



Australian Government
Infrastructure Australia

National Infrastructure Priorities

Infrastructure for an economically, socially,
and environmentally sustainable future

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Introduction

World-class infrastructure networks are essential to driving sustainable economic development and growth, lifting levels of productivity and boosting employment.

They are critical to encouraging business innovation and improving the global competitiveness of our industries; they provide the foundation for vital community services such as schools, hospitals and housing; and they are key to managing population growth and meeting current and future environmental challenges.

The nation's infrastructure networks have provided a platform for Australia's long and successful history of economic development, social cohesion and stability. However,

without adequate and appropriate investment in infrastructure, Australia will struggle to achieve sustainable economic growth and environmental sustainability, and improve the quality of life for current and future generations. Australia needs to find ways to make better use of existing infrastructure, remove the bottlenecks and gaps that are holding back Australia's growth, and identify opportunities for new capital investment.

Infrastructure – such as water, energy, communications and transport – has very complex relationships with economic, community, and environmental issues. Given the large infrastructure bottlenecks and backlogs facing Australia, there is much that needs to be done.

Yet there has been no national approach to assessing and meeting Australia's infrastructure needs and no national commitment to increasing our investment in infrastructure - until now. For the first time, Australia has a national body dedicated to the task of building an infrastructure platform for the future: Infrastructure Australia with a focus on policy, regulation and investment approaches.

Infrastructure Australia was created to drive the development of a long term, coordinated national approach to infrastructure planning and investment. Infrastructure Australia seeks to ensure that Australia identifies and invests in the infrastructure needed to meet the significant challenges ahead, while also being mindful of the issues our community faces today.



Australia's national infrastructure challenges

Infrastructure Australia established a seven step analytical framework and identified nine key challenges facing Australia.

Infrastructure Australia established a seven step analytical framework to guide its work. The framework seeks the clear articulation of the problems and challenges facing Australia, before policymakers identify and assess various options or solutions to those problems (see Table 1).

In August 2008, Infrastructure Australia issued a call for public and industry submissions, requesting input on the infrastructure challenges facing Australia. This request supplemented submissions provided to Infrastructure Australia in June 2008 by the Commonwealth, States and Territories setting out their own assessment of the challenges facing the nation.

Infrastructure Australia combined these submissions – over 600 public submissions were received – with its own analysis and research to identify nine key challenges facing Australia. The nine challenges provided the basis for Infrastructure Australia's Interim Report to Government in December 2008¹:

- 1. Deliver better governance:** inefficiencies and inconsistencies in governance adversely impact infrastructure operations and investment in Australia.
- 2. Create competitive markets:** regulatory complexity and competitive anomalies impede the operation of efficient and competitive infrastructure markets, including the development of a nationwide world-class communications network.

- 3. One nation, one set of rules:** inconsistent rules, legislation and regulations governing markets impede productivity and create unnecessary costs.
- 4. Better use of existing infrastructure:** changes in the operation, pricing or utilisation of existing infrastructure to solve problems without the need for investment in additional capacity.
- 5. Climate change:** in addition to requiring a shift to a low carbon economy, climate change is increasing the demand for improved infrastructure, such as efficient public transport systems and low carbon intensive methods of power generation.
- 6. Supporting our cities:** improving the livability, sustainability and productivity of Australia's major cities.
- 7. Boosting exports:** increasing the productivity of Australia's international gateways, making sure that they can meet the rapidly growing freight task without adverse impacts on community amenity.
- 8. Supporting Indigenous communities:** improving infrastructure in remote and regional Indigenous communities, and closing the gap in essential infrastructure and services between these and non-Indigenous communities.
- 9. Supporting rural communities:** improving the quality of life and economic prosperity in rural and regional communities.

¹ Infrastructure Australia, 2008, *A report to the Council of Australian Governments*

Table 1: Infrastructure Australia's Assessment Framework

STAGE	DESCRIPTION	COMPONENTS REQUIRED	RATIONALE
1. Goal definition	Definition of the fundamental economic, environmental and social goals that society seeks to achieve, for example: sustained economic growth and increased productivity, lower carbon emissions and lower local pollution, greater social amenity and improved quality of life.	<ul style="list-style-type: none"> Formalised, comprehensive, and agreed goals/targets. Quantified, objective and specific goals/targets. 	A performance benchmark is needed against which the adequacy of infrastructure can be assessed.
2. Problem identification	Objective, specific, evidence-based, and data rich identification of deficiencies with the condition, operation and services provided by infrastructure that may hinder the achievement of those economic, environmental and social goals.	<ul style="list-style-type: none"> A list of specific problems clearly identified, including network or geographical location. Those problems accurately quantified and defined, including an assessment of future trends. 	Specificity regarding inadequacies is essential in order to take targeted and therefore more effective action.
3. Problem assessment	Objective and quantified appraisal of the economic, environmental and social costs of those deficiencies, so that the most damaging deficiencies can be identified and prioritised.	<ul style="list-style-type: none"> Accurate and objective assessment of the econ/envt/soc impacts of those problems. Priorities identified which reflect the scale of impacts. 	Understanding the costs/impact of deficiencies allows the worst problems to be identified and prioritised.
4. Problem analysis	Objective policy and economic analysis of why these deficiencies exist – i.e. what is the underlying cause (depending on the sector, reasons could include market failure, government failure, capital restrictions, etc). This should include an assessment of non-infrastructure reasons for the problem – e.g. land use patterns, peak demand; or education/business hours.	<ul style="list-style-type: none"> For each deficiency, analysis of why those problems have developed. Covers both immediate and underlying causes (e.g. not just 'lack of investment', but causes of underinvestment, e.g. regulatory environment). 	Understanding the causes allows effective and targeted solutions to be created. Infrastructure not the only cause of problems.
5. Option generation	Development of a full range of interventions that might address the issue – e.g. pricing, regulatory, better use, packages/systems, capacity increases, informed by the Problem Analysis completed at Stage 4.	<ul style="list-style-type: none"> A full range of option types have been identified for each deficiency/problem. Those options have been objectively assessed, without some options having been ruled out early or favoured. 	Looking at a range of options rather than relying on early judgements is more likely to identify the best solutions.
6. Solution assessment	Use of cost-benefit analysis to assess those options/solutions. The appraisal should incorporate the full range of economic, environmental and social impacts (including agglomeration and trade impacts, carbon impacts, noise, and social amenity) so that the impact on all society's goals is measured and understood as far as is possible.	<ul style="list-style-type: none"> Accurate and justifiable Cost-Benefit Analysis has been used to appraise options. Cost-Benefit Analysis is comprehensive and includes wider economic, environmental and social impacts. 	An understanding of the impact of solutions on all goals is essential to understand how the portfolio will achieve those goals.
7. Solution prioritisation	Identification of policy and project priorities from the list of solutions, on an objective basis. The objective basis should give primacy to the Benefit-Cost Ratio (BCR) of policies, but could include broader considerations set out in a transparent framework – such as portfolio/package issues, deliverability, risk, and affordability.	<ul style="list-style-type: none"> Priority List clearly identified. Priorities reflect primacy of BCR analysis alongside objective framework. Relationship to State-funded policies/projects clear – i.e. prioritisation reflects all ideas, not just the unfunded. 	BCRs provide the best available objective evidence as to how well solutions will impact on goals – but not the whole story.

Australia's national infrastructure priorities

Infrastructure Australia has been considering how best to help Australia meet these challenges.

Infrastructure Australia has considered the most effective options for meeting these challenges, building on over 1000 initiatives suggested in the submissions received from the Commonwealth, State, Territory and Local governments, the business community and the wider public.

Infrastructure Australia's December 2008 report outlined that urgent action was required through seven themes to boost Australia's productivity, protect the environment and enhance Australians' quality of life. These themes provide a framework for action to meet the gaps, deficiencies and bottlenecks in our nation's infrastructure. The seven themes are:

1. **A national broadband network:** developing a more extensive, globally competitive broadband system;
2. **Creation of a true national energy market:** more extensive national energy grids to enable greater flexibility and competition in the nation's electricity and gas systems, whilst creating opportunities for the development of renewable energy sources;
3. **Competitive international gateways:** developing more effective ports and associated land transport systems to more efficiently cope with imports and exports;

4. **A national rail freight network:** development of our rail networks so that more freight can be moved by rail;
5. **Transforming our cities:** increasing public transport capacity in our cities and making better use of existing transport infrastructure;
6. **Providing essential Indigenous infrastructure:** improved services for Indigenous communities; and
7. **Adaptable and secure water supplies:** more adaptable and resilient water systems to cope with climate change.

Identifying a list of priorities for action under each theme has been a major task. In developing the list of priorities, Infrastructure Australia has used a rigorous, objective and independent process to ensure that the best initiatives are identified.

Clear assessment plans were developed and the prioritisation methodology has been published². Infrastructure Australia's detailed assessments were supported by a series of external and independent experts.

Infrastructure Australia's methodology prioritises projects which:

1. Support these seven themes for action; and
2. Are of national significance (but not necessarily interstate); and
3. Meet three detailed project assessment criteria, reflecting the Building Australia Fund (BAF) legislation:
 - How well the project meets Australia's nation-building policy goals: supporting economic growth, protecting the environment and promoting social inclusion, measured against a series of qualitative criteria³;

- The contribution the project would make to Australia's economic success: this was measured through an objective economic assessment of the projects, identifying the level of incremental economic benefits of the project compared to the incremental economic costs, expressed in the project's "economic benefit cost ratio"; and
- Project governance and delivery: an assessment of the quality of governance, procurement and risk management plans put in place to deliver the project, to ensure that the project can be successfully delivered.

Infrastructure Australia has engaged with States, Territories and other proponents for over six months to understand – and in many cases to improve – the evidence supporting proposed projects.

In its December 2008 report, Infrastructure Australia identified 94 projects, from the list of over 1000 initiatives. Each of the 94 projects had provided a minimum level of information to allow an assessment against the criteria.

Since December, Infrastructure Australia and the project proponents have worked hard to ensure that the evidence base supporting the projects is robust and comprehensive. Infrastructure Australia then applied its assessment framework to evaluate these projects.

² Infrastructure Australia, 2008, Prioritisation Methodology

³ Projects were assessed against seven separate criteria, which can be found in Infrastructure Australia's published Prioritisation Methodology

Infrastructure Australia's initial priority projects

The assessment found that nine priority projects have met the stringent criteria applied by Infrastructure Australia and are ready to proceed (see Table 2). The nine projects therefore:

1. fit one of Infrastructure Australia's seven themes for action;
2. are of national significance;
3. make a clear and positive contribution to Australia's policy goals;
4. demonstrate significant long term national benefits to Australia (all the projects' economic benefit-cost ratios are very significantly above 1:1, and some are above 2:1); and
5. demonstrate robust delivery mechanisms to ensure they can be successfully implemented.

Infrastructure Australia advises that these projects should be considered for funding. In addition to these projects, payments in respect of the Ipswich Motorway would also satisfy the Building Australia Fund evaluation criteria.

Infrastructure Australia's priority pipeline

In addition, the assessment identified 28 further projects which meet the first two criteria – they fit one or more of the seven themes and are of national significance – and they make a clear and positive contribution to Australia's policy goals (see Table 2).

However, for these 28 projects, further project development and analysis is required before Infrastructure Australia can make a final recommendation, because:

- there is insufficient information to make a robust assessment at this stage, and/or
- the quality of analysis is not robust enough to form a solid basis for judgement, and/or
- there is a timing issue.

Infrastructure Australia recommends that these 28 projects form a “pipeline” of projects for further analysis and consideration. Infrastructure Australia will now work intensively with proponents to develop robust economic and delivery analysis. This further work is required before Infrastructure Australia can provide definitive funding assessment advice. A number of projects need to be taken to the next stage of business case and detailed design development before Infrastructure Australia can make a more definitive and robust economic and delivery analysis of these projects. Governments and private investors need to undertake more detailed design and feasibility assessment before definitive funding decisions can be considered by governments and private investors.

Infrastructure Australia will continue to consider other projects in future assessment processes as it develops and progresses the seven themes for action.

For some projects, the evidence provided suggests that the private sector could fund all, or a majority of the project cost because very significant user fees or charges are forecast. In these cases, Infrastructure Australia believes the private sector could successfully deliver the new infrastructure with reduced need for public funding (often in association with regulatory or governance reforms) notwithstanding the current challenges from the Global Financial Crisis. Infrastructure Australia supports these projects but does not, at this stage, believe that the case for public funding for construction has yet been made.

Table 2: Infrastructure Priorities

Infrastructure Australia Theme	Priority Projects/Actions ready to proceed (Proponent)	Priority Infrastructure Pipeline projects with real potential (Proponent)
1. A national broadband network	National Broadband Network	
2. Creation of a true national energy market	Energy Strategy: Actions for a true national energy grid (to be developed)	
3. Competitive international gateways	National Ports Strategy (to be developed)	Abbot Point Multi-cargo Facility (QLD) Bell Bay Port Expansion (TAS) Bonython Port (SA) Bruce Highway – Abbot Point State Development Area bypass (QLD) Darwin Port Expansion (NT) Donnybrook Inter-modal Terminal (VIC) Hastings Port (VIC) Moorebank Inter-modal Terminal (Commonwealth/NSW) Oakajee Port Common-user Services (WA) Perth Airport Multi-modal Links (WA) Port of Brisbane Motorway Upgrade (QLD) Port of Melbourne Freight Terminal (VIC)
4. A national freight network	National Freight Network Strategy (to be developed) Adelaide rail freight junctions and level crossings – Goodwood and Torrens (SA) F3–Branxton Freeway (NSW) Majura Parkway (Stage 2) (ACT) Pacific Highway Corridor (NSW) Ipswich Motorway Upgrade (Dinmore to Goodna) (QLD)	Advanced Train Management System (ARTC) Bruce Highway Corridor (Brisbane to Cairns including Cooroy to Curra) (QLD) East-West Rail Freight Corridor (ARTC) Green Triangle Road and Rail Upgrades (SA/VIC) Mount Isa–Townsville Rail Corridor (QLD) Northern Connector Road and Rail Corridor (SA) North-South Rail Freight Corridors (including Northern Sydney Freight line and various rail deviation projects)

Infrastructure Australia Theme	Priority Projects/Actions ready to proceed (Proponent)	Priority Infrastructure Pipeline projects with real potential (Proponent)
5. Transforming our cities	Gawler Rail Line Upgrades (re-sleepering and electrification) (SA) East-West Rail Tunnel (VIC) Gold Coast Rapid Transit (QLD) Regional Rail Express (VIC) Seaford Rail Extension (SA)	Brisbane's Future Public Transport Network (including Brisbane Inner City Rail Capacity) (QLD) Eastern Busway (Stage 2) (QLD) Eastern Busway (Stage 3) (QLD) Fully Controlled Motorways (QLD) Sydney's Future Public Transport Network (including CBD and West Metro) (NSW) Northbridge Rail Link (The Hub) (WA) Melton Duplication and Electrification to Bacchus Marsh (VIC) Mornington Peninsula Connector Road (VIC) Northern Link Road Tunnel (BCC)
6. Providing essential Indigenous infrastructure	Infrastructure for Indigenous Communities Framework (to be developed)	
7. Adaptable and secure water supplies	Water Strategy: Actions for Water Security and Regional Towns Water Quality Review (to be developed)	

Potential Private Sector Involvement – Many publicly driven projects could be structured to be part-supported or enhanced by private investment and most privately motivated projects could be made certain and potentially enhanced by government funding and/or regulation and/or customer support.

A national broadband network

Develop a more extensive, accessible and globally competitive broadband system

The most urgent challenge for the Australian communications sector is the relative disparity in access to quality broadband. This is evident in certain urban areas, but is especially an issue in regional Australia.

The importance of an accessible and fast broadband network to Australia's international competitiveness is almost impossible to overstate. These technologies offer Australians the ability to send and receive information and provide online education and entertainment services almost instantly both within Australia and to overseas.

This means that Australia can be faster and more efficient in generating and accessing more knowledge and services than ever before – and get them to market almost instantly. Broadband also offers a critical link between smart technologies and our nation's infrastructure.

Improving Australia's connectivity will offer businesses and households an economic and social stimulus of great potential, particularly for regional Australia. Rural and remote Indigenous communities are some of those which suffer the most from shortfalls in internet communications.

Infrastructure Australia supports an investment from the Building Australia Fund to develop the National Broadband Network. This, however, should just be the start. Communications needs to be more actively incorporated into urban, economic, and regional planning from now on.

Infrastructure Australia supports an investment from the Building Australia Fund to develop the National Broadband Network.

A true national energy market

Accelerate and implement reforms that will enhance the operation of competitive national markets in both electricity and gas

A program of substantial reform over the last 10 years has produced considerable productivity gains through the disaggregation and deregulation of the sector, introduced market rules to enforce reliability of supply, stimulated the introduction of new entrants in anticipation of demand growth and produced competitive pricing.

Commonwealth, State and Territory policies have stimulated investment in renewable energy and lower emissions gas-fired generation. These measures have produced relatively impressive results to date. However, the capacity of industry to continue this level of expansion is restricted by the lack of proximity of renewable fuel sources to the existing grid.

Infrastructure Australia notes that the energy supply system of the 21st Century needs to be designed to meet the needs of an Australia with: an increasing commitment to reducing emissions from stationary energy; an increasing focus on security of national energy supply; and a goal of driving maximum productivity from the national generation fleet across a truly national energy market.

Key attributes of a national grid to service the needs of the 21st century will include: the free flow of energy across the grid; the interconnection of the National Energy Market with the South West Inter-connector System in Western Australia; and the progressive commercialisation of renewable energy sources that are currently underdeveloped, in particular: the substantial wind and wave resources along the southern coast of Australia; and the geothermal and solar thermal resources of inland Australia.

Progressive extension of the grid to key development areas, for example the North West Minerals province in Queensland, the Olympic Dam region in South Australia, the Pilbara in Western Australia and the Midwest Minerals province in Western Australia is also important. The development of new mines, extending the life of existing mines and the capacity for higher levels of localised processing can be facilitated by access to the scale and price efficiencies that result from access to the grid instead of reliance on localised generation.

Infrastructure Australia believes that the creation of a truly national energy market can be largely addressed through current regulatory reform processes, the Energy White Paper process, the Australian Energy Market Commission's review of market frameworks and the national energy planning process being established by the Australian Energy Operator. Accelerating and implementing these reforms and plans should enhance the operation of competitive national markets in both electricity and gas, and should stimulate the necessary investment in energy infrastructure.

Infrastructure Australia is currently investigating the scale and scope of the impediments to ensuring an effective energy market. The aim is to identify those regulatory or market arrangements that may need to change as a priority in order to ensure a secure and sustainable energy future for Australians. Infrastructure Australia is placing particular emphasis on the issues of interconnection between states and regions and the ability of new energy supply sources to be connected to areas of demand.

PRIORITY ACTIONS

Initiative	Action
"Energy Strategy: Actions for a true national energy grid"	to be developed

Competitive international gateways

Develop more effective ports, airports and associated land transport systems to more efficiently cope with imports and exports through international gateways

Globalisation is increasingly driving the internationalisation of Australian business and trade. With this trend, Australia's international trade has grown in significance. It is now critical that Australia's national gateways – our sea ports and airports – become increasingly efficient, flexible and modern to cope with current demand and to attract and sustain additional business in future.

Infrastructure Australia received submissions seeking support for a variety of international gateway facilities or expansions. These included expansion (or the creation) of ports at Darwin, Oakajee, Abbot Point, and Bell Bay, the expansion of Darwin Airport, and landside links at Perth and Adelaide airports, the Port of Brisbane and Port Kembla. Recent work on coal chain logistics in the Hunter Valley is an example of the cooperative effort needed in the national interest. In Sydney, Port Botany is currently undergoing a major expansion with development of a third terminal at a cost of around \$1 billion. This will substantially increase the capacity of the port, whose throughput is expected to double by 2020. The Australian and State Governments are cooperating to engineer the most efficient and sustainable freight flows along the corridors serving the port, especially the corridor to Sydney's southwest. Among the projects already commenced are the \$309 million Southern Sydney Freight line and a \$27 million upgrade to the existing Botany rail line. Also included is development of the Enfield Intermodal Logistics Centre and a further intermodal terminal – at Moorebank, near two of Sydney's major roads the M5 and M7. Infrastructure Australia is exploring the opportunities

for Sydney's freight needs in developing the Moorebank terminal and this will include rail linkages with the port and the Southern Sydney Freight Line, and major road linkages between the terminal and nearby industrial and freight centres. The proposed M4 East (in conjunction with new rail lines and intermodal terminals) offers a superior, multi-modal solution to the challenge of moving freight between Port Botany and the industrial areas in Sydney's west and north-west.

Evidence was also provided that the returns to Australia's economy from investments in physical infrastructure would be undermined if broader issues are not addressed first. If our international gateways are to be internationally competitive, so too must be the supply chains and infrastructure that link the gateways to the nation. To prosper in our increasingly connected and competitive global economy, Australia's trade gateways, ports and associated land side infrastructure require urgent actions on a national level. It is also of note that expansion of port or airport facilities in some States is continuing due to a market framework that provides incentives to the private sector to invest in new facilities.

It is clear that Australia needs a consistent national approach to its international gateways, particularly its port infrastructure. Our international gateways and supporting supply chains need governance reforms, improved strategic planning and adequate investments in landside infrastructure and terminals, and better co-ordination in port precinct and land transport planning. Infrastructure Australia is not persuaded that public investment in port or airport capacity is currently justified, since it is clear that, given the right governance and market framework, the private sector is ready and willing to invest. Infrastructure Australia will therefore develop a National Ports Strategy to improve the way our ports are planned and managed so that private sector investment can be brought into the sector.

Infrastructure Australia will develop a new National Ports Strategy, as part of a complete Integrated National Transport Plan, to reform port governance and unlock private sector capital to assist in the expansion of our international gateways.

Work must also continue to ensure Australia's international airport gateways are the best they can be. Infrastructure Australia supports the current comprehensive review of aviation policy, which will address – amongst other things – airport capacity, such as a second Sydney airport. This effort by the Australian Government and stakeholders is worthwhile and needs to be part of an Integrated National Transport Plan.

Regulation and Planning of our Gateways

Smarter regulation, governance, planning, and pricing of our gateways can help Australia improve our ports and help our export businesses. Making existing gateways faster, more cost effective, and more coordinated will also encourage new investments and jobs in Australian ports as well as the communities and industries they link to.

The way government works with the port industry requires urgent changes, in particular for regulation where it differs between locations, which makes things unnecessarily complicated for businesses.

There are not any national approaches agreed to planning and protecting the expansion of the areas in and around our major urban ports. This makes it difficult for industry port authorities, states and local governments to plan and coordinate their activities to ensure efficient land transport access, operation and development of our major ports.

In the past, Government funding has been given to ports, sometimes without full recognition of the need to work with others in the supply chain upon which they depend. This can lead to truck and rail facilities, for example, not being established in ways that give the best return on investment. Infrastructure Australia considers it important to develop a National Ports Strategy and forms part of an Integrated National Transport Plan.

PRIORITY REGULATION, GOVERNANCE AND PRICING ACTIONS

Initiative	Action
Integrated supply chain framework for bulk exports	currently being developed by the National Transport Commission

NETWORK PLANNING

Initiative	Action
National Ports Strategy	to be developed by Infrastructure Australia and the National Transport Commission

 Potential Private Sector Involvement

GATEWAY PROJECTS

Initiative	Proponent	Location	Estimated cost (\$2008)	
Abbot Point Multi-cargo Facility	Queensland	Bowen	\$1,750 M	
Bell Bay Port Expansion	Tasmania	Bell Bay	\$150 M	
Bonython Port	South Australia	Whyalla	\$600 M	
Darwin Port Expansion	Northern Territory	Darwin	\$325 M	
Donnybrook Inter-modal Terminal	Victoria	Melbourne	\$290 M	
Hastings Port	Victoria	Hastings	\$60 M	
Moorebank Inter-modal Terminal	Commonwealth and NSW	Sydney	\$300 M	
Oakajee Port Common-user Services	Western Australia	Geraldton	TBA	
Port of Brisbane Motorway upgrade	Queensland	Brisbane	\$730 M	
Port of Melbourne freight Terminal	Victoria	Melbourne	\$200 M	
Bruce Highway – Abbot Point State Development Area bypass	Queensland	Bowen	\$400 M	
Perth Airport Multi-modal Links	Western Australia	Perth	\$530 M	



A national freight network

Develop a National Freight Network so that more freight can be efficiently moved by rail and road

Rail freight is becoming an increasingly significant factor in Australia's economic and environmental performance. In particular, rail services operate in conjunction with our international gateways and inter-modal terminals to move bulk and container cargo across the nation and from port to landside intermodal terminals.

Within the broader economy, well planned rail freight can stimulate new business activities as well as increasing the productivity and competitiveness of our export industries. Rail freight is also crucial in mitigating the rises in energy costs and in minimising the transport sector's greenhouse gas emissions.

Rail freight is not, however, reaching its full potential in Australia due to some rail alignments built for the steam train era and significant congestion in and around cities including Adelaide, Sydney and Brisbane. If rail freight is to play its part in helping Australians meet the challenges, significant investment is required. The Australian Government recently provided a substantial equity injection to the Australian Rail Track Corporation (ARTC). This will also assist with implementation of the ARTC's investment plans for sections of the interstate freight network.

Road freight is also critical to Australia's success, and alongside significant investment in rail freight, Infrastructure Australia is recommending investment in road freight links in the ACT and New South Wales.

New infrastructure is only part of the picture. Rail freight infrastructure will only create jobs and improve industry performance if the rail freight sector invests in people and planning too. Work is especially needed to overcome passenger-freight conflicts and to standardise operating conditions across Australia in order to increase its efficiency and competitiveness.

Rail and road freight infrastructure planning and investment can no longer be undertaken in isolation from each other, or worse, in competition with each other. Australia needs a coordinated and integrated freight network that is delivered at the appropriate time and better linked with economic and land use planning. The benefits of every dollar spent on Australia's rail and road freight networks will fall short of their potential until investments are made as part of a national coordinated approach to infrastructure planning and management.

Infrastructure Australia supports significant investment in Australia's rail freight network; and Infrastructure Australia considers that a new National Freight Strategy needs to be developed for our freight networks to improve planning, investment and decision making, as part of a complete Integrated National Transport Plan.

Planning of our National rail and road freight networks

Between manufacturing and delivery, goods are often transported on a combination of both road and rail services, as well as passing between jurisdictions and internationally through ports.

Rail and road freight infrastructure planning and investment can no longer be undertaken in isolation from each other, or in competition. Australia needs a coordinated and integrated freight network that is delivered at the appropriate time and better linked with economic and land use planning. It is important to consider how government and industry can work smarter together and achieve more from our existing and planned infrastructure.

The benefits of every dollar spent on Australia's rail and road freight networks will fall short of their potential until investments are made as part of a national coordinated approach to infrastructure planning and management.

Road and rail freight networks have a significant role to play in Australia's economy, our environment, and the safety and quality of life of our communities.

NETWORK PLANNING	
Initiative	Action
National Freight Network Strategy	to be developed

FREIGHT RAIL PROJECTS				
Initiative	Proponent	Location	Estimated cost (\$2008)	
Adelaide rail freight junctions and level crossings (Goodwood and Torrens)	South Australia	Adelaide	\$420 M	
Advanced Train Management System	ARTC	National	\$520 M	
East–West Rail Freight Corridor	ARTC	VIC, SA and WA	TBA	
Green Triangle Road and Rail upgrades	South Australia and Victoria	SA and VIC	\$340 M	
Mt Isa–Townsville Rail Corridor	Queensland	Mt Isa–Townsville	TBA	
Northern Connector Road and Rail Corridor	South Australia	Adelaide	\$1,600 M	
North–South Rail Freight Corridors (including the Northern Sydney Freight Line and various NSW rail deviations projects)	ARTC/NSW	NSW	TBA	

FREIGHT ROAD PROJECTS				
Initiative	Proponent	Location	Estimated cost (\$2008)	
Majura Parkway (Stage 2)	ACT	Canberra	\$220 M	
F3–Branxton Freeway	NSW	Lower Hunter	\$1,222 M	
Pacific Highway Corridor (Hexham to Ballina)	NSW	Sydney–Brisbane	\$6,670 M	
Bruce Highway Corridor (including Cooroy–Curra)	Queensland	Brisbane–Cairns	TBA	
Ipswich Motorway Upgrade (Dinmore to Goodna)	Queensland	Brisbane/Ipswich	\$1,950 M	

Transforming our cities

Improve the efficiency and sustainability of our cities by increasing the desirability and use of public transport, cycling and walking and making better use of existing transport infrastructure

Australia relies heavily on the productivity of its cities for national prosperity. The majority of our population and businesses are located in urban areas, and our cities are hubs of economic activity that link Australia to the global economy. The rapid growth and development in these hubs has imposed challenges relating to patterns of growth, water supply, urban congestion, patterns of advantage and disadvantage, climate change and adaptation, and pressures on public finance.

Australia's transport systems are especially struggling in the face of these challenges with public transport growing rapidly in recent years and reaching capacity limits in most major cities. Looking to the future we face escalating energy costs, the need to reduce carbon emissions, and the need to adapt to unavoidable climate change.

Australia needs the development and coordination of urban action plans, significant investment in public transport networks, improved governance, and integrated long-term strategies to manage land use planning, density, population and urban congestion. Urban regeneration, transit oriented developments, and planning that facilitates the use of public transport, walking and cycling as viable transport options will help ensure the sustainability, livability, and productivity of Australia's cities into the future. Projects such as the Northbridge Link in Perth demonstrate an integrated transport and urban renewal approach.

We can no longer plan cities around historic trends in traffic patterns. We must be proactive now. We must plan and act for the future.

Infrastructure Australia believes that, to maintain the economic success and environmental sustainability of Australia's cities, the time has come for an unprecedented commitment to the creation of world-class public transport in our cities. Infrastructure Australia is therefore recommending, for the first time in Australian history, significant Australian Government investment in public transport in our cities. A number of immediate priorities are identified, alongside a list of future public transport projects which, although still under development, show real potential to transform our cities. Infrastructure Australia also recognised the importance of the efficient operation of the road network in our cities, and has identified Queensland's proposal for Fully Controlled Motorways as having real potential – including for development and implementation in other States.

Infrastructure Australia recommends targeted investment in innovative public transport systems which drive productivity and urban renewal in our major cities to maintain their economic success and environmental sustainability.

Planning of our Cities

Modern cities constantly evolve, driven by shifting patterns of economic activity, population changes and land use developments. Clearly, infrastructure investment in our cities – infrastructure which will shape our cities for many decades – needs to be planned as part of long-term, integrated strategic planning which sets a clear framework for how urban areas will grow and change.

Infrastructure Australia is committed to supporting the growth of public transport in our cities to ensure their future success, and has identified a number of priority projects.

Moving forward, Infrastructure Australia intends to make a recommendation for funding of all types of infrastructure – not just transport – being planned as an integral part of State, Territory or Local government urban development plans. Furthermore, Infrastructure

Australia will make its recommendations with those plans having clear outcomes identified, so that the aims of the investment are clear, measurable and partnerships are identified.

The Council of Australian Governments (COAG) commenced in February 2009 a reform initiative on major city and network planning. At its meeting in April, COAG agreed to establish a task force to identify areas where metropolitan planning can better complement state and national infrastructure planning. Infrastructure Australia will work with the task force to achieve integrated planning outcomes.

Infrastructure Australia will recommend investment in infrastructure in urban areas contingent upon those investments being developed within the context of an integrated urban development plan.

PRIORITY GOVERNANCE ACTIONS

Initiative	Action
Major Cities Planning	COAG Reform Agenda

NETWORK PLANNING

Initiative	Action
National Planning and Investment Framework	to be developed
National Framework for Public Transport Network Planning	

■ Potential Private Sector Involvement

PUBLIC TRANSPORT PROJECTS

Initiative	Proponent	Location	Estimated cost (\$2008)	
Regional Rail Express	Victoria	Melbourne	\$3,800 M	
Gawler Rail Line Upgrades (electrification and re-sleepering)	South Australia	Adelaide	\$310 M	
Seaford Rail Extension	South Australia	Adelaide	\$290 M	
East–West Rail Tunnel	Victoria	Melbourne	\$3,500 M	■
Gold Coast Rapid Transit (Sections 2 & 3)	Queensland	Gold Coast	\$850 M	■
Brisbane’s Future Public Transport Network (including Brisbane Inner City Rail Capacity)	Queensland	Brisbane	\$14,000 M	■
Sydney’s Future Public Transport Network (including CBD and West Metro)	NSW	Sydney	\$13,100 M	■
Northbidge Rail Link (The Hub)	Western Australia	Perth	\$300 M	■
Melton Duplication and Electrification to Bacchus Marsh	Victoria	Melbourne	\$950 M	
Eastern Busway (Stage 2 – Option 1)	Queensland	Brisbane	\$690 M	
Eastern Busway (Stage 3)	Queensland	Brisbane	\$140 M	

EFFICIENCY PROJECTS

Initiative	Proponent	Location	Estimated cost (\$2008)	
Fully Controlled Motorways	Queensland	Brisbane	\$570 M	

■ Potential Private Sector Involvement

URBAN ROAD PROJECTS

Initiative	Proponent	Location	Estimated cost (\$2008)	
Mornington Peninsula Connector Road	Victoria	Frankston	\$700 M	■
Northern Link Road Tunnel	Brisbane City Council	Brisbane	\$2,000 M	■

Essential Indigenous infrastructure

Ensure improved infrastructure and services for Indigenous communities

The inadequacy of roads, public transport, communications, water supply, and electricity infrastructure provided to Indigenous communities is nationally significant.

Improving essential services in Indigenous communities is essential to “close the gap” in health and wellbeing, especially in remote communities. Previously, this issue has been tackled with largely short term and piecemeal approaches as there was uncertainty about which level of government should be responsible. The COAG Remote Indigenous Infrastructure National Partnerships Agreement is addressing some of these issues for 26 remote communities. This agreement will be considered by COAG at their proposed “Closing the Gap” COAG meeting in 2009.

There is a need to consolidate best practice in order to provide a framework for regional delivery that engages with the Indigenous people in remote communities through processes, training and management models that will deliver long term ongoing and sustainable employment and business development options.

Many of Australia’s Indigenous communities do not have infrastructure plans, as well as no commitments having been made to develop them, including the provision of reasonable road access and water supply to these communities.

It is in the national interest to develop, fund, and implement community based Indigenous Community Infrastructure Plans, in coordination and collaboration with Indigenous communities, as well as state based regional infrastructure plans that can indicate such priorities.

This is a significant matter that is best addressed at a national level through Australian Government support so that investment decision making can be better targeted and more effective in the future.

Infrastructure Australia proposes the development of community-based Indigenous infrastructure plans as well as state-based regional infrastructure plans for these communities.

PRIORITY ACTIONS

Initiative	Action
“Infrastructure for Indigenous Communities Framework”	to be developed

Adaptable and secure water supplies

Ensure more adaptable and resilient water systems to cope with growing demand and climate change

Security of water supplies is an urgent and nationally significant issue for urban, regional and rural areas. To date, urban areas have largely addressed security of water supplies, in the short term, by water restrictions and in the long term by diversification in supply. However, water quality in our regional towns may not be meeting world health standards and security of supply is still a major challenge. New approaches are necessary as Australia faces an overall reduction in the reliability of traditional sources of water; dams, rivers, and groundwater.

While the challenges in urban areas are significant, they are being successfully addressed. Infrastructure Australia notes that Perth, Melbourne, Adelaide, Sydney and Brisbane and South-East Queensland all have major developments under way to secure water supplies. Best practices in pricing, independent regulation, and diversifying potable water sources are being applied by some jurisdictions.

While practices such as pricing and regulatory reforms are especially challenging, they and other reforms need consistent application across Australia.

The National Water Initiative provides a sound framework for pursuing urban water reform as well as for trading in water rights in an environmentally sustainable way. However there is a need for jurisdictions to accelerate the implementation of reforms.

In regional areas, water quality and security of supply can be improved and a plan to address the highest priorities needs to be developed – as a matter of urgency.

More consistent implementation of pricing and regulatory reforms will provide incentives for efficient use and investment in urban water sector assets. There is also a need to develop a plan to address regional towns' water quality.

PRIORITY ACTIONS	
Initiative	Action
Water Strategy: Actions for Water Security	to be developed
Regional Towns Water Quality Review	

Appendix A - Description of Infrastructure Priorities

Description of International Gateway Initiatives

Abbot Point Multi-Cargo Facility and Bruce Highway – Abbot Point State Development Area Bypass

Abbot Point, 25 kilometres north of Bowen, has been identified as the next major industrial hub and the premier export facility in Queensland with capacity to accommodate large scale diversified industries and cargo shipping in North Queensland and Northern Australia.

The Abbot Point multi-cargo facility is a six berth, deep water sheltered harbour to complement the existing and future expanded coal export operations of the existing port. The new facility is aimed at providing capacity for increased coal exports from coalfields in the Northern Bowen Basin, along with new alumina and minerals trade opportunities from the North West Minerals Province.

The \$1,750 million port facility is part of the \$10,500 million integrated development of the Abbot Point area, to be delivered via significant investment from the private sector. The initiative is to be delivered in stages to meet the needs of the proposed alumina refinery and to meet demand in coal exports.

With the projected increase in exports at Abbot Point along with the new proposed industries, the Bruce Highway, which currently dissects the Abbot Point development and the town of Bowen, is not an efficient route for freight

servicing these new industries along with the projected increases in Bowen's population.

The \$400 million, 33 kilometre bypass of Bowen aims to accommodate the projected increases in freight traffic to and from the development area.

Bell Bay Port Expansion

Tasmania's port activity is expected to increase significantly over the next 20 years. To meet projected increases in trade, expansion and consolidation of container trade is proposed at Bell Bay Port, north of Launceston.

The \$150 million port expansion proposes the reclamation of land, construction of new berths and loading facilities, and re-development of existing berths.

Bonython Port

Bonython Port, 250 kilometres north-west of Adelaide, is a proposal for a new deep-water commodities export harbour at Whyalla to cater for iron ore and other mineral extracted exports from South Australia.

The South Australian government is seeking expressions of interest for the proposed \$600 million development that includes a 2.7 kilometre jetty, rail connection, inter-modal and associated landside storage facilities. The project is proposed to be fully privately funded.

Darwin Port Expansion

Darwin's port activity is projected by the Northern Territory government to increase significantly over the next 10 years to 12 million tonnes per annum. To meet the projected increases in exports of iron ore, phosphate and other minerals, expansion of the East-arm port in Darwin is proposed.

The \$325 million port expansion proposes the reclamation of land, construction of new berths, loading facilities and a rail dump station.

Donnybrook Inter-modal Terminal

Donnybrook, on the northern outskirts of Melbourne, is proposed as the location of a new inter-modal facility with relocation of the domestic interstate rail freight activities from South Dynon, adjacent to the Port of Melbourne.

Currently, interstate trains are transiting the Melbourne rail network to the existing South Dynon terminal. With these movements unrelated to port activities along with the projected increase in interstate freight movements, relocation of the facility aims to improve train operating efficiencies, particularly from Sydney and Brisbane.

Hastings Port

The Port of Hastings is located around 60 kilometres south-east of Melbourne and is Victoria's preferred site for a future container port once Melbourne's Port capacity is reached. Given that Melbourne is Australia's largest container port, issues regarding plans for dealing with long term growth in container trades after capacity is reached – such as through Hastings – is critically important to Australia's productivity. From around 2016, it is expected that more room will be needed for containers at Melbourne and Hastings to accommodate some cargo currently passing through Melbourne. The trades include some break bulk and vehicles – to be facilitated by Stage 1 of the Hastings development. Stage 1 will entail some new multi-purpose berths at Hastings, and the planning for this will need to understand relevant transport corridor and planning issues. At this stage the estimated cost of Stage 1 is in the order of \$1.3 billion, of which around half is expected to be sourced from the Port of Hastings Corporation.

The \$60 million project proposed to Infrastructure Australia is for planning of Stage 1 of the Hastings Port and associated transport, and reservation and acquisition of relevant transport corridors.

Moorebank Inter-modal terminal

Moorebank, in south western Sydney, is the proposed site of an inter-modal terminal facility handling container traffic from the expanded Port Botany as well as interstate rail freight. The proposed inter-modal terminal would reduce road congestion to and from the Port, including along the M5 motorway, by allowing for the more efficient distribution of containers by rail. Sydney's existing Port inter-modal terminal facilities are expected to reach capacity by the middle of the next decade. The NSW Government has set a target of moving 40% of containers to and from Port Botany by rail, more than double the present percentage.

The site will also facilitate inter and intra-state movement of containers between Sydney and more distant locations. As it is close to the junction of the M5 and M7 motorways, Moorebank is a good location for distribution of freight to south western and western Sydney. The Moorebank facility will also improve interstate train freight operating efficiencies with the site having the capability to efficiently handle 1800+ metre trains.

Oakajee Port Common-User Services

Oakajee, 23 kilometres north of Geraldton, has been identified as the next major industrial hub and export facility in mid-west region of Western Australia. A multi-user and multi-functional port is proposed to support iron ore exports with capacity to accommodate large scale industrial development.

The Oakajee Common-User Services provide for a range of rail, road, water, electricity and telecommunications infrastructure to support the proposed Oakakee Port and Rail project and Oakajee Industrial Estate. These new services support the expected expansion of iron ore exports from mines in the Geraldton regional, along with supporting new trade and industrial opportunities.

Common-User Services are part of the \$4 billion integrated development of the Oakajee area, to be delivered via significant investment from the private sector. The initiative is to be delivered in stages to meet the needs of the port development.

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Perth Airport Multi-modal Links

Perth Airport operates as a domestic and international airport and is proposed for redevelopment to improve the operational efficiency of the airport. Facilities would be consolidated around the existing international terminal and allow for projected increases in passenger numbers.

Efficient access for traffic and public transport is important for operation of the airport, and this \$530 million initiative proposes road upgrades to the surrounding arterial network. There may also be scope for the provision of a dedicated public transport link.

Port of Brisbane Motorway Upgrade

The Port of Brisbane has shown continuous growth over an extended period and is projected to keep growing due to committed future investment in new wharf and terminal development to meet future demands.

With the projected increase in exports and imports and the development of industries around the port precinct, the current Port of Brisbane motorway is not an efficient route for freight servicing the port and industries.

This \$730 million 9.4 kilometre dual carriage motorway linking the Gateway Motorway to the port would accommodate the projected increases in road freight traffic to and from the port and gateway area. The project has the potential to be delivered via a public private partnership.

Port of Melbourne freight terminal

The Port of Melbourne has shown continuous growth in trade and has placed pressure on the efficiency of trade movements to and from the port by road and rail. The new central freight terminal aims to provide for the transfer of international cargo between the port and satellite freight precincts throughout Melbourne via high-speed rail shuttles or trucks.

Currently, international containers are transiting the Melbourne metropolitan road network to freight activity centres and industrial zones. Shifting a portion of these containers onto rail shuttles and the remainder via road will improve freight operating efficiencies.

Description of National Freight Initiatives

Adelaide rail freight junctions and level crossings (Goodwood and Torrens)

The East–West Rail Corridor linking Melbourne–Adelaide–Perth has a primary role of efficiently moving freight. It is currently operationally inefficient and limited in capacity through Adelaide, since longer trains cannot pass due to constrained track geometry. Delays occur at points of intersection with the passenger rail and road network.

The initiative provides for new junctions at Goodwood and Torrens via grade separation of the passenger and freight rail lines, relocation of Goodwood passenger station, building of a new passenger station at Bowden, and replacement of a level crossing with a dual carriage way road underpass.

Advanced Train Management System

The operation of the interstate rail freight network can be improved and meet future capacity needs via the implementation of the next generation of digital train control technology as a replacement for conventional signalling and communications infrastructure.

The Advanced Train Management System is a relatively inexpensive means to meet the projected freight rail task.

East–West Rail Freight Corridor

The East–West rail freight corridor links the principal cities and industrial centres in eastern Australia such as Melbourne and Sydney with those on the west such as Perth. Projected growth in rail freight makes increases in the efficiency and capacity of this corridor a national priority.

The Australian Rail Track Corporation manages most of the corridor and has identified the package of works needed to boost rail's performance. Already the Australian Commonwealth has announced some works in its December 2008 \$4.7 billion nation building package, including in Victoria, South Australia and Western Australia. These would be complemented by initiatives such as the Advanced Train Management System, Adelaide's rail freight junctions and the Melbourne freight terminals.

The Australian Rail Track Corporation has identified further rail infrastructure works, and Infrastructure Australia will be working with the Corporation in assessing these proposals.

Mt Isa–Townsville Rail Corridor

The Northern Economic Triangle has been identified as a major mine and minerals province in the north–west of Queensland. It is primarily connected to ports on the north–east coast via an existing rail corridor.

Green Triangle Road and Rail Upgrades

The Green Triangle has been identified as a major timber plantation and mineral sands province in south–west Victoria and south–east South Australia with capacity to generate large volumes of export timber plantation products via the Port of Portland.

The Green Triangle road and rail upgrades project complements the existing and future wood chip production capacity. However it requires efficient transport infrastructure to the chip mills and the Port of Portland for export of timber products and mineral sands.

The \$340 million road and rail program includes a new rail terminal at the Port of Portland, re–activation and upgrade of existing rail lines between Portland and Wolseley, roads upgrades on the Riddoch and Princes highways, and a bypass of Penola.

Northern Connector Road and Rail Corridor

The Port of Adelaide has shown continuous growth over an extended period and is projected to keep growing, placing pressure on the efficiency of trade movements to and from the port by road and rail. A new rail and road freight corridor is proposed to link the port to intermodal terminals at Penfield in the north of Adelaide.

The 17 kilometre freeway will connect the current under–construction Northern Expressway to Port Wakefield road along with a new dual track national rail freight line to the Adelaide–Perth–Darwin rail freight line.

This \$2,200 million initiative has the potential to be delivered through a public–private partnership for the road component.

North–South Rail Freight Corridors

The North–South freight corridors run between Brisbane and Melbourne. They comprise the largest general freight route in Australia with a number of segments critically important to national prosperity. The corridors cover the existing lines through Sydney to Brisbane, including the Southern Sydney Freight Line (currently under construction). Upgrades to the line between North Strathfield and Gosford are the subject of a current study by the Australian and NSW Governments. The Australian Government recently announced a package of capacity and efficiency enhancements for the Australian Rail Track Corporation's NSW North Coast line.

The corridor also includes the lines from Melbourne to Sydney and the proposed Inland Rail Route between Melbourne and Brisbane which would bypass the Sydney area. The Australian Government has already committed to substantial works on the Melbourne to Sydney lines and the Australian Rail Track Corporation's proposals go beyond this to a very substantial further increase in capacity. In addition, the Australian Government has commissioned the Corporation to lead a detailed study of the Inland Rail Route.

The Australian Rail Track Corporation's proposals envisage a situation where rail takes a much higher share of the existing inter-capital freight markets, ameliorating pressure on highways and arterial urban roads. Achievement of these goals will require strong coordination with other elements of a national freight strategy, including inter-modal terminals in Melbourne, Brisbane and Sydney, and complementary roadworks.

Majura Parkway (Stage 2)

Efficient movement of freight between the Monaro Highway and Federal Highway and access improvements to freight hubs around the Canberra Airport is important to the regional economy. With projected increases in the freight task and the development of industries around the airport, the current Majura Road is not an efficient route for freight. To provide for this improved efficiency, the proposed Majura Parkway is to replace the existing Majura Road as the proposed freight bypass around the centre of Canberra.

F3–Branxton Freeway

With the Lower Hunter projected to increase in population and employment, and with projected increases in the freight task, an efficient regional road network is necessary between northern and central New South Wales and the Port of Newcastle. The existing inland road network between Sydney–Newcastle–Brisbane is currently of limited capacity with the road network passing through large regional towns.

The proposed \$1,222 million 40 kilometre dual carriageway link commences at the Sydney–Newcastle freeway interchange (F3) and continues north–west to the New England Highway at Branxton.

Bruce Highway Corridor

Many regional cities and towns on the Queensland coast between Brisbane and Cairns are growing population centres, servicing major industries and export gateways. The Bruce Highway is the primary road link between these growing centres, inland export industries and coastal ports and southern interstate freight routes. Capacity on sections of the highway, in particular the Cooroy to Curra section near Gympie, is limited.

Pacific Highway Corridor

The Pacific Highway is a major freight route and interstate link between Sydney and Brisbane and supports major growing population, industrial and export centres and gateways. This highway continues to experience delays and congestion, as well as increasing demand for improved access for commercial and social activity.

Ipswich Motorway Upgrade (Dinmore to Goodna)

The Ipswich Motorway is the primary east–west road corridor in Brisbane's south, and links the other major north–south and interstate corridors in southeast Queensland. It is a road freight corridor servicing industry in Brisbane's south, as well as the Australia Trade Coast airport and port areas.

The proposed \$1,950 million, eight kilometre project will increase motorway capacity from four to six lanes (with further reconfiguration to eight lanes in a reduced speed environment in 2018), upgrade interchanges, remove some ramps and improve local access around the corridor. The project is one of a number of other projects to upgrade the motorway, improving the efficiency of this freight and commuter link.

The project will incorporate intelligent transport systems (ITS) technology such as variable speed signs and variable message signs in order to maximise the performance of the motorway.

Description of Public Transport and Urban Road Initiatives

Eastern Busway (Stage 2 – Option 1) and (Stage 3)

Brisbane's public transport plays an important role for the effective functioning of the city, particularly in handling the city's growing population and employment base. As demand for travel to the CBD grows from Brisbane's eastern suburbs, public transport offers an effective solution for the movement of commuters. Buses – the major form of public transport in the eastern corridor – currently share the road network with cars and congestion is resulting in increasing bus travel times. The Eastern Busway is a response to these pressures. It provides for a dedicated bus only roadway between the University of Queensland and Capalaba and connects to the inner city busway network.

Currently Stage 1 from the University to Buranda is under construction with the proposal to Infrastructure Australia outlining Stages 2 and 3 of the busway. The 1.75 kilometre section of Stage 2 – from Main Avenue to Bennetts Road – is proposed to include a dedicated bus roadway and associated structures and new busway stations at Coorparoo and at Bridge Water Creek. Stage 3 provides for transit lanes between Scrub Road and Tilley Road.

Gawler Rail Line Upgrades (electrification and re-sleepering)

With Adelaide's population forecast to increase and with parts of the public transport network aged, deteriorating and at capacity, solutions are needed to provide for a level of service to meet the forecast increases in passenger demand. The electrification and re-sleepering of the Gawler Line aims to cater for this forecast demand, through upgrades to achieve peak period relief for commuters travelling on this over-crowded section of the network.

The 43 kilometres of track along the Gawler line are proposed to be modernised by electrification, signalling, communications and track upgrades, resulting in improved operational efficiencies, increases in the number of services and reductions in travel times.

East–West Rail Tunnel

Melbourne is a growing city with its population growth forecast to occur mostly in the north and the west of the city and in regional areas. This population growth is expected to lead to rapid growth in passenger rail demand, forecast increases in employment density in the inner Melbourne area. Limitation in current rail capacity suggests that new transport solutions are needed. The East–West rail tunnel provides such a public transport solution, delivering increased capacity for all northern and western services.

The proposed East–West rail tunnel is a new tunnel from South Kensington to Domain (St Kilda Road) with stations at Arden Street, Parkville, Melbourne Central, Flinders Street and Domain. The project will provide higher capacity with an additional 120 trains during peak periods each day, or 84,000 additional commuters.

The \$3,500 million project is proposed to be developed with private sector involvement.

Gold Coast Rapid Transit (Sections 2 & 3)

The Gold Coast is Australia's fastest growing city. Due to a high level of car dependency and an increasingly mobile population, future travel demand and travel reliability cannot be assured through current bus public transport services. An effective public transport system is needed to meet current and future pressures. The Gold Coast Rapid Transit proposal provides such a solution by providing a high quality mass transit system along this coastal corridor.

Gold Coast Rapid Transit is a light rail solution to be delivered in 5 sections and would ultimately link to the heavy rail line at Helensvale and to the Coolangatta Airport and future heavy rail connections at Coolangatta. Section 2 and Section 3 of the ultimate solution have been submitted to Infrastructure Australia for consideration, and involve a connection

between Griffith University at Parkwood to Southport, Surfers Paradise and onto Broadbeach.

The \$850 million 13 kilometre Sections 2 and 3 are proposed to be developed with private sector involvement.

Regional Rail Express

The proposed Regional Rail Express is a new dedicated rail link between West Werribee in Melbourne's west to South Kensington. The project will provide capacity for an additional 120 trains during peak periods each day, or 84,000 additional commuters and allows greater segregation of services on all lines that enter the city.

Seaford Rail Extension

The South Australian government is planning to accommodate a sizeable proportion of Adelaide's forecast population growth in the outer southern areas of the city. This growth, and rising demand for commuting in these outer areas, has resulted in the development of solutions to encourage a large number of people to use the public transport system. These are aimed at reducing the current reliance on private car travel in these outer areas. The extension of the existing Noarlunga line to Seaford caters for this forecast urban development and encourages the shift to rail transport.

The Seaford Rail Extension is a 5.5 kilometre dual track electrified railway extension with a viaduct over the

Onkaparinga River, multiple rail bridges and two stations at Seaford Meadows and Seaford Terminus.

Brisbane's Future Public Transport Network (including Brisbane Inner City Rail Capacity)

Brisbane's public transport plays a critical role for the effective functioning of the city. Short term demand for public transport is being met by significant investment in busways, rail upgrades and increases in services. However in the medium to long term, other measures will be needed to ensure sufficient capacity is provided to meet the long term forecast growth in demand and services.

Brisbane's future public transport network needs to be planned and delivered in an integrated manner. Projects such as the Inner City Rail Capacity Upgrade and other future planned upgrades such as the Darra–Ipswich Corridor (including the Darra–Springfield Rail Line), the Petrie–Redcliffe Transport Corridor, Brisbane's Busway network and Inner Brisbane Bus rapid Transit Corridor all have the potential to assist in meeting future needs, and increase the proportion of travel by public transport. The increasing freight task will also put pressure on rail freight services that share the same network as passenger services. Land use changes that complement future capacity increases are also critical to generating the value from any investment.

In particular, the Inner City Rail Capacity study has been investigating a range of network options to meet the forecast demand and proposes a \$14,000 million investment in two stages.

Infrastructure Australia will be working with the Queensland Government to develop a robust long term plan for the development of Brisbane's public transport network, including suggested staging options and potential land use changes. Outputs from the plan will inform future reviews of the Infrastructure Priority List.

Fully Controlled Motorways

The operation of the Brisbane's motorway network can be improved via the construction and retrofitting of intelligent transport systems. These measures include loop detectors, motorway ramp signals, and lane use management systems including variable speed limits and variable message signs.

The \$570 million Fully Controlled Motorways proposal covers some 250km of motorways across Greater Brisbane, the Gold Coast and Sunshine Coast.

Sydney's Future Public Transport Network (including CBD and West Metro)

The population of Sydney – Australia's largest city – is growing substantially, placing pressure on existing public transport networks. Supporting accessibility by public transport to the

CBD, Parramatta and between other major centres will support Sydney's large global services sector, and foster the development of Sydney as a more compact, sustainable city.

The proposed CBD and West Metros are responses to these pressures. CBD Metro is a new high frequency 7 kilometre rail line between Sydney's central areas and Rozelle and is an enabler for a proposed high frequency West Metro between Sydney's central area and Parramatta.

These projects, estimated to cost \$13,100 million in total, have the potential to be important first steps in a wider transformation of Sydney's public transport network and city form. Whilst the metros are promising projects, particular issues, e.g alignments, service patterns, and integration with surrounding development and other transport networks, need to be considered further in conjunction with the NSW Government. Beyond the metros, further improvements to Sydney's public transport network (and associated redevelopment) will be necessary to ensure that the city continues to develop on a sustainable basis.

Infrastructure Australia will be working with the New South Wales Government to develop a robust long term plan for the development of Sydney's public transport network, including suggested staging options and potential land use changes. Outputs from the plan will inform future reviews of the Infrastructure Priority List.

Melton Duplication and Electrification to Bacchus Marsh

The Melton duplication and electrification to Bacchus Marsh is proposed to serve the Melton Growth areas including Melton, Bacchus Marsh and Caroline Springs.

The proposal is for the track duplication of a 19 kilometre track between Deer Park West to Melton and electrification of 25 kilometre between Sunshine to Bacchus Marsh and includes new stations and platforms.

This \$950 million project is proposed to commence construction after the completion of the Regional Rail Express project.

Northbridge Rail Link (The Hub)

The Northbridge Rail Link project aims to provide a 'hub' around which other developments will be focused, including a transition between the CBD and retail and residential areas to the south and east, a revamped cultural and entertainment precinct to the north, and the Arena multi-use sports complex to the west. This project will provide for, amongst other things, sinking of the Northbridge railway station.

Mornington Peninsula Connector Road (Frankston Bypass)

With population in the Frankston and Mornington Peninsula predicted to grow, densification and continued development in and around central Frankston and the Frankston–Cranbourne intersection, current and future traffic demand is resulting in congestion during peak commuting periods and during peak tourist seasons. These unpredictable travel times for tourist travelling to the Mornington Peninsula are discouraging potential visitors to the Mornington Peninsula.

The Mornington Peninsula Connector (the Frankston Bypass) is a 25 kilometre roadway connecting the Mornington Peninsula Freeway and Eastlink at Carrum Downs to the Mornington Peninsula Freeway at Mount Martha, bypassing the Frankston area. The proposal is for a freeway standard road with interchanges at key arterial roads, largely within the existing reserved road corridor.

Infrastructure Australia proposes that this project could be delivered with private sector involvement.

Northern Link Road Tunnel

Greater Brisbane's population is predicted to grow with the outer south–west areas around Ipswich undergoing significant urban development. The Brisbane CBD and Australia Trade Coast around the Brisbane Airport are also predicted to increase in employment numbers.

The proposed Northern Link would provide a motorway standard link between the Toowong roundabout and the Inner City Bypass, providing for cross–city and inter–city travel via a tolled tunnel. It aims to provide a more attractive alternative than the congested surface radial routes such as Milton Road and Coronation Drive.

The \$2,000 million project is proposed to be developed with private sector involvement.

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