

# Appendices

Revenues from the Minerals Resource Rent Tax will be applied to investment in infrastructure that supports regional development across Australia.



# Appendix A

## Principles of Regional Infrastructure Planning

Drawing on a range of literature and best practice planning guides, Infrastructure Australia has identified the following list of principles for the development of strong regional infrastructure plans. These principles have a strong foundation in, and are intended to align with, the Council of Australian Governments' criteria for capital city strategic planning<sup>1</sup> – with modification for the regional planning context.

### Eight principles for regional infrastructure planning<sup>2</sup>

- 1. Strategic alignment:** Regional plans should address nationally significant policy issues and strategies.
  - a. transport corridors;
  - b. international gateways;
  - c. intermodal connections;
  - d. major communications and utilities infrastructure; and
  - e. reservation of appropriate lands to support future expansion.
- 2. Vision and objectives:** Regional plans should outline a long-term vision for the development of the region, including:
  - a. a set of economic, social and environmental objectives; and
  - b. an evidence-based analysis of the region's profile, challenges and opportunities, including any comparative advantage.
- 3. Integration:** Regional plans should be integrated across relevant functions (including land-use and transport planning, economic and infrastructure development, environmental assessment and urban development) and all agencies whose decision making and investment decisions impact on a region.
- 4. Prioritisation:** Regional plans should incorporate short, medium and long-term infrastructure priorities.
- 5. Economic infrastructure:** Regional plans should provide for nationally significant economic infrastructure (both new and upgrade of existing) including:
  6. **Supply chain:** Regional plans should focus on the entire supply chain, addressing capacity constraints and enabling coordination.
  7. **Investment:** Regional plans should clearly identify priorities for investment and policy effort by governments, and provide an effective framework for private sector investment and innovation.
  8. **Implementation:** Regional plans should provide effective implementation arrangements and supporting mechanisms, including clear project planning, accountabilities, coordination between all three levels of government, evaluation and review cycles and appropriate consultation and engagement with stakeholders.

1 Commonwealth of Australia (2011) *Our Cities, Our Future - A National Urban Policy for a productive, sustainable and liveable future* (<http://www.infrastructure.gov.au/infrastructure/mcu/urbanpolicy/index.aspx>), Appendix A

2 Infrastructure Australia (2012) *Regional Infrastructure Planning: Infrastructure Australia Assessment Guide*

# Appendix B

## Updating the infrastructure priority list

This appendix comments on the project submissions made to Infrastructure Australia over the past year. It also describes the processes that have been followed in developing the infrastructure priority list, and the broad outcomes from the evaluation of proposals assessed over the last year. A minimum capital cost threshold of \$100 million for submissions was introduced in 2011 and was applied in this round.

### Infrastructure Australia's 2012 infrastructure priority list

Infrastructure Australia's 2012 infrastructure priority list is set out in Appendix D. A brief description of each project in the priority list is included in Appendix E.

Getting onto the list is not easy. Proposals are rigorously assessed against Infrastructure Australia's *Reform and investment framework*. Those included on the list represent proposals that are nationally significant, will make a positive contribution to one or more of Infrastructure Australia's seven themes, will improve productivity and benefits will exceed the financial cost.

Proposals included at early stage and real potential are at the initial stages of development and range from those that seek to address a problem of national significance that is still being investigated before solutions are proposed, to those that explore a range of potential solutions.

Proposals at threshold are well developed and present a detailed preferred option, or options. Ready to proceed proposals represent good investment decisions that have met all of Infrastructure Australia's reform and investment criteria (see Table 1 further below). They are priority infrastructure proposals that will deliver the greatest value for money.

Forty two project submissions were received in the 2011-12 round, detailing a suite of potential projects with an estimated cost in the order of \$30 billion to \$50 billion. The submissions are listed in Appendix C.

Twenty six of the submissions received were new projects or previous submissions that have changed significantly (that is, Melbourne Metro, East West Link, and Tram Route 86 Demonstration Project). Of those, 16 new submissions were included on the list with an estimated value of \$20 billion to \$30 billion.

The list in Appendix D also contains proposals from past years. Some have received full or part funding from states and territories and/or the Australian Government. Their status on the list is at the latest stage of development presented to Infrastructure Australia.

### The Reform and investment framework

Infrastructure Australia's assesses submissions against its *Reform and investment framework*.<sup>3</sup> The framework provides a mechanism for proponents to present and articulate their proposals to demonstrate:

- 1. strategic alignment** – proposals outline clear goals that contribute to nationally significant productivity and social outcomes; they have reference to at least one of Infrastructure Australia's seven themes;
- 2. problem definition** – proposals address and evaluate problems that restrict the achievement of or progress towards these goals, with nationally significant improvements potentially available. Understanding the root cause of the problem is critical, not just the problem itself; and
- 3. solution development** – the proposal addresses the root cause and the problem and creates the opportunity to meet the goals whilst delivering a net economic benefit. A comprehensive set of reform and investment options have been considered and a project proposal may be part, but not all, of the solution.

<sup>3</sup> Guidance material on applying the framework is available at [http://www.infrastructureaustralia.gov.au/reform\\_investment](http://www.infrastructureaustralia.gov.au/reform_investment)

A proposal that demonstrates this approach is Brisbane's Cross River Rail, which has progressed to ready to proceed on this year's infrastructure priority list.

For Cross River Rail, the strategic goals relate to Brisbane's urban development through its core transport system. The objectives of the project are to provide the necessary infrastructure to support the transformation of Brisbane into Australia's third internationally competitive city, support critical freight networks and act as the catalyst for transforming Brisbane. This is both nationally significant and provides a positive contribution to south east Queensland.

The proposal aims to address a number of problems including: rapid population growth; increased road congestion; growth in freight; rapid public transport patronage growth and overcrowding; and limited central business district rail capacity. The capacity of the railway which is restricted, citywide, is adversely impacting on urban transport across Brisbane.

Rail capacity issues will spill over onto other public transport forms, freight and the road network. The cause of the capacity problem is in the central part of the rail network restricting the number of trains into and out of the city, even if the symptoms are experienced by travellers elsewhere.

The Brisbane Cross River Rail proposal will effectively add resilience to the urban transport network by increasing capacity across the central business district. Comprehensive option assessments demonstrate that the project will provide the most efficient means of doing so; that is, a rail line networked to the existing lines via a train plan that enables additional services throughout the Brisbane area and beyond by adding 25 to 30 per cent in urban rail network capacity.

The project may be geographically limited to the central business district and nearby, but it has much wider and broader effects – wider across the Citytrain and rail freight network, broader via interactions with other transport forms affected by this wider network.

Given the financial and other challenges governments face, rigorous project development and evaluation is critical – we cannot afford to waste scarce capital on poorly conceived projects. Equally, we need to set our priorities wisely, addressing the big problems first. Fixing the wrong problem or addressing lower order complaints while major challenges are left unattended is likely to impose a high cost.

## Assessing submissions

The *Reform and investment framework* sets out to ensure a clear understanding of the project proponents' goals and problems that are preventing them being realised. This is critical to ensuring that infrastructure that is built will deliver the intended outcome.

The framework emphasises the identification and consideration of initiatives and policy reform options to complement or substitute for 'build solutions'. Guidelines on the framework and preparing submissions to Infrastructure Australia can be found on our website at [http://www.infrastructureaustralia.gov.au/reform\\_investment](http://www.infrastructureaustralia.gov.au/reform_investment).

Table 1 provides Infrastructure Australia's expectations at each stage of the priority list, from early stage to ready to proceed. As demonstrated in the table, as a proposal develops, the focus shifts from the strategic alignment and problem evaluation to solution selection.

**Infrastructure Australia is beginning to see proponents make a noticeable effort to apply the *Reform and investment framework* to new and existing proposals. That is, proponents are following the steps of good project development to develop strategy and goals, assess current problems, and develop a broad range of options to determine the right solution.**

An excellent example of this was the new South Road corridor project in South Australia. Other good examples are the Port Botany and Sydney Airport transport improvement plan, Melbourne Metro, East West Link and Brisbane Cross River Rail.

A number of state strategies strive to increase urban transport outcomes by increasing the mode share of public transport use and improving the efficiency of freight networks. Projects such as Melbourne Metro and Brisbane Cross River Rail are key components of future infrastructure and state strategies. Both projects are considered to be transformational, city shaping projects that will provide significant capacity increases to public transport services.

## Ready to proceed projects

The Australian National Audit Office recommended in 2010 that, in developing future infrastructure priority lists, Infrastructure Australia provide advice on the relative priority of ready to proceed projects, and suggest conditions on any Australian Government funding. Ready to proceed projects are prioritised by considering benefit cost ratios (measuring a project's ability to create economic value) and their strategic fit (how well it aligns in a balanced manner with the overall goals and objectives of governments and the wider community).<sup>4</sup>

The recommended order of ready to proceed projects is shown below.

### Recommended priority order of ready to proceed projects

Priority	Project
1	<ul style="list-style-type: none"> <li>Brisbane Cross River Rail</li> <li>Melbourne Metro Stage 1</li> <li>Victorian Managed Motorways Project 1 <i>Monash Freeway, High Street to Warrigal Road</i></li> <li>Victorian Managed Motorways Project 2 <i>Monash Freeway, Warrigal Road to Clyde Road</i></li> <li>Pacific Highway Upgrade</li> </ul>

## Project development funding

The Australian National Audit Office also recommended in 2010 that Infrastructure Australia provide advice on proposals which are recommended for project development funding (thereby assisting governments in preparing well-conceived business cases for potential future investments).

Project development funding can play a key role in shaping the infrastructure priority list in future years. The key consideration in making recommendations for project development funding is whether the project shows promise in meeting the balance of strategic fit and economic performance described above. Timing considerations are also relevant:

- whether timely investment in project development will minimise corridor protection (and, ultimately, project) costs;

- whether the lead times to develop the project are such that, if project development is not initiated promptly, the scale of the problems addressed by the proposal are likely to become critical; and
- projects that show promise against national strategic priorities are potentially most worthy, though, where there is a plausible rapid economic appraisal, that too should be a consideration.

Recommendations on projects that are considered worthy of Australian Government project development funding are set out below.

As with project funding itself, it is appropriate for the Australian Government to attach conditions to any project development funding it might provide, for example, that the project incorporates certain features or that project development investigations address certain considerations. In addition, as evidence of their commitment to a project, proponents need to be prepared to make an appropriate contribution to project development costs.

### Projects recommended for project development funding

Project
Port Botany and Sydney Airport Transport Improvement Plan
East West Link
Integrating Sydney's motorway network – network charging
Transforming the Pilbara: Pilbara Cities
Western Interstate Freight Terminal – Melbourne

<sup>4</sup> The benefit cost ratios are those assessed by Infrastructure Australia, having regard to the proponent's estimate, and having made allowance for areas where the economic appraisal was judged to have over-stated or understated the project's benefits and costs.

# Table 1 Reform and investment framework

Core element	Stage and purpose	Early stage	Real potential	Threshold and ready to proceed (if all issues addressed)
<b>Strategic alignment</b> Proposal supports Infrastructure Australia's strategic priorities and aligns with state plans	<b>1. Goal definition</b> <i>Goals defined to provide the foundation for problems that need to be addressed as priority and drives the development of solutions</i>	<ul style="list-style-type: none"> <li>Proposal will make a positive contribution to Infrastructure Australia's strategic priorities.</li> <li>Goals of the proposal are identified and align with national, state or regional strategic plans.</li> <li>Proposal prioritised within state or regional strategic plans.</li> </ul>	<ul style="list-style-type: none"> <li>Proposal's economic, social and environmental goals quantified. Examples may include:                             <ul style="list-style-type: none"> <li>service standards;</li> <li>cost recovery targets; and</li> <li>patronage/user targets.</li> </ul> </li> <li>Demonstrated integration across stakeholders / infrastructure sectors.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm benefits delivered by preferred option are aligned with goals, for example benefit profiles and a benefits realisation plan.</li> </ul>
	<b>2. Problem identification</b> <i>Identify the problems that may hinder the achievement of goals</i>	<ul style="list-style-type: none"> <li>Current and/or future problem described. Describe what the problem will become in the future if it is not addressed.</li> <li>Problem linked back to goals within the state or regional strategy.</li> </ul>	<ul style="list-style-type: none"> <li>Scenario analysis completed over reasonable time horizon demonstrating problems will persist or emerge under plausible scenarios.</li> </ul>	
<b>Problem evaluation</b> a. Problem being addressed is well understood and is an impediment to achieving intended goals. The costs of the problem and potential benefits are presented and supported by evidence. b. Understanding causes allows effective and targeted solutions to be created.	<b>3. Problem assessment</b> <i>Gather data rich evidence that demonstrates the problem and allows the biggest problems to be prioritised.</i>	<ul style="list-style-type: none"> <li>Economic, social and environmental costs estimated qualitatively.</li> </ul>	<ul style="list-style-type: none"> <li>Quantified economic, social and environmental impacts of the identified problem, supported by data, for example surveys, studies, performance against key performance indicators.</li> <li>Analysis presented that demonstrates the root cause.</li> <li>Explanation of why the problem cannot be solved without government intervention.</li> </ul>	
	<b>4. Problem analysis</b> <i>Analyse the extent of problems and the root causes</i>			

Core element	Stage and purpose	Early stage	Real potential	Threshold and ready to proceed (if all issues addressed)
<p><b>Solution selection</b></p> <p>The developed proposal has considered a comprehensive set of reform and investment options, there is solid evidence that the project will generate economic benefits, and there is confidence that the project can be successfully delivered.</p>	<p><b>5. Option generation</b></p> <p><i>Develop a full range of possible solutions to address the issue including reform and investment proposals</i></p>	<ul style="list-style-type: none"> <li>• Specific solution options not required in submission.</li> </ul>	<ul style="list-style-type: none"> <li>• Option evaluation criteria to measure performance against the goals of the proposal.</li> <li>• Comprehensive list of reform and investment options identified.</li> </ul>	
	<p><b>6. Option assessment</b></p> <p><i>Strategic analysis and cost benefit analysis to assess the viability of the options</i></p>	<ul style="list-style-type: none"> <li>• Option assessment not required in submission.</li> </ul>	<ul style="list-style-type: none"> <li>• Rapid benefit cost ratios (BCR) prepared for shortlisted options.</li> <li>• Shortlisted options adequately described, including details of key assumptions and risks, demand estimates, impacts and benefits, whole of life costs, funding and financing opportunities.</li> <li>• Cost estimates for shortlisted options based on consistent framework built up from first principles.</li> <li>• Contingency allowance based on risk profiles.</li> </ul>	<ul style="list-style-type: none"> <li>• Whole of life costs, service delivery outcomes and engineering design optimised during development of the preferred option, for example value engineering.</li> <li>• Demonstrated integration of the proposed solution across systems and related infrastructure sectors</li> <li>• Detailed cost benefit analysis including: <ul style="list-style-type: none"> <li>• funding options to provide maximum cost recovery;</li> <li>• financing and delivery/ procurement models including public private partnerships;</li> <li>• risk assessment; and</li> <li>• base cost estimate and risk allowance.</li> </ul> </li> </ul>
	<p><b>7. Solution prioritisation</b></p> <p><i>Detailed business case for the preferred option including cost benefit analysis, strategic fit and deliverability (including cost, risk and procurement)</i></p>	<ul style="list-style-type: none"> <li>• Solutions not required in submission.</li> </ul>	<ul style="list-style-type: none"> <li>• Sensitivity analysis of short-listed options to confirm choice of preferred option is robust.</li> <li>• Sound methodology outlined for project procurement models.</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed delivery outcomes, including cost recovery target maximised considering all potential revenue streams.</li> <li>• Benefit cost ratio (BCR) justifies investment decision.</li> <li>• Independently reviewed risk based cost estimate, risk assessment, demand models and economic appraisal.</li> <li>• Sound delivery strategy and governance model defined.</li> </ul>

## Appendix C

### Submissions to Infrastructure Australia in 2011-12

The 42 project submissions presented to Infrastructure Australia this year are listed below. The projects are listed under the relevant Infrastructure Australia theme.

The list includes all proposals that were submitted to Infrastructure Australia. Submission titles are those provided by the proponent.

New proposals are marked with an asterisk. The other projects in the list are updates of proposals previously submitted to Infrastructure Australia. The proponents of some projects that had been included in the 2011 infrastructure priority list did not provide any updated information, or a more developed proposal.

Submission title	Proponent
<b>Transforming our cities</b>	
National Managed Motorways Program (five project proposals submitted, two each from Qld and Vic, one from SA)*	National Managed Motorways Working Group on behalf of the New South Wales, Queensland, South Australian, Victorian and Western Australian Governments
North West Rail Link*	New South Wales Government
Solving Sydney's Growth Dilemma*	Parramatta City Council
Brisbane Cross River Rail	Queensland Government
North Brisbane Cycleway*	Queensland Government
Melbourne Metro <sup>ooo</sup>	Victorian Government
Tram Route 86 Demonstration Project <sup>oo</sup>	Victorian Government
Dandenong Rail Capacity*	Victorian Government
Removing Level Crossings*	Victorian Government
Integrated Urban Renewal*	Victorian Government
Hobart: A World-Class, Liveable Waterfront City	Tasmanian Government
Passenger Transport in Hobart's Northern Suburbs*	Tasmanian Government
North East Transport Corridor – Northbourne Avenue Transport Corridor*	Australian Capital Territory Government
Broome as the Gateway to the Kimberley*	Broome Chamber of Commerce
<b>Adaptable and secure water supplies</b>	
An Innovation Strategy for Tasmania: Focus on Food Bowl Concept – Rural Water Infrastructure	Tasmanian Government
Water and Sewerage Reform in Tasmania	Tasmanian Government
<b>Creation of a true national energy market</b>	
Precinct Energy Project*	Victorian Government



Submission title	Proponent
<b>Competitive international gateways</b>	
Port Botany and Sydney Airport Transport Improvement Plan*	New South Wales Government
Gateway Motorway Upgrade North	Queensland Government
Avalon Airport Rail Link*	Victorian Government
East West Link <sup>ooo</sup>	Victorian Government
Port of Hastings	Victorian Government
Northern Connector Project	South Australian Government
Eyre Peninsula Port Proposals	South Australian Government
Bell Bay Intermodal Expansion Project	Tasmanian Government
<b>A national freight network</b>	
Pacific Highway Corridor Upgrades	New South Wales Government
Bruce Highway Upgrade Strategy – Brisbane to Cairns	Queensland Government
Warrego Highway Upgrade – Helidon to Morven – Stage 1*	Queensland Government
Mount Isa to Townsville Rail Corridor	Queensland Government
Bruce Highway – Cooroy to Curra <sup>oo</sup>	Queensland Government
Bruce Highway – Yeppen Floodplain <sup>oo</sup>	Queensland Government
Western Downs Regional Summary*	Western Downs Regional Council, Queensland
Western Interstate Freight Terminal	Victorian Government
High Capacity Test Link Signalling*	Victorian Government
Hume Freeway Interchange*	City of Whittlesea, Victoria
South Road*	South Australian Government
Goodwood Torrens Rail Junction	South Australian Government
Green Triangle Freight Transport Program	South Australian Government
Brooker Highway – Urban National Network*	Tasmanian Government
Midland Highway – Rural Road Network*	Tasmanian Government
Tasmanian Rail Revitalisation Program*	Tasmanian Government
Carnarvon Flood works*	Western Australian Government
<b>Digital infrastructure</b>	
No proposals submitted against this theme.	
<b>Essential Indigenous infrastructure</b>	
No proposals submitted against this theme.	

\* New proposal this year.

<sup>oo</sup> Submission on new stages of existing project: Stages B and C of Tram Route 86 Demonstration; new sections on existing Bruce Highway Program of Works.

<sup>ooo</sup> Revised project scope from previous submission(s).

# Appendix D

## 2012 infrastructure priority list

	<b>Early stage</b> Initiatives in this category address a nationally significant issue or problem, but the identification or development of the right solution is at an early stage.	<b>Real potential</b> Initiatives in this category clearly address a nationally significant issue or problem and there has been a considerable amount of analysis of potential solutions.	<b>Threshold</b> Initiatives in this category have strong strategic and economic merit, and are only not ready to proceed due to a small number of outstanding issues.	<b>Ready to proceed</b> Initiatives in this category meet all of Infrastructure Australia's criteria.
Transforming our cities	Capacity Improvements and Expansion of the Metropolitan Commuter Rail Network (NSW; \$795m)	Integrating Sydney's Motorway Network	Eastern Busway – Stages 2b and 3 (Old; \$825m (\$2008 real)	Brisbane Cross River Rail – core project (Old; BCR 1.34; \$5,311m)
	Melton Rail Line Duplication and Electrification (Vic; \$1,300m)	Melbourne Metro Stage 2 (Vic; \$tbc)		Victorian National Managed Motorways – Monash Freeway, High Street to Warrigal Road (Vic; BCR 11.5; \$14.3m)
	Gold Coast Rail (Old; SE Old Mayors; \$2,875m)	Dandenong Rail Capacity (Vic; \$tbc)		Victorian National Managed Motorways – Monash Freeway, Warrigal Road to Clyde Road (Vic; BCR 6.9; \$100.7m)
	Hobart: A World-Class, Liveable Waterfront City (Tas; \$120m)	Queensland National Managed Motorways – Bruce Highway, Beams Road to Caboolture Road (Old; \$202m)		Melbourne Metro Stage 1 (Vic; BCR 1.3; \$tbc)
	North West Sydney Public Transport Strategy – North West Rail Link (NSW; \$7,500m – \$8,500m)	Queensland National Managed Motorways – Pacific Motorway, Gateway to Logan (Old; \$4.6m)		
	South Road (SA; \$tbc)			
	South Australia National Managed Motorways Project – South Eastern Freeway, Stirling to Crafrers (SA; \$4.57m)			
	Tram Route 86 Demonstration Project, Stages B and C (Vic; \$tbc)			
Competitive international gateways	Port Hedland Inner Harbour – Capacity Enhancements (WA; North West Iron Ore Alliance; Hancock; \$500m – \$1,000m)	Abbot Point Multi Purpose Harbour (Old; \$3,300m (\$2010 real)	National Ports Strategy – 30 year plans for ports and landside connections	
	Transforming the Pilbara: Pilbara Cities (WA; \$2,900m)	Smart Port ICT (Vic; \$16m)	Oakajee Port (potential equity injection) (WA; c. \$5,400m (\$2010 real))	
	Port of Hastings (incl. Peninsula Link rail freight corridor) (Vic; \$tbc)	South West (Bunbury) Infrastructure (WA; \$605m)	Darwin East Arm Port Expansion (potential equity injection) (NT; \$336m)	
	Eyre Peninsula Port Proposals (SA, Centrex; \$tbc)	Freight Access to Port of Brisbane and Brisbane Airport – Gateway Motorway North (Old; \$1,159m – \$2,710m)		
	<b>Port Botany and Sydney Airport Transport Improvement Plan (NSW; \$tbc)</b>	Freight Access to Port of Adelaide – Northern Connector (SA; \$1,191m)		
		Melbourne International Freight Terminal (Vic; \$tbc)		
		Bell Bay Intermodal Expansion Project (Tas; \$150m)		

	<b>Early stage</b> Initiatives in this category address a nationally significant issue or problem, but the identification or development of the right solution is at an early stage.	<b>Real potential</b> Initiatives in this category clearly address a nationally significant issue or problem and there has been a considerable amount of analysis of potential solutions.	<b>Threshold</b> Initiatives in this category have strong strategic and economic merit, and are only not ready to proceed due to a small number of outstanding issues.	<b>Ready to proceed</b> Initiatives in this category meet all of Infrastructure Australia's criteria.
National freight network	Northern Sydney Road Freight Access – F3-M2 (NSW; \$4,750m (\$2008)) Australian Digital Train Control System (Australasian Railways Association; \$20m) Mount Isa to Townsville Rail Corridor Upgrade (QLD; \$333m) Transcontinental Rail Link – Mildura to Menindee (Mildura Development Corporation; \$400m) Bruce Highway Upgrade Strategy (Qld; \$22,500m including Cooroy to Curra) <b>Bruce Highway – Cooroy to Curra Section A (Qld; \$852m)</b> <b>Warrego Highway Upgrade Strategy – Helidon to Morven (Qld; \$670m)</b> Tasmanian Rail Revitalisation Programme (Tas; \$240m) <b>Hobart to Launceston Transport Strategy (Tas; \$1,662m)</b>	Western Interstate Freight Terminal (Vic; \$tbc) North South Rail Freight Corridors including Northern Sydney Freight (Australian Rail Track Corporation and NSW; \$n/a) Advanced Train Management System (Australian Rail Track Corporation; \$500m) East West Rail Freight Corridor (Australian Rail Track Corporation; \$n/a) Green Triangle Freight Transport Program (SA/Vic; \$112m) <b>East West Link (Vic; \$tbc)</b>	<i>National Land Freight Strategy</i>  Pacific Highway Corridor Upgrades (NSW, BCR 1.5; \$6,400m (\$2010 real))	
Essential Indigenous infrastructure	<i>An infrastructure policy framework is being developed for essential Indigenous infrastructure. As this is progressed, Infrastructure Australia's Indigenous Infrastructure Sub-Committee will work with stakeholders to identify potential projects.</i>			
Adaptable and secure water supplies	An Innovation Strategy for Tasmania: Focus on Food Bowl Concept (Tas; \$tbc)	Tasmanian Water and Sewerage Reform (Tas; \$1,000m)	<i>Infrastructure Australia proposes reforms around planning for water security, independent pricing, competition in bulk supply and consumer choice over levels of reliability</i>	
A true national energy market		Mid-West Energy – Stage 2 (WA; \$280m)	<i>Infrastructure Australia supports proposed reforms to regulatory provisions regarding connection of remote renewable energy generation and electricity transmission connections between states</i>	
Digital infrastructure			National Broadband Network	
<b>Total capex (est)</b>	<b>\$48,070m</b>	<b>\$10,071m</b>	<b>\$6,561m</b>	<b>\$11,826m</b>
<b>Total estimated infrastructure priority list capital costs: \$76,528m</b>				

- (1) Each project in the list includes the name of the project proponent(s), and estimated benefit cost ratio (BCR) for ready to proceed projects. For some projects, the estimated capital cost has been withheld at the request of the proponent. Some capital costs are expressed in outturn dollars, unless a 'real' cost estimate has been provided by the proponent, in which case the base year for the 'real' estimate is provided. Total capex (est) does not include those projects whose capital estimate has been withheld. Where a range has been provided, the highest figure has been included in the total. Unless stated otherwise, the capital cost and the benefit cost ratio (BCR) are those estimated by the proponent.
- (2) See the project summaries at Appendix E for an explanation of proponent acronyms. **Orange text indicates a new or re-submitted submission in 2011/12.**
- (3) Potential private sector involvement – many publicly driven projects could be structured to be part-supported or enhanced by private investment, and most privately sponsored projects could be made certain and potentially enhanced by government funding and/or regulation and/or customer support. The opportunity for user pay principles is particularly relevant for projects in the telecommunications, energy and water sectors, as well as ports, road and rail freight and urban motorways in the transport sector.

# Appendix E

## Description of projects in the 2012 infrastructure priority list

### Priorities under the transforming our cities theme

#### Brisbane Cross River Rail (Queensland Government)

In 2009, the Australian Government committed \$20 million and the Queensland Government \$5 million towards detailed feasibility studies, an environmental impact assessment process and a detailed business case. The Queensland Government committed further funds for these studies. These investigations have been completed.

Cross River Rail is aimed at increasing rail capacity across the whole urban rail network to meet projected transport demand as south east Queensland's population grows from around 3 million in 2009 towards 4.4 million in 2031. The project aims to provide the inner city rail infrastructure necessary to transform the rail network, as well as providing capacity in key locations to enable more freight to be moved by rail on the existing surface rail network.

The project is also aimed at providing a catalyst for sustainable urban development in south east Queensland.

The core project is estimated to cost \$5.31 billion and consists of:

- ten kilometres of twin single track tunnel between Yeerongpilly, south of the Brisbane River, and Victoria Park, north of the Brisbane central business district; and
- development/upgrading of four underground stations at Woolloongabba, Boggo Road, Albert Street and Roma Street.

This core project forms the first stage of a broader program of works that can be developed in the future.

The full Cross River Rail solution includes:

- new surface stations at Yeerongpilly and RNA/Exhibition;
- minor station upgrades at Moorooka and Rocklea; and
- five kilometres of additional corridor surface tracks from Yeerongpilly to south of Salisbury (includes four kilometres of additional freight track, three kilometres of two additional passenger tracks and various track realignments).

Suggested funding conditions for the project are that, in taking forward the design and delivery of this project, the Queensland Government should:

- consider alternative options for revenue generation, including a parking levy and congestion charging. The analysis undertaken on the land value capture opportunity would benefit from an independent review;
- undertake further market sounding to ensure that procurement options are based on up to date feedback. Market sounding for the project was undertaken in July 2010. Given the changes in debt and equity markets and in risk appetite over the past 18 months and the potential changes in Europe, this analysis should be updated;
- develop a comprehensive governance model for procurement and delivery;
- agree to planning approval conditions that balance amenity and more efficient delivery;
- agree to undertake a post-completion evaluation of the project:
  - upon completion, for example to test whether the project was completed within scope, on time and on budget; and
  - at agreed future intervals, to assess whether demand projections underpinning the project's development were robust, and whether other project benefits have been realised.

### National Managed Motorways Program (Queensland, New South Wales, South Australian, Victorian, and Western Australian Governments)

The national managed motorways initiative was included in the 2011 infrastructure priority list. The \$6.4 billion program seeks to incorporate intelligent transport solutions – comprising information, communication and control systems – into urban motorway networks. These ‘smart’ systems are designed to improve the operational performance of existing transport assets.

The program seeks to apply a range of these measures to motorways in south east Queensland, greater Sydney, Melbourne, Adelaide and Perth.

In 2011, the National Managed Motorways Working Group submitted five individual projects for implementation. The projects have been included on the infrastructure priority list as follows:

- two projects on Victoria’s Monash Freeway – on two adjacent sections of the Monash Freeway between High Street and Clyde Road. A total of 33 kilometres in length is proposed to be upgraded from level 1 Intelligent Transport System to level 3. The two sections are between:
  - High Street to Warrigal Road – BCR of 11.5, estimated cost of \$14.3 million;
  - Warrigal Road to Clyde Road – BCR of 6.9, estimated cost of \$100.7 million;
- two projects in Queensland have been included on the priority list at real potential. The first submission proposes to install base level Intelligent Transport Systems along a 33 kilometre section of the Bruce Highway from Beams Road to Caboolture. The cost of this section is estimated to be \$202 million. The second proposal is a 16 kilometre section of the Pacific Motorway between Gateway and Logan, estimated to cost \$4.6 million; and
- the South Eastern Freeway project in South Australia is included on the priority list at early stage. The proposal is for a three kilometre section of the South East Freeway between Stirling and Crafers to trial hard shoulder running.

For the two Victorian projects that are at ready to proceed, it is suggested that the Victorian Government together with the National Managed Motorway Working Group agree to undertake a post-completion evaluation of the project:

- upon completion, for example to test whether the project was completed within scope, on time and on budget; and
- at agreed future intervals, to assess whether demand projections underpinning the project’s development were robust, and whether other project benefits have been realised.

### Melbourne Metro Stages 1 and 2 (Victorian Government)

Melbourne Metro Stage 1 aims to benefit the entire Melbourne metropolitan rail network by creating more rail capacity in the inner-city to relieve pressure of existing congestion, boost the number of suburban services across the network to accommodate projected growth.

The project was identified as a ‘priority’ project in Infrastructure Australia’s May 2009 report. Detailed feasibility studies (funded with a \$40 million Australian Government grant) are well progressed.

Melbourne Metro Stage 2 aims to provide substantial metropolitan and regional rail growth capacity and reliability for the Dandenong, Frankston and Sandringham lines.

In developing the projects, the Victorian Government is proposing to combine Melbourne Metro 1 and 2 to deliver a better project outcome at a lower cost, with similar or greater benefits. A review of the revised proposal is expected in the next round of submissions. Until this review is complete, Melbourne Metro 1 and 2 will remain at ready to proceed and real potential, respectively.

### Eastern Busway – Stages 2b and 3 (Queensland Government)

The Eastern Busway aims to provide a dedicated bus-only roadway between the University of Queensland and Capalaba in Brisbane's south eastern suburbs, with connections to the inner city busway network. Stage 1 from the University to Buranda, and Stage 2a from Buranda to Main Avenue, Coorparoo are now complete. Future stages include Stage 2b, Stage 3, and the remaining parts of the corridor between Bennetts Road and Scrub Road.

The proposal to Infrastructure Australia is for:

- Stage 2b – Main Avenue, Coorparoo to Bennetts Road, Coorparoo – which incorporates:
  - combination of driven and cut and cover tunnel beneath Old Cleveland Road;
  - sub-surface busway station at the Coorparoo Junction;
  - at-grade busway station at Bennetts Road, Coorparoo; and
- Stage 3: transit lanes between Scrub Road, Carindale to Tilley Road, Chandler.

The proponent has estimated the projects to cost \$685 million (Stage 2b) and \$140 million (Stage 3), both in \$2008 (real).

### Integrating Sydney's Motorway Network

Sydney's motorway network experiences considerable congestion, particularly during peak periods. The network has different ownership and pricing structures which limit its ability to operate efficiently.

Various proposals for upgrading and coordinating Sydney's motorway network have been canvassed over recent years.

Placing the current tolling arrangements on a common basis, possibly through the creation of a single Sydney motorway network company, could greatly improve the efficiency of the network. Such a step could potentially generate a revenue source to fund public transport infrastructure or future motorway expansions.

### Dandenong Rail Capacity Program (Victorian Government)

The objective of the project is to increase the capacity of the Dandenong rail corridor to meet increased demand driven by:

- increased capacity arising from the proposed Melbourne Metro rail line;
- population growth in the south east of Melbourne;
- increased rail patronage; and
- road congestion caused by increased closure of level crossings.

Increasing capacity on the corridor is part of a seven stage metropolitan rail upgrade program.

The submission is seeking a \$30 million contribution to planning operational improvements and capital works to increase the capacity of the Dandenong rail corridor by up to 100 per cent.

Potential initiatives could include:

- timetable changes;
- signalling upgrades;
- running longer trains and associated lengthening of stations;
- power upgrades; and
- changes to level crossings.

### Tram Route 86 Demonstration Project (Victorian Government)

The Victorian Government has developed a 20 year *Integrated Transit Corridor Development Program* which seeks to encourage sustainable growth along inner Melbourne tram corridors. The Tram Route 86 Demonstration Project forms part of this program, covering 6.8 kilometres of the route.

Section A was included on the infrastructure priority list in 2010 at ready to proceed and was subsequently funded by the Victorian Government at a cost of \$25 million. It was completed in February 2012. The 2011-12 submission included a progress report on the project and is seeking funding for sections B and C.

The learnings from section A will inform the remaining stages of the program, which includes:

- accessible tram stops to integrate with surrounding urban development;
- providing *Disability Discrimination Act* compliant level access;
- traffic management measures and the introduction of a 40 kilometre per hour speed limit along High Street and limited parking on street at Activity Centres along the route;
- tram priority measures including priority at signals, tram lanes, extended clearways, reduced number of stops, and banned turns; and
- streetscape improvements, including seating, lighting and landscaping.

### Melton Rail Line Duplication and Electrification (Victorian Government)

The population in the Melton area in western Melbourne has been growing strongly over recent years and is driving rapidly growing demand for trips to the inner city. The existing diesel rail service has low passenger carrying capacity and operates on a single track from Deer Park West to Melton, constraining the ability to schedule additional services.

The Melton rail line duplication and electrification is aimed at improving the capacity, regularity and reliability of services in the western Melbourne's suburbs. This project proposes to deliver:

- 15 kilometres of track duplication and electrification between Sunshine and Melton, specifically:
  - duplicating the existing track between Deer Park West and Melton;
  - electrifying tracks from Sunshine to Melton;
- providing new or upgraded stations along the corridor, including a new station at Toolern;
- providing new stabling and basic maintenance facilities in the vicinity of Melton; and
- additional passing loops between Melton and Ballarat.

In 2009, the proponent estimated the project to cost \$1.3 billion.

### North West Sydney Public Transport Strategy – North West Rail Link

The New South Wales Government has identified the need to improve public transport access from north west Sydney to employment areas on Sydney's lower north shore and in the Sydney central business district.

In response to that need, the New South Wales Government has proposed a 23 kilometre extension – including 16.9 kilometres in tunnel – to the existing City Rail network from Epping to Rouse Hill, with the following features:

- stations at Cherrybrook, Castle Hill, Hills Centre, Norwest, Kellyville and Rouse Hill, with provision for stations in the future at Samantha Riley Drive and Cudgegong Road;
- a train stabling facility at Tallawong Road beyond Rouse Hill; and
- bus, pedestrian, taxi and cycle access facilities at all stations, with a target of 4,000 park and ride spaces across the project.

The estimated capital cost of the project is \$7.5 to \$8.5 billion, excluding rolling stock.

Having reviewed the proposal for the rail link, Infrastructure Australia believes further analysis of options is required. Development of a broader north west Sydney public transport strategy would assist governments and the community in understanding the range of transport needs in north west Sydney and would enable a broad range of options for meeting those needs to be tested.

### Capacity Improvements and Expansion of the Metropolitan Commuter Rail Network (New South Wales Government)

The Capacity Improvements and Expansion of Metropolitan Sydney Commuter Rail Network project is a suite of initiatives arising from a 'Rail 2040 Plan' for heavy rail and metro systems in the Sydney metropolitan area. These initiatives include:

- trial of an Automatic Train Operation system for 6.6 kilometres of track between Cronulla and Sutherland on the Cronulla line in southern Sydney; and
- corridor feasibility analysis on the Sydney central business district to Chatswood Capacity Enhancement examining a range of investment strategy packages (including different combinations and timing for train system enhancements, station improvements and new rail tunnels – including a second harbour crossing;
- Stage 2 of the Richmond Line duplication including:
  - duplication of track from Schofields to Vineyard;
  - an upgraded Riverstone station including a major bus interchange and possibly car park; and
  - a grade separated crossing of the rail line at Garfield Road, Riverstone.

In the 2010 submission, the project was estimated to cost \$795 million.



### Gold Coast Rail (Queensland Government and South East Queensland Council of Mayors)

The Gold Coast Heavy Rail Capacity Upgrades and Extension project aims to reduce congestion on the heavily used Gold Coast Rail Line and extend the line to Coolangatta, with key linkages to Gold Coast Airport, the Gold Coast Rapid Transit project and the Pacific Motorway upgrade. Opportunities for medium density development along the corridor are also proposed.

This proposal seeks to deliver:

- duplication of the existing line between Coomera and Helensvale;
- a third track from Kuraby to Kingston;
- a 17 kilometre extension from Varsity Lakes to Coolangatta Airport; and
- up to four new stations at Tallebudgera, Elanora, Tugun and Gold Coast Airport at Coolangatta

In 2010, the proponents estimated the project to cost around \$575 million for the capacity upgrades and \$2.3 billion for the extension to Coolangatta.

### South Road (South Australian Government)

The proponent has provided a discussion paper on the South Road corridor, which is part of Adelaide's north-south corridor. The South Australian Government is requesting feedback and engagement from the Office of the Infrastructure Coordinator to develop an agreed understanding of the problem and appropriate solutions.

The submission's objective is to implement a plan that addresses the 'north-south transport task' and protects this key economic corridor. The specific planning objectives along the corridor are to: protect and provide freight priority consistent with a National Network Transport Link; improve travel time, reliability and vehicle operating costs; improve accessibility to employment, leisure and service opportunities; help achieve public transport mode share targets; and provide safety and environmental benefits.

Given the early stage of the investigations, no capital cost estimate has been provided at this time.

### Hobart: A World-Class, Liveable Waterfront City (Tasmanian Government)

Hobart's port precinct is in the process of undergoing significant transformation with the relocation of the Macquarie Point rail yards providing an opportunity to revitalise the centre of Hobart and extend its economic base.

The Tasmanian Government has proposed a four stage project; with Stage 1 focussed on the further development of inner port and airport facilities to support the seagoing and airlink operations of Antarctic research programs. Subsequent stages would be focussed on improving freight handling and lay-up capacity for larger vessels and revitalisation of the urban environment. The estimated capital cost of Stage 1 is \$70 million.

Stage 2 involves the remediation of the Macquarie Point railyards with an estimated capital cost of \$50 million. A further two stages, involving remediation of Macquarie Wharves Nos. 5 and 6, have also been proposed.

## Priorities under the international gateways theme

### Darwin East Arm Port Expansion (Northern Territory Government)

Darwin's port activity is projected to increase significantly over the next 10 years due to expected increases in iron ore, phosphate and minerals exports.

The Northern Territory Government has proposed the expansion of the East Arm port in Darwin in order to accommodate the projected future increases and meet the future needs of the Northern Territory economy.

The proposed port expansion consists of:

- reclamation of 22 hectares of land;
- extension of the East Arm Wharf quay line and construction of tug boat berths;
- new loading facilities including conveyors (on land, at the wharf and for a shiploader);
- stockpile storage facilities;
- rail dump station; and
- new rail infrastructure providing access to a proposed new stockpile area.

The project was estimated to cost \$336 million.

### Oakajee Port Common-User Services (Western Australian Government)

The Western Australian Government is proposing a multi-user and multi-functional port at Oakajee, 22 kilometres north of Geraldton, to support iron ore exports with capacity to accommodate large-scale industrial development.

The Oakajee Port Common Use Infrastructure aims to support the anticipated expansion of iron ore exports from mines in the mid west region, as well as broader resource development and new industrial opportunities at the proposed Oakajee Industrial Estate.

The Common Use Infrastructure proposes to deliver a:

- two kilometre breakwater;
- dredged port channel, turning basin and navigation aids;
- provision for tug and pilot boat pens;
- port administration facilities;
- land based facilities and infrastructure including access roads; and
- utilities services.

In 2008-09, the Common Use Infrastructure project was estimated to cost \$680 million. In the May 2009 budget, the Australian Government made provision for a possible \$339 million equity contribution to the project, pending recommendation of the project by Infrastructure Australia. The estimated capital cost for the overall Oakajee Port and Rail project is understood to be of the order of \$5.4 billion (\$2010).

### South West (Bunbury) Infrastructure (Western Australian Government)

The road, rail and port upgrades at Bunbury together form a suite of projects designed to address emerging shortfalls in the capacity of the existing transport and export infrastructure in the region. By securing marine access to south west Western Australia and facilitating a better layout of the port and transport links, a whole of supply chain improvement can be realised.

The submission is for the construction or upgrade of a range of individual infrastructure, including:

- the Bunbury Outer Ring Road;
- the Coalfields Highway;
- duplication of the rail line between Brunswick Junction and Bunbury Port; and
- diversion of the Preston River to allow for port expansion.

In early 2011, the proponent estimated the capital cost of the proposal at \$605 million.

### Abbot Point Multi Purpose Harbour (Queensland Government)

The Queensland Government has identified Abbot Point as the next major industrial hub and export facility in Queensland, with capacity to accommodate large scale new industry and cargo shipping in north Queensland and northern Australia. The development will provide for significant capacity increases in coal export, alumina production and export, minerals processing, bulk minerals export and related industrial activity and goods importation.

The development of this hub centres on a staged port expansion through the creation of a multi-cargo facility – a man-made, sheltered harbour capable of accommodating multiple trade products and able to be built in stages.

The scope of Stage 1 includes:

- a single berth multi-cargo wharf facility capable of supporting 'cape-sized' ships and handling a range of import and export cargo (30 million tonne per annum coal capacity); and
- tug and cargo handling facilities.

Future stages could include a complete 12 berth development for import/export products and potential coal export. Decisions made in the next 12 months will determine the long-term scope of development at Abbot Point.

Stage 1 (a single multi-cargo facility berth) is estimated to cost \$1.06 billion, with the complete development estimated to cost \$3.3 billion (\$2010 real).

### Freight Access to Port of Brisbane and Brisbane Airport – Gateway Upgrade North (Queensland Government)

Brisbane's current road network is showing increasing levels of congestion. Road congestion to the Port via the Gateway Motorway has been at saturation levels for several years. The Port of Brisbane is expected to experience continuing growth, placing pressure on the efficiency of freight and passenger movements.

The Gateway Upgrade North project aims to greatly improve road freight connectivity between key northern industrial and logistics centres and the port precinct.

The project involves capacity upgrades to the northern 10 kilometre section of the Gateway Motorway by:

- widening the existing motorway from four lanes to six between Nudgee Road and the Deagon Deviation;
- development of an interchange at the Gateway Motorway/Deagon Deviation connection;
- providing grade-separated interchange improvements at Nudgee Road, Sandgate Road, Depot Road and Bicentennial Drive;
- widened bridges at Bicentennial Drive, Depot Road (southbound) and Nundah Creek; and
- rehabilitation of existing four-lane pavements between Deagon Deviation and the Bruce Highway a dedicated bikeway facility alongside the motorway corridor.

The proponent has estimated the project to cost between \$1.159 and \$2.710 billion, depending on the project option.

### Freight Access to Port of Adelaide – Northern Connector (South Australian Government)

The Port of Adelaide is expected to experience continuing growth in freight volumes, placing pressure on the efficiency of freight movements to and from the port by road and rail. The South Australian Government is proposing road and rail link between the port and intermodal terminals at Penfield in the north of Adelaide. The proposed link includes:

- 30.9 kilometre grade separated, freight rail track between Virginia, Dry Creek and Port Adelaide and consisting of a new 24.7 kilometre north-south link for Perth to Melbourne freight trains;
- twin two kilometre passing loops;
- removal of up to 12 existing railway crossings;
- a 15.6 kilometre six lane (three lanes in each direction) Northern Connector road joining the Northern Expressway to the Port River Expressway;
- overpass connections across the expressway;
- entry to the expressway via interchanges; and
- shared use path for cyclists and pedestrians.

The project is estimated to cost \$1.191 billion.

### Melbourne International Freight Terminal (Victorian Government)

In order to effectively manage the predicted growth of international container freight through the Port of Melbourne, the Victorian Government has been investigating a range of initiatives for improving port land side access and efficiency.

The Melbourne International Freight Terminal has been proposed to improve handling of international shipping containers to ensure that land side supply chain efficiency is maintained and enhanced. The initiative will also contribute to the development of a national rail network as it will enhance efficiency of the rail supply chain for urban movements.

This initiative involves the planning and development of a new freight terminal on the site to be vacated by the Melbourne Wholesale Market, adjacent to Swanson Dock at the Port of Melbourne.

### Bell Bay Intermodal Expansion Project (Tasmanian Government)

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 Tasmanian Government has proposed the consolidation of future container freight growth at Bell Bay in order to free up space at Burnie Port for bulk exports, including mining product from the West Coast. The proposed port expansion consists of:

- dredging and reclamation of land;
- construction of new berths and loading facilities including 'hardstand' areas;
- re-development of existing berths; and
- re-location of a rail line.

The proponent has estimated the project cost at \$150 million.

The submission will remain on the infrastructure priority list on the basis that the objectives are aligned with Infrastructure Australia's goals, and assuming that a real problem exists. To date, there is no evidence of current capacity constraints, making progression of the project in the short-term unlikely.

### Smart Port ICT (Victorian Government)

Currently, the international maritime sector averages between 27 and 30 parties for each import/export transaction with an average of 40 documents per transaction. The result is inefficient processes, duplication of resources and information, and delays at points in the supply chain.

The Smart Port ICT (information and communications technology) project aims to coordinate a national approach – using international standards – to the development of information and communications systems. This includes addressing governance structures, processes, electronic information and systems that allow a national approach to improving international containerised cargo movement throughout Australia, principally through streamlining information flows.

In the 2009 submission, the project was estimated to cost \$16 million.

### Port Hedland Inner Harbour Capacity Enhancements (Western Australian Government, North West Iron Ore Alliance, Hancock)

Mining, processing and infrastructure industries in the Pilbara are rapidly expanding. It is important that capacity is made available to cater for the demand to meet the Pilbara region's growth potential, which in turn will create employment and strengthen economic growth. There are no other ports that serve the East Pilbara mines.

In 2009-10 Infrastructure Australia received a number of submissions relating to the Port Hedland Inner Harbour Capacity Enhancements. The proposal by the Western Australian Government, aims to facilitate and expand trade through the port to satisfy demands for bulk export capacity and support the expansion of mining in the Pilbara region.

The project proposes:

- deepening of the main 40 kilometre channel; and
- the construction of inner harbour berths.

The project is estimated to cost between \$500 million and \$1 billion.

A number of submissions from miners relate to 'common user' infrastructure relating to the inner harbour at Port Hedland. These projects are at various stages of development.

### Transforming the Pilbara – Pilbara Cities (Western Australian Government)

The Pilbara region of Western Australia plays an important role in the economic development of the nation and is a principal driver of Western Australia's growth.

The Pilbara has been experiencing rapid economic growth in recent times and this is expected to continue. As a consequence of this strong economic activity, the Pilbara generates direct employment in the region along with significant indirect employment in Perth and other parts of Australia – given that the bulk of the workforce operate on a “fly-in/fly-out” basis. The mining activity and employment demand is placing strain on the existing economic and social infrastructure.

In order to help ensure that the Pilbara can support and deliver a local skilled workforce to support future growth, the Western Australian Government has proposed a program of projects for Karratha and Port Hedland, including:

- airport upgrades;
- upgrading of the water and wastewater infrastructure;
- improvement of communications infrastructure;
- creation of serviced land (connection to wastewater, water, energy);
- purpose-built accommodation units; and
- marina developments.

The program is estimated to cost \$2.9 billion.

### Port of Hastings Development (Victorian Government)

As Port of Melbourne throughput grows, the port will gradually become more constrained, affecting the efficiency of some port operations. The Victorian Government has identified the Port of Hastings as the preferred site for future handling of international containers.

The Port of Hastings is located approximately 30 kilometres south east of Dandenong. It currently comprises piers and wharves, including the BlueScope Steel Wharf, the Long Island Point Jetty, the Crib Point Jetty and the Stony Point Jetty.

The proposal to Infrastructure Australia is for the project's planning and business case investigations for Stage 1. The investigations are estimated to cost \$120 million. Planning work to date has focussed on corridor options which connect Hastings to the state and interstate rail freight networks.

### Eyre Peninsula Port Proposals (South Australian Government)

This proposal is for the development of a bulk commodities export facility on the Eyre Peninsula primarily to cater for the export of iron ores from South Australia, using ‘cape-sized’ vessels. Other critical elements to be investigated as part of the Eyre Peninsula Port proposals include rail, regional power and water infrastructure.

The proposals submitted to Infrastructure Australia include two potential developments:

- Port Bonython (near Whyalla): identified by the South Australian Government as a suitable site for a deep water export facility; and
- Sheep Hill Port: separate to the Port Bonython proposal, Centrex Metals has secured a 90 hectare site at Sheep Hill, located 60 kilometres north of Port Lincoln along the eastern edge of Eyre Peninsula. The proposal is for a deep water export facility to cater for ‘cape-class’ vessels.

### Port Botany and Sydney Airport Transport Improvement Plan (New South Wales Government)

The New South Wales Government is seeking \$28 million to assist in the development of a Port Botany and Sydney Airport Transport Improvement Plan.

The proposal seeks to address landside access constraints that exist in servicing the current and future transport needs of the international gateways, Port Botany and Sydney Airport. It incorporates three submissions previously included on the priority list:

- Freight Access to Port Botany and Kingsford Smith Airport
  - M4 East extension – \$12 billion (\$2008), two stage option;
  - M5 East upgrade – \$4.5 billion (\$2010);
  - Container Freight Improvement Strategy – \$3.9 billion.

The Plan is expected to cover a range of issues including:

- congestion resulting from the heavy reliance on road-based transport to service the needs of the precinct; and
- inefficiencies between the port and land side (the port can move containers at a higher rate than the land transport system can move cargo to and from the terminals and adjacent container depots).

Development of the plan is intended to test a series of transport improvement options covering the next 25-30 years. The New South Wales Government will:

- identify and sequence key infrastructure and policy initiatives to implement the preferred direction for land side transport serving the precinct; and
- consider possible funding sources.

The plan will recommend: a set of short, medium and long-term multimodal solutions; a proposed delivery strategy; and possible funding sources. The work will consolidate and build upon previous studies that have focussed on addressing land transport issues in and around this precinct. It will examine the relationships between the two key gateways; the freight task; the passenger task; rail, road and intermodal planning.

### Priorities under the national freight network theme

#### Pacific Highway Corridor Upgrades (New South Wales Government)

The Pacific Highway upgrade aims to reduce congestion, reduce travel times and improve safety by reducing road crashes and injuries as well as meeting the increasing demand for improved access for commercial and social activity.

The project is to complete some 300 kilometres of double lane divided road in three key areas being:

- from the F3 Freeway near Hexham to Port Macquarie;
- from Ballina to the Queensland border; and
- sections to the north and south of Coffs Harbour.

The proponent has estimated the capital cost of the remaining works at \$6.4 billion (\$2010) or \$7.7 billion (in outturn costs and assuming completion in 2016). These figures exclude existing committed funding for the project.

#### Western Interstate Freight Terminal (Victorian Government)

The western interstate freight terminal, to be constructed in western Melbourne, aims to service a growing number of freight customers in the vicinity. It would enable the removal of unnecessary freight movements in and out of the Dynon port precinct, and support the development of a national rail freight terminal network, particularly in conjunction with terminals in Sydney (at Moorebank) and Brisbane.

The Western Interstate Freight Terminal involves:

- a new terminal; and
- repositioning of the railway line.

This project is at development stage. The proponent is seeking a contribution to \$10 million for planning and development.

### North-South Rail Freight Corridors including Northern Sydney Freight (Australian Rail Track Corporation / New South Wales Government)

The north-south freight corridor runs between Brisbane and Melbourne. It comprises the densest general freight route in Australia with a number of segments critically important to national prosperity. The corridors cover the existing lines 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 New South Wales Governments. The Australian Government has announced a package of capacity and efficiency enhancement for the Australian Rail Track Corporation's New South Wales North Coast line. The corridor also includes the proposed Inland Rail Route between Melbourne and Brisbane which would bypass the Sydney area.

### Advanced Train Management System (Australian Rail Track Corporation)

The Advanced Train Management System (ATMS) is a communications based safe working system designed to replace traditional line side signalling infrastructure. ATMS is a satellite based train control system currently under trial by the Australian Rail Track Corporation (ARTC) and would enable a virtual, communications based 'safe working' system with lower costs and possibly greater infrastructure capacity.

The Australian Rail Track Corporation anticipates the proof-of-concept trial will be completed by the end of 2011 and would aim to move to roll-out the system commencing in 2011.

The project is estimated to cost over \$500 million.

### Green Triangle Freight Transport Project (South Australian and Victorian Governments)

The Green Triangle has been identified as a major timber plantation 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 South Australian and Victorian Governments have identified a package of reform, road and rail investment initiatives to meet the forecast freight transport demands and infrastructure needs of the Green Triangle Region.

A number of the initiatives are underway; this submission includes a program of road projects, including the Penola Bypass Stage 2 as well as overtaking lanes, widening, intersection upgrades, shoulder sealing and upgrades to local roads.

The project has an estimated cost of \$112 million.

### East West Rail Freight Corridor (Australian Rail Track Corporation)

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 the corridor a national priority. The Australian Rail Track Corporation manages most of the corridor and has identified a package of works needed to boost performance of the rail sector.

Some works in Victoria, South Australia and Western Australia were funded in the December 2008 Nation Building package. The Goodwood and Torrens Junction projects in Adelaide, announced in the 2012-13 budgets of the Australian and South Australian Governments, were also part of the program. Other initiatives include an Advanced Train Management System and additional rail infrastructure works. Infrastructure Australia will work with the Corporation in assessing these proposals.



### East West Link (Victorian Government)

Projected growth in traffic through the Port of Melbourne is predicted to place pressure on the efficiency of freight movements to and from the port.

The 2011 infrastructure priority list included the Westlink project at real potential.

The Victorian Government submitted a new project, East West Link, during 2011. This addresses the objectives of the Westlink project, in addition to furthering the scope of the project. The new East West Link project is at development stage.

East West Link is a proposed 18 kilometre inner urban freeway connecting the Eastern Freeway and the Western Ring Road, with intermediate connections to the Tullamarine Freeway, Port of Melbourne and Geelong Road.

The submission identifies the problem as the lack of east-west connectivity in Melbourne's transport system. This contributes to congestion as there is:

- a significant amount of east-west traffic that is currently moved through a disconnected arterial road network north of the central business district; and
- over-reliance on the M1 corridor – Melbourne's only east-west motorway route – particularly with growing freight movements.

The Victorian Government is seeking \$30 million of Australian Government funding for project development.

### Northern Sydney Road Freight Access – F3-M2 (New South Wales Government)

The F3-M2 motorway connection is a proposed eight kilometre tunnel from the southern end of the F3 (Sydney-Newcastle Freeway) at Wahroonga to the M2 Motorway at Carlingford. The new link would be two lanes in each direction if it is tolled and three lanes in each direction if untolled.

The project consists of:

- tunnel from the southern end of the F3 (Sydney-Newcastle Freeway) at Wahroonga to the M2 Motorway at its existing Pennant Hills Road interchange;
- improvements on the F3 at Wahroonga, including widening within the road reserve up to approximately Edgeworth David Avenue; and
- improvements on Pennant Hills Road south of the M2 Motorway up to and including the North Rocks Road intersection.

The proponent's cost estimate for the project is \$4.75 billion (\$2008) for the six lane tunnel option.

### Australian Digital Train Control System (Australasian Railways Association)

This project seeks to introduce digital train control – which uses radio, process data, voice and internet to underpin rail traffic management systems – to modernise and standardise signalling systems and ensure interoperable communications, train connection and control. This technology is being adopted in the European Union as the standard (ERTMS European Rail Traffic Management System – ERTMS). The project has the potential to build on the Australian Train Management System (ATMS) and European Train Control System (ETCS).

The project is estimated to cost in the order of \$20 million.

### Mount Isa to Townsville Rail Corridor Upgrade (Queensland Government)

A feasibility study is currently underway for the Mount Isa to Townsville rail corridor upgrade.

The project scope includes upgrades to rail and related road infrastructure:

- Townsville East Access Corridor includes the construction of approximately 6.5 kilometres of new rail through the urban area. It will provide an alternative route for rail access to the port to provide increased capacity and access efficiency;
- enhancements including holding roads, loop extensions and additional passing loops on the western sections of the rail corridor to enable higher freight rail volumes; and
- Associated upgrades to road infrastructure.

The project has an estimated cost of \$333 million.

### Transcontinental Rail Link – Mildura to Menindee (Mildura Development Corporation)

The Transcontinental Rail Link is a proposal to develop a 240 kilometre standard gauge rail link from Yelta (near Mildura) to Menindee on the East-West Transcontinental Rail Line. The link will create an alternative route for container interstate traffic from Melbourne (via Geelong) to Perth and Darwin, while creating rail access for mineral resource developments in the Mildura-Broken Hill region. Under the proposal, the Mildura to Melbourne line would need to be converted to standard/dual gauge.

The proposal consists of:

- a new standard gauge rail line;
- grade separation of rail over road at Merbein to Wentworth Road; and
- enhancements works on the Menindee-Crystal Brook rail corridor.

The project has an estimated cost of \$400 million.

### Bruce Highway Upgrade Strategy (Queensland Government)

The Queensland Government has prepared a Bruce Highway Upgrade Strategy that aims to identify priority sections of the highway for upgrade works. It is a 20 year master plan of 110 short, medium and long-term priorities, spanning the length of the Bruce Highway from Brisbane to Cairns. The Queensland Government has estimated the cost of the full scheme at \$22.5 billion, including the \$852 million upgrade between Cooroy to Curra – Section A.

The Bruce Highway is Queensland's major east coast transport and economic corridor. The corridor supports around 60 per cent of Queensland's population. The strategy aims to deliver projects along the full length of the Bruce Highway which spans almost 1700 kilometres from Pine Rivers in Brisbane's north to the southern approach into Cairns.

Projects include up to 340 kilometres of highway duplications, bypasses and deviations, bridge replacements, intersection upgrades, overtaking lanes and other safety improvements. The investments aim to deliver increased capacity and transport efficiency and improved safety, flood immunity and reliability.

The Queensland Government has indicated it will submit priority projects from the strategy to Infrastructure Australia. Individual projects will be reviewed on their own merits.

### Bruce Highway – Cooroy to Curra Section A

Cooroy to Curra is identified by the Queensland Government as a priority infrastructure project under the Bruce Highway Upgrade Strategy. It is a major north-south link for the rapidly growing areas of south east Queensland. Residential and industrial expansion is pushing north along the Bruce Highway corridor, making this section of the highway the northern gateway to this growth hub. The submission states that growth has led to exhaustion of capacity and safety and asset performance reductions.

Cooroy to Curra is approximately 65 kilometres in length and has been divided into four designated sections. This submission is seeking funding for the delivery of the upgrade of Section A – Cooroy Southern Interchange to Sankeys Road (13.3 kilometres), which is estimated to cost \$852 million. Section B (Sankeys Road to Traveston Road) is currently under construction.

The objectives of the project are to:

- reduce travel times and improve travel time reliability;
- improve road safety;
- reduce maintenance dependency; and
- build in capacity and efficiency to support passenger and freight transport growth on this section of the Bruce Highway.

### Warrego Highway – Helidon to Morven (Queensland Government)

The Warrego Highway Upgrade Program aims to deliver improved road safety, capacity increases and infrastructure renewal works on the Warrego Highway between Helidon and Morven, in southern Queensland.

This proposal aims to upgrade the Warrego Highway between Helidon and Morven, in southern Queensland, to deliver improved road safety, capacity increases and infrastructure renewal works. The submission states that upgrades are critical to provide the transport infrastructure necessary to support the Surat Basin energy province.

A number of problems exist on the existing highway: poor road condition; congestion from strong regional economic growth and a lack of viable alternative transport modes. A number of trends are identified that will exacerbate these problems, particularly the growing demand for Surat Basin's resources.

The submission proposes a six year program of works to address this problem while the Queensland Government is developing a strategy for a 12 year program to address the longer term needs of the highway.

The project has an estimated cost of \$670 million.

### Tasmanian Rail Revitalisation Programme (Tasmanian Government)

The proposal is seeking funding to upgrade the freight rail network in Tasmania, which is in poor condition as a result of historic under-investment in rail infrastructure in Tasmania.

A number of problems exist, including high operating costs and poor reliability of the network due, in part, to assets nearing the end of their useful life. This has resulted in reduced freight patronage of the network. The submission proposes a program of targeted upgrade works to improve the safety and reliability of the network and to create a more competitive market for freight users.

Investment under the Nation Building Program has started to address these issues and led to a marked improvement in performance and reliability, and some growth in rail's market share. The Tasmanian Rail Revitalisation Program is designed to build on these improvements to ensure the long-term sustainability of the Tasmanian rail network and service the growing freight needs (2.2 per cent growth per annum expected up to and beyond 2030).

The project has an estimated cost of \$240 million.

### Hobart to Launceston Transport Strategy

Three submissions were received from the Tasmanian Government seeking funding to undertake safety upgrades, meet capacity demands and improve service levels for the Brooker and Midlands Highways. These roads make up the main road transport corridor between Launceston and Hobart.

The problems described include road safety concerns and travel inefficiencies for freight, tourism and commuters. A package of works including up to 23 individual projects, estimated at \$1.662 billion, was proposed to improve the transport network's efficiency and reliability.

Infrastructure Australia believes further testing of options could yield more cost-effective solutions to the transport needs in this corridor. Development of a Hobart to Launceston transport strategy is therefore proposed. The strategy should:

- incorporate the Brooker and Midland Highways;
- focus on freight efficiencies at major junctions and through the towns along the corridor that have not yet received a road bypass;
- integrate with the proposals for upgrade of the rail corridor from Launceston to Brighton; and
- support development of cost-effective public transport proposals for Hobart and Launceston.

## Priorities under the adaptable and secure water supplies theme

### Tasmania Water and Sewerage Program (Tasmanian Government)

The Tasmanian Government has introduced major reforms in its water and sewerage sector. This is a welcome reform, introducing significant structural changes to the industry. Water and sewerage services are now delivered by three local government-owned regional water corporations and one common services corporation, replacing services previously delivered by 29 local councils and three former bulk water authorities. The reform of Tasmania's water and sewerage sector aims to transform the sector and significantly raise health and environmental standards, and the quality of services, to many parts of the Tasmanian community.

During the reform process it became apparent that almost \$1 billion would need to be invested in new and upgraded water and sewerage infrastructure in Tasmania.

The reform of Tasmania's water and sewerage sector aims to transform the sector and significantly raise health and environmental standards, and the quality of services, to many parts of the Tasmanian community.

This program is estimated to cost in the order of \$1 billion over 10 years. Tasmania will fund the bulk of the program over 10 years, but is seeking a further contribution to this investment.

### An Innovation Strategy for Tasmania: Focus on Food Bowl Concept (Tasmanian Government)

The Food Bowl Concept project aims to expand high value agriculture over the next decade using higher levels of irrigation, particularly in the north west and north east of the state and encourages and involves the private sector in capital investment in water supply and distribution through a public private partnership model. The program's delivery model ensures that operational expenditure for schemes constructed under this program will be fully financed through user charges.

The first tranche of irrigation schemes, dams and pipelines are in planning and development is nearing completion. The Tasmanian Government has commenced planning to identify and prove further opportunities for a second tranche of irrigation infrastructure.

The first tranche of the water infrastructure program is largely built. The Tasmanian Government is also applying for additional funding to complete future schemes further work.

## Priorities under the national energy grid theme

### Mid-West Energy – Stage 2 (Western Australian Government)

This project seeks to connect the Geraldton area (including mines in the region) to Western Australia's South West Interconnector System. The project would provide a new 330 kilovolt (kV) line from the Perth metropolitan area to the region, and potentially replace much of the existing diesel engine powered generation.

The Mid West Energy Project Northern Section Stage 2 proposes an extension of Stage 1's 330 kV transmission line. Stage 1 is to be implemented by Western Power and will run 189 kilometres from Pinjar (on Perth's northern outskirts) to Eneabba. Stage 2 is proposed to run approximately 160 kilometres from Eneabba to Moonyoonooka, just east of Geraldton. This was the basis of previous proposals to Infrastructure Australia. Western Power is reviewing options for the northern connection.

The previous proposal for the northern section was costed at \$280 million.

# Acknowledgements

## Photographs

**Clean Energy Council** – front cover

**Fremantle Ports** – inside cover

**Willoughby City Council** – pages 6-7

**Sydney Ports Corporation** – pages 10 and 31

**The Public Transport Authority of Western Australia**  
– pages 10 and 42

**iStockphoto** – pages 11, 34, 65, 89, 91-92 and back cover

**Port of Townsville Limited** – pages 12-13 and 20

**Myuma Pty Ltd / Dugalunji Aboriginal Corporation**  
– pages 11, 72 and 73

**Department of Transport, Victorian Government**  
– pages 15 and 55

**Australian Financial Review** – page 21

**Newspix/Lincoln Baker** – page 22

**Institute of Public Works Engineering Australia**  
– page 23

**Newspix/Bruce Long** – page 29

**Andy Taylor; Regional Development Australia Pilbara**  
– page 36

**Department for Planning, Transport and Infrastructure, South Australian Government**  
– pages 38-39

**City of Darwin** – page 41

**City of Melbourne** – page 44

**Public Transport Victoria** – page 45

**Department of Transport and Main Roads, Queensland Government** – page 47

**Metropolitan Local Government Review, Western Australian Government** – page 48

**Airview Aerial Photography** – page 50

**Lonely Planet Images** – pages 51 and 82-83

**Australian Capital Territory Government** – page 54

**Tim Giles** – pages 56-57

**Department of the Premier and Cabinet, Queensland Government** – page 58

**Newcastle Port Corporation** – page 59

**Katrina Lawrence; Victorian Regional Channels Authority** – page 61

**Indigenous Communications and Events, Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA)**  
– pages 68-69, 70 and 71

**Tasmanian Irrigation** – pages 76-77

**City of Busselton, Geographe Catchment Council and the Department of Water** – page 78

**The FutureFlow Alliance** – page 80

**Origin Energy** – page 85

**Department of Planning, Western Australian Government** – pages 86-87

**National Information and Communication Technology Australia (NICTA) research centre**  
– page 88





## Contacts

Infrastructure Australia  
GPO Box 594  
CANBERRA ACT 2601  
AUSTRALIA

**T** +61 2 8114 1900

**F** +61 2 8114 1932

**E** [mail@infrastructureaustralia.gov.au](mailto:mail@infrastructureaustralia.gov.au)

**W** [www.infrastructureaustralia.gov.au](http://www.infrastructureaustralia.gov.au)



**Australian Government**  
**Infrastructure Australia**