

June 2010



Australian Government
Infrastructure Australia

Getting the fundamentals right for Australia's infrastructure priorities

An Infrastructure Australia report to the Council of Australian Governments

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Letter from the Chairman

Hon Anthony Albanese, MP
Minister for Infrastructure
Transport, Regional Development and Local Government

Dear Minister

Getting the fundamentals right for Australia's infrastructure priorities

On behalf of the Infrastructure Australia Council, I am delighted to present you with our latest report.

The report sets out much of the Council's work since our May 2009 report to you, *National Infrastructure Priorities*.

In particular, this report provides our updated advice on national infrastructure reforms and investments for Australia. The advice builds upon the national strategy reviews that were announced in our previous report and provides the latest analysis of Australia's infrastructure priorities in the context of those reviews.

The report focuses on a series of [reform recommendations](#), which flow from our strategy reviews in the water and energy sectors, from the emerging National Ports and National Freight Strategies, and from work on urban governance and planning reforms.

These recommendations are aimed at getting the fundamentals right for Australian infrastructure, instilling a discipline of long-term infrastructure planning that can meet Australia's future productivity challenge, and making better use of our existing infrastructure networks. In light of the continued – and unprecedented – global

demand for infrastructure, these recommendations are essential if Australia's infrastructure competitiveness is to be maintained. We expect to make further important reform recommendations in the near future, as additional elements of our strategy reviews are finalised.

It is the strong belief of the Infrastructure Australia Council that enacting these 'better use' reforms is as important as making new capital investments.

The report also updates the nation's [Infrastructure Priorities](#). This year we have indicated whether projects are *ready to proceed*; *ready to proceed subject to certain conditions*; or *in development but show genuine potential*.

Addressing transport congestion presents the greatest opportunity to improve national productivity: public transport, notably rail, is vital to the future success of our cities; road and rail freight networks must be improved to meet the growing freight task; and many of our commercial ports need more focus.

We are pleased to advise that many investment priorities do not require the support of public funds but rather the active engagement of private and superannuation funds and expertise.

Importantly, Infrastructure Australia's strategy work has identified additional areas of infrastructure need that have not been identified in proponent submissions. The need for a new corridor around Sydney capable of serving multiple types of infrastructure is a prime example.

Similar needs and opportunities exist in other cities. In most cases, we have limited ourselves to identifying a need that we believe warrants further consideration by governments, industry and communities. In some cases, where the evidence supports it, we have gone further and identified specific types of projects that warrant further attention.

We commend these proposals to you.

Finally, in order to aid transparency of the process, it is the Council's strong view that we should publish a report each year which sets out the work that we have overseen in the preceding twelve months and which sets out our latest advice to Australian Governments and the infrastructure sector. It is our intention to publish such a report in June each year. This document is the first of those regular reports.

The Council has a statutory role to provide advice on national infrastructure priorities. This advice is not by way of a tender process and one of the benefits of an independent Council made up of senior public servants and private sector representatives is the strategic nature of the priorities contained in the report.

The Council appreciates the opportunity to make a contribution to the development of Australia's infrastructure networks, both by highlighting key areas for policy reform and identifying priority projects suitable for investment or further development. We look forward to working with governments, industry and communities on this vital enterprise.

Sir Rod Eddington
Chairman, Infrastructure Australia





Updating Australia's Infrastructure Priorities



1 Updating Australia's Infrastructure Priorities

The value of infrastructure to our nation cannot be underestimated. The effectiveness of current and future infrastructure in meeting economic, environmental and social needs is of critical national importance. When managed well, infrastructure can provide the efficiencies and opportunities needed to meet these needs.

Ineffective management would constrain Australia's ability to be internationally competitive, and would impact on the nation's productivity, liveability and sustainability.

Infrastructure Australia's early work

Infrastructure Australia was established by the Australian Government in April 2008 to review and advise on infrastructure reform and investment initiatives of national significance.

Infrastructure Australia completed an audit of Australia's transport, water, energy and communications infrastructure in 2008 to determine where the greatest infrastructure challenges lay. From this, it created an initial 'Infrastructure Priority List' to guide reform initiatives and investment in nationally important infrastructure.

One of the early priorities for the new organisation was the development of national Public-Private Partnership guidelines for infrastructure projects, in conjunction with the States and Territories. Infrastructure Australia published National Public-Private Partnership Guidelines in November 2008.

Infrastructure Australia's work continues, in close collaboration with Australian Government Departments, and State, Territory and Local Governments to identify infrastructure needs and to develop regulatory reforms and high quality investments to meet those needs.

Infrastructure Australia also works closely with representative bodies and private companies, who play an important complementary role in helping to identify the nation's challenges and in developing world class infrastructure solutions.

A national, structured approach to infrastructure decision making

Following the infrastructure audit, Infrastructure Australia strongly advocated a new, national, structured approach to infrastructure planning and policymaking. The approach was founded on a clear seven step Reform and Investment Framework to develop and assess infrastructure strategies, investments or actions.

Infrastructure Australia identified a series of challenges which needs to be addressed in Australia. These challenges included the need to:

- encourage better planning and governance;
- reduce the multiplicity of rules and regulations;
- enhance export capacity; and
- reduce the loss of productivity in our cities caused by ageing transport networks.

Seven themes to meet the infrastructure challenges

Seven themes for action to meet these challenges were identified by Infrastructure Australia as the most important infrastructure objectives for the nation:

- 1 **transforming our cities** – increasing public transport capacity in our cities and making better use of existing transport infrastructure, including the road networks;
- 2 **adaptable and secure water supplies** – more adaptable and resilient water systems to cope with climate change;
- 3 **the 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;
- 4 **competitive international gateways** – developing more effective ports and associated land transport systems to more efficiently cope with imports and exports;
- 5 **a national freight network** – development of our rail and road networks so that more freight can be moved efficiently by rail and by road;
- 6 **a national broadband network** – developing a more extensive, globally competitive broadband system; and
- 7 **providing essential Indigenous infrastructure** – improved services for Indigenous communities.

The need for long-term infrastructure planning

Infrastructure Australia now has a crucial role to play in **developing long-term national strategies** to deliver these infrastructure objectives. These strategies will **inform and define a national view** of infrastructure priorities.

Infrastructure Australia believes pricing and other regulatory reforms should be included in these priorities, as well as capital investment proposals.

Relevantly, the Council of Australian Governments agreed in December 2009 that governments should develop robust long-term plans for our capital cities by 2012.

It is the view of Infrastructure Australia that Australian governments should also commit more broadly to the development of long-term infrastructure plans, particularly for the transport sector.

The Australian Government should take the lead in this area – as it has done in initiating the National Freight Strategy and National Ports Strategy, both of which are being developed by Infrastructure Australia – by driving agreement from the Council of Australian Governments to the development of such plans, and by making future Federal funding allocations dependent upon the existence and implementation of those plans.

Infrastructure Australia's national strategy work

Infrastructure Australia has focused chiefly on a national approach to developing strategies within the seven themes, identifying possible gaps in infrastructure needed to improve national productivity. The strategies are documents which set out intended actions and expectations of governments.

This work has included the following strategy development priorities announced in the May 2009 National Infrastructure Priorities report:

- A National Ports Strategy;
- A National Freight Network Strategy;
- Energy strategy – actions for a true national energy grid;
- Water strategy – actions for water security and regional towns water quality; and
- A National Framework for Public Transport Network Planning.

This strategic work has now either been completed, or is well advanced, on the first four priorities. Infrastructure Australia has commenced work on a national approach to the assessment and development of urban public transport.

Our strategic work, reported in the chapters that follow, confirms the key conclusions of the infrastructure audit. In particular, it highlights the need for: rigorous long-term infrastructure planning; continuous improvement in project evaluation; and pricing and other regulatory reforms.

Submissions received during 2009-10

During 2009-10, Infrastructure Australia also received and assessed approximately 100 new or updated project submissions.

Submissions were to relate to the seven themes and to the Reform and Investment Framework. This included a greater emphasis on initiatives and policy reform options to complement or substitute for 'build solutions'.

Infrastructure Australia also engaged with a number of prospective proponents, explaining the guidance material in some detail.

The quality of information and analysis supporting the submissions received in 2009 was generally higher than that which supported those received in 2008. This is an encouraging sign that governments and others are working to improve their infrastructure decision-making.

There is still a need for the development of long-term plans and the exploration of innovative and alternative options, including reform initiatives rather than 'build' initiatives, to ensure infrastructure decisions adequately meet future challenges.

As it did last year, Infrastructure Australia will provide feedback to proponents to encourage them to continue improving their planning and infrastructure proposals. The list of submissions provided to Infrastructure Australia is in Appendix D.

Infrastructure Australia's updated reform and investment priorities

An updated list of Infrastructure Australia's priorities is provided at Appendix B. A brief description of the project priorities is included in Appendix C.

Building on the priorities in 2009, the list includes a number of regulatory and pricing reform recommendations, generated from the national strategy work, aimed at improving infrastructure utilisation. These are expected to bring about economic, social and environmental benefits with significantly less financial and other costs than investment in new capacity.

Infrastructure Australia considers all of these projects as priority measures that address a nationally significant issue or problem. However, it is acknowledged that initiatives are in varying stages of development and Infrastructure Australia has categorised priorities as: ready to proceed; threshold; real potential; or early stage.

Next steps

Infrastructure Australia will use the strategy work and our review of submissions to inform governments, industry and the community on the types of infrastructure required by the nation.

By taking a proactive national approach, Infrastructure Australia will reduce the reliance on receiving submissions when preparing forward work programs, and will enable governments to focus infrastructure planning on projects and reforms that most contribute to Australia's productivity.

In taking such an approach, Infrastructure Australia will itself develop its own proposals for national regulatory reform and national projects. Indeed, this report sets out some views in this regard:

- Chapter 3 sets out principles that governments and the private sector should consider when planning and developing urban road networks;
 - Chapter 3 also sets out, given their national economic importance, specific suggestions for issues and projects in the capital cities that merit immediate attention;
 - Chapter 4 highlights that Infrastructure Australia will pursue reforms relating to both regional towns and major cities' water supplies. Many of these reforms will be based on the principles that customers should fund the efficient costs of water services through independently regulated, cost-reflective prices;
 - Chapter 5 proposes that Infrastructure Australia will monitor the effectiveness of the proposed changes to the regulatory arrangements covering transmission investment and the connection of remote renewable energy generation, as well as the effectiveness of the recently proposed changes to the renewable energy certificate scheme in providing the conditions to support investment in renewable energy generation;
 - Chapter 6 notes that a new National Ports Strategy, which will propose a significant suite of reforms covering port planning and governance, will be submitted to the Council of Australian Governments later this year; and
 - Chapter 7 notes that Infrastructure Australia will publish a discussion document outlining potential reforms to create a National Freight Network Strategy, also later this year.
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Future challenges



2 Future challenges

A number of future challenges cut across the seven themes and the different infrastructure sectors. Infrastructure Australia is developing a series of reforms and other recommendations to meet these challenges:

1. Population growth and long-term infrastructure needs

Infrastructure Australia is focussed on long-term infrastructure requirements and assessing the nation's ability to develop and fund such infrastructure. In particular, current work is assessing the projected costs of meeting potential infrastructure demand and comparing these against potential revenues available to government and other (private) infrastructure providers.

The work is aimed at fostering debate in three key areas of public policy:

- the costs and benefits of different community settlement patterns in Australia;
- the need for demand management measures and other efficiency reforms to minimise/defer the need for additional expensive capital investments; and
- the need to improve standards of infrastructure project evaluation and decision-making.

Findings will be published in a further report to the Council of Australian Governments later in 2010, and are expected to highlight the importance of pricing mechanisms as a basis for funding new infrastructure, particularly as a means of encouraging private sector involvement.

2. Financing future infrastructure

Infrastructure Australia is examining options to attract investment in infrastructure assets from superannuation funds. Interviews with industry stakeholders indicate there is a growing interest from funds to invest in local infrastructure; however a number of perceived barriers are preventing the funds from substantially increasing investment in this asset class. Infrastructure Australia will examine these and make recommendations later in 2010. One obvious issue is a general lack of adequate financial returns from transport infrastructure due to a lack of direct usage charges.

The application of such charges in the transport sector, starting with freight transport, could create opportunities for private investment in new infrastructure as well as facilitate more direct input from end-users of the transport system to guide the identification and selection of projects in which private parties could invest.

Structures need to be found to manage the risks that governments and the private sector might reasonably be expected to take on.

Existing mature publicly owned assets also present a rich opportunity to fund new infrastructure.

Whilst there are competing views about the merits of the lease or sale of government assets, including the potential sale of government corporations, it is clearly the case that the proceeds from the sale of such assets could beneficially be directed to investment in new infrastructure that is economically worthwhile, but not yet financially viable. Greater involvement of private sector capital may also represent an opportunity to better allocate risks between the Government and private sector, better aligning incentives with those who can manage risk, which leads to better service delivery, and increased productivity – ultimately benefiting users and consumers.

In addition, there are opportunities to better utilise existing Government assets to increase revenue available to Government. For example, air space around existing rail and road corridors could be leased or sold to the private sector, if appropriate regulatory safeguards were put into place, boosting revenues without a change of ownership in the core infrastructure asset.

3. Protecting infrastructure corridors for the future

Delivering future infrastructure requires the acquisition of land, or corridors, to minimise disruption caused to communities when the infrastructure is subsequently installed.

Poor infrastructure corridor identification and protection is resulting in incompatible land use on or near key infrastructure precincts. As a result, future infrastructure development is either blocked or becomes very expensive, for instance because extensive tunnelling is required.

Similarly, the potential for the co-location of different types of infrastructure in the same corridor (such as road, rail lines, energy and telecommunications infrastructure), to reduce land costs and urban dislocation, needs to be better explored.

Infrastructure Australia has initiated a review of these issues to inform further recommendations to the Council of Australian Governments.

4. Reducing emissions and mitigating the impact of climate change

Reducing greenhouse gas emissions is one of Infrastructure Australia's priorities. The need to reduce such emissions has informed the development of the seven themes for action; for example, increasing the use of public transport in cities.

Infrastructure Australia requires submissions to provide a quantified analysis of environmental costs and benefits (including greenhouse gas emissions) in project assessments.





Transforming Our Cities



3 Transforming Our Cities

The goal: To develop productive, sustainable and liveable cities by: consolidating planning and investment decision-making practices; making better use of existing infrastructure; and increasing public transport capacity and use.

Infrastructure Australia's national challenges for our cities

Australia's urban areas face significant pressures from population growth and demographic change; ageing or inadequate infrastructure; urban congestion; climate change and increasing demands for better environmental management, amenity and affordability.

A series of key steps were identified by Infrastructure Australia to respond to these challenges:

- The development and co-ordination of integrated land use and infrastructure plans for urban areas;
- Significant improvement in public transport networks;
- Improved governance of urban planning, incorporating stronger coordination and participation across government, industry and the community; and
- Integrated long-term strategies to manage land use planning, density, population and urban congestion.

National Cities Strategy

Effective long-term planning and investment is critical to ensuring Australia's cities overcome challenges and seize opportunities to maintain economic growth and quality of life for current and future generations.

The Australian Government is developing a national urban policy which continues the Government's engagement in cities planning and investment. The national urban policy is expected to present a long-term framework for national action, identifying priorities for reform and investment, working in partnership with State and Territory administrations, local governments, the private sector and the community to deliver more productive, sustainable and liveable cities.

The '*State of Australian Cities 2010*' report was the first step towards this policy, providing a national snapshot of the 17 Australian cities with a population over 100,000 at the 2006 Census. The report benchmarked Australian cities internationally, and presented facts across a range of economic, social and environmental indicators. It was an important milestone that provided a platform of knowledge from which the Australian Government can take a national approach to urban development.

The next step is to have a national cities strategy that will address:

Population and urban development:

- The Australian Government's role in guiding public and private investment to achieve optimal socio-economic and environmental outcomes in cities;
- The role of smaller and regional cities;
- Productivity;
- Efficient use of existing infrastructure and investment in future social and economic infrastructure;
- Transport issues;
- The connections between people, jobs and services; and
- The distribution of economic opportunity.

Sustainability:

- The potential of cities to reduce their environmental impact and make positive contributions to sustainability;
- The need for shared responsibility for sustainability;
- The contribution that the structure of cities can make to reducing greenhouse gas emissions and managing climate risks; and
- The need to deliver high amenity and convenience whilst also pursuing more compact urban forms that demonstrate best practice sustainable and urban design.

Liveability:

- The importance of attractive, inclusive, accessible, safe and diverse places to secure community wellbeing and economic prosperity;
- The need for housing to meet the needs of a growing and changing community in terms of total supply, diversity, accessibility and affordability;

- The need to consider the concept of 'living affordability', having regard to the costs of running a home and the transport task associated with where people live and their access to transport options, as well as the costs of land and dwelling construction; and
- The potential to deliver improved health outcomes through better use of the urban form.

Governance

- The need for collaborative efforts by all spheres of government, business and the community to ensure our cities are productive, liveable, sustainable; and
- The need for effective organisation to manage our major cities.

This work complements the decision of the Council of Australian Governments on 7 December 2009 to adopt a national objective and set of criteria for future strategic planning of capital cities. It was agreed that, by 2012, States will have in place long-term plans for cities that meet these criteria. Infrastructure Australia endorses the Australian Government's intention to make funding contingent on the existence of those plans.

Infrastructure Australia believes urban transport projects (including public transport and road projects) must:

- Focus on integrated land use and be part of broader multi-modal transport plans;
- In the case of public transport investments, leverage higher intensity land use outcomes in and around transit hubs, such as mixed use development and the sale of air space rights over transport hubs; and
- In the case of network enhancements, demonstrate that the existing network is already operating at full, or close to full, efficiency and capacity before enhancements come on stream.

Infrastructure Australia recommends a formal commitment by Australian governments to implement, monitor and report on best practice in utilising transport infrastructure capacity, including congested locations in urban road and rail networks.

Improving transport networks and reducing congestion

Improving transport networks in our cities is crucial for economic growth in and the liveability of our cities. Congestion – both on the roads and on the rail and bus networks – is one of the greatest challenges facing Australia's cities.

Inadequate transport provision and congestion threaten our quality of life, damage the local and global environment, and, numerous international studies show, act as a significant brake on future economic growth.

Public transport is a priority in our cities

Most of our main cities are now at the size where it is simply impossible to rely solely on private motor vehicles for commuting journeys, due to land use constraints and population volumes. There can therefore be no doubt that comprehensive public transport networks are essential for the long-term success of Australia's cities and Infrastructure Australia continues to work hard with jurisdictions to develop well planned enhancements to urban public transport networks. These networks need to be planned alongside land use strategies, so that new residential and employment areas are well served by public transport, and to ensure that public transport does not itself encourage unsustainable urban sprawl.

New public transport infrastructure featured in a number of the submissions from State and Local Governments. Infrastructure Australia has identified a number of nationally significant rail, tram and bus projects from the range of submissions.

The Queensland, New South Wales, Victorian, South Australian and Western Australian Governments have all identified improvements and significant expansions to their existing heavy rail networks as major priorities. Infrastructure Australia supports this goal of improving heavy rail: extensive fixed public transport networks are essential cores to support strong economic growth and minimise congestion in a sustainable way.

More broadly, Infrastructure Australia will continue to work with State and Territory governments on the development of integrated urban public transport solutions. Infrastructure Australia has considerable interest in the further development of Sydney's transport system given Sydney's importance to the Australian economy.

Given the size of the potential public transport capital program, it will be important to look for innovative funding mechanisms where appropriate such as PPPs which make use of land development opportunities. Governments may also consider equity funding to assist the development of such funding mechanisms.

Cycling and walking – the key active transport modes – are also attracting growing interest for commuting journeys, and can make a significant impact on congestion.

Making the most of our current road network

This focus on public transport does not mean the road network should be neglected. Even in cities with a comprehensive well functioning public transport network, the road network plays a vital role as part of the overall transport system, for both freight and passenger journeys. Efficient road networks are essential to the continued growth of our cities.

The critical first step will be non-pricing opportunities to better manage our urban roads.

At present, much of Australia's urban road network could be operated more efficiently: the active management of roads to improve traffic flow is relatively rare, and because direct charging does not exist on most roads, demand is concentrated at certain times of day, on certain corridors, and in certain directions.

Infrastructure Australia believes that improved management of the road network would lead to strong economic, social and environmental gains, and therefore strongly supports steps to improve capacity utilisation. Steps like the introduction of a national approach to the development of Managed Motorways – with variable speed limits, priority allocation of road space, and ramp access control – will be vital in this regard. So too, continued measures on major urban arterial roads, such as peak hour clearways and advanced traffic signal management systems (including public transport priority) are important means of making better use of existing investment in our urban road networks.

The role of congestion pricing to meet future needs

An integrated approach to ensuring efficient access for economic activity (within cities; to and from ports; and between distribution centres) and the availability of effective public transport options is needed. Notwithstanding that road user charges (including congestion charging) may prove unpopular in the short term, more serious consideration of such measures will be necessary if the required investment in road and public transport infrastructure is to be delivered.

Governments have previously considered road pricing via tolls or congestion charges as one of several means of addressing congestion. In particular, the urban congestion review initiated by the Council of Australian Governments in 2006 found that pricing was likely to be amongst the most effective of measures for reducing congestion (although it needed to be introduced as part of a broader package of congestion management measures).

Despite these findings, governments have yet to trial or introduce urban road pricing.

More recently, the Henry Tax Review noted that congestion “cannot be reduced simply by building more city infrastructure, as most new road space induces new traffic. Helping to manage road use, through efficient prices, provides the best long-term approach to reducing congestion”. There are few serious dissenters from this view, and all Australians need to accept that congestion pricing is inevitable if we are going to build economically and environmentally sustainable cities.

The Henry Review argues that location – specific congestion charges should vary according to the time of day. City roads would be less congested during peak periods, with travel at higher speeds and shorter travel times, saving time for road users, reducing vehicle costs and greenhouse emissions. The revenue from congestion charges on existing roads should flow back to the community, initially to finance public transport in affected areas.” There is a case for the provision of improved public transport prior to staged introduction of congestion charges to engender community confidence in the integrity of the approach by government.

Infrastructure Australia believes that it is particularly important to demonstrate that funds collected from road user charges are directed back into transport infrastructure. This should include not only measures to directly reduce road congestion by building additional road capacity, but also measures to improve existing road asset use (such as managed motorways) and improvements to public transport that reduce road congestion through transfer of trips from car travel to public transport (rail or bus).

The case for expansion of the urban road network

In most cases, additional road capacity designed to facilitate private vehicle movements into urban CBDs is unlikely to lead to sustained reductions in congestion, and is likely to damage the environment and reduce urban amenity. However, some additional road capacity – for example the completion of networks serving freight needs – will, if properly managed, lead to improved long-term outcomes.

Any enhancements should, of course, be determined by careful analysis of the costs and benefits, according to Infrastructure Australia's guidelines. These augmentations need to be carefully managed, so they lock in the benefits to both private vehicles and public transport. They should be planned in step with land use, so that new roads do not encourage urban sprawl, which simply creates new demand for more roads in a self-reinforcing cycle. Above all, ensuring that congestion overall is reduced and is not simply transferred to other locations in the city, or that gains are not wiped out by induced traffic, is essential if enhancements will actually benefit the motorist in anything other than the short term.

Infrastructure Australia believes proposals for urban road upgrades (particularly those in our larger cities) need to demonstrate a clear focus on:

- making better use of existing networks;
- the efficient movement of freight; and
- the efficient movement of road based public transport.

Proposals demonstrating these characteristics are more likely to support transformation of our cities, whilst also improving access to our freight nodes.

Next steps

- Infrastructure Australia will work with the Council of Australian Governments Reform Council, and State and Territory administrations to ensure Metropolitan Plans meet the national objective and criteria for city planning, and are consistent with Infrastructure Australia's priorities for infrastructure, as endorsed by government.
 - To win Infrastructure Australia support, urban infrastructure proposals will need to be well integrated with surrounding land use, and will need to leverage high quality, higher intensity land use outcomes that maximise the benefit of the infrastructure investment and contribute to a more compact, sustainable and diverse urban form.
 - Proponents will be encouraged to pursue opportunities that deliver on multiple national priorities for cities, such as leveraging concurrent outcomes for increased productivity; improvements to public transport operations and accessibility; provision of opportunities for affordable, diverse and age-friendly housing; showcasing water, energy and other sustainability innovations; and adapting to climate change impacts.
 - In addition to these next steps, in light of the crucial importance of cities to the national economy, Infrastructure Australia will, working with State and Local Governments as appropriate, take a proactive role in identifying key infrastructure challenges in our capital cities and in developing best practice reform and investment solutions to those challenges.
 - Whilst each city has different challenges, the following table sets out the key challenges facing all cities, and gives a broad outline of the types of initiatives that might be considered.
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| Challenge | Initiatives for Consideration |
|---|--|
| Increasing rail network capacity to meet demand | <ul style="list-style-type: none"> • High speed rail links from key regional cities and towns • Metro rail systems within capital cities |
| Supporting planned growth in the inner city | <ul style="list-style-type: none"> • Light rail within the CBD, and to a range of locations outside the CBD (to spread the interchange load) |
| Improving the attractiveness of the public transport system | <ul style="list-style-type: none"> • Introduction of integrated fares and ticketing |
| Efficient road networks | <ul style="list-style-type: none"> • Managing the motorway networks on a consolidated basis, with tolling funds directed to a dedicated fund for investment in transport projects • Implementation of managed motorway initiatives • Potential for freight infrastructure or priority measures • Introduction of congestion pricing schemes |
| Meeting the region's aviation needs | <ul style="list-style-type: none"> • Identifying options to improve land transport capacity to/from the principal airports (in the case of the larger airports, this will almost certainly require additional rail infrastructure) • Identification of expansion options where existing aviation capacity is constrained |
| Managing the growth in freight movements | <ul style="list-style-type: none"> • Development of additional intermodal freight terminals and/or capacity to serve interstate and import/export freight traffic with rail connections to the existing dedicated national rail freight network and freight road connections to the motorway network • Early resolution of container and bulk port capacity expansion plans |
| Addressing funding gaps | <ul style="list-style-type: none"> • Development rights at and around transport nodes • Land value capture mechanisms, including the use of a metropolitan transport property rate as a funding source • User charging for improvement of commercial value |
| Improved governance | <ul style="list-style-type: none"> • An overarching transport planning and management agency, with some degree of independence from the government of the day • Improved mechanisms for the planning, protection and acquisition of infrastructure corridors, and sites at key nodes in those networks, e.g. sites for intermodal terminals and transport interchanges • A development authority to pursue development around transport nodes in conjunction with the private sector and councils • Planning processes that demand due diligence reviews ahead of the incorporation of projects into updated plans |





Adaptable and Secure Water Supplies



4 Adaptable and Secure Water Supplies

The goal: To ensure the provision of secure, clean water supplies – which are integral to the quality of life enjoyed by Australians and to the success of Australian industry.

Infrastructure Australia's national challenges for the water sector

Infrastructure Australia identified two major challenges in the water sector in its initial audit:

- In urban areas, inconsistent adoption by jurisdictions of best practice water planning, cost-reflective water pricing and independent regulation; and
- In many regional towns, water quality does not always meet health standards (raising the risk of health issues), and short and long-term water resource planning is often inadequate.

Securing urban water supply

An urban water review by Infrastructure Australia has highlighted a number of inconsistencies with urban water management that threaten to jeopardise the efficient supply of water and water security in urban areas.

These include:

- Water planning is a significant issue, with few jurisdictions demonstrating (i) robust and permanent arrangements for forecasting water supply and demand, or (ii) a robust planning process to ensure that demand is met through supply augmentation or demand side measures;

- Limited exploration of all possible supply options, such as rural-urban trading and the application of recycled water for potable use. As a result, jurisdictions sometimes select expensive or otherwise sub-optimal water supply solutions without fully considering alternative lower cost options; and
- Slow progress towards cost reflective pricing in many jurisdictions. As a result, many users are not meeting the full costs of their water use, which leads to higher demand and a lack of funds for investment in new sources of supply.

Infrastructure Australia is therefore recommending progress be advanced at an inter-governmental level to: enshrine and formalise water planning processes, particularly for major cities; design arrangements that allow for large water users to decide the level of supply reliability they receive; mandate consideration of all potential supply options; and ensure faster progress towards the introduction of cost reflective pricing.

Regional water quality and security

Initial findings into the review of regional water quality and security indicate that the following issues exist in regional water management:

- Many regional water authorities do not have the scale to effectively manage their water quality and security responsibilities; and
- As was the case with the urban water review, prices are not set (or regulated where regulation exists) at a cost reflective level.

Improved water planning and pricing

Infrastructure Australia recently published the Urban Water Review and will publish the Regional Water Review later in 2010. Infrastructure Australia will work with national and regional stakeholders to progress a plan for action to address the key issues raised by the reviews.

Infrastructure Australia believes that timely and efficient investment in water supply and distribution would be brought forward by the involvement of the private sector (or by public corporations operating under commercial principles) within the context of an appropriately planned and independently regulated water market.

Infrastructure Australia believes pricing should ordinarily provide the means of funding new water infrastructure. Appropriate market reforms will ensure that the majority of investments in water supply and distribution assets can usually be financed through user charges.

Next steps

- Infrastructure Australia will pursue reforms relating to both regional towns' and major cities' water supplies. Many of the reforms will be based on the principles that customers should fund the efficient costs of water services through independently regulated, cost-reflective prices. Infrastructure Australia recognises that the reforms will likely face resistance in areas where the existing practice does not reflect these principles.
 - Infrastructure Australia remains open to the argument that in some regional towns it may not be possible to establish efficient water supply arrangements. However, there is room for extensive reform in how regional water authorities operate before those conditions would become clear and before the case for further Commonwealth financial assistance could be made.
 - Infrastructure Australia will pursue reform in the major urban and regional towns' water sectors primarily through the Council of Australian Governments, the National Water Initiative and through incentives in Commonwealth-State funding arrangements.
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A True National Energy Market



5 A True National Energy Market

The goal: Reliable, safe and cost-efficient energy supplies for our homes, schools, hospitals, and industries.

Australia needs world class energy generation (power stations, wind farms, etc.) and transmission and distribution infrastructure (poles, wires and pipes). A real challenge for the energy sector is the significant changes that will be required from the market as a result of policies aimed at moving Australia to a lower carbon economy – in particular, new renewable energy targets and the proposed emissions trading scheme.

To achieve these changes, efficient and effective arrangements for ensuring investment in energy generation and in energy transmission and distribution networks must be in place.

Infrastructure Australia's national challenges for the energy sector

Infrastructure Australia's audit identified two challenges for energy transmission networks:

- The inter-regional electricity transmission network may not provide for effective competition between regions; and
- The electricity transmission network may not be capable of facilitating significant increases in renewable energy generation.

These challenges are particularly urgent, since new and often remote sources of generation are due to come on stream in the next decade, particularly in response to requirements for more renewable energy generation.

The audit highlighted concerns that current regulatory and pricing arrangements may be acting as a disincentive to investment.

Potential solutions

Infrastructure Australia understands that the Australian Government's energy regulation bodies, in particular the Australian Energy Market Commission, the Australian Energy Regulator and the Australian Energy Market Operator, recognise these challenges.

The Australian Energy Market Commission has proposed a number of changes to facilitate timely and efficient investment in energy transmission by the private sector within the context of an independently regulated market.

The Commission and the Regulator propose changes to the regulatory framework to address these issues. In particular:

- A new Regulatory Investment Test for Transmission to provide a single framework for all transmission investment; and
- The introduction of a new Scale Efficient Network Extension Model, with more appropriate cost sharing between new renewable energy projects.

A review by Infrastructure Australia has emphasised strong support for the continuation of the current market-based framework for energy network operation and investment and for the proposed changes.

Despite the proposed changes, there is a risk that the market may not respond quickly enough. In response to these concerns, the Australian Energy Market Operator will review progress regularly, so that prompt action can be taken if the new arrangements do not facilitate timely market reaction.

Reform priorities

Infrastructure Australia strongly supports the initiatives currently being proposed by the Australian Energy Market Commission and Australian Energy Regulator to help move Australia towards a world class energy grid.

Infrastructure Australia is confident that the policy and regulatory reforms proposed are likely to bring forward the necessary investment in a timely manner.

Investment priorities

Infrastructure Australia believes that pricing should ordinarily provide the means of funding new energy infrastructure and that the current and proposed regulatory arrangements will lead to timely and sufficient investment in energy transmission by the private sector within the context of an independently regulated market.

At the time of its audit, Infrastructure Australia saw the prospect of an increase in the renewable energy target as providing the primary driver for new investment in renewable energy generation. Regulatory certainty can be a significant factor in investment decision-making and the Australia Government has recently moved to provide that certainty by proposing amendments to the regulatory framework for renewable energy certificates. Infrastructure Australia considers that the current policy and proposed changes to the regulatory environment are likely to provide the necessary conditions to promote investment in nationally efficient renewable energy generation.

Another major issue related to climate change is its potential impact on transmission infrastructure and the reliability and resilience of that infrastructure. The impacts can be physical degradation as a result of higher temperatures, storm events and inundation, or as a result of our pursuit of lower greenhouse emissions.

As we move to more renewable energy generation from remote areas, the transmission network is likely to face greater variation in load (because one of the major sources is wind, which provides only intermittent supply). As intermittent energy sources become a greater part of the supply mix, there will be a need to increase the supply of sources that can ensure consistent levels of supply. This is likely to come from a significant increase in gas fired generation. With this development will come greater pressure on the reliability of gas pipelines – something which to date has not been as high a priority as has the electricity network.

The energy regulatory agencies recognise these challenges and are already positioning to ensure energy reliability under the emerging supply environment. The Gas Statement of Opportunities, for example, will seek to predict where augmentation might be required to maintain an acceptable level of supply reliability and provide signals that will promote the necessary investment.

Next steps

- Infrastructure Australia will monitor the effectiveness of the proposed changes to the regulatory arrangements covering transmission investment and the connection of remote renewable energy generation.
 - Infrastructure Australia will also monitor the effectiveness of the recently proposed changes to the renewable energy certificate scheme in providing the conditions to support investment in renewable energy generation.
-



Competitive International Gateways



6 Competitive International Gateways

The goal: The improvement of Australia’s trade performance by cutting the cost of moving goods and bulk commodities through ports and airports, and related logistics chains; and cutting the cost of moving passengers through international airports and land side transfers.

Infrastructure Australia’s national challenges for our international gateways

Severe congestion and delays are being experienced on the land side of some metropolitan ports, and the sea side of some bulk commodity ports. In some cases, capacity is already constrained, dampening exports and increasing the costs of imports.

Projections suggest very substantial growth in port activity in the medium term, and left unaddressed, the impact of growth constraints will intensify.

The infrastructure audit identified the absence of a national approach to international gateways such as ports, particularly in regard to planning of land side links and investment in new port capacity, as a key factor leading to poor supply side responses to increased demand.

Congestion and delays around our major international airports, notably Kingsford Smith Airport in Sydney, is significant. If projected growth in aviation demand comes to pass, this congestion will increase substantially.

Infrastructure Australia believes that reforms and investment to address the capacity issues are key national priorities.

Ports

There is widespread agreement that a national approach to ports is required. Infrastructure Australia has commenced the development of a National Ports Strategy in conjunction with the National Transport Commission. The work is being undertaken in close consultation with stakeholders.

An emerging key theme is the need for preparation for the future growth of port activity. This will require expansion of existing ports and/or development of new ports, along with a significant increase in the capacity of land side transport and storage connections, including roads, railway lines and in some cases intermodal terminals.

There are challenges in both; for example, dealing with the impact on urban areas from the growth of existing container ports, and dealing with environmental issues from the development of new bulk ports.

Given the lead times between concept and implementation, it is in Australia’s national interest to tackle these challenges – and to resolve the tension between industry and communities near ports – as far in advance as possible.

Potential approaches include:

- Better national planning for ports, including revised governance arrangements and achievement of more certain and predictable outcomes from planning activities, particularly those aimed at shortening the time between development of a proposal and actual operation at a port;
- Dealing with urban encroachment at ports and onto related transport corridors;
- Providing the community and industry with greater certainty regarding longer term intentions for port development through publication of governments' intentions regarding port development; and
- Resolving port land side issues, including responsibility for upgrading land side links.

National Ports Strategy

Infrastructure Australia in conjunction with the National Transport Commission is developing the National Ports Strategy to drive the development of efficient, sustainable ports and related freight logistics, balancing economic and productivity imperatives and potential community impacts.

A draft National Ports Strategy was released for comment in May 2010. The National Ports Strategy will be finalised in 2010-11.

Investment priorities

Due to continued demand for bulk exports, the strategic case for expansion appears strong. There is therefore a strong case for the inclusion of bulk export capacity enhancements in the Infrastructure Australia national pipeline, whether those projects are the extension of existing terminals or the development of new ports.

Indeed, submissions to Infrastructure Australia in relation to the Pilbara and Mount Isa and ongoing work in relation to Ports of Darwin and Oakajee suggest that, in order for Australia to unlock the full potential of its mineral wealth, there will need to be major investments in the export chain beyond our ports. In particular, investment will be required in land side transport links (i.e. road and rail connections from mines to ports) and in associated infrastructure (housing, power supply etc.) which is essential to support the economic and residential growth that comes with highly valuable export supply chains.

Infrastructure Australia is therefore encouraging proponents to develop detailed business cases for such investments for inclusion in the national priority pipeline, within the context of the work on the National Ports Strategy.

It is necessary to address unrealistic expectations that an announcement of a new expansion plan means work on the project will start immediately and government funding will be made available to all projects. In effect this is leading to a reluctance to plan or provide the community and industry with confidence about government intentions simply because government funds may not be available, when in many cases government funds are not needed.

In the case of port expansion plans, a key focus of the strategic work on ports, is whether the private sector or the relevant port authority can finance the projects on the basis of future port charge revenues.

Whilst Infrastructure Australia will support nationally important projects regardless of the appropriate funding source, a compelling argument for public funding will need to be made before Infrastructure Australia recommends the allocation of public funds to port projects, for instance on an equity basis.

Airport expansion

Submissions for funding support to expand airports have also been received. However, as it should be possible to recoup development costs through landing and other charges, the case for Australian Government funding has not been demonstrated at this time.

Intermodal terminals

Intermodal terminals, where freight can be transferred between one mode of transport and another, e.g. between road and rail, play a vital role in both import and export activities. All the main ports have a series of intermodal terminals handling their freight, providing key links to the national freight network.

Infrastructure Australia strongly supports the development of new intermodal capacity in our cities, and reservation of options in growth areas.

Road and rail links to ports and airports

Land side links to Australia's ports and airports are vital components of import and export supply chains. Road and rail access, including intermodal terminals, needs to be sufficient to cater for the demand generated at the ports, without excessive disruption to other road or rail users – notably passenger trains and private vehicles.

Next steps

- Infrastructure Australia's forthcoming National Ports Strategy will recommend significant reforms to ports planning, governance and funding arrangements;
 - The National Ports Strategy will be submitted to the Council of Australian Governments for consideration and decision later this year.
-



A National Freight Network



7 A National Freight Network

The goal: A national freight network capable of efficiently moving freight by rail and road.

A new national approach to freight

Infrastructure Australia's infrastructure audit argued that rail and road freight infrastructure planning and investment should no longer be undertaken in isolation from each other. Australia needs a coordinated and integrated freight network that is better linked with economic and land use planning, otherwise the potential investment benefits will not be fully realised.

Developing a National Freight Network

Infrastructure Australia is in the early stages of developing a strategy for a national freight network. The first step involves the definition of a single national freight network. A range of policy issues relating to the management of this network is also under consideration.

This includes a more consistent approach to freight network studies, forecasts and gap analysis; rail governance, rail/road modal integration; freight priority; and less reliance on government funding. Whilst the work is in its early stages, it seems likely that:

- It should address the capacity of the nation's freight system to operate as an inter-connected network serving the freight nodes of the major settlements supplying the movement of more than one class of goods;
- Some significant transport infrastructure, and infrastructure that may merit a contribution from public funding, may not necessarily need to be part of a national freight network;

- The network will need to cover the major container and industrial ports as these are Australia's principal nodes for general freight traffic;
- There needs to be a focus on the need to improve freight productivity, subject to sustainability and community amenity being improved, and as such the strategy will need to involve all three levels of government as well as industry;
- More consistency will be required in governance in terms of ownership, community service obligations, regulation, and planning;
- There needs to be a long term pipeline of projects to improve and extend the seamless networks;
- Significant practical issues for the road freight network would include use by high productivity vehicles, freight priorities, and pricing/ charging;
- There should be a robust and consistent assessment framework for proposed projects involving road and rail terminals;
- Consideration needs to be given to gaining access to the networks from elsewhere; and
- Jurisdictions will be asked to develop and publish formal freight plans, identify and reserve terminals and road and rail corridors, provide priority access to freight vehicles on certain corridors and to ensure access for high productivity vehicles on the national network.

The National Freight Network Strategy will focus on improving the productivity, amenity and safety of Australia's most significant general freight tasks. Such improvements will require statements of national ambitions to set longer term directions for a future network which is configured and operated for general freight. Measurement of progress towards these ambitions is necessary.

There is much to do to progress towards such a national freight network, and tackle the congestion and impairments that occur on existing infrastructure today. More and different infrastructure is needed. This means that a pipeline of potential major freight configuration and capacity projects will need to be established. These would include projects driven by the need for complementarities in road productivity improvements, rail augmentation and intermodal terminals. Relevant studies and data for these would need to be made publicly available.

Preservation of options for interoperability and best practice vehicle configuration is also needed to enable the improvements to be made. This would be an important initial step towards a National Freight Network Strategy. Implementation of a National Ports Strategy, the Council of Australian Government's Road Reform agenda, innovations for intelligent network management and future tax and pricing arrangements would all be highly relevant to the National Freight Network Strategy.

A national freight network also needs to be viewed in an historical context, to recognise and build on the long-term reforms that have moved Australia towards the aim of a single national economy.

Concepts for the future could include:

- Standardisation of more track on general freight railways (notably within Brisbane and further to the north), to Hastings in Victoria, and towards Bunbury in Western Australia;
- Separate management of task-specific railways (for example the Hunter coal chain);

- Unified governance of Australia's general freight railway under the Australian Rail Track Corporation, particularly the line west of Kalgoorlie and the line to the north of Sydney;
- Development of freight corridors and precincts in cities, e.g. Moorebank in Sydney;
- Creation of a commercially orientated high productivity road network within cities and to container ports;
- Separation of urban passenger rail from the freight rail network in major capital cities; and
- Further development of longer train lengths on the national rail network and, over time, double stacking by containers on the inter-capital city freight rail network.

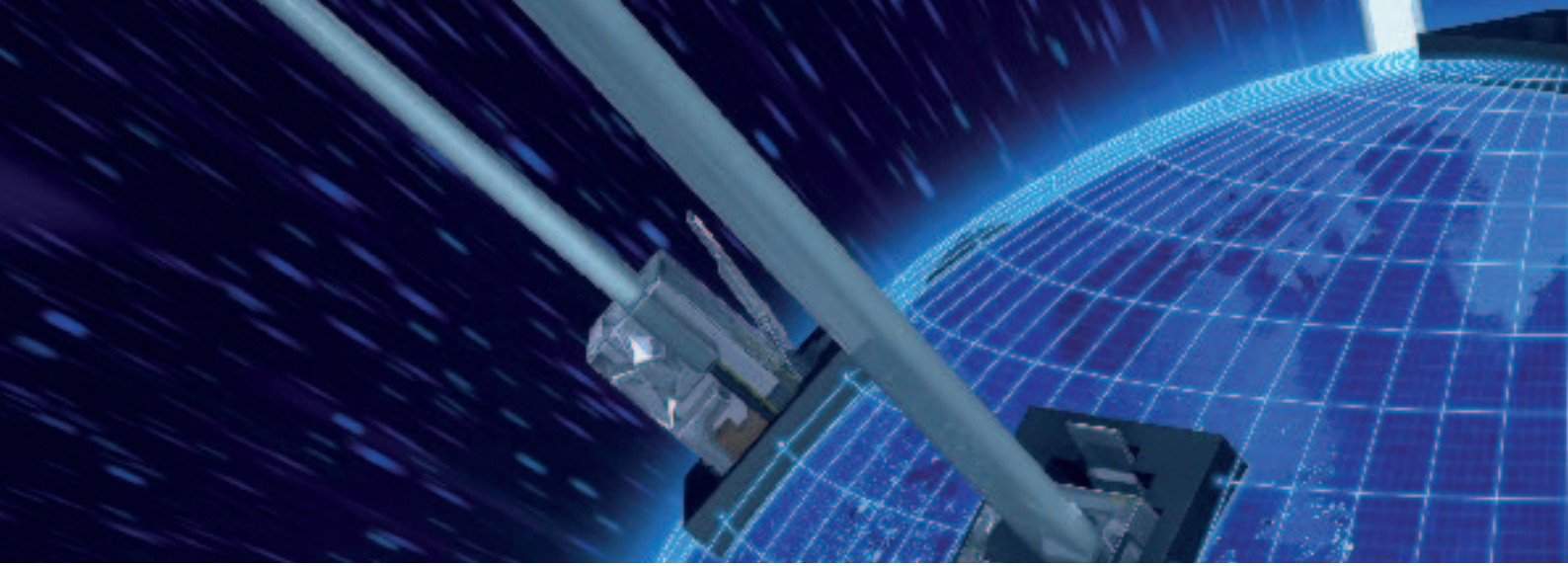
Reform and investment priorities

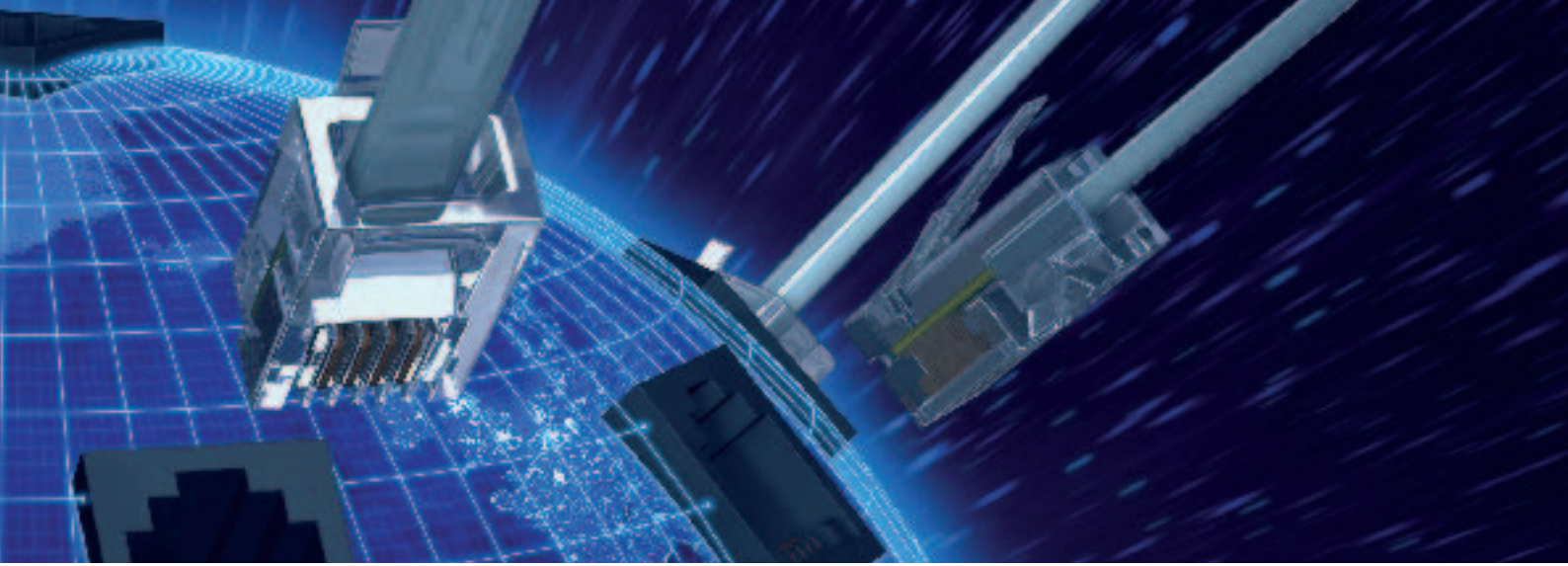
This national strategy work is ongoing, and recommendations covering this will be published for comment later this year.

Infrastructure Australia does not believe that this national approach should delay project assessment, since sound assessments can be made of proposed projects, provided they are analysed within a network context and not in isolation.

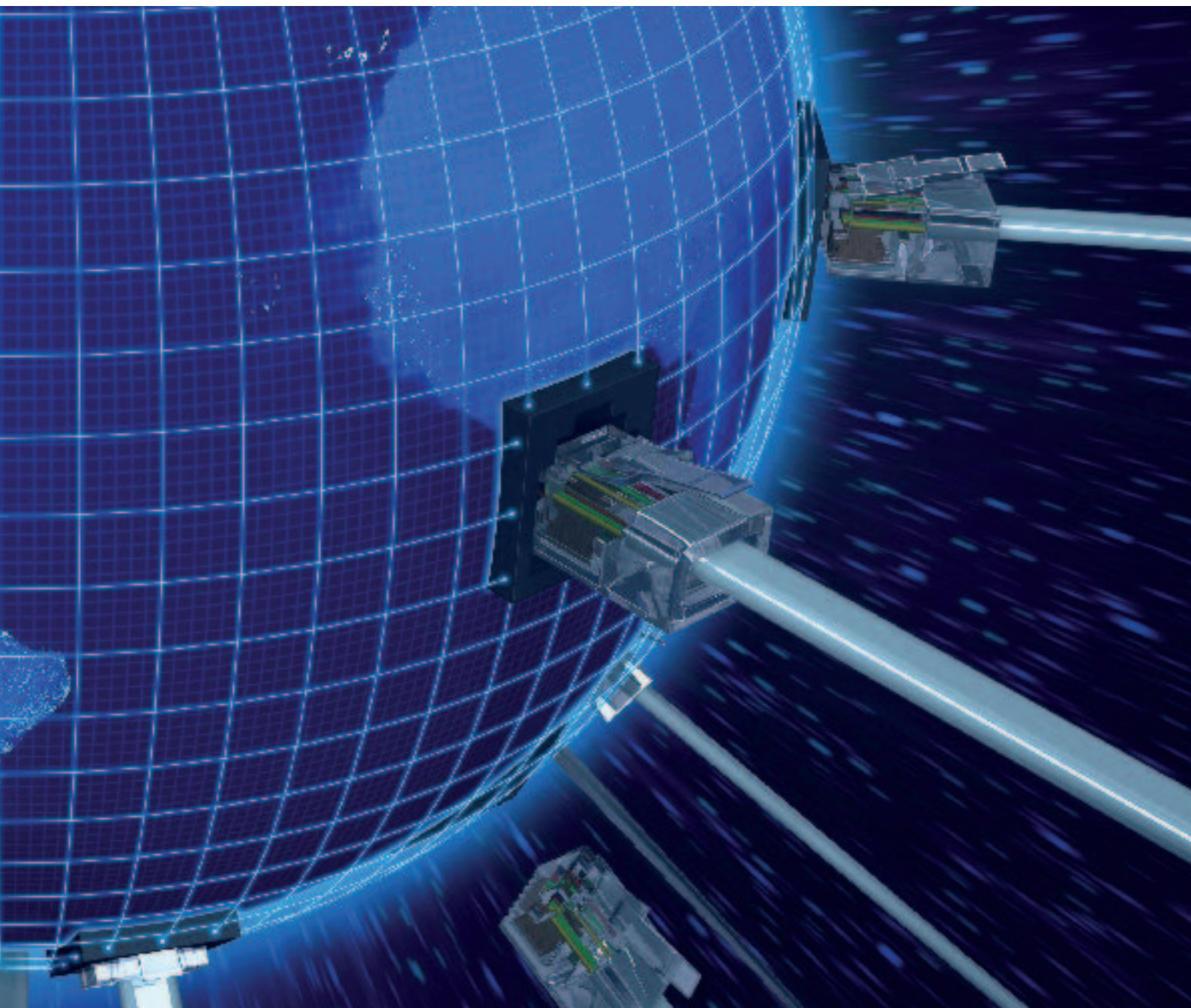
Next steps

- Infrastructure Australia will soon publish a discussion draft incorporating possible planning, regulatory and governance reforms in the freight sector;
 - A key component of the work is likely to be the definition of a single national freight network and recommendations relating to a range of policy issues affecting this network;
 - The National Freight Strategy is also likely to include a more consistent approach to freight network studies, forecasts and gap analysis; rail governance, rail/road modal integration; freight priority; and less reliance on government funding; and
 - Infrastructure Australia will provide formal advice to the Council of Australian Governments, in the form of a proposed National Freight Strategy, in late 2010.
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A National Broadband Network



8 A National Broadband Network

The goal: An accessible and fast broadband network to support Australia's international competitiveness.

Infrastructure Australia's approach to the National Broadband Network

Noting the opportunity to address disparities in access to communication technologies in both urban and rural areas, Infrastructure Australia supported an investment from the Building Australia Fund to develop the National Broadband Network. A critical benefit is its potential to enable our nation's infrastructure to perform as 'smart infrastructure'.

Infrastructure Australia notes significant recent progress towards the implementation of the National Broadband Network and will continue to observe developments in this area. More broadly, Infrastructure Australia will continue to be interested in whether Australian telecommunication networks provide a strong basis for the continued growth and productivity of the Australian economy through partnership with other infrastructure sectors.

Capturing the potential of smart infrastructure

A new National Broadband Network will be fundamental to capturing the potential of 'smart infrastructure' to transform how we interact with the energy, water, and transport sectors.

'Smart infrastructure' refers to infrastructure that has been 'enabled' through information technology to provide a range of intelligent services, such as monitoring of its own performance or communicating with other infrastructures in order to improve network efficiency. Infrastructure Australia recognises the powerful potential for 'smart infrastructure' to enable additional economic, social, and environmental benefits to be secured. Indeed, by making better use of existing infrastructure, 'smart infrastructure' technologies have the potential to contribute significantly to helping delay the expense of additional investments.

Consider the potential benefits, for example, of Intelligent Transport Systems (ITS) which provide commuters with real time information about the relative congestion, timeliness and price of various travel options to help them make informed decisions. Other existing examples include bridges that are enabled to monitor their own condition and warn of impending accidents.

The benefits are not just limited to transportation. Smart energy meters can enable consumers to make a range of informed consumption choices, including

- the choice of energy source;
- their consumer's level of tolerance for interruptions to supply (that is, which appliances can be interrupted and for how long?);
- the pricing tariff based on the consumer's sensitivity to price;
- the emissions intensity of consumption; and
- the management of appliances. For example, the use of programmed meters that can deliver just-in-time hot water obviating the need to waste energy keeping large quantities of water at a high temperature.

These are only some of the benefits that 'smart infrastructure' can help deliver. The Infrastructure Australia Council decided in 2009 that project proposals would be required to address the 'smart infrastructure' dimension but there is further progress to be made in realising the benefits on a more widespread basis.

Next steps

Infrastructure Australia will continue to observe progress with the implementation of the National Broadband Network and promote the 'smart' dimension of infrastructure.

More broadly, Infrastructure Australia will continue to be interested in whether Australian telecommunication networks provide a strong basis for the continued growth and productivity of the Australian economy through partnership with other infrastructure sectors.



Essential Indigenous Services



9 Essential Indigenous Services

The goal: Improved infrastructure and services for Indigenous communities.

Essential indigenous services

The Australian Government has appointed a Coordinator-General for Remote Indigenous Services to play the key role in providing essential Indigenous services, through the implementation of the National Partnership Agreement on Remote Service Delivery.

Infrastructure Australia's role

It would, however, be remiss of the nation's leading infrastructure advisory body not to comment on infrastructure issues for our indigenous communities, particularly those in remote areas.

Infrastructure Australia has consulted closely with the Coordinator General for Remote Indigenous Services and acknowledges his contribution in this area.

Any strategic blueprint for Australia's Indigenous infrastructure needs should consider these issues:

- 1 Key infrastructure gaps in many indigenous communities and major deficiencies in the management and maintenance of infrastructure are barriers to development in remote Australia, and are key contributors to poor health and economic outcomes. This appears symptomatic of governance and accountability failure and a lack of basic town and forward planning in many communities. There are of course exceptions where the lessons learnt could be applied elsewhere.

- 2 This highlights the need for management of capital projects to be centralised and coordinated with other government activity in remote communities. Apart from providing for more efficient project management this could allow 'building in' of economic development elements such as indigenous training and employment, the use of local materials and other broader policy objectives. This work should be a subset of the outcomes of local implementation plans being developed within the 29 Remote Service Delivery communities where priority attention is currently being given.
- 3 In addition, road and air access issues highlight another area where responsibility appears blurred, with a resultant lack of action. In relation to roads, it appears that the systemic problem is the current method of allocating road funding to local government, resulting in a lack of all weather access afforded to most other Australians. Air access also needs focus.
- 4 Furthermore, the absence of a regularised public and private housing sector is exposed as a real obstacle in bringing service levels in these communities up to an acceptable standard.

Next steps

In response to these serious issues Infrastructure Australia continues to focus on action for remote communities and to work with governments, industry and the community to attempt to resolve some of the backlog.

Appendices



Appendix A

Reform and Investment Framework

| Stage | Description | Components Required | Rationale |
|---------------------------|--|---|---|
| 1. Goal Definition | <p>Definition of the fundamental economic, environmental and social goals that Australia seeks to achieve. For example:</p> <ul style="list-style-type: none"> sustained economic growth and increased productivity; lower carbon emissions and pollution; and greater social amenity and improved quality of life. | <ul style="list-style-type: none"> Formalised, comprehensive, and agreed goals, objectives, targets and indicators. Specific and quantified goals, objectives and targets. Outline how the initiative fits within existing infrastructure plans. Outline of how the goals and objectives align with those of other parties (e.g. National – including Infrastructure Australia’s Strategic Priorities, State/Territory, Regional, Local level and across sectors). | Goals are needed against which problems and solutions can be assessed. |
| 2. Problem Identification | Objective, specific, evidence-based, and data rich identification of problems of infrastructure systems and networks that may hinder the achievement of those economic, environmental and social goals. | <ul style="list-style-type: none"> Situation Assessment – a review and analysis of the current status. Scenario Assessment – a review and analysis of the future status that identifies: <ul style="list-style-type: none"> Driver and trends of the current and future situation Base-case using the current trends (certainties) Alternative futures using future trends (uncertainties) A list of Problem Statements that can be accurately defined and quantified. | 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 economic /environmental/social 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 under-investment, e.g. regulatory environment). | Understanding the causes allows effective and targeted solutions to be created. Infrastructure is often not the only cause of problems. |

| Stage | Description | Components Required | Rationale |
|-----------------------------|---|---|---|
| 5. Option Generation | <p>Development of a full range of interventions that address the issue in the domains of:</p> <ul style="list-style-type: none"> • reform (regulation, legislation, governance); and • investment. | <ul style="list-style-type: none"> • Identify the full range of Options for each problem from the domains of: <ul style="list-style-type: none"> – reform – e.g. independent pricing, regulation, approvals, coordination; and – investment – e.g. better use through demand management, capacity increases. | <p>Identification of a broad range of options – across reform and investment areas – rather than relying on early judgements or pre-conceived ideas – is more likely to identify the best solution or package of solutions.</p> |
| 6. Option Assessment | <p>Strategic analysis and cost-benefit analysis to assess those options. 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 goals is measured and understood.</p> | <ul style="list-style-type: none"> • Qualitative and quantitative analysis including: <ul style="list-style-type: none"> – Strategic analysis – using high-level profiling assessment – to assist in the analysis of a large number of options; and – Rapid analysis – using a high-level appraisal assessment – such as a Rapid Cost-Benefit Analysis – to assist in the analysis of a smaller of options. | <p>An understanding of the strategic and economic value along with the risks and uncertainties in delivery – is essential to understand how the options or a package of options will achieve the fundamental goals outlined in Stage 1.</p> |
| 7. Solution Prioritisation[| <p>Identification of policy and investment priorities from the list of solutions, on an objective basis that gives primacy to the Benefit-Cost Ratio of initiatives, but is balanced by considerations such as strategic fit and deliverability (including risk and affordability).</p> | <ul style="list-style-type: none"> • A structured and objective evaluation framework – that reflects the primacy of Cost Benefit Analysis along-side the strategic value and deliverability risk – is used to make decisions on the long-term infrastructure pipeline. • A review of the solution is made against the fundamental goals/problem identification. | <p>Benefit-Cost Ratios provide the best available objective evidence as to how well solutions will impact on the goals outlined in Stage 1 – but are not the whole story.</p> |

Appendix B

Infrastructure Australia's Reform and Investment Priorities

Infrastructure Australia has updated the pipeline of infrastructure priorities for 2010, bringing together the results of the strategy work and the assessment of submissions. The results are summarised in the infrastructure priorities table below.

There are two significant changes to the structure of this year's table.

Firstly, it includes new capacity investments, and a series of better use measures and regulatory/pricing reform recommendations that have developed out of the national strategy work. (These better use and reform recommendations are highlighted in italics in the table below).

Infrastructure Australia believes that reforms to ensure existing infrastructure is better used should be a top priority for Australia; as such reforms have significant economic, social and environmental benefits with less financial and other costs than investment in new capacity.

Secondly, there is a greater degree of differentiation between initiatives in the pipeline, to provide greater transparency as to the potential of the initiatives and their stage of development. The four new categories are:

Early stage. 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. For example, the solution itself is at an early stage of development (for instance the location is not finalised or capital costs not yet estimated); or other potential solutions haven't yet been considered.

Real potential. Initiatives in this category clearly address a nationally significant issue or problem to be addressed and there has been a considerable amount of analysis of potential solutions. However, development work is still underway and the analysis is ongoing – for

example a robust economic appraisal has not been completed.

Threshold. 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. For instance, integration of the proposal into the wider network might require further planning; a final comprehensive business case was not yet complete, or the deliverability strategy is incomplete. Projects in this category are, as the category name suggests, on the threshold of being ready to proceed, subject to the condition that the outstanding issues are resolved. (The Port of Darwin and Oakajee Port have been included in the threshold category because Australian Government funding has been allocated subject to specific conditions.)

Ready to proceed. This category corresponds to last year's 'priority' projects, and contains projects that meet all of Infrastructure Australia's criteria, i.e. they make a strong contribution to strategic policy goals, are supported by a methodologically robust cost-benefit analysis that suggests the benefits will considerably outweigh the costs, and have a robust delivery plan in place.

Brief summaries of all the initiatives contained in the 2010 pipeline, and where relevant, an indication of key issues requiring further attention by proponents and others, are included in Appendix C.

At this stage of project development, projects listed in the 'early stage' and 'real potential' categories, mean the proponent has not been able to provide a comprehensive business case, including detailed demand and capital expenditure forecasts. For projects in the 'threshold' and 'ready to proceed' categories, more detailed information has been provided by the proponent.

Table 1: Infrastructure Australia's Reform and Investment Priorities (Proponent, Proponent BCR(1) (2) (3)

| | Early Stage | Real Potential | Threshold | Ready to Proceed |
|-------------------------------------|--|---|--|--|
| Transforming Our Cities | <p>Initiatives address a nationally significant issue or problem, but the identification or development of the right solution is at an early stage.</p> <p>Melton Rail Line Duplication and Electrification (Vic; \$1,300m)</p> <p>Sydney's Future Public Transport Network (NSW; n/a)</p> <p>Gold Coast Rail (SE Qld Mayors; \$2,875m)</p> <p>North-West Sydney to CBD Rail Link (AIS; \$7,000m)</p> <p>Hobart: A World Class, Liveable, Waterfront City (Tas; \$90m)</p> | <p>Brisbane Inner City Rail Capacity Upgrade (Qld; \$14,000m)</p> <p>Melbourne Metro Stage 2 (Vic; tbc)</p> <p><i>Managed Motorway Proposals: NSW, Victorian, South Australian and Western Australian proposals (NSW, SA, WA, Vic; \$3,200m)</i></p> <p><i>Integrating Sydney's Motorway Network</i></p> <p>Moreton Bay Rail Link (Moreton Bay Regional Council/ Qld; \$1,100m)</p> <p>Darra-Springfield Rail and Road project (Qld; \$2,400m)</p> | <p><i>Support for commitment to urban plans for all cities by 2012</i></p> <p><i>Jurisdictions to satisfy the Council of Australian Governments criteria in their urban plans</i></p> <p><i>Jurisdictions to commit to common standards for public transport assessment</i></p> <p>South West Rail Link (NSW; \$2,400m)</p> <p>Eastern Busway (Stages 2b and 3) (Qld; \$825m)</p> <p><i>Managed Motorways Proposals – SE Queensland (Qld; \$782m)</i></p> <p>Northern Link Road Tunnel (BCC; \$1,780m)</p> | <p>Melbourne Metro Stage 1 (Vic, BCR = 1.5 (including WEBS), Capex = \$4,900m)</p> <p><i>Integrated Transit Corridor Development - Route 86 Demonstration, Project (Vic; BCR = 4.0; Capex = \$28m)</i></p> |
| Adaptable and Secure Water Supplies | <p>An Innovation Strategy for Tasmania: Focus on Food Bowl Concept (Tas)</p> <p><i>Non-Urban Water Metering (SA; \$105m)</i></p> | <p>Water Security Program (ACT; \$551m)</p> <p>Tasmanian Water and Sewerage Reform (Tas; \$1,000m)</p> <p>Installation of Low Flow Bypasses in the Mount Lofty Ranges (SA; \$47m)</p> | <p><i>Infrastructure Australia proposes reforms around planning for water security, independent pricing, competition in bulk supply and consumer choice over levels of reliability</i></p> | |
| A True National Energy Market | <p>Eyre Peninsula Port Proposals (SA, Centrex/WP ; \$tbc)</p> <p>Port of Hastings (incl. Peninsula Link rail freight corridor) (Vic; \$tbc)</p> <p>Port Hedland Inner Harbour – Capacity Enhancements (WA, NWIOA, Hancock; \$3,400m)</p> <p>Road and Rail Access and Port Upgrades at Bunbury (WA, BPA/BWA/SWDC; \$756m)</p> <p>Pilbara Cities (WA; \$2,900m)</p> | <p>Smart Grid Demonstration Pilot Project (ACT; \$150m)</p> <p>Heywood Interconnector Upgrade (SA; \$80m)</p> <p>Mid-West Energy – Stage 2 (WA; \$795m)</p> <p>Abbot Point Multi Purpose Harbour (Qld; \$2890m)</p> <p>Bell Bay Intermodal Expansion Project (Tas; \$150m)</p> <p><i>Smart Port ICT (Vic; \$16m)</i></p> <p>Melbourne International Freight Terminal (Vic; \$260m)</p> <p>Gateway WA – Perth Airport and Freight Access (WA; \$600m)</p> <p>Road Freight Access to Port Botany and Kingsford Smith Airport – M5 East (NSW; \$4000m)</p> | <p><i>Infrastructure Australia supports proposed reforms to regulatory provisions regarding connection of remote renewable energy generation and electricity transmission connections between states.</i></p> <p>Oakajee Port (potential equity injection) (WA; \$4,000m)</p> <p>Darwin Port Expansion (potential equity injection) (NT; \$336m)</p> <p>Moorebank Intermodal Terminal (Comm/NSW; \$tbc)</p> | |
| Competitive International Gateways | | | | |

| | Early Stage | Real Potential | Threshold | Ready to Proceed |
|--|--|---|---|--|
| | Initiatives address a nationally significant issue or problem, but the identification or development of the right solution is at an early stage. | Initiatives in this category clearly address a nationally significant issue or problem and, there has been a considerable amount of analysis of potential solutions. | 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. | Initiatives in this category meet all of Infrastructure Australia's criteria. |
| Competitive International Gateways <i>(continued)</i> | | Road Freight Access to Port of Brisbane and Brisbane Airport – Port of Brisbane Motorway Upgrade (Qld); \$934m Road Freight Access to Port of Melbourne – Westlink (Vic); \$5,000m Freight Access to Port of Adelaide – Northern Connector (SA; \$1,120m) | | |
| National Freight Network | Australian Digital Train Control System (APA; \$20m) Mount Isa – Townsville Rail Corridor Upgrade (QLD; \$788m) Bruce Highway Corridor Upgrades (QLD; n/a) Transcontinental Rail Link – Mildura to Menindee (MDC; \$400m) | East West Rail Freight Corridor (ARTC; \$n/a) North South Rail Freight Corridors (including Northern Sydney Freight; \$n/a) Eastern Goldfields Railway – Freight Gateway Upgrade (West Net; \$75m) Advanced Train Management System (ARTC; \$500m) Western Interstate Freight Terminal (Vic; \$2,314m) Green Triangle Freight Transport Project (SA/Vic; \$340m) | | Adelaide Rail Freight – Goodwood and Torrens Junction (SA, BCR = 1.5; capex = \$418m) Federal Highway Link to Monaro Highway – Majura Parkway (ACT, BCR = 4.0; capex = \$220m) Pacific Highway Corridor Upgrades (NSW, BCR = 1.5; capex = c. \$6,000m) |
| A National Broadband Network | | | | National Broadband Network |
| Essential Indigenous Infrastructure | | Submissions regarding indigenous infrastructure have been referred to the Coordinator-General for Remote Indigenous Services | | |
| Total capex | \$19,634m | \$41,522m | \$10,123m | \$11,566m |
| Total estimated Infrastructure Priority Pipeline capital costs: \$82,845m | | | | |

(1) See project summaries at Appendix C for explanation of proponent acronyms

(2) 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.

(3) Unless stated otherwise, the capital cost and benefit cost ratios are those estimated by the proponent.

Appendix C

Description of Infrastructure Priorities

The following provides a brief description of infrastructure priorities listed in Table 1. Proponents are shown in brackets. Unless stated otherwise, project costs are 'outturn' estimates provided by the proponent.

Priorities under the Transforming our Cities Theme

South West Rail Link (New South Wales Government)

The NSW Government has established plans for a South West Growth Centre to accommodate over 300,000 people on Sydney's south-western fringe. The South West Rail link is a proposed 11km line from Glenfield (on the existing rail network) to Leppington in the heart of the growth centre area. The NSW Government has estimated the project's capital cost at approximately \$2.4 billion, inclusive of connecting works at Glenfield, two new stations, rolling stock and a new train stabling facility at Leppington.

Some issues, for example, how train services from the new link would interact with the rest of the rail network, need to be further explored. In addition, opportunities to maximise the benefits of the project, for example, the possibility of an additional station to service residential areas to the north of the line, also warrant further attention.

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

Buses are the major form of public transport in Brisbane's eastern corridor. Current road traffic congestion is resulting in increased bus travel times as buses share the road with motor vehicles. The Eastern Busway aims to provide a dedicated bus-only roadway between the University of Queensland and Capalaba, with connections to the inner city busway network. Stage 1, from the University to Buranda, is now complete, and Stage 2a is under construction. The proposal to Infrastructure Australia is for Stage 2b (\$685 million) and Stage 3 (\$140 million), and includes a number of high density residential/commercial developments at key interchanges along the route.

NorthernLink (Brisbane City Council)

NorthernLink is the fourth of five 'Transapex' projects designed to relieve congestion on Brisbane's arterial roads. NorthernLink runs from the west of the city to the north, and consists of a 5 km tunnel connecting the Western Freeway and the Inner City Bypass, thus completing a motorway standard link across the north west of the city. The \$1.78 billion project is currently in procurement, and Brisbane City Council plans to charge a toll to recover some of the project costs.

Work to plan the integration of the road into the wider transport network (for instance through bus priority measures and new bus services) is ongoing. The project's successful integration will be essential to deliver benefits to users across Brisbane's wider transport network, and to ensure the project makes a sustainable contribution to Brisbane's future growth.

Brisbane Inner City Rail Capacity Upgrade – Cross River Rail (Queensland Government)

The Cross River Rail project is a proposed dual track rail line under Brisbane's inner suburbs and CBD, aimed at increasing rail capacity to meet projected demand. Passenger demand in morning peak periods to the inner city is forecast to increase three-fold by 2026. The project is estimated to cost around \$8 billion for the south to north corridor, and around \$6 billion for a second stage west to north corridor. The project has the potential to support implementation of the Queensland Government's and Brisbane City Council's land use plans.

The Australian Government has committed \$20 million and the Queensland Government \$5 million, towards detailed feasibility studies, an environmental impact assessment process and a detailed business case. These investigations are scheduled to be completed in 2011.

Darra to Springfield Rail and Road Project (Queensland Government)

The project involves proposed rail and road upgrades in the corridor between Darra and Springfield in western Brisbane to support substantial population growth planned for Brisbane's western corridor. Stage 1, Darra to Richlands, is estimated at \$800 million. Stage 2 Richlands to Springfield is a \$1.6 billion package of works including 11km of dual track railway, a new station and 9km of four lane motorway.

Melbourne Metro Stage 1 (Victorian Government)

Melbourne Metro Stage 1 is a proposed rail line under inner Melbourne aimed at allowing a segregated 'metro-style' rail service to run from Sunbury (and Melton, once electrification is completed) to St Kilda Road via the CBD. The Victorian Government proposes that the Melbourne Metro 1 tunnel would be extended at a future date from St Kilda Road to Caulfield, where it would connect with the Dandenong Rail Corridor. The estimated cost of the project is \$4.9 billion.

The project was identified as a 'priority' project in Infrastructure Australia's May 2009 report. Detailed feasibility studies (funded with a \$40million Australian Government grant) are under way. The project has an estimated benefit cost ratio by the proponent of 1.3 without wider economic benefits and 1.5 including a proportion of modelled wider economic benefits.

Melbourne Metro Stage 2 (Victorian Government)

Melbourne Metro Stage 2 represents the final two stages in the Victorian Government's seven stage Melbourne Rail Network Upgrade Program: Section 1 upgrades on the Dandenong line south of Caulfield; Section 2 is proposed to be a new tunnelled link from Caulfield to St Kilda Road (where Melbourne Metro 1 is proposed to terminate).

Melton Rail Line Duplication and Electrification (Victorian Government)

This project involves a combination of track duplication and electrification between Sunshine and Melton (approximately 15km), and additional passing loops between Melton and Ballarat. The project is aimed at enabling an improved suburban rail service to operate from Melton and improvements in the capacity, regularity and reliability of regional rail services to and from Ballarat/Wendouree. The project is estimated to cost \$1.3 billion.

North-West Sydney to CBD Rail Link (Australian Infrastructure Solutions)

The proposal is to build a dual track heavy rail line from Rouse Hill (in Sydney's North West) via Epping and Chatswood to the south side of the Sydney CBD. The private sector proponent estimates the cost of the project would be \$7 billion.

Sydney's Future Public Transport Network (New South Wales Government)

The NSW Government submitted the Central to Westmead Metro project to Infrastructure Australia. Since providing the submission, the NSW Government has reprioritised the project, although it has indicated that it would like to undertake the project in the future.

There is a strong need to further develop Sydney's public transport network to ensure that Sydney continues to develop on a sustainable basis. Infrastructure Australia will continue to work with the NSW Government to this end.

Managed Motorways (Queensland, NSW, South Australian, Victorian, and Western Australia Governments)

The operation of the motorway networks in major cities 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 \$4 billion suite of proposals includes applying a range of measures to motorways in South East Queensland, greater Sydney, Melbourne, Adelaide and Perth.

The Queensland managed motorways proposal was rated as a pipeline project in Infrastructure Australia's May 2009 report. Provided that (i) current studies to examine the impact of the proposals on the rest of the road network do not highlight significant negative impacts, (ii) the specific systems are designed to accommodate changes in road management practices, and (iii) confirmation of rigorous capital cost estimates then this project is ready to proceed.

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. Creating a single Sydney Motorway Network Company to operate the network could greatly improve the efficiency of the network and potentially generate a revenue source to fund public transport infrastructure or future motorway expansions.

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. Elements of the project include: upgrades to the docks; urban regeneration; tertiary education housing redevelopment; expansion and refurbishment of the Hobart International Airport runway; and consolidation/development of polar research and logistical support. The project is estimated to cost in excess of \$90 million.

Gold Coast Rail (South East Queensland Council of Mayors)

This proposal is for upgrades and an extension of the existing passenger rail line from Varsity Lakes in the Gold Coast hinterland. The proposal is in two parts: capacity and reliability upgrades including duplication of the existing line between Coomera and Helensvale and a third track from Kuraby to Kingston (\$575 million), and an extension from Varsity Lakes to Elanora and Coolangatta Airport (\$2.3 billion).

Moreton Bay Rail Link (Moreton Bay Regional Council/ Queensland Government)

The Moreton Bay region between Petrie and Redcliffe has experienced considerable population growth and development over recent years.

The proposed Moreton Bay Rail Link project is a dual track passenger rail spur line (approximately 15km in length) between Petrie Station, on the main North Coast Rail Line, and Kippa-Ring (Redcliffe) to the east. Six new rail stations, pedestrian and cycle facilities, park'n'ride facilities, and improved integration of the existing bus network are also proposed as part of the project. Stage 1 is estimated to cost \$1.1 billion.

Integrated Transit Corridor Development – Route 86 Demonstration Project (Victorian Government)

The \$28 million Route 86 Demonstration project in High Street, Darebin involves initiatives to intensify residential development along the tram route as well as measures to improve the speed and reliability of the tram service. This is Stage 2 of a three stage Integrated Transit Corridor Development Program. The demonstration project will provide feedback for the business case for Stage 3, which involves rolling out the measures to other parts of the tram network.

The proponent has estimated the project's benefit cost ratio at 4.0.

Priorities under the Adaptable and Secure Water Supplies Theme

Water Security Program (Australian Capital Territory Government)

This program aims increase water security for the ACT by constructing a second wall at Cotter Dam (to increase storage from 4 to 78 GL), a pipeline to enable transfer of water from Murrumbidgee River to Googong Dam and the purchase of water entitlements. The estimated cost for the total program is \$551 million.

Tasmanian Water and Sewerage Reform (Tasmanian Government)

This project aims to assist in the upgrade of water and sewerage infrastructure in regional Tasmania. The project would supplement existing plans for capital investment in water storage, treatment, distribution networks and waste water treatment by regional water authorities. This is estimated to cost in the order of \$1 billion over ten years.

Non-Urban Water Metering (South Australian Government)

This project aims to establish a telemetric meter reading capability (and infrastructure) together with development of relevant metering standards. The project also aims to promote development of associated software so that stakeholders can use the data collected. It is estimated to cost \$105 million.

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

This project aims to expand high value agriculture using higher levels of irrigation, particularly in the North-West and North-East of the state.

Installation of Low Flow Bypass in Mount Lofty Ranges (South Australian Government)

This project involves the installation of bypasses that would restrict access by water users during periods of low river flow. The project would enable flows to be reserved for environmental purposes at critical times, and is estimated to cost \$47 million.

Priorities under the National Energy Grid Theme

Smart Grid Demonstration Pilot Project (Australian Capital Territory Government)

This project aims to expand the existing smart grid pilot program in the ACT by increasing the number of smart meters installed from 4,000 homes and businesses to 10,000. The cost of the initiative is estimated to be \$150 million.

Heywood Interconnector Upgrade (South Australian Government)

This project seeks to augment the existing electricity transmission connection between South Australia and Victoria at Heywood. The project would potentially allow more renewable energy to be exported from South Australia and increase the overall capacity for energy flow. The project has an estimated cost of \$80 million.

Mid-West Energy – Stage 2 (Western Australia Government)

This project seeks to connect the Geraldton area (including mines) to Western Australia's South West Interconnector System. The project would provide a new 330 KV line from the Perth metropolitan area to the region and potentially replace much of the existing diesel engine powered generation. The estimated cost of the project is \$795 million.

Priorities under the International Gateways Theme

Road Freight Access to Port Botany and Kingsford Smith Airport – M5 East (New South Wales Government)

Port Botany and Kingsford Smith Airport are important international gateways and have been experiencing increasing road congestion over recent years. The NSW Government is proposing a \$4 billion expansion to the M5 East Motorway, involving the duplication of the existing M5 East Freeway from Beverly Hills to Arncliffe to provide four lanes in each direction, and the provision of a new surface road (South Sydney connection) along the F6 Corridor.

Road Freight Access to Port of Brisbane – Port of Brisbane Motorway Upgrade (Queensland Government)

The Port of Brisbane is expected to experience continuing growth, placing pressure on the efficiency of freight and passenger movements. The proposed \$934 million dual carriage motorway linking the Gateway Motorway to the port precinct, together with other associated road upgrades in the port area, would accommodate the projected increases in road freight traffic to and from the port and gateway area.

Road Freight Access to Port of Melbourne – Westlink (Victorian Government)

Projected growth in traffic through the Port of Melbourne will place pressure on the efficiency of freight movements to and from the port. The Victorian Government is proposing a new road in inner Melbourne designed to facilitate better road freight access to the Port of Melbourne from the West. This would enable the continued growth of the Port of Melbourne and improve amenity in the suburbs around the ports (e.g. Footscray). It would also serve the important secondary role of reducing the reliance on the West Gate Bridge and M1 corridor for cross-river, east-west traffic. The two stage project, which includes a 2km tunnel, has an estimated cost of \$5 billion.

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 a \$1.12 billion road link between the port and intermodal terminals at Penfield in the north of Adelaide. The proposed link includes space to accommodate a re-alignment of part of the interstate rail line through Adelaide.

Moorebank Intermodal Terminal (Australian and New South Wales Governments and private developers)

The proposal involves the development of an intermodal terminal precinct on land presently used for Defence purposes at Moorebank in Sydney's south-west, comprising: a terminal focusing on inter-state and intra-state long trains; a terminal focusing on port-related freight, a rail line to connect the two terminals to the Southern Sydney Freight Line; and associated road improvements in the vicinity of the terminal.

Darwin Port Expansion (Northern Territory Government)

Darwin's port activity is projected to increase significantly over the next 10 years to meet expected increases in iron ore, phosphate and minerals exports. A \$336 million expansion of the East-arm port in Darwin is proposed, and will include land reclamation, construction of new berth and loading facilities and a rail dump station.

In the May 2009 Budget, the Australian Government made provision for a possible \$50 million equity contribution to the project, pending recommendation of the projects by Infrastructure Australia, negotiations with the project proponents, and the establishment of an appropriate equity vehicle. Infrastructure Australia has been working with the Northern Territory Government to advance its plans and develop a robust and comprehensive business case.

Gateway WA – Perth Airport and Freight Access (Western Australia Government)

Plans have been announced for major terminal expansion and consolidation on the Perth Airport International Terminal site. Efficient access for traffic and public transport is important for operation of the precinct, and this \$600 million initiative proposes road upgrades to the arterial network. There may also be scope for the provision of a rail link.

Oakajee Port Common-User Services (Western Australia Government)

A multi-user and multi-functional port is proposed to support iron ore exports with capacity to accommodate large scale industrial development.

The Oakajee Port Common Use Infrastructure provides for the 2km breakwater, dredged port channel and navigation aids, to enable the development of iron ore export facilities. This infrastructure is an important component of the \$4 billion Oakajee Port and Rail project. It supports 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.

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, negotiations with project proponents and the establishment of an appropriate equity vehicle.

Infrastructure Australia has been working with the Western Australian Government to advance its plans and develop a comprehensive and robust business case.

Pilbara Cities (Western Australia Government)

The Pilbara has been experiencing rapid economic growth in recent times and this is expected to continue. This has placed strains on the existing infrastructure. In order to help ensure that the Pilbara can support and deliver a skilled workforce to support future growth, the Western Australia Government has proposed \$2.9 billion of projects for Karratha and Port Hedland, including airport upgrades, water and communications infrastructure, land servicing and accommodation, and marina developments.

Bell Bay Intermodal Expansion Project (Tasmanian Government)

The project involves a range of activities, including relocation of a rail line, dredging, reclamation, and creation of 'hardstand' area. Consolidation of future container freight growth at Bell Bay would free up space at Burnie Port for bulk exports, including mining product from the West Coast. The estimated project cost is \$150 million.

Port Hedland Inner Harbour Capacity Enhancements (Western Australian Government, NWIOA, Hancock)

A number of submissions have been received relating to 'common user' infrastructure at Port Hedland. The WA Government has provided a submission relating to main channel deepening at the Port estimated to cost between \$500 million and \$1 billion. The North West Iron Ore Alliance (NWIOA) has brought forward a proposal relating to berth development, associated infrastructure and dredging of South West Creek at the Port, estimated to cost \$2.4 billion. Hancock Prospecting (Hancock) has brought forward proposals relating to main channel deepening and dredging of South West Creek, two berths, rail unloading, stockpiling and handling facilities at the Port.

Abbot Point Multi Purpose Harbour (Queensland Government)

The Queensland Government has identified Bowen/Abbot Point as the next major industrial hub and export facility in Queensland. It wishes to create capacity to accommodate industries of national and global significance and create sustainable employment opportunities for future generations. Decisions made in the next 12 months will determine the long-term scope of development at Abbot Point.

Stage 1 (a multi-cargo facility only) is estimated to cost \$690 million, with stage 2 (a multi-cargo facility, state development area and Bruce Highway bypass) estimated to cost \$2.2 billion.

Road and Rail Access and Port Upgrades at Bunbury (Western Australia Government, BPA/BWA/SWDC)

Infrastructure Australia received two submissions relating to the Port of Bunbury. Firstly, a WA Government proposal regarding the duplication of the rail line between Brunswick Junction and Bunbury Port estimated at \$63 million; and, secondly, a joint submission from the Bunbury Wellington Alliance, Bunbury Port Authority and the South West Development Commission, regarding a number of infrastructure projects to increase capacity and efficiency of Bunbury Port and associated supply chains costing an estimated \$756 million.

Melbourne International Freight Terminal (Victorian Government)

This initiative involves the planning and development of a new freight terminal on the site to be vacated by the Melbourne Wholesale Market, estimated to cost \$260 million. This site is adjacent to Swanson Dock at the Port of Melbourne. The project is focused on handling of international shipping containers. It is associated with other terminal projects proposals in Melbourne, e.g. those that deal with interstate containers.

Port of Hastings Development including Peninsula Link Rail Freight Corridor (Victorian Government)

This initiative comprises the environmental planning and business case studies for Stage 1 of the development of the Port of Hastings. The Port of Hastings is located approximately 30km south-east of the centre of Dandenong. It is currently made up of piers and wharves including the BlueScope Steel Wharf, the Long Island Point Jetty, the Crib Point Jetty and the Stony Point Jetty. The Port is the Victorian Government's preferred site for future container development, once capacity at the Port of Melbourne is reached. Port of Melbourne Corporation is being merged with Hastings Port Corporation. The project's planning and business case investigations are estimated to cost \$80 million.

Smart Port ICT (Victorian Government)

This project will support the National Ports Strategy process being run by Infrastructure Australia. It aims to address information, communication and technology (ICT) systems requirements in the container supply chain.

The project seeks to develop a platform for national ICT systems including 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. It is supported by Ports Australia. The National Ports Strategy will recommend that ICT projects aim to increase the efficiency and reliability of the physical flow of freight across the ports and through land transport systems. The project is estimated to cost \$16 million.

Eyre Peninsula Port Proposals (South Australian Government, Centrex Metals/Worley Parsons)

The proposals include Port Bonython from the South Australian Government, which involves the development of a bulk commodities export facility primarily to cater for the export of iron ores from South Australia. The request is to support a bankable feasibility study. Infrastructure Australia has more recently been advised by Centrex Metals and Worley Parsons of another potential port project on the Eyre Peninsula – Sheep Hill Port – for which a ‘prefeasibility’ study currently is underway.

Priorities under the National Freight Network Theme

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

The Transcontinental Rail Link is a proposal to develop a 240km rail link from Yelta (near Mildura) to Menindee on the East-West Transcontinental Rail Line. The existing Mildura to Melbourne (via Geelong) line has recently been upgraded with ‘gauge convertible’ sleepers, new ballast and improved drainage. Under the proposal, the Mildura to Melbourne line would be converted to standard/dual gauge. The project has an estimated cost of \$400 million. The proponent is seeking financial support for a full feasibility study.

Federal Highway Link to Monaro Highway – Majura Parkway Stage 2 (Australian Capital Territory Government)

Efficient movement of freight between the Monaro Highway and Federal Highway and access improvements to freight hubs around Canberra Airport is important to the regional economy. With projected increases in freight levels and the development of industries around the airport, the current Majura Road is not an efficient route for freight. To provide for improved efficiency, the proposed \$220 million Majura Parkway is to replace the existing Majura Road as the proposed freight bypass around the centre of Canberra. The project was rated as a priority project in Infrastructure Australia’s May 2009 report. The project has an estimated benefit cost ratio by the proponent of 4.0.

Advanced Train Management Systems (Australian Rail Track Corporation)

This is a satellite based train control system currently under trial by the Australian Rail Track Corporation. Such a system would enable a virtual, communications based ‘safeworking’ system with lower costs and possibly greater infrastructure capacity. It is estimated to cost \$500 million.

Western Interstate Freight Terminal (Victorian Government)

Victoria Government originally proposed development of a terminal at Donnybrook on Melbourne's northern fringe. It is now assessing an alternative proposition for an Intermodal Terminal in Melbourne's western suburbs. This involves a new terminal and repositioning of the railway line, with a total cost estimate of \$2.314 billion.

The concept is that the development of the Donnybrook/Beveridge Interstate Rail Terminal should be 're-sequenced' to proceed when there is sufficient demand in Melbourne's north for additional interstate rail capacity. In the medium-term, an interstate rail freight terminal should be constructed in western Melbourne where the majority of rail customers are currently located. Terminal expansion in Melbourne would need to be matched with terminals in Sydney (Moorebank being the most likely option) and Brisbane.

Eastern Goldfields Railway Freight Gateway Upgrade Project (WestNet Rail)

The Eastern Goldfields Railway is the standard gauge line between Kalgoorlie and Perth, forming part of the Defined Interstate Rail Network. The project is for remediation and improvement of track to engineering standards applicable to the Melbourne-Kalgoorlie segment of the Interstate Network and is estimated to cost \$75 million.

Adelaide Rail Freight – Goodwood and Torrens Junctions (South Australian Government)

This proposal is for the elimination of two at grade rail crossings, five level crossings and associated works. The works are at Goodwood, three kilometres to the south west of the city; and in North Adelaide, 2.5 km to the north west of the city, where the standard gauge interstate railway linking Melbourne and Adelaide twice crosses the TransAdelaide urban passenger network; and station development. The project is estimated to cost \$418 million. This project was rated as having "Priority" Status in Infrastructure Australia's May 2009 report. The project has a benefit cost ratio by proponent of 1.5.

North-South Rail Freight Corridors – including Northern Sydney Freight (ARTC/ NSW Government)

The North-South freight corridors run between Brisbane and Melbourne. They comprise 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 NSW Governments. The Australian Government has announced a package of capacity and efficiency enhancement for the ARTC's NSW North Coast line.

The corridor also includes the proposed Inland Rail Route between Melbourne and Brisbane which would bypass the Sydney area.

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 ARTC manages most of the corridor and has identified the package of works needed to boost rails performance.

Already the Australian Commonwealth has announced some works in its December 2008 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 ARTC has identified further rail infrastructure works, and Infrastructure Australia will be working with the Corporation in assessing these proposals.

Mt Isa –Townsville Rail Corridor Upgrade (Queensland Government)

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

The Mt Isa -Townsville Rail Infrastructure Master Plan 2009 identified a range of options for upgrading the system. The Plan estimated that adopting measures to improve rolling stock, operating systems and infrastructure to increase the capacity of the corridor to 12.5 million tonnes per annum from its current theoretical capacity of 7.5 million tonnes per annum could cost \$74 million to \$788 million, depending on the solution adopted.

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

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

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.

Bruce Highway Corridor Upgrades (Queensland Government)

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.

Pacific Highway Corridor Upgrades (NSW Government)

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. The cost estimate for the project is \$6.67 billion (\$2008). The project has an estimated benefit cost ratio by the proponent of 1.5.

The Australian Government has committed \$618 million in outturn costs for the Kempsey Bypass.

Appendix D

2009-10 Submissions to Infrastructure Australia

The following list sets out projects considered by Infrastructure Australia in the 2009-10 priority list update. In this list, the projects use the title given to them by the proponent.

| Initiative Title | Proponent |
|---|-----------------------------|
| National Broadband Network | |
| VicFibreLINKS 2 | Victorian Government |
| Regional Broadband | South Australian Government |
| High Speed Broadband | Norfolk Island Government |
| Creation of a True National Energy Market | |
| Indigenous Partnership – Gas Lateral Construction Central Western NSW | NTSCORP |
| Scale Efficient Network Expansions for Tasmanian Renewable Energy | Tasmanian Government |
| Mid West Energy (330kV Line and Renewable Link) | West Australian Government |
| Heywood Interconnector Upgrade | South Australian Government |
| Connect the SEA Gas and Moomba to Adelaide Pipelines | South Australian Government |
| Direct Load Control 'Smart' Grid Trial | South Australian Government |
| Smart Grid Demonstration Project | ACT Government |
| Solar Power Facility Project | ACT Government |
| Renewable Energy | Norfolk Island Government |
| Adaptable and Secure Water Supplies | |
| An Innovation Strategy for Tasmania – Focus on Food Bowl Concept | Tasmanian Government |
| Tasmanian Water and Sewerage Reform – Background Briefing | Tasmanian Government |
| Regional Water Supply Management (Eyre Peninsula Desalination Plant) | South Australian Government |
| SE Water Flow Management and Infrastructure Enhancement Program | South Australian Government |

| Initiative Title | Proponent |
|--|--------------------------------------|
| Installation of Low Flow Bypass in the Mount Lofty Ranges | South Australian Government |
| Non-Urban Water Metering in SA | South Australian Government |
| Water Security Program | ACT Government |
| Competitive International Gateways | |
| Bell Bay Intermodal Expansion Project | Tasmanian Government |
| Expanding Capacity at Port Hedland Harbour to Enhance Iron Ore Exports | Hancock Prospecting |
| Gateway WA – Perth Airport and Freight Access | West Australian Government |
| Pilbara Cities | West Australian Government |
| Kimberley – Point Torment Supply Base | West Australian Government |
| Port Hedland Inner Harbour | West Australian Government |
| M5 East Upgrade | NSW Government |
| Abbot Point Multi Purpose Harbour | Queensland Government |
| Gateway Motorway North | Queensland Government |
| Gateway Motorway South | Queensland Government |
| Port of Brisbane Motorway Upgrade | Queensland Government |
| South West Industrial Parks Linkages to the Port of Bunbury | WA South West Development Commission |
| West Link | Victorian Government |
| Truck Action Plan | Victorian Government |
| Western Interstate Freight Terminal and Donnybrook Interstate Freight Terminal | Victorian Government |
| Melbourne International Freight Terminal | Victorian Government |
| Planning for the Port of Hastings (including Peninsula Link Rail Freight Corridor) | Victorian Government |
| Smart Port ICT | Victorian Government |
| Port Bonython | South Australian Government |
| Multi-User Iron Ore Export facility at Port Hedland | North West Iron Ore Alliance (NWIOA) |
| East Arm Port Expansion | Northern Territory Government |
| Moorebank IMT | Commonwealth/NSW |
| Oakajee Port | West Australian Government |
| Change in Regulation of Security Arrangements at Airports | Northern Territory Airports |

| Initiative Title | Proponent |
|--|---|
| Transforming Our Cities | |
| Develop a CPAGE Prototype | Nesh Pty Ltd |
| Delivering the Missing Links to Sydney's Motorway Network | Evans and Peck |
| Gold Coast Railway | SE Queensland Council of Mayors |
| Pacific Motorway | SE Queensland Council of Mayors |
| Hobart: a world class, liveable, waterfront city | Tasmanian Government |
| Sydney Metro Network | NSW Government |
| South West Rail Link | NSW Government |
| Eastern Busway (Stages 2 and 3) | Queensland Government and SE Queensland Council of Mayors |
| Brisbane Inner City Rail Capacity Upgrade | Queensland Government |
| Moreton Bay Rail Link | Moreton Bay Regional Council and Queensland Government |
| Darra – Springfield Rail and Road Project | Queensland Government |
| Strategic Priorities for Growth Areas | National Growth Areas Alliance (NGAA) |
| Green Square Urban Renewal Area | City Of Sydney |
| National Managed Motorway – National | National |
| National Managed Motorway – Queensland proposals | Queensland Government |
| National Managed Motorway – NSW proposals | NSW Government |
| National Managed Motorway – WA proposals | West Australian Government |
| National Managed Motorway – Victorian proposals | Victorian Government |
| National Managed Motorway – SA proposals | South Australian Government |
| Kingsford Smith Drive Upgrades | Brisbane City Council and SE Queensland Council of Mayors |
| Northern Link Road Tunnel | Brisbane City Council |
| Melbourne Metro Stages 1 | Victorian Government |
| Melbourne Metro Stage 2 | Victorian Government |
| Melton Duplication and Electrification | Victorian Government |
| Integrated Transit Corridor Development – Route 86 Demonstration Project | Victorian Government |
| The Safe Spot Program | Rockhampton Regional Council |
| Sunshine Coast Airport Master Plan | Sunshine Coast Regional Council and SE Queensland Council of Mayors |

| Initiative Title | Proponent |
|---|---|
| Goodwood Road Tramway Grade Separation | South Australian Government |
| Victor Harbour Road upgrade – Main South Road to Victor Harbour | South Australian Government |
| North South Corridor – Darlington Transport Project | South Australian Government |
| Smart Commuter | South Australian Government |
| Very Fast Train | ACT Government |
| Civic Master Plan Urban Densification and Transport Solutions | ACT Government |
| Eastlake Sustainable Development Stage 1 | ACT Government |
| Belconnen – Civic Busway | ACT Government |
| Sydney North West – CBD Rail Proposal | Australian Infrastructure Solutions Pty Ltd |
| Newcastle Redevelopment Proposal | Hunter Development Corporation |
| Bicycle Transport Infrastructure Development – Time for Change | Bicycle Network |
| A National Freight Network | |
| Australian Digital Train Control System | Australasian Railway Association Inc |
| Bomen Intermodal Road/Rail Hub | Wagga Wagga City Council |
| Trans Regional Amalgamated Infrastructure Network Project (TRAIN) | Nation Building Australia |
| Blacksoil Interchange | SE Queensland Council of Mayors |
| Grain Freight Network | West Australian Government |
| Brunswick to Bunbury Harbour Rail Bottleneck | West Australian Government |
| Northern Sydney Freight | NSW Government |
| Stage 2 of the Hillston to Eumungerie Road Link Upgrade | Lachlan Shire Council |
| Bald Hills Road Interchange | Mount Barker Council |
| Mount ISA – Townsville Rail Corridor Upgrade | Queensland Government |
| Bruce Highway Corridor | Queensland Government |
| Road Maintenance, Rehabilitation and Renewal Program | Queensland Government |
| Toowoomba Bypass | Queensland Government and SE Queensland Council of Mayors |
| Transcontinental Rail Link | Mildura Development Corporation |
| Northeast Link | Victorian Government |
| Green Triangle Region Road and Rail Package | Joint Victorian and South Australian Governments |

| Initiative Title | Proponent |
|---|---|
| Eastern Goldfields Railway 'Freight Gateway' Upgrade Project | West Net Rail |
| Adelaide Rail Freight – Goodwood and Torrens Junctions | South Australian Government |
| Northern Connector | South Australian Government |
| Federal Highway Link to Monaro Highway – Majura Parkway | ACT Government |
| East West Rail Freight Corridor | Australian Rail Track Corporation |
| North South Rail Freight Corridors | ARTC/NSW |
| Victorian Local Roads | Victorian Government |
| Pacific Hwy Upgrades | NSW Government |
| Outback Way | Outback Highway Development Council |
| Providing Essential Indigenous Infrastructure | |
| Sustainable Water Infrastructure for Aboriginal Communities | South Australian Government |
| Improve Road Safety and Accessibility in the APY lands | South Australian Government |
| Infrastructure Development in Remote Indigenous Communities / Development Roads | Northern Territory Government |
| Other | |
| Greening Australia | National Forest Sinks Abatement Program |
| ACT Government | ACT Health Capital Asset Development Plan |



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Disclaimer:
These notes are not intended to be comprehensive. Readers are advised that before acting on any matter arising in these note, they should discuss the situation with an Infrastructure Australia specialist.

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