passenger and freight access to key industrial and commercial areas, including Perth Airport, the Kewdale intermodal facility, and the Kewdale, Forrestfield and Welshpool strategic industrial areas.

From 2013 to 2016, 80% of total crashes on the Tonkin Highway were rear-end incidents. This is well above Perth's metropolitan average of 45%. In 2017–18, the highway (south of Great Eastern Highway) carried over 98,000 vehicles per working weekday in both directions, 11% of which were heavy vehicles.

Continued urban and industrial growth will exacerbate the congestion and safety issues along the south-east corridor.

Some of this growth is expected to occur in Byford, at the southern end of the corridor, where the population is forecast to grow by 9% per annum to 2026.

Together, strong demand for transport and a reliance on private vehicles will increasingly strain the transport network and could lead to higher levels of congestion and poor safety outcomes.

With improved transport options, there is an opportunity for higher density and mixed-use development in these areas to serve the growing population.

Proposed initiative

Potential initiatives to reduce congestion and improve road safety include road widening, grade separations at major intersections, potentially extending the Tonkin Highway south to provide transport access to rapidly growing residential areas, and improved freight connections to Fremantle Port. It could also include extending the existing rail line to Byford to reduce the reliance on private vehicles and encourage higher density development around a new station.

The Western Australian Government is proposing a multi-modal approach to address the problems on the corridor:

- Upgrade the section of Tonkin Highway between Collier Road and Great Eastern Highway (known as the Tonkin Highway Gap).
- Construct interchanges south of Roe Highway (at Hale Road, Welshpool Road East, and Kelvin Road).
- Construct a future extension of Tonkin Highway to the Byford area in the south.
- Extend the Armadale Rail Line to service the Byford area, which is being explored through the METRONET rail program.

These potential proposals should be subject to detailed assessment of their costs and benefits, and in particular, how they work together as an integrated program.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Road access improvements for remote WA communities

Location

Remote areas of WA



Geography

Small towns, rural communities and remote areas

Category

Remote infrastructure

Problem timeframe

Near term (0–5 years)

Proponent

Western Australian Government

Date added to the IPL

February 2016



Problem

There are approximately 270 remote communities in Western Australia, many of which are in the Kimberley region, 2,000 km from Perth. According to the Australian Bureau of Statistics, approximately 35,000 people live in remote areas of Western Australia. Many of these areas have limited transport access and poor freight connectivity. Existing roads are generally of low quality and some freight routes are unsealed. This:

- constrains access to employment, health and education services
- presents safety issues
- increases the costs of transporting goods
- reduces resilience to flooding, particularly during the wet season.

The 2019 *Australian Infrastructure Audit* noted that lower levels of infrastructure service in remote areas can reinforce social and economic inequalities, particularly for Aboriginal communities in the area. The Audit noted that connecting remote communities to the rest of the country is vital to their lives and economies.

Proposed initiative

The initiative proposes a program of works to improve road access to remote Western Australian areas. This could consider:

- providing higher-standard gravel roads
- sealing gravel roads, such as the Karratha-Tom Price Road
- bridge and floodway improvements, such as along the Great Northern Highway and Brown's Range Access Road
- improvements to remote and regional airstrips.

The Brown's Range Access Road proposal seeks to address many of the identified problems by:

- upgrading and sealing the floodway across Sturt Creek
- upgrading the sheeting on the black soil plain sections
- upgrading of creek crossings in the Duncan Road range section.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

South West Interconnected System transformation

Location
South West WA

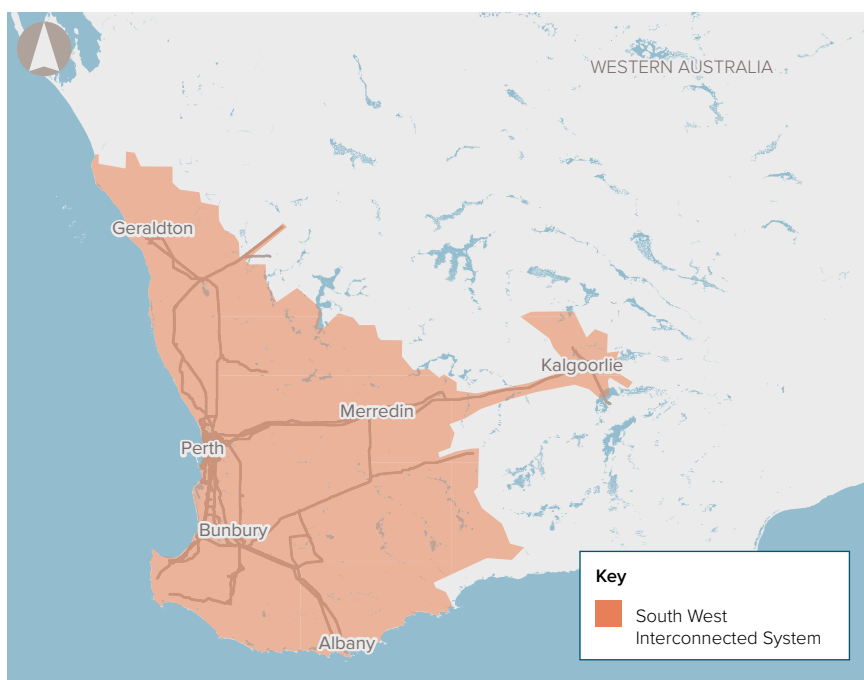
Geography
Smaller cities and regional centres

Category
Energy transformation

Problem timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2020



Problem

Western Australia's main electricity network, the South West Interconnected System (SWIS), serves most of the state's population, with more than 1.1 million customers.

The SWIS is geographically and electrically isolated, with no interconnections to other transmission systems. It was planned and developed around centralised, large-scale, dispatchable generation.

Major investment in network infrastructure and firming capacity is now required to meet the challenges (and opportunities) associated with integrating significant levels of utility-scale renewables and distributed energy resources. The Australian Energy Market Operator has warned that, without planning for and responding to these challenges, the SWIS will be at risk of experiencing widespread outages within the next five years.

Proposed initiative

The initiative involves network, generation and storage investment in the SWIS, including:

- implementing energy storage and other energy-generating technologies to maintain system security
- replacing end-of-life network infrastructure in areas with low customer density
- investing in transmission infrastructure to link generation in renewable energy zones to existing demands, and support new demands and security of supply at the fringes of the grid.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Swan River crossing capacity

Location
Perth, WA

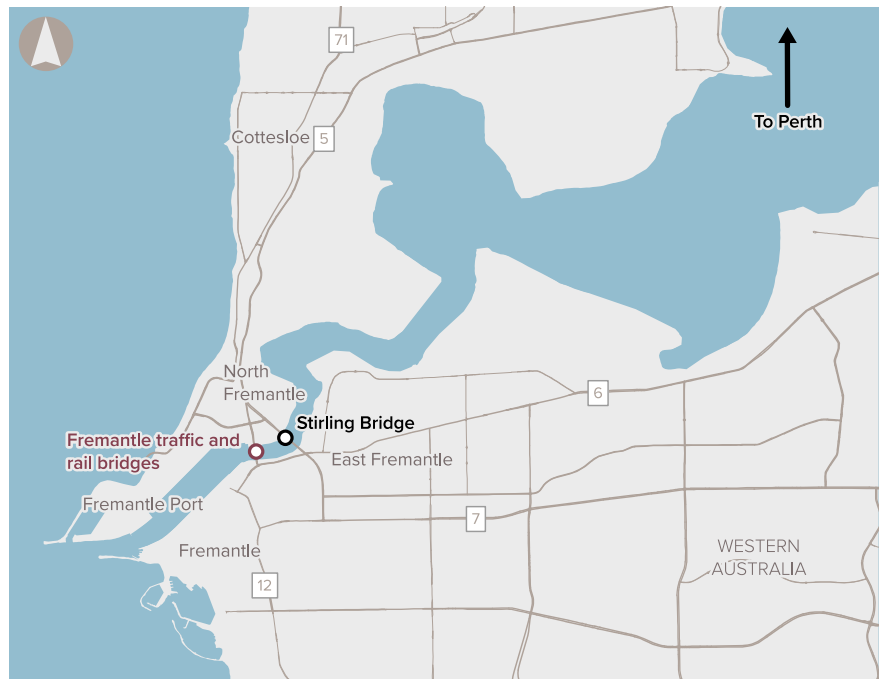
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
Western Australian Government

Date added to the IPL
February 2019



Problem

The Fremantle Traffic Bridge is at the end of its useable life and is at risk of closure. Transport across the Swan River at Fremantle Harbour is currently provided by three bridges: the Stirling Bridge, the Fremantle Traffic Bridge and the Fremantle Rail Bridge (which lies to the west of the traffic bridge).

Main Roads Western Australia's current assessment of the condition of the Fremantle Traffic Bridge is that without significant remedial maintenance, (which will not extend the service life of the structure) closure will be required in the near term. This is a result of continuing deterioration of critical timber components and scouring of the bridge supports.

Closure of the bridge, without replacement, would substantially increase demand pressure on the Stirling Bridge, which would worsen travel times, reduce the resilience of the road network and impact heavy freight road access to the port.

Freight and passenger rail connectivity is also constrained due to the shared Fremantle Rail Bridge, on which passenger services are given priority. As the volume of freight increases on rail and the demand for passenger services increases, the capacity conflict will impact on the timely and efficient provision of rail services. However, it is unclear when the rail bridge will reach capacity.

Proposed initiative

The initiative involves addressing the risk of closure for the Fremantle Traffic Bridge. This could be achieved by renewing or replacing the existing bridge, or developing and improving alternative crossings and routes.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Western Australia agricultural supply chain improvements

Location

Western Australia



Geography

Small towns, rural communities and remote areas

Category

Regional connectivity

Problem timeframe

Near term (0–5 years)

Proponent

Western Australian Government

Date added to the IPL

February 2020

(Updated February 2021)



Problem

Western Australia's regional freight task from the Wheatbelt Region relies heavily on road, rail and port infrastructure, but these assets are aging and imposing high costs on supply chains. These issues impact on the Wheatbelt, Great Southern, Mid West and Goldfields-Esperance regions.

Agriculture is a significant industry for Western Australia. In 2018–19, the gross value of agricultural production in the state was \$10.7 billion, which represents 18% of the total gross value of agricultural production in Australia and three percent of Western Australia's Gross State Product.

Western Australia's regional freight network faces a number of challenges, including:

- a growing and changing freight task
- ageing and under-performing road and rail infrastructure, including poor surface condition and road width
- consolidation of grain receival facilities
- increasing use of larger vehicles, but insufficient road mass limits
- pressure to increase supply chain productivity
- poor road safety outcomes.

Freight transport bottlenecks and a lack of capacity along key agricultural rail and road freight routes limit export volumes during periods of the year for Western Australian growers where prices received would be at their highest.

Proposed initiative

Potential options to address the initiative include a program of works to assess and prioritise sections of the Wheatbelt, Great Southern, Mid West and Goldfields-Esperance regions. Potential improvements include:

- addressing maintenance backlogs or implementing pre-emptive maintenance
- partial road and rail upgrades, such as cross-section improvements
- full road upgrades, including geometric corrections
- provision of new road and rail routes.

The Western Australian Government has developed a WA Agricultural Supply Chain Improvement Strategy to improve regional freight infrastructure across these regions.

This initiative captures the previous Priority Initiative for *Wheatbelt Secondary Freight Network improvements*, which was submitted to Infrastructure Australia by RDA Wheatbelt. The Wheatbelt Secondary Freight Network connects producers to the network of grain receival points, rail terminals and state highways across approximately 4,675 km of roads.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Western Australia regional digital enhancement

Location

Western Australia



Geography

Small towns, rural communities and remote areas

Category

Regional connectivity

Problem timeframe

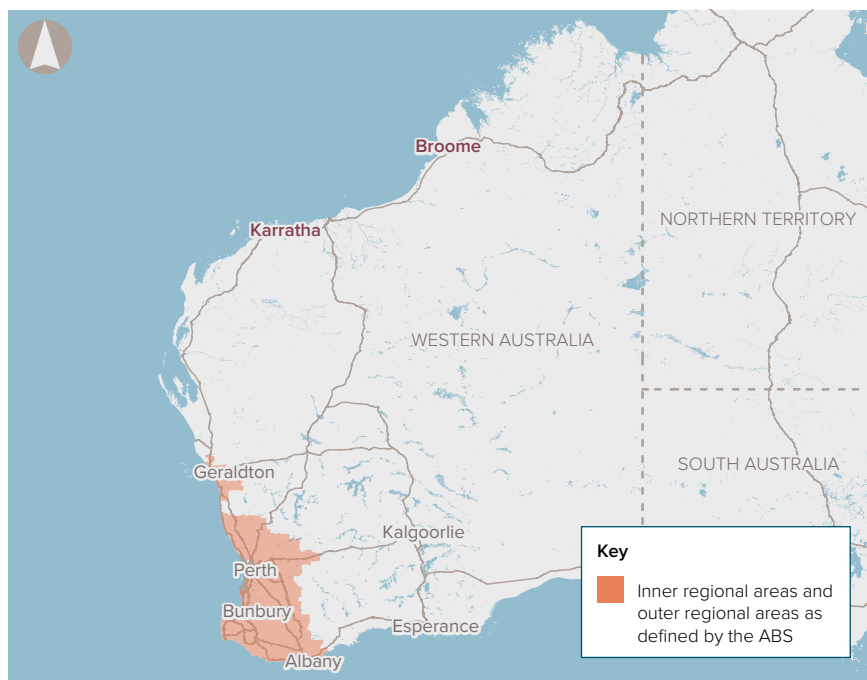
Near term (0–5 years)

Proponent

Western Australian Government

Date added to the IPL

February 2021



Problem

There is poor access to digital services in the regional and remote areas of Western Australia due to a lack of fit-for-purpose digital infrastructure and low service performance of existing infrastructure.

In 2018, approximately 83% of Western Australian households had internet access. However, access in regional areas is significantly lower, with fewer than 50% of households connected in some areas.

The connectivity offered in some regional areas is below consumer expectations due to data congestion and unreliability. The National Mobile Black Spot Database also identifies over 450 mobile blackspots remaining in Western Australia.

The 2019 *Australian Infrastructure Audit* found that in regional centres and rural and remote areas, telecommunications infrastructure often delivers costly services that provide poor connectivity, speeds and data allowances.

Communities with better digital connectivity benefit from improved access to education, healthcare and other economic opportunities. Primary producers can also use digital agricultural practices to improve productivity and remain globally competitive with other producers.

Regional telecommunications transmission capacity is separately identified as a national High Priority Initiative on the *Infrastructure Priority List*.

Proposed initiative

The initiative could be addressed through a program to prioritise and improve the availability and quality of digital access in regional and remote Western Australia and potentially other areas in the state with poor access.

This covers a range of services, including investment in telecommunications infrastructure in regional areas to improve the level of service and coverage.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Perth Airport new runway

Location
Perth, WA

Geography
Fast-growing cities

Category
National connectivity

Problem timeframe
Medium term (5–10 years)

Proponent
Perth Airport

Date added to the IPL
February 2016



Problem

Perth Airport is the fourth busiest in the country. The 2015 *Australian Infrastructure Audit* found Perth Airport will need additional capacity to meet projected growth in demand.

The Perth Airport Preliminary Draft Master Plan 2020 forecasts passenger throughput to increase from 14.5 million in 2018–19 to 28.5 million in 2039–40, and total aircraft movements are predicted to grow from 132,000 annually in 2018–19 to 202,000 in 2039–40.

This growth is partly driven by the airport's role as a critical fly-in fly-out transport hub for shift workers travelling to Western Australia's regional mining operations.

Passenger movements in and out of Perth Airport are concentrated around peak periods.

The high level of demand during peak periods fully utilises available runway slots, which leads to a less preferable departure or arrival time. This can lead to higher costs for business travellers and fly-in fly-out workers, reducing Australia's international competitiveness.

Proposed initiative

The initiative proposes construction of an additional runway at Perth Airport to provide the capacity needed to meet increasing demand.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

The Australian Government has approved the Draft Major Development Plan for the new runway project.

Priority Initiatives

Pilbara ports capacity

Location
Pilbara, WA



Geography
Smaller cities and regional centres

Category
Efficient markets

Opportunity timeframe
Medium term (5–10 years)

Proponent
Western Australian Government

Date added to the IPL
February 2020
(Updated February 2021)



Opportunity

Growing general cargo demand will strain capacity at existing Pilbara ports, such as the ports of Port Hedland and Dampier.

This growth is driven by the development of several spodumene (lithium) projects in Western Australia's Pilbara region, responding to increasing demand for renewable energy, lithium and other metals from the consumer electronics, electric vehicles and energy storage industries.

Pilbara beef and agribusiness industries in the region are also forecast to grow exports markets.

There is also a broader opportunity to provide more direct import and export freight facilities across the network of Pilbara ports to support the development of strategic industrial areas and reduce the volume of freight trucked to and from Perth.

The 2019 *Australian Infrastructure Audit* identifies the opportunity for further economic growth in Northern Australia through natural resources, such as rare earth materials including lithium.

Proposed initiative

The initiative is for increasing capacity at the Pilbara ports, which will need to be considered as a network of ports including the Ports of Hedland, Campier and Ashburton.

Options include making better use of the existing port infrastructure, major upgrades to port facilities or developing new port infrastructure. It could also include developing new land for port activities and landside improvements, such as a logistics hub or road access upgrades.

The role of port-user charging should be considered as part of the funding options for the initiative.

This initiative captures the previous Priority Initiative for *Port Hedland port capacity*, which was submitted to Infrastructure Australia by RDA Pilbara. It was updated in February 2021 to recognise the capacity constraints across the network of ports in the Pilbara, based on a WA Government submission.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

South Coast Highway improvements

Albany to Esperance

Location
South Coast, WA

Geography
Small towns, rural communities and remote areas

Category
National connectivity

Problem timeframe
Medium term (5–10 years)

Proponent
Western Australian Government

Date added to the IPL
February 2020



Problem

The South Coast Highway is a strategic freight and tourism route in the South West region of Western Australia, servicing the ports of Albany and Esperance and connecting regional towns.

However, the age, design and condition of the highway is causing significant safety issues, and high operating and maintenance costs.

Around 74% (or 348 km) of the South Coast Highway consists of pavement that is more than 40 years old. In addition, eight bridges along the highway are timber, with some being almost 60 years old.

Continued decline in road condition, with population growth and increases in freight volumes and tourism activity, will further exacerbate the effects of these problems in the future.

Proposed initiative

The initiative involves upgrades to the South Coast Highway between Albany and Esperance. This could include:

- realigning and widening of some sections of the highway
- sealing road shoulders
- constructing passing lanes
- restoring pavement or upgrading to heavy-duty pavement
- upgrading or replacing timber bridges.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Canning Bridge crossing capacity and interchange

Location
Perth, WA

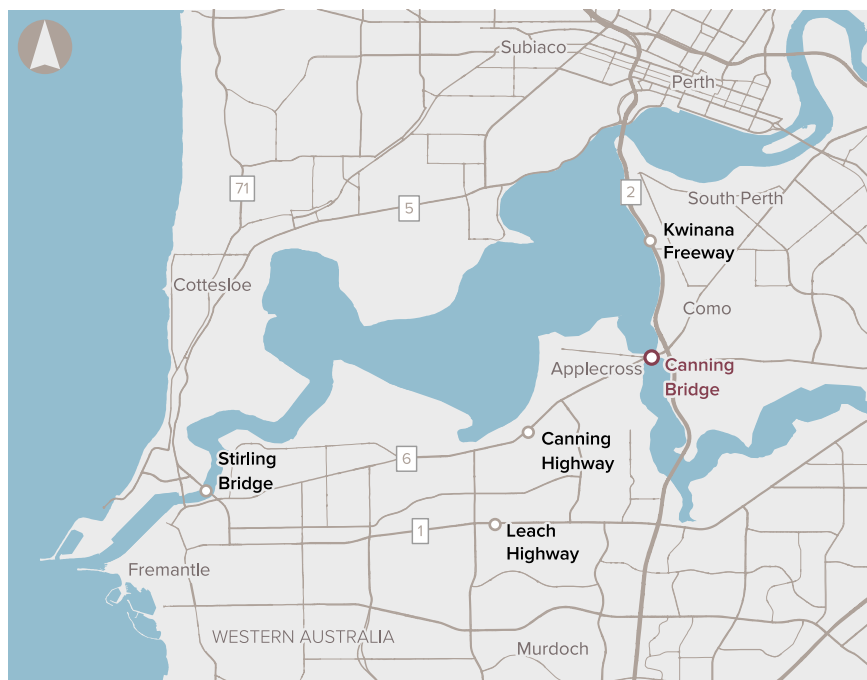
Geography
Fast-growing cities

Category
Efficient urban transport networks

Problem timeframe
Longer term (10–15 years)

Proponent
Infrastructure Australia identified initiative

Date added to the IPL
February 2019



Problem

Canning Bridge is an important interchange for bus and rail services, which is forecast to become capacity constrained in the longer term. In March 2018, a peak month for boardings among students, there were approximately 4,000 average weekday train boardings (of whom over 2,800 transferred from buses).

The current alignment of the bus station also causes road congestion. Buses travelling east along the Canning Highway block a traffic lane when stopping at the bus station, interrupting other vehicles travelling along the Canning Highway. Similarly, buses stopping at the bus station during peak periods can block the northbound Kwinana Freeway bus lane access ramp. Along the Canning Highway, there is only one dedicated bus bay, which is in the westbound direction, close to the bus station.

Customer experience at the bus station is also poor, with limited pedestrian and cycling access from all approaches, and no dedicated parking or drop-off facilities. Some passengers are required to cross surface roads when interchanging between bus and rail, and there are no toilet facilities at the station.

To improve the road network in the near term, there are currently projects underway on the Kwinana Freeway to deliver smart freeway technology on the northbound lanes between the Canning Highway and Narrows Bridge. An on ramp from Manning Road has also recently been completed.

Proposed initiative

Improvements to station accessibility and amenity would aim to increase public transport patronage and reduce impact on the adjacent road network.

Next steps

Proponent to be identified.

Priority Initiatives

Perth container terminal capacity and land transport access

Location

Perth, WA

Geography

Fast-growing cities

Category

National connectivity

Problem timeframe

Longer term (10–15 years)

Proponent

Western Australian Government

Date added to the IPL

February 2016



Problem

Fremantle Port Inner Harbour handles most of Western Australia's container trade. Throughput at the current container terminal at Fremantle Port will be limited by urban development that constrains the road and rail connections into the port.

In 2018–19, the port handled approximately 788,266 containers. This trade is expected to grow on average by 3.25% each year between 2019–20 and 2067–68. This growth could result in the current facility reaching capacity in around 15 years.

These capacity constraints will need to be addressed if the freight supply chain is to remain efficient. These issues were formerly addressed on the *Infrastructure Priority List* by the Perth Freight Link initiative, but are now included as part of this initiative, which addresses both container terminal capacity and land transport access.

Additional container terminal facilities (whether located at the current port site, or at a new Outer Harbour site south of Fremantle at Kwinana) will need to be served by road and rail connections that provide capacity for growth over the economic life of the facilities.

Proposed initiative

The initiative includes planning, and potential corridor and site preservation, for additional container terminal capacity, and road and rail access, to accommodate future demand in Perth.

In the near to medium term, there may also be an opportunity to help support growing demand with smaller-scale port and transport access investments.

The Westport Taskforce's Stage 2 report (released mid-2020) recommended that a second container terminal at Kwinana will be required, but further investigation is required to determine the timing, staging and operating model of this facility and its supply chain. Over the coming years, the Department of Transport will undertake more detailed port, land use and environmental planning.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Adelaide North–South Corridor upgrade (remaining sections)

Location
Adelaide, SA



Geography
Smaller cities and regional centres

Category
Efficient urban transport networks

Problem timeframe
Near term (0–5 years)

Proponent
South Australian Government

Date added to the IPL
February 2016



Problem

Adelaide's 78 km North–South Corridor is a key freight and commuter route between Gawler in the north and Old Noarlunga in the south.

Sections of the North–South Corridor that have not been upgraded are subject to slow travel-times and reduced travel time reliability. The 2019 *Australian Infrastructure Audit* found that South Road, which is part of the North–South Corridor, is projected to have a delay cost of \$134 million in 2031. North–south traffic congestion is not limited to South Road – it is also evident along parallel routes, such as Marion Road (projected delay cost of \$62 million in 2031) and Goodwood Road (projected delay cost of \$36 million in 2031).

South Road is currently optimised for north–south travel in Adelaide, given its role as part of the National Land Transport Network and as a prioritised freight corridor. As such, it can impede east–west traffic movements, potentially increasing travel times in those directions.

Proposed initiative

This initiative focuses on the remaining unfunded sections of the North–South Corridor, including upgrades to: Anzac Highway to Darlington; River Torrens to Anzac Highway; and Regency Park to Torrens Road.

When completed, the North–South Corridor will be the major transport spine for Adelaide's north–south traffic over a total distance of 78 km.

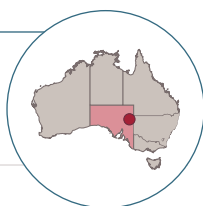
Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Strzelecki Track upgrade and mobile coverage

Location
Lyndhurst to
Innamincka, SA



Geography
Small towns, rural communities
and remote areas

Category
Regional connectivity

Problem timeframe
Near term (0–5 years)

Proponent
South Australian Government

Date added to the IPL
February 2016



Problem

The Strzelecki Track was identified in the 2019 *Australian Infrastructure Audit* as a key freight route. It is the only viable land route between Adelaide and the Cooper Basin, and will be increasingly important to service the expanding oil and gas industry in the Cooper and Eromanga basins, and the pastoral industry in the north-east of South Australia. The Audit also recognises that it is an important access route for communities and tourism.

The Strzelecki Track is mostly unsealed and suffers from potholes, corrugation and a lack of drainage.

The road's condition and alignment reduce travel speed, damage vehicles, cause unpredictable closures due to flooding, and result in road safety risks. The road is not currently suitable for the efficient operation of heavy vehicles.

Proposed initiative

The initiative proposes to upgrade 426 km of the Strzelecki Track between Lyndhurst and Innamincka, and 26 km of the Adventure Way. This will provide an upgraded connection between South Australia and Queensland. Improvements to mobile phone coverage along the route are also proposed.

The South Australian Government commenced works in 2020 to seal the first 50 km of the Strzelecki Track in October 2020, beginning immediately north of Lyndhurst.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

South Australian regional bulk port development

Location

Spencer Gulf region,
SA



Geography

Small towns, rural
communities and remote areas

Category

Regional connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

South Australian Government

Date added to the IPL

February 2016



Problem

To date, South Australian bulk export volumes (including grain, mining and resource operations) have been accommodated within existing ports and landside transport infrastructure. The 2015 *Australian Infrastructure Audit* noted that expansion of a number of regional ports, as well as development of new high-capacity ports, could support further increases in exports, especially of mineral resources and agricultural products.

For mineral producers, there is a particular requirement to develop deep water ports with the capacity to accommodate the 'capesize' vessels that are essential to compete in global iron ore markets.

The lack of a clear path to market (including high-capacity, deep ports) can be a barrier to attracting capital to new mining projects, agricultural production or potential hydrogen exports. However, it is difficult to attract capital for new port projects without committed export demand from new projects.

Proposed initiative

The initiative would consider options for the development of bulk commodity port capacity in the Spencer Gulf region. There are a range of sites for ports and associated investment/operating models that could meet potential demand:

- The existing Whyalla port in the northern Spencer Gulf.
- The proposed Cape Hardy port on the central eastern Eyre Peninsula, proposed to be developed by Iron Road Limited.
- The proposed Port Spencer on the central eastern Eyre Peninsula.
- The existing Port Bonython in the northern Spencer Gulf.
- The proposed Myponie Point Bulk Commodity export facility on the northern Yorke Peninsula.
- Other shallow harbour ports and transshipment vessels can also be used to move bulk commodities, such as grain, to larger vessels anchored in deeper waters off the Spencer Gulf.
- The proposed Port Playford at the head of Spencer Gulf.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

South Australia High Productivity Vehicle network access

Location

South Australia



Geography

Small towns, rural communities and remote areas

Category

Regional connectivity

Problem timeframe

Near term (0–5 years)

Proponent

South Australian Government

Date added to the IPL

February 2016

(Updated February 2021)



Problem

South Australia's regional freight network includes the Dukes Highway, Sturt Highway, Augusta Highway and Eyre Highway, which are also part of the National Land Transport Network. This network is crucial for transporting goods in most regional areas of South Australia. However, the existing road network does not allow for the use of larger High Productivity Vehicles. The existing truck limits and access constraints affect 88% of South Australian road freight.

The absence of a fully developed High Productivity Vehicle network is constraining productivity and the realisation of opportunities in the South Australian economy.

High Productivity Vehicles have the potential to carry over 30% more freight per vehicle, resulting in fewer vehicles required to move the same freight task. This reduces the costs to transport operators and end users, and reduces the number of heavy vehicles on the road, improving the safety, capacity and efficiency of transport services.

Proposed initiative

Potential options to address the initiative include improving mass limits and road geometry, improving bridge capacities and duplicating lanes on the South Australian regional freight network including the Augusta Highway, Dukes Highway and the Sturt Highway.

The initiative is for maximising the efficiency of the South Australia regional and intrastate freight network and the interstate supply chain connectivity to the north, south, east and western states and territories in Australia.

Sturt Highway High Productivity Vehicle capacity enhancement, including Truro bypass, was previously listed as a Priority Initiative on the *Infrastructure Priority List*, and is now captured under this broader initiative.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Spencer Gulf crossing capacity

Location
Port Augusta, SA

Geography
Smaller cities and regional centres

Category
National connectivity

Problem timeframe
Near term (0–5 years)

Proponent
South Australian Government

Date added to the IPL
February 2019



Problem

The Joy Baluch AM Bridge crosses the northern end of the Spencer Gulf at Port Augusta and forms part of the National Land Transport Network. Constraints on the existing crossing include mass limits for commercial vehicles, poor resilience to incidents and limited throughput for vehicles. The current configuration of the bridge is one lane each way, with a speed limit of 40 km/h.

Over 17,000 vehicles use the bridge each day, including national highway traffic from south-eastern Australia to the Northern Territory and Western Australia. It also provides important heavy vehicle access to the Eyre Peninsula and western and far-north mining provinces. While Yorkeys Crossing provides an alternative route to the north, it is unsealed and can be closed in wet weather.

Addressing these deficiencies could allow High Productivity Vehicles to cross the Spencer Gulf and improve freight efficiency. It could also improve safety for pedestrians, cyclists and passenger vehicles, as well as improve traffic flows.

Proposed initiative

The initiative involves improving the crossing capacity of the Spencer Gulf at Port Augusta. This could be achieved by developing alternative routes, upgrading the existing Joy Baluch AM Bridge or by constructing a new crossing.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Adelaide level crossings congestion and safety

Location
Adelaide, SA

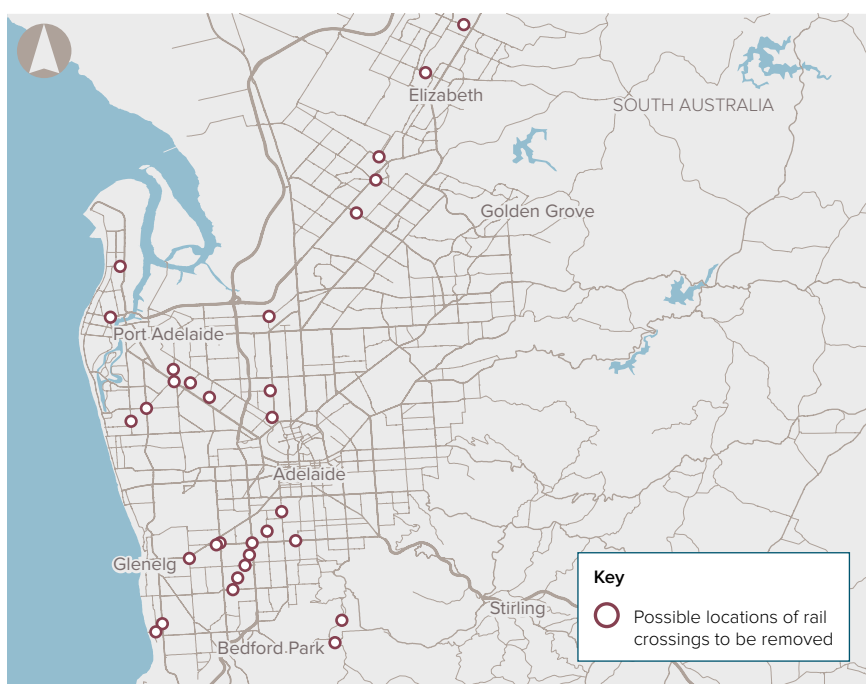
Geography
Smaller cities and regional centres

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
South Australian Government

Date added to the IPL
February 2021



Problem

There are 127 at-grade level crossings of the road and rail network in Adelaide. Some of these level crossings are closed to road traffic for up to 25% of peak traffic periods.

Level crossings can lead to delays and safety problems as trains, cars, buses, trucks, cyclists and pedestrians cross paths. Pedestrian and vehicle collisions and boom-gate strike crashes can result in injuries or fatalities, as well as property damage and delays on transport networks.

Longer boom-gate closures can also create barriers between different parts of the community and reduce amenity in urban areas.

These problems are expected to worsen as road traffic and the frequency of rail services increase with population growth in South Australia.

More frequent rail services will result in longer boom-gate closures, as trains are given priority on the transport network.

Proposed initiative

The initiative could be addressed through a program to identify, prioritise and remove level crossings in Adelaide. This would improve network efficiency, safety and amenity for communities.

Such a program should consider a wide range of options to remove level crossings or minimise their impacts. This could include traffic restrictions, road closures, demand management, removing level crossings, and grade separations where warranted.

The South Australian Government has identified 31 level crossings they contend pose the highest risk to users and create the greatest disturbances on the network.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Adelaide public transport capacity and access

Location
Adelaide, SA



Geography
Smaller cities and regional centres

Category
Efficient urban transport networks

Problem timeframe
Medium term (5–10 years)

Proponent
South Australian Government

Date added to the IPL
February 2016
(Updated February 2021)



Problem

The 2019 *Australian Infrastructure Audit* found that the performance of urban roads and urban public transport in Adelaide is a key challenge for South Australia.

The Audit estimated that the cost of delay on Adelaide's urban transport network was \$1.4 billion in 2016 and would grow to \$2.6 billion in 2031 in the absence of investments or other changes beyond those already funded.

The major public transport destination in Adelaide is the CBD, with most public transport use being on buses. Public transport use in Adelaide is significantly lower than in Sydney, Melbourne and Brisbane. In Adelaide, the proportion of passengers using public transport for journeys to work is just under 9%, compared to 11.6% in Brisbane, 15.6% in Melbourne and 22.8% in Sydney.

Adelaide's recent employment growth has been centred on the inner and middle suburbs, whereas population growth has been strongest in the middle and outer suburbs. Existing public transport services do not support urban density. A continuation of existing land use patterns will result in greater reliance on and use of private passenger vehicles, in turn leading to further road congestion and delays at the expense of economic efficiency.

Proposed initiative

The initiative is for public transport network improvements to and from the Adelaide CBD. Infrastructure SA released the 20-Year State Infrastructure Strategy in 2020, which identified a range of public transport options that could increase access and capacity. This includes Bus Rapid Transit, a heavy rail city loop to increase capacity and potential extensions to the tram network.

The South Australian Government has established the South Australian Public Transport Authority to improve public transport services.

The Adelaide Council and South Australian Government are currently developing a City Access Strategy, which will detail public transport options.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Northern South Australia productive water security

Location
Northern South
Australia



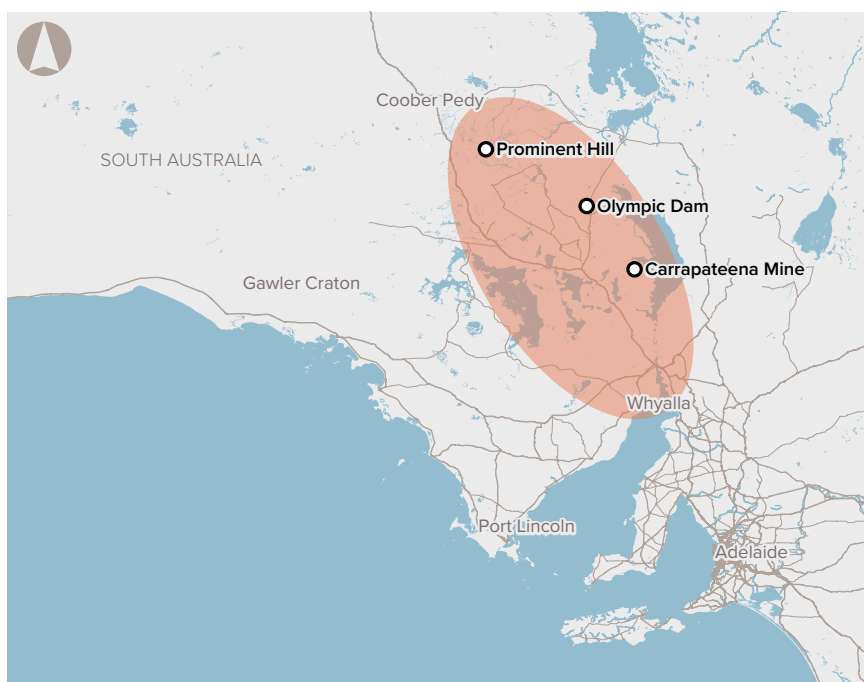
Geography
Small towns, rural communities
and remote areas

Category
Access to water

Problem timeframe
Medium term (5–10 years)

Proponent
South Australian Government

Date added to the IPL
February 2021



Problem

Mines in northern South Australia rely on groundwater from the Great Artesian Basin and other smaller local aquifers. This water is expensive to extract, as harvesting can be slow in low-pressure zones, and salinity and other water quality issues can affect its use.

The availability and security of the water supply constrains the expansion of mining activity in region. There are also potential concerns around the environmental impact of groundwater extraction on underground basins and surface water.

The SA Government's Copper Strategy plans to triple the state's copper production to 1 million tonnes per year by 2030. This is driven by forecast global demand for copper increasing from 25 million tonnes per year in 2015, to 40 million tonnes in 2030.

The 2019 *Australian Infrastructure Audit* has identified the challenges and risks associated with supporting growth of regional industries.

Improving water infrastructure could help to unlock opportunities for industry, local communities and the environment.

Proposed initiative

Potential options to address the initiative include new sustainable water sources, such as improved bore access and desalination, including associated pipeline and distribution infrastructure.

A new sustainable water source is expected to improve water resilience and increase water supply to the northern parts of South Australia. There is an opportunity for new water infrastructure to also support pastoral and defence activities in the region, as well as local communities.

Public investment should consider the role of government in stimulating the delivery of infrastructure by the private sector, compared with direct infrastructure funding, ownership and provision.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Barossa Valley Region water supply

Location
Barossa, SA

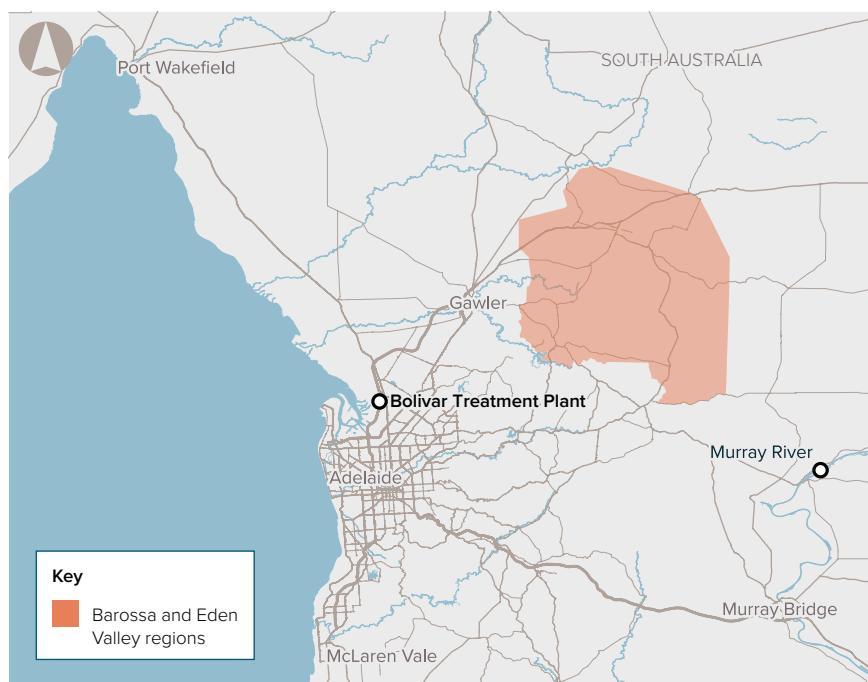
Geography
Smaller cities and regional centres

Category
Access to water

Problem timeframe
Longer term (10–15 years)

Proponent
South Australian Government

Date added to the IPL
February 2021



Problem

The Barossa Valley Region, including Eden Valley, produces high-quality wine for domestic and export markets and supports a valuable tourism industry and other primary industries such as livestock. Access to secure water sources is critical to these industries.

The River Murray is currently the major source of irrigation water to the Barossa Valley Region. Smaller volumes of groundwater are available, although the quality in some areas is not fit-for-purpose or sufficient to meet increasing industry demand.

The region's wine industry, by virtue of its reliance on climate dependent sources of water supply from the River Murray, is exposed to drought, climate variability and climate change risks. The 2019 *Australian Infrastructure Audit* found that changes in water demand over coming years could affect economic activity and infrastructure requirements in some regional areas. These changes may be exacerbated in drier years.

Improving water security, production capacity and climate resilience for the region will reduce the economic impacts of future droughts and could increase production from existing vineyards.

Proposed initiative

Potential options to address the initiative include:

- non-infrastructure options, such as demand management
- better-use of or upgrading existing water infrastructure assets
- new infrastructure to enable access to water supply sources that are not climate dependent.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Gawler Craton rail access

Location

Gawler Craton minerals region, SA



Geography

Developing regions and northern Australia

Category

Regional connectivity

Problem timeframe

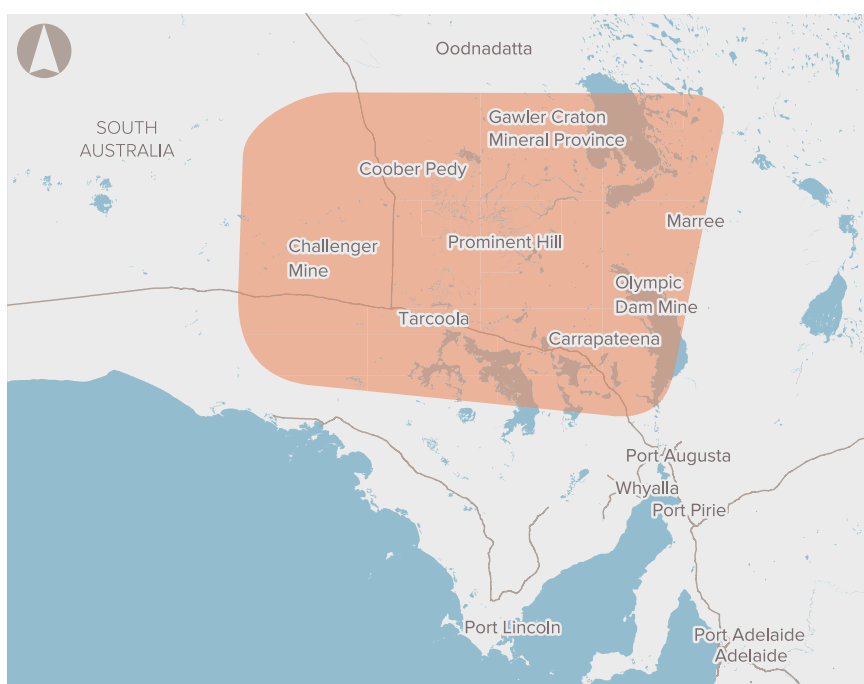
Longer term (10–15 years)

Proponent

South Australian Government

Date added to the IPL

February 2016



Problem

The Gawler Craton area is a remote mineral region north-west of the Eyre Peninsula in South Australia. The region, which extends into the Woomera Prohibited Area, contains extensive copper, gold, silver and iron ore deposits.

The remoteness of the mineral deposits within the northern part of South Australia is a challenge for exploration and development. Development of a railway could provide a significant transport connection to the Prominent Hill, Olympic Dam and Carrapateena mines, and open up other potential reserves in the area, including Wirrda Well, Acropolis, Vulcan, Titan and Millers Creek.

Geological surveys have indicated that potential deposits in the Woomera Prohibited Area and its surrounds are valued at up to \$35 billion, indicating that a significant uplift in the region's mineral exports could be attainable.

Proposed initiative

The initiative proposes that a third party builds, owns and operates a 350 km railway in the Gawler Craton province, linking to the existing interstate rail network. Future connections to other potential mining projects will be possible.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Burnie to Hobart freight corridor improvement

Location

Burnie to Hobart, Tas



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

Tasmanian Government

Date added to the IPL

February 2016

(Updated February 2021)



Problem

The road and rail corridor connecting Burnie and Hobart is part of the National Land Transport Network. It connects regional producers to a number of Tasmania's ports, and producers depend on it to bring goods to market at competitive prices. The corridor is forecast to carry 35% more freight by 2034–35, compared to 2014–15 volumes.

Given the corridor's importance to Tasmania's transport network, there is a need to ensure its future efficiency and reliability.

In 2017, the Tasmanian Government released the Burnie to Hobart Freight Corridor Strategy to guide future planning and investment along the corridor. The strategy aims to ensure freight performance standards are maintained and enhanced over the long term, in line with freight demand, user needs and emerging challenges.

Proposed initiative

The program initiative involves a range of road and rail improvements to the corridor, such as intersection upgrades or lane duplications. The Tasmanian Government has funded a number of the identified initiatives and is prioritising and preparing business cases for the remaining investments, which would support the key outcomes of the Strategy. Potential works on the Burnie–Hobart corridor include:

- Bass Highway, Devonport to Deloraine
- Bass Highway, Burnie to Smithton
- Illawarra Main Road
- Brooker Highway, Domain Highway overpass
- Second and Third Tranche Rail Investment Program
- Bridgewater Bridge
- bridge strengthening and maintenance.

Individual components of the program (including their costs and benefits) are still subject to investigation through business case development.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Derwent River crossing capacity

Location

Bridgewater, Tas



Geography

Smaller cities and regional centres

Category

National connectivity

Problem timeframe

Medium term (5–10 years)

Proponent

Tasmanian Government

Date added to the IPL

February 2016



Problem

The existing Bridgewater Bridge does not meet contemporary loading and design standards as part of the National Land Transport Network. In its current form, the bridge provides a single lane in each direction, and has a posted speed limit of 60 km/h. The bridge's vertical lift mechanism poses an ongoing risk of network disruption with a history of failure on lifting to allow river vessels to pass through the channel.

The existing bridge and causeway are near the end of their serviceable lives. The bridge has high maintenance costs due to its age, and future refurbishments will be increasingly costly and limited in effect.

Proposed initiative

The initiative involves the development of an alternative Derwent River crossing. This could improve safety, travel times and reliability for the 22,000 vehicles that cross the river each day, as well as potentially removing wait times for river vessels travelling under the bridge.

Next steps

The business case was evaluated by Infrastructure Australia in June 2019.

The project is undergoing further planning, scheme development and assessment with support from the Australian Government and Tasmanian Government.

Priority Initiatives

Tasmanian irrigation schemes

Tranche 3

Location

North Tasmania



Geography

Small towns, rural communities and remote areas

Category

Access to water

Opportunity timeframe

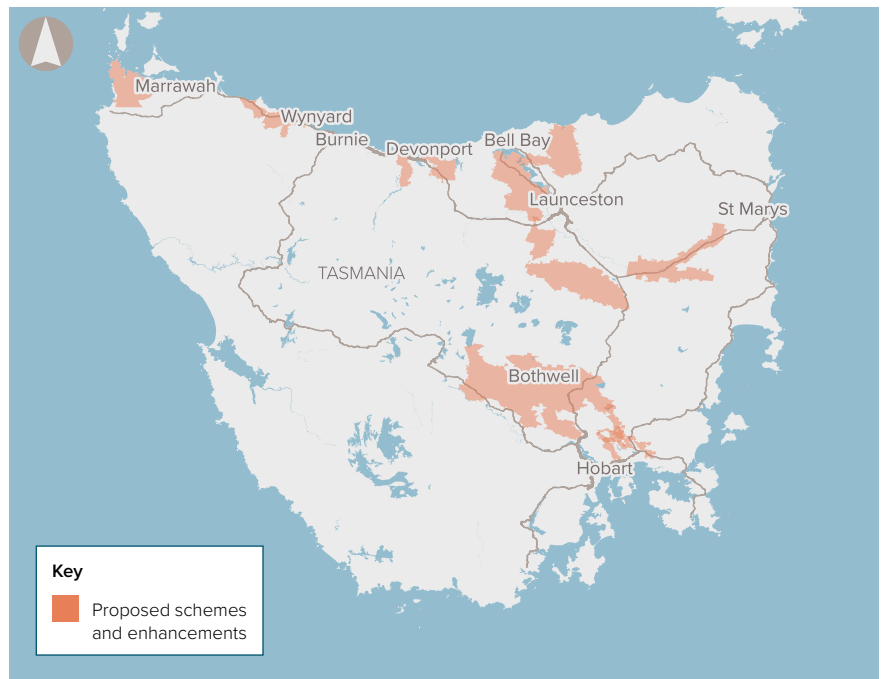
Medium term (5–10 years)

Proponent

Tasmanian Government

Date added to the IPL

February 2019



Opportunity

Water resources in Tasmania are not distributed seasonally or geographically as required for productive agricultural purposes.

The development of sustainable and well-managed water capture and distribution for use in irrigated agriculture provides the opportunity for dryland farms and landholders to expand and diversify their businesses by switching from dry-land, lower-value enterprises to higher-value enterprises such as fruit or viticulture. This can improve both the operational performance and efficiency of existing irrigation and the productive capacity of Tasmania's agriculture sector more broadly.

Proposed initiative

This program initiative is for a potential range of improvements to enable the expansion of the irrigable area of Tasmania and support the distribution of water to the highest productive use. These include constructing additional irrigation schemes and connecting, augmenting and enhancing existing irrigation schemes.

The individual components of the program, including their costs and benefits, are still subject to investigation through business case development.

The second tranche of Tasmanian irrigation schemes were previously identified as a Priority Initiative on the *Infrastructure Priority List*, and has been successfully delivered.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

One scheme has secured private sector funding to support a business case while two others are planned to go to the market in 2020.

Priority Initiatives

Hobart Port precinct capacity improvements

Location

Hobart, Tas



Geography

Smaller cities and regional centres

Category

Efficient markets

Problem timeframe

Near term (0–5 years)

Proponent

Tasmanian Government

Date added to the IPL

February 2021



Problem

The Port of Hobart is a major Tasmanian deep-water port that supports a variety of industries, including bulk log exports, container exports, bulk fuel imports, commercial fishing, Antarctic exploration and cruise ships.

The current condition of Macquarie Wharfs 4, 5 and 6 limits opportunities to grow tourism, trade and Antarctic exploration sectors. The wharf assets are approaching end of life and require significant maintenance each year to sustain a minimal service level.

In its existing condition, the port cannot accommodate the Australian Antarctic Division's new purpose-built icebreaker, RSV Nuyina. It also cannot accommodate the Oasis passenger cruise vessels, impacting on tourism.

The port is a critical link in delivering the Australian Antarctic program and developing the Antarctic and Science Precinct at Macquarie Point. This precinct is being developed to consolidate key scientific organisations and support collaboration to advance scientific research in Antarctica.

The 2019 *Australian Infrastructure Audit* found that our major container ports are becoming more productive, but continue to lag behind our trading partners for key indicators. Our ports will need to continue improving to ensure Australia is globally competitive.

Proposed initiative

Potential options to address the initiative include wharf improvements, supporting infrastructure to increase exports, and a potential terminal and other visitor facilities for tourists.

This initiative aims to improve the capacity and condition of Hobart Port precinct and provide a suitable working port, terminal and berthing space.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Port of Burnie capacity

Location

Burnie, Tasmania

Geography

Smaller cities and regional centres

Category

Efficient markets

Problem timeframe

Near term (0–5 years)

Proponent

Tasmanian Government

Date added to the IPL

February 2021



Problem

Port capacity and infrastructure at Port of Burnie, on the north coast of Tasmania, is limiting export opportunities.

Port of Burnie cannot accommodate vessels larger than Handymax size, which carry less than 60,000 tonnes. These vessels are too small to service the supply chain. The export terminal space at the port is limited and not fit for purpose, and multi-commodity logistics infrastructure does not meet the ports requirements.

Port of Burnie is Tasmania's only multi-use seaport capable of expanding to be the state's largest export gateway for bulk and containerised shipping.

The Tasmanian Government estimates that mining and minerals exports from Tasmania are capable of growing from 0.5 million tonnes per annum in 2019 to 6 million tonnes per annum by 2029. However, the current port capacity will limit this growth and increase supply chain costs for bulk exporters.

The 2019 *Australian Infrastructure Audit* found that Australia's major container ports are becoming more productive, but continue to lag behind our trading partners for key indicators.

Our ports will need to continue to improve to ensure Australia is globally competitive.

Proposed initiative

Potential options to address the identified problems include additional berth and terminal capacity to support larger ships at Burnie Port, such as channel works to accommodate Panamax vessels (up to 14.6 m draft and carrying 65,000–85,000 tonnes).

Options could also include port infrastructure, ship-loading infrastructure and transport access improvements to service higher volumes of freight.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Tasmanian sewerage infrastructure upgrades

Location

Hobart, Launceston
and Devonport, Tas



Geography

Smaller cities and regional centres

Category

Efficient markets

Problem timeframe

Near term (0–5 years)

Proponent

Tasmanian Government

Date added to the IPL

February 2016



Problem

The major population centres of Hobart, Launceston and Devonport are serviced by a large number of poorly performing sewage treatment plants, a legacy of past ownership and delivery arrangements.

Non-compliant and ageing infrastructure is contributing to public health and environmental outcomes that do not meet contemporary standards. These outcomes present a threat to Tasmania's status as a 'clean green state' renowned for its natural resources and as a preferred tourist destination. Furthermore, a number of sewage treatment plants are located on prime waterfront land in densely populated areas.

The 2019 *Australian Infrastructure Audit* notes imminent renewals of ageing assets bring an opportunity to rethink how water and wastewater services are delivered, and to use technology to improve efficiency and levels of service. Renewals could help to avoid over-investment in large, long-lived traditional water and sewerage assets, and make the system more adaptable to future trends and shocks.

Proposed initiative

The initiative proposes to rationalise existing sewage treatment plants and upgrade and operate a reduced number of sewage treatment plants in Hobart, Launceston and Devonport. This would provide adequate treatment capacity for future growth, minimise environmental regulatory breaches, increase levels of service and improve operational efficiencies.

TasWater's current capital works program includes rationalisation of treatment plants in Launceston and Devonport. Its Long-Term Strategic Plan (2018–2037) considers individual plant upgrades or optimisation projects for Hobart.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Australian Institute of Sport modernisation

Location
Canberra, ACT

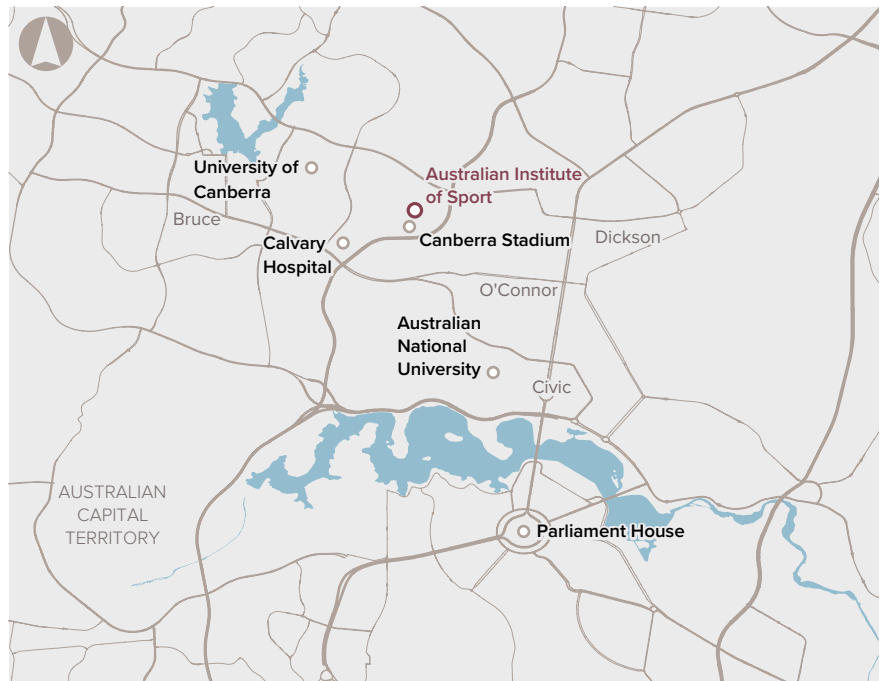
Geography
Smaller cities and regional centres

Category
Social infrastructure

Problem timeframe
Near term (0–5 years)

Proponent
Australian Sports Commission –
Australian Institute of Sport

Date added to the IPL
June 2020



Problem

The Australian Institute of Sport (AIS) is a centralised research and training hub centred in Canberra for Australia's elite and Olympic athletes.

The age and condition of the majority of facilities at the AIS do not meet modern-day requirements and are expensive to maintain. More than 15 of the facilities are over 30 years old and not fit for purpose.

The Australian Government's Sport 2030 strategy states that Australia is no longer at the cutting edge of sporting excellence and that this could be addressed by leveraging the AIS site.

In addition to supporting elite athletes, the AIS campus also benefits the local community, is a significant tourist attraction, and enables a range of partnerships and research programs involving the AIS, other government bodies, universities and industry.

These partnerships and programs could support advances in preventative health, medical research and disabilities, which can benefit other sporting bodies, as well as the broader Australian community.

Proposed initiative

The initiative is for redeveloping and modernising the AIS facilities. This could include improved or new facilities for athletes, coaches, researchers, visitors and tourists.

A broad range of infrastructure, technology and policy solutions should be explored to address the identified problems.

An AIS redevelopment should be supported by tailored programs for athletes, collaborative programs with universities and industry for innovation and research, as well as broader community programs to encourage sports participation.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Canberra public transport improvements

Location

Belconnen,
Queanbeyan to
central Canberra, ACT



Geography

Smaller cities and regional centres

Category

Efficient urban transport networks

Problem timeframe

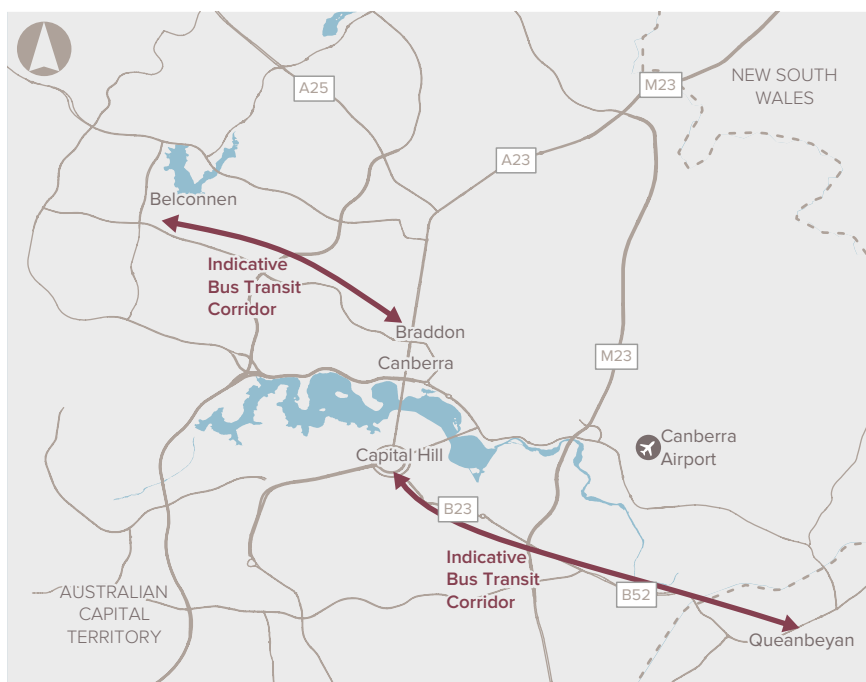
Medium term (5–10 years)

Proponent

ACT Government

Date added to the IPL

February 2016



Problem

Canberra's limited public transport network capacity, coupled with high rates of private vehicle reliance, is causing the transport network to suffer from increasing congestion. Congestion is likely to be exacerbated by projected significant population growth.

This congestion results in adverse economic impacts through increased travel times and higher vehicle operating costs.

Proposed initiative

The initiative proposes to develop bus transit corridors connecting Belconnen and Queanbeyan to central Canberra. These corridors will provide an integrated transport solution, reducing traffic congestion and providing transport network capacity for future economic development in the region.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

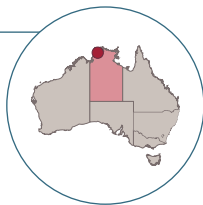
Priority Initiatives

Enabling infrastructure and essential services for remote NT communities

Wadeye, Tiwi Islands, Jabiru

Location

Remote locations in the Northern Territory: Jabiru region/Arnhem Highway, Wadeye region/Port Keats Road, Tiwi Islands



Geography

Small towns, rural communities and remote areas

Category

Remote infrastructure

Problem timeframe

Near term (0–5 years)

Proponent

Northern Territory Government

Date added to the IPL

February 2016



Problem

This initiative addresses infrastructure problems in three remote regions of the Northern Territory:

- Jabiru, and the Arnhem Highway, which connects Jabiru to Darwin.
- Wadeye (Port Keats) and other nearby remote communities, and the Port Keats Road, which connects Wadeye to Darwin.
- The Tiwi Islands.

These remote communities lack the infrastructure required for sustainable economic and social development. For example:

- key road corridors, such as the Arnhem Highway and the Daly River Road, can be severely impacted by floods during the wet season, severing land transport access for remote communities for extended periods of time
- essential services infrastructure, such as water storage and sewerage management, is not always adequate for the population it supports
- demand for community infrastructure, such as youth centres and public housing, can often outstrip the available supply.

These infrastructure deficiencies constrain the economic development of these remote regions and can impose significant social costs on the local populations.

The NT Government aims to transition Jabiru from a mining services town to a tourism and government services hub for the region, in line with the vision of the Mirarr Traditional Owners. Investment will be focused on facilitating private investment in new power generation infrastructure for Jabiru, upgrades to essential services network, improved transport access and other facilitating infrastructure to attract private investment in new commercial and tourism facilities.

Proposed initiative

This initiative proposes a portfolio of upgrades to road infrastructure, as well as a range of essential services and community infrastructure upgrades to support economic and social development, including:

- road upgrades to improve the accessibility and flood resilience of key road networks
- new or improved water storage facilities and wastewater management facilities in a number of remote population centres
- additional public housing and upgrades to social infrastructure, such as community centres and youth centres.

The Adelaide River Floodplain upgrade on the Arnhem Highway is under delivery.

Next steps

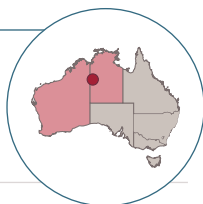
Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Tanami Road upgrade

Location

Between Great Northern Highway, WA and Stuart Highway, NT



Geography

Small towns, rural communities and remote areas

Category

Remote infrastructure

Problem timeframe

Near term (0–5 years)

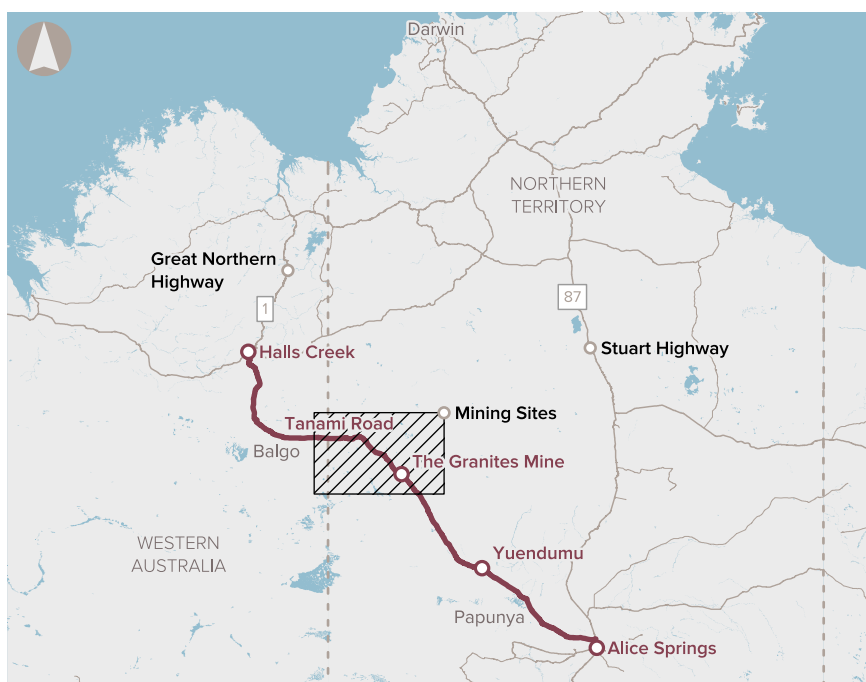
Proponent

Northern Territory Government

Date added to the IPL

February 2016

(Updated June 2020)



Problem

The key problems identified in the region include:

- limited economic opportunities for communities in the region, including Aboriginal and Torres Strait Islander communities
- reduced opportunities for employment in remote areas
- reduced access to essential services for the Aboriginal and Torres Strait Islander communities, particularly during road closures
- limitations to development in mining, tourism and pastoral operations
- high vehicle operating costs
- poor flood immunity resulting in lengthy road closures
- broader risks to health and safety for road users arising from poor road alignments, excessive corrugations and poor visibility.

A key cause of these problems is the poor quality of the road. Over two-thirds of Tanami Road is unsealed with substantial sections being unformed. This surface has led to the development of significant ruts and corrugations from heavy vehicles.

This initiative aligns with the findings from the 2019 *Australian Infrastructure Audit*, as well as with other government priorities, such as *Closing the Gap* policies. Further, the initiative was identified as an infrastructure gap in the 2015 *Northern Australia Audit*.

The existing condition of the road also presents significant health and environmental risks, and limits freight operations. The current flooding problems are also likely to worsen over time due to climate change impacts.

Proposed initiative

The initiative is to upgrade and improve flood immunity and resilience for the Tanami Road between the Stuart Highway north of Alice Springs, and the Great Northern Highway at Halls Creek. Potential upgrades to Tanami Road could include:

- sealing key sections
- a mixture of sealing and gravelling particular sections
- sealing the entire route
- treatments at creek or river crossings to mitigate flooding impacts.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Darwin region water supply infrastructure upgrades

Location
Darwin, NT

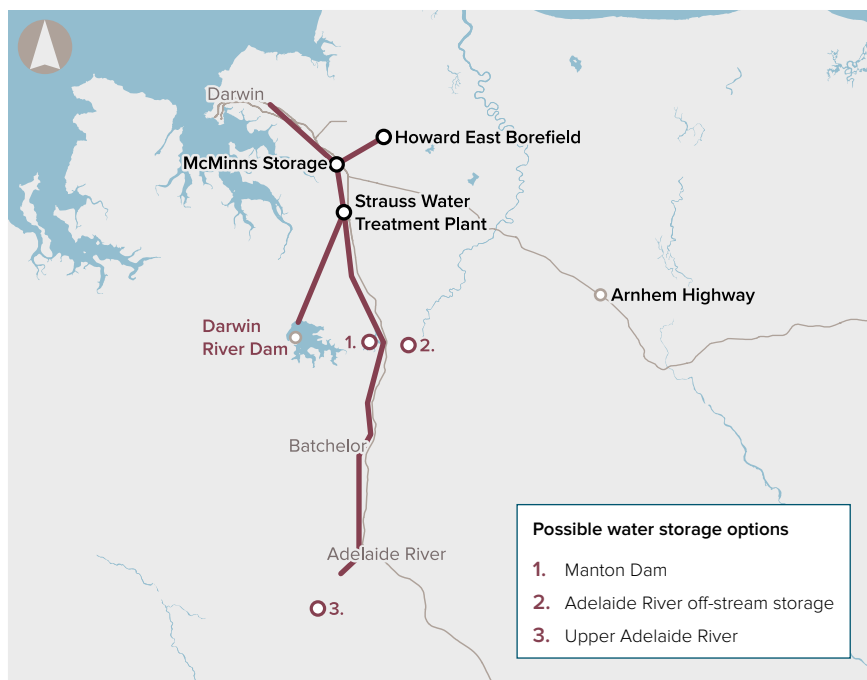
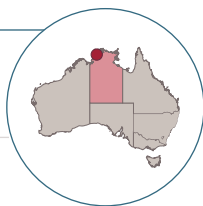
Geography
Smaller cities and regional centres

Category
Access to water

Problem timeframe
Medium term (5–10 years)

Proponent
Northern Territory Government

Date added to the IPL
February 2016
(Updated February 2021)



Problem

Population growth and industrial development is driving increases in demand for water in the Darwin region.

The 2015 *Northern Australia Audit* found that an additional water source for Darwin is essential to support further growth of the city. At the same time, climate change is forecast to impact on supply by increasing evaporation and transpiration, which will lead to reduced inflows to reservoirs and decreasing yields.

Failure to expand Darwin's water supply will increasingly constrain population and economic growth. It is also likely to impact on business and investor confidence.

Proposed initiative

The initiative is to supply water for growing population and industrial demands in Darwin.

The Darwin Region Water Supply Strategy details the Northern Territory Government's plan to balance demand for water with supply capacity over time. In the near to medium term (0–10 years), the Strategy identifies the return to service of Manton Dam as an operational source of drinking water for the Darwin region water supply. In the subsequent period (10–20 years), the Adelaide River off-stream storage scheme will be developed to meet future growth.

This initiative should be considered as part of the National Water Reform Plan recommended in the 2016 *Australian Infrastructure Plan*. It is indicative of the requirement to ensure secure water supply to support further urban, industrial and/or agricultural development in some parts of the country – including in response to increasing water demand associated with population and economic growth, and increasing variability in water supply.

In February 2021, the next steps for this initiative were updated following a Stage 2 submission from the NT Government.

Next steps

Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Common user infrastructure at the Middle Arm Precinct

Location
Darwin, NT

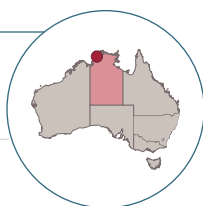
Geography
Developing regions and northern Australia

Category
Efficient markets

Opportunity timeframe
Near term (0–5 years)

Proponent
Northern Territory Government

Date added to the IPL
February 2021



Opportunity

There are several manufacturing businesses that could add value to the Northern Territory's mining products such as downstream gas processing and high-value minerals processing and refinement on Middle Arm.

There is insufficient marine infrastructure and serviced land available adjacent to the existing Darwin port to enable these opportunities.

Meeting this gap could increase the value of the mining and manufacturing sectors to the Northern Territory and Australia as a whole.

The 2019 *Infrastructure Australia Audit* identified that infrastructure could help to catalyse growth across northern Australia, and unlock development across a range of industries.

Proportionate and timely investment in supporting infrastructure could uplift the value of exports from Northern Australia to neighbouring and growing Asian regions.

Proposed initiative

Potential options to address the initiative include expanding marine facilities, and upgrading access roads, storm water and logistics. These changes could expand Darwin's manufactured mining export capabilities.

Public investment should consider the role of government in stimulating the delivery of infrastructure by the private sector, compared with direct infrastructure funding, ownership and provision.

Next steps

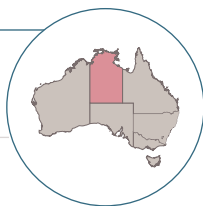
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Northern Territory large-scale solar generation

Location

Northern Territory



Geography

Developing regions and northern Australia

Category

Energy transformation

Opportunity timeframe

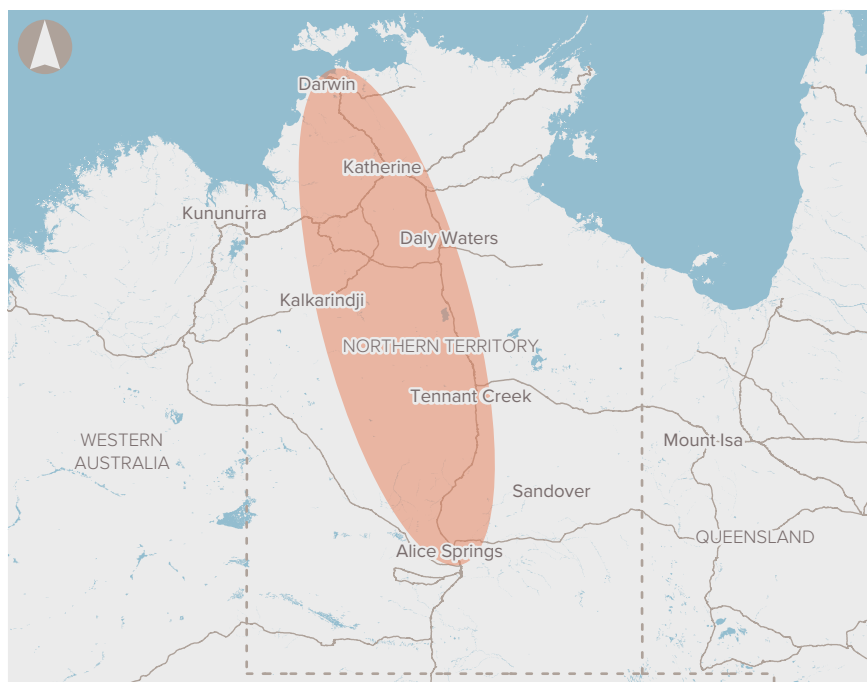
Medium term (5–10 years)

Proponent

Sun Cable

Date added to the IPL

February 2021



Opportunity

The Northern Territory has a comparative advantage in producing renewable energy, due to its vast land mass, low population density, solar resource and proximity to energy-intense markets in the Indo-Pacific region.

There is an opportunity to harness this advantage by developing large-scale, dispatchable renewable energy generation in the Northern Territory, with transmission infrastructure to supply domestic and export markets.

In light of the planned retirement of some Northern Territory gas-powered generators, large-scale solar energy generation and storage may provide an opportunity to enhance generation for the Darwin–Katherine Integrated System. This could reduce greenhouse gas emissions and reduce electricity prices, which are currently subsidised by the Northern Territory Government.

There is also an opportunity to export this renewable energy to South East Asian markets, such as Singapore.

The 2019 *Australian Infrastructure Audit* found that Australia could develop new industries based on affordable and abundant new sources of energy, including large-scale solar and wind.

Proposed initiative

Potential options to address the initiative include large-scale solar generation and storage, coupled with appropriate transmission infrastructure, to service domestic and potentially overseas markets.

This opportunity is contingent on further investigation and market testing.

Next steps

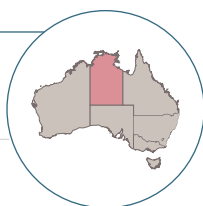
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

Northern Territory remote community power generation program

Location

Northern Territory



Geography

Developing regions and northern Australia

Category

Remote infrastructure

Problem timeframe

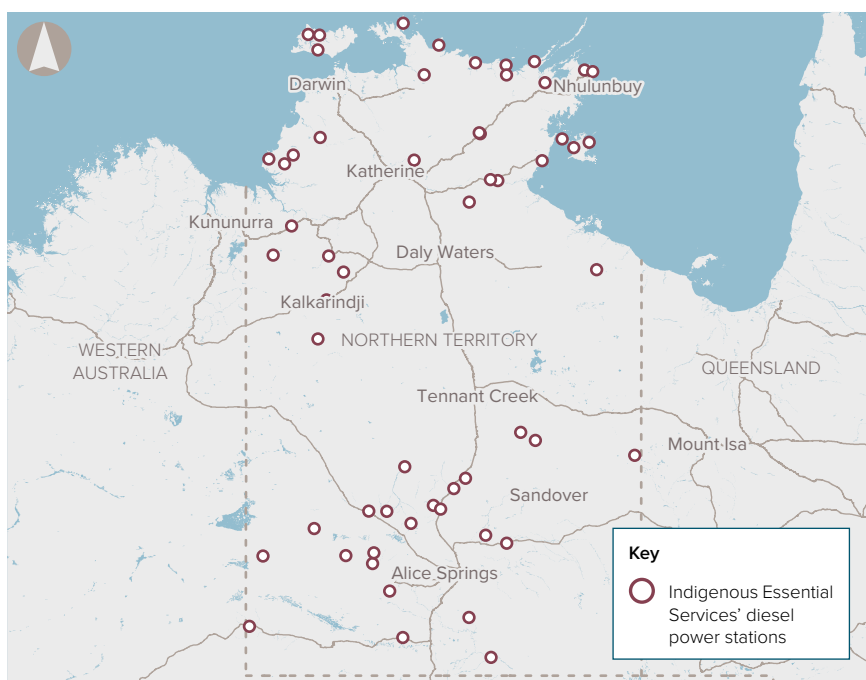
Medium term (5–10 years)

Proponent

Northern Territory Government

Date added to the IPL

February 2021



Problem

The Northern Territory Government, through Indigenous Essential Services, provides electricity to 72 remote towns across the Northern Territory.

The network includes 51 power stations, consisting of:

- 26 diesel generators
- 23 diesel generators supplemented with solar
- one diesel generator supplemented with solar and energy storage
- one gas power station.

Diesel engines are the main technology used to generate electricity for regional and remote Aboriginal communities, with around 25 million litres of diesel used each year.

The operating costs from purchasing and transporting diesel to remote areas is relatively high, and there are also negative impacts on local environment, health, amenity and climate change.

The 2019 *Australian Infrastructure Audit* identified the opportunity to leverage new local energy supply solutions that either replace or complement diesel generation in remote and regional areas.

The Northern Territory Remote Power System Strategy set a target for 70% renewable electricity generation for Indigenous Essential Services communities.

This is expected to improve resilience, flexibility, reliability, amenity and sustainability of power infrastructure in remote Aboriginal communities of the Northern Territory.

Proposed initiative

Potential options to address the initiative include a program of works to provide renewable energy or hybrid generation and new storage solutions for these remote towns, in partnership with the local communities.

Next steps

Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Appendices

Appendix A

Projects under construction or complete

The following projects were previously listed on the *Infrastructure Priority List*. They graduated from the Priority List as construction on the project began or because all major construction contracts were awarded.

State	Project	Removed from list
New South Wales	M4 Motorway upgrade – Parramatta to Lapstone	2021
	Nowra Bridge	2021
	The Northern Road Upgrade	2020
	WestConnex	2019
	Bringelly Road Upgrade Stage 2	2017
	Moorebank Intermodal Terminal	2017
	NorthConnex	2016
	Bringelly Road Upgrade Stage 1	2016
Victoria	Ballarat Line Upgrade	2020
	Monash Freeway Upgrade Stage 2	2020
	Melbourne Metro	2017
	Murray Basin Rail Project	2017
	CityLink Tullamarine Widening Project	2016

State	Project	Removed from list
Queensland	M1 Pacific Motorway – Eight Mile Plains to Daisy Hill	2021
	M1 Pacific Motorway – Varsity Lakes to Tugun	2021
	Bruce Highway – Deception Bay Road Interchange	2021
	Bruce Highway – Caboolture Bribie Island Road to Steve Irwin Way	2021
	Bruce Highway – Maroochydore Road Interchange	2021
	Bruce Highway – Cooroy to Curra Section D: Woondum to Curra	2021
	Bruce Highway – Cairns Southern Access Corridor Stage 3: Edmonton to Gordonvale	2021
	M1 Pacific Motorway – Mudgeeraba to Varsity Lakes	2018
	Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway	2017
	Bruce Highway Upgrade – Cooroy to Curra Section C	2017
	Bruce Highway Upgrade – Mackay Ring Road Stage 1	2017
	Ipswich Motorway Rocklea–Darra Stage 1c	2017
	M1 Pacific Motorway – Gateway Motorway merge upgrade	2017
	Gateway Motorway Upgrade North	2016
Western Australia	METRONET – Morley–Ellenbrook Line	2021
	METRONET – Yanchep Rail Extension	2020
	METRONET – Thornlie–Cockburn Link	2020
	Armadale Road Upgrade	2017
	Forrestfield Airport Link	2017
	Mitchell Freeway extension – Burns Beach Road to Hester Avenue	2016
South Australia	Adelaide’s North–South Corridor – Regency Road to Pym Street	2020
	Gawler Rail Line Electrification and Modernisation Project	2020
	Adelaide–Tarcoola Rail Upgrade Acceleration	2017
	North–South Corridor – Darlington Upgrade Project	2017

Appendix B

Submissions relating to program initiatives

Submissions received in relation to *Town and city water security*

Proponent	Submission name	Year of first submission
New South Wales		
Bega Valley Shire Council	Merimbula Sewage Treatment Plant upgrade, re-use and ocean outfall	2021
Tweed Shire Council	Raising Clarrie Hall Dam	2020
NSW Government	Water supply and drought security	2020
NSW Government	Albert Priest pipeline	2018
NSW Government	Water security for Cobar	2016
Queensland		
Cairns Regional Council	Cairns region water security	2020
Southern Downs Regional Council	Diversion of Clarence River to Condamine River	2020
Southern Downs Regional Council	Potable Water Pipeline from Toowoomba to Warwick	2020
Southern Downs Regional Council	Stanthorpe wastewater treatment plant	2020
Qld Government	Nullinga Dam	2018
South Australia		
SA Government	Water security for Indigenous communities	2016

Submissions received in relation to *Bulk water supply security*

Proponent	Submission name	Year of first submission
New South Wales		
NSW Government	Dungowan Dam	2021
NSW Government	Mole River Dam	2021
NSW Government	Wyangala Dam	2021
NSW Government	Gwydir regional water security	2018
NSW Government	Lachlan regional water security	2018
NSW Government	Macquarie regional water security	2018
Queensland		
Cloncurry Shire Council	Cloncurry water storage for agriculture, aquaculture and mining	2021
Western Australia		
RDA Pilbara	Fitzroy River agriculture development	2020
WA Government	Southern Forest Irrigation Scheme	2018

Submissions received in relation to *Network Optimisation Program – Rail*

Proponent	Submission name	Year of first submission
Victoria		
RDA Barwon South West Region	Maroona to Portland rail line upgrade	2020
Queensland		
RDA Central and Western Queensland	Toowoomba to Gladstone Rail	2021
Qld Government	North Coast Rail Line Action Plan	2017
South Australia		
SA Government	Integrated Public Transport Programme	2017

Submissions received in relation to *Network Optimisation Program – Roads*

Proponent	Submission name	Year of first submission
New South Wales		
NSW Government	Easing Sydney's congestion Tranche 2	2017
Freight on Rail Group	Sydney–Cootamundra double stacking	2017
NSW Government	Pinch Point Program	2015
NSW Government	Smart Motorways – Southern Cross Drive and General Holmes Drive	2015
Queensland		
Royal Automotive Club Queensland	Level crossing removal program	2018
Qld Government	Smart Mobility for South East Queensland	2015
Western Australia		
Royal Automotive Club WA (RACWA)	Low-cost metropolitan intersection program	2021
RACWA	Grade separations of major highways and level crossing removals	2020
RACWA	Smart transport technologies	2017
South Australia		
Master Builders	Level crossing removals	2020
SA Government	Integrated Public Transport Programme	2017
SA Government	Network optimisation of the Adelaide arterial road network	2017
SA Government	Network optimisation program, including use of Intelligent Transport Systems (ITS), better use of existing infrastructure	2015
SA Government	Targeted upgrades to key intersections and roads, including inner and outer ring routes and Main North Road	2015

Note: Previous editions of the *Infrastructure Priority List* included a table for submissions received in relation to the *National Freight and Supply Chain Strategy*. This has been removed, as the initiative is now under delivery.



Busy crossing in Brisbane city

Glossary

Term	Definition
Agglomeration	The benefits of clustering or high concentration of businesses and economic activity in a relatively small geographic area.
Appraisal	The process of determining impacts and overall merit of a proposal, including the presentation of relevant information for consideration by the decision-maker.
Appraisal period	The number of years over which the benefits and costs of an infrastructure proposal are assessed in a cost–benefit analysis. A default value of 30 operational years plus construction time is generally used for infrastructure proposals.
Assessment Framework	<p>A publicly available document that details how Infrastructure Australia evaluates initiatives and business cases for inclusion in the <i>Infrastructure Priority List</i>. It provides structure to the identification, analysis, appraisal, and selection of initiatives and projects and advises proponents how to progress through the following five stages:</p> <ul style="list-style-type: none"> • Stage 1: Problem Identification and Prioritisation • Stage 2: Initiative Identification and Options Development • Stage 3: Business Case Development • Stage 4: Business Case Assessment • Stage 5: Post Completion Review.
Australian Infrastructure Audit	Published in August 2019, the Audit is developed by Infrastructure Australia to provide a strategic assessment of Australia's infrastructure needs over the next 15 years. It examines the drivers of future infrastructure demand, particularly population and economic growth. Data from the Audit is an evidence base for the <i>Infrastructure Priority List</i> .
Australian Infrastructure Plan	The next Plan will be published in mid-2021 and provides a positive reform and investment roadmap for Australia. Building off the evidence base of the Audit (see Australian Infrastructure Audit), the Plan sets out solutions to the infrastructure challenges and opportunities Australia faces over the next 15 years, to drive productivity growth, maintain and enhance our standard of living, and ensure our cities remain world class. The <i>Infrastructure Priority List</i> performs part of this function, highlighting the investment solutions that support the Plan. The 2021 Plan will supersede the February 2016 Plan.
Base case	The state of the world without the proposed initiative or project. A cost–benefit analysis compares the base case with the project case, which is the state of the world <i>with</i> the proposed initiative or project, to determine the net impacts. (See cost–benefit analysis).
Base year	The year to which all values are discounted when determining a present value. (See discounting and discount rate).
Benefit–cost ratio (BCR)	For a proposed initiative or project, this is the ratio of the present value of economic benefits to the present value of economic costs. It is an indicator of the economic merit of a proposal presented at the completion of a cost–benefit analysis. It is commonly used to aid comparison of proposals competing for limited funds. (See cost–benefit analysis).
Business case	A document that brings together the results of all the assessments of a infrastructure proposal. It is the formal means of presenting information about a proposal to aid decision-making. It includes all information needed to support a decision to proceed with the proposal and to secure necessary approvals from the relevant government agency.

Term	Definition
Capital cost	The initial fixed costs required to create or upgrade an economic asset and bring it into operation. This includes expenses such as the procurement of land, buildings, construction, labour and equipment.
Central Business District (CBD)	The commercial and business centre of a city.
Cost–benefit analysis (CBA)	An economic analysis technique for assessing the economic merit of an infrastructure proposal by assessing the benefits, costs, and net benefits to society it would deliver. It aims to attach a monetary value to the benefits and costs wherever possible and provide a summary indication of the net benefit. (See benefit–cost ratio).
Demand management	Deliberately managing the rate of use of an infrastructure network to improve its efficiency. This can be done through a variety of methods, such as structuring pricing for electricity consumption around peak periods or promoting water reuse.
Discount rate	The interest rate at which future dollar values are adjusted to represent their present value (that is, in today's dollars). This adjustment is made to account for the fact that money today is more valuable than money in the future. Cost–benefit analysis should use real social discount rates.
Discounting	The process of converting money values that occur in different years to a common year. This is done to convert the dollars in each year to present value dollars. (See discount rate).
Dispatchable power	On-demand supply from other energy generation sources to support intermittent power output from renewable power generation (such as wind and solar power). ¹
Evaluation summary	Infrastructure Australia's published assessment of a proponent's business case. It summarises our review of the business case in accordance with the Assessment Framework and identifies whether or not it has been included as a project on the <i>Infrastructure Priority List</i> . (See Assessment Framework).
Firming capacity	See dispatchable power .
Financial analysis	The evaluation of the benefits and costs, measured in financial cash-flow terms, to a single entity (that is, not the community or the economy).
Gross domestic product (GDP)	A monetary measure of the market value of all the final goods and services produced in a period of time, often annually or quarterly.
High Productivity Vehicles (HPVs)	<p>A generic term used for all Performance-Based Standards (PBS) vehicles, as defined by the National Heavy Vehicle Regulator:</p> <p>'vehicles ... designed to perform their tasks as productively, safely and sustainably as possible, and to operate on networks that are appropriate for their level of performance'.²</p> <p>Various regulations apply to HPVs, depending on their PBS level (which reflects their configuration, length, and mass limits), including which roads they can access and driver licence requirements.</p>
Impact	A generic term to describe any specific effect of an initiative or project. Impacts can be positive (a benefit) or negative (a cost).
Impact timeframe	For initiatives , this indicates when the problem or opportunity is likely to have a material impact on our cities and regions.
Indicative Delivery Timeframe	For projects , this provides the proponent's indication of when the project is likely to be delivered and operational.
Infrastructure operating costs	The costs of providing the infrastructure after the project has commenced operation (for example, maintenance and administration costs of a facility).
Initiative	Potential infrastructure problems or 'early-stage' solutions for which a business case has not yet been completed. Initiatives are identified through a collaborative process between proponents and Infrastructure Australia, using the <i>Australian Infrastructure Audit</i> and other data as evidence of infrastructure needs.

Term	Definition
Intelligent Transport Systems (ITS)	ITS-Australia defines Intelligent Transport Systems as: ‘The application of modern computer and communication technologies to transport systems, to increase efficiency, reduce pollution and other environmental effects of transport and to increase the safety of the travelling public.’
Land use impacts	A change in the types of activities that occur in a section of land, or the intensity of those activities. Changes in activity may be caused by a change in use of the existing built form or a change in the built form itself. For example, an increase in the amount of high-density housing in the area around train station.
Maintenance	Incremental work to repair or restore infrastructure to an earlier condition or to slow the rate of deterioration. This is distinct from construction and upgrading, which seeks to extend infrastructure beyond its original condition.
Managed motorway	See smart freeway/smart motorway .
Mode share	Passengers using a particular type of transport as a percentage of all passengers in the network or region. For example, the rail mode share would be the percentage of passengers who use rail services to travel.
Nationally significant problem or opportunity	<p>The <i>Infrastructure Australia Act 2008</i> defines nationally significant infrastructure as including transport, energy, communications, and water infrastructure ‘in which investment or further investment will materially improve national productivity’.</p> <p>An infrastructure investment is nationally significant if, based on the evidence presented, the Infrastructure Australia Board is of the opinion that the investment is expected to have a material impact on national output by:</p> <ol style="list-style-type: none"> 1. addressing a problem that would otherwise impose economic, social, and/or environmental costs; or 2. providing an opportunity for realising economic, social, or environmental benefits; or 3. both addressing a problem and providing an opportunity. <p>As a guide, for the purposes of assessing submissions to the <i>Infrastructure Priority List</i>, Infrastructure Australia has applied a threshold value of \$30 million per annum (nominal, undiscounted) in measuring material net benefit, taking potential unquantified quality-of-life considerations into account. Infrastructure Australia expects potential impacts cited in submissions to be quantified and supported by evidence, but recognises that some types of social and environmental impacts may not be readily quantifiable. (See nominal prices and discounting).</p>
Net present value (NPV)	The monetary value of benefits minus the monetary value of costs over the appraisal period, with discount rates applied (See discount rates and appraisal period).
Network	<p>Infrastructure networks are the physical assets that enable the provision of services such as transport connectivity, power, water and internet.</p> <p>In the context of the transport sector, a network refers to a collection of routes that provide interconnected pathways between multiple locations for similar traffic. This can be uni-modal (supporting one type of transport, for example, a rail network) or multi-modal (supporting multiple types of transport, for example, a road network).</p>
Network optimisation (transport)	Making better use of existing infrastructure assets and improving performance through low or non-capital cost actions. For example, using technology to improve corridor management, reallocating road space between modes of transport, or encouraging users to shift from congested modes and routes to those with more capacity.
Nominal prices	A value or price at a given time. Nominal prices rise with inflation. In contrast, real prices are prices after the effect of inflation has been removed. (See real prices).
Non-infrastructure options/solutions	Initiatives that avoid the need for significant expenditure on new or upgraded infrastructure. For example, changes to pricing or reforms to regulations.

Term	Definition
Opportunity cost	The value lost to society from using a resource in its next best alternative use, represented in dollars. Synonymous with 'resource cost' and 'social cost'. This cost reflects market prices where there is an absence of market failure. Where market failure exists, appropriate adjustments are required to estimate the true opportunity cost.
Option	Possible solution to a problem, including base case options such as 'do nothing' or 'do minimum'. (See base case).
Options assessment	The assessment of alternative options for solving an identified problem. (See option).
Post-completion review	A review of a completed set of actions to determine whether the desired objectives and/or forecast benefits and costs have been realised, and to explain the reasons for any differences between the expected and actual outcomes. The aim is to draw appropriate lessons for future project identification and assessment. A post-completion review is sometimes referred to as an 'ex-post evaluation'.
Priority or High Priority	Initiatives and projects are listed on the <i>Infrastructure Priority List</i> as either Priority or High Priority to indicate the comparative significance of the problems or opportunities they address. We use these categories in order to direct decision maker's attention to the most critical issues, while also offering a comprehensive view of all nationally significant problems and opportunities. Infrastructure Australia considers a range of factors in classifying a project or initiative as High Priority, including the scale of national productivity benefits the proposal will deliver – considering its economic, social and environmental value – and its strategic significance within networks.
Productivity	The efficiency with which industry and the economy as a whole convert inputs (labour, capital, and raw materials) into output. National productivity is commonly measured as Gross Domestic Product (GDP) per capita. (See Gross Domestic Product).
Project	In the context of this document, this is a solution to a defined problem or opportunity for which a full business case has been completed by the proponent and positively assessed by Infrastructure Australia.
Program	A suite of related initiatives to be delivered in a coordinated manner to obtain benefits not achievable from delivering them individually.
Proponent	A jurisdiction or private sector organisation that makes an initiative or project business case submission to Infrastructure Australia. To be a proponent of a business case, the organisation must be capable of delivering that proposal.
P50 cost	An estimate of project costs based on a 50% probability that the cost estimate will not be exceeded. Commonly known as the 'expected cost' of a project.
P90 cost	An estimate of project costs based on a 90% probability that the cost estimate will not be exceeded.
Real prices	Prices that have been adjusted to remove the effects of inflation. They must be stated for a specific base year, for example '2016 prices'. (See base year).
Smart freeway/ Smart motorway	Smart motorways comprise an integrated package of Intelligent Transport Systems (ITS) interventions. This includes coordinated ramp signalling, speed and lane use management, traveller information (using variable message signs) and network intelligence (such as from vehicle detection equipment). ³ (See Intelligent Transport Systems).
Social cost	See opportunity cost .
Social outcomes	An impact from a project or initiative that will change the quality of life of Australians. For example, health and wellbeing benefits that result from improved access to healthcare services and improved air quality.

Term	Definition
Strategic merit	Evidence that the proposed initiative addresses a problem and/or opportunity of national significance and would deliver outcomes consistent with other government priorities and commitments.
Travel time savings	The benefit of less time spent travelling as a result of a project. The number of hours saved is typically modelled for both personal and business travel across a network, then converted to a monetary value for use in cost–benefit analysis (see cost–benefit analysis).
Twenty-Foot Equivalent Units (TEUs)	An inexact unit of cargo capacity often used to describe the capacity of container ships and container terminals. It is based on the volume of a 20-foot long (6.1 m) intermodal container, a standard-sized metal box that can be easily transferred between different modes of transportation, such as ships, trains and trucks.
Urban renewal	The Victorian Planning Authority defines urban renewal as: ‘...unlocking under-utilised areas for jobs, investment, and housing. It can often involve rezoning land, improving an area’s amenity and identifying transport and infrastructure needs.’
Vehicle operating costs	The costs associated with owning, driving and maintaining a vehicle. This includes the costs of fuel consumption, oil and lubrication, tire wear, repair and maintenance, depreciation, and license and insurance.
Wider economic benefits (WEBs)	Improvements in economic welfare from agglomeration, imperfect competition and labour supply effects that are acknowledged, but have not been typically captured in traditional cost–benefit analysis. (See cost–benefit analysis).

1 Warren, M 2018, *Firming renewables: The market delivers*, Australian Energy Council, available via: <https://www.energycouncil.com.au/analysis/firming-renewables-the-market-delivers/>

2 National Heavy Vehicle Regulator 2018, NHVR, Fortitude Valley, www.nhvr.gov.au/road-access/performance-based-standards

3 Ausroads 2016, *Guide to Smart Motorways*, Ausroads, available via: <https://ausroads.com.au/publications/traffic-management/agsm>

Infrastructure Australia is an independent statutory body that is the key source of research and advice for governments, industry and the community on nationally significant infrastructure needs.

It leads reform on key issues including means of financing, delivering and operating infrastructure and how to better plan and utilise infrastructure networks.

Infrastructure Australia has responsibility to strategically audit Australia's nationally significant infrastructure, and develop 15-year rolling infrastructure plans that specify national and state level priorities.

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The bottom of the page features a decorative design with large, overlapping geometric shapes. On the left is a large red trapezoid. To its right is a dark blue triangle pointing upwards. Further right is a teal trapezoid. These shapes overlap to create a modern, abstract background for the footer area.