Australian Government

Infrastructure Australia

Infrastructure Priority List

Australian Infrastructure Plan

Project and Initiative Summaries

February 2019

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.

Infrastructure Australia has a mandate to prioritise and progress nationally significant infrastructure investments. 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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Chair's Foreword

Australia's infrastructure needs are growing and community expectations of connectivity and quality of life are increasing. This makes it more important than ever that we extract the greatest value from our infrastructure investments and prioritise the projects that have proven benefits for our cities and regions.

Population growth is putting additional pressure on our infrastructure networks, new technology is having transformational impacts on our transport and energy markets, and the structure of our economy is evolving as focus shifts to knowledge-intensive and service sectors.

Preparing for these changes requires more than just keeping pace with demand.

To deliver high-quality, world-class infrastructure for all Australians, we need to be smarter in our infrastructure decision-making, engage in forward thinking and planning, and prioritise strategic investments that seize the opportunities of change and act as catalysts for growth and prosperity.

Infrastructure Australia is working on several fronts to assist all levels of government to make better investment decisions. This includes our policy work on a range of matters such as planning liveable cities, infrastructure decision-making principles and corridor protection. It also includes our in-depth studies such as the five-year *Australian Infrastructure Audit* and the *Australian Infrastructure Plan*. However, fundamental to Infrastructure Australia's mandate is our work on assessing projects for national significance and value, using sound economic principles.

Through the *Infrastructure Priority List*, Infrastructure Australia provides all levels of government with a prioritised list of infrastructure challenges and opportunities for the short, medium and longer term.

We have been impressed with the number of high-quality proposals submitted to Infrastructure Australia for assessment over the past year, reflecting the Priority List's continuing value as a pipeline of nationally significant projects and source of informed analysis of investment options for government.

Developed using data from the 2015 *Australian Infrastructure Audit*, and submissions from state and territory governments, industry and the community – including more than 100 submissions for this year's edition – the 2019 Priority List reflects the diversity of Australia's infrastructure needs over the next 15 years.

Identifying infrastructure problems and opportunities across multiple sectors, including housing, social infrastructure, water, energy, roads, airports and ports, this year's list features 121 infrastructure proposals of national significance – the highest number since the Priority List's inception.

Twenty-five new initiatives have been added this year, with the 2019 Priority List identifying 8 High Priority Projects, 10 Priority Projects, 29 High Priority Initiatives and 74 Priority Initiatives.

Seven business cases have been positively assessed by the Infrastructure Australia Board in the past 12 months. These include three new High Priority Projects:

- Monash Freeway Upgrade Stage 2 (Vic)
- North East Link (Vic)
- METRONET: Yanchep Rail Extension (WA).

Four new Priority Projects were also positively assessed:

- Ballarat Line Upgrade (Vic)
- METRONET: Thornlie-Cockburn Link (WA)
- North–South Corridor: Regency Road to Pym Street (SA)
- Gawler Rail Line Electrification and Modernisation Project (SA).

Consistent with previous years, many of the projects and potential infrastructure solutions identified in the 2019 Priority List address the need for frequent and accessible public transport to reduce congestion and maintain the liveability of Australian cities.

Congestion not only has significant consequences for our national economy, it also has direct impacts on communities, reducing people's access to education, health services, employment and other opportunities.

We are also pleased to see so many new additions to the Priority List this year that focus on getting the most out of existing assets, including through the use of smart technology such as Intelligent Transport Systems.

This includes the Monash Freeway Upgrade Stage 2 (Vic), North East Link (Vic), Adelaide's North–South Corridor: Regency Road to Pym Street (SA) and Sydney CBD motorways optimisation (NSW).

Many of this year's new additions reflect the need for forward-thinking, ambitious solutions to support our future prosperity – for example, the delivery of a national electric vehicle fast-charging network identified as a High Priority Initiative.

The advent of electric vehicles, along with automation, growth in the 'sharing economy' and technological connectivity, could bring the largest transformation the transport sector has seen since the shift from steam to diesel locomotives.

It will also forge links between the energy and transport network that did not previously exist, place additional demands on the grid and pressure on consumer costs. This is one of the reasons this year's list also highlights the need for investment in the connectivity and reliability of our National Electricity Market in the medium to long term, and optimisation in the near term.

Strategic planning must centre on outcomes for communities, rather than outcomes for sectors, if we are to meet the transformational changes and rapid growth in our future.

It is timely then that improving safety on our roads is a critical focus of many of the projects and initiatives on this 2019 Priority List, including a national initiative for regional road network safety improvements, which seeks to address high-risk roads and keep drivers safer.

Another challenge faced across the country, and requiring coordinated action by all levels of government, is the provision of quality housing for Australians living in remote areas.

Recognising that overcrowding and poor-quality housing in remote communities impacts on health and safety, education and employment outcomes, this is a challenge that must be addressed in the near term.

Our nation is growing and changing rapidly, and we need to act strategically and with intent to seize the opportunity of this growth and deliver enduring, and inclusive benefits for all Australians.

Communities rightly expect decisions on public infrastructure projects to be robust, transparent and accountable, and that projects are only committed to once prior planning and assessment has been done.

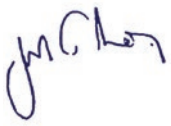
In the past 12 months, we have hosted Business Case Improvement workshops across the country, which have been attended by over 250 project proponents, government officials and their advisors.

We have been pleased to see an improvement in the quality of business cases coming to us, and are proud to have contributed to this through our assessment process and our collaboration with governments and industry on specific business cases. Notwithstanding this, improving the quality of business cases is a process of continuous development.

I would like to sincerely thank the many contributors who have helped us to develop the 2019 *Infrastructure Priority List* and supported our continued efforts to improve the quality of business cases for major infrastructure proposals.

We rely on the collaboration and input of people across the country, across all levels of government, across industry sectors, and within the community, to develop this list and build consensus on the infrastructure solutions our nation needs.

We will continue in this spirit of collaboration to progress and prioritise these nationally significant infrastructure solutions to deliver better infrastructure services for all Australians.



Julieanne Alroe
Chair
Infrastructure Australia

Introduction

The *Infrastructure Priority List* is the authoritative list of nationally significant infrastructure investments Australia needs over the next 15 years. The Priority List provides independent, evidence-based advice to governments and industry on the projects that will most benefit Australia's communities.

Developed and maintained by Infrastructure Australia, the nation's independent infrastructure advisor, the *Infrastructure Priority List* is a consensus list of proposals that will deliver better infrastructure services for our communities and support Australia's continued prosperity.

Defining Australia's most pressing infrastructure needs, the Priority list provides government, the community, industry and investors with a clear understanding of the nation's future spending priorities.

The Priority List supports economic and productivity growth, and quality of life for all Australians, by providing a credible pipeline of future investments. It is also critical in identifying a portfolio of forward works for industry to ensure that Australia retains the specialist skills to deliver the infrastructure we need.

The Priority List has become a key reference point for governments at all levels to guide infrastructure decision-making, as they seek to invest in the projects that will deliver world-class energy, telecommunications, water, social and transport services for all Australians.

Developing the 2019 *Infrastructure Priority List*

The 2019 *Infrastructure Priority List* was developed using data from the 2015 *Australian Infrastructure Audit*, and submissions from state and territory governments, industry and the community, including more than 100 submissions this year alone.

Identifying infrastructure problems and opportunities across multiple sectors, the 2019 Priority List features 121 infrastructure proposals of national significance – including 8 High Priority Projects, 10 Priority Projects, 29 High Priority Initiatives and 74 Priority Initiatives.

Proposals were assessed using Infrastructure Australia's detailed Assessment Framework. The Framework acts as a guide for understanding the problem or opportunity that a given project is trying to solve, whether it has strategic value, and whether it represents good value for taxpayers.

Through this process, Infrastructure Australia promotes long-term, integrated land use planning and ensures that major public infrastructure investments deliver the best outcomes for the community at the best value.

New projects are added to the *Infrastructure Priority List* as the Infrastructure Australia Board receives and assesses project business cases – meaning the list evolves over time to meet emerging challenges and opportunities.

A live document, the Priority List is regularly reviewed and updated as evidence-based proposals for nationally significant projects move through stages of development and delivery.

The Priority List is also available as an interactive map on the Infrastructure Australia website, which sets out a detailed view of infrastructure issues and opportunities identified around the country.

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

Defining national significance

The *Infrastructure Australia Act 2008* 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 or environmental benefits; or
3. both addressing a problem and providing an opportunity.

As a guide, for the purposes of assessing submissions to the *Infrastructure Priority List*, 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.

Supporting high-quality proposal development

Infrastructure Australia's Assessment Framework promotes the preparation of robust business cases for major infrastructure projects. Routinely updated to ensure it remains current and user-friendly, the Assessment Framework aims to stimulate and support high-quality proposal development.

The Assessment Framework requires project proponents to show that 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 where a full range of innovative, deliverable solutions are developed and the shortlisted options are selected through a structured assessment process
3. developed a robust business case with adequate calculation of all appropriate costs and benefits for each option.

How to use the *Infrastructure Priority List*

Proposals included on the *Infrastructure Priority List* fit into two broad groups:

- **Projects** are advanced proposals that have undergone a full business case assessment by Infrastructure Australia and have been positively evaluated to address a nationally significant problem and deliver robust economic, social or environmental outcomes. Projects remain on the Priority List until construction or delivery is underway.
- **Initiatives** are proposals that have been identified to potentially address a nationally significant problem or opportunity, but require further development and rigorous assessment to determine if they are the most appropriate solution.

Projects or initiatives that address major problems or opportunities of national significance are highlighted as High Priority. This focuses decision makers' attention on the most significant problems, where delivery of an effective solution is critical.

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.

Within the High Priority and Priority categories, projects and initiatives are not ranked, but rather ordered by their location, then by category of problem they address and by timeframe.

Each project and initiative on the Priority List includes a broad indication of timeframe. For projects, the timeframe provides the proponent's indication of when the project is likely to be delivered and operational. For initiatives, the timescale indicates when the problem or opportunity is likely to have a material impact on our cities and regions.

These timeframes are defined as:

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

By including initiatives alongside more advanced projects (which have a fully developed business case), we encourage decision makers to think strategically about opportunities to preserve infrastructure corridors and how potential solutions fit within broader networks and systems.

This edition of the *Infrastructure Priority List* 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, where they have been published. In addition, the initiative summaries now include the date the initiative was first added to the list, enabling readers to understand how initiatives have evolved over time.

The funding commitments quoted are based on information provided to Infrastructure Australia. 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, and Infrastructure Australia does not take account of funding commitments when evaluating business cases.

Initiative summaries present the identified problem or opportunity, the potential responses (including details of activity completed or underway by the proponent), and the next steps for the initiative, including which stage the initiative is at according to the process in the Infrastructure Australia Assessment Framework.

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.

This year's Priority List also includes a Glossary to help readers navigate the terms used throughout this publication and to make the summaries more accessible.

Driving better infrastructure decision-making

Australians rightly expect decisions on public infrastructure projects to be robust, transparent and accountable, and that projects are only committed to once prior planning and assessment has been done.

This requires early and meaningful engagement with the community to ensure project benefits align with community expectations. Additionally, planning and assessment of any project should be informed by the lessons we can draw from past projects, making the standard application of post-completion reviews a crucial part of infrastructure decision-making.

Infrastructure Australia's *Infrastructure Decision-making Principles* are 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 Infrastructure Australia's 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 identify risks to the viability and delivery of these potential responses.

As part of these development studies, proponents should consider a full range of options, including those that make better use of existing infrastructure in particular, or pursue reform of regulatory and pricing settings.

Another key recommendation is that project proponents assess the viability of alternative funding sources for each potential project. As a standard, proponents should look to minimise the call on public funds through consideration of a range of funding options, and 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 initial expectations, and providing important lessons for governments, industry and the community regarding what worked and what did not.

Post-completion reviews should measure whether the strategic and economic case for a project established in its business case 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.

The Principles, along with Infrastructure Australia's continuing work with proponents to improve the quality of business cases, and our ongoing assessment of nationally significant investments for inclusion on the *Infrastructure Priority List*, provide an authoritative framework for decision-making to deliver the infrastructure Australia needs.

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

The Infrastructure Priority List

High Priority Projects ●

Proposed project	Problem/opportunity description	Proponent's proposed delivery timescale	Category	Page
New South Wales				
M4 Motorway upgrade Parramatta to Lapstone	Connectivity in outer western Sydney	Near term	Urban Congestion	22
Sydney Metro: City and Southwest	Sydney rail network capacity	Medium term	Urban Congestion	23
Western Sydney Airport	Sydney aviation capacity	Medium term	National Connectivity	24
Victoria				
M80 Ring Road upgrade	Melbourne M80 Western Ring Road congestion	Near term	Urban Congestion	25
Monash Freeway Upgrade Stage 2	Melbourne south-east and outer south-east congestion	Near term	Urban Congestion	26
North East Link	Connectivity between M80 and M3 in outer north-east Melbourne	Medium term	Urban Congestion	27
Queensland				
Brisbane Metro	Brisbane inner-city public transport network capacity	Near term	Urban Congestion	28
Western Australia				
METRONET: Yanchep Rail Extension	Perth northern corridor rail network capacity	Near term	Urban Congestion	29

Priority Projects

Proposed project	Problem/opportunity description	Proponent's proposed delivery timescale	Category	Page
National				
Inland Rail Melbourne to Brisbane via inland NSW	Freight connectivity between Melbourne and Brisbane	Medium term	National Connectivity	32
New South Wales				
The Northern Road Upgrade	Access to south-west Sydney growth area and construction access to Western Sydney Airport	Near term	National Connectivity	33
Victoria				
Ballarat Line Upgrade	Improving capacity and reliability of public transport between Melbourne's outer west and the CBD	Near term	Urban Congestion	34
Queensland				
Beerburrum to Nambour Rail Upgrade	Queensland north coast rail congestion	Near term	National Connectivity	35
Western Australia				
Myalup-Wellington Water Project	Opportunity to develop industry and agriculture in south-west Western Australia	Near term	Opportunity for Growth	36
METRONET: Thornlie-Cockburn Link	Perth rail network capacity	Near term	Urban Congestion	37
South Australia				
Adelaide's North–South Corridor: Regency Road to Pym Street	Adelaide north–south urban road network capacity	Near term	Urban Congestion	38
Gawler Rail Line Electrification and Modernisation Project	Adelaide outer north-east suburbs access to CBD	Near term	Urban Congestion	39
Eyre Infrastructure Project Iron Road	Eyre Peninsula freight capacity	Near term	Opportunity for Growth	40
Tasmania				
Hobart Science and Technology Precinct	Opportunity to stimulate economic growth and productivity in Tasmania	Near term	Opportunity for Growth	41

High Priority Initiatives

Proposed project	Problem/opportunity description	Timescale	Category	Next steps	Page
National					
Regional road network safety improvements	Safety on regional roads	Near term	Road Safety	Proponent(s) to be identified	44
Network Optimisation Program – Rail	National urban rail network congestion	Near term	Urban Congestion	Proponent(s) to be identified	45
Network Optimisation Program – Roads	National urban road network congestion	Near term	Urban Congestion	Proponent(s) to be identified	46
National Freight and Supply Chain Strategy	National strategic planning for future freight initiatives	Near term	National Connectivity	Strategy under development	47
Preserve corridor for East Coast High Speed Rail	Future connectivity between east coast capital cities	Near term	Corridor Preservation	Proponent(s) to be identified	48
Remote housing overcrowding	National remote housing conditions	Near term	Remote Infrastructure	Proponent(s) to be identified	49
National Electricity Market Future connectivity and reliability	Connectivity of the National Electricity Market regions	Medium/ longer term	Efficient Markets	Proponent(s) to be identified	50
National electric vehicle fast-charging network	Enabling infrastructure	Near term	Opportunity for Growth	Proponent(s) to be identified	51
New South Wales					
Regional NSW road network safety improvements	Safety on regional roads in New South Wales	Near/ medium term	Road Safety	Initiative identification and options development	52
Sydney Gateway	Connection from WestConnex to Sydney Airport and Port Botany	Near term	Urban Congestion	Business case development	53
Public transport capacity Parramatta Road and Victoria Road corridors	Sydney corridor congestion: Parramatta Road and Victoria Road	Near term	Urban Congestion	Proponent to be identified	54
Sydney rail network capacity	Sydney rail network capacity	Near term	Urban Congestion	Initiative identification and options development	55
Southern Sydney to CBD public transport enhancement	Connectivity between inner-south urban growth area and Sydney CBD	Medium term	Urban Congestion	Initiative identification and options development	56
Sydney Metro West Mass transit between Parramatta and Sydney CBD	Connectivity between Parramatta and Sydney CBD	Medium term	Urban Congestion	Business case development	57
Port Botany freight rail duplication	Sydney Port Botany rail freight capacity	Near term	National Connectivity	Business case development	58
Chullora Junction upgrade	Sydney freight rail network capacity	Near term	National Connectivity	Initiative identification and options development	59

High Priority Initiatives

Proposed project	Problem/opportunity description	Timescale	Category	Next steps	Page
Preserve corridor for Western Sydney Airport fuel pipeline	Future fuel connection to Western Sydney Airport	Near term	Corridor Preservation	Initiative identification and options development	60
Preserve corridor for Western Sydney Freight Line and Intermodal Terminal access	Future freight rail capacity to Eastern Creek intermodal and Sydney Main West Line	Near term	Corridor Preservation	Business case development	61
Preserve corridor for Outer Sydney Orbital road and rail/M9, and Castlereagh connection	Future connectivity between Western Sydney and Central Coast / Illawarra	Near term	Corridor Preservation	Initiative identification and options development	62
Preserve corridor for Western Sydney Airport rail connection	Future rail connection to Western Sydney Airport	Near term	Corridor Preservation	Initiative identification and options development	63
Victoria					
Improve the connection between the Eastern Freeway and CityLink	Connectivity between Melbourne's Eastern Freeway and CityLink	Near term	Urban Congestion	Proponent to be identified	64
Melbourne rail network capacity	Melbourne rail network capacity	Medium term	Urban Congestion	Initiative identification and options development	65
Preserve corridor for Melbourne Outer Metropolitan Ring Road/E6	Future connectivity between Melbourne outer south-west and outer north	Near term	Corridor Preservation	Proponent to be identified	66
Queensland					
Cross River Rail A rail solution to support an integrated passenger transport network in South East Queensland	Brisbane CBD public transport capacity	Near term	Urban Congestion	Business case development	67
Ipswich Motorway Upgrade Rocklea to Darra (remaining sections)	Southern Brisbane–Ipswich road network capacity	Near term	Urban Congestion	Business case development	68
M1 Pacific Motorway capacity Eight Mile Plains to Tugun	Brisbane–Gold Coast motorway capacity	Near term	National Connectivity	Various stages	69
Port of Brisbane dedicated freight rail connection	Freight rail access to Port of Brisbane	Medium term	National Connectivity	Proponent to be identified	70
Western Australia					
Perth CBD to north corridor capacity	Perth northern corridor capacity	Near term	Urban Congestion	Various stages	71
Mitchell and Kwinana freeways upgrade	Perth road network capacity	Near/ medium term	Urban Congestion	Initiative identification and options development	72

Priority Initiatives

Proposed project	Problem/opportunity description	Timescale	Category	Next steps	Page
National					
Advanced Train Management System implementation on the interstate rail network	Rail freight capacity constraint on the interstate rail network	Near term	National Connectivity	Business case development	76
Connect gas suppliers to eastern gas markets	Constrained east coast gas supply	Near term	Efficient Markets	Proponent(s) to be identified	77
National Electricity Market Near-term optimisation	Optimisation of the National Electricity Market	Near term	Efficient Markets	Proponent(s) to be identified	78
New South Wales					
Active transport (walking and cycling) access to Sydney CBD	Inner city access to Sydney CBD	Near term	Urban Congestion	Business case development	79
Sydney CBD motorways optimisation	Inner Sydney road network capacity	Near term	Urban Congestion	Initiative identification and options development	80
Prospect Highway capacity	Western Sydney road network capacity	Near term	Urban Congestion	Business case development	81
A3 and A6 corridor capacity	Southern Sydney to Ryde road network capacity	Near term	Urban Congestion	Business case development	82
Public transport access to Parramatta CBD	Public transport access to Parramatta CBD	Near/ medium term	Urban Congestion	Initiative identification and options development	83
Central Station redevelopment – rail and station infrastructure	Connection between urban and intercity rail, buses, light rail and metro	Medium term	Urban Congestion	Initiative identification and options development	84
F6 Extension Connection between the M1 at Waterfall and the Sydney motorway network	Connectivity between Wollongong and Sydney	Medium term	Urban Congestion	Business case development	85
Western Harbour Tunnel and Beaches Link	Sydney road network cross-harbour and Northern Beaches connectivity	Longer term	Urban Congestion	Business case development	86
Newell Highway upgrade	Connectivity between Melbourne and Brisbane	Near term	National Connectivity	Business case development	87
Pacific Highway (A1) – Coffs Harbour bypass	Connectivity between Sydney and Brisbane	Near term	National Connectivity	Business case development	88
Pacific Highway (M1) – extension to Raymond Terrace	Connectivity between Sydney and Brisbane	Near term	National Connectivity	Business case development	89
Western Sydney Infrastructure Plan	Access to Western Sydney and Western Sydney Airport	Near term	National Connectivity	Various stages	90
Freight rail access to Port Kembla	Freight rail access to Port Kembla	Near term	National Connectivity	Initiative identification and options development	91

Priority Initiatives

Proposed project	Problem/opportunity description	Timescale	Category	Next steps	Page
Moorebank Intermodal Terminal road connections upgrade	Road network connectivity to Moorebank Intermodal Terminal	Near term	National Connectivity	Initiative identification and options development	92
Shoalhaven River crossing capacity	Connectivity in south coast of NSW	Near term	National Connectivity	Initiative identification and options development	93
Southern Sydney Freight Line upgrade	Southern Sydney to Moorebank rail freight capacity	Longer term	National Connectivity	Business case development	94
New England Highway upgrade	Connectivity between Sydney and Brisbane	Medium term	National Connectivity	Business case development	95
Picton Road safety and capacity	Connectivity between Wollongong and south-west Sydney	Medium term	National Connectivity	Initiative identification and options development	96
Western Sydney Airport public transport connection	Access to Western Sydney Airport	Medium term	National Connectivity	Initiative identification and options development	97
Northern Sydney Freight Corridor Stage 2 Additional track West Ryde to Rhodes and Thornleigh to Hornsby	Sydney freight rail network capacity	Longer term	National Connectivity	Business case development	98
Newcastle–Sydney and Wollongong–Sydney rail line upgrades	Connectivity between Newcastle, Wollongong and Sydney CBD	Longer term	National Connectivity	Initiative identification and options development	99
Sydney cruise terminal capacity	Berthing capacity for cruise ships in Sydney	Near term	Opportunity for Growth	Initiative identification and options development	100
Hawkesbury-Nepean Valley flood management	Flood mitigation in Hawkesbury-Nepean Valley	Near term	Resilience	Business case development	101
Victoria					
Melbourne level crossings removal	Melbourne urban road network congestion	Near term	Urban Congestion	Various stages	102
Melbourne Airport to the CBD public transport capacity	Access to Melbourne Airport	Medium term	Urban Congestion	Initiative identification and options development	103
Melton Rail Line upgrade	Melbourne outer western suburbs access to CBD	Medium term	Urban Congestion	Initiative identification and options development	104
Public transport access to Fishermans Bend	Connectivity between Fishermans Bend growth area and Melbourne CBD	Medium term	Urban Congestion	Initiative identification and options development	105

Priority Initiatives

Proposed project	Problem/opportunity description	Timescale	Category	Next steps	Page
Cranbourne Line capacity	Melbourne rail network capacity	Medium term	Urban Congestion	Initiative identification and options development	106
Hurstbridge Line capacity	Melbourne rail network capacity	Medium term	Urban Congestion	Business case development	107
Melbourne outer northern suburbs to CBD capacity upgrade	Melbourne outer northern suburbs access to CBD	Longer term	Urban Congestion	Proponent to be identified	108
Melbourne Airport third runway	Melbourne aviation capacity	Near term	National Connectivity	Business case development	109
Melbourne container terminal capacity and land transport access	Melbourne container terminal capacity	Near/ medium/ longer term	National Connectivity	Initiative identification and options development	110
Melbourne–Geelong rail capacity enhancement	Melbourne–Geelong rail capacity	Longer term	National Connectivity	Initiative identification and options development	111
Queensland					
Brisbane to Gold Coast transport corridor upgrades	Brisbane–Gold Coast transport capacity	Near term	Urban Congestion	Various stages	112
Gold Coast Rail Line capacity Kuraby to Beenleigh	Brisbane–Gold Coast rail network capacity	Near term	Urban Congestion	Initiative identification and options development	113
Broadbeach–Burleigh Heads public transport connectivity	Gold Coast public transport capacity	Near term	Urban Congestion	Initiative identification and options development	114
Centenary Motorway capacity	Southern Brisbane to CBD road network capacity	Near term	Urban Congestion	Initiative identification and options development	115
Cunningham Highway Yamanto Interchange to Ebenezer Creek	Cunningham Highway (Yamanto to Ebenezer/ Amberley) congestion	Near term	National Connectivity	Business case development	116
Warrego Highway east corridor improvements	Connectivity between Brisbane and Toowoomba	Near term	National Connectivity	Initiative identification and options development	117
Mount Isa–Townsville rail corridor upgrade	Mt Isa–Townsville rail capacity	Medium term	National Connectivity	Business case development	118
Port of Gladstone land and sea access upgrade	Land and sea access to Port of Gladstone	Medium term	National Connectivity	Initiative identification and options development	119

Priority Initiatives

Proposed project	Problem/opportunity description	Timescale	Category	Next steps	Page
Bruce Highway Upgrade	Queensland coastal cities connectivity	Near/ medium term	National Connectivity	Various stages	120
Lower Fitzroy River water infrastructure development	Opportunity to develop industry and agriculture in Fitzroy region	Near term	Opportunity for Growth	Business case development	121
Preserve corridor for Salisbury to Beaudesert rail connection	Future urban rail connection between Salisbury and Beaudesert	Near term	Corridor Preservation	Business case development	122
Western Australia					
Armadale Road bridge	Perth road network capacity	Near term	Urban Congestion	Initiative identification and options development	123
Swan River crossing capacity	Perth road network capacity	Near term	Urban Congestion	Initiative identification and options development	124
Perth rail network capacity	Perth rail network capacity	Near term	Urban Congestion	Various stages	125
Transport connectivity between Morley and Ellenbrook	Perth transport network capacity	Longer term	Urban Congestion	Initiative identification and options development	126
Canning Bridge crossing capacity and interchange	Perth transport network capacity	Longer term	Urban Congestion	Proponent to be identified	127
Bunbury Outer Ring Road	Western Australia regional freight network capacity	Medium term	National Connectivity	Business case development	128
Perth Airport new runway	Perth Airport capacity	Medium term	National Connectivity	Initiative identification and options development	129
Perth container terminal capacity and land transport access	Perth container terminal capacity	Longer term	National Connectivity	Initiative identification and options development	130
Tonkin Highway corridor capacity	Perth road network capacity	Various	National Connectivity	Initiative identification and options development	131
Land transport access between Karratha and Tom Price	Connectivity between Karratha and Tom Price	Near term	National Connectivity	Initiative identification and options development	132
Improve road access to remote WA communities	Constrained road access to remote Western Australia communities	Near term	Remote Infrastructure	Initiative identification and options development	133

Priority Initiatives

Proposed project	Problem/opportunity description	Timescale	Category	Next steps	Page
South Australia					
Adelaide North–South Corridor upgrade (remaining sections)	Adelaide north–south urban road network capacity	Near term	Urban Congestion	Business case development	134
AdeLINK tram network Adelaide tram network expansion	Adelaide public transport capacity	Medium term	Urban Congestion	Business case development	135
Spencer Gulf crossing capacity	Connectivity in Port Augusta	Near term	National Connectivity	Initiative identification and options development	136
Strzelecki Track upgrade and mobile coverage	Access to Cooper Basin (South Australia)	Near term	National Connectivity	Business case development	137
South Australian regional bulk port development	South Australia bulk port capacity	Medium term	National Connectivity	Business case development	138
Sturt Highway High Productivity Vehicle capacity enhancement, including Truro bypass	South Australia road freight network capacity	Medium term	National Connectivity	Initiative identification and options development	139
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Priority Initiatives

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High Priority Projects

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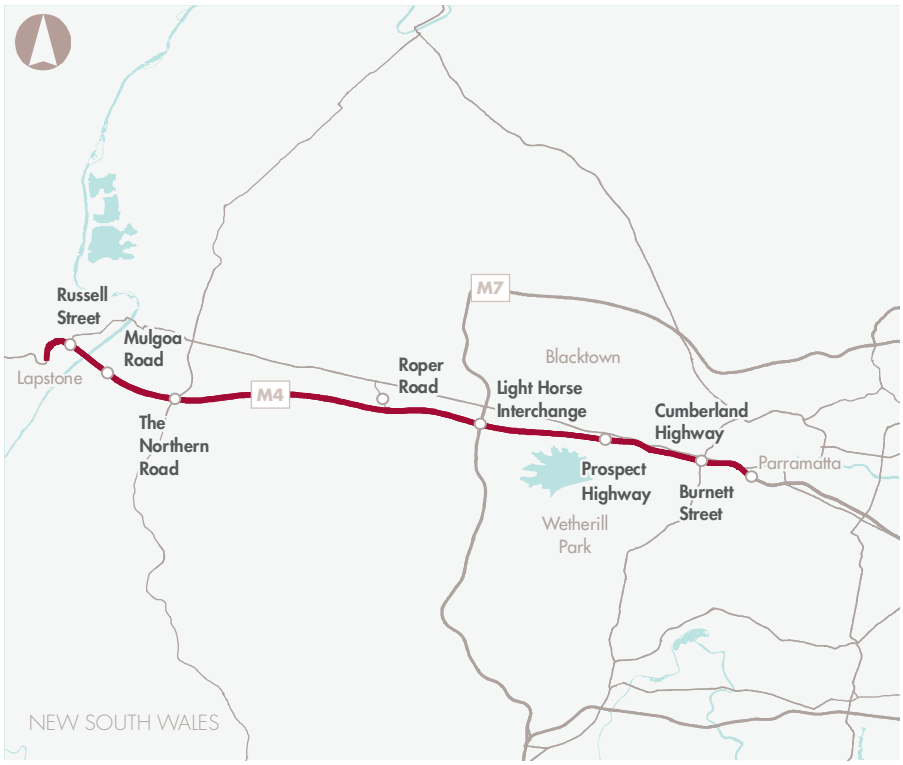
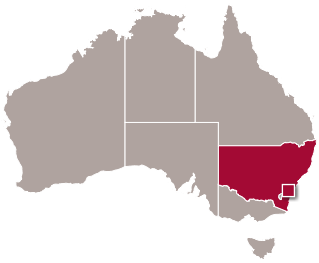
MAN
CLEAN AIR
W1455

M4 Motorway upgrade

Parramatta to Lapstone





LOCATION
Western Sydney, NSW

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
NSW Government

EVALUATION DATE
14 April 2016

Problem to be addressed

Demand on the M4 Motorway in Sydney routinely exceeds capacity during peak periods, resulting in congestion and travel delays. Transport modelling undertaken for the 2015 *Australian Infrastructure Audit* noted that the corridor had a volume to capacity ratio of 1.1 in 2011 for both morning and afternoon peaks.

Greater Western Sydney currently accounts for almost 10% of Australia's population, and the M4 provides the area with an important east–west connection. The population of the main M4 catchment area is expected to grow by 44.5% (around 490,000 people) between 2011 and 2031. Nearby developments, such as the Western Sydney Airport at Badgerys Creek and the Western Sydney Employment Area, will also add to the demand on the corridor. Without action, the impact of the current capacity constraint will increase over time.

Project description

The project covers a range of measures aimed at making better use of the existing M4 infrastructure and increasing capacity along a 35 km section of the M4 between Mays Hill (near Parramatta) and Lapstone at the base of the Blue Mountains.

The 'better use' components include:

- the introduction of Intelligent Transport System measures, including ramp signals, vehicle detection devices and electronic signage
- upgrades to entry and exit ramps
- new freight bypass lanes at three entry ramps – westbound at the M7 and the Prospect Highway, and eastbound at Roper Road, Colyton – which would give priority to trucks and improve merging onto the motorway
- a new communications and power 'backbone' along the motorway.

The project also includes the construction of an additional lane in each direction in the median along a 4.3 km section of the motorway, between the Roper Road and M7 interchanges.

Economic, social and environmental value

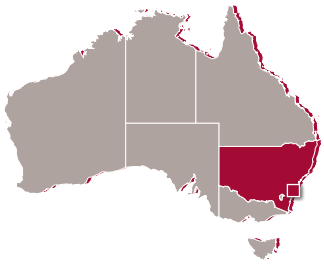
Economic benefits of the project include shorter travel times, improved travel-time reliability and road safety, and increased journey opportunities, all of which will boost productivity. Other benefits include reduced vehicle emissions, and real-time information on road conditions to allow better journey decision making for drivers.

The proponent's stated benefit-cost ratio is 5.3, with a net present value of $2,640 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2015 business case) $853 million (P90, nominal, undiscounted) | **Australian Government contribution** $60 million through the Asset Recycling Initiative | **State government contribution** $410 million

Sydney Metro: City and Southwest

High-frequency rail connection between Chatswood and Bankstown via Sydney CBD



LOCATION
Northern, central and south-western Sydney, NSW

INDICATIVE DELIVERY TIMEFRAME
Medium term (5–10 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 over the next 30 years. 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

Sydney Metro City & Southwest is the second stage of the broader Sydney Metro project. It will deliver 30.5 km of metro rail between Chatswood and Bankstown. The project has two stages: a 17.1 km section between Chatswood and Sydenham that is primarily tunnelled; and a 13.4 km section between Sydenham and Bankstown, involving conversion of the existing Bankstown rail line to metro operations.

The project includes new underground metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Central and Waterloo. 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.

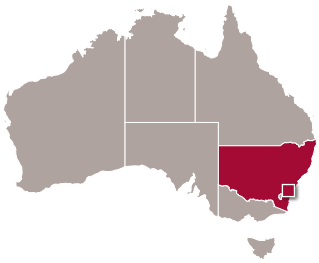
Economic, social and environmental value

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).

Capital cost of initiative as stated by proponent Commercial-in-Confidence | **Australian Government contribution** $1.7 billion through the Asset Recycling Initiative | **State government contribution** Commercial-in-Confidence | **Private sector contribution** To be determined

Western Sydney Airport



LOCATION
Western Sydney, NSW

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 double over the next 20 years, beyond the capacity of Sydney (Kingsford Smith) Airport.

Airports are critical economic assets. 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 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 and facilities for 10 million passengers per annum. Construction commenced in 2018 and the airport is scheduled to open in 2026.

Western Sydney Airport will be developed in stages as demand grows. A second runway will be added when needed. In 2063, the airport is expected to accommodate approximately 82 million passengers annually.

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 Airport. 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 New South Wales Government are planning and delivering road and rail connections to the airport.

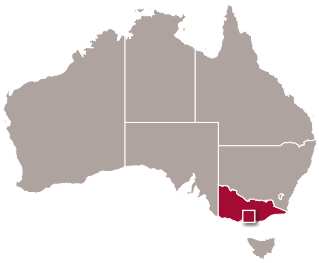
Economic, social and environmental value

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.

Capital cost of initiative as stated by proponent (2016 business case) Approximately $5 billion (Stage 1 only, P50, nominal) | **Australian Government contribution** The Australian Government committed $5.3 billion in the 2017–18 Budget | **State government contribution** N/A | **Private sector contribution** To be determined

M80 Ring Road upgrade



LOCATION
Melbourne, Vic

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 sections from Plenty Road to Greensborough Highway, and Sydney Road to Edgars Road, is expected to start in 2019 and be completed in late 2021.

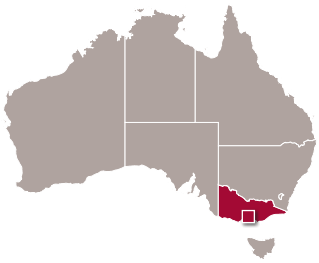
Economic, social and environmental value

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).

Capital cost of initiative as stated by proponent (2015 business case) $686.9 million (P50, nominal, undiscounted) | **Australian Government contribution** $500 million for four stages | **State government contribution** $178.4 million

Monash Freeway Upgrade Stage 2



LOCATION
Melbourne, Vic

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
Victorian Government

EVALUATION DATE
21 June 2018

Problem to be addressed

The Monash Freeway is a critical transport link to Melbourne's south-east and outer south-east regions, carrying over 470,000 trips per day. It provides access to the growing Monash and Dandenong National Employment and Innovation Clusters.

Currently, there is insufficient capacity along the Monash corridor to support growing freight and commuter demand, particularly where the Monash Freeway intersects with the Princes Freeway, and at entry and exit ramps on the Monash Freeway. This leads to slower and less reliable trip times, and higher crash rates at peak times, relative to an uncongested freeway.

Rapid population and employment growth is expected in Melbourne's south-east and outer south-east. This will lead to increased traffic at the western end of the Monash Freeway, and significantly more traffic on the outskirts of Melbourne. Demand growth will exacerbate the existing capacity constraints on the Monash Freeway over time.

Project description

The Monash Freeway Upgrade Stage 2 works comprise additional freeway lanes to the west of Eastlink and east of Clyde Road, extension of managed motorway technology, and improved connections to the freeway at Beaconsfield. These works complement the works currently underway between EastLink and Clyde Road, Berwick (Stage 1).

The project is consistent with the priorities set out in the 2017 Victorian Infrastructure Plan, which includes:

- making the most of existing assets
- building for the future
- developing smarter transport solutions.

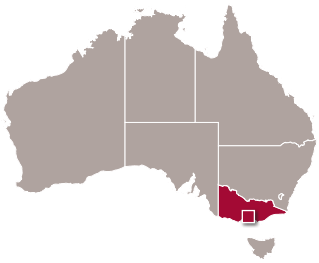
Economic, social and environmental value

The project would provide faster and more reliable journey times for private and commercial users and would help lower crash rates.

The proponent's stated benefit-cost ratio is 4.6, with a net present value of $1,871 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2018 business case) $711 million (P90, nominal, undiscounted) | **Australian Government contribution (Stages 1 and 2)** $500 million | **State government contribution (Stages 1 and 2)** $500 million | **Private sector contribution** N/A

North East Link



LOCATION
North-east Melbourne, Vic

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.

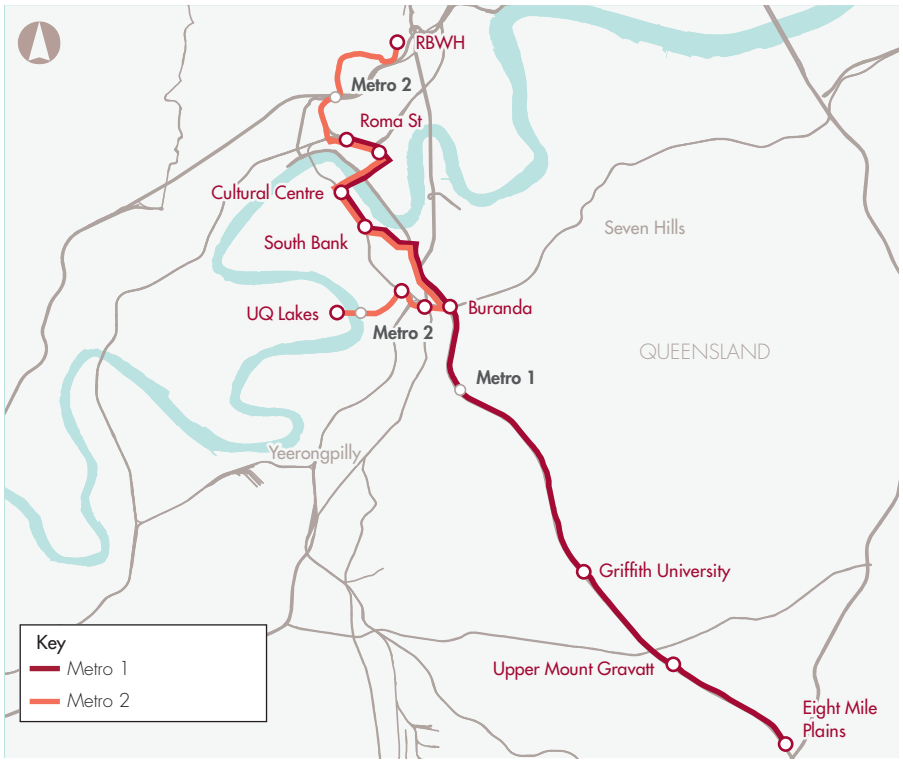
Economic, social and environmental value

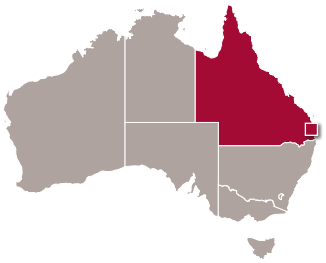
The project is expected to deliver large economic benefits, including travel time and reliability improvements, and environmental and safety benefits.

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).

Capital cost of initiative as stated by proponent (2018 business case) $15,790 million (P90, nominal, undiscounted) | **Australian Government contribution** The Australian Government committed $1,750 million in the 2018-19 Budget | **State government contribution** To be determined | **Private sector contribution** To be determined

Brisbane Metro





LOCATION
Brisbane, Qld

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 proposes a set of infrastructure and non-infrastructure changes to bus services in inner Brisbane. These comprise removing key infrastructure bottlenecks on the South East busway, including constructing a new underground station and a tunnel, using longer, higher-capacity Metro vehicles with faster and easier boarding and alighting, and revised service patterns to increase frequency and truncate lower use services.

The project would complement Cross River Rail by providing for interchange between the bus and rail networks south of the CBD, and at Roma Street.

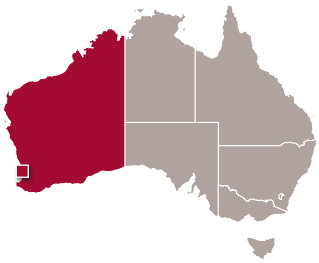
Economic, social and environmental value

The project will deliver significant economic benefits in the form of travel-time savings, decongestion benefits, 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** To be determined | **State government contribution** To be determined | **Private sector contribution** N/A

METRONET: Yanchep Rail Extension



LOCATION
Perth, WA

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
Western Australian Government

EVALUATION DATE
18 October 2018

Problem to be addressed

Perth's north-west sub-region is experiencing rapid population growth. After 2021, this growth is anticipated to increasingly concentrate in the City of Wanneroo due to its supply of undeveloped urban-zoned land and continuing demand for coastal living. By 2050, the City of Wanneroo is projected to accommodate nearly three-quarters of the sub-region's total population.

Without high-quality public transport services, Perth's growing but low density northern suburbs risk having high levels of car ownership and use. This is already placing pressure on the road network and causing congestion.

Project description

The Yanchep Rail Extension is a project within the Western Australian Government's METRONET rail program. It would extend the Joondalup Line from Butler Station to Yanchep, 14.5 km to the north, with new stations at Alkimos, Eglinton and Yanchep. The new line will include grade separations and over-bridges at key road crossings.

Parking bays will be provided at each station, and upgrades to the bus network will increase feeder services, enabling more people to travel to and from the train stations using buses.

Six train services would be provided from Yanchep towards the CBD during the morning peak hour.

Economic, social and environmental value

Extending the rail line to this growth area would provide more transport choices for residents and reduce demand on the roads, particularly in the peak periods.

The proponent's stated benefit-cost ratio is 2.6, with a net present value of $1,571 million (7% real discount rate).

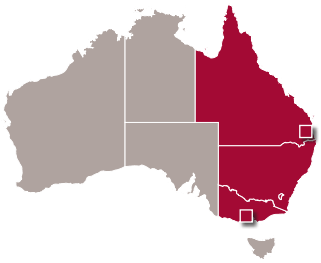
Capital cost of initiative as stated by proponent (2018 business case) Commercial-in-Confidence | **Australian Government contribution** To be determined | **State government contribution** To be determined | **Private sector contribution** N/A

Priority Projects

SUMMARIES

Inland Rail

Melbourne to Brisbane via inland NSW



LOCATION
Melbourne to Brisbane via inland NSW

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 (TEU) when capacity for longer 3,600 m, double-stacked trains is introduced over time.

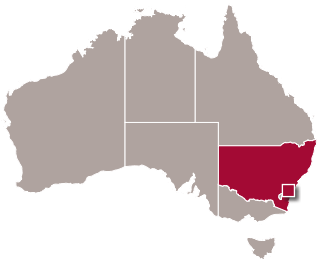
Economic, social and environmental value

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).

Capital cost of initiative as stated by proponent (2016 business case) $9.89 billion (P50, nominal, undiscounted) | **Australian Government contribution** $9.3 billion (including pre-construction and corridor acquisition costs of $893.7 million) | **State government contribution** To be determined | **Private sector contribution** To be determined

The Northern Road upgrade



LOCATION
Western Sydney, NSW

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
NSW Government

EVALUATION DATE
9 February 2017

Problem to be addressed

Growth in south-west Sydney is being driven by employment growth associated with the Western Sydney Priority Growth Area, and population growth associated with the South West Priority Land Release Areas. Development of the Western Sydney Airport at Badgerys Creek will accelerate this growth. While current levels of service on The Northern Road are adequate, significant growth in the area over the next 20 years will lead to higher levels of congestion, poor accessibility and adverse safety conditions for users, particularly during peak periods.

Project description

The Northern Road upgrade project involves staged upgrades to 35 km of road, with construction expected to be progressively completed by 2022. The project will increase capacity and improve journey times with additional lanes and intersection improvements, as well as dedicated north–south bus lanes and other measures to prioritise bus flows. The project also provides for cyclists and pedestrians. The Northern Road will also play an important role in providing access to the site of the Western Sydney Airport at Badgerys Creek during the construction period.

This project is part of the broader Western Sydney Infrastructure Plan, which is listed on the *Infrastructure Priority List* as a Priority Initiative.

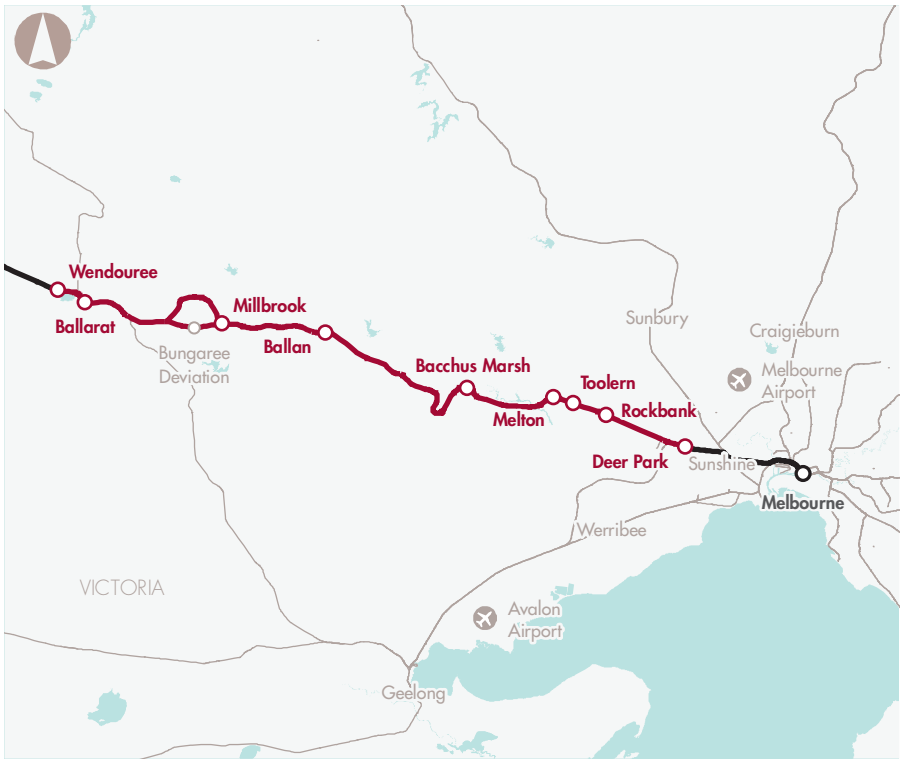
Economic, social and environmental value

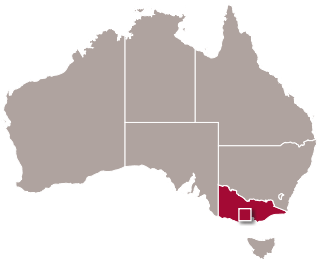
The major source of benefit for the project is travel-time savings, followed by safety benefits, vehicle operating cost savings and journey-time reliability improvements.

The proponent's stated benefit-cost ratio is 1.3, with a net present value of $405 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2016 business case) $1.63 billion (P50, nominal, undiscounted); $1.75 billion (P90, nominal, undiscounted) | **Australian Government contribution** $1.2 billion | **State government contribution** $0.4 billion | **Private sector contribution** N/A

Ballarat Line Upgrade





LOCATION
Melbourne, Vic

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
Victorian Government

EVALUATION DATE
30 August 2018

Problem to be addressed

The Ballarat Line is an important regional public transport link for Melbourne's outer west. Annual boardings increased from 3.4 million in 2014–15 to 4.3 million in 2016–17. The rail line provides access between the Melbourne CBD and growing population centres, such as Bacchus Marsh, Melton and Ballarat. Demand on the Melton–Bacchus Marsh section of the Ballarat Line exceeds capacity at peak times, causing passenger crowding and affecting service punctuality and reliability.

The population of the Melton local government area, which sits along the Ballarat Line corridor, is expected to grow at 4% per annum between 2011 and 2031 – the highest average annual growth rate in Greater Melbourne.

The 2015 *Australian Infrastructure Audit* projected that demand on the Melton–Sunshine section of the Ballarat Line would grow to around three times the current capacity by 2031. This project does not directly address capacity constraints along the line from Melton to Sunshine, which are identified in the Melton Rail Line upgrade Priority Initiative.

Project description

The project would upgrade the Ballarat Line between Wendouree and Deer Park, including track duplication, construction of new rail track and passing loops, enhanced stabling facilities, and station upgrades.

A new station will also be constructed at Toolern under a separate funding arrangement by the Victorian Government using Growth Areas Infrastructure Contributions. This work was not part of the business case submitted to Infrastructure Australia for the Ballarat Line Upgrade.

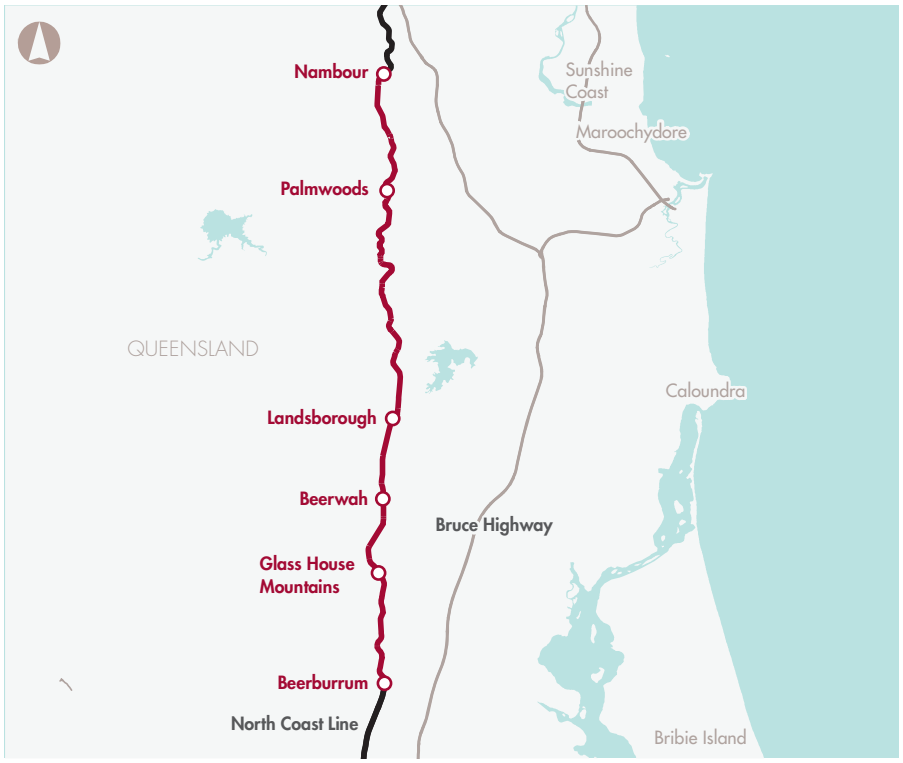
Economic, social and environmental value

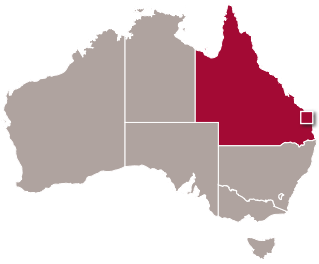
The Ballarat Line Upgrade project responds to growth in demand on the rail line and will improve reliability. The works would allow an increase in service frequency, and provide passengers with more reliable and less crowded trips. It would also reduce congestion on the road network by encouraging some travellers to use public transport instead of driving.

The proponent's stated benefit-cost ratio is 1.1, with a net present value of $60 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2018 business case) $517 million (P90, nominal, undiscounted) | **Australian Government contribution** $467 million | **State government contribution** $50 million | **Private sector contribution** N/A

Beerburrum to Nambour Rail Upgrade





LOCATION
Sunshine Coast to Brisbane, Qld

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
Queensland Government

EVALUATION DATE
16 February 2018

Problem to be addressed

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

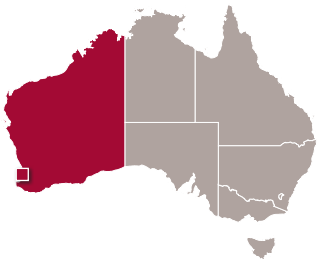
Economic, social and environmental value

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).

Capital cost of initiative as stated by proponent $784.3 million (P90, nominal, undiscounted) | **Australian Government contribution** $390 million | **State government contribution** $160 million | **Private sector contribution** To be determined

Myalup–Wellington Water Project



LOCATION
South-west WA

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.

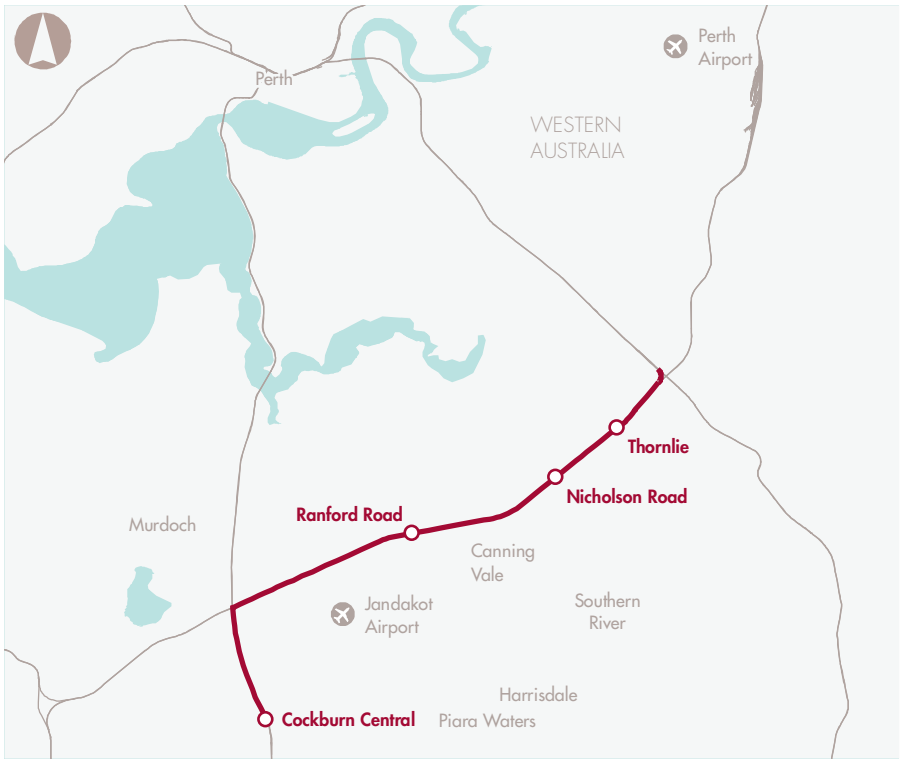
Economic, social and environmental value

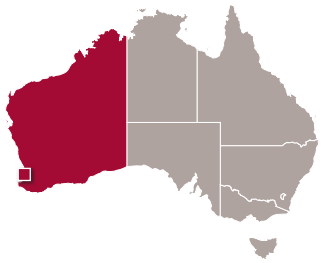
Economic benefits include those for irrigators and water producers. Irrigators would benefit through increased production value due to an increase in the number of hectares farmed and a shift to more valuable products. The producer, Collie Water, would benefit from the sale of potable water to Water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

METRONET: Thornlie-Cockburn Link





LOCATION
Perth, WA

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
Western Australian Government

EVALUATION DATE
17 October 2018

Problem to be addressed

Perth's population has grown strongly over the past 20 years, particularly in the southern suburbs between the Armadale and Mandurah Lines, such as Canning Vale, Southern River, Piara Waters and Harrisdale. Residents of these areas rely on buses or cars to access nearby railway stations, or use cars for their entire journey. Some of these bus services and major interchanges are now at capacity, or forecast to reach it in coming years. This includes Murdoch, which experiences the highest volume of bus/train transfers of any suburban interchange in Perth.

The radial design of the current rail network does not allow for orbital rail trips, meaning users travel to their destinations either via the Perth CBD on the rail network, or using the road network.

Project description

To be delivered as part of the Western Australian Government's METRONET program, the proposed Thornlie-Cockburn Link involves the construction of two new train stations (Nicholson Road Station and Ranford Road Station) and construction of a new passenger rail corridor that follows the existing Midland to Kwinana freight line. It would extend the Thornlie Line to Cockburn Central, creating an east–west link between the Mandurah Line and the Armadale Line through Jandakot, Canning Vale and Thornlie.

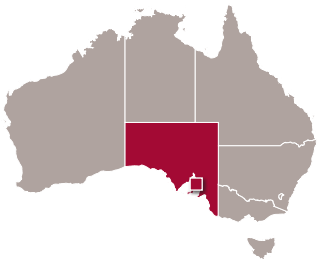
Economic, social and environmental value

By increasing the capacity of Perth's metropolitan railway network, the project seeks to promote urban renewal along the line, relieve pressure on existing stations and reduce demand on roads.

The proponent's stated benefit-cost ratio is 1.2, with a net present value of $151 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2018 business case) Commercial-in-Confidence | **Australian Government contribution** To be determined | **State government contribution** To be determined | **Private sector contribution** N/A

Adelaide's North–South Corridor: Regency Road to Pym Street



LOCATION
Adelaide, SA

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
South Australian Government

EVALUATION DATE
5 April 2018

Problem to be addressed

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. As part of the National Land Transport Network, it facilitates freight movements to and from Adelaide Airport, the Port of Adelaide and surrounding industrial areas.

There is an overall program to upgrade the North–South Corridor, which is separately listed on the *Infrastructure Priority List*. By 2019, there will be a continuous motorway between Gawler and the River Torrens (5 km west of Adelaide CBD), except for the South Road section between Regency Road and Pym Street.

Traffic demand from growing population and employment centres in the north and south will exacerbate slow travel speeds and delays at signalised intersections along the route. The 2015 *Australian Infrastructure Audit* estimated that, without further investment, delays on the South Road corridor will cost $164 million in 2031 (2011 prices).

Project description

The project would upgrade 1.8 km of South Road to a three-lane (each way) motorway, connecting to the completed South Road Superway (that is, between Port River Expressway and Regency Road on the North–South Motorway) and the Torrens Road to River Torrens Project (currently under construction). It includes a motorway overpass of Regency Road, and an east–west overpass bridge for pedestrians and cyclists at Pym Street. It also includes the implementation of Intelligent Transport Systems.

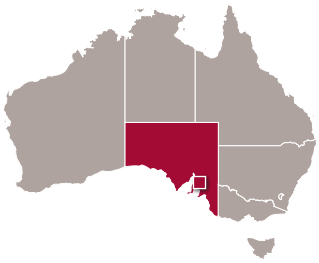
Economic, social and environmental value

The vast majority of benefits from the project are travel-time savings for road users, with average savings of 2.5 minutes during peak periods on South Road between Regency Road and Pym Street.

The proponent's stated benefit cost ratio is 3.6, with a net present value of $624 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2017 business case) $354.3 million (P90, nominal, undiscounted) | **Australian Government contribution** $283.5 million | **State government contribution** $70.8 million | **Private sector contribution** N/A

Gawler Rail Line Electrification and Modernisation Project



LOCATION
Adelaide, SA

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
South Australian Government

EVALUATION DATE
30 August 2018

Problem to be addressed

The Gawler rail line provides a mix of express and all-stops passenger rail services between Adelaide's CBD and northern suburbs using a diesel fleet. It also provides access to the regional centres of Mawson Lakes, Salisbury, Elizabeth and Gawler. Patronage along the Gawler rail line grew by 30% in the decade to 2016 to become the busiest passenger rail route in Adelaide. Currently, passengers are using 75% of train capacity during the morning peak along the busiest sections of the rail line.

The 2015 *Australian Infrastructure Audit* identified that, owing to the current and predicted population growth in northern Adelaide, rail demand between Gawler and Adelaide is expected to almost double by 2031. As a result, the line could reach capacity within five to 10 years.

Project description

The scope of the project includes electrifying the Gawler rail line, replacing the diesel fleet with electric train cars, replacing signalling equipment and systems, upgrades to 20 stations on the line, and extension or modification to 12 platforms.

Economic, social and environmental value

Rail users would benefit from faster journey times and increased service frequencies between Adelaide and Gawler Central. Replacing high-polluting diesel motor units with electric motor units will reduce greenhouse gas emissions, noise and vibration.

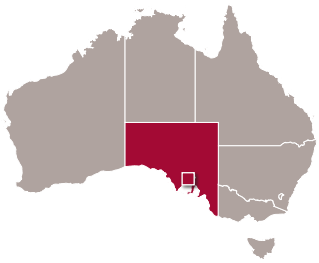
The project also addresses broader strategic objectives by improving the accessibility and sustainability of transport to and from the northern suburbs of Adelaide.

The proponent's stated benefit-cost ratio is 1.1, with a net present value of $44 million (7% real discount rate).

Capital cost of initiative as stated by proponent (2017 business case) $765 million (P90, nominal, undiscounted) | **Australian Government contribution** $306.25 million | **State government contribution** $458.75 million | **Private sector contribution** N/A

Eyre Infrastructure Project

Iron Road



LOCATION
Eyre Peninsula, SA

INDICATIVE DELIVERY TIMEFRAME
Near term (0–5 years)

PROPONENT
Iron Road Limited

EVALUATION DATE
27 July 2016

Opportunity

Iron Road Limited, a publicly listed company, is proposing to develop an iron ore mine in South Australia's Central Eyre Peninsula. When operating at full capacity, the mine is expected to produce 24 million tonnes per annum of 67% iron concentrate ore. 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 company is proposing 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, and the new rail line could potentially be connected to the National Rail Network.

Development of the rail and port infrastructure is subject to the mine development proceeding. The project is supported by the South Australian Government.

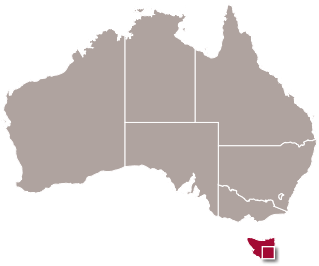
Economic, social and environmental value

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.

Capital cost of initiative as stated by proponent (2015 business case) $6 billion (real, undiscounted) | **Private sector contribution** $6 billion

Hobart Science and Technology Precinct



LOCATION
Hobart, Tasmania

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 m^2 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).

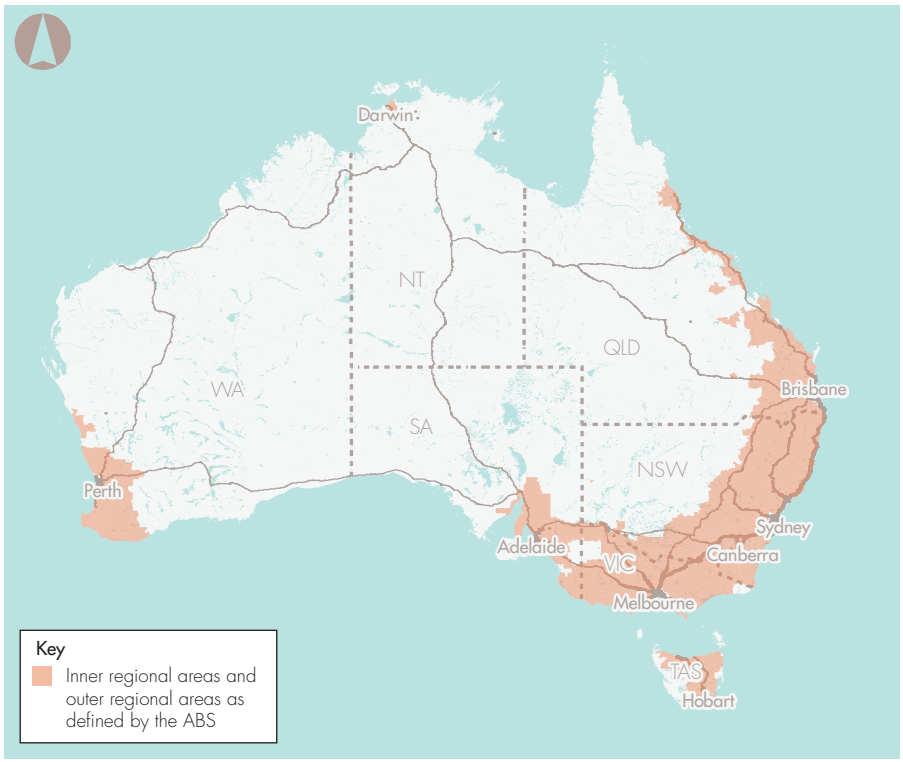
Capital cost of initiative as stated by proponent (2016 business case) $400 million (single point cost estimate, nominal, undiscounted) | **Australian Government contribution** To be determined | **State government contribution** To be determined | **Private sector contribution** To be determined

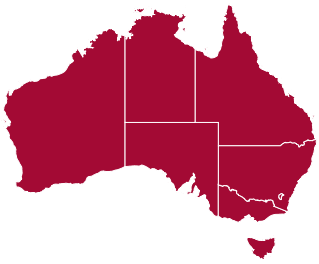
High Priority Initiatives

SUMMARIES


Veefil
ELECTRIC VEHICLE FAST CHARGER
ISAAC REGION
ELECTRIC VEHICLE FAST CHARGER
Proudly supported by

Regional road network safety improvements





LOCATION
National

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2019

Problem

The varied quality 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

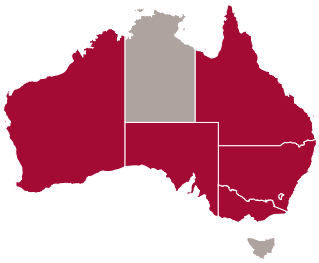
This program initiative recognises the need to continue identifying, assessing and prioritising high-risk sections of regional roads across Australia. These sections could be addressed through targeted infrastructure improvements, such as alignment corrections and safety barriers, as well as modern road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

A New South Wales regional road safety program is separately included on the *Infrastructure Priority List* as a High Priority Initiative, as the New South Wales Government has provided a detailed and integrated submission for these issues in regional New South Wales.

Next steps

Proponent(s) to be identified.

Network Optimisation Program – Rail



LOCATION
National

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *Australian Infrastructure Audit* found that, in the absence of demand management and suitable investment, the total cost of urban congestion in Australia could increase from $13.7 billion in 2011 to $53.3 billion (2011 prices) in 2031. Although its root causes vary, it is a widespread problem across multiple corridors in Australian cities.

Addressing this problem 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 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.

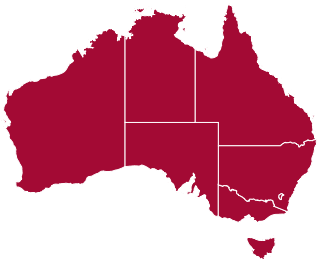
Appendix C provides a list of submissions received by Infrastructure Australia in relation to this program initiative.

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.

Network Optimisation Program – Roads



LOCATION
National

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *Australian Infrastructure Audit* found that, in the absence of demand management and suitable investment, the total cost of urban congestion in Australia could increase from $13.7 billion in 2011 to $53.3 billion (2011 prices) in 2031. 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 central business districts. These works could delay the need for some large-scale investments.

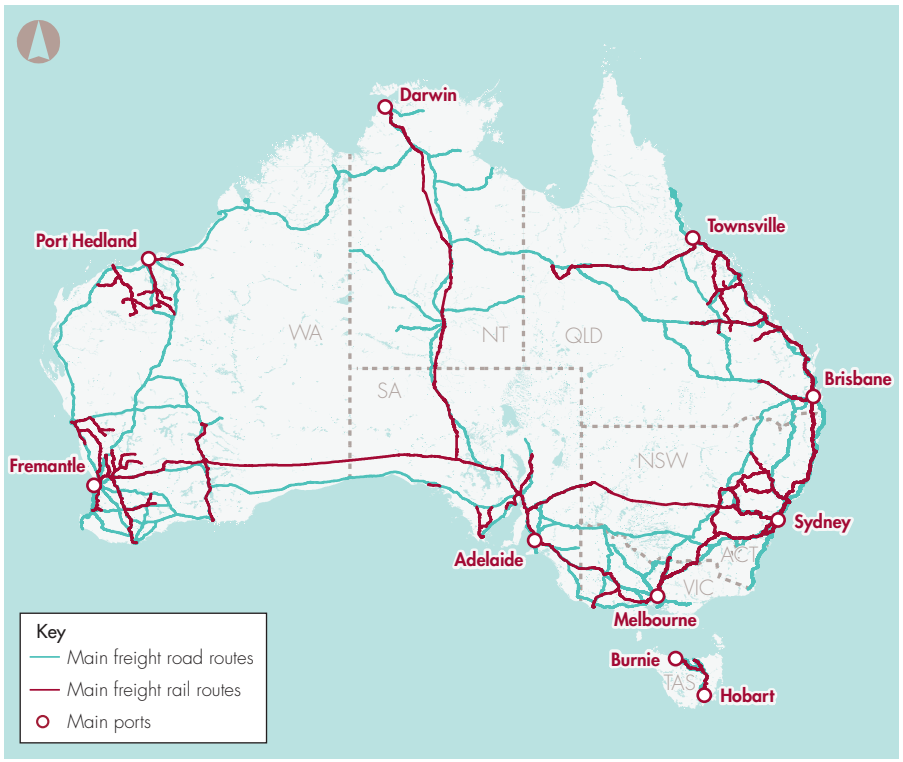
Appendix C provides a list of submissions received by Infrastructure Australia in relation to this program initiative.

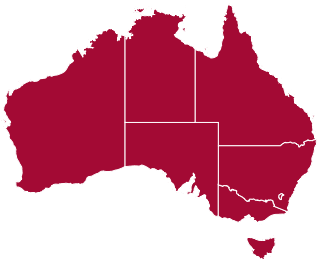
This initiative was originally included on the *Infrastructure Priority List* under the combined Network Optimisation Program initiative and was subsequently separated in 2018.

Next steps

Proponent(s) to be identified.

National Freight and Supply Chain Strategy





LOCATION
National

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *Australian Infrastructure Audit* found that population and economic growth in Australia will increase demand for freight transport, with the national land freight task expected to increase by 86% over the 15 years to 2031.

While there has been significant work undertaken on national strategies for land transport and ports in the past, this work needs to be further progressed, taking a whole-of-supply chain perspective. National-level, long-term freight master planning will facilitate more effective infrastructure planning, and more robust investment decisions in the freight and supply chain sector. Failure to adequately cater for the expected increase in freight transport will increase freight network congestion around Australia and, ultimately, harm national productivity.

Proposed initiative

On 18 May 2018, the Council of Australian Governments' Transport and Infrastructure Council agreed to a framework for developing a 20-year national Freight and Supply Chain Strategy (the Strategy). The Strategy will provide the appropriate framework to support end-to-end planning of key freight and supply chains, to:

- guide future investment
- support better use of existing infrastructure assets
- enable a program of regulatory reforms and capital initiatives to be developed.

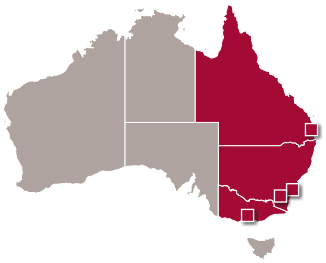
In 2017, the Australian Government commenced the development of the Strategy with an inquiry into National Freight and Supply Chain Priorities. This inquiry's report was released in May 2018. The Strategy development is building on the outcomes of this inquiry, the National Ports Strategy, National Land Freight Strategy and other strategies such as those within states and territories. The Strategy will determine the best options to lift the productivity and efficiency of Australia's freight supply chain.

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

Next steps

The Strategy is due to be completed in 2019.

Preserve corridor for East Coast High Speed Rail



LOCATION
Melbourne to Brisbane via Sydney

PROBLEM TIMESCALE
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.

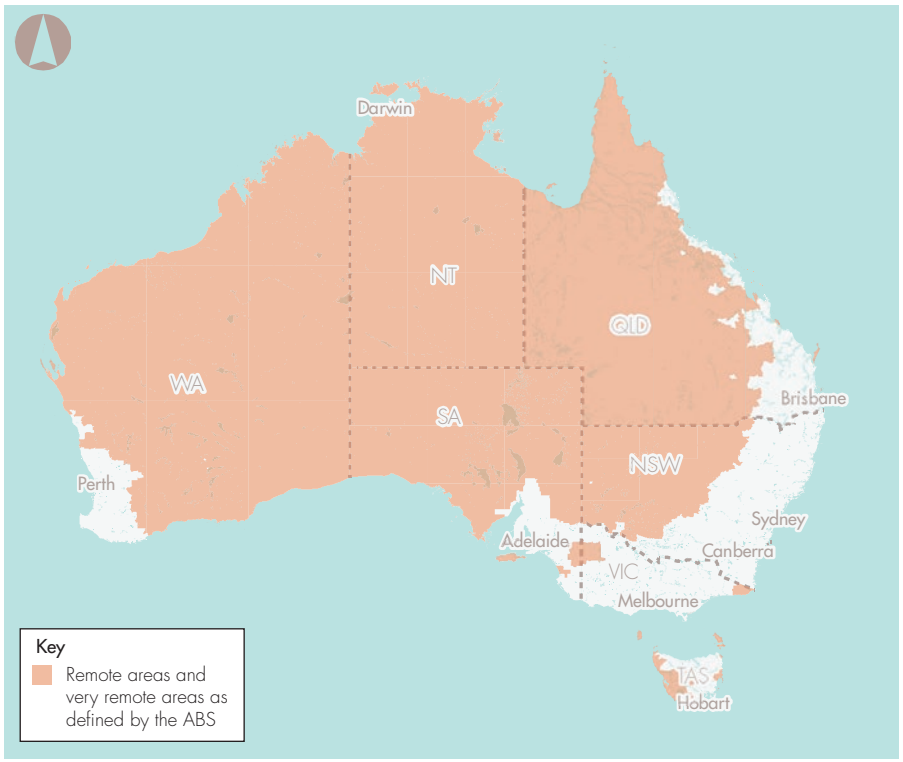
Proposed initiative

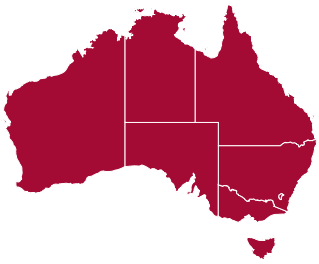
Confirm and begin the preservation of a corridor, based on the corridor set out in the Australian Government's High Speed Rail Study Phase 2, for a high speed rail link between Melbourne, Sydney and Brisbane.

Next steps

Proponent(s) to be identified.

Remote housing overcrowding





LOCATION
National

OPPORTUNITY TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2019

Opportunity

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

The Australian Institute of Health and Welfare reports that 21% of Aboriginal and Torres Strait Islander Australians were assessed as being in overcrowded conditions in 2014–15, of whom 41% were living in remote areas.

While progress has been made in reducing the proportion of overcrowding in remote housing – down from 52.1% in 2008 to a projected 37.4% in 2018 according to a Remote Housing Review by the Australian Government – ongoing investment is necessary to ensure the gap continues to close, thereby reducing the high associated social and economic costs.

Proposed initiative

Good-quality housing underpins all targets in health, education and employment, as well as community safety, as set out in the Australian Government's *Closing the Gap* strategy (2008).

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

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

These actions will require Australia's governments to consider which type of housing will best meet the needs and demographics of different communities in remote areas.

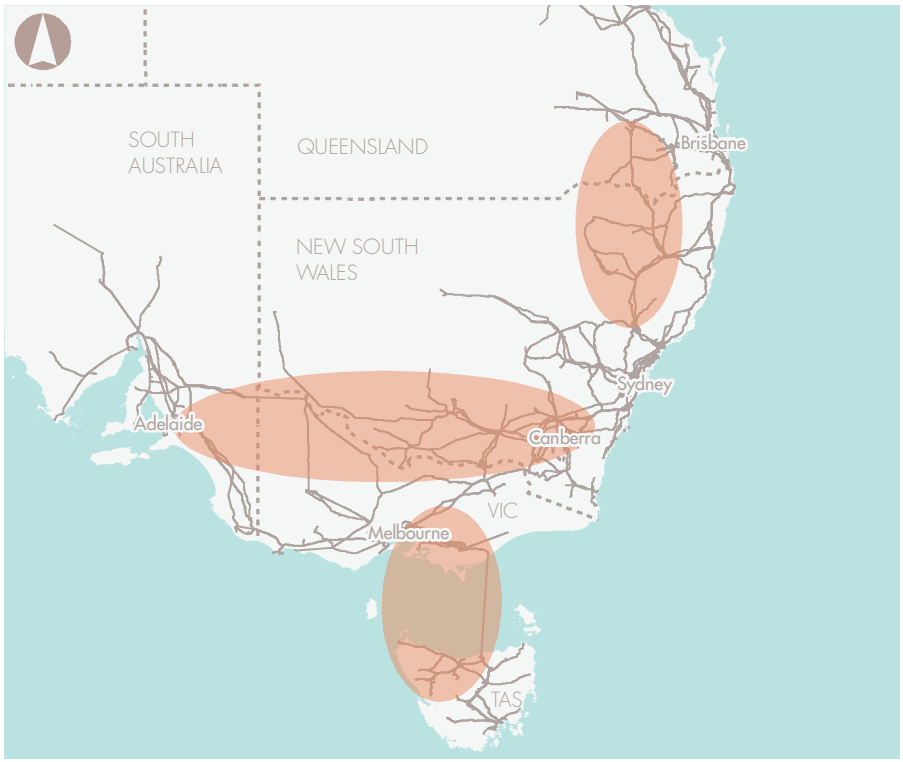
Australia's governments should also consider whether complementary programs to improve access to employment and supporting social services are required to support these actions.

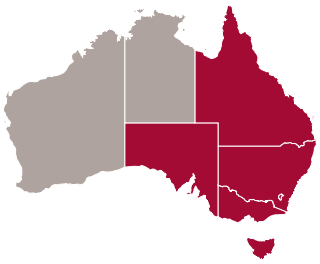
Next steps

Proponent(s) to be identified.

National Electricity Market

Future connectivity and reliability





LOCATION
National

OPPORTUNITY TIMESCALE
Medium to longer term (5–15 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2019

Opportunity

In the medium to longer term, there is an opportunity to improve the connectivity and reliability of the National Electricity Market (NEM). In light of retiring coal-fired generation and various government renewable energy commitments, improved connectivity across NEM regions will make better use of renewable resources, and more efficiently meet operational demand. Additional connectivity would also improve reliability by providing access to energy storage devices.

The Australian Energy Market Operator released the Integrated System Plan (ISP) in 2018, which forecasted a continuing trend away from thermal electricity generation, and towards a more diverse portfolio of fuels, including wind and solar. Improved connections between regions would allow for better use of resources across the NEM, provide more access to storage, and support renewable energy zones. The ISP identified the longer-term need to ensure system reliability and security.

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

Proposed initiative

The ISP identifies three groups of investments over the near, medium and longer term. This initiative relates to Group 2 and 3 investments, which are potential investments between the mid-2020s and 2040, and 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.

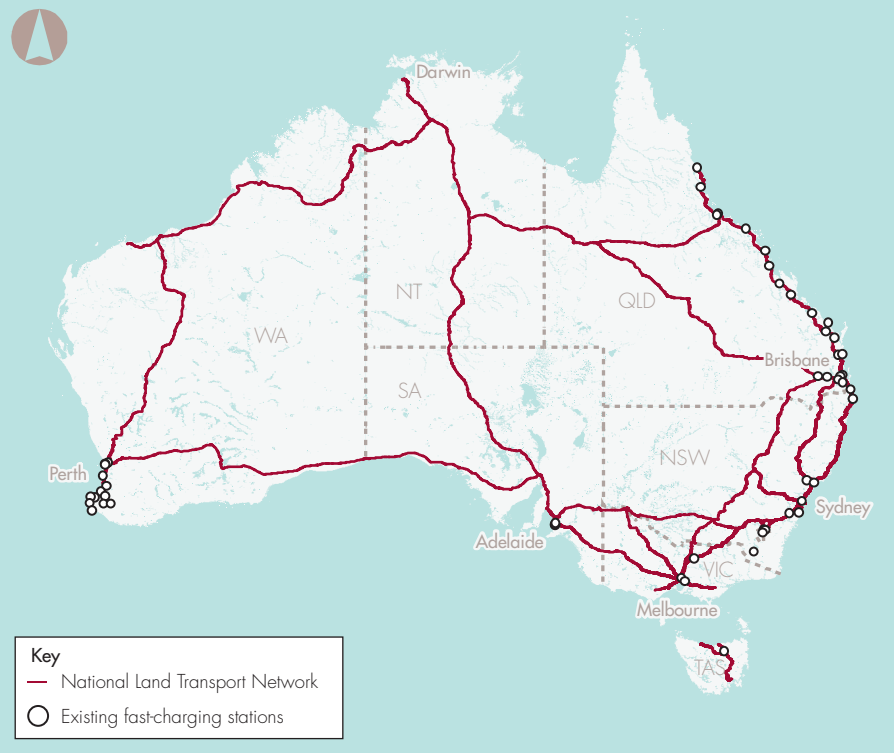
These potential medium- and longer-term investments are subject to change as the ISP is updated to reflect the dynamic nature of the power system and evolving technologies.

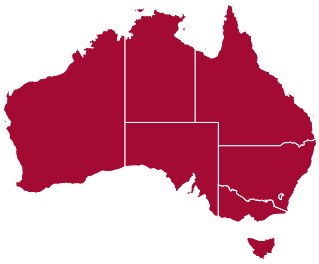
The investments and their timing will also be subject to feasibility studies and detailed assessment of their costs and benefits by network infrastructure owners and governments.

Next steps

Proponent(s) to be identified.

National electric vehicle fast-charging network





LOCATION
National

OPPORTUNITY TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2019

Opportunity

By 2040, electric vehicles (EVs) are projected to account for 70% of new vehicle sales and 30% of the vehicle fleet in Australia. Currently, there are approximately 2,300 EVs on Australian roads.

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 around two-thirds of motorists as a key barrier to the adoption of EVs. Australia currently has less than 800 charging stations, of which approximately 70 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 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:

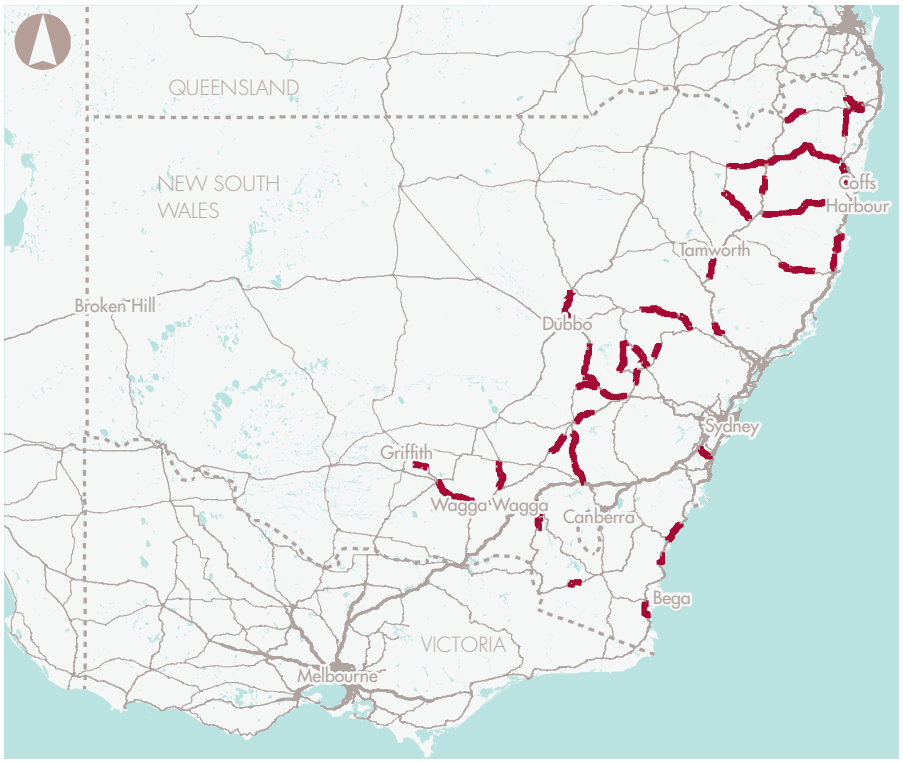
- developing a network of fast-charging stations on the national highway network to provide national connectivity
- developing policies and regulation to support charging technology adoption.

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.

Regional NSW road network safety improvements



LOCATION
New South Wales

PROBLEM TIMESCALE
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 2017, crashes in NSW accounted for 31% of the Australian road toll. Further, 41% 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. 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.

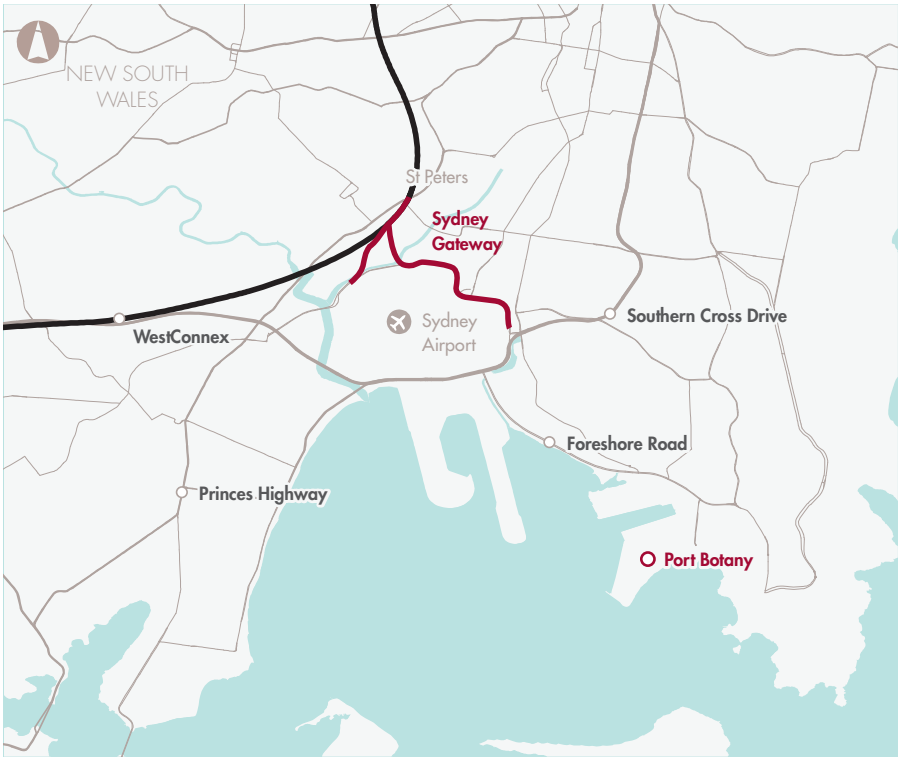
In NSW, these locations have been identified, assessed and prioritised by the NSW Government based on road crash data and the impact of infrastructure deficiencies. Potential improvements include the introduction of new safety barriers, wide centre lines, and/or audio tactile line marking to attain a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

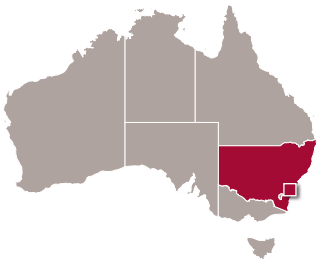
Next steps

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

Sydney Gateway

Connection between WestConnex at St Peters and Sydney Airport/Port Botany





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

Road congestion on the arterial road network in and around Port Botany and Sydney Airport is growing as port and airport throughput increases, causing significant delays.

Congestion is a problem throughout the day, rather than just at peak times, with the major road links congested for over half the day. Part of this congestion is generated by road freight in and around Port Botany. Truck traffic at Port Botany is estimated to increase by 400% between 2011 and 2030 if the mode share of rail does not increase. Two factors in particular will exacerbate congestion:

- Imports and exports through Port Botany are likely to grow. The 2011 throughput of 2 million Twenty Foot Equivalent Units (TEU) per annum at Port Botany is projected to increase to 7 million TEU by 2031, an annual growth rate of approximately 7%.
- Passenger air travel is expected to grow at high rates. Sydney Airport estimates growth rates at 4.2% per year and 2.9% per year for international and domestic travel respectively.

Increasing rail's mode share of both passenger and freight traffic through the precinct will reduce potential demand on the road network over coming years. However, the road network will still need substantial expansion to cater for traffic to and from locations that are only effectively serviced by road.

Proposed initiative

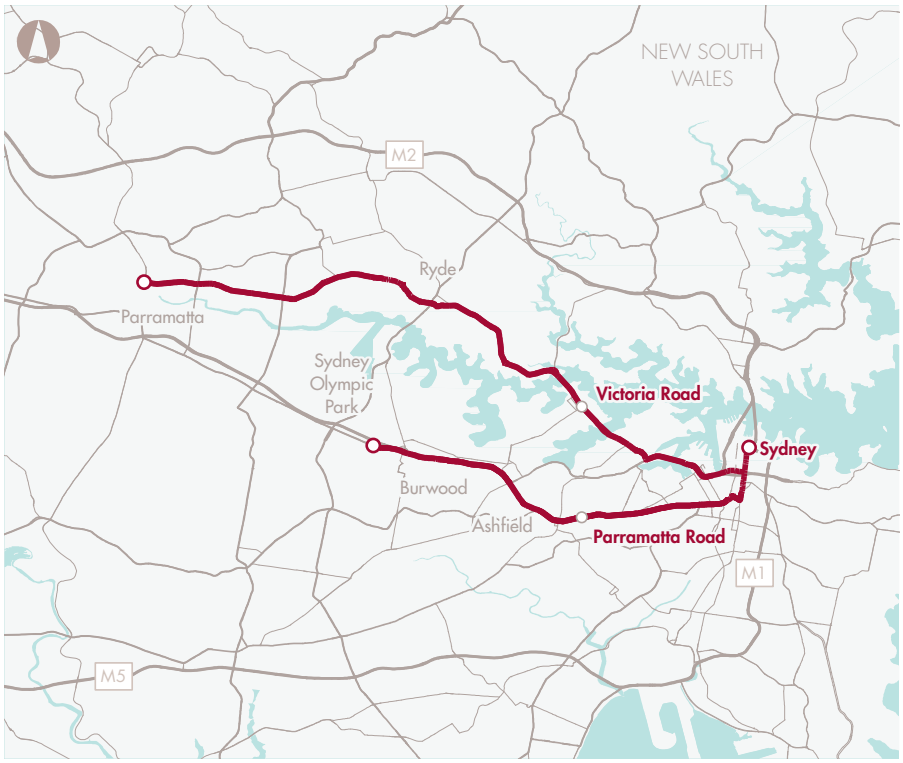
The initiative aims to provide a high-capacity road connection between the WestConnex St Peters interchange and Sydney Airport and Port Botany. This will provide substantial additional capacity in and out of the Sydney Airport and Port Botany precinct, allowing airport and port traffic to avoid local arterial roads when accessing WestConnex and the broader Sydney Motorway network.

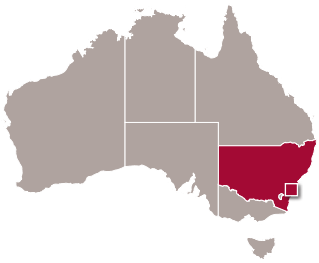
Next steps

The New South Wales Government is proceeding with detailed planning and design to progress the delivery of the Sydney Gateway project.

Public transport capacity

Parramatta Road and Victoria Road corridors





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *Australian Infrastructure Audit* identified that some of Sydney's highest congestion delay costs 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 $5.6 billion in 2011 to $14.8 billion in 2031. The need for public transport improvements for both corridors is identified in the New South Wales Government's Draft Future Transport 2056 Strategy.

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 may in future 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

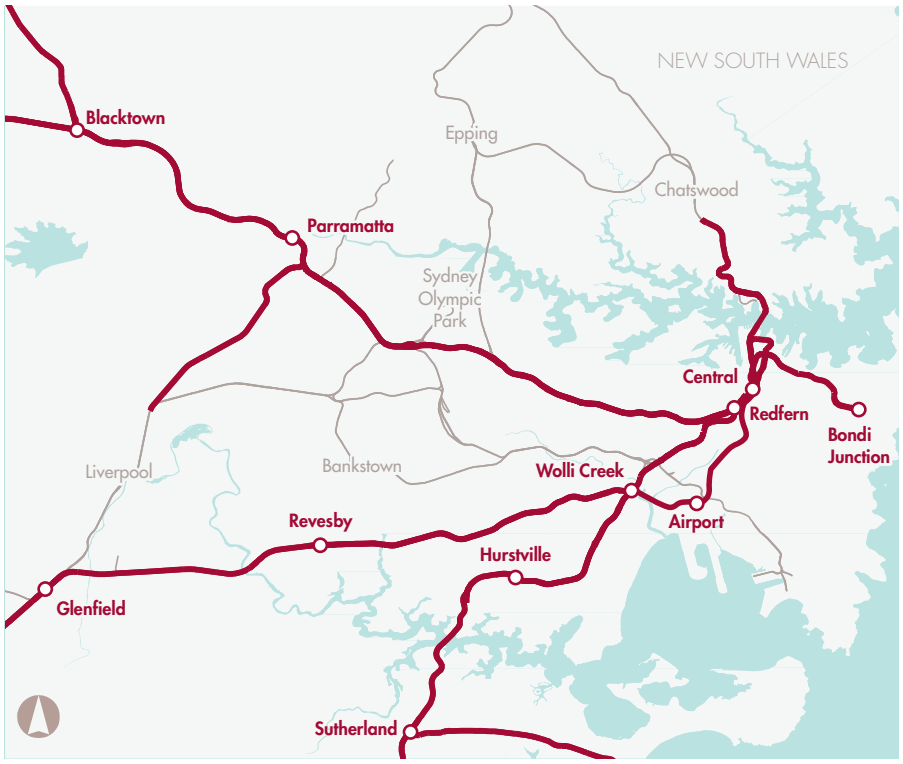
The provision of high-capacity public transport infrastructure is potentially an effective method of improving connectivity along priority corridors and alleviating congestion on Sydney's urban transport network.

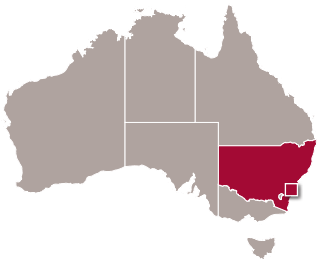
In March 2018, this public transport initiative replaced the New South Wales Government's Bus Rapid Transport initiative that was originally included on the *Infrastructure Priority List*. This reflects the delivery of the B-Line Bus project in 2017 for the Northern Beaches corridor, and planning that is underway for Sydney Metro West.

Next steps

Proponent to be identified.

Sydney rail network capacity





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
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. In 2017, Sydney's one-hour peak passenger rail demand was approximately 190,000, after growing an average of 3.5% per year from 2006 to 2016. Rail patronage is expected to continue growing by at least 3% per year over the next 10 years.

Current forecasts predict that demand on the North Shore, Inner West & 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.

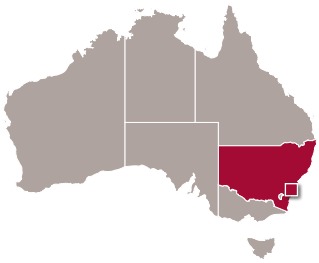
Proposed initiative

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.

Next steps

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

Southern Sydney to CBD public transport enhancement



LOCATION
Sydney Inner City, NSW

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
City of Sydney

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 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 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, would provide significant additional capacity between the Sydney CBD and the unserved parts of the Green Square Precinct.

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

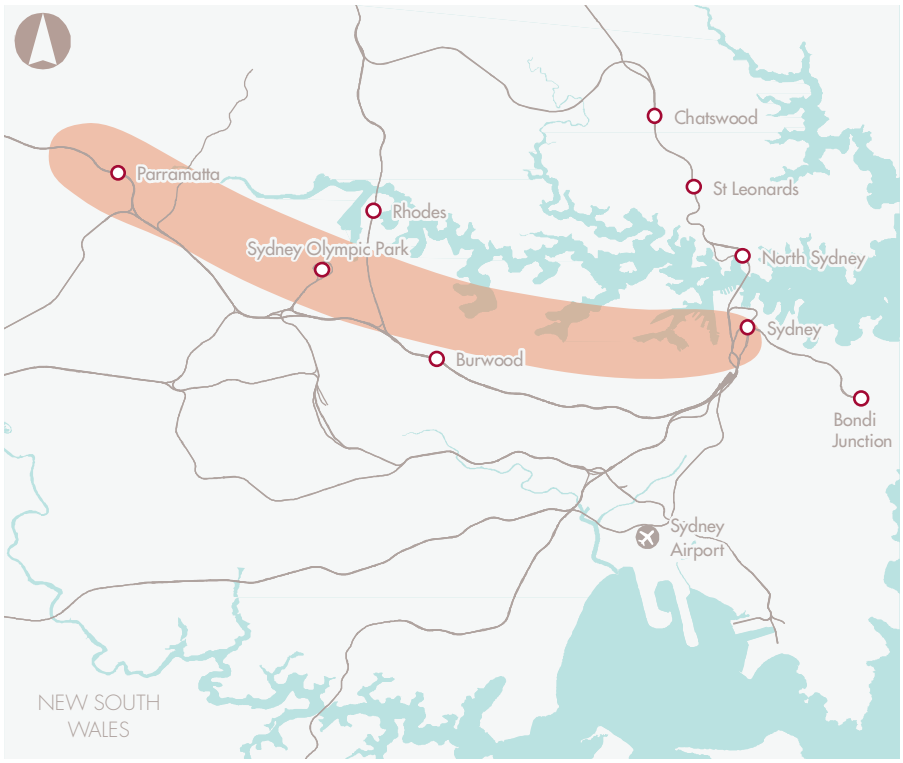
The proponent for this initiative was previously the New South Wales Government. The initiative was updated in March 2018 to list the City of Sydney as the proponent.

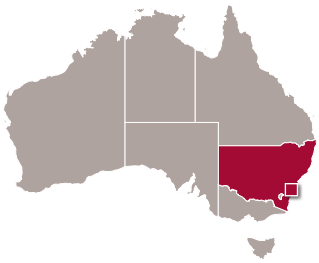
Next steps

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

Sydney Metro West

Mass transit between Parramatta and Sydney CBD





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
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.

An extra 420,000 people are expected to move into the corridor between Greater Parramatta and central Sydney over the next 20 years, and more than 300,000 jobs are expected to be created in this corridor by 2036.

Future employment and population growth in the corridor will be driven in part by four key precincts: Parramatta, Sydney Olympic Park, The Bays precinct 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. Currently, the T1 Western Line moves around 40,000 people in the morning peak hour and is operating at 135% of seated capacity.

Proposed initiative

The initiative would provide a direct metro rail connection between the Parramatta and Sydney CBDs, linking communities not previously serviced by rail as well as supporting growth in areas between the two CBDs. Investigations are focused on a corridor between the Parramatta River and the existing T1 Western Line. This initiative has the potential to transform communities, create new ones and link them using a new state-of-the-art public transport system.

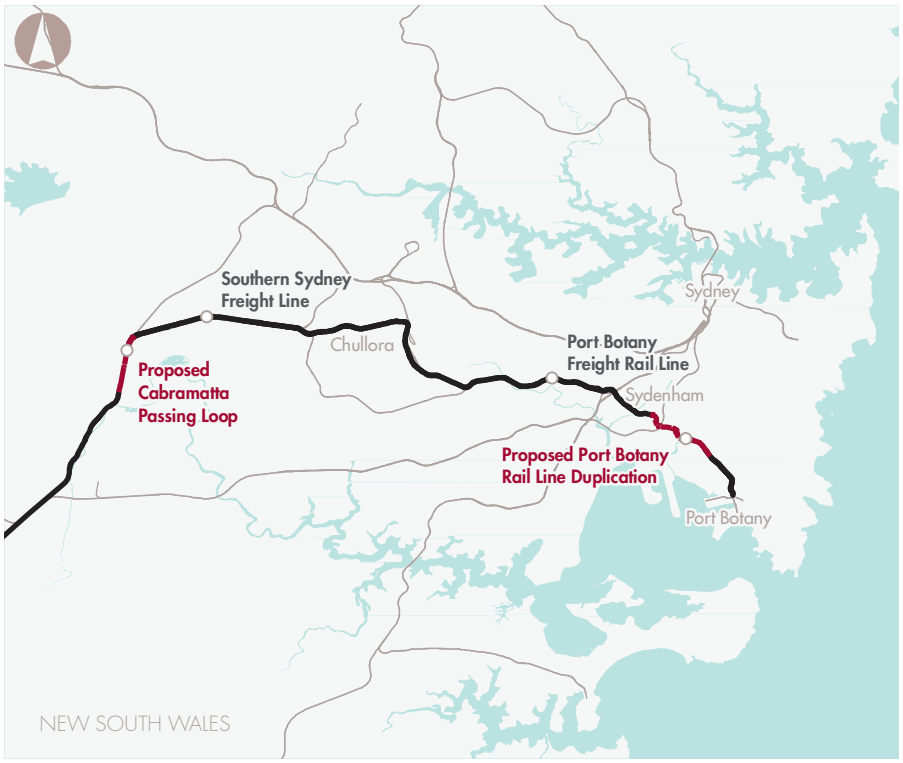
A new metro rail service would be able to move about 40,000 people an hour in each direction, and would work together with the T1 Western Line to service the growing needs of Western Sydney, effectively doubling the rail capacity of the Parramatta to Sydney CBD corridor.

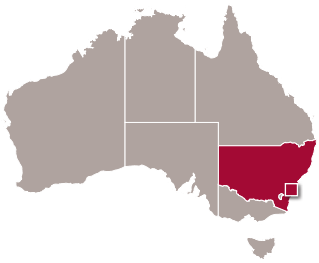
The initiative would be integrated with long-term transport and land use planning for Western Sydney, including rail needs currently being investigated around the future Western Sydney Airport.

Next steps

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

Port Botany freight rail duplication





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Australian Rail Track Corporation

DATE ADDED TO THE IPL
February 2016

Problem

Port Botany is one of Australia's most significant import/export terminals for containerised freight, and a backbone asset for economic productivity within Sydney and New South Wales.

The NSW Ports Master Plan (2015) estimated that container movements through the port would grow from 2.3 million twenty-foot equivalent units (TEU) in 2015 to between 7.5 and 8.4 million TEU by 2045.

The Port Botany Rail Line is currently single track. Additional demand arising from growth in import/export freight (in particular from the development of the Moorebank Intermodal Terminal) has the potential to create a bottleneck along this line. This would impact on reliability and restrict the efficient movement of freight across the broader Sydney rail network.

As Sydney's primary container port, it is vital that Port Botany maintains throughput capacity to meet demand over the long term.

Currently, around 19% of Port Botany containerised freight is moved using the rail network. Increasing this mode share will require additional capacity on the Port Botany Rail Line and the broader Sydney freight rail network.

Proposed initiative

The proposed initiative aims to upgrade the capacity of the Port Botany Rail Line by duplicating 2.9 km of the line. The proposed initiative originally formed part of a broader strategy designed to drive growth in rail mode share for freight to and from the port.

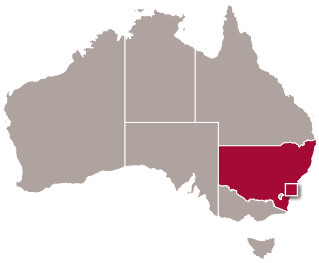
Construction of a passing loop at Cabramatta on the Southern Sydney Freight Line would increase the benefits of the rail duplication project.

The proponent for this initiative was previously the New South Wales Government. It was changed in February 2019 to the Australian Rail Track Corporation as it is responsible for delivery.

Next steps

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

Chullora Junction upgrade



LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

The current configuration of Chullora Junction creates a significant operational constraint for the Sydney Freight Network. Given the forecast growth in rail freight movements as a result of significant developments (such as the Moorebank Intermodal Terminal) and population growth, the junction will become a major bottleneck in the absence of any improvements. This will negatively impact on the efficient movement of freight across the network.

If the capacity and resilience of Sydney's rail freight network is not addressed, congestion on both the rail and road networks will substantially increase, negatively impacting on productivity and increasing delays for freight and passengers.

In order to reduce reliance on Sydney's road network, the rail network and intermodal terminals must provide an efficient and cost competitive alternative. Removing identified bottlenecks on the network is critical to increasing the competitiveness of rail.

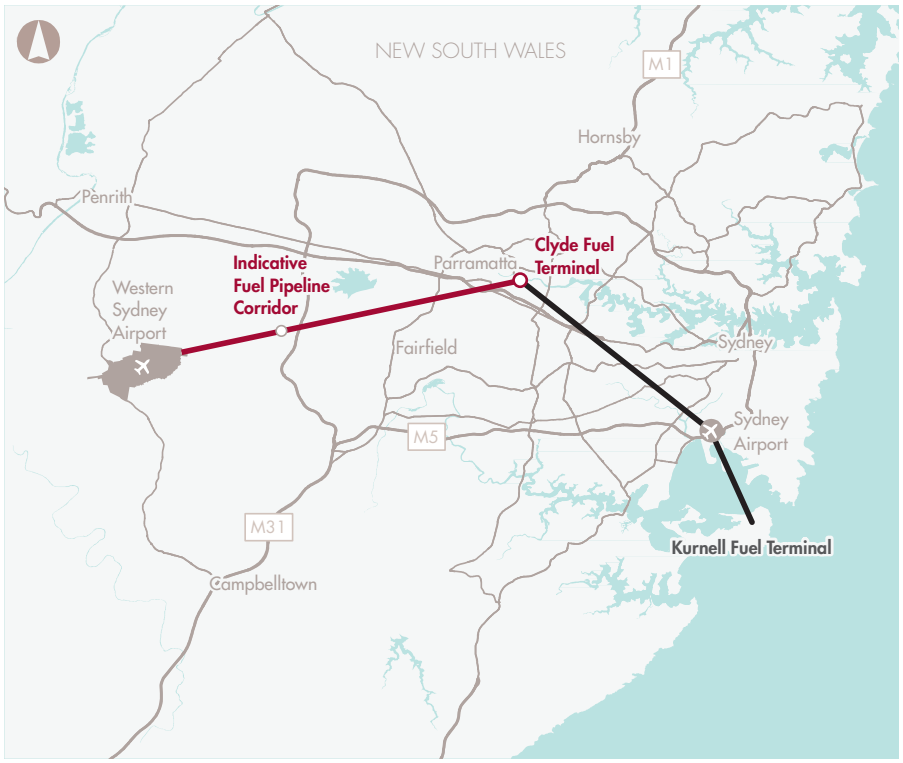
Proposed initiative

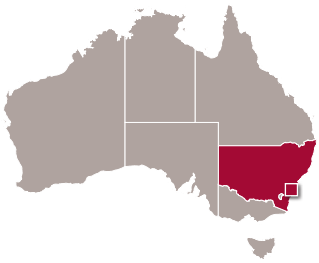
A future upgrade would improve current low-speed train movements at grade junctions at Chullora, and include possible duplication of the Chullora North/ Chullora West connection and a holding road between Chullora Junction and Flemington Junction. This could form part of a broader strategy to drive growth in the rail mode share on the Sydney Freight Network.

Next steps

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

Preserve corridor for Western Sydney Airport fuel pipeline





LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
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

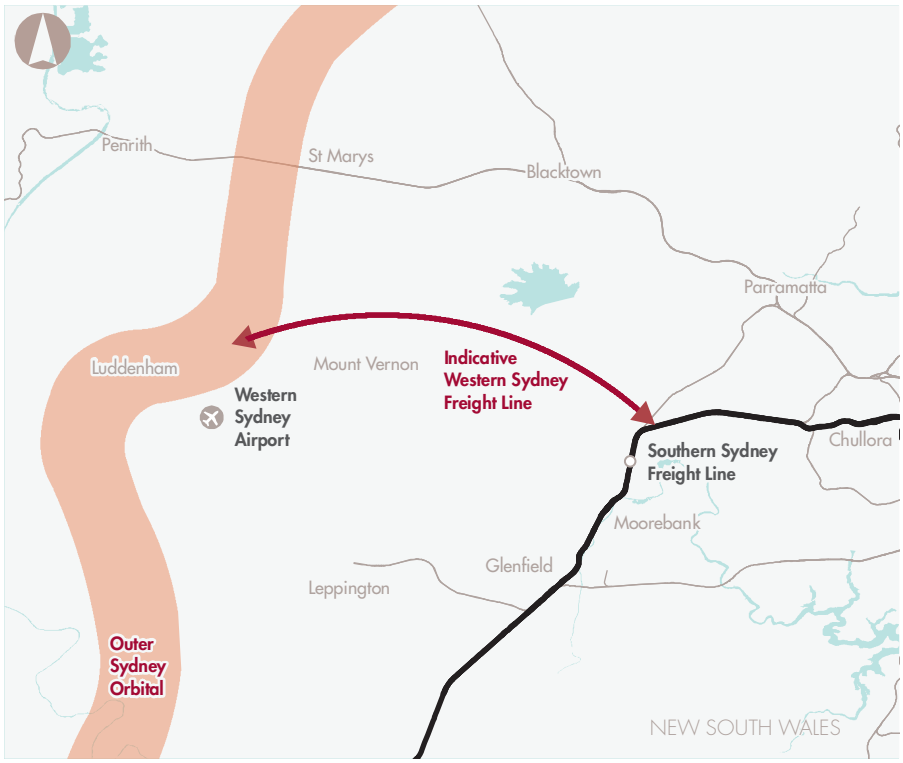
Identify and preserve a corridor for a fuel pipeline connection between the Sydney fuel pipeline network and Western Sydney Airport.

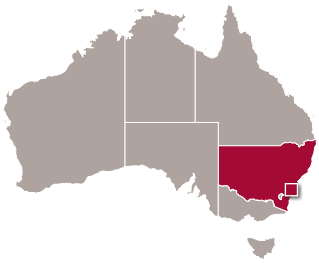
The New South Wales Government is currently undertaking preliminary work to identify route options for a fuel pipeline connection.

Next steps

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

Preserve corridor for Western Sydney Freight Line and Intermodal Terminal access





LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
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.

Currently, only 19% (in 2016–17) of freight handled at Port Botany is 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 corridor and intermodal terminal as $3.6 billion (2016 prices) using a 7% real discount rate.

Proposed initiative

The Western Sydney Freight Line is a proposed dedicated rail freight line connecting Western Sydney to the Sydney Metropolitan Freight Network at the Southern Sydney Freight Line, with connections to intermodal terminals to service freight moving through Western Sydney from across New South Wales.

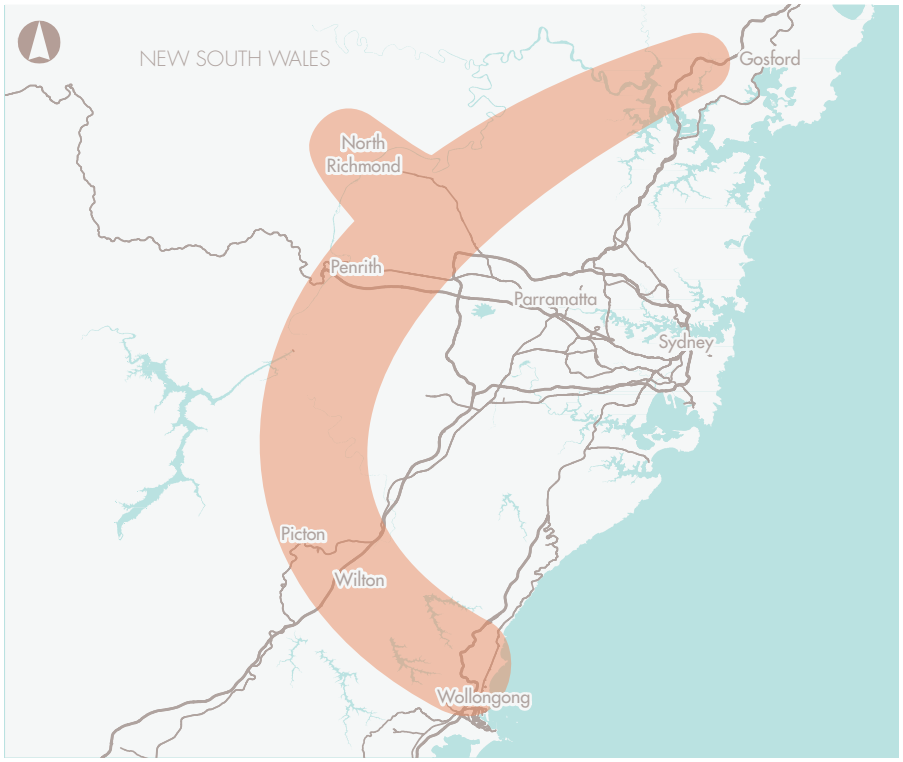
The core objective of the initiative is to reduce growth in truck movements on the Sydney road network and reduce delays to freight trains on the main Western Line, where passenger trains have priority. Preservation of the corridor is the first step to achieving this objective.

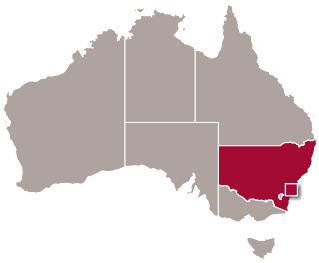
Construction of the Western Sydney Freight Line may also require capacity enhancement of the Southern Sydney Freight Line, which is separately listed on the *Infrastructure Priority List*.

Next steps

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

Preserve corridor for Outer Sydney Orbital road and rail/M9, and Castlereagh Connection





LOCATION
Western Sydney, Illawarra, Central Coast, NSW

PROBLEM TIMESCALE
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

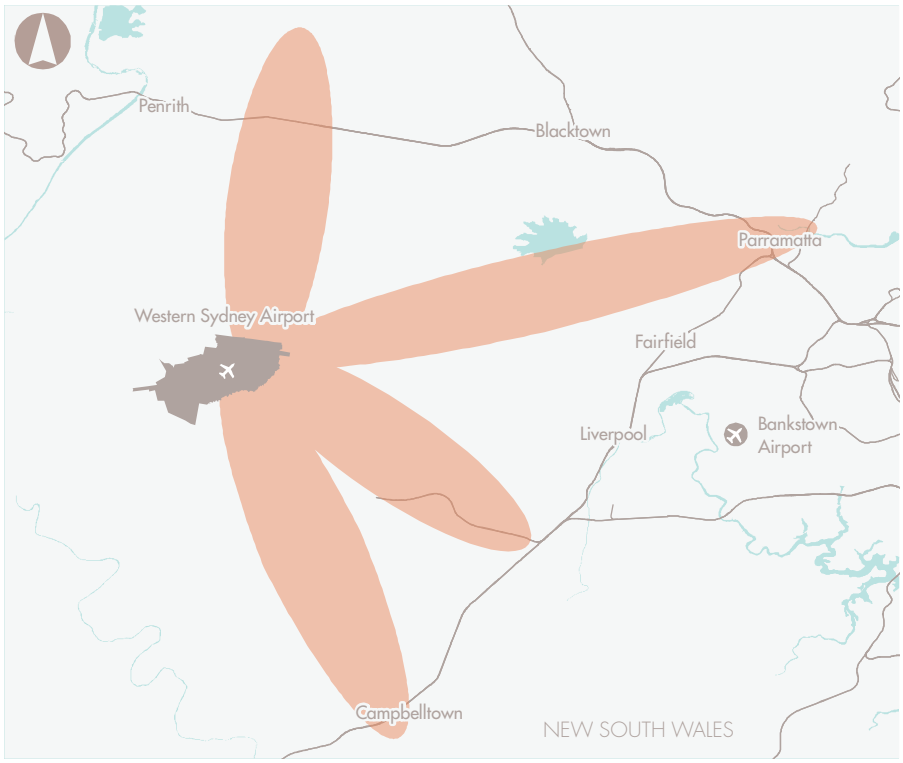
In March 2018, the New South Wales Government publicly exhibited a planning study to identify and ultimately preserve a preferred alignment for a multi-modal transport corridor in Western Sydney, comprising a motorway, a north–south freight rail line, and, where practical, integrating a north–south passenger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

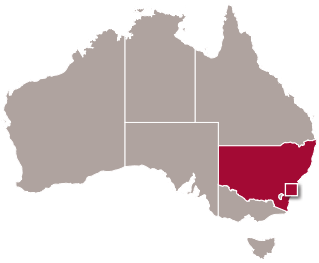
The New South Wales Government has confirmed the preservation of the Castlereagh corridor (originally reserved in 1951) to allow for future improvements to road connectivity and transport efficiency within Greater Sydney and to regional areas west of Sydney.

Next steps

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

Preserve corridor for Western Sydney Airport rail connection





LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

Over the next two decades, the population of Western Sydney will increase by 900,000 people. 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 New South Wales Government jointly released a scoping study that considered six options for rail services to the Western Sydney Airport. 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.

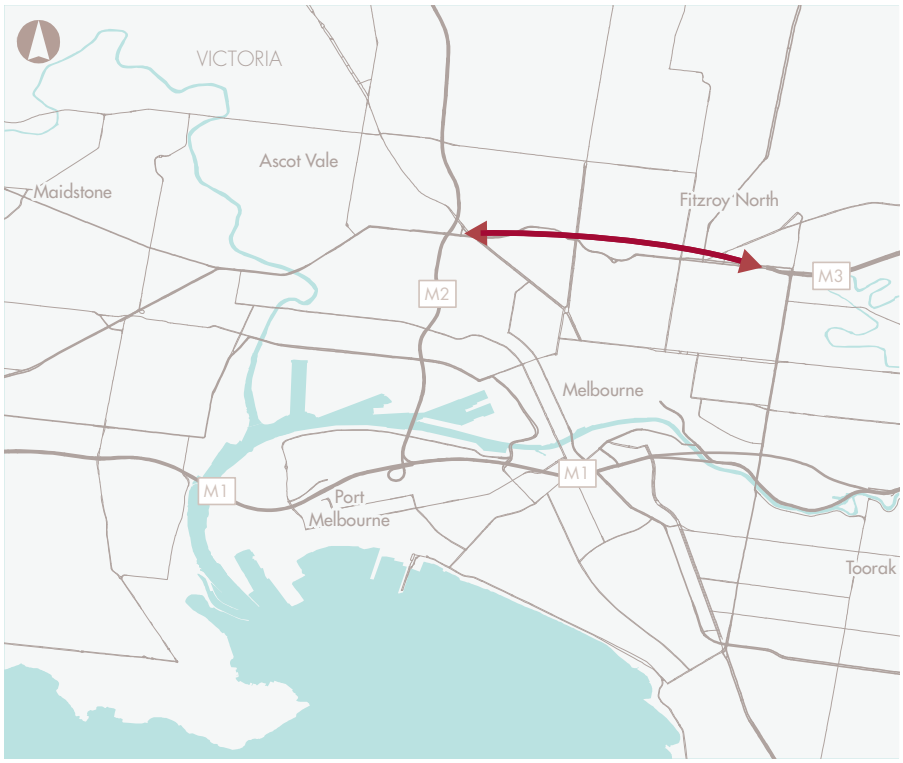
The Australian Government and New South Wales Government are jointly funding a business case for the north–south line to service Western Sydney Airport and the Western Parkland City. This would support growth in Western Sydney, including the new airport, by providing a transport link that can shape growth while providing fast and efficient transport accessibility.

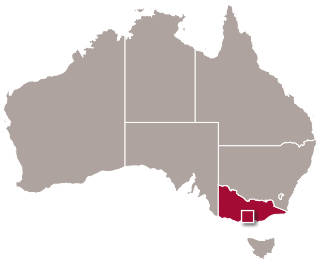
A medium-term Priority Initiative for Western Sydney Airport public transport connection is separately included on the *Infrastructure Priority List*.

Next steps

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

Improve the connection between the Eastern Freeway and CityLink





LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *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 2011, with a delay cost of $73 million. This is expected to worsen by 2031, with the delay cost projected to increase to $144 million (2011 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.

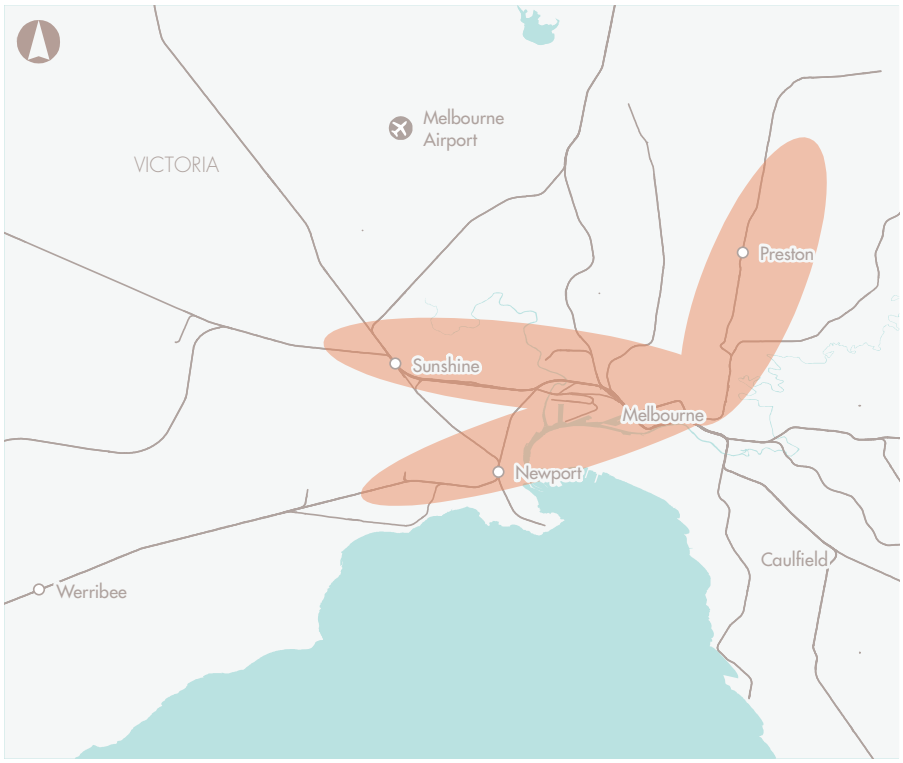
Proposed initiative

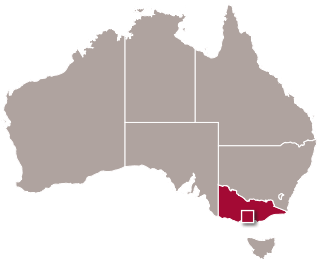
An improved connection between the Eastern Freeway and CityLink would help to address congestion in the area.

Next steps

Proponent to be identified.

Melbourne rail network capacity





LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
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

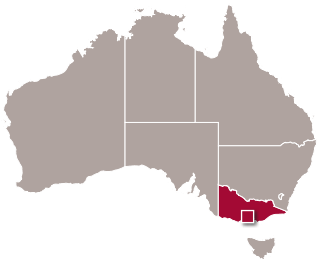
Potential solutions to the emerging capacity constraints could include upgrading the signalling and rolling stock, and augmentations to key lines and stations on the network with the possibility of an additional tunnel through Melbourne's CBD, bypassing the city loop.

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).

Preserve corridor for Melbourne Outer Metropolitan Ring Road/E6



LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
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

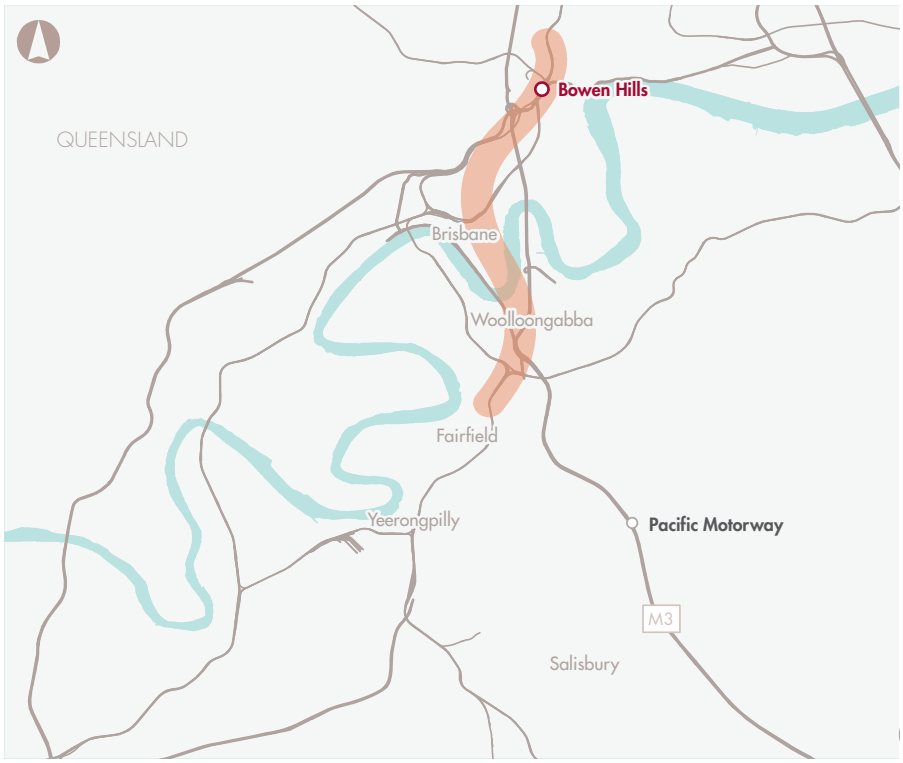
The initiative is corridor preservation for the Outer Metropolitan Ring Road and E6 in Melbourne. The corridor has provision for a freeway (four to six lanes in each direction) and four rail tracks. The land required for the corridor was defined and preserved in 2010 through a Public Acquisition Overlay.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

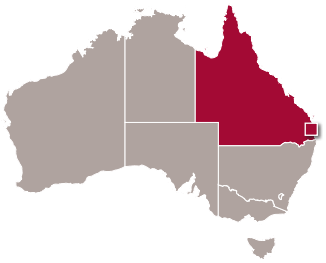
Next steps

Proponent to be identified.

Cross River Rail

A rail solution to support an integrated passenger transport network in South East Queensland





LOCATION
Brisbane, Qld

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Queensland Government

DATE ADDED TO THE IPL
February 2016

Problem

There are capacity constraints in the existing transport system for trips to and from Brisbane's CBD, and strong population and employment growth in South East Queensland.

The current rail connection into and through Brisbane's CBD is expected to reach capacity by the early to mid-2020s, while parts of the road and bus network are already close to or at capacity. The population of South East Queensland is forecast to continue growing over coming decades. This growth, together with jobs growth centred on the CBD, will drive additional demand for trips to and from the CBD.

The 2015 *Australian Infrastructure Audit* identified crossings of the Brisbane River as a critical bottleneck for trains and buses.

Proposed initiative

The Cross River Rail initiative would provide a north–south passenger rail line through Brisbane's inner city from Bowen Hills (north of the CBD) to Dutton Park, via Roma Street, Albert Street in the southern CBD, Woolloongabba and Boggo Road. This would provide a second rail crossing of the Brisbane River, enabling increased capacity in the rail network and connectivity with other public transport.

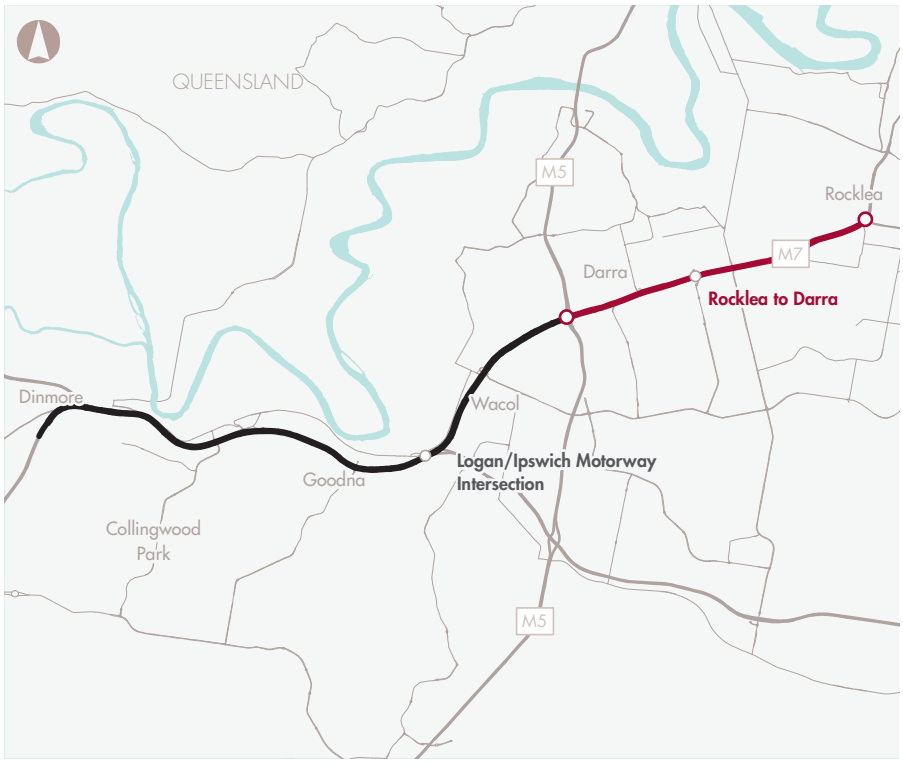
Infrastructure Australia evaluated the 2016 business case for the Cross River Rail project in 2017. In June 2017, the Queensland Government committed to fully fund the project. Should Australian Government funding be sought, Infrastructure Australia would welcome a revised business case with updated information.

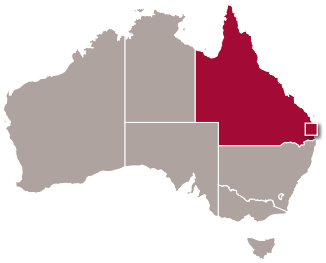
Next steps

The Cross River Rail Delivery Authority became operational on 14 April 2017 and is leading the development, procurement and delivery of the Cross River Rail project. The Queensland Government is fully funding the project, and the tendering process for the two major packages of work is expected to be completed in 2019. The project is proposed to be operational by 2024.

Ipswich Motorway Upgrade

Rocklea to Darra (remaining sections)





LOCATION
Western Brisbane, Qld

PROBLEM TIMESCALE
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 2015 *Australian Infrastructure Audit* estimates the direct cost of congestion along the corridor at around $30 million to $40 million in 2011, 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.

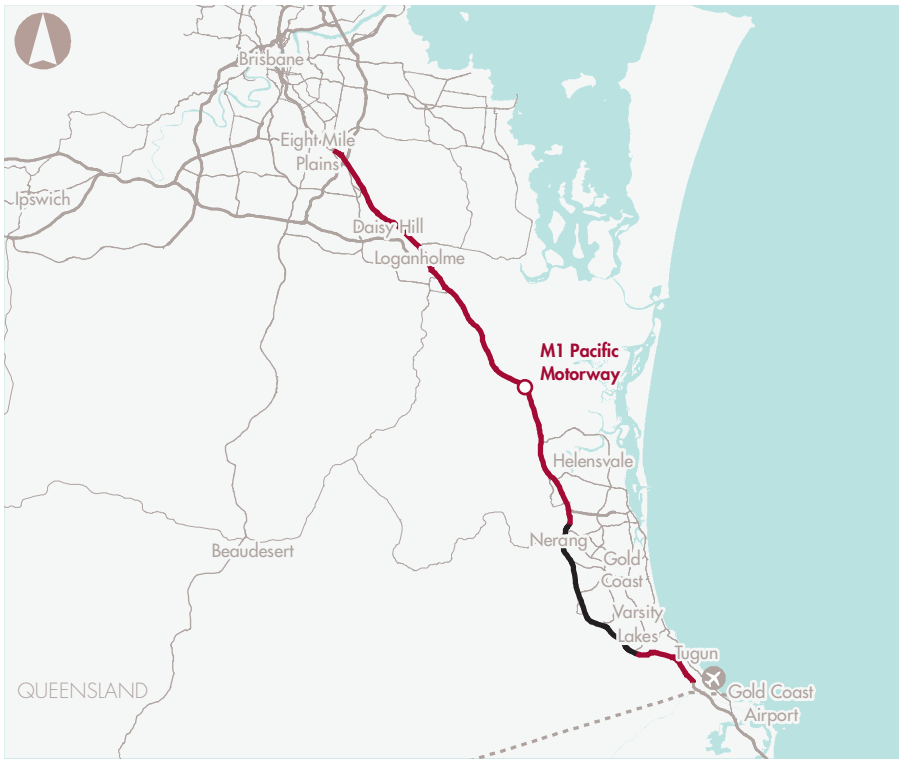
Package 2 proposes the upgrade of the Oxley/Blunder Road interchange. The remainder of the initiative involves the widening and upgrading of the remaining section of the corridor.

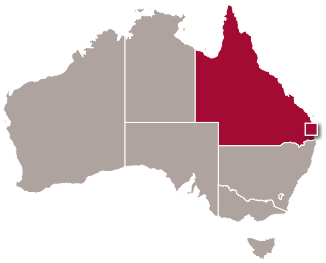
Next steps

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

M1 Pacific Motorway capacity

Eight Mile Plains to Tugun





LOCATION
South-east Queensland

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Queensland Government

DATE ADDED TO THE IPL
February 2019

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 currently accommodate this volume of traffic and, as a result, experiences frequent and prolonged periods of congestion.

The section between Eight Mile Plains and Tugun is heavily congested on most days, as vehicles travel in and out of Brisbane from the rapidly growing Gold Coast, northern New South Wales, and Logan regions.

Current traffic volumes exceed the design capacity of the motorway, creating congestion with nationally significant impacts on productivity. The lack of an alternative route exacerbates congestion issues 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.

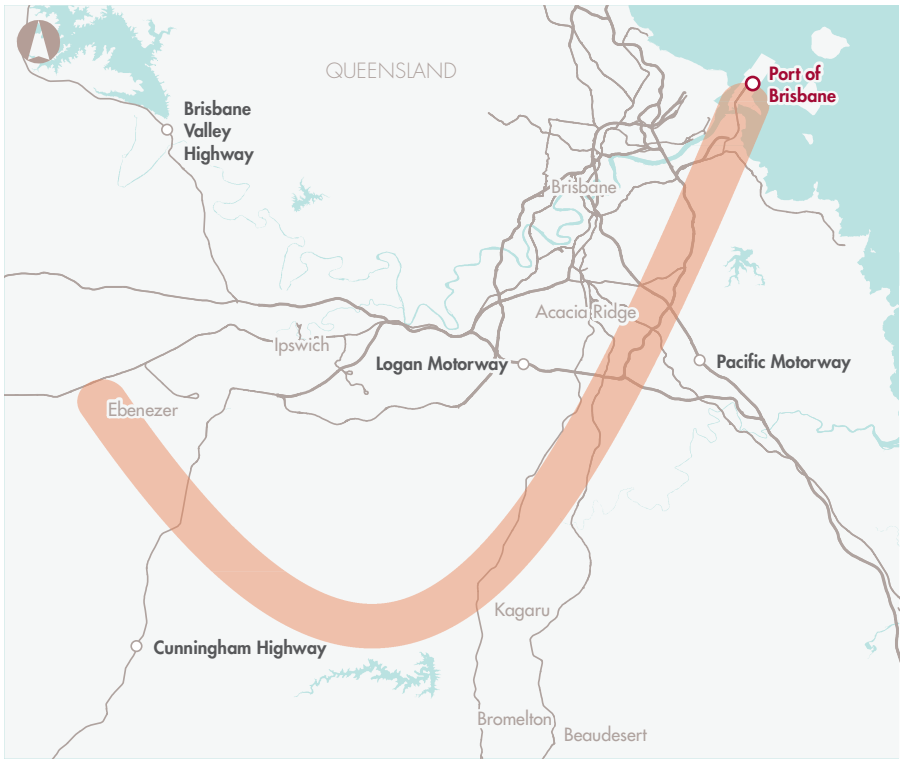
The sections between Eight Mile Plains and Daisy Hill, and between Varsity Lakes and Tugun, were first included as separate initiatives on the *Infrastructure Priority List* in March 2018.

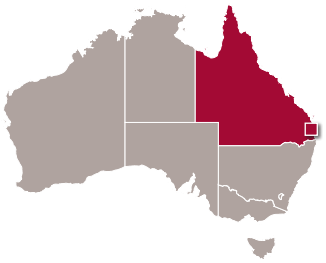
Next steps

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.

Port of Brisbane dedicated freight rail connection





LOCATION
Brisbane, Qld

PROBLEM TIMESCALE
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 rail freight 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 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

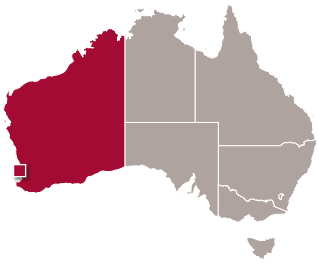
A future upgrade would seek to improve connectivity between the Port of Brisbane and freight terminals in the Brisbane region through preserving and, ultimately, delivering a dedicated freight rail corridor. This would aim to meet the projected increase in freight volumes, while facilitating a modal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

The Australian Government and Queensland Government have commenced a joint study of options and requirements for this initiative that is due to be completed in 2019. This study will take into account current and future demand and consider the relationship with the Inland Rail Project.

Next steps

Proponent to be identified.

Perth CBD to north corridor capacity



LOCATION
Perth, WA

PROBLEM TIMESCALE
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 commenced upgrades along Marmion Avenue and Wanneroo Road and is currently developing a business case for the proposed Mitchell Freeway extension to Romeo Road.

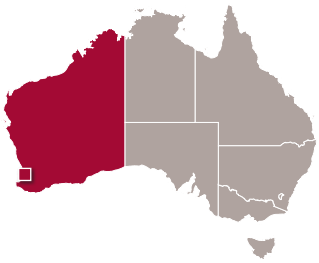
A business case for the Yanchep Rail Extension was evaluated by Infrastructure Australia in 2018 and included on the *Infrastructure Priority List* as a High Priority Project. This project will extend the Joondalup Line from Butler to Yanchep.

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.

Mitchell and Kwinana freeways upgrade



LOCATION
Perth, WA

PROBLEM TIMESCALE
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 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 are also currently underway on sections of the Kwinana and Mitchell freeways, including northbound widening of the Kwinana Freeway between Russell Road and Roe Highway.

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.

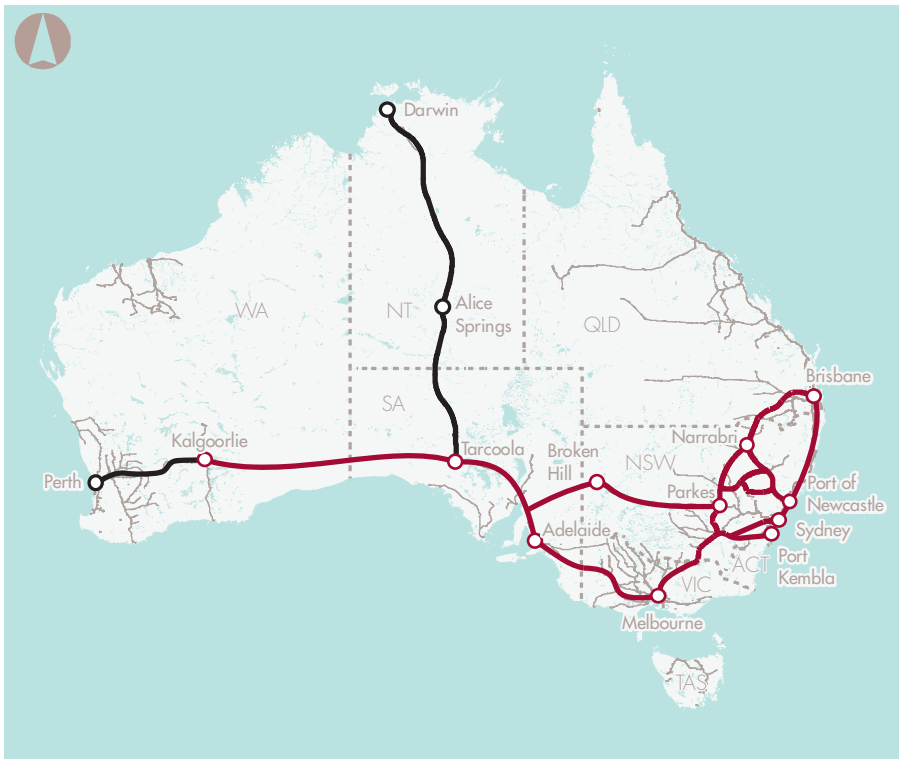
Next steps

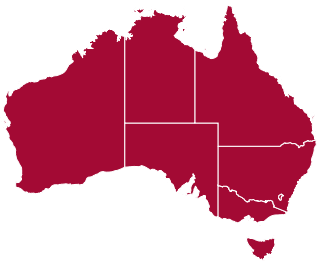
Proponent to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

Priority Initiatives

SUMMARIES

Advanced Train Management System implementation on the interstate rail network





LOCATION
Australian interstate rail network

PROBLEM TIMESCALE
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 wireless satellite 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 operation, and improve competition with road. It is proposed to be rolled out across the interstate rail network linking metropolitan centres and key national ports.

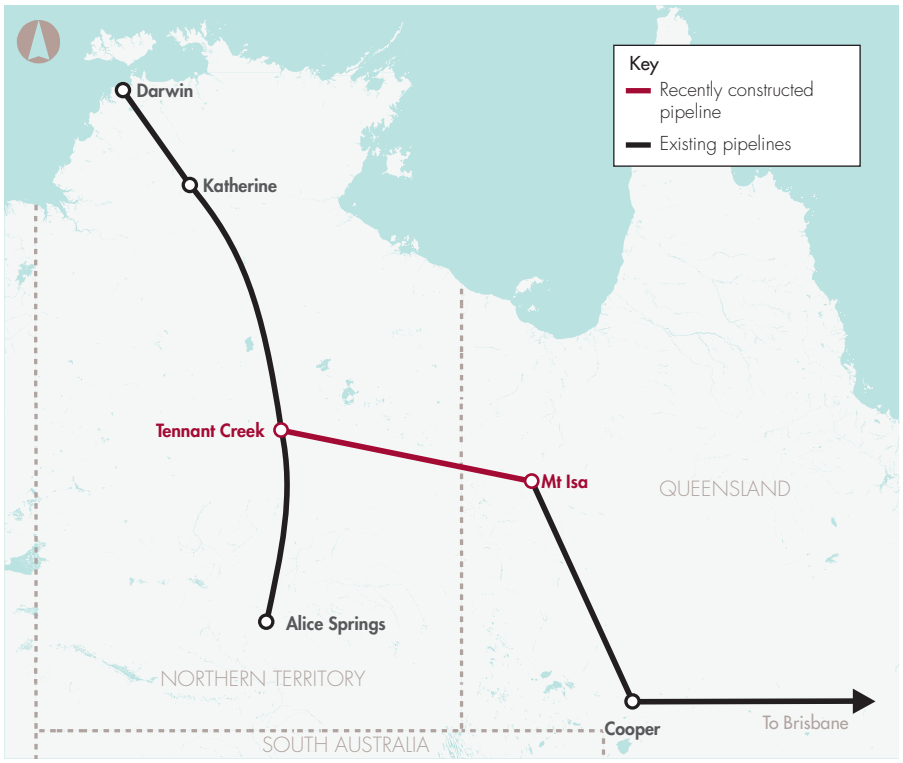
There is in-principle agreement to adopt ATMS to be inter-operable with the Electronic Train Control System being implemented in some commuter networks.

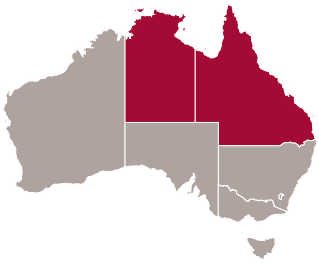
The Australian Government has provided $50 million in grant funding to prepare for the deployment of ATMS between Tarcoola and Kalgoorlie.

Next steps

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

Connect gas suppliers to eastern gas markets





LOCATION
National

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2016

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. In the absence of additional supply, this increased demand is expected to lead to higher prices. The Northern Territory and Western Australia have price-competitive gas available, but are not directly linked to the eastern gas pipeline network.

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

Proposed initiative

Develop infrastructure to connect northern and/or western 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.

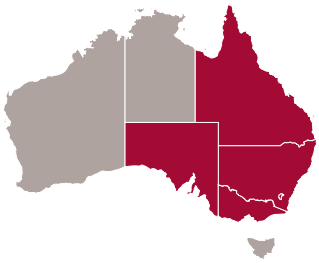
However, it is not yet clear if this link is sufficient to address the shortfall in the eastern gas market. Additional action, including possible future capacity investment between the Northern Territory and the eastern states, or a pipeline connection to Western Australia, may be required in the future.

Next steps

Proponent(s) to be identified.

National Electricity Market

Near-term optimisation



LOCATION
National

OPPORTUNITY TIMESCALE
Near term (0–5 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2019

Opportunity

There is an opportunity to optimise the National Electricity Market (NEM) by improving connections between different regions and increasing system strength. Improved connections between Queensland, New South Wales and Victoria can defer the need for major capital investment, increase competition in the NEM and improve network reliability.

The Australian Energy Market Operator released the Integrated System Plan (ISP) in 2018, which forecasts a continuing trend away from thermal electricity generation, and towards a more diverse portfolio of fuels, including wind and solar. In order to effectively make this transition, the ISP recommends further capital investment in transmission capacity to connect to new fuel sources. It also identifies low system strength in many parts of the South Australian energy network, which can result in stability and resilience issues.

Medium- to longer-term connectivity and reliability improvements to the NEM are also included in the *Infrastructure Priority List* as a High Priority Initiative.

Proposed initiative

The ISP identifies three groups of investments over the near, medium and long term. This initiative relates to the Group 1 investments, which are potential near-term investments that would improve interconnections between NEM regions, and which make better use of existing assets. These are:

- increasing transfer capacity between the New South Wales, Queensland and Victoria NEM regions
- reducing network congestion for existing and committed renewable energy developments in western and north-western Victoria
- improving network system strength in South Australia.

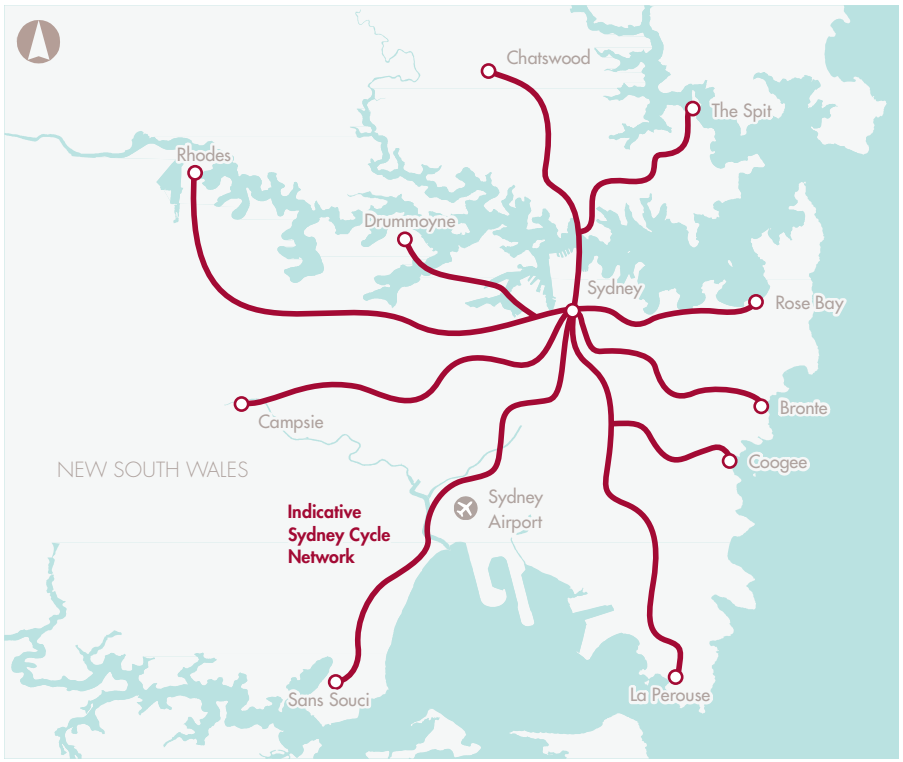
These potential near-term investments are subject to change as the ISP is updated to reflect the dynamically changing nature of the power system.

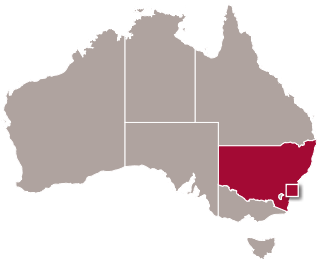
The investments and their timing will also be subject to detailed assessment of their costs and benefits by network infrastructure owners.

Next steps

Proponent(s) to be identified.

Active transport (walking and cycling) access to Sydney CBD





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
City of Sydney

DATE ADDED TO IPL
February 2016

Problem

The cost of congestion in Sydney is estimated to increase from around $6 billion in 2011 to $15 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. The public transport network in Inner Sydney is 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 CBD. Safety concerns and disparate travel routes are current barriers to other forms of short distance or active transport.

A 2%–5% shift of short-distance car trips within 10 km of the CBD to active transport may result in a reduction of between 20,000 and 50,000 motor vehicle trips per day on Inner Sydney's congested corridors.

Proposed initiative

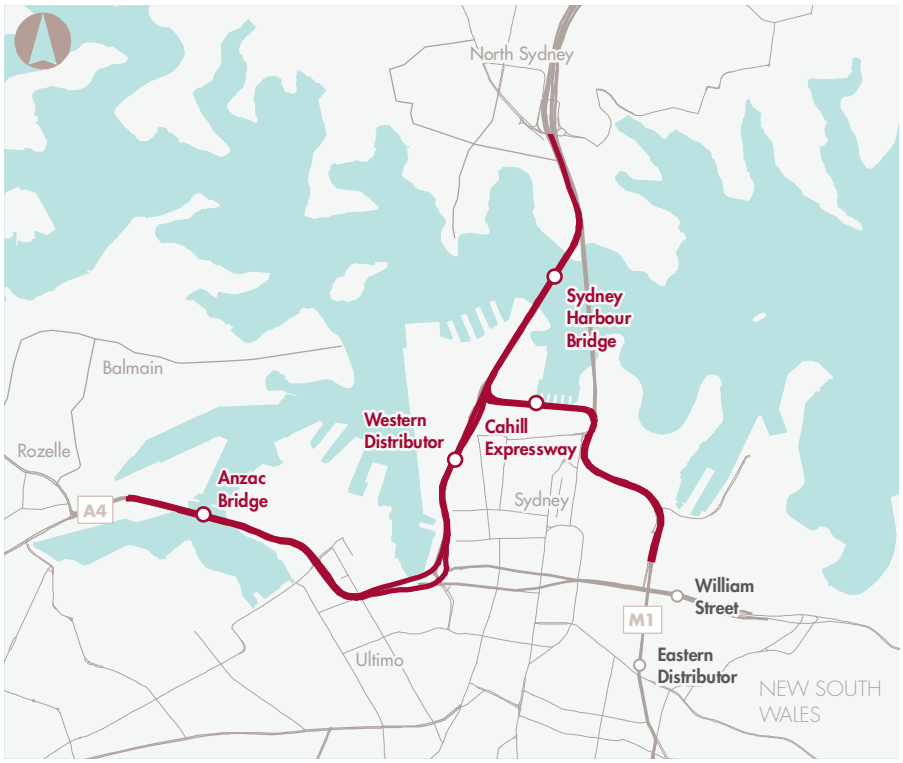
Upgrade a network of 284 km of dedicated cycling and shared cycling/walking paths, on existing radial and cross regional corridors within a 10 km radius of the CBD.

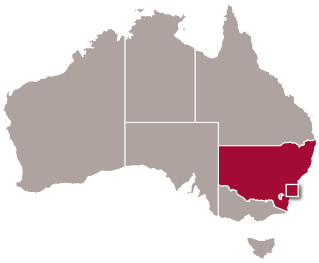
In the longer term, there may be sufficient intra-regional trip volumes to support an extension of the network west to Parramatta.

Next steps

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

Sydney CBD motorways optimisation





LOCATION
Sydney Inner City, NSW

PROBLEM TIMESCALE
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 joining 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 exacerbates 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 and capacity of the road network.

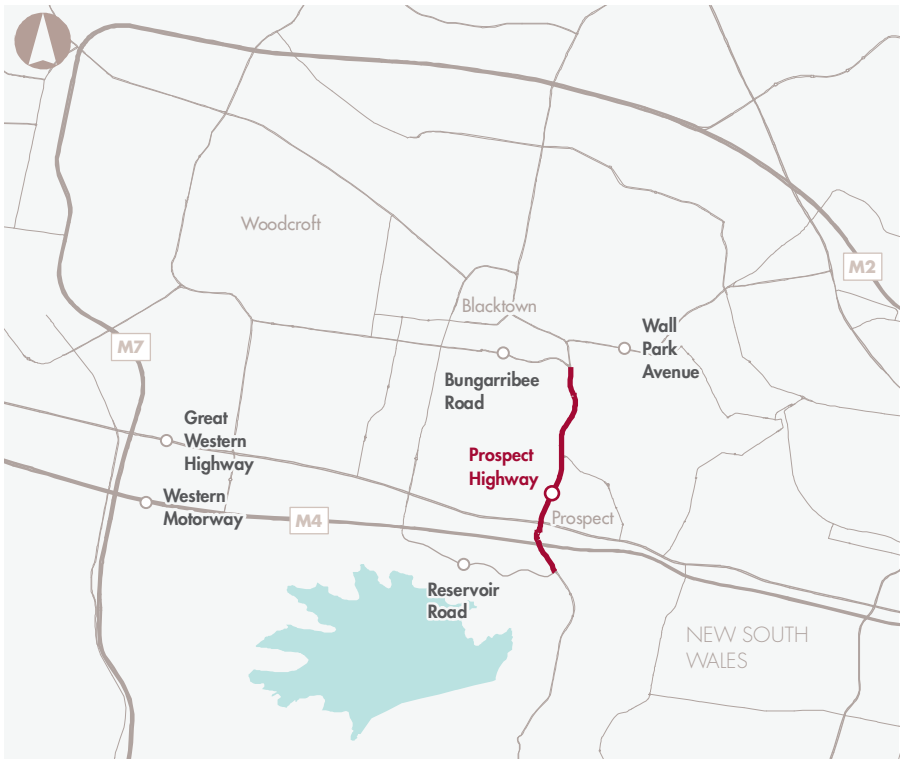
Potential responses includes the provision of Intelligent Transport Systems and other technology to regulate traffic flows onto and off the motorways, and to increase real-time information for motorists. The objectives would be to:

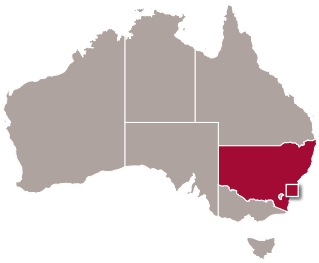
- reduce travel times, vehicle operating costs and environmental impacts
- improve travel-time reliability, user experience and road safety.

Next steps

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

Prospect Highway capacity





LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2019

Problem

The section of the Prospect Highway/ Blacktown Road between Wall Park Avenue and the M4 Western Motorway is currently at capacity, carrying approximately 36,000 vehicles per day with only a single lane in each direction. Approximately 10% of the traffic (or 3,600 vehicles) are heavy vehicles. Traffic volumes are forecast to reach approximately 75,000 vehicles per day within the next 25 years, which would double the existing peak hour volumes.

The two-lane, two-way configuration of the bridge over the Great Western Highway limits capacity and creates a bottleneck.

Existing travel speeds average around 30 km/h during peak periods, which is half the speed limit. Traffic modelling suggests travel speeds will further deteriorate to 25 km/h for light vehicles, 19 km/h for heavy vehicles and 7 km/h for public buses by 2038.

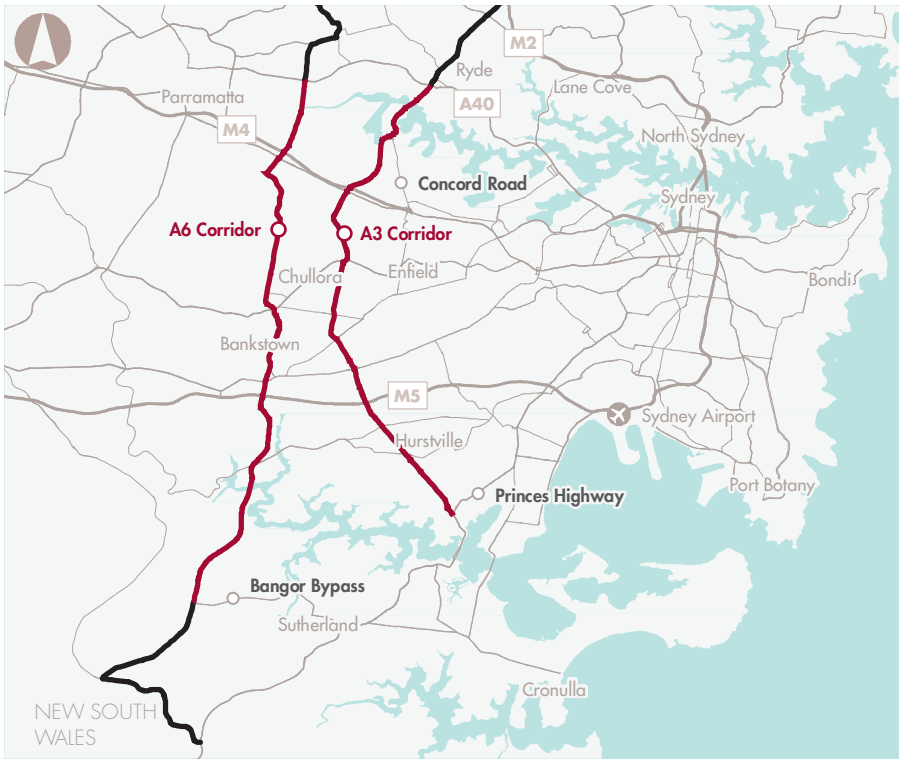
Proposed initiative

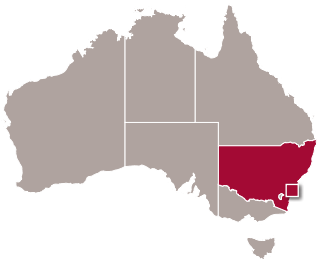
The initiative involves an upgrade of a 3.6 km section of the highway to a generally four-lane divided carriageway of consistent standard, with a range of improvements to interchanges, intersections and public and active transport infrastructure.

Next steps

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

A3 and A6 corridor capacity





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
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.

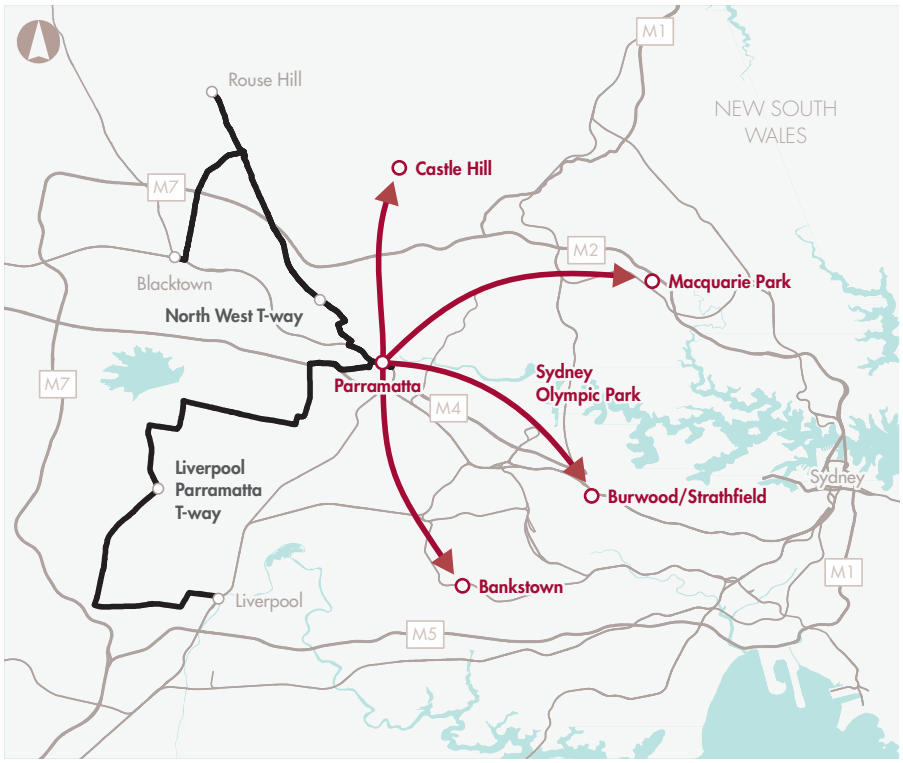
Proposed initiative

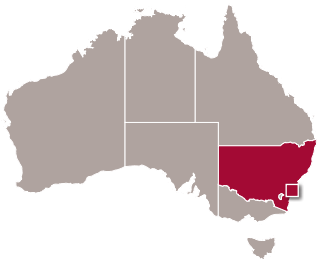
Capacity constraints on the A3 and A6 corridors could be addressed through a range of initiatives, such as intersection upgrades and road widening. Potential upgrades should be considered in the context of an overall integrated program, as improvements to either of the corridors may also reduce pressure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

Next steps

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

Public transport access to Parramatta CBD





LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
Near to medium term (0–10 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

The New South Wales Government's Future Transport Strategy 2056 identified the need for additional mass transit links connecting Parramatta with strategic centres across Western Sydney.

From 2011 to 2031, Sydney's population is expected to increase by 1.6 million people. The majority of this growth (900,000 people) is forecast to occur in the Western Sydney region. As a stand-alone region, Western Sydney would be the nation's fourth largest region and third largest economy.

The Parramatta CBD and several other precincts – including the Westmead health precinct, Western Sydney University, Rydalmere, North Parramatta, and Camellia – have been identified for urban renewal and residential and commercial redevelopment.

This redevelopment is expected to accelerate Parramatta's growth and bring more jobs, businesses and residents into the Parramatta CBD and surrounding areas. Employment in the Parramatta Local Government Area is expected to grow 30% by 2031, from 114,000 people in 2016.

Without investment in public transport, population and jobs growth will lead to increased congestion on the road and rail networks.

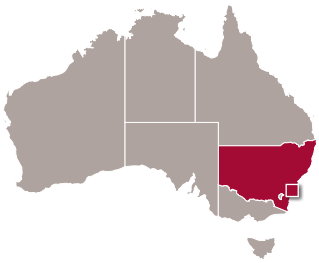
Proposed initiative

Additional public transport, which could include mass transit (heavy rail and metro) and intermediate transit (bus or light rail), to connect Parramatta to strategic centres and residential areas in Western Sydney. This would help alleviate congestion on the road and public transport networks. Some public transport solutions could also facilitate urban renewal in Western Sydney.

Next steps

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

Central Station redevelopment – rail and station infrastructure



LOCATION
Sydney Inner City, NSW

PROBLEM TIMESCALE
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. From 2019, Central will be 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 potential access improvements to connect the new Metro station with the rest of Central Station, and other enhancements to the station's functionality.

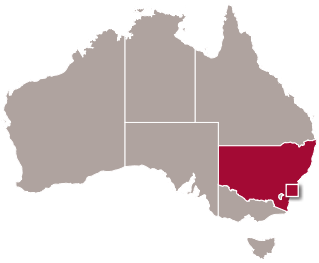
A proposed second stage of the initiative deals with the renewal of the broader station precinct. This second stage has not been assessed for inclusion on the *Infrastructure Priority List* at this time.

Next steps

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

F6 Extension

Connection between the M1 at Waterfall and the Sydney motorway network



LOCATION
Southern Sydney, NSW

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

There is no motorway standard route between the Sydney motorway network and the M1 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 2015 *Australian Infrastructure Audit* identified the Sutherland–Ryde/Parramatta corridor as the fifth-most congested in the greater Sydney area in 2011, and forecast to be the sixth-most congested in 2031. The King Georges Road Corridor, between Princes Highway and the M4, was ranked as the second-most congested in 2011 and likely third-most congested in 2031.

Proposed initiative

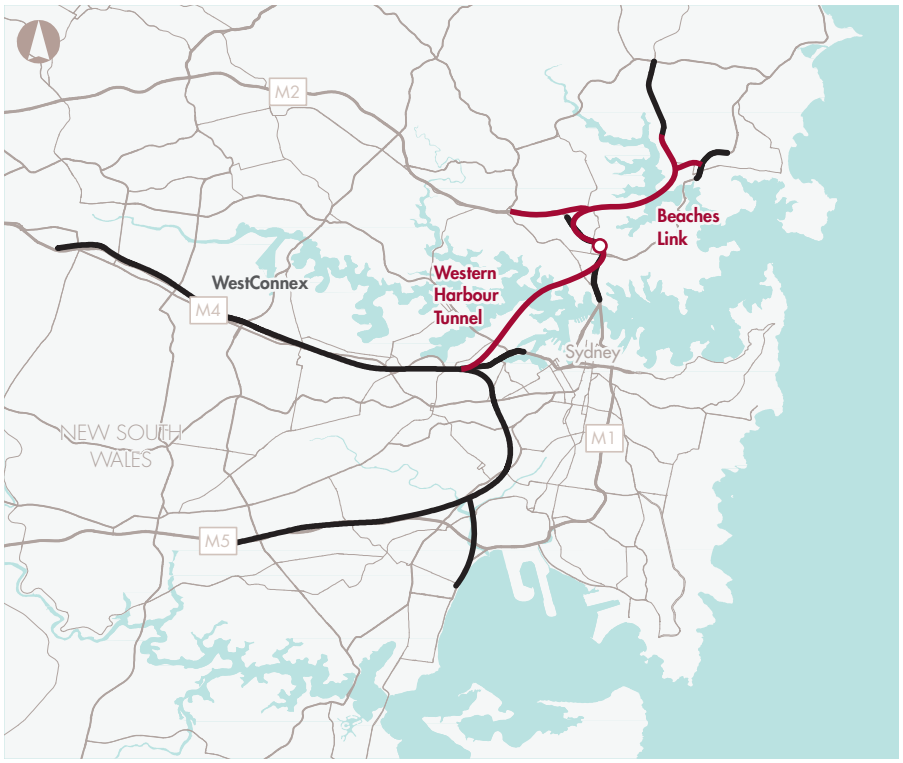
The initiative proposes a motorway connection between the Sydney motorway network and the M1 at Waterfall.

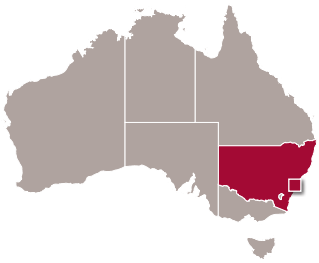
The New South Wales Government has committed to construct Stage 1 of the link between WestConnex (New M5) and President Avenue at Kogarah.

Next steps

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

Western Harbour Tunnel and Beaches Link





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Longer term (10–15 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 across Middle Harbour.

The 2015 *Australian Infrastructure Audit* ranked the North Sydney–Northern Beaches Corridor as the 10th-most congested corridor in the wider Sydney region in 2011, and forecast 11th-most congested in 2031. The Gore Hill/Warringah Freeway/Sydney Harbour Bridge/Eastern Distributor Corridor was ranked 12th in 2011, and, in the absence of additional capacity, it is projected to become the most congested corridor in New South Wales in 2031.

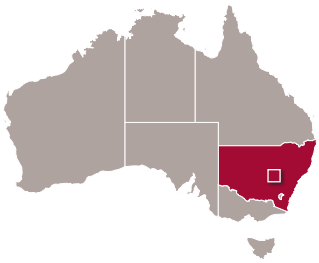
Proposed initiative

The initiative proposes a motorway crossing underneath Sydney Harbour, connecting WestConnex with the Warringah Freeway, and a motorway connection from the Warringah Freeway to Seaforth/Balgowlah on the northern side of Middle Harbour.

Next steps

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

Newell Highway upgrade



LOCATION
NSW section of Melbourne–Brisbane inland route

PROBLEM TIMESCALE
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 Higher Productivity Vehicle access, and improve safety and reliability.

The initiative will also consider first/last mile issues faced by Higher Productivity Vehicle operators in the corridor.

Realignment of a 6.5 km section of the highway at Trewilga was completed in February 2018.

Construction commenced on heavy-duty pavement south of Boggabilla in late 2018.

Planning has commenced for a range of further works:

- bypasses of Boggabilla, Parkes and Coonabarabran
- heavy-duty pavement provision (North Moree, Narrabri to Moree)
- road widening (Boggabilla to Goondiwindi and Coonabarabran to Narrabri)
- upgrade of intersection with Mitchell Highway at Dubbo
- new Dubbo Bridge and realignment
- additional overtaking lanes.

The New South Wales Government 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).

Pacific Highway (A1) – Coffs Harbour bypass

LOCATION
Coffs Harbour, NSW

PROBLEM TIMESCALE
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

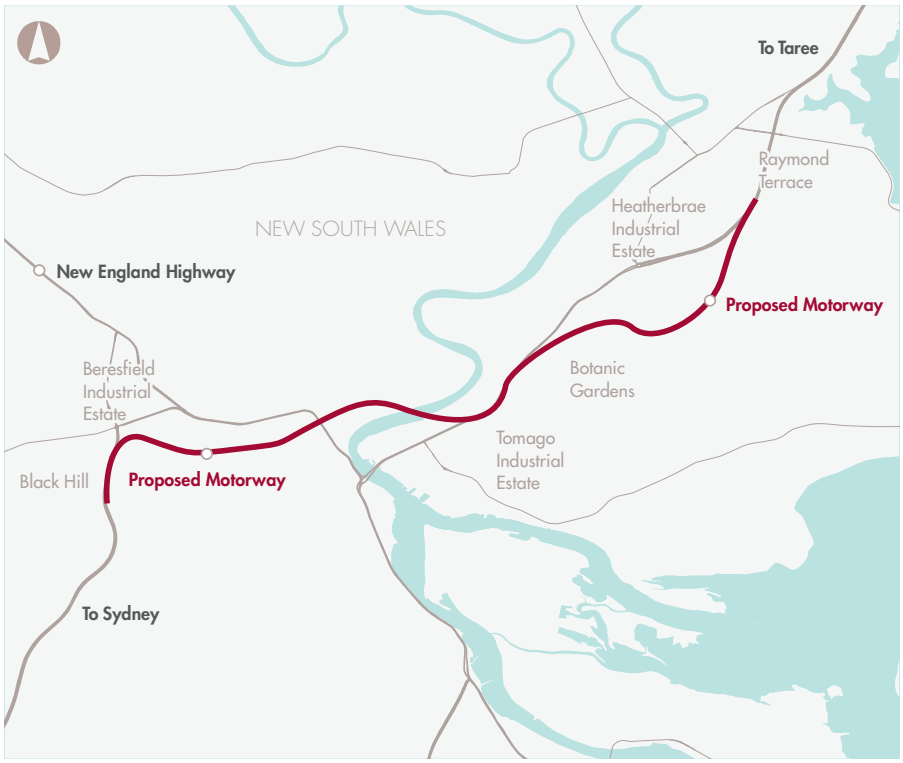
This initiative proposes constructing a bypass around Coffs Harbour. This would also include an upgrade to an existing section of highway to deliver a total of 13.2 km of motorway standard dual carriageway on the Pacific Highway.

To the north, 155 km of the Pacific Highway is being upgraded between Woolgoolga and Ballina, with sections progressively being opened by 2020. Including this initiative, these upgrades would complete 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).

Pacific Highway (M1) – extension to Raymond Terrace



LOCATION
Beresfield to Raymond Terrace, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

The Pacific 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 Pacific Highway from Black Hill to 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 the Hunter and New England region and the Port of Newcastle.

Between John Renshaw Drive and Raymond Terrace, the highway is at arterial road standard with at-grade intersections, hindering the free flow of 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.

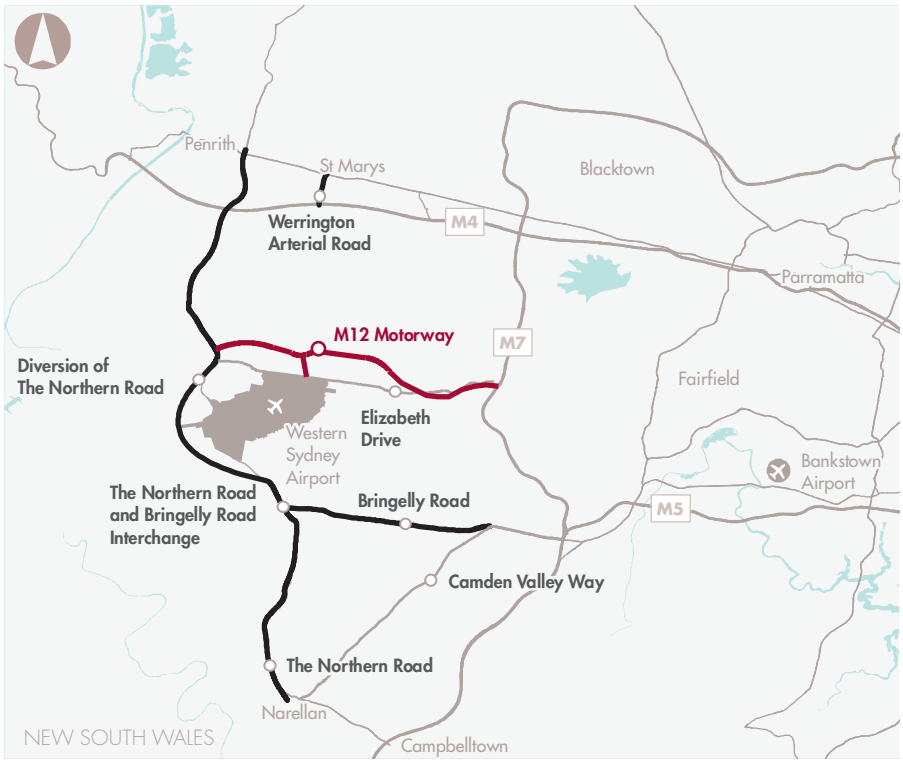
Proposed initiative

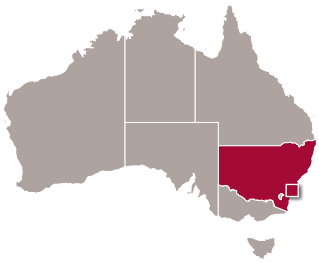
Upgrade of the Pacific Highway between John Renshaw Drive and Raymond Terrace to motorway standard. This would lead to productivity benefits from faster freight movements north–south in the Sydney to Brisbane corridor and for intersecting east–west traffic flows to and from the Port of Newcastle.

Next steps

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

Western Sydney Infrastructure Plan





LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

From 2011 to 2031, the population of Western Sydney will increase by around 900,000 people, with around half of all Sydney Basin residents expected to be living in the region within 25 years.

Preliminary analysis indicates that initial demand at Western Sydney Airport will be about 3 million passengers per year from commencement of airport operations in the mid-2020s.

Future development in Western Sydney, and at the Western Sydney Airport, is expected to generate additional travel demand that would eventually exceed the capacity of the existing road network.

Proposed initiative

The initiative includes a suite of road projects including:

- upgrading The Northern Road to a minimum of four lanes
- building a new M12 Motorway to provide access to the Western Sydney Airport between the M7 Motorway and The Northern Road
- upgrading Bringelly Road to a minimum of four lanes
- building the Werrington Arterial Road linking the M4 Motorway and Great Western Highway
- a package of local road upgrades.

A project to upgrade The Northern Road is separately included on the *Infrastructure Priority List*. The Bringelly Road upgrade was formerly on the *Infrastructure Priority List* and is now under construction.

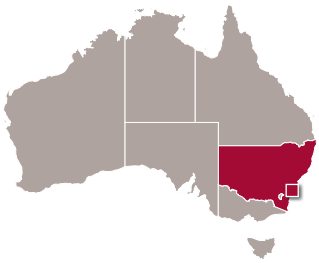
Separate initiatives on the *Infrastructure Priority List* address the servicing of Western Sydney and Western Sydney Airport with rail and other public transport, as well as the preservation of transport and pipeline corridors.

Next steps

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

The New South Wales Government is developing a business case for the M12 Motorway component of the Western Sydney Infrastructure Plan. All other components of the initiative are under delivery, with initial stages complete.

Freight rail access to Port Kembla



LOCATION
Illawarra/Southern Highlands region, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

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.

Currently, 60–65% 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 limited 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 New South Wales 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.

Inadequate rail freight capacity may lead to a substantial increase in road freight, further constraining the Illawarra region's road network.

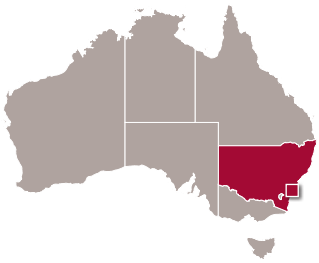
Proposed initiative

Improve rail freight 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.

Next steps

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

Moorebank Intermodal Terminal road connections upgrade



LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
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).

Proposed initiative

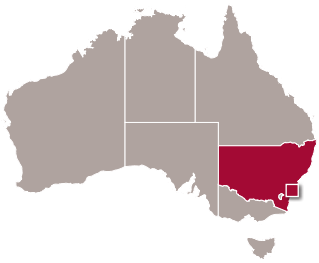
The initiative proposes a package of inter-related road infrastructure improvements to increase network efficiency and improve access to the MIT. The major components include:

- upgrades to the M5 interchanges at the Hume Highway and Moorebank Avenue
- duplication and extension of Cambridge Avenue from Moorebank Avenue westward to the Hume Motorway (M31).

Next steps

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

Shoalhaven River crossing capacity



LOCATION
Nowra, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2019

Problem

The Princes Highway links Sydney with the Illawarra, Shoalhaven and South Coast regions, carrying a mix of freight and passenger traffic for local, long-distance and tourism purposes. At Nowra, twin bridges currently provide connectivity across the Shoalhaven River.

The southbound bridge, constructed in 1881, requires significant spending to remain operational. The bridge also cannot carry over-height or higher mass limit freight vehicles, which reduces freight productivity.

Over 50,000 vehicles cross the river each day and the intersections on either side of the bridges are heavily congested during peak periods. As the volume of local and longer-distance trips grows, travel times and vehicle operating costs for users will continue to increase, and road safety will continue to worsen.

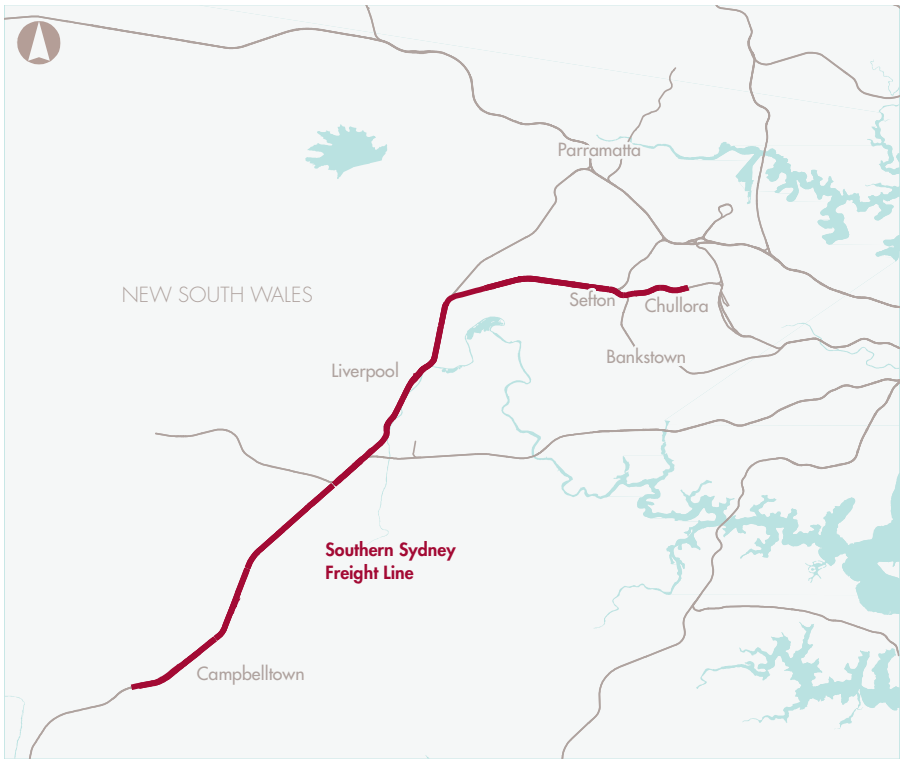
Proposed initiative

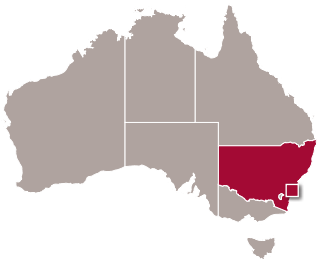
The initiative involves improving the crossing capacity of the Princes Highway across the Shoalhaven River at Nowra. This could be achieved by upgrading or replacing the existing bridges, or by considering alternative routes.

Next steps

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

Southern Sydney Freight Line upgrade





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Longer term (10–15 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

The forecast growth in interstate, intrastate and import/export freight, particularly with the development of the Moorebank Intermodal Terminal (MIT), will place significant pressure on Sydney's rail freight network and the Southern Sydney Freight Line (SSFL) in particular.

The SSFL forms a key connection between the proposed MIT and other logistics hubs. Without additional capacity when the MIT is fully operational, the SSFL could become increasingly unreliable and face capacity constraints. The potential future development of the Western Sydney Freight Line, which is proposed to connect Sydney's rail freight network at the SSFL, would further exacerbate capacity constraints on the SSFL.

In 2016–17, only 19% of freight handled at Port Botany was transported by rail, with the remainder transported by road. On average, Port Botany produces around 3,900 truck movements daily, contributing to significant congestion on key arterial roads including the M4 and M5, both of which were identified in the 2015 *Australian Infrastructure Audit* as highly-congested corridors.

In order to facilitate a shift from road to rail for containerised freight movement in Sydney (consistent with both New South Wales Government policies and findings from the Audit), further capacity and higher levels of service are required on Sydney's freight rail network. Investment in the rail freight network will be crucial to ensuring the competitiveness of landside freight infrastructure such as the Moorebank Intermodal Precinct.

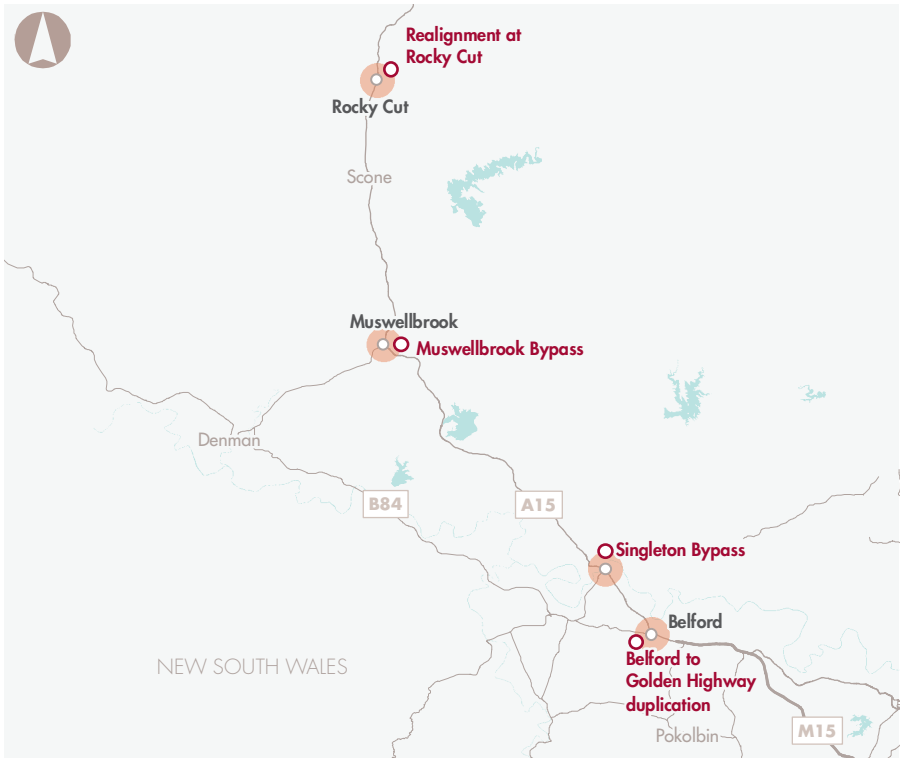
Proposed initiative

The SSFL is a 36 km single line from Macarthur to Sefton. The proposed initiative involves track duplications and additional passing loops on the line. The initiative aims to support the movement of freight by rail through the city, particularly between Port Botany and the Moorebank Intermodal Precinct and a future Western Sydney Freight Line. It forms part of a broader strategy designed to sustain and drive growth in rail mode share.

Next steps

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

New England Highway upgrade



LOCATION
Belford to Muswellbrook, NSW

PROBLEM TIMESCALE
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 Higher 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:

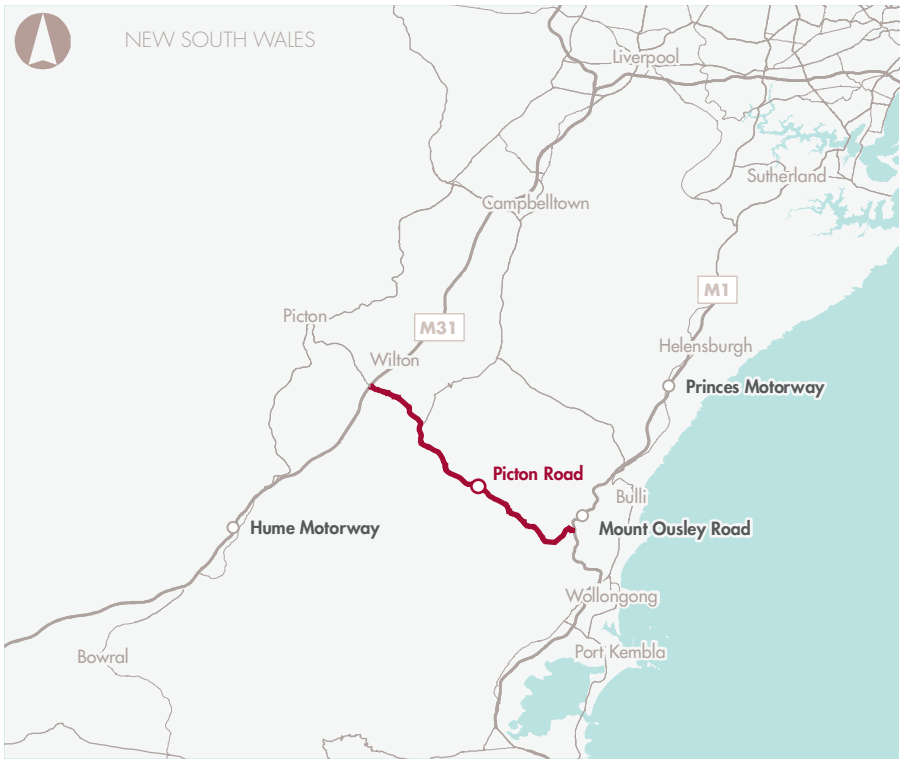
- bypasses of the towns of Singleton and Muswellbrook
- duplication between Belford and Singleton
- duplication between Singleton and Muswellbrook
- realignment at Rocky Cut (north of Scone).

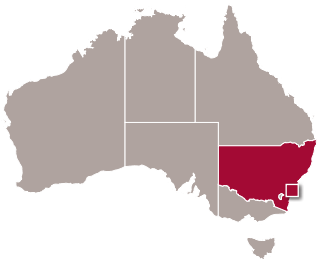
The initiative is designed to aid the efficient movement of freight from regional exporters to the Port of Newcastle, which is essential to supporting economic growth and productivity in New South Wales.

Next steps

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

Picton Road safety and capacity





LOCATION
Southern Sydney, NSW

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2019

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 and the M31 Hume Motorway at Wilton and beyond to Picton. The road carries around 20,000 vehicles a day, of which approximately 22% are heavy vehicles. Traffic volumes are expected to grow along the corridor with population growth, development in Western Sydney and growth at Port Kembla.

Between October 2012 and September 2017, there were six fatal crashes and 30 serious injury crashes (which resulted in eight fatalities and 41 serious injuries). This is close to 2.5 times the New South Wales average for the number of fatal and serious crashes per kilometre for similar type roads.

Proposed initiative

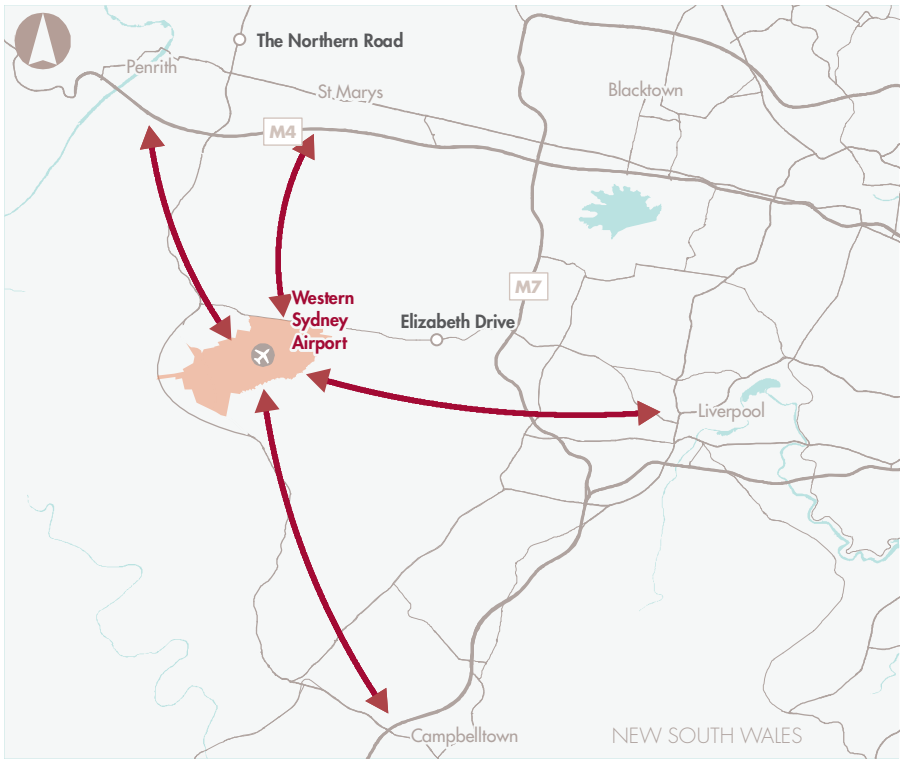
Options to address capacity and safety issues on Picton Road include:

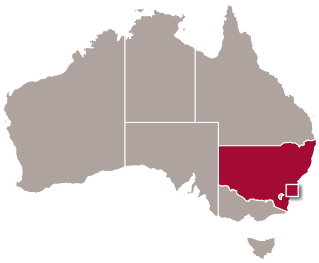
- minor road upgrades such as providing central barriers
- upgrading intersections or adding signals
- additional overtaking opportunities.

Next steps

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

Western Sydney Airport public transport connection





LOCATION
Western Sydney, NSW

PROBLEM TIMESCALE
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 Liverpool and Penrith, connecting the airport to the broader Sydney rail and public transport network to the east and north-west. 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, which is separately listed on the *Infrastructure Priority List*.

The Australian Government and New South Wales 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.

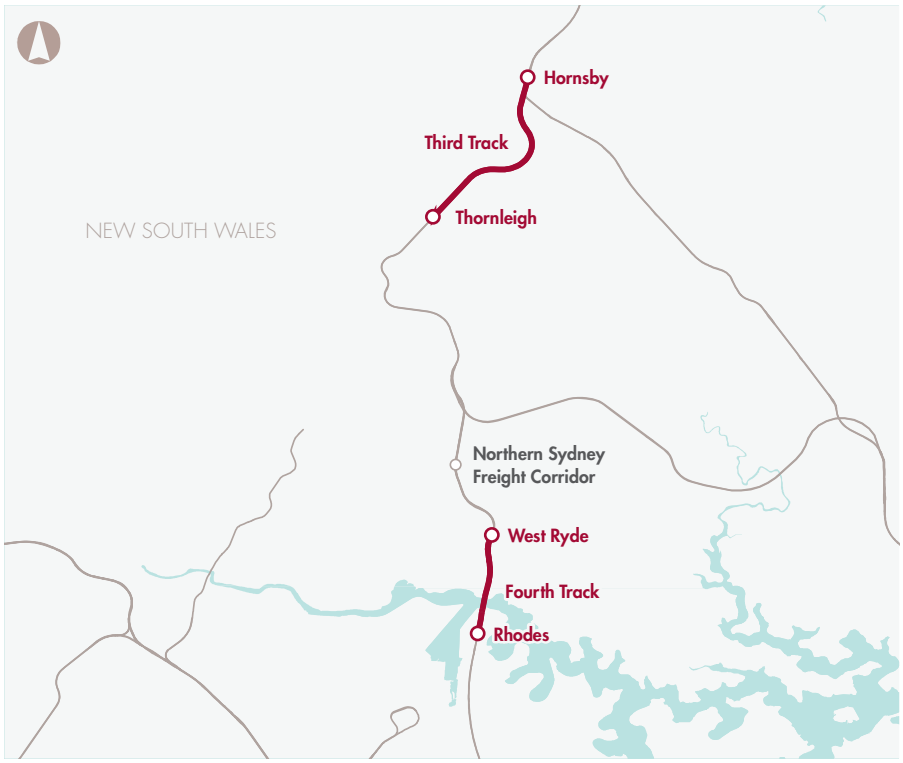
Provision of high-quality public transport services from the opening of the airport will provide users with public transport travel choices and minimise reliance on cars. These types of services also provide an opportunity to guide land use planning on key corridors.

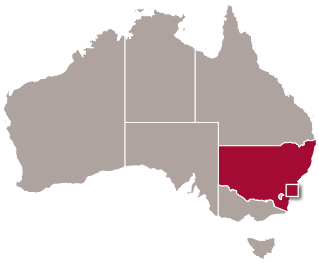
Next steps

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

Northern Sydney Freight Corridor Stage 2

Additional track West Ryde to Rhodes and Thornleigh to Hornsby





LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Longer term (10–15 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2016

Problem

Demand for rail freight in the Newcastle to Sydney corridor 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 Strathfield to Broadmeadow corridor.

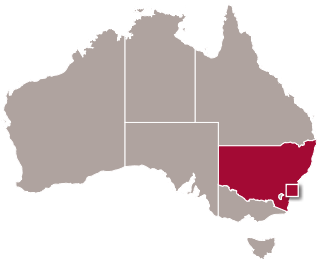
The candidate projects for the second package include Rhodes to West Ryde quadruplication and a third track between Thornleigh and Hornsby.

The New South Wales Government has completed a preliminary design for Rhodes to West Ryde quadruplication. A preliminary design for Thornleigh to Hornsby Third Track is being progressed.

Next steps

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

Newcastle–Sydney and Wollongong–Sydney rail line upgrades



LOCATION
Newcastle–Sydney–Wollongong, NSW

PROBLEM TIMESCALE
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:

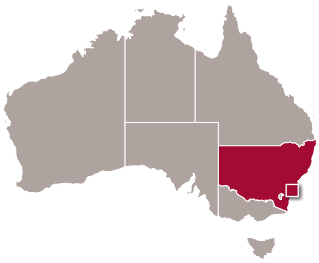
- an initial set of operational and fleet improvements
- targeted fixed infrastructure improvements (for example, new deviations to eliminate curvatures and flatten grades)
- a new rail crossing of the Hawkesbury River and Illawarra Escarpment
- capacity enhancing track amplifications.

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 New South Wales Government to develop a strategic business case for faster rail between Sydney and Newcastle.

Next steps

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

Sydney cruise terminal capacity



LOCATION
Sydney, NSW

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
NSW Government

DATE ADDED TO THE IPL
February 2019

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.

Proposed initiative

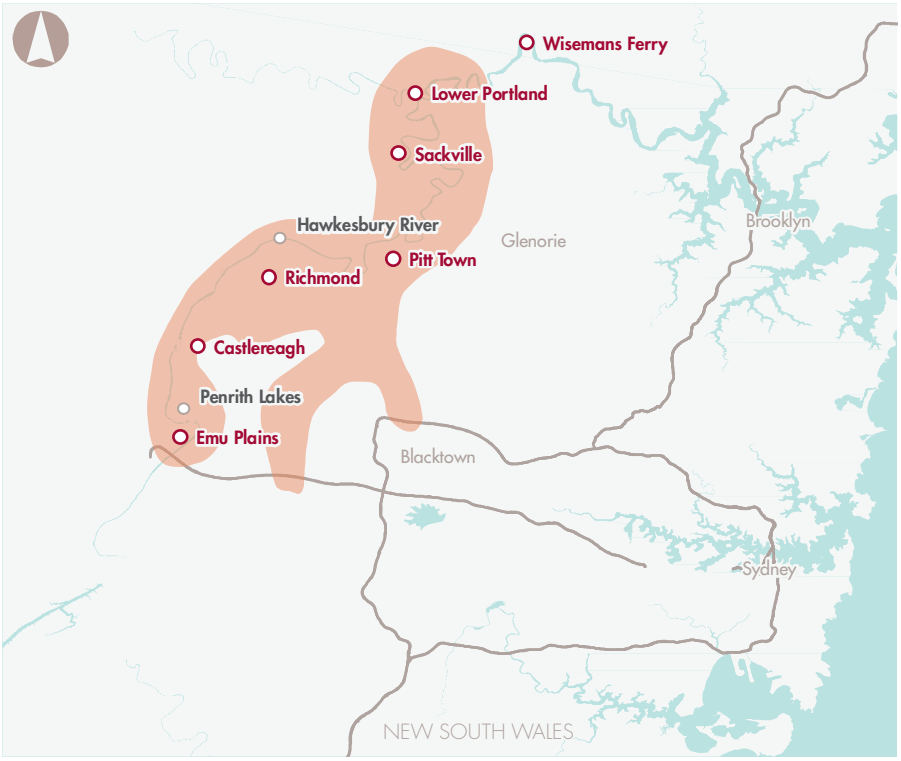
Cruise terminal capacity constraints could be addressed through different initiatives:

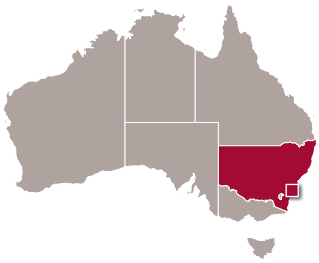
- maximising the capacity of existing terminals by optimising scheduling, operations and pricing
- modifying existing non-passenger terminals to allow cruise ship usage
- developing new cruise terminals.

Next steps

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

Hawkesbury-Nepean Valley flood management





LOCATION
Hawkesbury-Nepean Valley, NSW

PROBLEM TIMESCALE
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

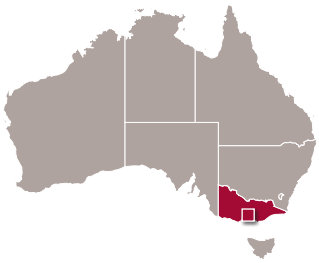
The Hawkesbury-Nepean Valley Integrated Flood Management Strategy presents a series of initiatives and investments to reduce flood risk in the valley. Elements of the strategy being investigated include:

- flood mitigation infrastructure, including raising Warragamba Dam
- road infrastructure upgrades to improve flood evacuation capacity
- 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).

Melbourne level crossings removal



LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
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 2015 *Australian Infrastructure Audit* projected that the cost of road congestion in the Melbourne/Geelong area is expected to reach approximately $9 billion by 2031 (2011 prices).

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.

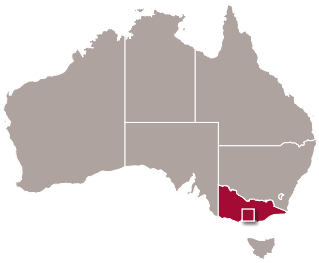
Proposed initiative

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. By the end of 2018, 29 level crossings had been removed, with planning and early consultation underway for the delivery of the remainder.

Melbourne Airport to the CBD public transport capacity



LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
Victorian Government

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *Australian Infrastructure Audit* noted that the corridor between the Melbourne CBD and Melbourne Airport is already one of the most heavily congested in Melbourne. The Tullamarine Freeway was already operating at, or close to, capacity in 2011. 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 2011 and 2031 (even after the current project to widen the freeway is completed).

Travel time by car in the morning peak from the CBD to the airport is projected to increase by nine minutes, from 33 minutes to 42 minutes, while travel times by car from Werribee and Doncaster are projected to increase from an average 61 minutes to 90 and 74 minutes respectively.

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

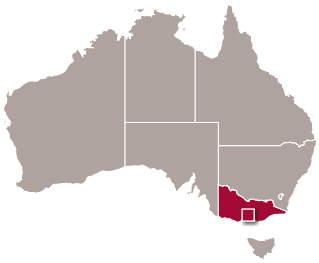
The Victorian Government, together with the Australian Government, has commenced planning for a rail link between Melbourne Airport and Melbourne's CBD through the Melbourne Airport Rail Link (MARL) Study. A Strategic Appraisal was completed in mid-2018, which selected the Sunshine Route as the preferred route alignment for the MARL.

The MARL Study will coordinate planning 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).

Melton Rail Line upgrade



LOCATION
Western Melbourne, Vic

PROBLEM TIMESCALE
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* estimates 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:

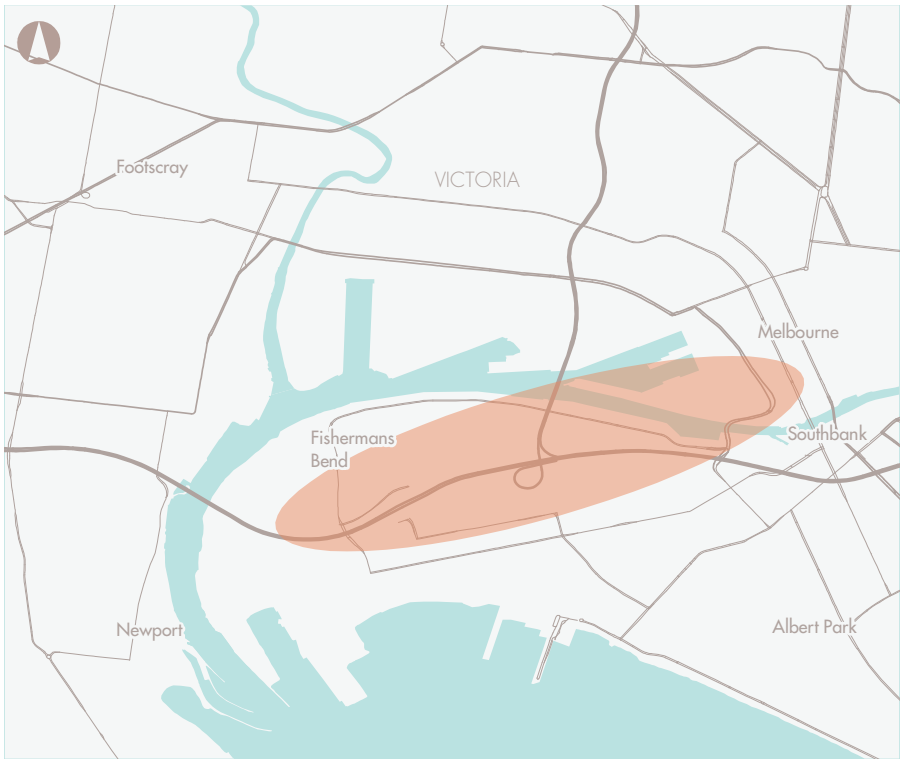
- preservation of corridors for extensions and/or duplication of the Melton Line
- duplication of the Melton Line
- electrification of the Melton Line
- capacity upgrades where the Melton Line meets the metropolitan network at Sunshine Station (part of the Sunbury Line).

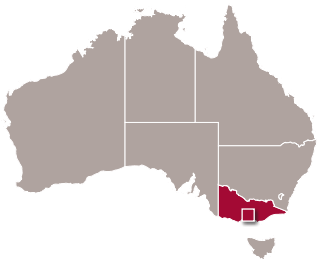
This initiative is complementary to the Melbourne rail network capacity High Priority Initiative and the Ballarat Line Upgrade project, which are also included on the *Infrastructure Priority List*.

Next steps

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

Public transport access to Fishermans Bend





LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
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.

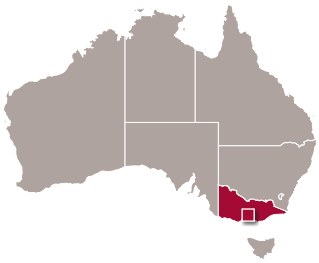
Proposed initiative

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).

Cranbourne Line capacity



LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
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.

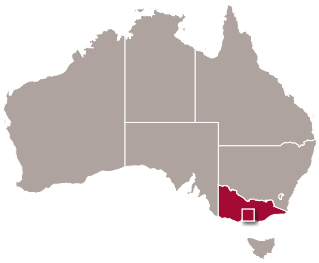
The line may be extended to Clyde in the future, although this is not part of the current initiative.

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).

Hurstbridge Line capacity



LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
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 improvements of connections to key precincts and employment clusters.

Proposed initiative

The Hurstbridge Line was upgraded in 2018 to duplicate track, construct a new station and remove level crossings.

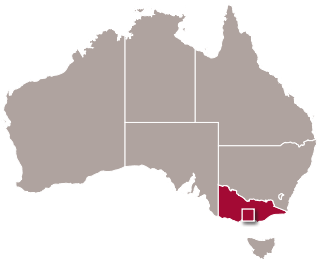
The capacity of the Hurstbridge Line and Mernda Line could be further improved by duplicating other single-track sections of the Hurstbridge Line, upgrading stations, and potentially enhancing other public transport modes along the corridor.

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).

Melbourne outer northern suburbs to CBD capacity upgrade



LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
Longer term (10–15 years)

PROPONENT
Infrastructure Australia identified initiative

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *Australian Infrastructure Audit* noted that by 2031 the Hume Freeway would become the most congested corridor in Victoria, with a total delay cost of around $172 million per year. The Audit also projects that demand for rail transit in the corridor, on the Craigieburn Line, will exceed capacity by a factor of four by 2031. In the absence of transport capacity improvements, the Audit indicates that daily vehicle movements on the Hume Freeway would grow from 43,100 in 2011 to 107,400 by 2031, making the rail line the most crowded in Melbourne.

Traffic demand growth along the corridor is expected to be driven by population and employment growth in the area. Victorian Government projections indicate that population in the corridor is expected to almost double between 2015 and 2031, while the Northern Growth Corridor Plan indicates the corridor has the capacity to accommodate between 83,000 and 105,000 new jobs.

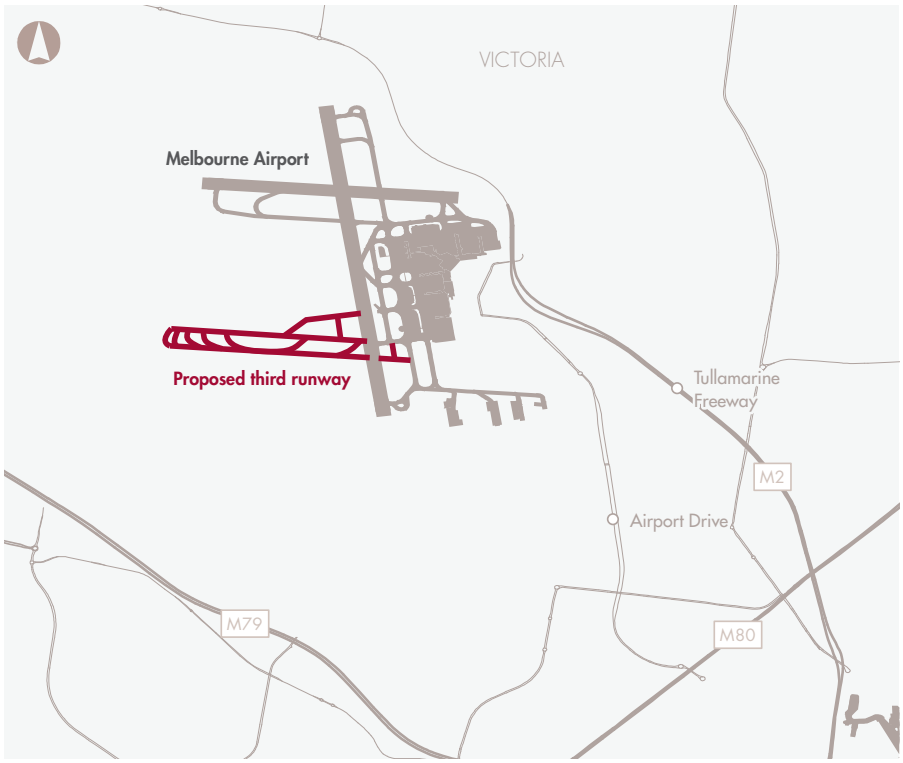
Proposed initiative

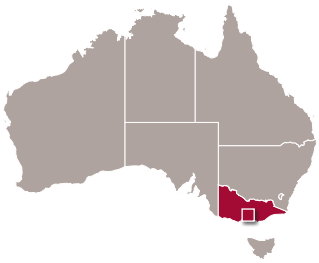
Develop options to address demand for transport services in the corridor.

Next steps

Proponent to be identified.

Melbourne Airport third runway





LOCATION
Melbourne Airport, Vic

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Melbourne Airport

DATE ADDED TO THE IPL
February 2016

Problem

Melbourne Airport is Australia's second-busiest airport, handling almost 35 million passengers and 237,000 aircraft movements in 2016–17. 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 2033, the airport anticipates facilitating 57 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

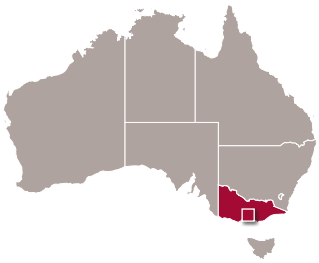
The initiative proposes a third runway to meet increased demand at Melbourne Airport. The three-runway system could facilitate at least 400,000 total aircraft movements at the airport per year, providing sufficient capacity to accommodate projected aircraft movements until around 2040.

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 for consideration by the Australian Government.

Melbourne container terminal capacity and land transport access



LOCATION
Melbourne, Vic

PROBLEM TIMESCALE
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 (TEU) in 2018 to around 9 million TEU 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 to and from importers and exporters. 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

Planning and construction of additional container terminal capacity in Melbourne to cater for projected increases in containerised freight volumes.

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.

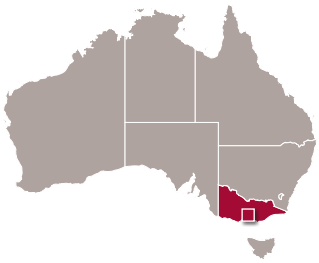
A new Port Development Strategy for the Port of Melbourne is currently being developed by Port of Melbourne Operations.

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.

Next steps

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

Melbourne–Geelong rail capacity enhancement



LOCATION
Melbourne–Geelong, Vic

PROBLEM TIMESCALE
Longer term (10–15 years)

PROPONENT
Victorian Government

DATE ADDED TO THE IPL
March 2018

Problem

Geelong is Victoria's second-largest city, with a population 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

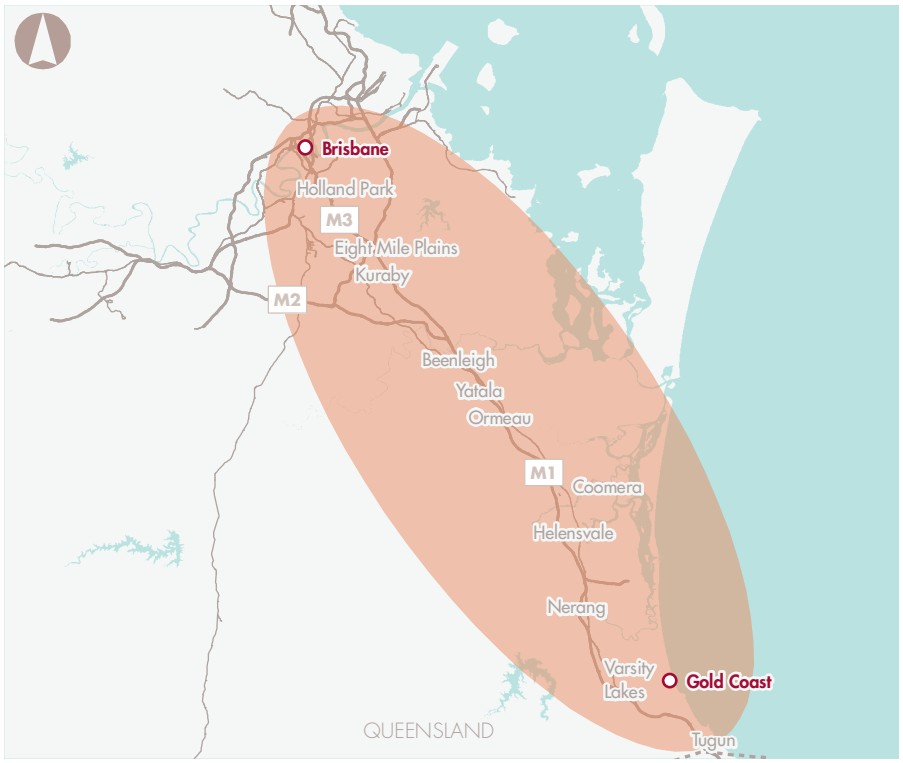
There are a number of opportunities to address this emerging capacity gap. The current rail service is provided by diesel trains and has limited capacity. Electrification of the line would allow operation of higher-capacity trains with increased reliability and inter-operability with the Melbourne metropolitan 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.

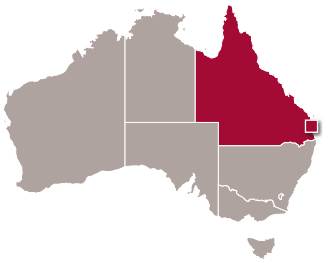
Future growth in the region will need to be monitored to determine the optimal timing for and scope of infrastructure upgrades for the corridor.

Next steps

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

Brisbane to Gold Coast transport corridor upgrades





LOCATION
Brisbane–Gold Coast, Qld

PROBLEM TIMESCALE
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 2015 *Australian Infrastructure Audit* projected that, without intervention, the cost of congestion on key corridors in the Gold Coast region would increase by over $1 billion between 2011 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 the M1 Pacific Motorway 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 three proposals that align with this program initiative:

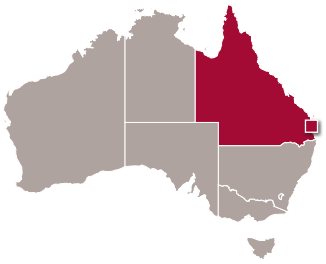
- widening of the M1 Pacific Motorway between Eight Mile Plains and Tugun
- capacity improvements to the Gold Coast Rail Line between Kuraby and Beenleigh
- public transport connectivity between Burleigh Heads and Broadbeach.

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.

Gold Coast Rail Line capacity improvement
Kuraby to Beenleigh



LOCATION
Kuraby to Beenleigh, Qld

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Queensland Government

DATE ADDED TO THE IPL
March 2018

Problem

The Brisbane to Gold Coast rail line connects Gold Coast City and Logan City with the Brisbane CBD and Brisbane Airport. The rail line moves approximately 20,000 passengers during the combined morning and afternoon peaks each day. The rail line is subject to 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 subject to a range of constraints including tight curves that limit line speeds, and level crossings. During peak periods, express services that travel from the Gold Coast into 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.

Infrastructure and operational constraints on the line have already resulted in overcrowding during peak periods. Failure to address these capacity constraints is likely to lead to more potential rail users choosing to use the already congested M1 Motorway instead. This will lead to additional travel times, with nationally significant impacts on productivity.

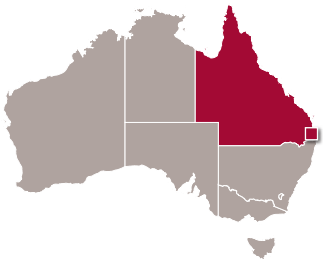
Proposed initiative

Additional capacity between Kuraby and Beenleigh would allow for the separation of express and all stops services, and increased frequency for Beenleigh and Gold Coast services in both directions, with associated travel-time savings and reliability improvements for passengers.

Next steps

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

Broadbeach–Burleigh Heads public transport connectivity



LOCATION
Gold Coast, Qld

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Queensland Government

DATE ADDED TO THE IPL
February 2019

Problem

Poor public transport connectivity between Broadbeach and Burleigh Heads is resulting in significant road congestion and poor journey reliability. People currently travel by car or bus along the corridor, as the existing Gold Coast Light Rail line terminates at Broadbeach. Bus services are unreliable, and only 5% of all daily trips in the Gold Coast are made using public transport.

The Gold Coast is Australia's sixth-largest city and largest non-capital city. It has a population of 576,000, which is expected to increase by 61% to 928,000 by 2041. Private vehicle trips in the corridor are expected to increase by 20% between 2016 and 2041. This demand growth is expected to result in further congestion, as there is limited space available to build more roads and a lack of attractive public transport alternatives to private vehicle travel.

Without improvements to public transport connectivity, road traffic levels are expected to reach network capacity before 2031. These constraints may also impact on other parts of the network, such as along the Gold Coast Highway, north of Broadbeach.

Proposed initiative

Options to improve public transport connectivity on the corridor include:

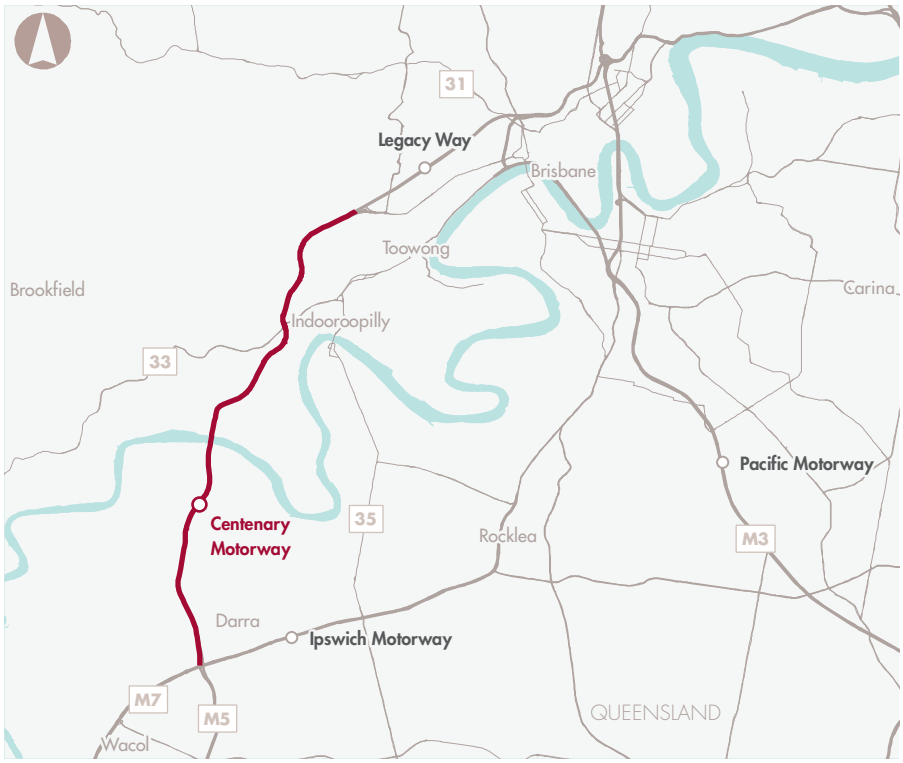
- road network and bus network services
- providing higher-frequency bus services
- extending light rail services to Burleigh Heads if there is sufficient demand.

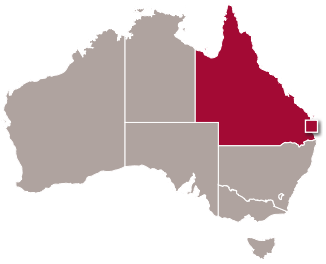
A Preliminary Business Case for the proposed extension of light rail from Broadbeach to Burleigh Heads was completed in December 2017.

Next steps

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

Centenary Motorway capacity





LOCATION
Brisbane, Qld

PROBLEM TIMESCALE
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 an additional 393,000 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:

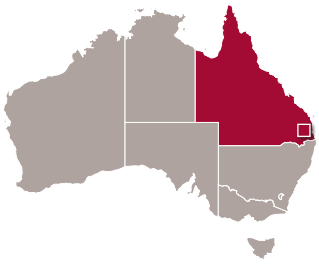
- intersection and on-ramp and off-ramp improvements
- implementing smart freeway technology
- road widening.

Next steps

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

Cunningham Highway

Yamanto Interchange to Ebenezer Creek[1]



LOCATION
Yamanto to Ebenezer, Qld

PROBLEM TIMESCALE
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.

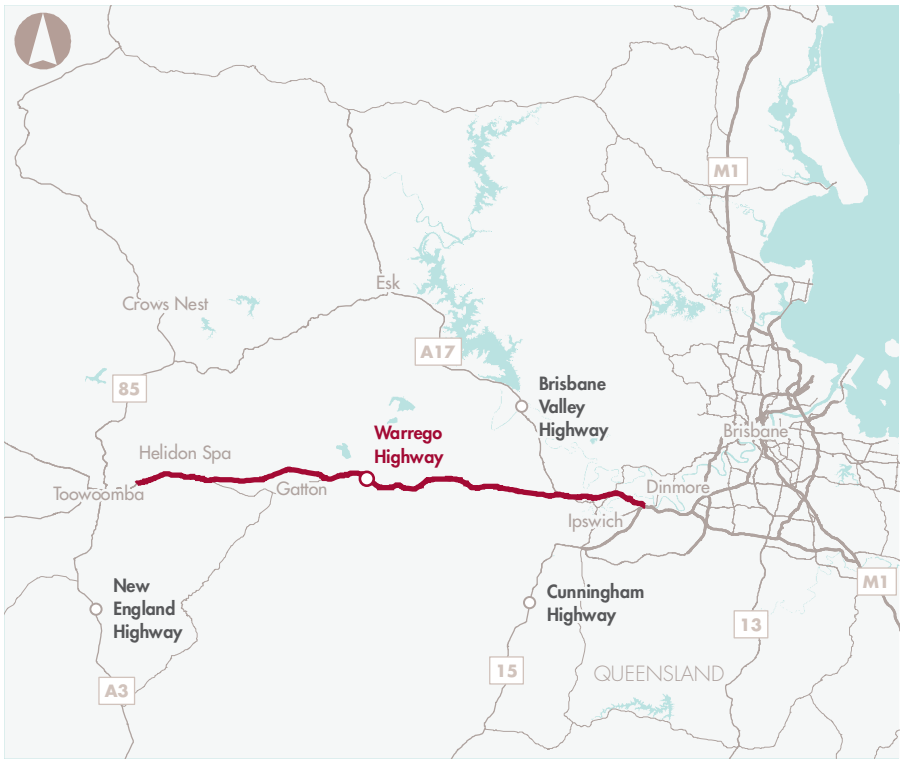
Next steps

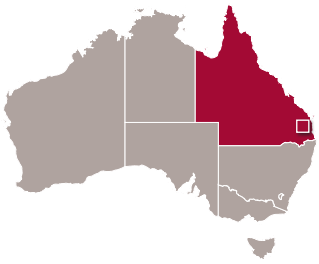
Proponent to complete business case development (Stage 3 of Infrastructure Australia's Assessment Framework).

The business case was submitted to Infrastructure Australia for evaluation in 2017 and then withdrawn by the Queensland Government in July 2018, noting that the Queensland Government is revising the project's benefits for later submission.

1. This initiative was previously referred to as the 'Cunningham Highway – Yamanto to Ebenezer/Amberley upgrade'.

Warrego Highway east corridor improvements





LOCATION
Brisbane to Toowoomba, Qld

PROBLEM TIMESCALE
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.

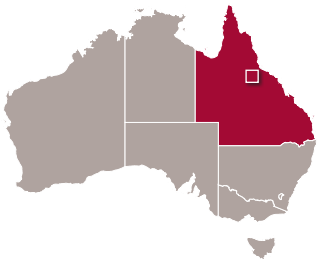
Proposed initiative

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).

Mount Isa–Townsville rail corridor upgrade



LOCATION
Far North Queensland

PROBLEM TIMESCALE
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:

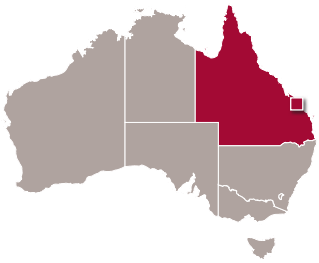
- enhancements to western sections of the Mount Isa to Townsville Rail Corridor
- construction of a new 6.5 km Townsville Eastern Access Rail Corridor (TEARC) to provide direct access to export facilities at the Port of Townsville for longer trains.

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.

Port of Gladstone land and sea access upgrade



LOCATION
Gladstone, Qld

PROBLEM TIMESCALE
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.

The Port of Gladstone handled 121.2 million tonnes of imports and exports in 2016–17. 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 referred to a recent study that 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.

Proposed initiative

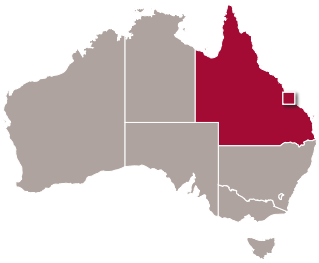
The proposal covers a range of potential projects including:

- channel management to increase export capacity through the port
- upgrades to road and bridge infrastructure that services the port
- new rail infrastructure to provide direct connections from the Surat Basin to the port.

Next steps

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

Bruce Highway Upgrade



LOCATION
Brisbane to Cairns, Qld

PROBLEM TIMESCALE
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

Progressive priority upgrades to the Bruce Highway to address specific capacity constraints, flood resilience and safety concerns. Major planned works include:

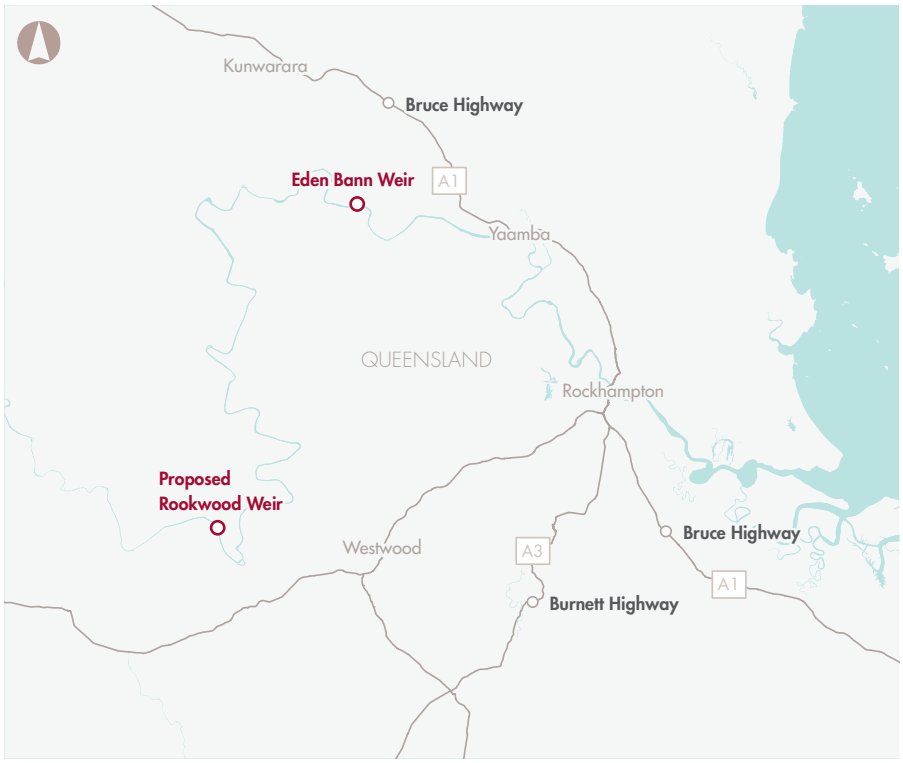
- Cooroy to Curra (Section D)
- Townsville Ring Road Stage 5
- Burdekin deviation
- Edmonton to Gordonvale duplication
- Maroochydore Road interchange
- Ingham to Cardwell Range deviation.

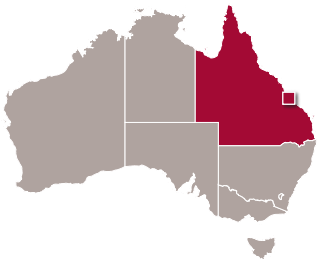
Next steps

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.

Lower Fitzroy River water infrastructure development





LOCATION
Fitzroy River, Central Queensland

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Gladstone Area Water Board and SunWater Ltd

DATE ADDED TO THE IPL
February 2016

Problem

Demand for water resources in Central Queensland is predicted to rise as a result of continued industrial and urban growth in the Lower Fitzroy and Gladstone areas and potentially some agricultural development within the Fitzroy Agricultural Corridor.

Water demand projections indicate a total shortfall of high-priority water for urban and industrial needs in the Central Queensland region in the order of 41,000 megalitres per year by 2020.

Without secure access to water, further development in this high-growth region is expected to be constrained beyond 2020.

Proposed initiative

The initiative proposes increasing water storage in the region by constructing a new weir at Rookwood on the Fitzroy River.

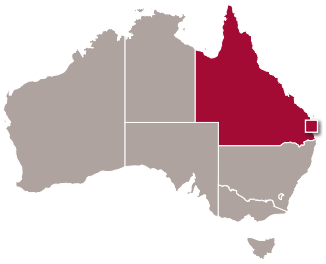
The primary benefit of the initiative would be to provide 76,000 megalitres of medium- and high-priority water per year. The water would be used primarily for industrial and urban purposes, and potentially underpin further agricultural development in the region.

Next steps

The business case was evaluated by Infrastructure Australia in 2018.

The project is proceeding to delivery with funding support from the Australian Government and Queensland Government.

Preserve corridor for Salisbury to Beaudesert rail connection



LOCATION
Brisbane to Beaudesert, Qld

PROBLEM TIMESCALE
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 is aimed at providing for 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.

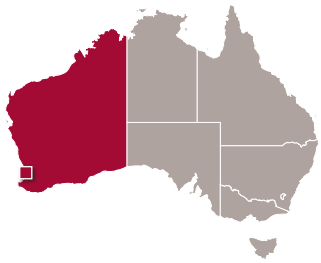
The initiative is close to the alignment for a section of the proposed east coast high speed rail line (also a corridor protection initiative on the *Infrastructure Priority List*). Subject to further design development, the initiative could be adapted to provide sufficient space for a high speed rail line.

The Queensland Government is now planning for the Salisbury to Beaudesert Rail Corridor by confirming land requirements and staging to support future passenger demand and land use changes.

Next steps

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

Armadale Road bridge



LOCATION
Perth, WA

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Western Australian Government

DATE ADDED TO THE IPL
March 2018

Problem

Cockburn Central is an employment, activity and transport hub in south-west Perth. The key east–west route through the centre is Armadale Road, and the major north–south link is the Kwinana Freeway. Residential, commercial and retail growth in the Cockburn Central area is increasing the volume of traffic seeking to access the area.

The existing road configuration does not separate traffic getting on and off the Kwinana Freeway from traffic seeking to access Cockburn Central. The busy and congested road network fragments the activity centre, with network impacts that affect the movement and productivity of vehicles, including general traffic, bus network access to the heavy rail connection at Cockburn Central, and freight and emergency response vehicles. As congestion in the region increases in the future, increased travel time and reduced travel-time reliability will have nationally significant impacts on productivity.

Efforts to ease congestion in this area have so far focused on widening Armadale Road. Construction to convert the last remaining single carriageway section of Armadale Road to dual carriageway commenced in 2018. However, widening Armadale Road without creating additional capacity for through traffic accessing the Kwinana Freeway will exacerbate congestion at Cockburn Central.

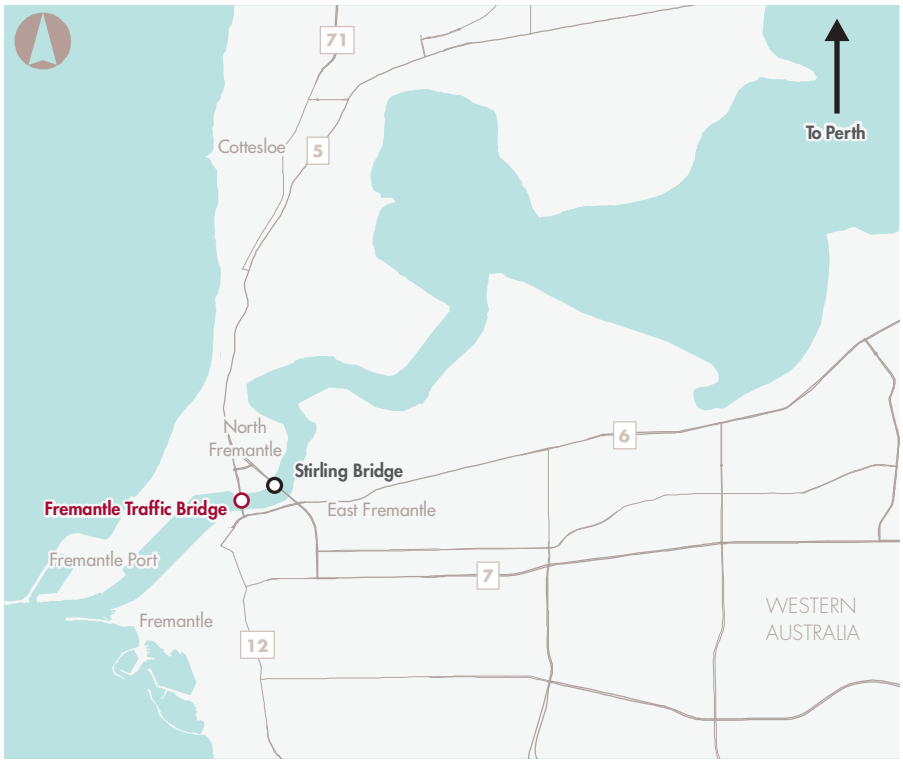
Proposed initiative

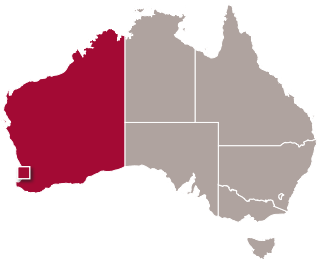
A new bridge and freeway interchange bypassing traffic around Cockburn Central, in order to provide easier access to the Kwinana Freeway and Armadale Road.

Next steps

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

Swan River crossing capacity





LOCATION
Perth, WA

PROBLEM TIMESCALE
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 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.

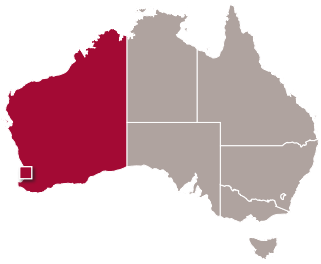
Proposed initiative

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).

Perth rail network capacity



LOCATION
Perth, WA

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Western Australian Government

DATE ADDED TO THE IPL
March 2018

Problem

Perth's population is projected to grow from approximately 2 million people in 2016 to 2.5 million by 2026. This growth is expected to occur through the densification of existing urban areas and limited expansion of Perth's overall urban footprint.

Perth's urban rail network will play a vital role in supporting this growth. There were approximately 244,000 daily rail boardings on this network in 2015. This figure is projected to double over the next 15 years. The rail network will need additional capacity to service the city's major growth areas.

In the absence of additional public transport capacity, further strong growth in demand for travel will need to be absorbed by Perth's road network, which is already constrained in peak periods. This has the potential to exacerbate congestion, further increasing travel-time costs and resulting in nationally significant productivity losses.

Proposed initiative

Additional rail network capacity could be realised through line and station upgrades, line extensions, train control and signalling upgrades, level crossing removals, and rolling stock upgrades. These investments will need to align with broader land use and transport planning across the city to deliver an efficient and integrated transport system.

The Western Australian Government established the METRONET office in 2017 to develop business cases for a number of Perth rail network projects.

Business cases for the following projects were evaluated by Infrastructure Australia in 2018 and added to the *Infrastructure Priority List*:

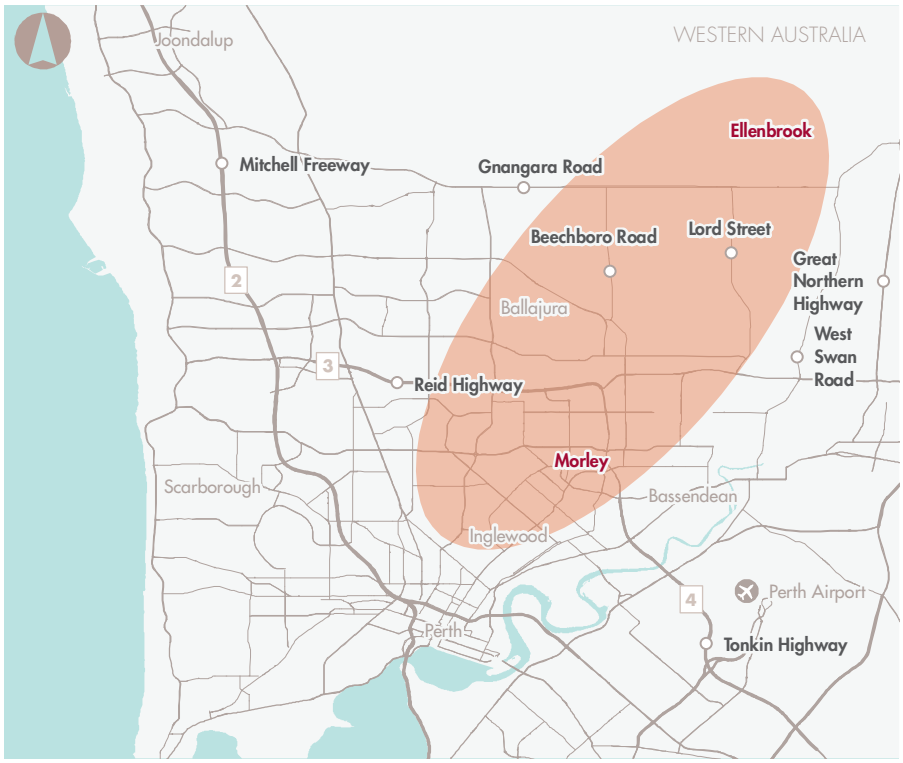
- Yanchep Rail Extension – added as a High Priority Project.
- Thornlie-Cockburn Link – added as a Priority Project.

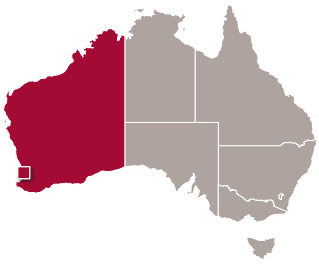
Next steps

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

Individual projects are at various stages of development.

Transport connectivity between Morley and Ellenbrook





LOCATION
Perth, WA

PROBLEM TIMESCALE
Longer term (10–15 years)

PROPONENT
Western Australian Government

DATE ADDED TO THE IPL
February 2019

Problem

In Perth's north-eastern suburbs, users can travel between Morley and Ellenbrook by bus or car. However, low-density development in the north-east and poor bus service reliability has led to high car dependency. This causes congestion on the key routes that connect the suburbs, including Lord Street, Beechboro Road, West Swan Road and the Reid Highway.

The population of Perth's north-eastern suburbs, including the region between Morley and Ellenbrook, is estimated to grow by 2.2% per year between 2016 and 2031. Some of this growth will be met by major road upgrades currently being delivered along the corridor.

However, within the next 10–15 years, further growth in demand will cause significant congestion issues on the road network and worsen bus reliability and overcrowding. There is also an opportunity to better integrate transport and land use planning, to encourage more sustainable development and intensify development near activity centres and railway stations throughout the corridor.

Proposed initiative

Potential options to address the problem could include upgrades to the existing road network, improving bus service frequency and reliability or, if there is sufficient demand, introducing new modes such as bus rapid transit or rail.

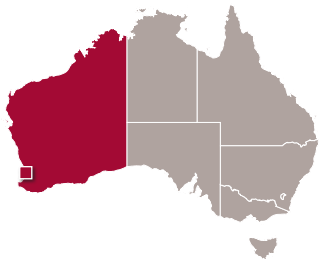
The Western Australian Government is currently delivering upgrades to Lord Street and the NorthLink project, which links Morley to Muchea in the north. These improvements are expected to help meet demand along the corridor.

The Western Australian Government established the METRONET office in 2017 to develop business cases for a number of Perth rail network projects. This includes a potential rail line between Morley and Ellenbrook.

Next steps

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

Canning Bridge crossing capacity and interchange



LOCATION
Perth, WA

PROBLEM TIMESCALE
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, as well as an on ramp from Manning Road.

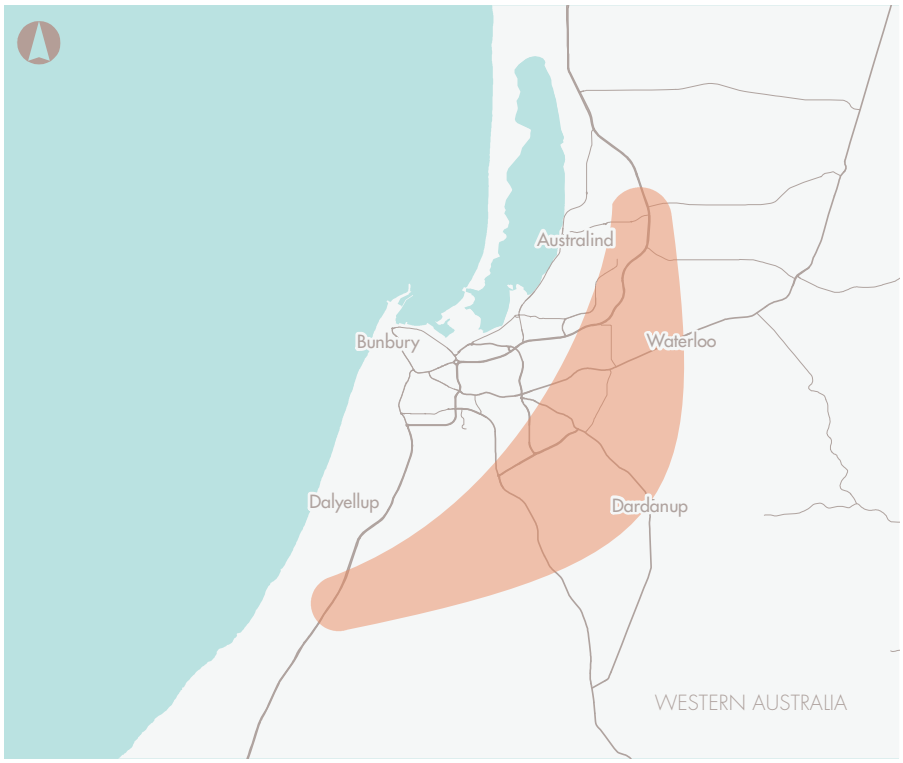
Proposed initiative

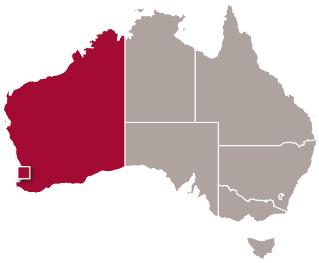
Improvements to station accessibility and amenity would aim to increase public transport patronage and reduce impact on the adjacent road network.

Next steps

Proponent to be identified.

Bunbury Outer Ring Road





LOCATION
Perth, WA

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
Western Australian Government

DATE ADDED TO THE IPL
March 2018

Problem

Bunbury is the second-largest city in Western Australia and one of the fastest growing regional cities in Australia. The Port of Bunbury is Western Australia's fourth-largest port by throughput, accommodating export growth of 3.4% annually between 2012 and 2017.

The Port of Bunbury is located adjacent to the Bunbury CBD and is serviced by five major highways that converge on the eastern outskirts of the city. The location of the port, in combination with the layout of the road infrastructure, results in freight vehicles passing through urban areas and at-grade intersections and rail crossings.

This is leading to travel-time delays, increases in vehicle operating costs and issues with safety, noise and air pollution.

Traffic volumes are forecast to continue increasing as a result of population, commercial and industrial growth across the region. Future growth in port traffic and other traffic streams, along with increasing demand for higher-productivity and larger vehicles, will exacerbate existing inefficiencies. The resulting cost increase will result in nationally significant impacts on productivity, and potentially compromise the competitiveness of the Port and the South West region.

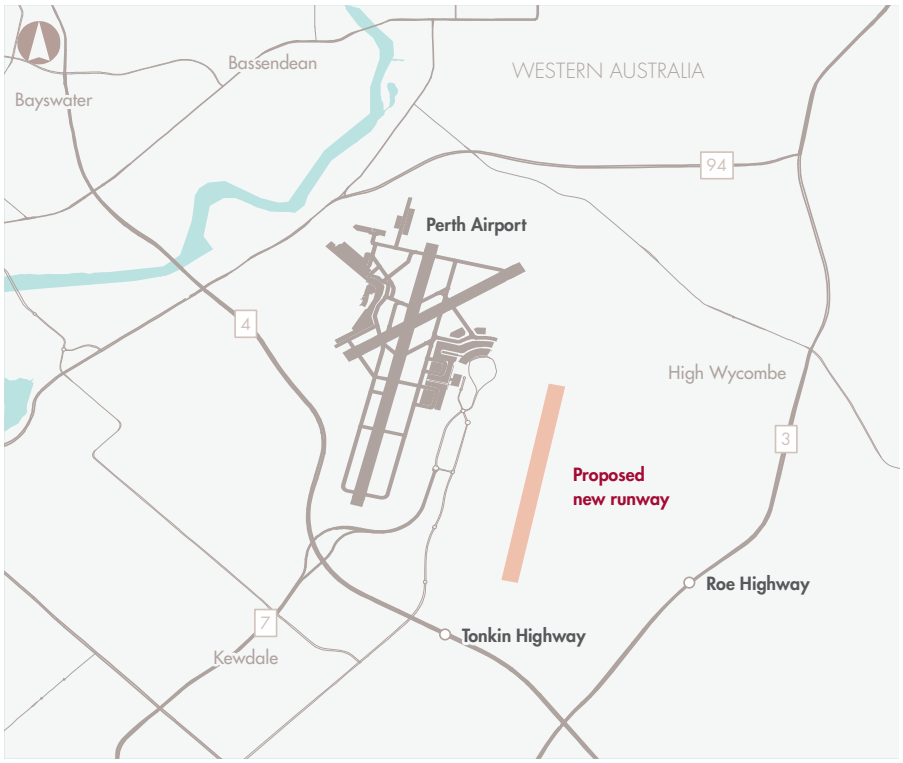
Proposed initiative

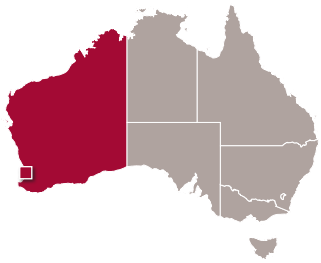
Development of a ring road on the outskirts of Bunbury would allow the separation of regional traffic (including vehicles accessing the Port of Bunbury) and local traffic, thereby providing road safety, travel-time and freight efficiency benefits.

Next steps

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

Perth Airport new runway





LOCATION
Perth, WA

PROBLEM TIMESCALE
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. Passenger throughput is projected to increase from 13.7 million in 2013 to 35.4 million in 2045, and total aircraft movements are predicted to grow from 151,300 annually in 2013 to 241,000 in 2045.

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.

Due to the nature of the resource sector's deployment of a fly-in fly-out workforce, passenger movements in and out of Perth Airport are concentrated around peak periods.

The high level of demand during peak periods leads to delays, which can lead to higher operating costs for business travellers and fly-in fly-out workers, reducing Australia's international competitiveness.

Proposed initiative

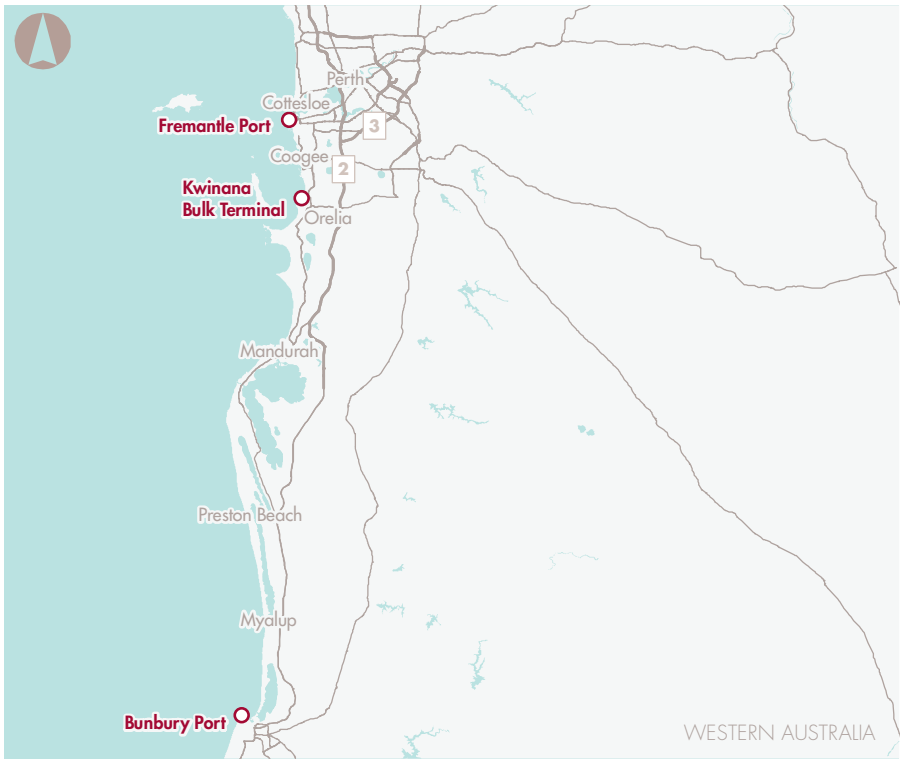
Construction of an additional runway at Perth Airport to provide capacity needed to meet increasing demand.

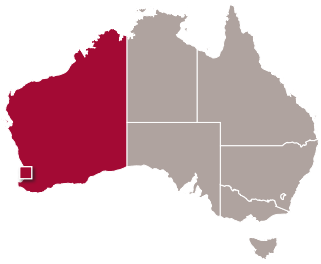
Next steps

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

The proponent is currently finalising the Draft Major Development Plan for the new runway project.

Perth container terminal capacity and land transport access





LOCATION
Perth, WA

PROBLEM TIMESCALE
Longer term (10–15 years)

PROPONENT
Western Australian Government

DATE ADDED TO THE IPL
February 2016

Problem

Fremantle Port 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 2017–18, the port handled approximately 750,000 containers. This trade is expected to grow on average by 2.8% each year between 2017–18 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 combined container terminal capacity and land transport access initiative.

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

Planning, and potential corridor and site preservation, for additional container terminal capacity, and road and rail access, to accommodate future demand in Perth.

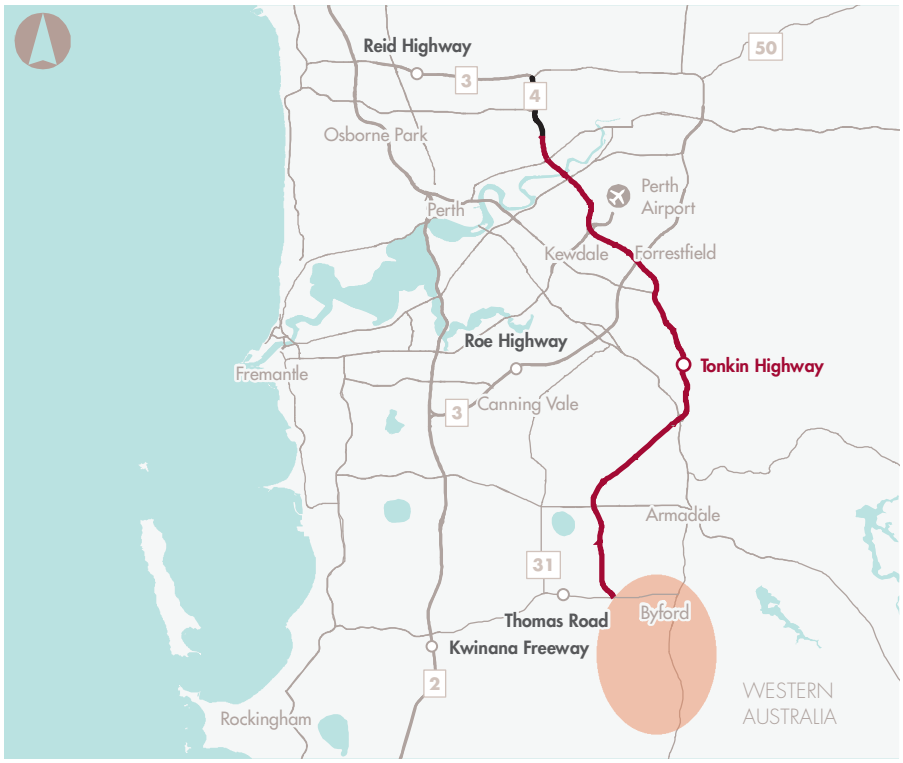
In the near to medium term, there may also be an opportunity to help support growing demand with smaller scale port and transport access investments.

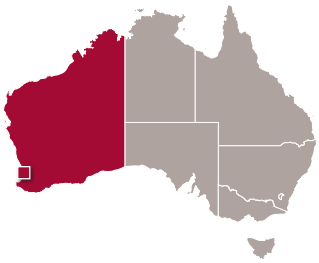
The Westport Taskforce was announced in September 2017 to deliver an integrated strategy to meet the future freight and trade logistics needs for Perth and surrounding regions. The strategy will consider the development and growth of the Fremantle Port at the inner and outer harbours, as well as the potential for the Port of Bunbury to contribute to the handling of the growing trade task.

Next steps

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

Tonkin Highway corridor capacity





LOCATION
Perth, WA

PROBLEM TIMESCALE
Various (0–15 years)

PROPONENT
Western Australian Government

DATE ADDED TO THE IPL
February 2019

Problem

The Tonkin Highway is experiencing growing levels of congestion and road crashes due to increased traffic volumes. 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 Tonkin Highway (south of Great Eastern Highway) catered to over 98,000 vehicles per working weekday in both directions, 11% of which were heavy vehicles. This is up from around 71,000 vehicles in 2012–13.

Continued urban and industrial development is expected to increase congestion and limit the potential for the Tonkin Highway to support economic and population growth in Western Australia.

Proposed initiative

Potential initiatives to reduce congestion, improve road safety and reduce travel times 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.

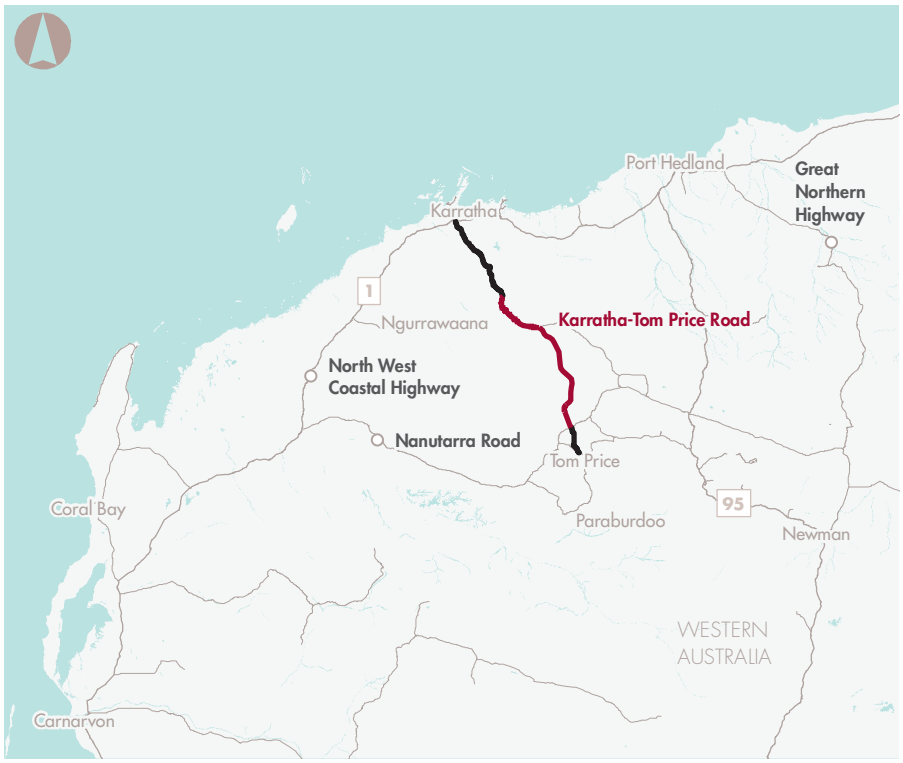
The Western Australian Government has identified three key sections of the highway for improvements:

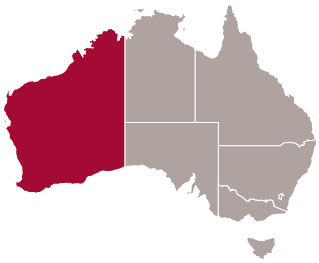
- the section of Tonkin Highway between Collier Road and Great Eastern Highway (known as the Tonkin Highway Gap)
- interchanges south of Roe Highway (at Hale Road, Welshpool Road East, and Kelvin Road)
- a future extension to the Byford area in the south.

Next steps

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

Land transport access between Karratha and Tom Price





LOCATION
Karratha and Tom Price, WA

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Western Australian Government

DATE ADDED TO THE IPL
February 2019

Problem

The Karratha-Tom Price Road 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 road 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 Karratha-Tom Price Road constrains mining, freight and tourism opportunities in the region, as well as contributing to a high road crash toll.

The 2015 *Australian Infrastructure Audit* noted that lower levels of infrastructure service in remote areas can reinforce social and economic inequalities.

The Audit also identified the Karratha-Tom Price Road as 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

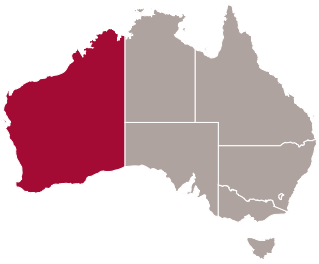
Providing a sealed road that is resistant to weather events will improve access for local/remote communities and businesses throughout the year. It will also improve the potential to develop new mines in the area and provide capacity for increased road volumes and opportunities for increased tourism activity. It would also provide a shorter connection from Paraburdoo to Karratha via Tom Price.

The *Infrastructure Priority List* also includes the need to improve road access to remote Western Australian communities as a Priority Initiative.

Next steps

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

Improve road access to remote WA communities



LOCATION
Remote areas of WA

PROBLEM TIMESCALE
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 2015 *Australian Infrastructure Audit* noted that lower levels of infrastructure service in remote areas can reinforce social and economic inequalities.

Proposed initiative

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.

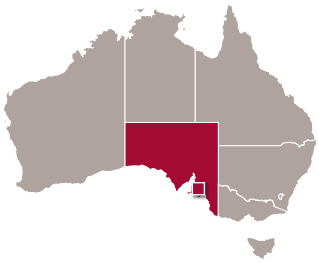
The Brown's Range Access Road proposal seeks to address many of the identified problems by:

- 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).

Adelaide North–South Corridor upgrade (remaining sections)



LOCATION
Adelaide, SA

PROBLEM TIMESCALE
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 2015 *Australian Infrastructure Audit* found that South Road, which is part of the North–South Corridor, is projected to have a delay cost of $164 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 $97 million in 2031) and Goodwood Road (projected delay cost of $60 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: upgrades to Anzac Highway to Darlington; River Torrens to Anzac Highway; and Regency Park to Torrens Road.

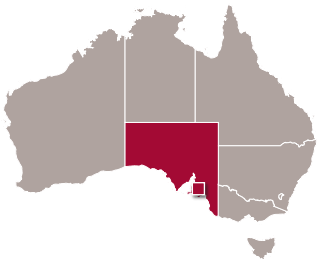
When completed, the North–South Corridor will be the major transport spine for Adelaide's north–south traffic over a total distance of 78 km.

Next steps

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

AdeLINK tram network

Adelaide tram network expansion



LOCATION
Adelaide, SA

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
South Australian Government

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *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 billion in 2011 and would grow to $4 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%, whereas it is 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 a major expansion of the tram network in Adelaide, creating a tram network around the CBD and inner suburbs. The proposed link to Port Adelaide would entail conversion of existing diesel heavy rail to a modern electric light rail service, which would integrate with land use changes and facilitate increased densification.

The completed initiative would constitute tram services across inner Adelaide and the CBD, including:

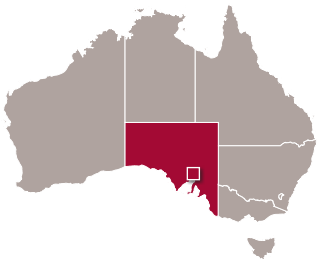
- to Outer Harbour, Port Adelaide, Semaphore, Grange and West Lakes
- to Adelaide Airport and Henley Beach
- to Unley and the south
- to Norwood and Magill Campus
- to Prospect and the north
- a tram loop around the CBD.

The South Australian Government has committed to establishing the South Australian Public Transport Authority to improve public transport services. It has also committed Infrastructure SA to analysing options for extensions to tram services, especially in the Adelaide CBD.

Next steps

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

Spencer Gulf crossing capacity



LOCATION
Port Augusta, SA

PROBLEM TIMESCALE
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.

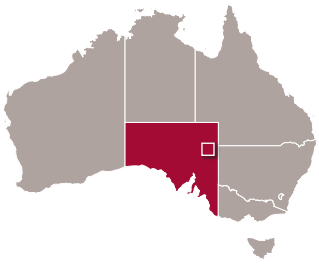
Proposed initiative

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).

Strzelecki Track upgrade and mobile coverage



LOCATION
Lyndhurst to Innamincka, SA

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
South Australian Government

DATE ADDED TO THE IPL
February 2016

Problem

The Strzelecki Track was identified in the 2015 *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 Strzelecki Track is unsealed and suffers from potholes, corrugation and a lack of drainage. It is not sufficiently wide for triple road trains.

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 most productive heavy vehicles.

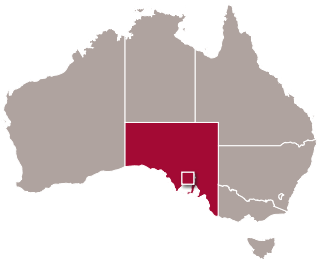
Proposed initiative

Upgrade 426 km of the Strzelecki Track between Lyndhurst and Innamincka, and 26 km of the Nappa Merrie Access Road. This will provide an upgraded connection between South Australia and Queensland. Improvements to mobile phone coverage along the route are also proposed.

Next steps

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

South Australian regional bulk port development[2]



LOCATION
Spencer Gulf region, SA

PROBLEM TIMESCALE
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 or agricultural production. However, it is difficult to attract capital for new port projects without committed export demand from new projects.

Proposed initiative

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.

Next steps

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

2. This initiative was previously referred to as 'South Australian regional mineral port development' but expanded in February 2019.

Sturt Highway High Productivity Vehicle capacity enhancement, including Truro bypass

LOCATION
Truro, SA

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
South Australian Government

DATE ADDED TO THE IPL
February 2016

Problem

The road transport system is the only means of transporting goods in most regional areas of South Australia. However, the existing road network does not allow for the use of High Productivity Vehicles. 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.

The Sturt Highway is part of the National Land Transport Network, providing the main route between Adelaide and Sydney. Freight growth on the Sturt Highway is expected to increase at 1.6% per year. Increases in freight vehicle numbers will reduce the capacity of the Sturt Highway, resulting in increased travel time and costs. This negatively affects business competitiveness and productivity.

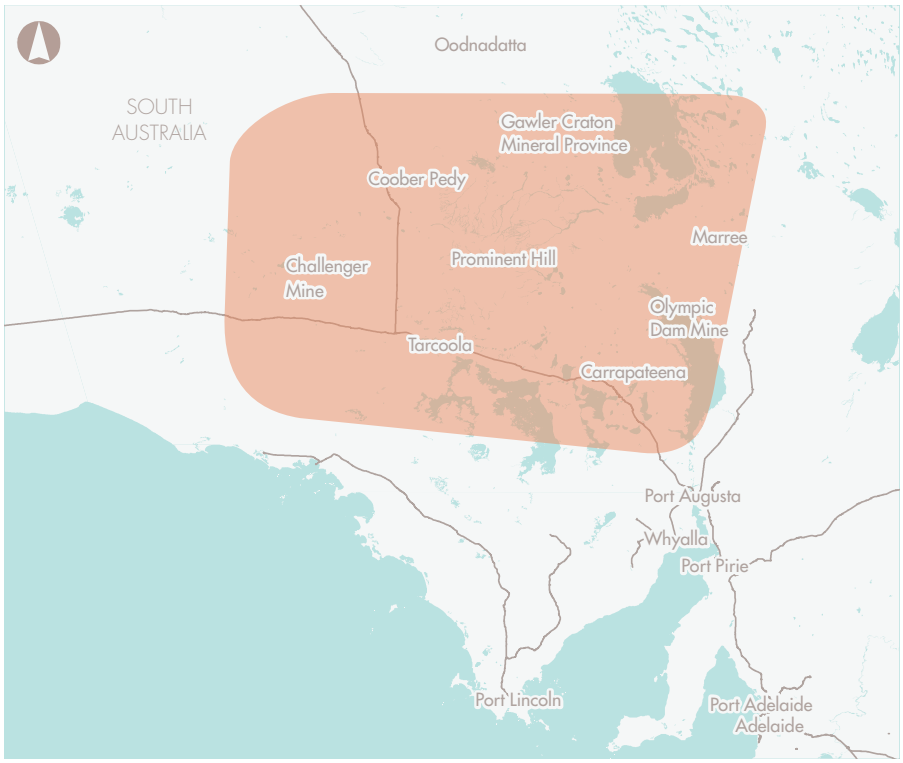
Proposed initiative

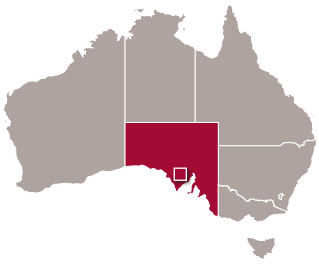
Realignment of the Sturt Highway through the Truro Hills, including a bypass of the town of Truro, to improve safety and allow use of High Productivity Vehicles on the highway.

Next steps

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

Gawler Craton rail access





LOCATION
Gawler Craton minerals region, SA

PROBLEM TIMESCALE
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).

Derwent River crossing capacity

LOCATION
Bridgewater, Tas

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
Tasmanian Government

DATE ADDED TO THE IPL
February 2016

Problem

The Bridgewater Bridge, which is part of the National Land Transport Network, does not meet contemporary loading and design standards. The bridge provides a single lane in each direction, and has a posted speed limit of 60 km/h.

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.

The Tasmanian Government finalised a business case for the preferred option and submitted it to Infrastructure Australia in November 2018.

Next steps

Business case assessment by Infrastructure Australia (Stage 4 of Infrastructure Australia's Assessment Framework).

Burnie to Hobart freight corridor improvement

LOCATION
Burnie to Hobart, Tas

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
Tasmanian Government

DATE ADDED TO THE IPL
February 2016

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, and 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

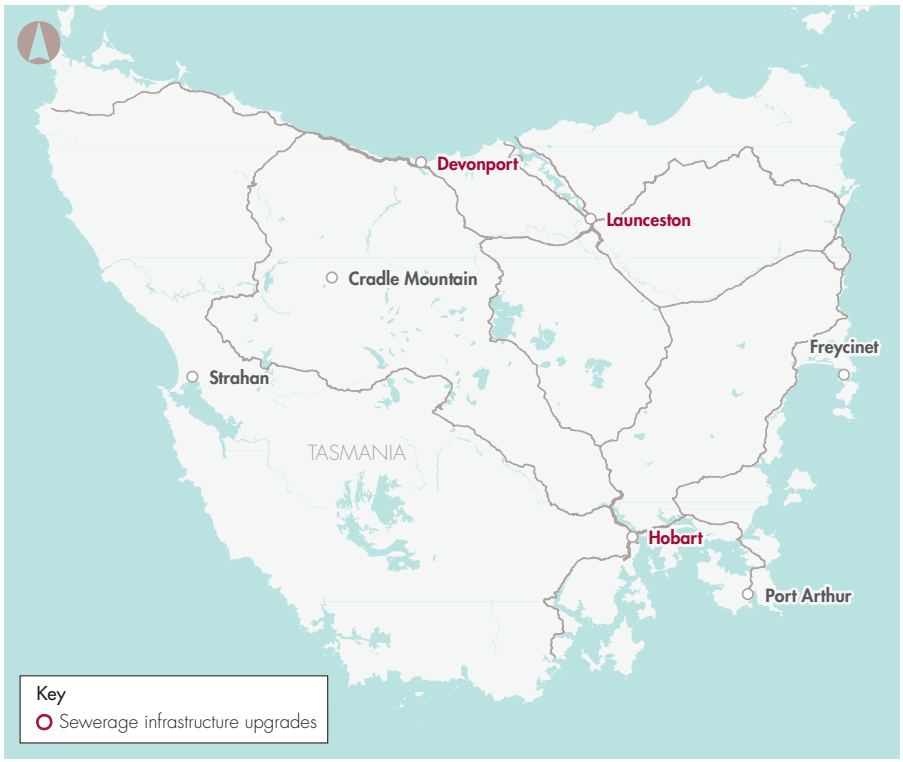
The program initiative involves a range of road and rail improvements to the corridor, such as intersection upgrades or lane duplications. The Tasmanian Government is prioritising and preparing business cases for these investments, which would support the key outcomes of the Strategy. Those outcomes are to develop a freight corridor that:

- is planned, managed and delivered to support broader freight system and supply chain outcomes
- supports efficiency, access and modal choice for freight users
- responds to and appropriately manages freight demand, considering freight volumes, user needs and the ability of road and rail to cost-effectively support a freight task
- is based on transparent investment frameworks and project business cases, supporting a coordinated evaluation of freight investment across the corridor
- reflects contemporary freight analysis and information, including from key freight users.

Next steps

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

Tasmanian sewerage infrastructure upgrades



LOCATION
Hobart, Launceston and Devonport, Tas

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Tasmanian Government

DATE ADDED TO THE IPL
February 2016

Problem

The 2015 *Australian Infrastructure Audit* noted problems in Tasmania's sewerage infrastructure. 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.

Proposed initiative

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.

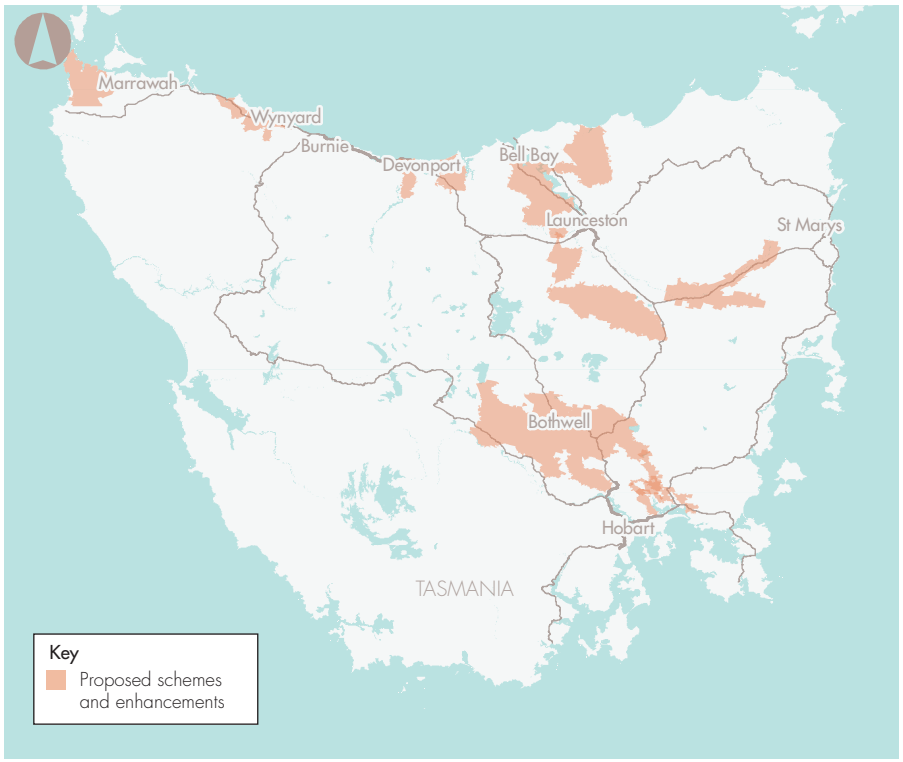
TasWater has released its Long Term Strategic Plan for the period 2018–2037, which includes rationalisation of treatment plants in Launceston and Devonport. The Plan considers individual plant upgrades or optimisation projects for Hobart.

Next steps

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

Tasmanian irrigation schemes

Tranche 3



LOCATION
North Tasmania

OPPORTUNITY TIMESCALE
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 are still subject to investigation, including their costs and benefits, through business case development.

The second tranche of Tasmanian irrigation schemes were previously identified as a Priority Initiative on the *Infrastructure Priority List*, and are currently under delivery.

Next steps

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

Canberra CBD to north corridor

LOCATION
Canberra, ACT

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
Australian Capital Territory Government

DATE ADDED TO THE IPL
February 2016

Problem

The corridor from Canberra's CBD to north is experiencing growing congestion. This congestion is being caused by limited road and public transport capacity and increasing travel demand as a result of major population growth in the corridor.

The 2015 *Australian Infrastructure Audit* shows the cost of delay on greater Canberra's urban transport network was $0.2 billion in 2011 and is projected to increase to $0.7 billion in 2031. Further, the Audit shows that, in the absence of additional public transport capacity, significant projected population growth in the CBD to north corridor will lead to demand for public transport outstripping available supply.

Proposed initiative

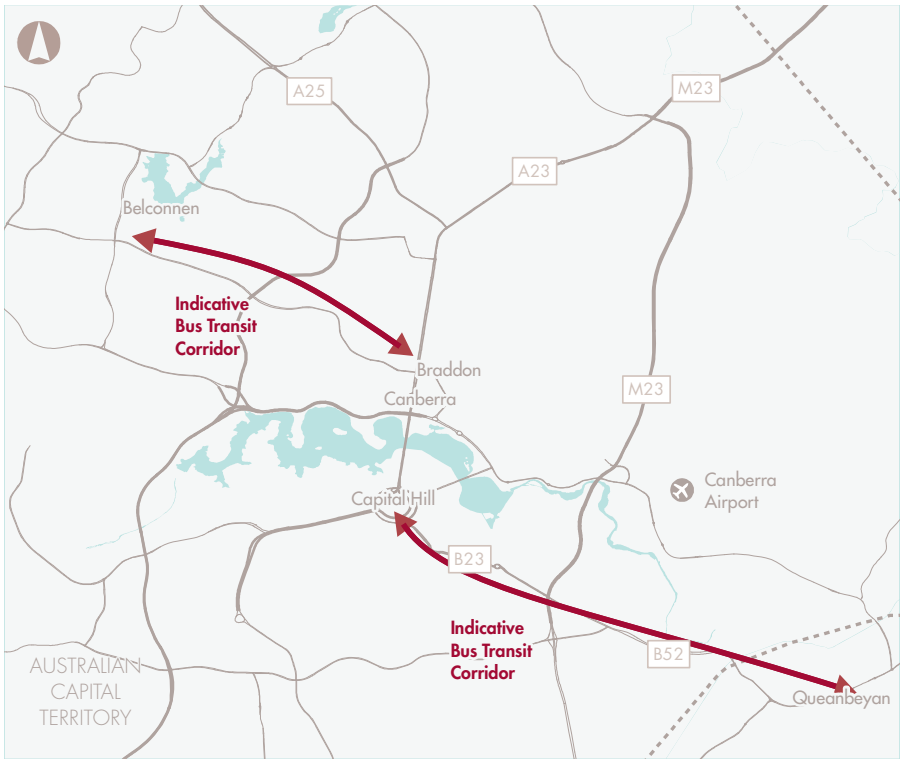
The initiative proposes several measures to alleviate congestion in the Canberra CBD to north corridor, including the light rail between Gungahlin and Canberra's CBD (now under construction), improvements to bus connectivity and reliability, and capacity improvements for a number of arterial roads.

Next steps

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

Construction of light rail between Gungahlin and Canberra CBD is underway.

Canberra public transport improvements



LOCATION
Belconnen, Queanbeyan to central Canberra, ACT

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
Australian Capital Territory 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

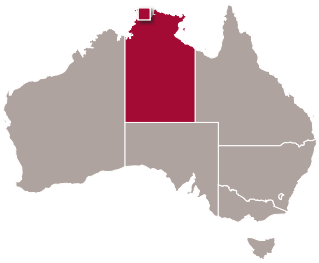
Develop bus transit corridors connecting Belconnen and Queanbeyan to central Canberra. These corridors will provide an integrated transport solution, reducing traffic congestion and providing transport network capacity for future economic development in the region.

Next steps

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

Provision of enabling infrastructure and essential services to 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

PROBLEM TIMESCALE
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.

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:

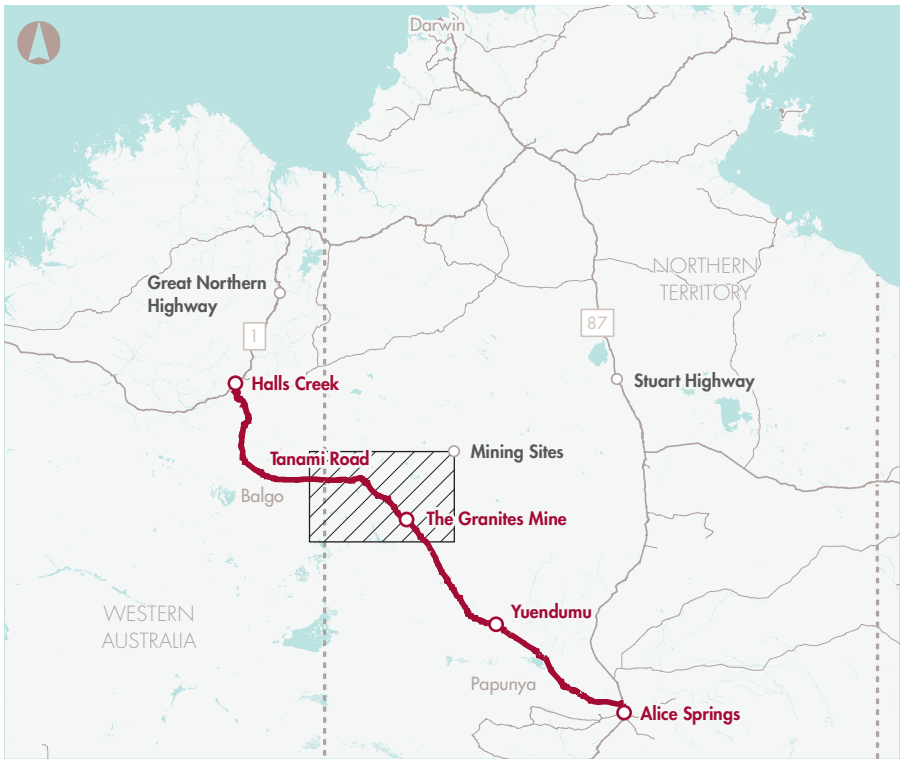
- road upgrades to improve the accessibility and flood resilience of key road networks
- upgrades to provide new or improved water storage facilities and wastewater management facilities in a number of remote population centres
- upgrades to provide additional public housing and upgrades to social infrastructure, such as community centres and youth centres.

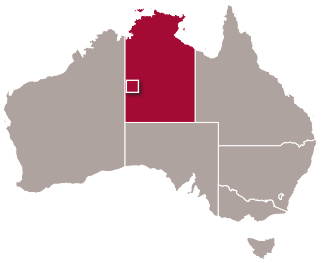
The Adelaide River Floodplain upgrade on the Arnhem Highway is under delivery.

Next steps

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

Upgrade Tanami Road





LOCATION
Tanami Road links the Stuart Highway in the NT to the Great Northern Highway in WA

PROBLEM TIMESCALE
Near term (0–5 years)

PROPONENT
Northern Territory Government

DATE ADDED TO THE IPL
February 2016

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
- 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 2015 *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*.

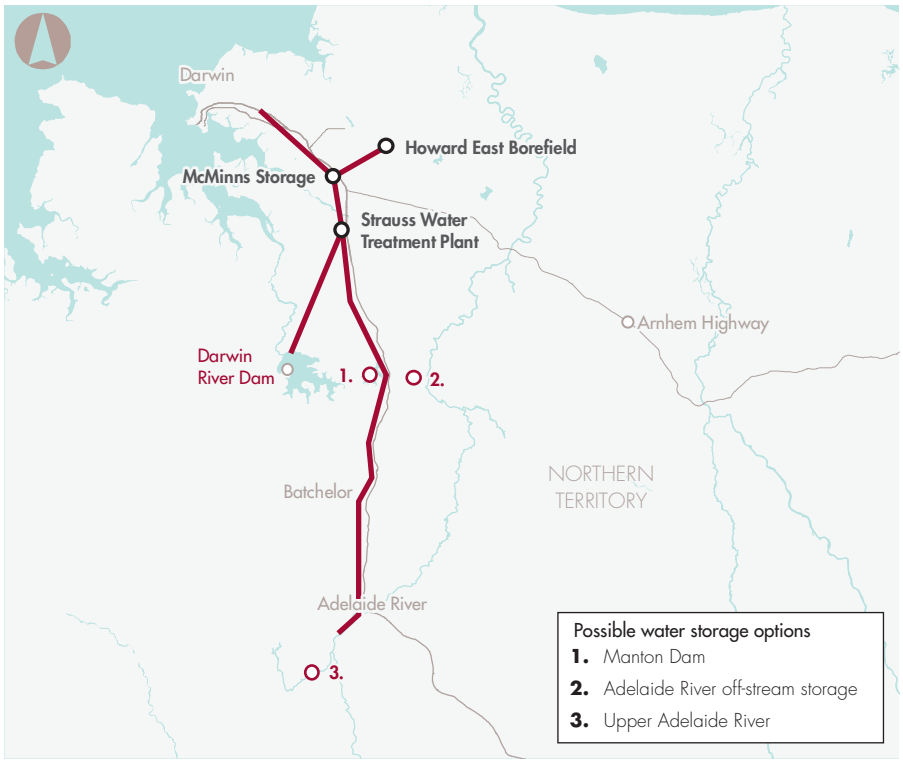
Proposed initiative

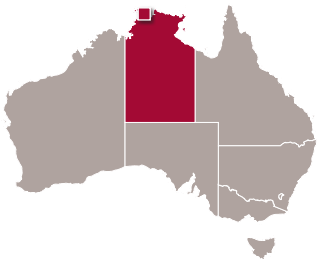
Upgrade and improve flood immunity and resilience for the Tanami Road between the Stuart Highway north of Alice Springs, and the Great Northern Highway at Halls Creek.

Next steps

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

Darwin region water supply infrastructure upgrades





LOCATION
Darwin, NT

PROBLEM TIMESCALE
Medium term (5–10 years)

PROPONENT
Northern Territory Government

DATE ADDED TO THE IPL
February 2016

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 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.

Next steps

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

Appendices

Appendix A

Projects under construction

The following projects were previously listed on the *Infrastructure Priority List*. They have since been removed as they are under construction or because all major construction contracts have been awarded.

State	Project	Removed from List
New South Wales	Bringelly Road Upgrade Stage 1	2016
	Bringelly Road Upgrade Stage 2	2017
	Moorebank Intermodal Terminal	2017
	NorthConnex	2016
	WestConnex	2019
Victoria	CityLink Tullamarine Widening Project	2016
	Melbourne Metro Rail	2017
	Murray Basin Rail Project	2017
Queensland	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
	Gateway Motorway Upgrade North	2016
	Ipswich Motorway Rocklea–Darra Stage 1c	2017
	M1 Pacific Motorway – Gateway Motorway merge upgrade	2017
	M1 Pacific Motorway Upgrade – Mudgeeraba to Varsity Lakes	2018
Western Australia	Armadale Road Upgrade	2017
	Forrestfield Airport Link	2017
	Mitchell Freeway extension Burns Beach Road to Hester Avenue	2016
South Australia	Adelaide–Tarcoola Rail Upgrade Acceleration	2017
	North–South Corridor (Darlington Upgrade Project)	2017

Appendix B

Business cases under assessment

Jurisdiction	Business case title
Queensland	M1 Pacific Motorway: Eight Mile Plains to Daisy Hill
	M1 Pacific Motorway: Varsity Lakes to Tugun
Tasmania	Derwent River Crossing Capacity

This information is correct as at 18 January 2019.

For up to date information on business cases under assessment, please see the Infrastructure Australia website: www.infrastructureaustralia.gov.au

Appendix C

Program initiatives

Submissions received in relation to the Network Optimisation Program – Rail

Proponent	Submission name	Year of first submission
Queensland		
Qld Government	North Coast Rail Line Action Plan	2017
South Australia		
SA Government	Integrated Public Transport Programme	2017

Submissions received in relation to the Network Optimisation Program – Roads

Proponent	Submission name	Year of first submission
New South Wales		
NSW Government	Easing Sydney's Congestion Tranche 2	2017
NSW Government	Pinch Point Program	2015
NSW Government	Smart Motorways – Southern Cross Drive and General Holmes Drive	2015
Western Australia		
Royal Automotive Club of WA (RACWA)	Smart transport technologies	2017
Queensland		
Qld Government	Smart Mobility for South East Queensland	2015
Royal Automotive Club of Queensland	Level crossing removal program	2018

Submissions received in relation to the Network Optimisation Program – Roads (cont.)

Proponent	Submission name	Year of first submission
South Australia		
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

Submissions received in relation to the National Freight and Supply Chain Strategy

Proponent	Submission name	Year of first submission
National		
Freight on Rail Group	Melbourne – Adelaide double-stacking	2017
Phillip Laird	Strengthening and straightening of ARTC interstate freight track – East West Corridor (Melbourne to Perth) and North South Corridor (Melbourne- Brisbane) with other gauge standardisation	2015
New South Wales		
NSW Government	Foreshore Road Capacity Upgrades	2017
NSW Government	Sydney to Central West / Orana – road and rail corridors	2017
NSW Government	Western Sydney Freight Line construction	2017
NSW Government	Barton Highway Safety Improvements	2015
NSW Government	Fixing Country Rail	2015
NSW Government	NSW Grain Lines Upgrade Program	2015
NSW Government	Princes Motorway M1 Improvements – Bulli Tops to Picton Road, Stage 2	2015
NSW Government	Sydney Roads Freight and Growth Package	2015
Freight on Rail Group	Sydney – Cootamundra double stacking	2017

Submissions received in relation to the National Freight and Supply Chain Strategy (cont.)

Proponent	Submission name	Year of first submission
Victoria		
Victorian Government	High Productivity Freight Vehicles – Bridge Strengthening	2015
City of Wyndham	Western Intermodal-Interstate Freight Terminal	2017
Freight on Rail Group	Port of Melbourne holding roads	2017
RACV	Completion of the duplication of the Princes Highway East to Sale	2015
RACV	Completion of the duplication of the Princes Highway West to Colac	2015
RACV	Completion of the duplication of the Western Highway to Stawell, to provide a minimum 4-star highway	2015
RACV	Shepparton Bypass, to provide at least a 4-star bypass on the major highway route between Melbourne and Brisbane	2015
RACV	Traralgon Bypass, to a 4-star standard as part of the ongoing upgrade of Princes Highway East	2015
Queensland		
Queensland Government	Warrego Highway upgrade (Ipswich to Charleville)	2017
Queensland Government	Flinders and Barkly highway upgrades	2016
Freight on Rail Group	Mount Lindesay Road upgrade	2017
Freight on Rail Group	North Coast Line crossing loop extensions	2017
Freight on Rail Group	North Coast Line flood resilience	2017
Freight on Rail Group	Northern Brisbane freight corridor planning and corridor preservation	2017
Freight on Rail Group	Rockhampton and Bundaberg deviations	2017

Submissions received in relation to the National Freight and Supply Chain Strategy (cont.)

Proponent	Submission name	Year of first submission
Western Australia		
Bunbury Wellington Economic Alliance; RACWA	Complete road and freight linkages to Bunbury port	2015
CBH Group	WA Grain Freight Rail Network	2017
City of Swan	EastLink WA (also known as the 'Orange Route')	2017
City of Swan	Hazelmere industrial area upgrades (including interchange upgrades on the Great Eastern Highway Bypass, and the Lloyd Street Bridge over Helena River)	2017
City of Swan	Midland Freight rail realignment	2017
Freight on Rail Group	Perth Metro Freight Rail Duplication	2017
South West Group	Latitude 32 Intermodal Terminal.	2015
South West Group	Rail Upgrades Fremantle Port to Kewdale	2015
South Australia		
SA Government	Road And Bridge Upgrades to Expand High Productivity Vehicle (HPV) Access by Addressing Gaps in the Road Network and 'First/Last Mile' Issues	2015
Tasmania		
Tasmanian Government	Burnie Port Precinct Plan	2015

Glossary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Glossary

Term	Definition
Appraisal	The process of determining impacts and overall merit of a proposed initiative, 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 a proposed initiative are assessed in a cost-benefit analysis. A default value of 30 operational years plus construction time is generally used for transport initiatives. (See 'cost-benefit analysis').
Assessment Framework	Details the method Infrastructure Australia uses to evaluate initiatives and business cases for inclusion in the *Infrastructure Priority List*. It provides structure to the identification, analysis, appraisal and selection of initiatives and projects and comprises the following five stages: **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 May 2015, the Audit provides 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. The next Audit is scheduled for delivery in mid-2019.
Australian Infrastructure Plan	Published in February 2016, the Plan provides a positive reform and investment roadmap for Australia. Building off the evidence base of the 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 next Plan will be published in 2021.
Base case	The state of the world without the proposed initiative. A cost-benefit analysis compares the base case with the project case, which is the state of the world *with* the proposed initiative, to determine the net impacts.
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, 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 proposed initiative presented at the completion of a cost-benefit analysis. It is commonly used to aid comparison of initiatives competing for limited funds.

Term	Definition
Business case	A document that brings together the results of all the assessments of a proposed initiative. It is the formal means of presenting information about a proposed initiative 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.
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 a proposed initiative by assessing the benefits, costs, and net benefits to society of the initiative. It aims to attach a monetary value to the benefits and costs wherever possible and provide a summary indication of the net benefit.
Demand forecasting	The activity of estimating future demand (such as public transport patronage, vehicle volumes or water usage) in a particular year or over a particular period.
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').
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 *Infrastructure Priority List*.
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)	A generic term used for all Performance-Based Standards (PBS) vehicles, as defined by the National Heavy Vehicle Regulator: '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'.[1] 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.
Impact	A generic term to describe any specific effect of an initiative. Impacts can be positive (a benefit) or negative (a cost).
Indicative Delivery Timeframe	For Projects, this provides the proponent's indication of when the project is likely to be delivered and operational.

Term	Definition
Infrastructure operating costs	The costs of providing the infrastructure after the initiative 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 *Australian Infrastructure Audit* and other data as evidence of infrastructure needs.
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 places, 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.
Nationally significant problem or opportunity	The *Infrastructure Australia Act 2008* 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 is of the opinion that the investment is expected 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. provide an opportunity for realising economic, social, or environmental benefits; or 3. both addressing a problem and providing an opportunity. As a guide, for the purposes of assessing submissions to the *Infrastructure Priority List*, 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.
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	Infrastructure networks are the physical assets that enable the provision of services such as transport connectivity, power, water and internet. In the context of the transport sector, this refers to a collection of routes that provide interconnected pathways between multiple locations for similar traffic. 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).

Term	Definition
Network optimisation (transport)	Network optimisation solutions make better use of existing infrastructure assets and improve 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.
Non-infrastructure options/ solutions	Initiatives that avoid the need for capital expenditure on new or upgraded infrastructure. Typically includes non-capital options/solutions such as pricing and regulatory reform.
Opportunity cost	The value forgone by society from using a resource in its next best alternative use. Synonymous with 'resource cost' and 'social 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'.
Options assessment	The assessment of alternative options for solving an identified problem.
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 *Infrastructure Priority List* as either Priority or High Priority. 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.
Problem	An evidence-based reason for action that results from a gap between an actual and a desired outcome. In the context of this document, problems are informed by the *Australian Infrastructure Audit*, and by Infrastructure Australia's collaboration with jurisdictions to identify jurisdictional problems and national problems.
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	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.

Term	Definition
Public-private partnership (PPP)	The *National PPP Policy Framework (2016)* defines PPPs as being where: • the private sector provides public infrastructure and any related services; and • there is private investment or financing. PPPs as a procurement method are part of a broader spectrum of contractual relationships between the public and private sectors to produce an asset and/or deliver a service.[2]
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 freeways or 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'.
Timescale	For Initiatives, this indicates when the problem or opportunity is likely to have a material impact on our cities and regions.
Twenty-Foot Equivalent Units (TEU)	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.
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.

1. National Heavy Vehicle Regulator 2018, NHVR, Fortitude Valley, www.nhvr.gov.au/road-access/performance-based-standards
2. https://infrastructure.gov.au/infrastructure/ngpd/index.aspx#anc_public-private
3. https://austroads.com.au/publications/traffic-management/agsm

Infrastructure Priority List
Australian Infrastructure Plan

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Infrastructure Australia
Level 21, 126 Phillip Street
Sydney NSW 2001 Australia
T +61 2 8114 1900
E mail@infrastructureaustralia.gov.au
W infrastructureaustralia.gov.au