AUSTRALIAN INFRASTRUCTURE PROGRESS AND ACTION 06/12

A REPORT TO THE COUNCIL OF AUSTRALIAN GOVERNMENTS

Australian Government
Infrastructure Australia

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GPO Box 594, Canberra ACT 2601, Australia
Telephone (international) +61 2 8114 1900
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Cover photo: Supporting investment in infrastructure for remote Indigenous communities remains a central concern for Infrastructure Australia. Solar power facilities such as this installation at Hermannsburg in the Northern Territory offer more reliable, lower cost power to hundreds of people living in and around this town. The solar project also exemplifies the need to shift to less carbon-intensive forms of energy generation—a broader challenge facing the country as a whole.

Inside cover photo: Successive governments in Western Australia have taken various steps, including use of a dedicated funding regime to meet the cost of buying land, to ensure that corridors for transport connections to the Port of Fremantle have been protected.

Back cover photo: The rail line passing through Kalgoorlie is on the indicative national land freight network.

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Letter from the Chairman

Hon Anthony Albanese, MP
Minister for Infrastructure and Transport

I have pleasure in presenting Infrastructure Australia's fourth annual report to the Council of Australian Governments.

Last year's report highlighted the importance of using reform in the infrastructure sector to support national efforts to raise productivity in the Australian economy. Improvements in infrastructure planning and the need for a wider debate about our willingness to pay for our infrastructure were highlighted as areas requiring the attention of governments, industry and the broader community.

The report's main messages were well received by many commentators. The central argument concerning the 'disconnect' between expectations for our infrastructure networks and the capacity of our institutions to prosecute difficult reform resonated with many readers.

Those issues continue as central concerns for Infrastructure Australia. Work by others in the past year, notably the report on capital city strategic planning systems by the Council of Australian Governments' Reform Council, has added to the weight of evidence that much more can be done by governments.

Against that background, Infrastructure Australia is pleased to report that progress is being made towards securing a more efficient regulatory environment.

Work to establish single national regulators for the rail, heavy vehicle and maritime sectors is well advanced. The agreement of the Council of Australian Governments in April to integrate environmental assessment processes for major projects is also welcome. Infrastructure Australia has previously reported on the need for change in those areas.

Experience suggests, though, that governments will need to keep a close eye on these reforms to ensure that agreements in principle are translated into real change.

Commencing a trial of allowing B-triple trucks to use the Hume Highway would be an important demonstration of an ongoing commitment to raising productivity in the transport sector.

In the area of regulatory and policy reform, Infrastructure Australia's work continues to be complemented by that of the Productivity Commission. The Commission's work on urban water is a further example of its focus on providing evidence-based, balanced advice.

The two organisations share a mutual aim of assisting the country to raise productivity. Infrastructure Australia looks forward to continuing our close relationship.

The nation is struggling to find a way of dealing comprehensively with two potentially competing concerns: cost of living pressures, and the need to apply more cost-reflective pricing to our infrastructure networks, especially in the transport sector.

Resolving this conundrum is vitally important. Infrastructure Australia is urging governments, oppositions and the community at large to work constructively to find an answer to this puzzle.

Australia is not alone in this; other countries face the same challenge.

Our proud, century-long tradition of innovation and progressive public policy – universal suffrage, aged pensions, unemployment benefits and, more recently, superannuation and taxation reform – shows that we can adapt and improve the prospects for Australians from all backgrounds.

In the early 21st century, we must maintain that tradition, and find a way of equitably funding the development and maintenance of our infrastructure.

The decision of the Australian and South Australian Governments to fund jointly the Goodwood and Torrens Junction projects in Adelaide is a significant milestone. Both projects are important in their own right. They will support balanced development in Adelaide for some time and dramatically improve the productivity of rail freight movements between Perth, Adelaide and Melbourne.

Also important is the fact that, in just three years, all of the ready to proceed projects in Infrastructure Australia's first infrastructure priority list have received funding from the Australian, state and territory governments.

This is an important testament to the regard for Infrastructure Australia's work across all governments. Infrastructure Australia is pleased that governments have chosen to fund the projects identified as ready to proceed priorities.

These outcomes provide tangible evidence of the value of collaboratively engaging with Infrastructure Australia's processes, even if at times our assessments do not align with the views of project proponents.

The leadership required to pursue some of the difficult reforms ultimately needs to come from the Council of Australian Governments itself, supported by relevant Ministerial councils and committees.

While acknowledging that the Council of Australian Governments has a significant and broad agenda, Infrastructure Australia believes infrastructure issues, and the contribution that infrastructure can make to improving national productivity, should continue to receive the Council of Australian Governments' active attention.

Looking ahead, the country will benefit from governments maintaining a focus on getting our ports and public transport systems right. Ports and their connections are vital to the economic wealth of an island nation. Public transport is just as vital to the future of our cities, places where over eighty percent of all Australians reside.

The Infrastructure Australia Council would like to extend its sincere thanks to Heather Ridout for her contribution to Infrastructure Australia's work since its establishment in 2008. Following her appointment as a member of the board of the Reserve Bank, Heather resigned from Infrastructure Australia.

The Reserve Bank appointment acknowledges the skills of a fine contributor to Australian public policy. The Infrastructure Australia Council valued Heather's insights and the even-handed manner in which she presented her views. We wish Heather well in her new role.

Infrastructure Australia looks forward to working with others to advance the management and development of Australia's infrastructure networks.

Sir Rod Eddington AO
Chairman, Infrastructure Australia


KOMATSU

Executive summary

Willoughby City Council in New South Wales has incorporated one of the largest urban stormwater re-use systems in Australia at 'The Concourse', a new performing arts centre developed by the Council at Chatswood. The 5,000m^3 storage facility allows for harvesting, treating and re-use of stormwater. The scheme will result in significant potable water savings, not just for 'The Concourse' building, but for the Chatswood central business district as well. Treated stormwater will be sold to local businesses so that they can reduce their use of potable water. The scheme also provides a role in mitigating flooding in the area.

Improving the contribution infrastructure makes to national wellbeing remains Infrastructure Australia's focus.

Infrastructure Australia was established to support a transformation in the way Australia invests in infrastructure. Our mandate is to encourage a long-term, strategic approach to infrastructure planning, investment and delivery.

Infrastructure is critical to national productivity, economic growth and overall wellbeing. Effective and efficient infrastructure is an enabler for growth and performance for all sectors in the economy.

Well-targeted investment in physical infrastructure can provide a range of economic, social and environmental benefits. From an economic perspective, benefits accrue from productivity improvements. For example, effective transport systems lead to reduced freight and business travel costs which can lead to increased trade and competition.

Further, efficient infrastructure plays a vital role in building social cohesion. High quality infrastructure allows communities that have a range of incomes, backgrounds and demographic characteristics the ability to access employment opportunities and health and education resources in a fair and equitable way. This is important as social cohesion is linked to economic development, investment attractiveness and business competitiveness.

Improving the way Australia both uses and procures its infrastructure will contribute to greater economic prosperity and an enhanced standard of living for all Australians. According to the Productivity Commission, improving productivity and efficiency to achieve best practice in transport and energy infrastructure and other activities could, after a period of adjustment, increase gross domestic product by nearly two per cent. Based on the current size of the Australian economy, such an increase amounts to around $25 billion per year.[1]

Our goal

Infrastructure Australia's goal is to work with governments, industry and the community to adopt a national, strategic approach to infrastructure investment which addresses long-term social and economic objectives.

Key challenges

Currently, infrastructure planning remains focussed on major projects rather than what infrastructure can do to improve Australians' lives. Plans for our cities and regions are rarely derived from a critical assessment of the nation's growth challenges and fiscal projections.

Debates about the respective shares different governments should contribute to projects highlight the funding constraints facing all governments. In this context, difficult decisions are being avoided. Governments are struggling to equip the community to debate matters such as charging for the use of infrastructure, impacts on the cost of living and the cost to future generations of not expanding our infrastructure networks.

Consistent pursuit of sensitive regulatory reform remains an elusive goal. Agreements to pursue reform take years to reach, and then the 'follow through' on implementation is slow and sometimes piecemeal.

Achievements

Even so, governments are beginning to respond to these challenges. The agreement to establish single regulators for the road, rail and maritime sectors is historically significant, and will yield billions of dollars in savings over coming decades.

Governments have increased their investment in infrastructure. Proponents are recognising that investment in planning and project development and the desire to question 'obvious' conclusions can pay off in the form of better, more robust projects. The Cross River Rail project in Brisbane is an example. Infrastructure Australia has assessed the project as ready to proceed.

The way forward

To build on progress to date, the nation needs to concentrate on further improving performance in:

A. **strategic planning** – establishing credible long-term infrastructure plans, which focus on better use of existing infrastructure as well as new capital investment;

B. **funding and financing** – implementing initiatives to increase the pool of funds available to invest in new projects and use more efficient financing mechanisms, particularly in partnership with the private sector; and

C. **governance and reform** – making meaningful improvements to existing policy and regulatory arrangements to make infrastructure markets more responsive to community needs and market demands.

Strong leadership from decision makers and opinion makers is required to create the conditions for effective infrastructure investment and management. This leadership needs to support the community in taking a long-term view of the country's infrastructure needs, while reaching a mature view of how the country might meet those needs.

These matters go to the heart of our nation's future prosperity. Opportunistic behaviour and partisan opinion will sell the country short.

While governments will necessarily lead planning and policy, involving industry in the planning, financing and delivery of infrastructure improvements is to be encouraged.

The private sector can bring insights, resources and capabilities not readily available to government. This can assist governments in meeting the substantial demand for improved infrastructure. The private sector needs and seeks a committed pipeline of infrastructure projects, and effective procurement processes, in order to optimise its participation in the delivery of projects.

Some decisions will be difficult and unpopular, for example in relation to the wider application of user charging. These decisions are likely to be unavoidable if we are to secure the infrastructure we desire. Increasing the community's awareness of the need for such decisions will facilitate a more informed debate about how our infrastructure networks can help support our aspirations for the nation.

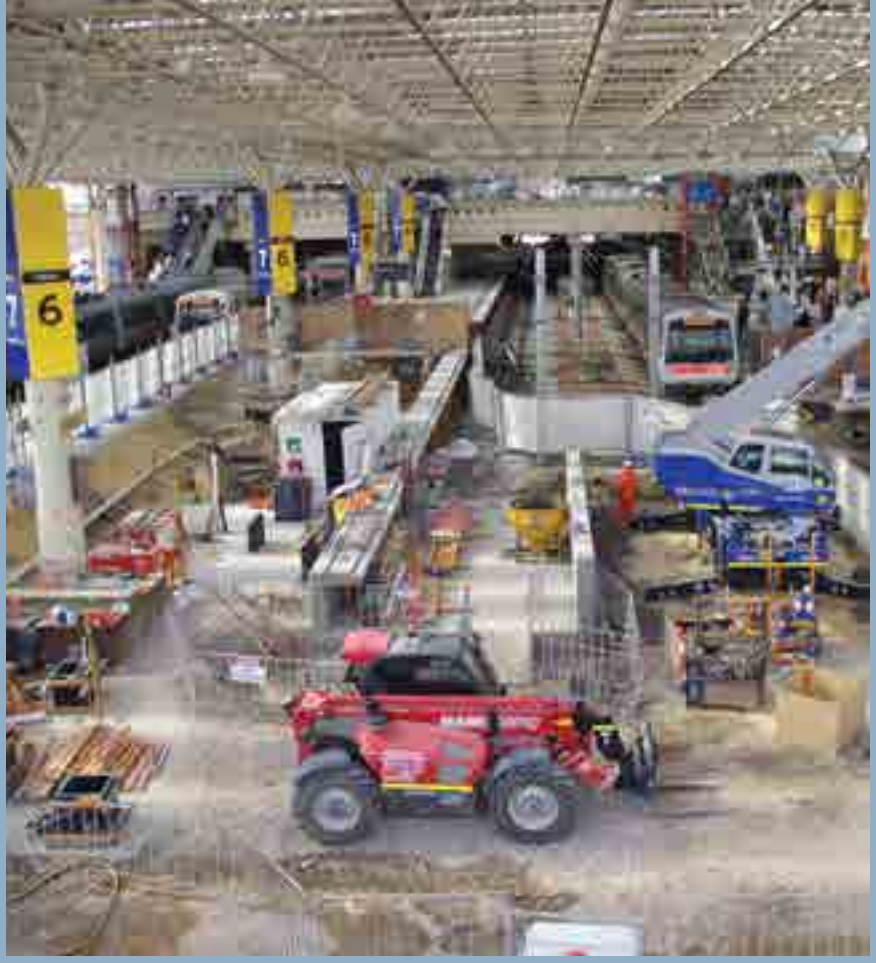
Infrastructure Australia will continue to work collaboratively with governments, business and the community to:

- **increase public debate in an effort to address the 'disconnect' between Australia's infrastructure aspirations and the community's preparedness to fund those aspirations; and**
- **channel resources into projects of greatest public benefit.**

Development of an intermodal terminal at Moorebank in south western Sydney will transform the movement of freight in Australia's largest city and support the greater use of rail for moving freight around the country. This photograph captures the linkages in the logistics chain, including the junction of the M5 and M7 motorways in the foreground, the soon-to-be-completed Southern Sydney Freight Line in the mid distance adjoining the Moorebank terminal site and Port Botany on the horizon.

Infrastructure Australia's key priorities for the future

This report sets out a series of opportunities, challenges and ways forward to meet Australia's future infrastructure needs. Our focus is on acting on the opportunities which present the greatest potential benefits for the nation. These are summarised below.

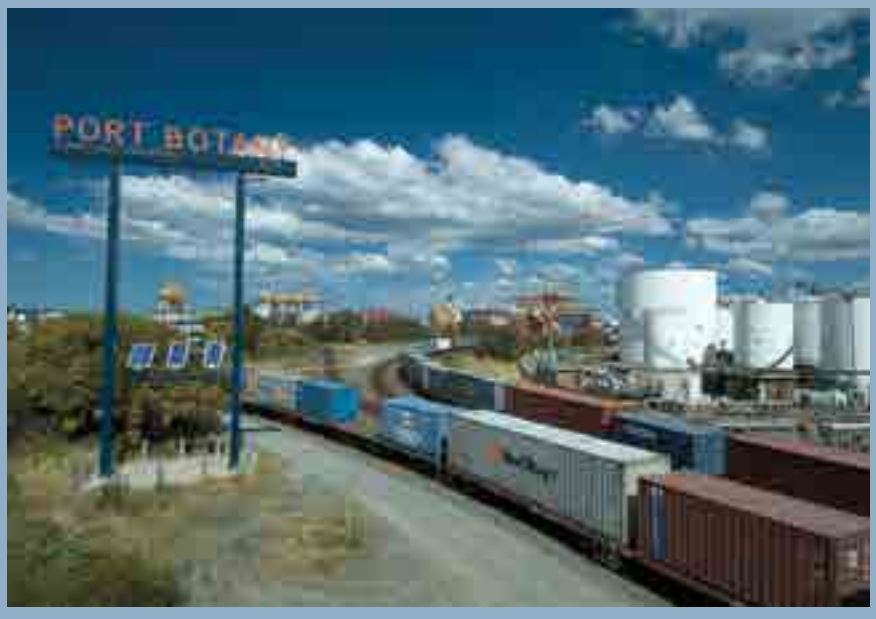


Public transport

Strategic planning

- Assist in preparing robust long-term strategies which consider how our decisions now will shape future cities and regions and which:
  - integrate land use strategies and fiscal strategies;
  - identify corridors and establish mechanisms for corridor protection;
  - develop public transport strategies;
  - engage with governments and others about road charging models, including network charging; and
  - reflect the importance of asset management and digital infrastructure in optimising the funds available for infrastructure investment.
- Improve regional infrastructure planning and identify worthwhile projects that are eligible for funding through the *Regional Infrastructure Fund*.[2]
- Work with governments and the private sector to implement the actions identified in the *National Ports Strategy*[3] and finalise the *National Land Freight Strategy Update*.[4]

Infrastructure Australia is focussed on providing robust, transparent evaluation of project proposals, using publicly-available criteria, to assist governments in deepening the national infrastructure pipeline.



Port Botany

Reform of road freight

Funding and financing

- Work with governments and industry to implement agreed recommendations arising from the work of the Infrastructure Finance Working Group.
- Encourage initiatives by state and territory governments to review their government-owned assets to identify their potential for sale or lease to the private sector.

Reform

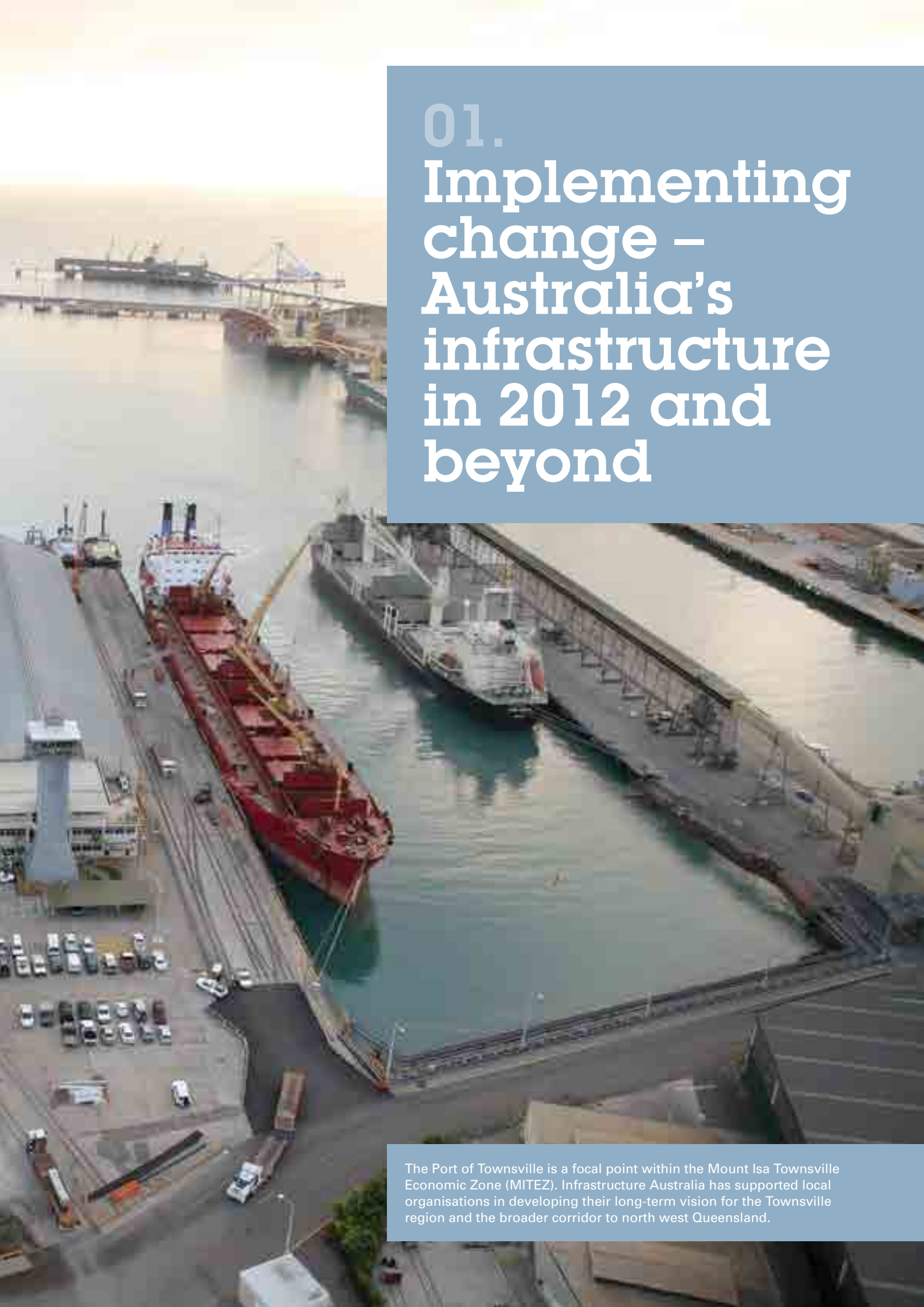
- Encourage sustained reform of infrastructure markets to attract private sector financing of infrastructure through reforms to government procurement and more competition in the construction and financing sectors.
- Work with relevant stakeholders in an effort to resolve freight productivity impediments through pilot projects and to actively participate in efforts to reform road governance in respect of Australia's national land freight network.
- Further the case for reform of water management in our major cities and regional towns.
- Continue to monitor the progress and impact of reforms to policy and regulation in the energy and telecommunications sectors.
- Encourage governments to release more of their internal reports and working documents, so that infrastructure decision making can be made more transparent and contestable.

Essential Indigenous infrastructure

- Develop a policy framework for the planning, prioritisation, funding, delivery and management of infrastructure in remote Indigenous communities. The framework will focus on a greater role for Indigenous communities in infrastructure decision making.

Indigenous infrastructure

01.
Implementing change – Australia's infrastructure in 2012 and beyond



The Port of Townsville is a focal point within the Mount Isa Townsville Economic Zone (MITEZ). Infrastructure Australia has supported local organisations in developing their long-term vision for the Townsville region and the broader corridor to north west Queensland.

Australia needs to invest in value-enhancing infrastructure projects that will shape our cities, regions and economy and provide national benefits for years to come.

Our goal

Infrastructure Australia's goal is to work with governments, industry and the community to adopt a national, strategic approach to infrastructure investment which addresses long-term social and economic objectives.

Specifically, its objective is to ensure that investment in infrastructure acts as a catalyst to:

- raise productivity in order to increase the prosperity of the nation and improve Australia's international competitiveness;
- improve the standard of living and quality of life of Australians; and
- secure sustainable development of our cities and regions.

Key challenges

Our key challenge is to ensure that the decisions we make about infrastructure today will serve us well now and into the future.

In addressing this challenge, we must overcome:

- weaknesses in strategic planning;
- funding constraints; and
- other inefficiencies in infrastructure markets and the use of infrastructure.

One of the major challenges facing Australia is how to address 'peaks' in the use of the nation's infrastructure networks. When they are not managed, transport peaks are characterised by inefficient use of resources.

The way forward

To make the most of current and future opportunities, we need to refine how the nation plans, funds and manages its infrastructure. All stakeholders need to focus efforts on improving the following areas:

A. **strategic planning** – establishing credible, long-term infrastructure planning practices, including improved asset management and greater application of measures to utilise existing infrastructure more efficiently;

B. **funding and financing** – increasing the pool of funds available to invest in new projects and using more efficient financing mechanisms, particularly in partnership with the private sector. The success of this approach is dependent on addressing two long-term challenges:

   - facing up to the fiscal gap confronting governments – the cost of proposed projects will almost certainly exceed the funds likely to be available for spending on infrastructure;
   - willingness to pay – there is a substantial 'disconnect' between infrastructure expectations in the community and the nation's willingness to pay for infrastructure; and

C. **governance and reform** – making infrastructure provision more responsive to market demand by improving existing regulatory arrangements and by broadening the application of user charging.

The three areas above are inter-related. Improvements in one area are likely to lead to improvements in other areas.

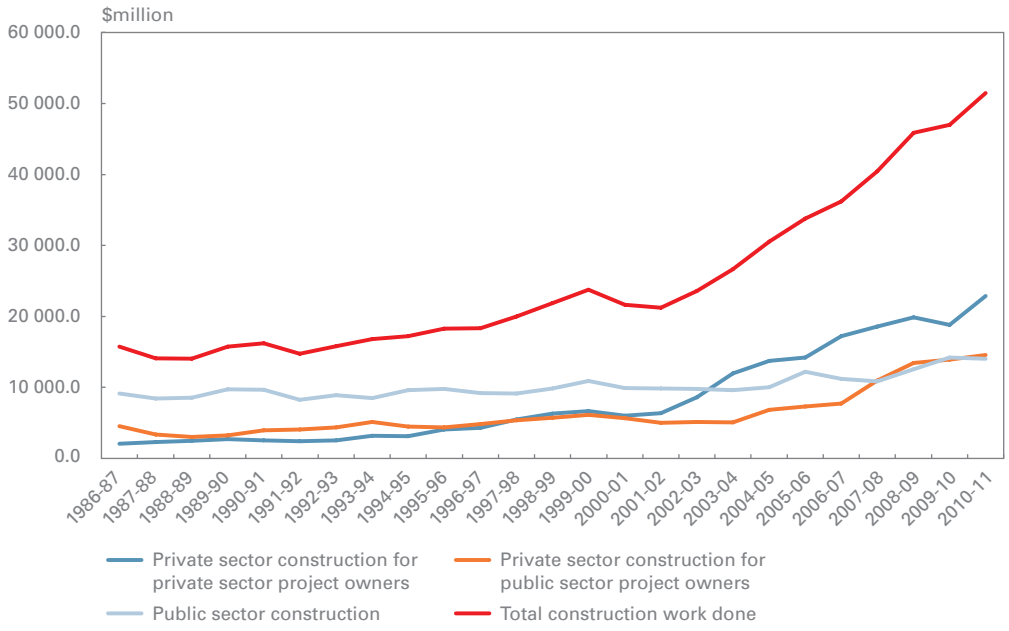
Infrastructure Australia will continue to work with governments and business in an effort to facilitate this integrated approach to infrastructure reform. We will take a lead role in clarifying the community's infrastructure aspirations and acceptance of the trade-offs necessary to achieve our infrastructure goals.

Infrastructure report card 2011–12

The report card below is aimed at providing readers with a quick overview of major developments in the infrastructure sector. Although the focus of the report card is primarily on developments in 2011-12, it is striking that, compared to a few years ago, progress has been made on many fronts.

Infrastructure features more prominently in national debates. The quality of infrastructure planning has improved. Governments have started to implement important regulatory reforms, and, across the country, there is an acknowledgement that the funding of our infrastructure requires some tough decisions.

Figure 1 – Infrastructure construction activity (real terms)



Source: Engineering Construction Activity, Australia (ABS catalogue No. 8762.0), adjusted by chain volume index

Strategic planning, funding and governance

Minister Albanese's decision to involve senior industry representatives at meetings of the Council of Australian Governments' Standing Committee on Transport and Infrastructure will prove historically significant. It will bring much needed industry and user input to the Committee's deliberations.

Governments have been responding to the infrastructure funding challenge by spending more on infrastructure. They have also increased their partnering with the private sector in delivering the nation's vital infrastructure (see Figure 1).

Infrastructure NSW's *20-year State Infrastructure Strategy* is expected to bring a new degree of rigour to infrastructure planning in that state.[5] Integration of the transport agencies in New South Wales into one body – Transport for NSW – is a great step forward, and brings New South Wales into line with other jurisdictions.

The release of the Council of Australian Governments' Reform Council's report on capital city strategic planning systems in April 2012 was a significant milestone in better understanding the strengths and weaknesses of how we plan our cities.[6] The Reform Council found that jurisdictions had taken steps to improve their strategic planning systems during the course of the review. On the other hand, the report also showed there is room for improvement. Current planning systems are only partially consistent with the criteria set by the Council of Australian Governments.

The Australian Government's *National Urban Policy* recognises the importance of our cities to national productivity and wellbeing, and reaffirms the importance of good planning to achieve well functioning cities.[7]

The Infrastructure Finance Working Group brought government and the private sector together to develop possible solutions to Australia's infrastructure funding challenge. The Working Group's report will help steer reform in this area.

There have been important developments in exploring alternative infrastructure funding sources with the proceeds from the recent sale of the Sydney desalination plant and the intended privatisation of Port Botany being directed towards addressing New South Wales' infrastructure backlog.

The recent release of the *National Infrastructure Construction Schedule*[8] for the first time provides potential investors and constructors with detailed information on upcoming major infrastructure projects across all three levels of government.

The National Public Private Partnership Working Group has engaged with overseas agencies in efforts to improve the public private partnership market in Australia. In addition, the Australian Government is progressing work examining better mechanisms for demand risk transfer to the private sector for toll roads.

Indigenous communities are showing considerable interest in taking on a greater involvement in infrastructure decisions.

Transport

The 2012-13 Federal Budget's funding of the Goodwood and Torrens Junction projects in Adelaide means that governments have now supported all of the ready to proceed projects from Infrastructure Australia's original 2009 infrastructure priority list.

These projects were the final investments necessary to allow 1,800 metre trains to run between Perth and Melbourne. At present, trains are limited to 1,500 metres. The 20 per cent increase in permissible train lengths will dramatically improve freight productivity on this corridor.

In addition, some large transformative projects identified on Infrastructure Australia's priority list have moved ahead, including the Moorebank intermodal terminal, the Brisbane Cross River Rail project and the Pacific Highway corridor project.

In terms of transport reform, the Council of Australian Governments is considering the *National Ports Strategy* and Infrastructure Australia has presented its advice to the Australian Government on the *National Land Freight Strategy Update*. The strategies represent an important national approach to planning for these important infrastructure networks.

Infrastructure Australia has consistently emphasised the importance of one national set of rules for achieving national productivity objectives. The agreement by the Council of Australian Governments to establish single national laws and single national regulators for heavy vehicle, rail and maritime safety by January 2013 – reducing 23 regulators down to three – is an important step in this direction.

The Council of Australian Governments' *Road Reform Plan*[9] is, however, making slow progress in the area of road pricing reform.

Energy

The Australian Energy Market Commission continues to progress important regulatory reforms with important refinements to the remote energy connection rules. In addition, following four years of network regulation by the Australian Energy Regulator, the Australian Energy Regulator's regulatory framework is under review by the Australian Energy Market Commission.

This follows proposals from the Australian Energy Regulator and the Energy Users Association of Australia to change the rules according to which the Australian Energy Regulator undertakes its regulatory functions. The Australian Energy Market Commission's review is broad ranging, considering: the framework for assessing capital and operating expenditure; expenditure incentive arrangements; the cost of capital; and the efficiency of the regulatory process.

Water

The Productivity Commission's report on urban water reform[10] emphasised the need for ongoing reform to improve the efficiency of this sector. The sale of the Sydney desalination plant is an important step in terms of introducing greater competition in bulk water supply in the Sydney basin.

Telecommunications

Release of a 2012-2015 rollout plan for the National Broadband Network has provided the community with an indication of the direction and phasing of this large project.[11]

A. Strategic planning

Our strategic planning goal

Our goal is to improve strategic planning in order to identify and prioritise the best infrastructure options to achieve our national objectives in a world that is changing rapidly on many fronts. The measure of our success lies in selecting projects and making other decisions which address the nation's long-term social, economic and environmental objectives.

Key challenges

To achieve this goal, infrastructure decision makers in Australia need to:

- pursue a goal and problem-solving approach to infrastructure decisions, rather than selecting projects and then 'reverse engineering' the projects into a plan or assessment framework in an attempt to align them with long-term objectives;
- acknowledge and communicate the opportunity costs associated with their decisions – in other words, recognising that a commitment to build a piece of infrastructure means that the funds in question are not available for other projects;
- factor in climate change and environmental considerations in long-term strategic planning;
- integrate infrastructure and land use planning;
- explore effective alternatives to building new infrastructure; and
- undertake project development and due diligence on projects that is commensurate with the scale of the investment and project risks.

The way forward

Infrastructure Australia seeks to support governments and other key stakeholders in planning the development and management of our infrastructure networks over the long-term.

Infrastructure Australia is therefore taking a lead role in:

- working with governments and industry to implement the *National Ports Strategy* and the *National Land Freight Strategy Update*;
- ensuring strategic planning for cities and regions makes infrastructure a prime consideration;
- identifying and protecting infrastructure corridors for future development;
- improving asset and demand management practices to better maintain existing infrastructure as an alternative to building new infrastructure; and
- supporting the development of intelligent infrastructure solutions to optimise investment in new and existing infrastructure.

Improved strategic planning

Good practice: planning infrastructure for the long-term

Infrastructure Australia is pleased to note that some jurisdictions are:

- extending infrastructure planning horizons beyond 20-30 years;
- adopting infrastructure planning practices that reflect the principles of Infrastructure Australia's *Reform and investment framework*;[12]
- aligning plans and project selection with long-term strategic objectives;
- committing resources to long-term strategic planning;
- collaborating with multiple stakeholders to develop plans; and
- investing more in project development.

To realise the benefits of these efforts, decision makers could now use the planning process as a means of identifying and prioritising infrastructure projects. This is the next step we need to take to increase the benefits of our infrastructure investment.

Progress is positive but there is significant opportunity for improvement

It is evident from submissions to Infrastructure Australia that, in general, jurisdictions still have some way to go to ensure individual projects are selected on the basis of being the most efficient and effective option for achieving national (as well as state and territory) strategic priorities.

All jurisdictions state they want to encourage greater public transport use and reduce congestion. Despite this aspiration, most are reluctant to apply tolls or road pricing which would drive the shift to public transport as well as defer the need for much of the planned investment in roads.

Prioritisation of proposed projects within a portfolio of potential investments requires further attention. This approach will improve government and public understanding of the opportunity costs and benefits of investing in some projects and not in others. Making progress on this front will enable decision makers and the public to debate more openly the ability of projects to make a balanced contribution to meeting the national objectives.

Infrastructure advisory bodies

Last year, Infrastructure Australia welcomed the creation of Infrastructure NSW and the Tasmanian Infrastructure Advisory Council.

Infrastructure Australia supports the work of these state-based advisory bodies, as they bring additional due diligence and a critical eye to:

- sub-national or regional infrastructure projects; and
- nationally significant projects

in their respective jurisdictions. This work increases the level of attention on individual projects, as well as providing better transparency for the community.

The work of these state-based advisory bodies, together with infrastructure planning at the local government level, improves Australia's ability to identify a clear pipeline of integrated infrastructure projects and reforms.

In the short to medium-term, the Mount Isa Townsville region is likely to see increased movements of both rock phosphate and magnetite (pictured). The potential for large tonnages in the longer term may require a somewhat greater bulk commodity focus in freight infrastructure.

Infrastructure Australia supports the efforts of jurisdictions and proponents that have adopted robust, best-practice planning methodologies. We expect this will enable jurisdictions to identify and prioritise worthwhile, productivity-enhancing projects, and reject sub-optimal projects.

Mount Isa Townsville Economic Zone (MITEZ)

The Mount Isa Townsville Economic Zone was formed by a group of seven councils and major businesses in the Mount Isa to Townsville corridor. It groups organisations with common economic and social objectives and commercial and administrative interdependencies.

In May 2012, the Mount Isa Townsville Economic Zone released its *50 year freight infrastructure plan*[13] which focusses on:

- building awareness of the nationally significant Mount Isa to Townsville supply chain;
- increasing private sector investment; and
- providing a basis for working with the Australian and Queensland Governments to identify and deliver freight infrastructure needs.

Infrastructure Australia supports the efforts of the Mount Isa Townsville Economic Zone. In particular, we are encouraged that the plan:

- aligns with the principles of the *National Ports Strategy* and *National Land Freight Strategy Update*;
- considers the whole freight corridor, as opposed to looking at road, rail and port separately;
- focusses on the need for robust economic modelling of demand and supply in order to make informed decisions;
- highlights the need to optimise the use of existing assets and then to identify capacity constraints; and
- identifies funding and demand management options such as access pricing and time of day pricing.

The floods in Queensland in 2010-11 utterly disrupted the Queensland community and economy. The cost of repairing damaged infrastructure has run into billions of dollars, funds that could otherwise have been available for new projects. Climate change is expected to lead to an increase in major flooding events and place further demands on infrastructure budgets.

There is consensus amongst the vast majority of climate scientists that human activities are a significant contributor to global warming.

Climate change and environmental impact

Over the course of this century, climate change is expected to impact on many aspects of Australians' lives.

Infrastructure Australia agrees with the Australian Green Infrastructure Council that the variability of future climate conditions internationally and across Australia poses challenges to designing and operating infrastructure assets.[14]

Jurisdictions are rightly taking account of these heightened challenges in long-term infrastructure planning, investment decision making and project development.

Jurisdictions should incorporate the vision set out in the Green Infrastructure Council's *Guideline for Climate Change Adaptation*[15], specifically to plan for infrastructure that:

1. has the capacity to be more resilient against intense, frequent storm events, extended droughts, increased temperatures, variable precipitation patterns and sea level rise inundation;
2. provides more reliable regional transport networks to prepare for and recover from natural disasters;
3. protects coastal urban areas from rising sea levels and storm surges; and
4. does not need regular retrofitting and is not based on short-term solutions, thereby 'future proofing' infrastructure and economies for future generations.

The Australian Green Infrastructure Council recently launched its *Infrastructure Sustainability rating scheme*.[16] The scheme aims to provide a comprehensive rating system for evaluating sustainability across design, construction and operation of infrastructure.

The primary approaches to responding to the climate change challenge in infrastructure are:

1. **adaptation** – assessing risks to infrastructure from extreme events, and understanding how asset management and the design and location of assets can be adapted in consideration of these risks; and
2. **mitigation** – addressing the threat of climate change through measures to reduce the level of carbon emissions.

Effective corridor protection includes looking for opportunities where corridors can be shared, such as this example in the south of Perth (Kwinana Freeway). Over the last 20-30 years, various transport projects have been developed without a rigorous assessment of whether modifications to the design of the new investment might enable concurrent or future re-alignment of other links.

Corridor protection

Decisions taken in the past, and those we make now, to preserve corridors for infrastructure development are critical to addressing issues such as traffic congestion, freight movement, water security and energy supply. For example, the M1 and EastLink in Melbourne and the M4 and M5 in Sydney were developed between the 1980s and 2000s on corridors that had been reserved and protected since the 1950s and 1960s.

If we do not set aside corridors for designated uses now, we risk them being 'built out'. The result is spiralling costs – particularly in road and rail infrastructure, where tunnelling can multiply costs by around 10 times – and, consequently, fewer funds for investment in other projects.

The Council of Australian Governments' Reform Council's review of capital city planning systems identified corridor protection as an area of weakness in current planning systems. Infrastructure Australia has recommended to the Minister for Infrastructure and Transport that work is required to develop a national corridor protection strategy. Key elements of the strategy will include:

- taking a truly long-term view of Australia's development (not less than 50 year horizon);
- agreement on key corridors requiring protection;
- identification of stable funding regimes for the progressive acquisition of the corridors – in order to remove those outlays from year-to-year budget cycles, where there is always a temptation to spend on short-term 'wants' at the expense of long-term needs; and
- joint governance arrangements.

The Council of Australian Governments' Reform Council's review of capital city planning systems identified corridor protection as an area of weakness in current systems.

Improved asset and demand management

High profile projects are often exciting and provide taxpayers with tangible evidence of where their money is going.

While new infrastructure is necessary, in some cases, effective asset and demand management can delay the need for new infrastructure or provide an alternative solution to addressing the infrastructure challenge.

In contrast, poor asset management can result in run down infrastructure requiring expensive restoration from funds that would have been used elsewhere, including on new infrastructure.

Asset management

There is significant scope for improvement in the way Australia manages its assets. In many cases, we have been making short-term decisions about investment, maintenance and renewal that are not sustainable over the long-term. This is exacerbated by, and at times driven by, the funds available at the time.

Effective asset management can expand our infrastructure capabilities by helping jurisdictions to:

- avoid significant costs in building new infrastructure;
- reduce life-cycle costs;
- improve infrastructure users' satisfaction by better matching levels of service with what users want – and are willing to pay for;
- foster transparency in decision making, allowing stronger public confidence in stewardship; and
- be more sustainable, by having long-term plans that provide equitably funded services across generations.[17]

It is crucial that we take a long-term view in respect of our assets, to ensure we are investing our resources in the most efficient and most effective way.

A leading edge approach to asset management

The Institute of Public Works Engineering Australia (IPWEA) is providing leading edge asset management guidance in Australia, and internationally, that supports long-term planning for infrastructure. IPWEA has developed a program to raise the profile and knowledge of sustainable management of community infrastructure, with a focus on:

- improved stewardship of assets;
- better asset management planning; and
- improved financial management of existing assets.

Within Australia, IPWEA has traditionally worked with local governments to improve asset management, concentrating on whole-of-life asset management and promoting accountability for asset management by governments.

It is pleasing that many local governments have commenced working on these improvements, providing an example to other jurisdictions and the private sector.

IPWEA's work has been recognised internationally. The organisation is influencing the work of groups such as the asset management expert task force for Federal Highways in the United States and local governments in Canada.

Infrastructure Australia supports IPWEA's moves to expand its influence beyond local government to public works and public infrastructure management in general. Infrastructure Australia encourages jurisdictions to access the guidance provided by IPWEA to assist them to adopt robust asset and financial management frameworks to best manage their infrastructure assets.

Demand management

Part of the cost of infrastructure and our cost of living is driven by peak use. In many infrastructure systems, peak capacity is very expensive, compared with base loads. Similarly it can be very expensive to achieve extremely high standards of reliability.

Some systems need to have the highest standards of reliability, for example, energy and water supply in hospitals. Equally, elsewhere there would be merit in a community debate about appropriate standards in infrastructure to be informed by the additional costs or savings of different acceptable levels of reliability.

There are opportunities to employ demand management to optimise our investment in infrastructure, particularly road and energy infrastructure. Managing demand can: assist in reducing or redistributing demand away from peak times or routes and can delay or avoid the need to increase capacity; improve environmental outcomes by reducing greenhouse gas emissions; and decrease congestion to improve the liveability of our cities.

To achieve effective demand management, jurisdictions need to:

- be prepared to fully explore the costs and benefits of using cost-reflective pricing to manage demand, and to implement user charging where the benefits clearly outweigh the costs; and
- increase the quality and level of information about the demand for and use of transport networks.

Infrastructure Australia recommends two key improvements:

1. the introduction of more robust demand modelling and risk assessments in strategic planning and project development; and
2. the increased use of intelligent infrastructure to gather and analyse demand information on infrastructure networks and to use this information to influence demand.

Intelligent infrastructure

Intelligent infrastructure involves using information and communications technology to collect, transmit and analyse information about infrastructure assets and networks.

Gathering, analysing and utilising this data provides better information about current inefficiencies and opportunities, as well as enabling improved forecasting for more informed infrastructure investment decisions and infrastructure management in future.

Intelligent (or smart) infrastructure represents a relatively low cost option for improving the performance of our existing infrastructure, in addition to expanding the capabilities of future investments.

This is true both in urban and regional areas.

Intelligent urban infrastructure

The metropolitan planning strategies of most state and territory governments are predicated on accommodating at least 50 per cent of population growth within established areas. Developing and implementing smart urban infrastructure solutions could play an important role in optimising infrastructure within infill areas and fostering sustainable development of our cities.

Infrastructure Australia encourages all levels of governments to use information and communication technologies that enable smart urban infrastructure outcomes. These activities include:

- sending real-time information to network operators and customers; and
- remote sensing information that helps network operators to manage demand, for example load indicators on roads and bridges.

Smart infrastructure – Ausgrid

IBM has successfully implemented a smart grid data management platform, designed and built with Ausgrid, to give the utility more data from part of its electricity distribution grid.

This data creates a foundation that will provide better monitoring and asset management capabilities for the local 11,000 volt distribution network that connects small street-side substations with major zone substations.

The platform involves the integration of monitoring devices that provide accurate and timely information about asset utilisation and performance on this part of the network. The data is collected centrally to provide a holistic view of parts of the electrical network across the company's electricity grid.

The solution also has the capability to provide data that identifies faults and outages within the grid when combined with smart substation equipment and technology. Once this technology is in place, consumers are expected to benefit from Ausgrid's improved ability to gain enhanced information on outages. This could minimise the extent of disruption to services and instigate quicker response times to repair faults.

The future

In an effort to improve strategic planning for infrastructure, Infrastructure Australia intends to:

- assist in preparing robust long-term strategies which consider how our decisions now will shape future cities and regions;
- identify and prioritise worthwhile projects to form the basis of a national infrastructure pipeline; and
- work with governments and the private sector to implement the actions identified in the *National Ports Strategy* and *National Land Freight Strategy Update*.

B. Infrastructure funding and financing

Our funding and financing goal

Infrastructure Australia's goal is to increase the pool of funding available for infrastructure investment and to facilitate the broader application of more efficient private financing mechanisms.

Key challenges

The primary constraints on the funding pool available for infrastructure investment are:

- our willingness to pay taxes;
- general government expenditure is projected to exceed revenues in future years, restricting the allocation of tax revenues to infrastructure investment; and
- a reluctance to broaden the application of cost-reflective pricing, particularly on roads.

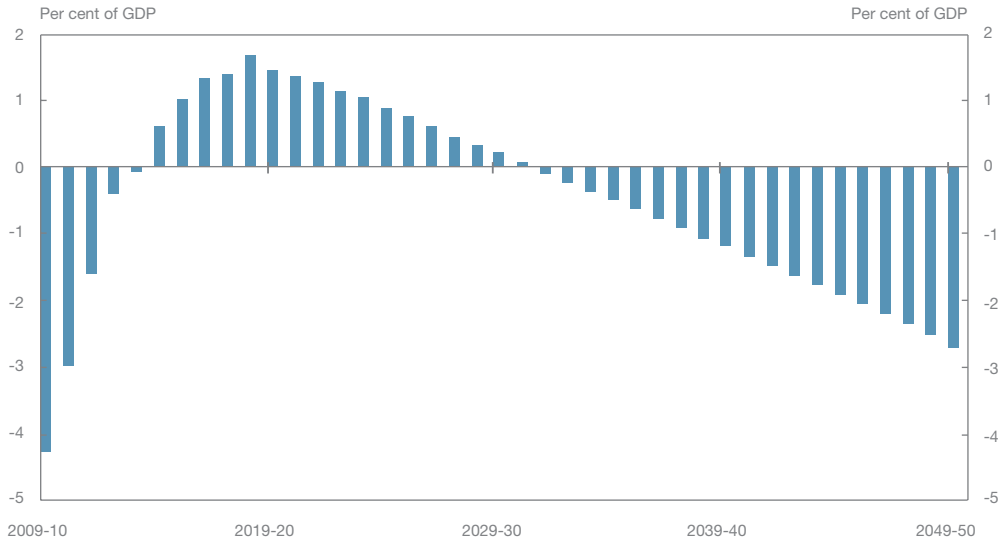
Government funding

Governments have difficult funding decisions to make and must make sure they use scarce funds wisely, by building worthwhile projects that enhance productivity, improve liveability or realise other important national outcomes.

As shown in Figure 1, the fiscal gap at the national level will start to grow appreciably within the next 20 years. On current parameters, the gap grows to around 2.75 per cent of gross domestic product by 2050 (almost $40 billion per annum in current terms), excluding interest payments.[18]

Under current arrangements, state and territory governments do not have sufficient room in their budgets to fund the level of infrastructure required and still retain credit ratings.

Figure 2 – Australian Government projected fiscal gap



Source: Australian Treasury, Intergenerational Report 2010

Whilst there are differing capacities to borrow in the short-term, all governments also face long-term fiscal pressures, constraining the level of infrastructure spending in the future.

Governments will continue to be called upon to support projects that are not suitable for user charging, for example public hospitals, public schools, national parks and prisons.

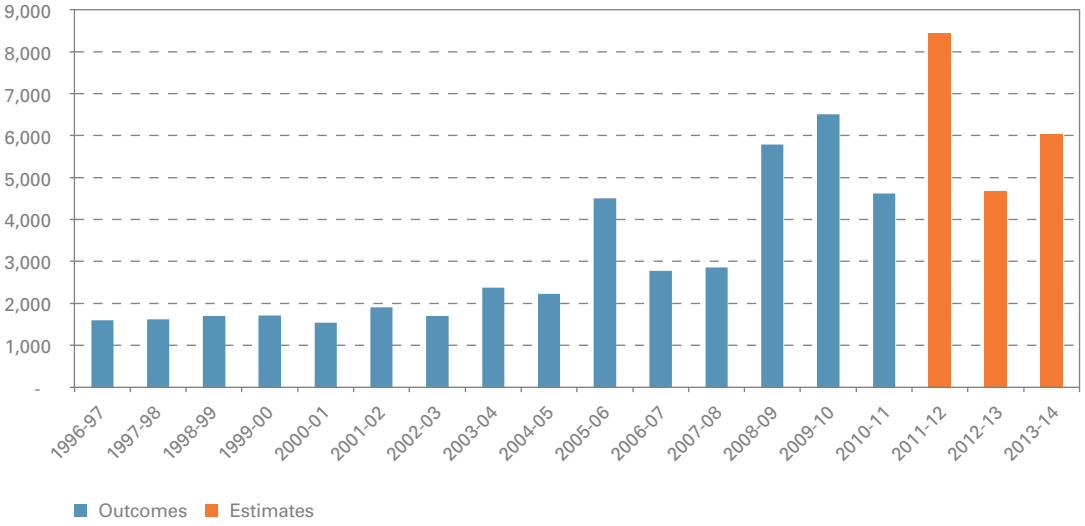
The crucial question is: if we are to re-allocate funds, where should we reduce spending? None of this is easy. It involves careful discussion and decision making.

In the following sections of this report, Infrastructure Australia identifies a range of ways forward on this issue.

The primary constraints on the broader application of more efficient private financing are:

- a relatively small number of projects that propose private financing; and
- the lack of a project bond market that would provide debt that matched the 20-30 year term of privately financed infrastructure contracts.

Figure 3 – Australian Government land transport infrastructure outlays ($ millions – nominal dollars): 1996-97 to 2013-14



Source: Infrastructure Australia analysis of data from the Department of Infrastructure and Transport

Infrastructure funding refers to how the infrastructure is ultimately paid for, such as government funding (from tax revenue) or user charges.

Infrastructure financing describes the ways that money is raised to pay for the construction of an asset, typically with a mix of private debt and equity.

Increasing financing options will potentially allow more projects to be progressed. Ultimately, though, every project must be funded or paid for, whether it is by customers paying a user charge or through governments using tax revenue.

The way forward

Governments will need to take action to address the funding challenge. There are multiple ways governments can increase the pool of funding for infrastructure. Some of these approaches will be unpopular, as they involve usage charges or increased taxes or, conversely, sacrificing service levels or expenditure on other national interests.

Infrastructure funding options include:

1. government funding – examining options to increase the allocation of government funding for infrastructure from the existing revenue base. In addition, governments could review their existing asset holdings to identify opportunities for recycling capital into new projects; and
2. user charges – expanding the application of user charges to fund new infrastructure, as well as incentivising more efficient use of infrastructure.

Availability charges may be useful as a means of funding some projects, although such availability charges ultimately represent a claim on future government budgets. Widespread use of this funding model would therefore have implications for the size of the fiscal gap facing many governments.

The application of cost-reflective pricing to economic infrastructure has proven very effective in the communications and energy sectors. Private investors are very keen to participate in these sectors. The broadening of this approach to the transport sector could significantly reduce the draw on general government revenues.

Crucially, for a project to proceed, the benefits the country and community will enjoy must outweigh the costs of the project. Thus, users paying for infrastructure (or the government) will receive a return on their investment, through improvements in quality of life and national productivity gains.

Therefore, whilst our focus in this section is on actions to increase the pool of funding available for new projects, it is imperative that decision makers, whether government or private investors, employ funds efficiently.

User charges

Given the prospective fiscal gap, there appears to be little option other than to apply user charging more widely. User charging can be used to:

- recover costs of investment, increasing capacity for funding new infrastructure projects; and
- manage demand and send clear signals to the market of the need for new investment.

Pricing mechanisms such as user charging are already in place in a number of sectors in Australia, for example in water, electricity, gas, air travel and telecommunications. In these sectors, few people expect these services to be provided free of charge. The nature of user charging means that it is more applicable to economic infrastructure, for example, toll roads and ports, rather than social infrastructure projects such as schools and hospitals.

The major review of taxation, *Australia's Future Tax System* (2010)[19], dedicated substantial attention to the inefficiencies that are generated by the absence of cost-reflective pricing mechanisms in the operation of transport infrastructure. Specifically, the review recommended that:

- governments should consider introducing network-wide variable congestion pricing on roads and that the use of revenues should be transparent to the community;
- governments should accelerate the implementation of cost-reflective mass-distance-location pricing for heavy vehicles and the revenues generated should be reinvested in the maintenance of the roads used; and
- on routes where road freight is in direct competition with rail that is required to recover its capital costs, heavy vehicles should face an additional charge on a comparable basis. This approach should only be taken where it improves the efficient allocation of freight between transport modes.

Reviews for state and territory governments, for example the Schott report and Lambert review to the New South Wales Government[20], have also urged wider adoption of a user pays approach to funding for infrastructure.

Infrastructure Australia supports these recommendations and will incorporate them in progressing work to facilitate increased understanding of this issue across the community.

The nature of user charging means that it is more applicable to economic infrastructure, for example toll roads and ports, rather than social infrastructure projects such as schools and hospitals.

Gateway Bridge, Brisbane, Queensland.

Concerns about the cost of living and infrastructure charges

Increases in infrastructure-related charges, especially water rates and power bills, have been a source of growing concern for households and governments. The media has given extensive coverage to the pressure – real or perceived – that rising utility charges have been placing on household budgets.

Governments have responded in various ways. Some have placed a cap on rises in utility prices. Others have ruled out introducing new types of charges.

Concerns about the cost of living probably explain, in part, why no government has been prepared to move to introduce even modest changes to the way we pay for our transport infrastructure.

Recent evidence suggests, though, that over the long-run, infrastructure charges have not increased as a proportion of household incomes.[21] The graph below shows that utility charges did not increase as a percentage of household expenditure between the mid 1980s and a few years ago, while transport outlays increased only slightly.

On the other hand, the data in Figure 3 only covers the period to 2009-10. Many of the reported increases in utility charges have occurred in the last year or two, and some of the increases will only take effect over the next few years.

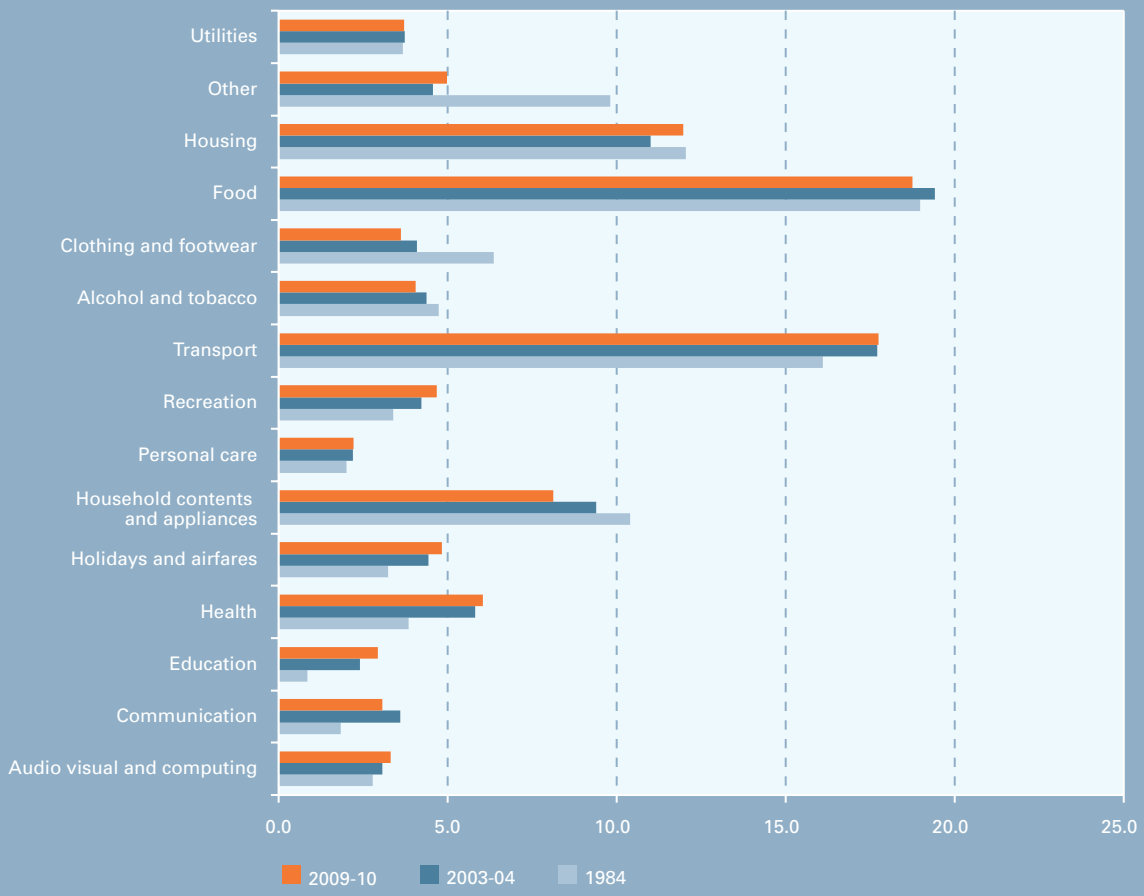
Equally, the graph does not show the differences between households with different incomes. For lower income households, basic necessities including utilities and transport represent a larger share of household income.

We cannot escape the fact that the maintenance, operation and expansion of our infrastructure networks have to be paid for. There are 'no free lunches'.

How these costs are shared between different groups in society is ultimately a question of social policy.

What is clear, though, is that we have to consider more closely the costs of our infrastructure networks. Investment in efficient, well scoped infrastructure is one way of moderating cost increases in the long-run.

Figure 4 – Expenditure shares, per cent of household total expenditure (1984, 2003-4 and 2009-10)



Source: National Centre for Social and Economic Modelling (2012), drawing upon Australian Bureau of Statistics data from the Household Expenditure Survey

Balance sheet review

Governments will continue to fund a high – if not the highest – proportion of Australia's public infrastructure projects. However, there are increasing challenges in balancing the desire for governments to fund large new infrastructure projects, maintain the highest level credit ratings and achieve budget surpluses.

Most state and territory governments have relatively limited capacity on their balance sheets for additional borrowings if they are to retain their credit ratings. It may be possible in many cases to increase investment capacity for priority projects by reallocating capital from existing assets.

Infrastructure Australia has been tasked with working with governments and the private sector to promote opportunities for private sector participation, as well as investigating alternative funding sources for infrastructure. In line with these objectives, Infrastructure Australia is aiming to work with governments to identify assets:

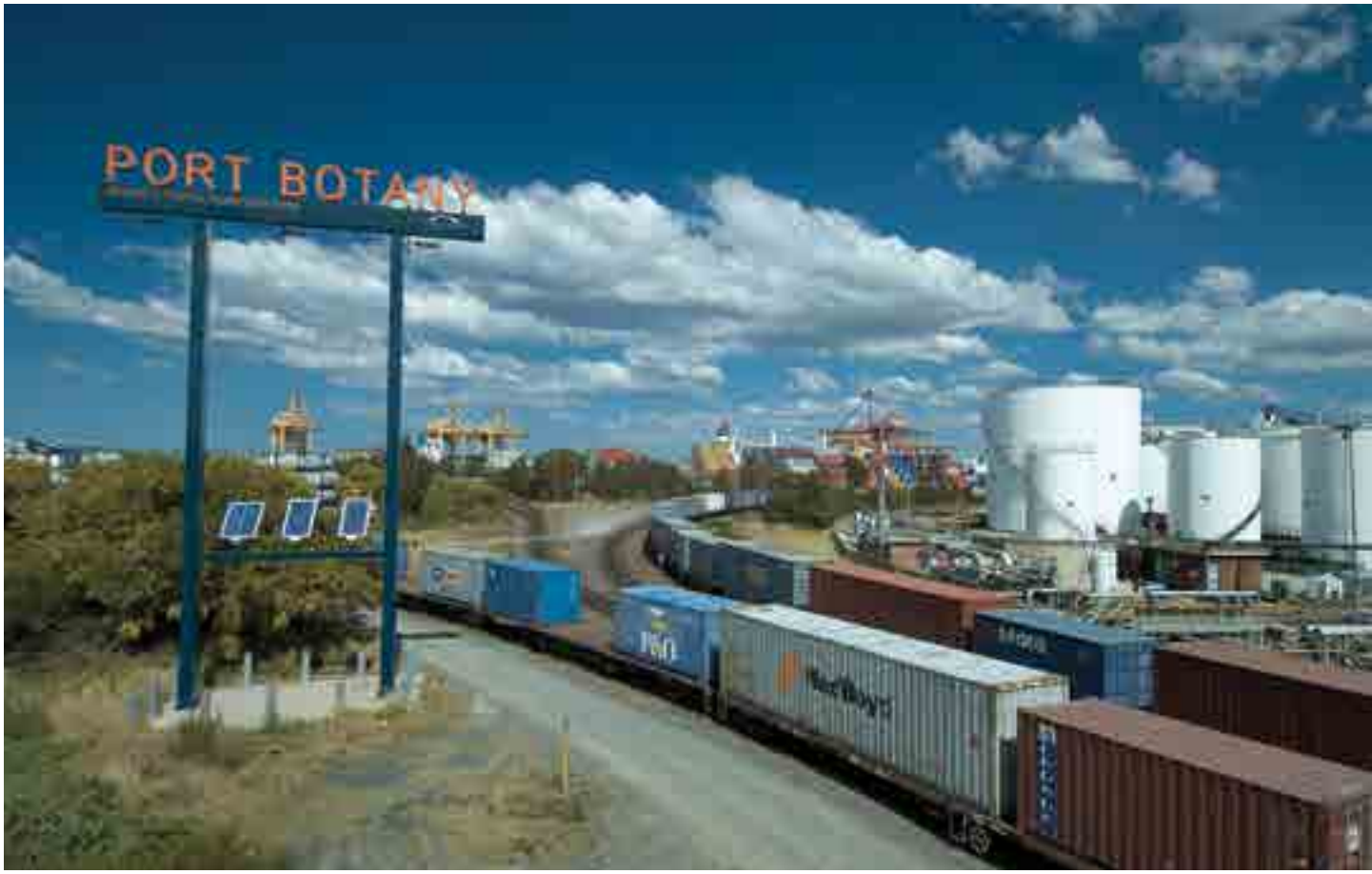
- which have a commercial focus, an appropriate regulatory regime and would be suitable for potential sale;
- where efficient pricing for use of the asset could be introduced or extended; and
- that have the qualities that private sector infrastructure investors would be attracted to, including a reliable and secure earnings stream.

This involves assessing each major asset on a case-by-case basis to identify and quantify economic efficiency gains and potential asset proceeds. An audit of assets should also identify opportunities for the better use of existing assets.

The New South Wales Government has announced its intention to re-invest part of the proceeds from its sale of a long-term lease of Port Botany in the state's infrastructure. This approach to recycling capital is one that other jurisdictions could usefully consider.

This is a key step towards enhancing the infrastructure investment pipeline. It can:

- attract private sector expertise for infrastructure management;
- introduce or extend efficient pricing models across the existing range of assets; and
- attract funding from superannuation funds with a preference for lower risk, existing assets.



In September 2011, the New South Wales Government announced its plan for a long-term lease of Port Botany. Proceeds from the sale are to be invested in Restart NSW – a fund established to deliver projects identified by the New South Wales Government. These include upgrades to the Pacific Highway and Princes Highway. The New South Wales Government aims to complete the transaction by mid 2013.

The options for increasing funding to invest in projects are limited to:

1. increasing government expenditure on infrastructure, through:
   a. increasing taxes; and
   b. reducing expenditure in other sectors;
2. broadening the application of cost-reflective pricing; and/or
3. selling government assets to liberate funds for new infrastructure projects.

In addition, governments could spread the benefits of their outlays by re-examining the nature of proposed projects. This might involve:

a. delaying projects or not building them;
b. reducing the scope of the projects or staging them; and
c. reducing service levels (and therefore the costs of the project).

Superannuation

Australians have made significant investments through contributions to superannuation funds, in expectation of an ability to draw on these to finance their retirement. In order to protect and increase this ability, any investment by superannuation funds into infrastructure needs to earn a risk-weighted return on the capital invested.

Infrastructure Australia is aiming to reconnect the public and the nation's infrastructure through Australians' superannuation savings. At present, around five per cent of superannuation funds are invested in infrastructure assets.

Action is required to reduce impediments to market efficiency and to match assets with investors. This would provide a pool of funds for new infrastructure investment, alleviating the pressure on government capital.

The potential benefits of infrastructure investment by Australian superannuation funds include:

- an increase in Australia's productivity, competitiveness, and quality of life arising from investment in well-conceived projects;
- individual financial benefits – these are well documented and include:
  - long-term, stable income streams;
  - inflation protection (helping with liability-matching);
  - potential for tax savings in some cases;
  - relatively low default rates; and
  - diversification potential, due to low correlations with other assets classes such as equities and bonds.

Reforms to procurement processes

A healthy infrastructure market is critical to improving value for money in infrastructure delivery. The key enablers to a healthy infrastructure market are a strong pipeline of worthwhile projects, significant participation by the private sector, high levels of competition for projects and efficient government procurement processes.

Infrastructure Australia is endeavouring to strengthen all of these areas:

- Infrastructure Australia's infrastructure priority list seeks to provide projects that the community, governments and the private sector can have confidence in;
- in its assessment of projects, Infrastructure Australia seeks to ensure that the potential for the private sector to improve value for money through bundling design, construction, operations, maintenance and financing is fully explored;
- Infrastructure Australia is actively facilitating the entry of offshore engineering, construction, operations and financing firms into the Australian infrastructure market; and
- Infrastructure Australia has just completed a major infrastructure procurement benchmarking study aimed at making outstanding procurement processes business as usual.

The procurement benchmarking project has identified quantitative and qualitative benchmarks for the aspects of: alliance; design and construct; and public private partnership procurement processes that have the greatest potential to impact on efficiency. A key objective is to reduce the costs of participation in the process by both the public and private sectors, ensuring that government can be confident it will get a robust technical, service and commercial outcome.

Skills development

As noted in the 2011 report, skills development in the infrastructure sector remains a pressing issue. Industry, working with governments, needs to increase its investment in formal training and on-the job skills development.

Without concerted action in this area, the delivery of projects will become increasingly costly and difficult. Skills shortages threaten to drive up project costs, and cause delays where 'key workers' are lost to a project.

The skills challenge is equally relevant at the front end of projects. There is a relatively small pool of professionals, particularly in government, with the requisite skills and experience to consider project funding and financing issues at the earliest stages of a project's life.

As more and more projects are necessarily developed by the private sector and funded other than through government grants, the country will need more skilled professionals who can look at plans and projects from a financial perspective. We need people who can pose and answer the question, "how does this project need to be structured in order for it to be privately financed?".

The Infrastructure Finance Working Group

The Australian Government established the Infrastructure Finance Working Group in June 2011 to identify barriers to attracting private investment in public infrastructure and to develop options to overcome those barriers.

The Group was constituted as a sub-committee of the Infrastructure Australia Council and comprised two Council members and key stakeholders from the finance sector.

A lack of projects, rather than a shortage of private capital or lack of investor appetite, was identified as the major impediment to greater private sector investment in public infrastructure.

The Group proposed a three-pronged approach: reforms to augment current infrastructure funding streams; improved infrastructure planning to provide a deep pipeline of projects; and further streamlining of procurement processes.

The future

Infrastructure Australia recommends that:

- state and territory governments initiate reviews of their government-owned assets to identify their potential for sale or lease to the private sector. This exercise should be used to facilitate an informed public debate about the arguments for and against retaining these assets in government ownership; and
- the Australian Government considers linking future infrastructure expenditure to state and territory government balance sheet reform as a reward mechanism.

As part of the balance sheet review, Infrastructure Australia intends to work with governments and government trading enterprises to nominate assets in each jurisdiction that could be sold to superannuation funds, either immediately or after introducing minor changes.

Development of our young infrastructure professionals is vital to the future of Australia's infrastructure sector. Skills from planning to project delivery will be required.

C. Governance and reform

Our goal

Infrastructure Australia's goal is to work with governments, industry and the community to drive the implementation of reforms to improve the management and use of our infrastructure.

Key challenges

The Organisation for Economic Co-operation and Development (OECD) 2010 review of regulatory reform in Australia described Australia as 'one of the front-running countries in the Organisation for Economic Co-operation and Development in terms of its regulatory reform practices'.[22] In another publication in the same year, though, the OECD noted the need for further reforms in infrastructure regulation.[23]

As a nation, we have deep experience in regulatory reform. During the 1990s, energy, water, telecommunication, seaports, airports and rail were all, to varying degrees, subject to reforms.[24]

Actions to liberalise trade, reform the labour market and increase competition have been identified as the most likely causes of the surge in productivity during the 1990s. So why did we slow the pace of regulatory reform? In some cases, once reform took place, there was a perception that further reform was not needed. Additionally, Australia's extended run of economic success may have lessened our sense of urgency for change.[25]

The standout absentee from the long list of reforms in the 1990s is our roads. Despite record levels of spending over many years, roads are also the area of greatest perceived infrastructure need.

There are widespread community concerns about the state of our roads and congestion. Road safety is an ongoing concern for the community, notwithstanding a long-run reduction in road deaths. And there are claims of substantial backlogs in road infrastructure maintenance in regional Australia.

Some progress has been made in moving to national regulation for road safety, but structural and pricing reforms are urgently needed to ensure management of our roads is not constraining economic growth and adversely impacting on our quality of life.

It is important that governments recognise this need and implement changes where they are needed. This is an opportunity to initiate another surge in productivity and improve our international competitiveness by increasing the efficiency of our national freight network, our urban roads, and, in turn, our international gateways.

As noted in chapter 3 of this report, commencing a trial of B-triple trucks on the Hume Highway would demonstrate a commitment to substantial reform in the regulation of our roads.

The way forward

Successful regulatory reform depends on effective communication and cooperation between different levels of government and industry. It is important to recognise that we are working toward the same objective: increasing Australia's prosperity and making it an even better place to live and do business.

The future

Infrastructure Australia will continue to work with governments and industry to drive reforms to enable the implementation of long-term national infrastructure strategies and the Infrastructure Finance Working Group's recommendations to improve the availability of funding and financing for infrastructure investment.

Iron ore cars at Dampier, Pilbara region, Western Australia

Regional Infrastructure Fund

The Australian Government established the *Regional Infrastructure Fund* to invest some of the proceeds of the resources boom to address urgent infrastructure needs, while supporting the mining industry, boosting export capacity and developing regional economies.

The objectives of the *Regional Infrastructure Fund* are to:

- promote development and job creation in mining communities, and in communities which support the mining sector;
- provide a clear benefit to Australia's economic development, and to investment in Australia's resource or export capacity; and
- address potential capacity constraints arising from export production and resource projects.[26]

Infrastructure Australia will work with state and territory governments to identify priority regions based on mining supply-chains from mine to port. Infrastructure Australia will then work with governments to establish priority infrastructure projects.

Infrastructure Australia developed best practice guidelines specifically for regional infrastructure planning to ensure jurisdictions develop plans with reference to national strategic priorities.

The Office of the Infrastructure Coordinator will assess economic infrastructure project submissions using its *Reform and investment framework*. Plans and projects will also be assessed against the objectives of the *Regional Infrastructure Fund*.

Based on these assessments, the Infrastructure Coordinator will provide recommendations to the Minister for Infrastructure and Transport.

Raising the profile of Australia's infrastructure-related challenges

Through a series of conferences, Infrastructure Australia is seeking to improve the level of public knowledge and informed debate around key infrastructure themes. These events are based on Infrastructure Australia's key areas of focus: strategy and planning, funding and financing, and governance and reform.

Infrastructure Australia's 2011–12 conference series

Infrastructure finance (November 2011)

Aim: to test the options for improving the viability and efficiency of private financing of infrastructure.

Outcomes: Conference participants agreed that:

- the Infrastructure Finance Working Group had identified most options that have the potential to improve the viability for private financing of infrastructure; and
- the conference was a positive development in consulting with industry and providing opportunities for input on policy development.

Connecting the Dots (February 2012)

Aim: to widen the debate on how the planning, prioritisation, funding, delivery and ongoing operation of infrastructure in remote Indigenous communities should be reformed.

Outcomes: the response to the conference was positive, and participants embraced the opportunity to discuss their positions. Over two days, the conference:

- confirmed that fundamental reform in infrastructure planning is required;
- recognised the need for communities to have a much stronger role in infrastructure decision making and governance mechanisms, supported by targeted capacity building initiatives in Indigenous communities; and
- endorsed the idea of exploring funding pools in each jurisdiction rather that multiple funding streams. For example, charitable and corporate funding could be 'pooled'. Development of a simple cost benefit analysis tool tailored to the needs of Indigenous communities could assist in prioritising essential Indigenous infrastructure.

Ports and cities (March 2012)

Aim: to foster informed discussion amongst key industry, government and user groups about the importance of long-term port and city planning for national productivity outcomes. Australia is highly urbanised and nearly all of our cities are based around internationally significant ports. Ports are increasingly drawing the attention of international bodies such as the Organisation for Economic Cooperation and Development.

Outcomes: Conference participants agreed on:

- the importance of stakeholder engagement for the development of long-term plans for each of Australia's major ports and relevant infrastructure in the regions they serve; and
- the need to identify and protect corridors for existing and future transport and infrastructure links to ports.

User pays – exploring the myths of free infrastructure (March 2012)

Aim: to raise awareness about infrastructure funding challenges, and to focus discussion on the opportunities and issues associated with the wider application of a user pays approach to funding infrastructure.

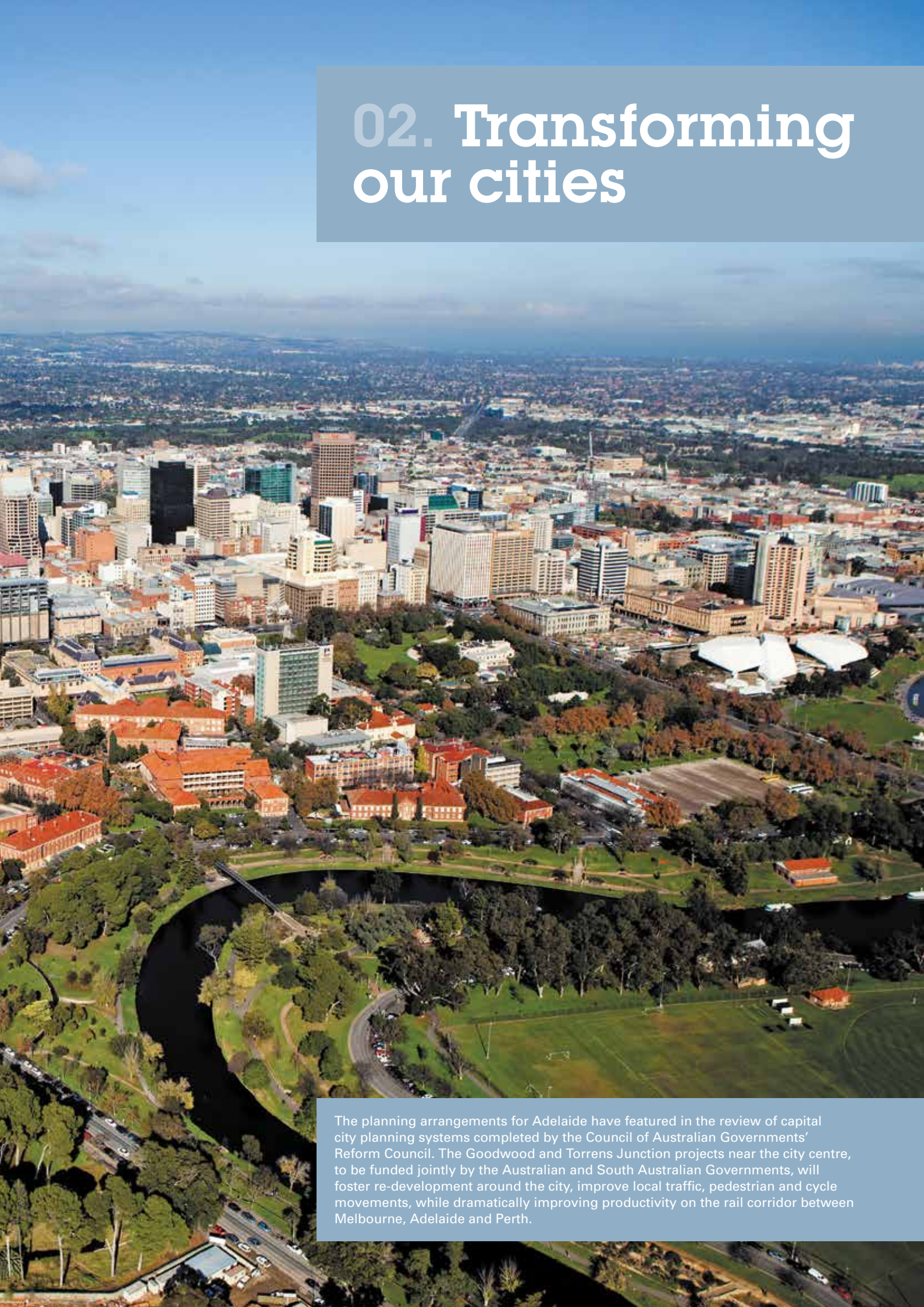
Outcomes: The conference:

- raised significant attention in the media, increasing debate in the wider community as well as amongst conference participants; and
- explored a deeper understanding of the politically sensitive nature of user pays, the basis for resistance to this concept, and approaches to addressing those concerns.

Infrastructure Australia intends to facilitate future events on the quality of drinking water in regional areas, user pays (roads), and road safety and national productivity.

Further information on Infrastructure Australia's conference series can be viewed at http://www.infrastructureaustralia.gov.au/conference_series.

02. Transforming our cities



The planning arrangements for Adelaide have featured in the review of capital city planning systems completed by the Council of Australian Governments' Reform Council. The Goodwood and Torrens Junction projects near the city centre, to be funded jointly by the Australian and South Australian Governments, will foster re-development around the city, improve local traffic, pedestrian and cycle movements, while dramatically improving productivity on the rail corridor between Melbourne, Adelaide and Perth.

Our goal To develop productive, sustainable and liveable cities by taking a long-term view when decisions are made about infrastructure investments.

Our goal

Infrastructure Australia's goal is to work collaboratively with governments, industry and the community to improve the productivity, sustainability and liveability of our cities.

Around 80 per cent of economic activity occurs in our cities. Over 80 per cent of Australia's population growth between 2001 and 2010 took place in the major cities.[27] It is critical, therefore, that we get the planning right in our cities.

Infrastructure Australia's interest in transforming our cities is a broad one. It is not just about infrastructure. Our transport networks, our utilities, our communication systems need to serve a purpose – supporting national aspirations for our cities.

Infrastructure Australia advocates for a long-term perspective on city planning, based on a horizon of 50 years or more. We believe that a long-term view is needed because cities will continue to grow and change beyond the 20-30 year focus of most metropolitan strategies and plans.

Key challenges

The key challenges we face in pursuing our goals are significant and include the economic, social and environmental sustainability of our cities. In particular, we need to focus on:

- maintaining productivity;
- adopting a truly long-term perspective (50 plus years) when we make decisions that will shape our cities;
- developing robust planning systems for all of our major cities;
- addressing the impacts of climate change and the cost-of-living implications of rising energy and water prices; and
- ensuring our cities are socially inclusive – not divided.

The way forward

Transforming our cities into productive, sustainable and liveable places requires a coordinated and multifaceted response. Such a response needs to encompass:

- infrastructure funding and financing models that ensure that the maintenance of existing assets and development of new infrastructure meets community needs – now and in to the future;
- an informed community debate on how we manage population growth and urban change; and
- the need to ensure that state and territory metropolitan plans are linked with governments' fiscal strategies and focus both on improved asset management and the creation of new infrastructure, where appropriate.

Recognising our key challenges

Maintaining productivity

During much of the first decade of this century, productivity growth in Australia has been below the average of member countries of the Organisation for Economic Co-operation and Development (OECD).[28]

Signs of slowing productivity growth are readily observable in our cities, principally in the form of congestion on our transport networks, longer travel times and, often, a mismatch between where can people afford to live and available employment options.

The latter issue is particularly relevant for lower paid workers such as hospitality staff and for people in nursing, teaching and emergency services, who often need to travel long distances to work. As a result, employers in these industries may face a tightening labour pool.

Long-term projections of government finances assume a faster rate of productivity growth than was the case during the last decade. The projections also assume that population growth will play a more significant role in contributing to overall economic growth.

Improving liveability and social cohesion

Australian cities perform well in several international comparisons. Four of the top 10 cities in The Economist Intelligence Unit's 2011 *World's Most Liveable Cities* survey were from Australia.[29]

Such surveys are not perfect. They often present an 'overseas' view on relative standards of living, rather than the views of local residents. Our focus also needs to be on ensuring that all Australians who live in our cities have the opportunity to access the benefits of living in our cities.

The Council of Australian Governments stated in its December 2009 *Agreement on Capital City Planning* that our cities need to be socially inclusive.[30] As a nation, we still have some way to go in meeting this aspiration.

Faced with issues such as decreasing housing affordability, limited access to local employment opportunities, inconsistent access to public transport, and increasing traffic congestion, there is an arguable case that we are making little or no progress in planning for or developing liveable cities. Worse, some of our larger cities appear to face a future of greater division rather than inclusion.

How will our cities be defined in 50-100 years?

Our actions over the next 10 years will have a significant bearing on the result.

Darwin is likely to play an increasingly important role in maintaining our national productivity during the 'Asian Century'.

As a community, we need to ask ourselves whether the portfolio of projects being considered at present is one that maximises the prospects for our grandchildren and great-grandchildren. If not, then we need to debate:

- how many people might live in our cities and where they will live;
- what we want our cities to look like;
- how we want to move around;
- how we pay for infrastructure and the mix of projects that is appropriate to meet our future needs; and
- the scoping of projects, in other words, examining opportunities to cut back on 'nice to have' elements, or elements that are inconsistent with maximising prospects for future generations in a financially responsible way. Staging of projects is an option to achieve this goal.

Housing affordability is a growing challenge, particularly in our major cities. Research overseen by the Australian Housing and Urban Research Institute (AHURI) found that housing affordability is predicted to worsen in the first half of the 21st century as a result of anticipated demographic and housing market changes.[31]

It is clear that housing provides benefits beyond shelter. The AHURI research found that access to appropriate housing influences a range of outcomes for individual households, such as workforce participation, access to jobs and services, family stability and educational attainment.

Declining affordability has implications on a range of fronts: economic performance and labour market efficiency across our cities; social cohesion and polarisation of cities; environmental impacts; and the creation and distribution of wealth through home ownership.

Transport disadvantage, a situation where individuals or households have little or no access to private transport and only limited access to public transport in order to meet their daily needs, is also an area of growing attention and concern.

The intersection of rising housing costs and the establishment of areas with poor transport connections represents a particular challenge for governments and the community.

Government priorities are shifting towards a greater focus on public transport. Infrastructure Australia commends this course of action.

The pattern of investment in transport and other infrastructure can either improve or reduce social cohesion in our cities. The portfolio of projects to be supported by governments should consider:

- how the projects connect with existing networks;
- how the projects are supported by complementary investment in new social infrastructure such as hospitals and educational facilities; and
- the social implications of how projects are funded.

The Perth City Link project, funded by the Australian and Western Australian Governments, involves a significant redevelopment of road and bus facilities at Perth Station. The project aims to foster transit-oriented development and provide an important connection between the Perth central business district and the adjoining suburb of Northbridge.

Addressing the impacts of climate change

Climate change will affect our cities in a range of ways, including:

- more extreme weather conditions, including the effects of heat stress on extremely hot days;
- the potential for extensive damage and loss of life associated with major storm and flooding events; and
- the impact of increased variability in rainfall on water supplies, and the pressure to build often expensive infrastructure, such as desalination plants, to provide water security.

Energy prices are likely to continue rising over the coming decades, potentially rapidly and significantly. This is despite the fact that greater attention is being given to the development of non-traditional sources of oil and electric vehicles.

Some energy sources, such as shale oil, are likely to add to the challenge of reducing carbon emissions. Higher energy prices will lead to an increase in the real cost of driving, and may result in a continued decrease in per capita vehicle usage. As shown in Figure 5, the growth rate in per capita distance travelled in motor vehicles has slowed since the 1980s and since the global financial crisis.

Higher fuel prices will expose those living on the fringes of our major cities to increased transport costs, and potentially increased isolation from employment, educational and recreational opportunities.

Although the prospect of increased fuel prices affects all Australians, including those living in regional Australia, this is a particular issue for the development of Australian cities. It raises questions about what type of transport infrastructure we should invest in, for example roads versus public transport.

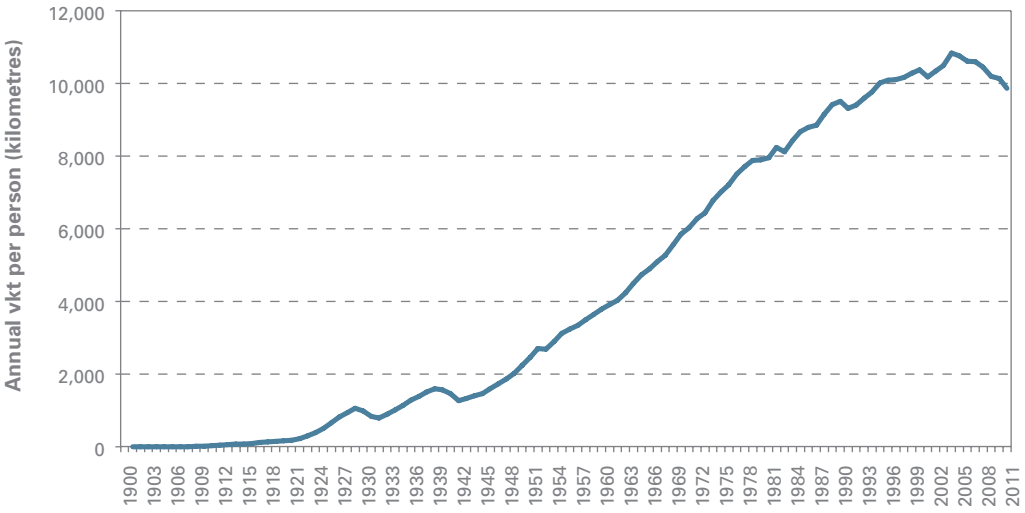
Although difficult to predict, it is prudent to plan for a range of fuel price, technology and demand scenarios when evaluating the need for transport infrastructure.

Is our love affair with the car coming to an end?

International and national research shows that the distance driven per capita is starting to level off and decline.[32] Factors influencing this trend include macroeconomic shifts brought about by the global financial crisis and rising fuel prices.

Research released by the Department of Infrastructure and Transport's Bureau of Infrastructure, Transport and Regional Economics in March 2012 attests to this trend.[33]

Figure 5 – Australian trend in vehicle kilometres travelled per person



Source: Bureau of Infrastructure, Transport and Regional Economics

The way forward

Shaping our cities: taking the long view

The need to take a long-term perspective is a particular issue for our three largest capital cities: Sydney, Melbourne and Brisbane. The growth being experienced in those cities – and in nearby regional centres such as Newcastle, Wollongong, Geelong, the Sunshine Coast and the Gold Coast – suggests that the challenges faced by the big three cities are qualitatively different and more challenging than in other cities. These challenges include greater pressure to replace older assets and develop new transport links in expensive tunnels.

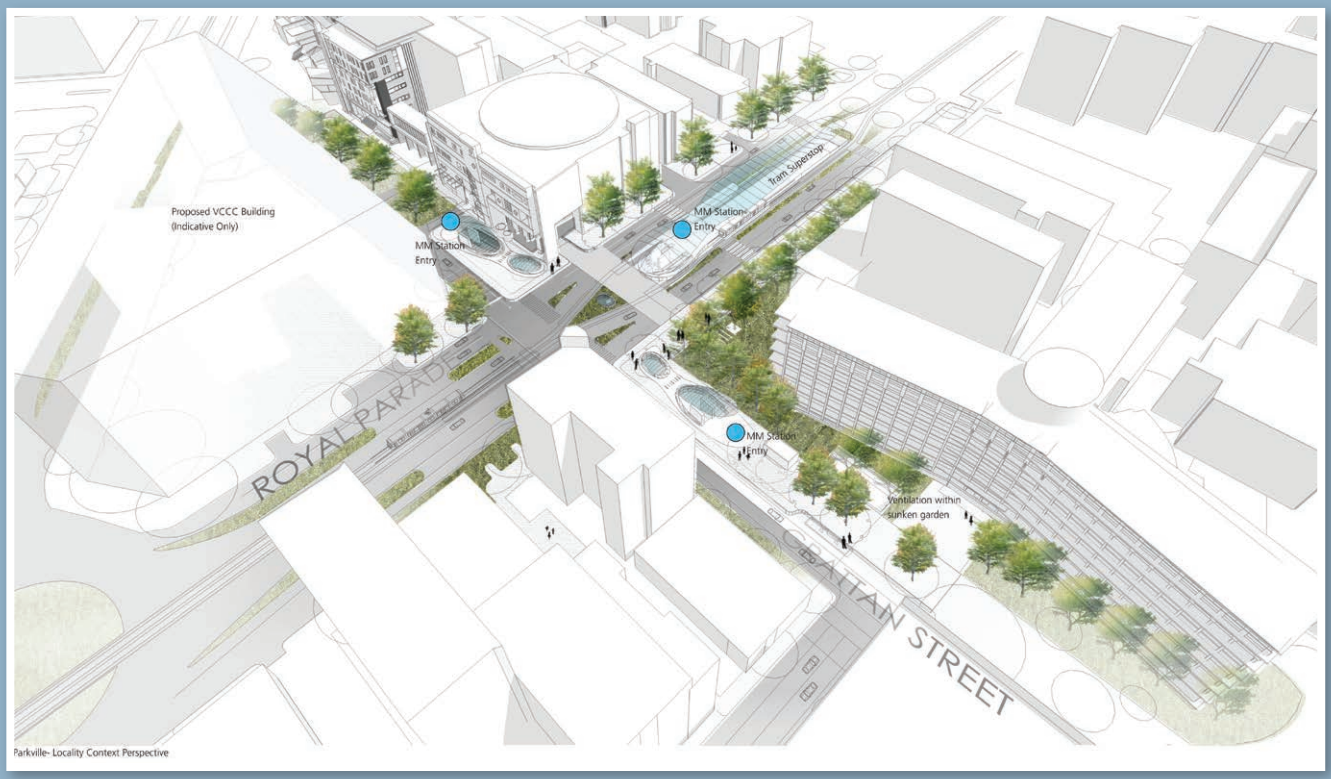
For example, in the Sydney case, the population of the overall Sydney/Newcastle/Wollongong metropolis is projected to grow from approximately 5.1 million people in 2006 to around 8.1 million people by 2056 (on medium-level assumptions). A century earlier, in 1956, the combined population of Sydney, Newcastle and Wollongong was just over 2 million people.[34]

How growth is accommodated and managed will have a critical bearing on the lives of millions of people, and on the New South Wales and national economies.

The size of cities reflects their success. It is tempting to wish that our cities could stop growing, but the economic and social consequences of that course must be understood and well-considered. The risk of discouraging growth is that our cities 'stagnate' economically and socially, driving industry, investors and citizens elsewhere. This risks inhibiting Australia's productivity growth and improvements in our quality of life.

This photo of Melbourne in the 1930s emphasises how much our cities have grown and changed over the last 80-100 years. In planning our cities, we need to be thinking about the shape of our cities not just 20 years out but over a much longer period. [Swanston Street Melbourne looking south, Town Hall on the left, circa 1930]

Taking a long-term view



Melbourne Metro offers the potential to act as a catalyst for increasing productivity through the creation of development opportunities and jobs at Parkville near the University of Melbourne and Royal Melbourne Hospital.

Sydney Harbour Bridge

The Sydney Harbour Bridge recently celebrated its 80th birthday. The New South Wales Government took a very long-term view in setting the scope for the bridge – the population of Sydney at the time the *Sydney Harbour Bridge Act* was passed in the early 1920s was around 940,000 people – less than the number of vehicles that use the bridge each week in early 2012.[35]

The Sydney Harbour Bridge has defined Sydney internationally for the best part of a century. For residents and city planners, the bridge is a key consideration in determining where to live, how to commute and how to manage congestion and improve public transport.

Melbourne's City Loop

Construction of the Melbourne Underground Rail Loop (now known as the City Loop) commenced in 1971 and the project was completed with the opening of Flagstaff Station in 1985 . The City Loop provided customers with a choice of five stations around the central business district and added capacity to the rail network.

The City Loop had been conceived of as early as 1929 by Melbourne's Metropolitan Town Planning Commission, which recommended the construction of railway tracks and stations under the eastern and northern sides of the central business district.

The vision was to connect this new line to the existing lines in north Melbourne and Richmond. Forty years later, the *Melbourne Metropolitan Transport Plan* also supported the need for an underground loop.

Since 2004-05 patronage growth on Melbourne's metropolitan trains has grown rapidly. In 2010-11, there were 228.9 million boardings, an increase of 4.3 per cent on figures for the previous financial year.[36]

The proposed Melbourne Metro project aims to boost rail capacity through the central business district to meet projected rail demand as Melbourne continues to grow over the next several decades.

Brisbane's Story Bridge

The 282 metre Story Bridge is Australia's longest cantilever bridge and was an ambitious engineering feat for the time.

Planning for the Story Bridge began in the 1920s and construction commenced in 1935. The six-lane bridge, which spans the Brisbane River from north to south, was opened in 1940 in front of a crowd of 37,000 people.

The bridge has played a major role in linking the two halves of inner Brisbane and diverting traffic from the central business district. Today, the Story Bridge carries around 100,000 vehicles each weekday (based on 2010 figures).[37]

The scale of growth and the potential demands for new infrastructure present a particular challenge when viewed in light of the fiscal gaps facing the Australian, state and territory governments. On current parameters, the gap facing future Australian Governments will grow to around 2.75 per cent of gross domestic product by 2050 (almost $40 billion per annum in current terms), excluding interest payments.[38]

Long-term projections by the New South Wales and Victorian Governments suggest that the finances of state and territory governments also face particular pressures. For example, the fiscal gap in the New South Wales Government budget is projected to grow, on current assumptions and budget settings, to 2.8 per cent of gross state product by 2050-51.[39]

Hard decisions about how we pay for our infrastructure or dramatic changes to outlays in other sectors will be required. In the absence of action on these fronts, it is difficult to see how governments will have the capacity to pay for the infrastructure proposed in current plans, let alone that which may be required in the future.

As a nation, we must be prepared to re-think public finances and to ensure that the projects we do invest in over the next 20 years are clearly conceived and contribute to the sustainable development of our cities over the long term.

Facing up to 'wicked' infrastructure problems

In the early 1970s, planning academics at the University of California, Berkeley introduced the concept of 'wicked problems'.[40] Such problems: are typically multi-causal; involve the risk of unforeseen consequences; have no clear solution; are socially complex; and do not fall within the responsibility of one organisation.

Arguably, more than any of our major cities, Sydney faces a confluence of 'wicked' infrastructure problems over the next few years. Key challenges for the city will include:

- decisions about a second airport;
- decisions about a prospective high-speed rail link, including location of stations;
- road and rail projects across Sydney; and
- movement of freight to and from Port Botany or Port Kembla or the Port Newcastle.

It might be argued that this is an issue confronting the entire nation, not just our cities. There is some basis for that view. Even so, the issues are going to be most pressing in our cities for the following reasons:

- the majority of Australia's citizens live in the major cities and the majority of Australia's gross domestic product is generated in the cities.[41] If we make mistakes in the cities, we affect a rather larger number of people, and at a greater economic cost;
- although there will be exceptions to the rule, rural infrastructure networks arguably have more spare capacity than urban networks. In other words, regional networks should, on the whole, be able to accommodate some growth in demand without necessitating significant new investment in the creation of capacity; and
- the cost of providing infrastructure in our cities is often higher than in regional areas, either because it has to be retrofitted into established networks rather than built in greenfield areas, or because in some cases decisions will be taken to develop new infrastructure in tunnels, usually at a cost per kilometre of 10 times the cost of equivalent works on the surface.

The projections of fiscal gaps suggest that, if the current approach to funding is maintained, the projects that are developed in our cities over the next 20 years may be amongst the last that can be funded through conventional government means.

Improving strategic planning to ensure we are investing in clearly conceived projects in our cities

Melbourne

The Route 86 tram improvement project north of the Melbourne central business district demonstrates a number of positive elements. These include:

- close integration of land use and transport decisions, notably decisions to increase densities along the relevant part of the tram route and invest in upgrading pedestrian amenities; and
- close collaboration between the Victorian Government and Darebin City Council.

The Victorian Government has submitted a proposal seeking Infrastructure Australia's support for further upgrades along the route. Infrastructure Australia is working with the Victorian Government to develop these proposals and pursue this worthwhile model of urban development.

Brisbane

The Brisbane Cross River Rail project has been assessed by Infrastructure Australia as ready to proceed, following four years of solid planning and project development. The level of project development is appropriate given the estimated project cost of $7 billion for the full project.

Cross River Rail has the capacity to support the balanced development of Brisbane and south east Queensland well into the mid-century.

The scale of the project presents significant funding challenges. The project will almost certainly need to be staged. The new Queensland Government has initiated a review of the project. The review is scheduled to report to the Queensland Government by June 2012. The Government is expected to advise Infrastructure Australia of its views on the project later in the year.

The proposal for Cross River Rail includes a station at Albert Street in the southern part of Brisbane's central business district. The rail project would dramatically improve access to this area, one which is presently relatively remote from the rail network.

Key policy responses to urban growth and change

In December 2009, the Council of Australian Governments set the following objective for its approach to the planning of Australia's cities: "*to ensure Australia's cities are globally competitive, productive, sustainable, liveable and socially inclusive and are well placed to meet future challenges and growth*".[42] Set against the challenges described earlier, governments have taken some initial steps in the last year to explore how we might meet that objective. These include:

- the completion of the review of capital city planning systems by the Council of Australian Governments' Reform Council;[43]
- the Australian Government's release of the *Sustainable Population Strategy*;[44]
- the Australian Government's release of the *National Urban Policy*;[45] and
- a number of state/territory reviews of metropolitan strategies.

Council of Australian Governments' Reform Council's report on capital city strategic planning systems

The release of the Council of Australian Governments' Reform Council's report on capital city strategic planning systems in April 2012 was a significant milestone in better understanding the strengths and weaknesses of how we plan our cities.

The report reviewed current planning systems against nine criteria which the Council of Australian Governments agreed in 2009 were to provide the platform to *"re-shape our capital cities"*.

The Council of Australian Governments also agreed that by 1 January 2012 all states and territories will have in place plans that meet the criteria and noted that the Australian Government will link future infrastructure funding decisions to meeting these criteria.

The Reform Council found that jurisdictions had taken steps to improve their strategic planning systems during the course of the review. Nevertheless, the report was significant because not one city had planning systems that were fully consistent with the criteria that the governments themselves had set in 2009.

In most cases, current systems were found only to be 'partially' or 'largely consistent' against a criterion. There were relatively few instances where a city's processes were judged to be consistent with a particular criterion.

The Reform Council's report highlights the need for substantial and continuous effort by all jurisdictions, including the Australian Government, to improve metropolitan planning systems. To date, the response of governments to the report has been muted and disappointing.

Infrastructure Australia will continue to advocate for substantial improvements in our metropolitan planning systems. This will remain a core part of the organisation's work over coming years.

Local government reform in Perth

Infrastructure Australia's 2011 report to the Council of Australian Governments highlighted the need for reform in the way we govern our cities. The Western Australian Government's metropolitan local government review addresses that need.[46] The review is examining options for the structure of local government within Perth, a city with a population of almost 1.8 million people and 30 councils. Perth's population is expected to grow to more than 3.5 million by 2056.

The review is looking at the challenges facing Perth over the long-term, and how the structure of local government in Perth can support implementation of the Western Australian Government's metropolitan strategy, *Directions 2031*. Draft findings have been released for comment – the shortlisted options involve either governance by 12, six or one local council. A final report is expected in June 2012.

Council of Australian Governments' Reform Council's report on capital city strategic planning systems

The Council's conclusions confirm Infrastructure Australia's insights from its assessment of project proposals and from its engagement with jurisdictions on strategy development over the last four years. Key observations include:

1. Current metropolitan planning systems are poorly linked with governments' fiscal strategies. Infrastructure projects that are likely to be 'unfundable', or which cannot be funded without significant policy reform such as transport pricing, are committed to or incorporated in strategic plans.
2. Governments struggle to engage the community in debates about their metropolitan plans and the implicit trade-offs between policy outcomes. Despite earnest efforts to engage the community, our capital city planning systems fail to encourage significant community debate about what types of cities people want and, in particular, whether they are prepared to pay for the infrastructure required to support community preferences.
3. Current capital city planning and project development processes do not adequately engage in scenario planning. More often than not, planning is based on a simple set of assumptions that 'business as usual' conditions will continue to apply. There is an assumption that the 'drivers of change' – for example, demographics, economic fundamentals, energy supply, technological change, environmental issues – will continue to evolve more or less as they have done in the past.
4. Metropolitan planning systems, and the plans which arise from them, tend not to address national policy issues in a substantive manner. Rather, such issues tend to be addressed in the plans in aspirational terms.
5. Policy review processes tend to be set up by individual Ministers or their agencies without substantial regard for their implications for the development or implementation of metropolitan plans.
6. Capital city planning systems tend to focus on new buildings and infrastructure. The reality is that, in 40-50 years, the great majority of the infrastructure we use today will still be with us. The challenge is to look at ways to better manage the assets we have, as well as innovative ways to ensure that current assets meet our future needs. The latter approach could include issues such as making our existing housing stock more flexible through dual occupancy or conversions. Metropolitan plans need to address policy change that encourages better use of current infrastructure assets, as well as focussing on the need for new infrastructure where applicable.
7. Planning agencies tend to be outside the central part of government, and their influence on reform is modest. Metropolitan plans get changed when it suits the political interests of the government of the day or the policy interests of another part of the government. New governments often feel obliged to distance themselves from their predecessor's plans, even though there may be elements in those plans that are worthwhile. This calls into question the long-term integrity and durability of the metropolitan planning process.
8. In the transport sector in particular, metropolitan planning systems appear to give limited credence to the implications of climate change and energy security when determining infrastructure investment priorities.
9. Metropolitan planning systems do a relatively poor job of transparently prioritising investment in metropolitan areas, especially in urban renewal areas.
10. The need for some form of pricing reform, especially in the transport sector but also in the water sector, is not seriously acknowledged at the political level.

New transport investment must be integrated with land use changes in order to leverage that investment – in some cases, planning is focussed on transport infrastructure, without considering how it will shape the area.

Development of larger centres outside our capital cities, such as Coffs Harbour, may be an option for managing population growth. To do so, the country needs to learn lessons from past experiences with regional development policy.

Sustainable Population Strategy

At the time of last year's report, the *Sustainable Population Strategy* had just been released. It was an important step in a challenging area of public policy, one which attracts a range of different views. The strategy was criticised in various quarters for lacking specificity, although its central premise – that population growth has to be managed – is correct.

What has the community confused and concerned is the fact that the *Sustainable Population Strategy* is relatively silent about the detail of what managing population growth might involve. If managing population growth is to be translated from high-level strategy and statements of principle to concrete actions, it must occur through:

- planning and investment decisions at the metropolitan level; and
- debates and subsequent decisions about whether population growth can be encouraged to occur in non-metropolitan areas, either generally or in designated centres.

If we do not have that debate in the community – and soon – we are at risk of drifting through a series of incremental, often reactive decisions over the next decades.

Over the course of the century, several of our major cities will have grown to metropolises of five to ten million people. Without a coordinated response to these population and planning issues, these metropolises could fall well short of the productive, sustainable, liveable and inclusive places to which the Australian, state and territory governments aspire.

The challenge is to foster an informed, constructive public debate.

Given the community's desire for the sorts of higher order attractions and services that are more common in larger centres, growth outside of the capitals might need to be concentrated in a small number of provincial cities.

The history of regional development and decentralisation policy in Australia is not an encouraging one. Past efforts have been fragmented and short-term. This issue would require closer engagement by all levels of government around specific locations outside our capital cities.

An alternative approach is founded on whether, as a nation, we can conceive of and agree upon long-lasting policy and funding arrangements that would enable some of the growth currently projected for hot spots – notably Perth and the east coast cities – to occur in the other capital cities. This will test the ability of the community and governments to debate difficult, contentious issues.

As noted in the *Sustainable Population Strategy*, 'place matters'. Decisions about particular places – for example, the amount and design of new development and the types of infrastructure – will determine whether the aspiration for sustainable population growth is achieved.

Salamanca Place in Hobart exemplifies the notion that 'place matters'.

National Urban Policy

The Australian Government's *National Urban Policy,* also released in May 2011, is an important step in setting the framework for city-making. Infrastructure Australia looks forward to ongoing work by the Australian Government and its agencies to translate the policy into specific, tangible actions.

If it is to be effective, the *National Urban Policy* needs to be applied across Australian Government portfolios, beyond the infrastructure and transport portfolio.

The *National Urban Policy* should be implemented through:

1. clear and consistent decisions on investment: funding only those projects that clearly meet the objectives of the *National Urban Policy;*
2. complementary regulatory and reform decisions of governments, related to, for example, urban planning decisions on zoning, fringe benefit tax treatment on private motor vehicle usage and mandated environmentally sustainable design benchmarks for new buildings;
3. advocacy decisions of government, for example educational programmes; and
4. administrative processes, for instance, challenging deeply ingrained practices of government agencies by ensuring that adequate consideration is given to the spatial and cross-portfolio impacts of decisions.

The Australian Government's decision to establish an Urban Policy Forum, comprising representatives of all levels of government, industry academia and the non-government sector, is also a useful step in providing a framework to guide the broad range of decisions related to our cities. The Forum's first meeting in March 2012 demonstrated broad interest in urban policy, from beyond the areas traditionally associated with city making, and a keen desire for action.

Urban roads

Infrastructure Australia's broad approach to considering urban road proposals has been established for some time.

The 2010 report to the Council of Australian Governments identified the need for urban road proposals – particularly those in our larger cities – to demonstrate a clear focus on making better use of existing road networks and ensuring the efficient movement of both road-based public transport and freight.

The 2011 report to the Council of Australian Governments set clear parameters for the types of proposals we would recommend to receive Australian Government funding. Road proposals need to be scoped in line with the principles outlined in our 2010 report, and provide for tolling/charging that reflects the economic benefits of the project(s), and which sends signals that will influence demand.

Infrastructure Australia applied these principles when framing advice to the Minister for Infrastructure and Transport on project scoping and funding options for improvements to the M5 and F3-M2 corridors in Sydney. In essence, the report recommended the re-scoping of those projects to focus on the movement of trucks, light commercial vehicles such as delivery vans, and road based public transport. We recommended that those re-scoped projects be largely funded through tolls and/or some form of network-wide charging.

This model recognises:

- the need to scope projects in a way that better reflects governments' strategic priorities, for example increasing the share of trips by public transport and improving freight transport;
- the need to factor in the opportunity cost related to any commitments of scarce public capital;
- the need to give greater emphasis to invest in prudently scoped public transport projects, especially given the fiscal constraints facing all levels of government; and
- that road based public transport can make efficient use of well scoped road projects, as well as usefully augment rail based transport.

This approach also has relevance for other cities. For example, it is relevant to governments' consideration of how projects such as the East-West Link in Melbourne, the Gateway upgrades in Brisbane, the Northern Connector in Adelaide and the Gateway project in Perth should be conceived and funded.

Action towards a consistent form of network-wide charging on motorways is likely to be a useful step. Motorway networks in our major cities are characterised by a wide variety of approaches, decreasing the impact of pricing signals.

The Australian Government's decision to commit funding towards the establishment of a dedicated entity – a so-called 'special purpose vehicle' – for the development of future road links in Sydney is a welcome step. Although the initial task of the special purpose vehicle is to develop high value vehicle links in the M5 and F3-M2 corridors, it could be used as a means of moving Sydney's complicated and inconsistent tolling regime on to a common, per kilometre base.

Poor signals for transport choices: Sydney's road network

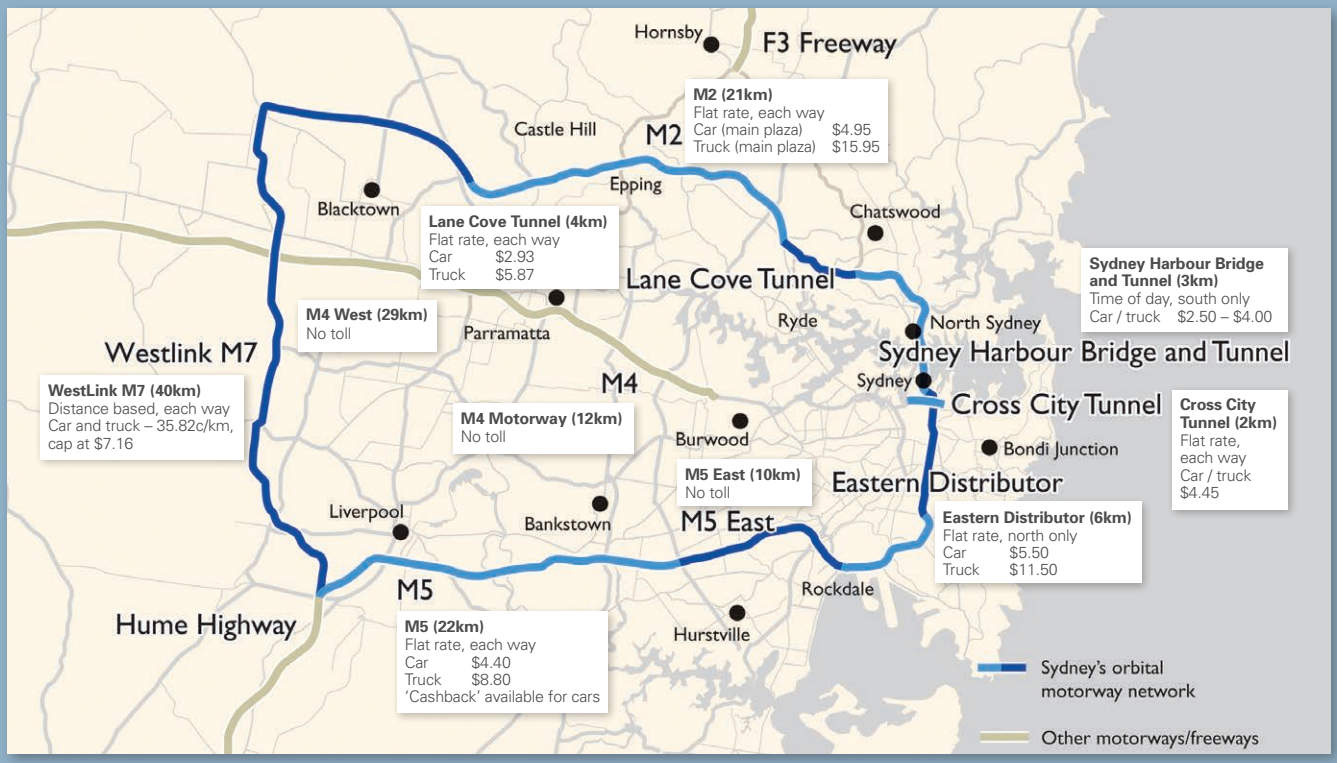
A user of Sydney's motorway network is faced with a confusing range of tolling arrangements. The M5 is free in some sections and the subject of a toll rebate scheme in others. The M7 uses distance based tolling, capped after 20 kilometres; while the M4 is free. The Eastern Distributor uses a flat toll and the Harbour Bridge and Tunnel apply time of day tolling.

Applying a network-wide charge would:

- remove anomalies in the existing system;
- send a price signal to manage demand on the network; and
- provide funds for maintenance of the network and investment in new transport infrastructure.

The present system of road tolling in Sydney is a legacy of various project-specific funding arrangements and government policies. Rationalising the charging structure on Sydney's motorway network could deliver a range of benefits.

Figure 6 – Sydney motorway tolling arrangements (May 2012)



Source: Base map from New South Wales Government Roads and Maritime Services (formerly Roads and Traffic Authority). Tolling details collected by Infrastructure Australia from relevant information published by tolling operators.

Passenger movement in cities

The majority of governments across the country are aiming to increase the number and share of trips taken by public transport. Infrastructure Australia commends this approach.

Public transport patronage has grown appreciably in recent years. For example, ridership on the Melbourne, Brisbane and Perth public transport networks have all grown somewhat faster than population in recent years.

Infrastructure Australia recognised early in its life that public transport was undergoing a transformation in Australian cities and needed facilitation from a national level. Urban rail funding has vastly increased as a result.

Public transport has grown when options to replace car use are at least comparable with the convenience of driving. As city centres and sub-centres have been growing due to the rapid growth of service and 'knowledge economy' jobs, access by public transport has grown due to the difficulty and cost of enabling car access in dense centres.

Two ways of improving public transport relative to car access are through integrated land use planning and integrated networks of public transport.

Integrated land use planning

Integrated land use planning enables housing and jobs to be located as close as possible to transit so people can easily access the system, preferably by walking. Infrastructure Australia has stressed the importance of this integration with city plans through its project assessment process, including the measured use of agglomeration effects in the economic appraisal of projects.

Integrated networks of public transport

Integrated networks of public transport enable a system to be more effective at reaching a wider number of destinations. In Sydney, Melbourne, Canberra and Perth the use of *Park 'n' Ride* has been an important part of the network. The significant patronage growth in the outer suburbs of Perth is also a result of integrated bus networks which minimise 'transfer penalties' for passengers connecting with the rail system.

Although increasing fuel costs are likely to make public transport more attractive relative to driving, action is still required to address overall transport pricing in cities to better manage demand and encourage the best social, economic and environmental outcomes for the community as a whole.

Several of the public transport projects presented by state and territory governments for Infrastructure Australia's consideration are estimated to cost several billion dollars. The best of those proposals clearly establish a nexus with the jurisdiction's metropolitan plans and specifically link the project rationale to the land use and housing objectives of the metropolitan plan, as well as augmenting the capacity of the entire system.

Infrastructure Australia is supportive of this approach. In an environment where funding for infrastructure will remain tight, it is vital that new projects are used as a catalyst for increasing densities and changing land uses around stations and transport nodes.

In other words, the scale of the land use change needs to be commensurate with:

- the scale of the growth challenges facing a city and the government's plans, for example targets for urban infill development; and
- the size of the project.

The alternative – simply building a new project and not using it as a lever for sustainable development – is likely to impose an economic cost as opposed to creating a net benefit.

Park and ride facilities, whether around rail networks or bus corridors such as this example in Canberra, are an important part of improving the overall attraction of 'trunk' public transport routes.

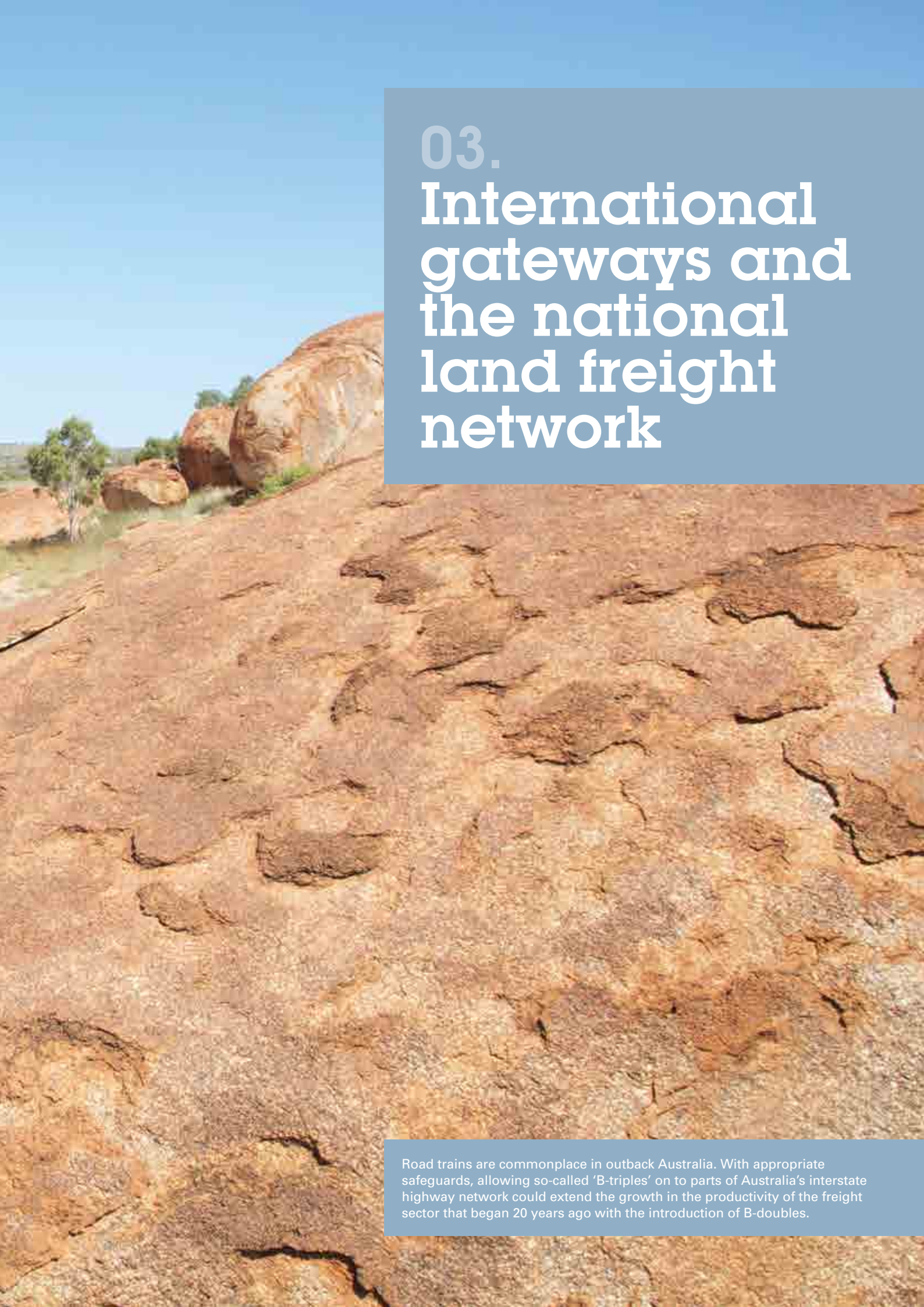
The future

Infrastructure Australia will continue its work in the following areas:

- advocating improvements in metropolitan planning strategy, including working with the Council of Australian Governments' Reform Council and state and territory governments to improve urban infrastructure planning, particularly with a view to building on the strong foundations of the *National Urban Policy*;
- developing an urban public transport strategy;
- developing a corridor protection strategy; and
- engaging with governments and others about road charging models, including network charging.

The Victorian Government has demonstrated initiative in proceeding with the first stage of a significant upgrade of tram route 86. The project exemplifies many sound elements, notably integration with land use changes along the route, and serves as a model for similar projects in Melbourne and elsewhere.

03.
International gateways and the national land freight network



Road trains are commonplace in outback Australia. With appropriate safeguards, allowing so-called 'B-triples' on to parts of Australia's interstate highway network could extend the growth in the productivity of the freight sector that began 20 years ago with the introduction of B-doubles.

Our goal To increase the productivity of Australia's international gateways and freight linkages

Key challenges

Recent government and industry attention on our international gateways and freight sector needs to be maintained. Rapid implementation of previously agreed regulatory reforms is required. Allowing freight to go off the radar will carry considerable costs for our economy and quality of life.

The way forward

Infrastructure Australia recommends that governments and industry focus on development and implementation of port plans in line with the *National Ports Strategy*[47], finalisation of the *National Land Freight Strategy Update*[48] and implementation of regulatory reforms in the freight sector.

Planning effectively for freight will allow us to create a truly national, seamless freight network that enables products to move from ship to shore to door as efficiently as possible, with real productivity gains.

Australia's exports of coal depend heavily on efficient rail transport. This train is transporting coal from Dawson Mine, Moura Coal System in central Queensland.

While coal is still a dominant trade through the Port of Newcastle, other products and containers are being moved in increasing quantities through this key gateway. Newcastle also illustrates that port development can coexist with city regeneration – as seen by the redevelopment in the lower right hand corner of the photo. This was a key theme of Infrastructure Australia's 'Ports and Cities' conference in March 2012.

Understanding our key challenges

Australia is a vast and relatively isolated country. We are heavily reliant on effective and well-planned gateways and road and rail networks to efficiently deliver and transport the products we need for daily use and export.

Just as all governments need to work together to plan places for people, we need to plan places for freight.

An ad hoc approach to freight management – based on generalised assumptions about growth rather than deep analysis of the issues and scoping of the opportunities – will not achieve the outcomes we need.

The national and international importance of our gateways and freight networks makes it essential that we improve investor and industry confidence in our long-term plans for ports and freight. Effective inland connections are essential to support efficient port operations and growth, thus ports and land freight networks must be considered holistically under a national strategy.

Planning for freight also needs to be underpinned by genuine engagement with the community. We need to communicate the case for change, understand community concerns and preferences, identify trade-offs and develop workable solutions to freight-related problems. Unless we engage with the community on these issues, we will not achieve a social licence to operate. In other words, there will be continuing complaints about noise, safety and other impacts that will constrain the operation of ports, airports, freight terminals and more efficient freight vehicles.

Continued economic growth is heavily reliant on the evolution of a seamless, networked freight system, and the use of the most efficient freight vehicles and technologies. This requires:

- a collaborative approach between industry and government to finance freight infrastructure initiatives;
- a system of linked designated 'places for freight', where the most productive vehicles are given priority and which will be extended through the protection now of land corridors and sites for future freight uses; and
- flexible design of freight corridors to cater to multiple freight modes.

This approach is underpinned by an approach to normalise freight policy. Freight has been the poor relation of transport planning. This needs to be changed so that freight is included in best practice land use and transport planning.

Our challenge is to create a seamless freight network to move products from ship to shore to door and back as efficiently as possible.

The way forward

Infrastructure Australia and the National Transport Commission have been working with industry and governments to develop two, interlinked national strategies for ports and freight: the *National Ports Strategy* and the *National Land Freight Strategy Update*.

The Council of Australian Governments is currently considering the *National Ports Strategy* and Infrastructure Australia has presented its advice to the Australian Government on the *National Land Freight Strategy Update*.

National Ports Strategy

The *National Ports Strategy* recommends the development of long-term plans for each major port's jurisdiction, region and precinct. Implementation of these plans needs to be driven by supply chain stakeholders and not merely by governments. For their part, governments should acknowledge the critical importance of ports as places for freight and trade through: their inclusion in planning activities such as city strategic plans; simplifying, streamlining and, where necessary, accelerating approvals; and ensuring that road, rail and land corridor plans appropriately support ports.

The successful transfer of the Ports of Adelaide and Brisbane to private ownership, and the proposed long-term lease of Port Botany are fully consistent with the strategy.

In anticipation of the Council of Australian Governments' endorsement of the *National Ports Strategy*, Infrastructure Australia and officers from the National Transport Commission have:

- approached a range of industry stakeholders to assist with the development of the strategy, including the Minerals Council of Australia, National Farmers Federation, Ports Australia, and individuals with extensive experience in port planning and operations;
- agreed with Port Kembla, New South Wales and the Port of Gladstone, Queensland to use those ports' plans as pilots; and
- assisted in planning activities for the Mount Isa to Townsville supply-chain.

A place for freight

We need to start planning for places for freight now. A coordinated, national approach to freight is the only viable approach.

Infrastructure Australia has identified six essential characteristics to support the development of places for freight:

1. they are subject to an agreed national level planning framework;
2. they have a streamlined approvals process;
3. they are used by the most efficient vehicles;
4. market principles apply to their development and operation;
5. private investment is encouraged; and
6. they enable interoperability and connectivity.

Infrastructure Australia has been working with stakeholders in Geelong to maximise opportunities from investment in the region's port.

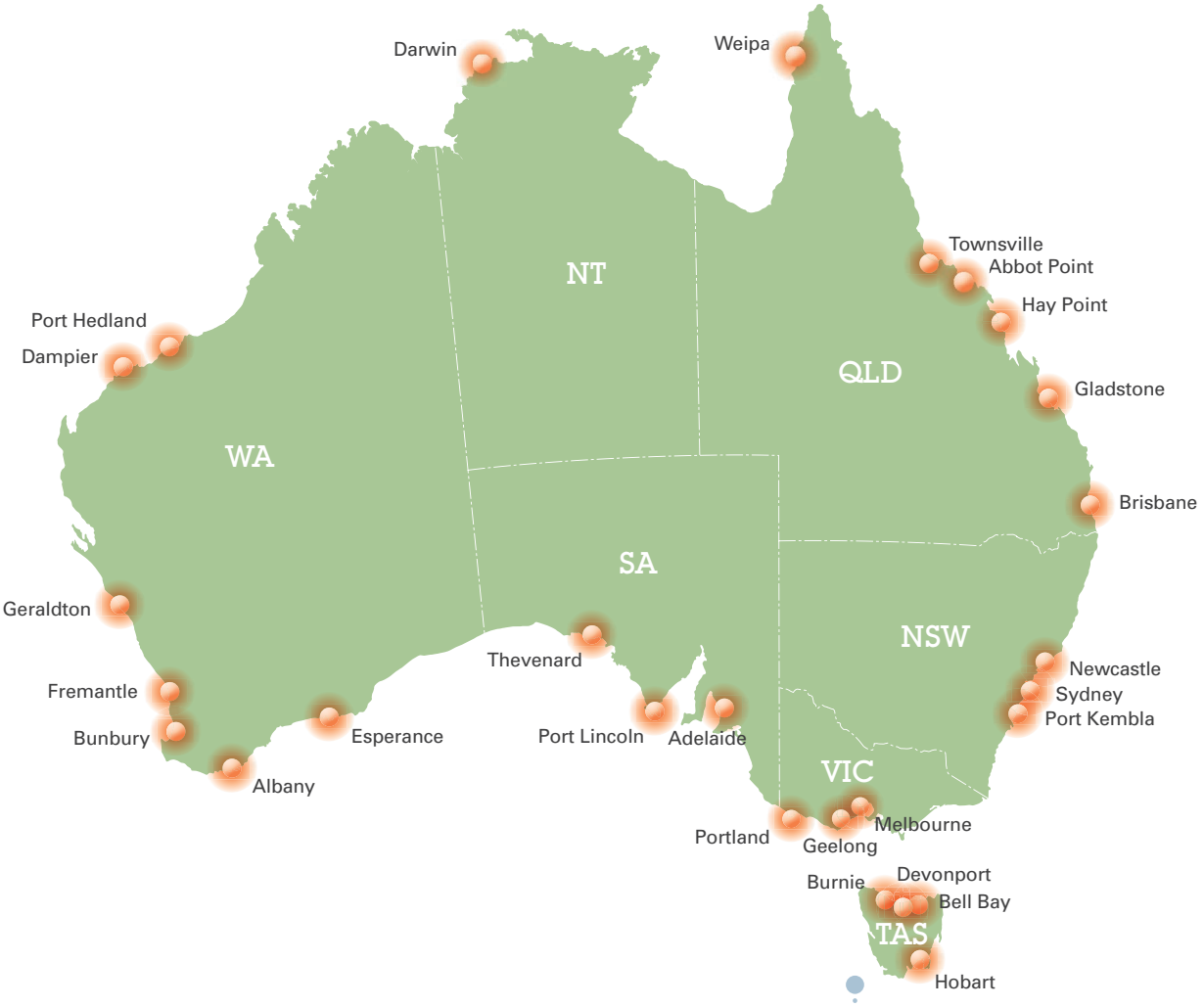
In a welcome move, the newly privatised Port of Brisbane, together with Ports Australia, is preparing a first draft of key performance indicators for Australia's container and bulk ports.

Infrastructure Australia will continue to work with the National Transport Commission, Ports Australia, the Bureau of Infrastructure, Transport and Regional Economics, governments and the private sector to ensure best practice in implementing the *National Ports Strategy*. This includes:

- **research** – in relation to relevant ports, land side links, nodes and sea channels; efficiency improvements; and forecasting, including scenario modelling;
- **key performance indicators and learning-based improvements** – to support improved ports and land side efficiency, planning and performance;
- **planning** – developing long-term integrated master plans for ports;
- **reform** – streamlining the environmental management and assessment processes, as well as reviewing other legislation and regulations, including access pricing reform; and
- **technology** – exploring opportunities for real-time information technology systems to improve performance.

Supply chain stakeholders need to drive the implementation of long-term plans for Australia's major ports.

Figure 7 – Capital city ports and Ports Australia ports with throughput over three million tonnes in 2010-11



Source: Ports Australia and Geoscience Australia

A logical extension of Infrastructure Australia's proposals for our national ports as 'places for freight' is that the critical roads and railways that serve and link the trade gateways should also be regarded as places for freight. This would begin to address the imperative of integrating freight, transport and land use planning policies, especially in our cities. Infrastructure Australia is heartened by the openness of jurisdictions to progress this critical issue, and that some state freight strategies are already pursuing this thinking.

In creating an efficient freight network it is essential that we acknowledge the critical importance of ports as places for freight.

Creating a 'backbone' for freight

Rather than attempting to address every freight issue on every road and rail line in the country at one time, the best course of action is to first designate the nation's core freight network, and then focus efforts on improving this network to achieve freight priority. The extent and rate of progress on such a network will be a good guide to the possibility of wider freight reform.

The nation's core network for freight should be a 'backbone' available for priority use by the most efficient and advanced freight vehicles.

These would include long, heavy axle load trains and high productivity trucks such as B-triples on highways or trucks that carry two fully loaded 40 foot containers on roads to ports. Priority would include unrestricted operating hours and measure to ensure timely, reliable freight movements.

The network needs to be defined in relation to nationally significant ports – rather than some roads or railway lines that freight happens to use. It is clear that any freight strategy must be formed with reference to the objectives of the *National Ports Strategy.*

Figure 8 – Indicative national land freight network

Source: National Land Freight Strategy Update

National Land Freight Strategy Update

Australia-wide, freight productivity, safety and community amenity are less than ideal. Freight and passenger vehicles often compete for road access. Figure 9 shows that growth in the use of cars and light commercial vehicles is projected to far outweigh growth in truck movements that handle most of the road freight task.

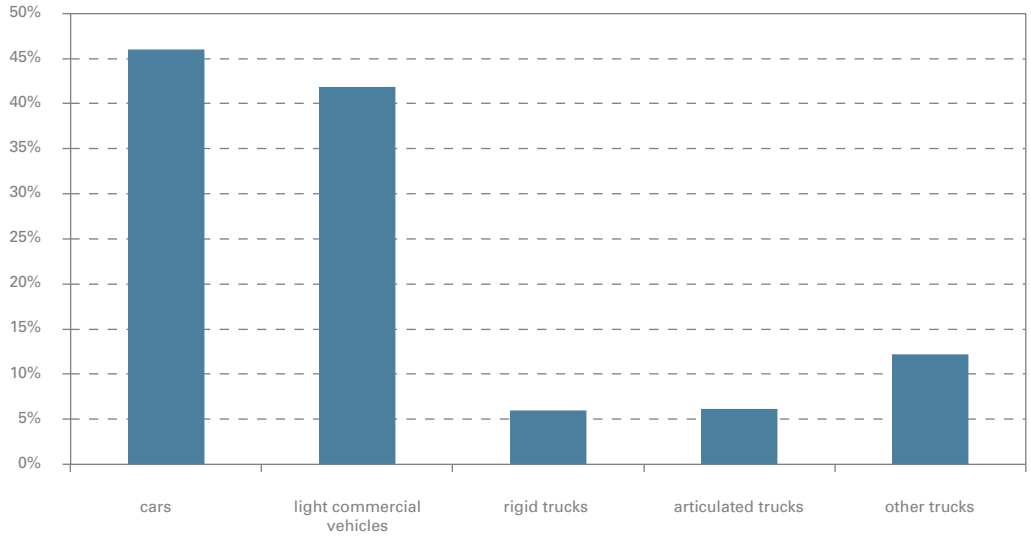
Lack of certainty about decisions affecting freight adversely affects national productivity and quality of life. In practical terms, this is demonstrated by:

- the transport infrastructure network not reflecting freight demand, as shown by operating restrictions, concerns about infrastructure adequacy, and urban congestion on main freight routes;
- industry frustration over the limited scope and slow delivery of transport reform, including the failure to address uneconomic restrictions on the use of efficient vehicles; and
- an incomplete pipeline of nationally significant networked projects that are needed to stimulate freight efficiency.

The increased level of attention on transport and freight in recent times is encouraging. Progress over the past year includes:

- establishment of a Standing (Ministerial) Council on Transport and Infrastructure with a priority task to develop a national land freight strategy;
- as part of the *National Urban Policy*, the Australian Government announced it will require a 20 year freight strategy for each capital city by 2014;
- substantial advances were made in jurisdictional freight policies including in New South Wales, Queensland and Western Australia;
- continuing work – albeit with only modest progress – on the Council of Australian Governments' *Road Reform Plan* trial of incremental pricing for road access;
- agreement by the Australian and New South Wales Governments that government investment for freight on joint use rail infrastructure in northern Sydney will be accompanied by freight use rights; and
- a decision to proceed with the development of an intermodal freight terminal at Moorebank in Sydney's south west.

Figure 9 – Percentage contribution to growth in urban road use 2005 to 2020



Source: Bureau of Infrastructure, Transport and Regional Economics

Action on land freight reform

Through extensive consultation in developing the *National Land Freight Strategy Update*, Infrastructure Australia has identified three key national issues for freight:

1. the need to address road governance issues, to enable a coordinated approach to road use for freight;
2. the need to ensure that freight is considered in strategic planning and long-term land use; and
3. the need to secure a broad-based commitment to reform.

There are concerns about a lack of timely investment and innovation in freight road use. At present, there is no real mechanism in Australia for freight users to directly influence the condition or capacity of roads, and there is virtually no road on which freight is accorded priority. As is the case for railways, it is clear that freight on some roads is much more important than on others. However, unlike railways, roads are grouped according to responsibility by the tiers of government. For the freight industry, this is a governance issue.

The Council of Australian Governments' *Road Reform Plan*[49] touches on aspects of this issue, for example the potential for direct charging for road use by heavy vehicles. However, broader governance issues that are not addressed include: investment into roads for use by more efficient vehicles; the ability of the freight industry to identify its own road use needs; freight priority; complementarity between freight modes; and whether some roads should be accorded a different status in relation to freight.

There is also the potential to create a national roads portfolio manager, to realise nationally significant economic benefits. This approach would use commercial mechanisms to identify and address strategic deficiencies in roads in regional Australia.

While these may seem substantial advances in policy development, given the generally limited progress on an array of freight issues over many years, industry is understandably sceptical about the real appetite for meaningful reform. In this environment, Infrastructure Australia believes that prompt delivery of the agreed agenda on national transport regulators must be the starting point. Further, Infrastructure Australia considers it essential to demonstrate the benefits of reform in relation to our most important places for freight. It recommends that efforts be focussed on:

1. road governance reform, including competition, user charging and mechanisms to enable and encourage private investment in a national freight network as a start; and
2. two test cases regarding a national freight network that will demonstrate the benefits of reform.

Pilot areas for land freight reform

Infrastructure Australia recommends that the following sites are used as pilot studies for land freight reform:

1. Hume Highway (New South Wales and Victoria): by enabling high productivity vehicles to use this corridor; and
2. Chullora rail terminal (New South Wales): by increasing mass limits on access roads.

The Hume Highway and Chullora rail terminal are ideal test cases for reform. The highway and terminal are among the most important elements of any national freight network. Conversely, unwillingness to identify and resolve productivity impediments at these places would be seen as a lack of commitment to necessary reform in the freight sector.

The B-triple represents a large upwards step-change in road freight productivity, carrying around twice the freight of a standard semi-trailer, while consuming in the order of seven per cent less fuel per tonne of freight than a B-double.

Aviation

Productivity Commission Review – Economic Regulation of Airport Services

The Productivity Commission's review of airport regulation was completed in late 2011.[50] It found that with some changes, for example increased monitoring of prices and services, the current system of regulation works effectively.

The Australian Government broadly endorsed the Commission's findings.

These developments are an encouraging sign that well-designed regulatory structures, supported by periodic review, can facilitate significant private investment in the nation's infrastructure networks.

The Commission's brief included a reference to examine the provision and quality of land transport facilities providing access to the airports. It found that land transport issues are most extreme at Sydney's Kingsford Smith Airport.

The New South Wales Government's acknowledgement in its November 2011 submission to Infrastructure Australia that a Port Botany and Sydney Airport Transport Improvement Plan is required, and the New South Wales Government's decision to sell a long-term lease of Port Botany, are significant developments.

Infrastructure Australia's March 2012 report on private financing options for various motorway links in Sydney recognises these developments and recommends that the Australian and New South Wales Governments commit funds to the development of such an improvement plan.

Joint Study on aviation capacity in the Sydney region[51]

As Australia's most significant international airport, Sydney's Kingsford Smith Airport is a key piece of economic infrastructure. Providing for just over 40 per cent of international arrivals to Australia, it is vital to the Australian economy.

The joint study was overseen by officials from the Australian and New South Wales Governments, and a panel of independent advisers. It was released in March 2012.

Forecasts undertaken for the joint study indicate that, by 2035, the airport will need to manage more than 76 million passenger movements each year. This is double the current demand.

Infrastructure Australia is pleased to see the completion of this important piece of work. The study provides a clear evidence base to plan for the future aviation needs of greater Sydney. It is encouraging to see a joint process undertaken for this work; the Australian and New South Wales Governments must continue to work together to agree an effective means of meeting Sydney's aviation needs.

The study recognises that:

- optimising operations at Kingsford Smith Airport is a necessary short to medium-term response to meet increasing demand; and
- Sydney needs a second airport to effectively cope with the significant increase in demand over the long-term.

A decision on the location of a second airport will shape Sydney and its surrounds for the next century. Badgerys Creek, approximately 60 kilometres south west of the Sydney central business district, is recommended in the joint study.

Wilton was chosen as the second best site and the Australian Government has announced a scoping study into the site.

The future

Infrastructure Australia will work with industry and governments to implement the *National Ports Strategy* and *National Land Freight Strategy Update*.

Infrastructure Australia's primary focus over the next 12 months will be to:

- work with industry and jurisdictions to implement the *National Ports Strategy*;
- secure endorsement of the *National Land Freight Strategy Update* and work with industry and jurisdictions to see it implemented; and
- work with jurisdictions to determine priority supply chains and identify projects to improve the productivity of these supply chains, from mine to port. This work will be underpinned by the *National Ports Strategy* and *National Land Freight Strategy Update*.

Infrastructure Australia intends to work with relevant stakeholders to pursue the resolution of freight productivity impediments through pilot projects, as well as actively participating in efforts to reform road governance.

04. Essential Indigenous infrastructure

Mimili is an Anangu community on the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands in the north west of South Australia. It lies approximately 645 kilometres south of Alice Springs. The population of Mimili ranges between 250 and 300 people, including a number of Piranpa (non-Indigenous) people who work in the community to support Anangu.

Our goal For remote Indigenous communities to have similar access to infrastructure as non-Indigenous communities of comparable size and location.

Key challenges

The estimated number of people in Australia who identify as being of Aboriginal or Torres Strait Islander origin was just over 517,000 in 2006. Around 131,000 (26 per cent) of these people lived in remote and very remote areas. The remote and very remote Indigenous population is projected to grow by 13.6 per cent between 2006 and 2021.[52]

The *National Indigenous Reform Agreement*, endorsed by the Council of Australian Governments in 2008, commits all governments to 'Closing the Gap' between the life expectancy, infant mortality, education and employment outcomes for Indigenous and non-Indigenous Australians.[53]

These gaps are the result of inadequate health, housing and educational infrastructure and services. However, inadequate roads, water, power and telecommunications also play a critical role.

The provision of infrastructure for remote Indigenous communities remains one of the nation's key infrastructure-related challenges.

Supporting the efforts of small Indigenous communities in remote parts of Australia with the development of local solutions to their infrastructure challenges is a central focus of Infrastructure Australia.

Although most remote roads are readily passable during normal weather, many communities are isolated for extended periods during the wet season.

"There is a serious deficiency in available infrastructure in remote regions... Poor roads and inadequate telecommunications services are impeding people from accessing services, education and training facilities and economic opportunities... The lack of infrastructure is a key risk to the success of the Council of Australian Governments' 'Closing the Gap' strategy."

The Strategic Review of Indigenous Expenditure by the Department of Finance and Deregulation, 2010

The way forward

Numerous programs are being delivered by the Australian, state and territory governments, supported by local government, to enhance the wellbeing of remote Indigenous communities. However, many of these programs are disconnected, ad hoc and have little reference to the priorities, desired outcomes and views of the end users.

The current arrangements mean programs often fail to meet their objectives, but even where they do, the lack of coordination means that they struggle to make a contribution to 'Closing the Gap'.

Over the past 12 months, Infrastructure Australia has worked closely with key stakeholders on a draft policy framework for the provision of infrastructure in remote Indigenous communities.

This policy development process has confirmed that a different approach to infrastructure provision is required. Persisting with arrangements which have not delivered and are unlikely to deliver the desired outcomes is not an option.

Fundamental reform to how infrastructure is planned, prioritised, funded, delivered and managed in remote Indigenous communities is needed. Infrastructure Australia, in consultation with key stakeholders, is finalising the policy framework to do this.

The draft framework seeks to achieve greater involvement of Indigenous communities in infrastructure-related decisions and a more integrated approach to planning, prioritisation, funding and delivery. A key outcome will be a significant reduction in the dominance of government in making these decisions.

Upgrading roads in parts of remote Australia can have a dramatic effect on improving local residents' access to services and employment.

While a new policy framework can provide a structure for better decision making, the difficulty in its successful implementation should not be underestimated. Hundreds of extremely talented and focussed Indigenous and non-Indigenous people have wrestled with the challenges over a long time. Successive governments have allocated significant funding to help address the problems.

The new policy framework will seek to change the paradigm of what some would characterise as benevolent paternalism to one which is culturally respectful, empowered and self-determining.

Remote Indigenous communities will need to be supported in taking on significantly greater responsibilities. Governance arrangements will need to make individuals, communities, governments and other stakeholders confident that there is a strong likelihood of improved outcomes. Evaluation of the new policy's effectiveness will be part of the new framework.

The future

Through further consultation with remote Indigenous communities, the private sector and all levels of government, Infrastructure Australia will finalise a policy framework for the planning, prioritisation, funding, delivery and management of infrastructure in remote Indigenous communities by the end of 2012.

The Myuma Group represents the Indjalandji-Dhidhanu Traditional Owners from the Camooweal region in north-western Queensland

The Myuma Group consists of Myuma Proprietary Limited (Myuma) and its sister organisation, Dugalunji Aboriginal Corporation. Myuma operates a successful road construction and maintenance business which employs and trains Indigenous people from northwestern Queensland and other regions. The Myuma Group employs 60 staff, of whom 70 per cent are Indigenous.

The Myuma Group's vision is to sustain people and country through Aboriginal enterprise. The philosophy of the group is that Aboriginal people need a commercial working base on country, which is the best way to provide and maintain Aboriginal employment and to create sustainable Aboriginal enterprises.

In 2000, the Indjalandji-Dhidhanu Traditional Owners negotiated an agreement with the Queensland Department of Main Roads for the planned major upgrade of the Barkly Highway between Mount Isa and Camooweal. These works, financed by the Australian Government and state governments, took place over a seven year period between 2001 and 2008, with a total value in excess of $120 million. The agreement protected native title and Aboriginal cultural heritage interests within the planned road corridor, and delivered meaningful training, employment and business development opportunities to local Aboriginal people.

Since 2008, Myuma has continued to perform annual road construction and maintenance work programs in the broader Camooweal region for RoadTek and the Queensland Department of Main Roads. In addition, the Myuma Group delivers two 13 week residential training programs annually. The *Dugalunji Prevocational Training Program* commenced in 2006 and currently trains 68 Indigenous job seekers per year from across Queensland for employment in the civil construction, general construction, mining, and rail sectors.

"The Myuma Group's vision is to sustain people and country through Aboriginal enterprise.

Autonomy gives us freedom to develop in ways that best meet the needs of our owners and the communities they serve."

Colin Saltmere,
Managing Director, Myuma

Connecting the Dots

A conference shaping the future of infrastructure in remote Indigenous communities

In February 2012, the Myuma Group's Managing Director Colin Saltmere participated as a speaker and panel member at the national *Connecting the Dots* Infrastructure Australia conference in Alice Springs.

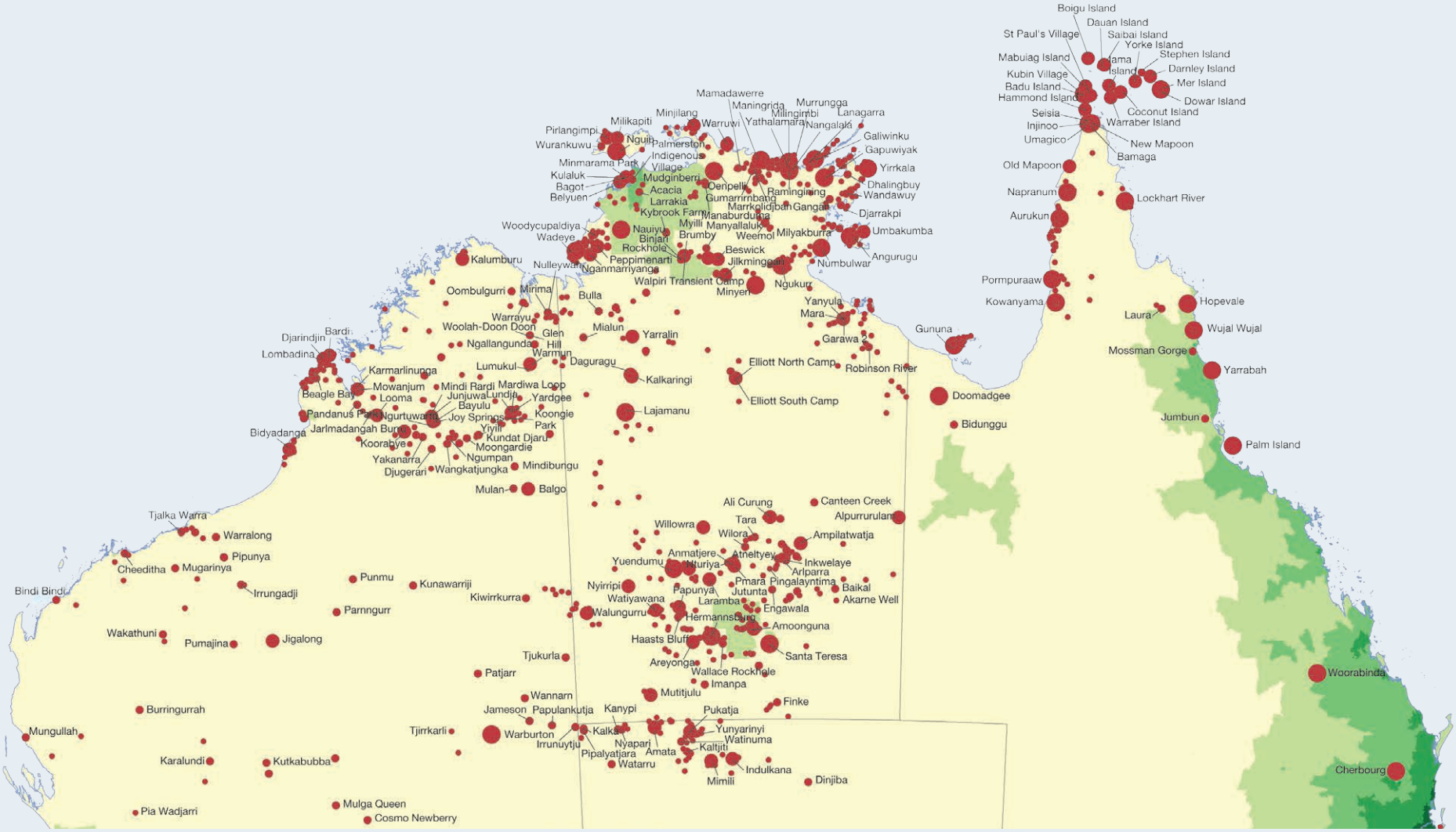
The conference focussed on the need for an improved method of engagement between the Australian, state and territory governments and Indigenous communities in the delivery of key infrastructure in remote areas. The conference recognised the need to engage Indigenous communities in all stages of infrastructure design, construction and maintenance programs in order to enhance sustainable Indigenous enterprise development and ongoing employment opportunities.

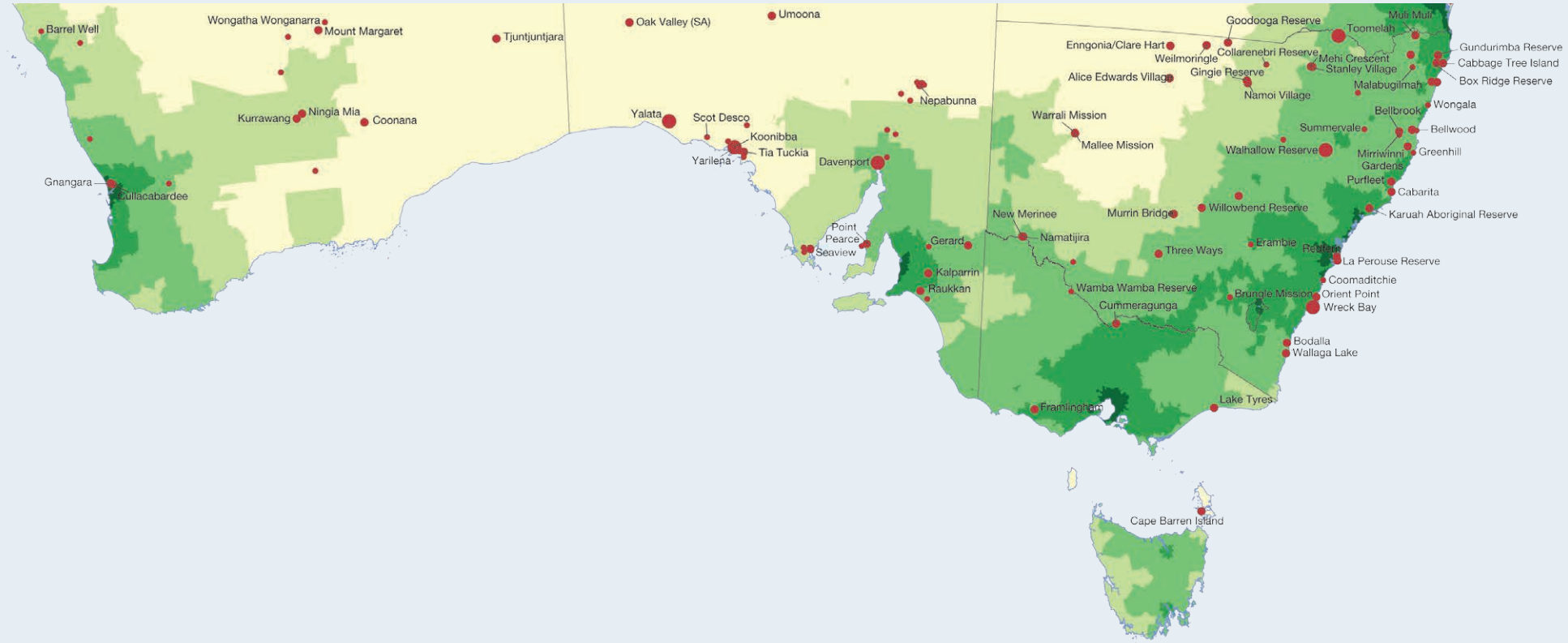
Colin delivered a well-received presentation on Aboriginal enterprise utilising the Myuma Group's not-for profit construction and training businesses as a case study.

Myuma's training program participants come from a range of regional and remote locations across central, north and north west Queensland.

Figure 10 – Indigenous communities across Australia

Remote Indigenous communities are found across Australia. Over 130,000 people live in these typically small communities. Many are poorly served by limited and unreliable infrastructure networks.





Reported Population of discrete Indigenous communities

- 500 people or more
- 200 – 499 people
- 50 – 199 people
- Less than 50 people

Remoteness Areas

- Very remote Australia
- Remote Australia
- Outer Regional Australia
- Inner Regional Australia
- Major Cities of Australia

Source: Australian Bureau of Statistics: ABS Indigenous communities – Australian standard geographical classification remoteness structure

05. Adaptable and secure water supplies

The Tasmanian *Focus on Food Bowl* initiative is an economic development strategy with an accompanying infrastructure program, largely comprising irrigation schemes. The schemes aim to provide greater certainty in water supply. This increased water security has seen many farms shifting from low value to high value produce, such as poppies and pyrethrum, and transformed land use patterns in rural Tasmania. This image is of vegetable crops in Kindred, Tasmania.

Our goal Secure, safe and sustainable water supplies for all Australians.

Key challenges

In contrast to the energy sector, progress with important reform in water policy and regulation is patchy at best, and in some cases backward steps are being taken. This is not because the goals are disputed or the directions unclear.

In many of our major cities there is continuing government interference in the application of already agreed reforms.

In regional Australia, where small water utilities often struggle to provide reliably safe drinking water, reforms pose a significant challenge to both elected officials and to water managers. As a result, reform in regional areas has been very slow.

Reports from the National Water Commission and the Productivity Commission have supported the substance of Infrastructure Australia's earlier conclusions and recommendations on urban and regional towns' water (see below).[54]

Governments have introduced a range of measures aimed at 'drought proofing' urban water supplies Although the cost of these measures is in effect an 'insurance premium' associated with maintaining supply in adverse conditions, parts of the community do not see rising water costs in that light.

Infrastructure investment does not always mean big projects – meaningful small scale improvements can bring substantial benefits to our communities.

The broken kerb and plants together form a stormwater biofiltration solution, retrofitted into a main street shopping area in Busselton, in the south of Western Australia. This is a good example of water sensitive urban design.

The way forward

Major cities' water security

As Infrastructure Australia maintained in its 2011 report, reform in the major cities' water sector needs to be focussed on three broad areas:

1. improvements in supply and demand planning;
2. jurisdictions being prepared to consider and apply the full range of supply and demand management options; and
3. broadening the application of fully cost-reflective water pricing.

There has been very little progress in any of these areas, with instances of backward steps on cost reflective pricing, for example in south east Queensland.

Without reform in these areas, prices are likely to increase more than they need to because effective options are not being considered.

Regional towns' water quality and security

An October 2010 report for Infrastructure Australia on regional towns' water quality and security highlighted that many small water utilities struggle to ensure reliably safe drinking water.[55] This was not news to anyone who lives in regional communities.

The report illustrated the limitations of the governance and institutional structures in New South Wales and Queensland in sustainably managing small towns' drinking water supplies. Reports from the National Water Commission and the Productivity Commission point to similar limitations, as did the 2008 Armstrong/Gellatly inquiry into non-metropolitan water services.[56]

Reforms can provide communities with greater confidence in the reliability of their drinking water.

Reform in regional water utilities

Infrastructure Australia is encouraging institutional reform of regional towns' water utilities in New South Wales and Queensland in order to provide consumers with greater confidence in their drinking water. There is a level of concern in some areas over the potential impact these reforms may have on the viability of some communities.

It is more than reasonable for communities to be sensitive to reforms that may threaten their ongoing viability, however, these concerns should be informed by evidence. And there is evidence that such concerns may not be warranted.

Victoria and Tasmania have moved from a model of local government provided water services to a much smaller number of regional water corporations. In both cases, the reforms have not resulted in the negative impacts on regional communities' viability that were feared before implementation.

The reforms have, however, provided communities with greater confidence in their drinking water, and they have resulted in better career opportunities for members of the community working in the water sector.

The proposal for reform of governance and institutional arrangements continues to face resistance from local government in New South Wales.

In an important development, the New South Wales Government has recently passed legislation and is developing regulations to improve the reliability of drinking water quality. Victoria, Tasmania and Queensland already have such regulations. Once smaller council and water utility managers begin to understand their personal accountability under the new law, there is likely to be an increased appetite to look at new arrangements.

In its 2011 report to the Council of Australian Governments, Infrastructure Australia recognised that the weight of evidence and expert opinion was substantially aligned in relation to what needs to be done to assure city and regional communities that they will have a secure water supply that delivers drinking water of an acceptable standard. This is still the case.

Murray Darling Basin

At this time, Infrastructure Australia has not been involved in debates about the Murray Darling Basin. We do not wish to duplicate the efforts of significant other bodies working in this area, and our current efforts are focussed on the areas mentioned above.

Progress with the development of water management plans for the Murray Darling Basin will be kept under review.

The use of information technology can deliver cost efficiencies and improved sustainability of our water supplies.

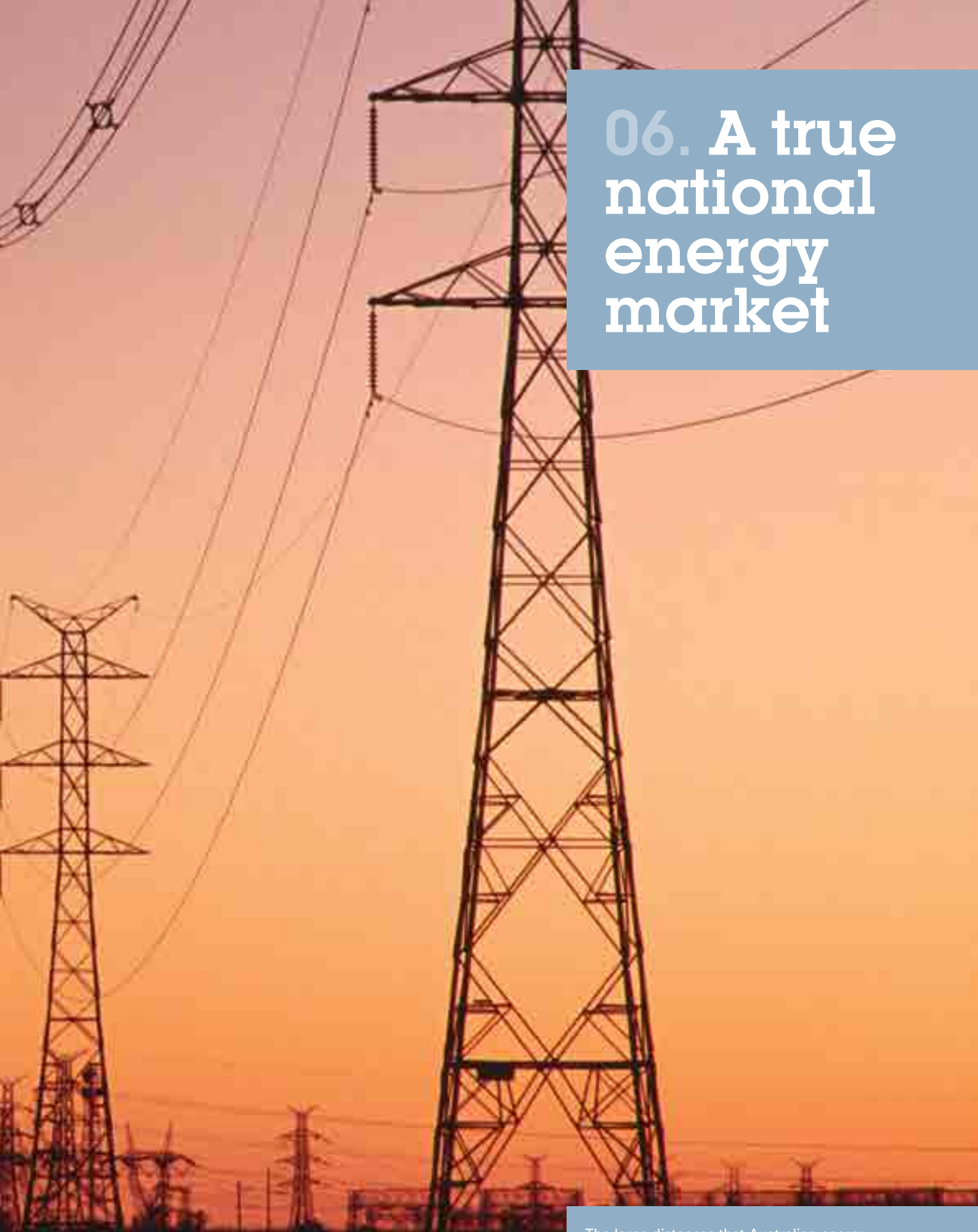
The $290 million FutureFlow alliance was established in northern Victoria in 2008 to modernise the existing irrigation infrastructure of over 6,300 kilometres of open channels. Using a world leading information technology based system, the modernisation has led to savings of over 30 per cent of water previously lost through leakage, seepage or evaporation. This represents a saving of, on average, 94 gigalitres (billion litres) per year, an amount equivalent to over 40,000 Olympic-sized swimming pools.

The future

Infrastructure Australia retains its view that there is a clear and strong case for reform in the management of major cities' and regional towns' water, and strongly endorses the reform proposals in the 2011 National Water Commission and Productivity Commission reports.

The weight of evidence and expert opinion is substantially aligned in relation to what needs to be done to assure city and regional communities that they will have a secure water supply that delivers drinking water of an acceptable standard.

There has, however, been very little progress in the implementation of reform. It is becoming increasingly apparent that unless effective incentive mechanisms are in place, reform rarely happens. Reform of major cities and regional water governance should be made a precondition for water infrastructure grants to states and territories.



06. A true national energy market

The large distances that Australian energy distribution networks must cover increase the cost of providing energy, especially in regional areas.

Our goal Reliable, safe and cost-efficient energy supplies for our homes, communities and industries.

Key challenges

The key challenges in the energy sector in the short and medium-term are to respond to:

- climate change, including:
  - addressing greenhouse gas emissions reduction targets;
  - understanding the regulatory and commercial impacts of carbon pricing;
  - assessing the impact of changed weather patterns on infrastructure; and
- growing demand for energy, particularly at peak times.

Growing demand for energy is driving new investment and higher prices in order to maintain high levels of supply reliability. Retail energy prices have increased by 40 per cent in the last three years.[57]

Peak period demand is driving up energy costs

"[Energy generation and network] capacity is being built and capital spent that may be used only a handful of times each year.

It is estimated that 25 per cent of retail electricity costs are derived from peak events that occur over a period of less than 40 hours per year – clearly this is an inefficient utilisation of capital with resulting consequences for energy bills."

Draft Energy White Paper, 2011

The way forward

It is important that infrastructure investment decisions reflect the best option for industry and communities in the medium to long-term.

As a nation, increasing our focus on energy efficiency and better use of existing infrastructure through smart grids offers opportunities to maintain Australia's low cost energy advantage.

The need to provide capacity to meet demand spikes in peak periods weakens Australia's low cost energy advantage and is driving up the cost of energy.

Responses to the challenge of peak period energy demand should include smart meters to inform users about their energy consumption, and pricing that reflects the cost of energy use in peak periods.

A smart grid is an electricity network that gathers, distributes, and acts on information about the behaviour of electricity suppliers and consumers in order to improve the efficiency, reliability and sustainability of electricity services.

Smart grids help network managers better utilise existing infrastructure, potentially reducing the pressure to invest in costly new distribution networks.

The future

While the outlook for the energy sector is challenging, the policy and regulatory regimes and the approaches to reform are strategically focussed, dynamic and effective.

Infrastructure Australia will continue to monitor the progress of the *Energy White Paper*, and the impact of reforms to policy and regulation in the energy sector.

Progressing reform in the energy sector

Infrastructure Australia is confident that the evolving market-based framework and regulatory arrangements for energy generation, trading, network operation and investment are appropriate for the Australian environment. Most importantly for infrastructure provision, the introduction of a price on carbon from July 2012 is likely to provide greater certainty for investors in the energy sector.

Infrastructure Australia's June 2011 report to the Council of Australian Governments indicated that we were confident that reforms to the energy policy and regulatory regimes that were under way would promote the connection of and investment in new renewable energy generation and the progressive expansion and strengthening of the National Electricity Market. Rule changes to give effect to these reforms are now in place and others are being pursued.

Because the energy sector is in a period of significant change, regulation needs to be dynamic. At the same time it needs to provide a clear, long-term path for participants in the market. While regulatory changes may appear to take a long time to implement, the implications of change are complex and consultation processes are critical to ensuring optimal policy outcomes.

The Government released a draft *Energy White Paper* in December 2011 in order to promote debate on its long-term strategic policy framework for the sector. This process provides a real opportunity for the broader community as well as sector participants to understand the underlying and emerging challenges facing the sector and to have input into policy making.

Peaking power stations, like this 640 megawatt gas-fired facility at Uranquinty, New South Wales, are designed to generate power at times of high demand. These times include summer, when air conditioners tend to be extensively used, and winter, when there is high demand for heating. The need to provide generation and network capacity to meet the spikes in demand at peak times is driving up energy prices. This weakens Australia's low cost energy advantage whilst increasing the cost of living.

07. Digital infrastructure

Karratha in north Western Australia and smaller communities in the region are expected to benefit from improved communications as a result of investment in the National Broadband Network. Improved services based on this digital infrastructure will assist in delivering the Western Australian Government's Pilbara Cities vision.

Our goal To support and encourage the provision of high speed digital infrastructure across Australia, to sustain improvements in service delivery and encourage productivity gains in our cities and regions.

Key challenges

Advanced economies globally are looking to improve their telecommunications systems in order to strengthen national productivity and quality of life for their residents. In this context, Australia faces a number of challenges, including:

- keeping pace with leading countries in the take up and use of improved telecommunications – in June 2011 we ranked 21st out of 34 Organisation for Economic Co-operation and Development (OECD) member countries for take-up rates of fixed broadband;
- improving internet speed – on a number of indicators, Australia's digital infrastructure is relatively slow in comparison to other countries; and
- reducing the cost of telecommunications – Australia is relatively expensive for broadband access.[58]

The Australian Government is committed to rolling out a national broadband network. Although there are differences of opinion about the advantages and costs of different means of developing our digital infrastructure – for example developing a 'fibre to the premise' network versus a 'fibre to the node' network or making improvements to the 'backhaul' network – there is broad support for improving our digital infrastructure.

All major political parties are committed to encouraging private investment in telecommunications. The rollout of high-speed broadband is, in Infrastructure Australia's view, important in improving productivity growth and the day-to-day lives of Australians.

The key challenge is to make the most of the investments in digital infrastructure, public and private, that will be made over the next decade.

Research bodies around Australia are focussing on how to reduce congestion and improve road safety through the use of digital infrastructure. The National Information and Communication Technology Australia research centre (NICTA) has identified transport engineering as a priority for the next five years.

Telemedicine programs are now tackling issues ranging from detection of breast cancer to at-home monitoring of chronically ill patients.

Telemedicine is expected to be one of the principal benefits of the National Broadband Network.

The way forward

Infrastructure Australia believes that a strengthened digital infrastructure network has the potential to alleviate many of the current strains on our physical infrastructure. For example, encouraging Australians to work away from the traditional workplace will change the demand for transport. Improving the way households and businesses manage energy usage will minimise the need to invest in expensive infrastructure catering for peak loads.

Telehealth

In the area of telehealth, improved telecommunications infrastructure is creating the conditions for a radical revamp of the way that health care is delivered. A range of initiatives has commenced, including:

- Ambulance Mobile Connect SA, which will roll out high-speed mobile broadband to ambulances across regional, rural and remote South Australia. This initiative will enable paramedics to respond to incidents more quickly through real-time access to incident and patient data;
- the National Broadband Network Diabetes Telehealth Trial in Townsville, which will enable people to receive diabetes treatment from home; and
- the Health eTowns project, which will deliver improvements in health and education for predominantly Indigenous populations in 47 remote towns in the Northern Territory and six east Kimberley towns in Western Australia.[59]

Telework

Telework – or working from home on a regular basis using telecommunications – is an important way digital infrastructure can contribute to improving Australians' quality of life.

The uptake of teleworking is lower in Australia than in several other countries. In 2006, around six per cent of Australian workers reported having a telework arrangement with their employer.

Australia's first 'telework week' – to be held on 12-16 November 2012 – will be an opportunity to showcase of the benefits of telework. Infrastructure Australia has agreed to be a partner in telework week.

Indigenous infrastructure

Improving access to effective, reliable information and communications technologies in remote Indigenous communities is a major initiative of the Australian Government under the Indigenous Communications Program. The $31 million program will provide essential telephone services, basic public internet access facilities and computer training for many people in remote Indigenous communities.

The program commenced in 2009-10 and is well advanced, delivering the following initiatives:

- a fixed or mobile satellite community telephone to around 300 remote Indigenous communities that do not currently have access to a public telephone;
- installation and ongoing maintenance of around 550 Indigenous community telephones, for remote Indigenous communities with a population of less than 50 people that do not have reasonable access to a public payphone; and
- in collaboration with state and territory governments, expanded public internet access and delivery of computer training in up to 120 remote Indigenous communities that have limited or no public access to internet facilities.[59]

The future

Infrastructure Australia will monitor developments in the digital infrastructure area and encourage:

- those involved in digital infrastructure initiatives to monitor and report on their successes and lessons learnt; and
- the development of initiatives to make greater use of the country's investment in telecommunications infrastructure, in particular telework arrangements, which we believe have the potential to realise significant productivity and quality of life benefits for Australians.

Endnotes

1. Productivity Commission (2006) *Potential Benefits of the National Reform Agenda: Productivity Commission Research Paper – Report to the Council of Australian Governments*, page 28. Dollar figure based on calculation of gross domestic product for 2010-11 from Australian Bureau of Statistics catalogue number 5206.0.
2. Information about the *Regional Infrastructure Fund* can be viewed at http://www.infrastructure.gov.au/infrastructure/rifp/index.aspx
3. Infrastructure Australia and the National Transport Commission (2010) *National ports strategy: Infrastructure for an economically, socially, and environmentally sustainable future*; http://www.infrastructureaustralia.gov.au/publications/#ports
4. Infrastructure Australia (2012) *National Land Freight Strategy Update*
5. Infrastructure New South Wales, *20-year State Infrastructure Strategy*; http://www.infrastructure.nsw.gov.au/strategy-projects/20-year-state-infrastructure-strategy.aspx
6. Council of Australian Governments' Reform Council (2011) *Review of capital city strategic planning systems – Report to the Council of Australian Governments*
7. Commonwealth of Australia (2011) *Our Cities, Our Future - A National Urban Policy for a productive, sustainable and liveable future*
8. Information about the *National Infrastructure Construction Schedule* (NICS) can be viewed at http://www.infrastructure.gov.au/infrastructure/nics/index.aspx
9. Information about the Council of Australian Governments' *Road Reform Plan* can be viewed at http://www.roadreform.gov.au/
10. Productivity Commission (2011) *Australia's Urban Water Sector*
11. Information on the National Broadband Network roll-out plan for 2012-2015 can be viewed at http://www.nbnco.com.au/rollout/about-the-rollout/communities-in-the-rollout.html
12. Guidance material on applying the *Reform and investment framework* is available at http://www.infrastructureaustralia.gov.au/reform_investment
13. Mount Isa Townsville Economic Zone (2012) *MITEZ 50-Year Freight Infrastructure Plan*; http://www.mitez.com.au/reports.html
14. Australian Green Infrastructure Council (2011) *AGIC Guideline for Climate Change Adaptation*, page 1
15. Australian Green Infrastructure Council (2011) *AGIC Guideline for Climate Change Adaptation*, page 1
16. Australian Green Infrastructure Council (2012) *Infrastructure Sustainability rating scheme*
17. New Zealand National Asset Management Support Group (NAMS) and the Institute of Public Works Engineering Australia (IPWEA) (2011) *International Infrastructure Management Manual – 2011*; http://www.ipwea.org.au/bookshop/iimm (NAMS and IPWEA collaborated with working parties in New Zealand, Australia, the United States of America, South Africa and the United Kingdom to produce the 2011 version of the manual.)
18. Commonwealth of Australia (2010) *Australia to 2050: future challenges (Intergenerational report 2010)*, page 37
19. Commonwealth of Australia (2010) *Australia's Future Tax System*, page 92
20. Schott, K. (2012) *NSW Commission of Audit Interim Report Public Sector Management*; and Lambert, M. (2012) *NSW Financial Audit 2011*
21. Phillips B, Li, J, Taylor, M (2012) *Prices these days! The cost of living in Australia*
22. OECD (2010a) *Towards a Seamless National Economy, OECD Reviews of Regulatory Reform: Australia 2010*, OECD, Paris, pages 16-17
23. OECD (2010b) *OECD Economic Surveys – Australia, Volume 2010/21*, OECD, Paris, page 99
24. Juturna Consulting for Infrastructure Australia (2012) *Economic Reform of Australia's Road Sector: Precedents, Principles, Case Studies and Structures*, page 5
25. Productivity Commission (2010) *Annual Report 2009-10*, page 62
26. Information about the *Regional Infrastructure Fund* can be viewed at http://www.infrastructure.gov.au/infrastructure/rifp/index.aspx
27. Commonwealth of Australia (2011) *State of Australian Cities 2011*, pages 57 and 15
28. OECD (2010) *Organisation for Economic Cooperation and Development Factbook* 2010
29. The Economist Intelligence Unit (2011) *2011 World's Most Liveable Cities*
30. Council of Australian Governments' Meeting 7 December 2009 Communique (2009) Attachment B; http://www.coag.gov.au/coag_meeting_outcomes/2009-12-07/index.cfm#attach_B
31. Yates, J. and Milligan, V. et al (2007) *Housing Affordability: A 21st Century Problem* – AHURI Final Report No. 105; http://www.ahuri.edu.au/publications/projects/p60603
32. Bureau of Infrastructure, Transport and Regional Economics (BITRE) (2012) *Traffic Growth: Modelling a Global Phenomenon*, Report 128
33. Bureau of Infrastructure, Transport and Regional Economics (BITRE) (2012) *Traffic Growth in Australia*, Report 127
34. Analysis of projections in Australian Bureau of Statistics catalogue no. 3222.0 and "Demography. 1956." Bulletin No. 74 by the Commonwealth Bureau of Census and Statistics
35. Population statistics sourced from Australian Bureau of Statistics Catalogue 1301.0 Year Book Australia. Traffic information sourced from http://www.harbourbridge.com.au/hbpages/historycontx.html
36. Public Transport Victoria (February 2012) *Facts and Figures*; http://corp.ptv.vic.gov.au/managing-victoria-s-public-transport-network/facts-and-figures/
37. Moore, Tony, 19 February 2010, 'Bell tolls for traffic congestion', Courier Mail
38. Commonwealth of Australia (2010) *Australia to 2050: future challenges (Intergenerational report 2010)*, page 37
39. New South Wales Government (2011) *NSW Long-term Fiscal Pressures Report 2011-12*, 6-2
40. Rittel, H. W. J. and Webber, M. M. (1973) "Dilemmas in a General Theory of Planning", Policy Sciences, Vol. 4, No. 2, pages 155-69
41. Commonwealth of Australia (2011) *State of Australian Cities 2011*, pages 17 and 57
42. Council of Australian Governments' Meeting 7 December 2009 Communique (2009) Attachment B; http://www.coag.gov.au/coag_meeting_outcomes/2009-12-07/index.cfm#attach_B
43. Council of Australian Governments' Reform Council (2011) *Review of capital city strategic planning systems – Report to the Council of Australian Governments*
44. Commonwealth of Australia (2011) *Sustainable Australia – Sustainable Communities: A Sustainable Population Strategy*; http://www.environment.gov.au/sustainability/population/publications/strategy.html
45. Commonwealth of Australia (2011) *Our Cities, Our Future - A National Urban Policy for a productive, sustainable and liveable future*; http://www.infrastructure.gov.au/infrastructure/mcu/urbanpolicy/index.aspx
46. Western Australian Government (2012) *Metropolitan Local Government Review Draft findings – April 2012*
47. Infrastructure Australia and the National Transport Commission (2010) *National ports strategy: Infrastructure for an economically, socially, and environmentally sustainable future*; http://www.infrastructureaustralia.gov.au/publications/#ports
48. Infrastructure Australia (2012) *National Land Freight Strategy Update*
49. Council of Australian Governments' Road Reform Plan, GHD (2011) R*eport for Review of Incremental Pricing Trials*; http://www.roadreform.gov.au
50. Productivity Commission (2011) *Economic Regulation of Airport Services – Productivity Commission Inquiry Report No. 57*
51. Mrdak, M., Haddad, S. et al (2012) *Joint study on aviation capacity in the Sydney region*
52. Australian Bureau of Statistics (2009) *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians*, 1991 to 2021, Cat. No. 3238.0
53. Detail on the *National Indigenous Reform Agreement* can be viewed at http://www.fahcsia.gov.au/sa/indigenous/progserv/ctg/Pages/NIRA.aspx
54. National Water Commission (2011) *Urban Water in Australia: Future Directions; and Productivity Commission* (2011) Australia's Urban Water Sector
55. AECOM (2010) *Report from the Regional Towns Water Quality and Security Review—Volume 1: Enhancing and sustaining the world's built, natural and social environments*
56. Armstrong, I. and Gellatly, C. for the State of NSW (2008) *Report of the Independent Inquiry into Secure and Sustainable Urban Water Supply and Sewerage Services for Non-Metropolitan New South Wales*
57. Commonwealth of Australia (2011) *Draft Energy White Paper 2011—Strengthening the Foundation for Australia's Energy Future*
58. http://www.nbn.gov.au/about-the-nbn/how-does-australia-compare/
59. Department of Broadband, Communications and the Digital Economy (2012) *Funding and Programs*; http://www.dbcde.gov.au/funding_and_programs

Note: websites accessed 4 June 2012

Appendices

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

Appendix A
Principles of Regional Infrastructure Planning

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

Eight principles for regional infrastructure planning[2]

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

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

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

Appendix B
Updating the infrastructure priority list

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

Infrastructure Australia's 2012 infrastructure priority list

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

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

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

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

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

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

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

The *Reform and investment framework*

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

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

3 Guidance material on applying the framework is available at http://www.infrastructureaustralia.gov.au/reform_investment

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

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

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

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

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

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

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

Assessing submissions

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

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

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

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

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

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

Ready to proceed projects

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

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

Recommended priority order of ready to proceed projects

Priority	Project
1	• Brisbane Cross River Rail • Melbourne Metro Stage 1 • Victorian Managed Motorways Project 1 *Monash Freeway, High Street to Warrigal Road* • Victorian Managed Motorways Project 2 *Monash Freeway, Warrigal Road to Clyde Road* • Pacific Highway Upgrade

Project development funding

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

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

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

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

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

Projects recommended for project development funding

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

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

Table 1 *Reform and investment framework*

Core element	Stage and purpose	Early stage	Real potential	Threshold and ready to proceed (if all issues addressed)

Strategic alignment
Proposal supports Infrastructure Australia's strategic priorities and aligns with state plans
	1. Goal definition
	Goals defined to provide the foundation for problems that need to be addressed as priority and drives the development of solutions
		• Proposal will make a positive contribution to Infrastructure Australia's strategic priorities.
		• Goals of the proposal are identified and align with national, state or regional strategic plans.
		• Proposal prioritised within state or regional strategic plans.
			• Proposal's economic, social and environmental goals quantified. Examples may include:
			  • service standards;
			  • cost recovery targets; and
			  • patronage/user targets.
			• Demonstrated integration across stakeholders / infrastructure sectors.
				• Confirm benefits delivered by preferred option are aligned with goals, for example benefit profiles and a benefits realisation plan.

Problem evaluation a. Problem being addressed is well understood and is an impediment to achieving intended goals. The costs of the problem and potential benefits are presented and supported by evidence. b. Understanding causes allows effective and targeted solutions to be created.	**2. Problem identification** *Identify the problems that may hinder the achievement of goals*	• Current and/or future problem described. Describe what the problem will become in the future if it is not addressed. • Problem linked back to goals within the state or regional strategy.	• Scenario analysis completed over reasonable time horizon demonstrating problems will persist or emerge under plausible scenarios.	
	3. Problem assessment *Gather data rich evidence that demonstrates the problem and allows the biggest problems to be prioritised.*	• Economic, social and environmental costs estimated qualitatively.	• Quantified economic, social and environmental impacts of the identified problem, supported by data, for example surveys, studies, performance against key performance indicators. • Analysis presented that demonstrates the root cause. • Explanation of why the problem cannot be solved without government intervention.	
	4. Problem analysis *Analyse the extent of problems and the root causes*			

Core element	Stage and purpose	Early stage	Real potential	Threshold and ready to proceed (if all issues addressed)
Solution selection The developed proposal has considered a comprehensive set of reform and investment options, there is solid evidence that the project will generate economic benefits, and there is confidence that the project can be successfully delivered.	**5. Option generation** *Develop a full range of possible solutions to address the issue including reform and investment proposals*	• Specific solution options not required in submission.	• Option evaluation criteria to measure performance against the goals of the proposal. • Comprehensive list of reform and investment options identified.	

	6. Option assessment
	Strategic analysis and cost benefit analysis to assess the viability of the options
		• Option assessment not required in submission.	• Rapid benefit cost ratios (BCR) prepared for shortlisted options.
			• Shortlisted options adequately described, including details of key assumptions and risks, demand estimates, impacts and benefits, whole of life costs, funding and financing opportunities.
			• Cost estimates for shortlisted options based on consistent framework built up from first principles.
			• Contingency allowance based on risk profiles.
				• Whole of life costs, service delivery outcomes and engineering design optimised during development of the preferred option, for example value engineering.
				• Demonstrated integration of the proposed solution across systems and related infrastructure sectors
				• Detailed cost benefit analysis including:
				  • funding options to provide maximum cost recovery;
				  • financing and delivery/ procurement models including public private partnerships;
				  • risk assessment; and
				  • base cost estimate and risk allowance.

	7. Solution prioritisation *Detailed business case for the preferred option including cost benefit analysis, strategic fit and deliverability (including cost, risk and procurement)*	• Solutions not required in submission.	• Sensitivity analysis of short-listed options to confirm choice of preferred option is robust. • Sound methodology outlined for project procurement models.	• Detailed delivery outcomes, including cost recovery target maximised considering all potential revenue streams. • Benefit cost ratio (BCR) justifies investment decision. • Independently reviewed risk based cost estimate, risk assessment, demand models and economic appraisal. • Sound delivery strategy and governance model defined.

Appendix C
Submissions to Infrastructure Australia in 2011-12

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

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

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

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

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

* New proposal this year.

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

ooo Revised project scope from previous submission(s).

Appendix D
2012 infrastructure priority list

	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.	**Real potential** Initiatives in this category clearly address a nationally significant issue or problem and there has been a considerable amount of analysis of potential solutions.	**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.	**Ready to proceed** Initiatives in this category meet all of Infrastructure Australia's criteria.
Transforming our cities	Capacity Improvements and Expansion of the Metropolitan Commuter Rail Network (NSW; $795m) Melton Rail Line Duplication and Electrification (Vic, $1,300m) Gold Coast Rail (Qld,: SE Qld Mayors; $2,875m) Hobart: A World-Class, Liveable Waterfront City (Tas; $120m) North West Sydney Public Transport Strategy – North West Rail Link (NSW; $7,500m – $8,500m) South Road (SA; $tbc) South Australia National Managed Motorways Project – South Eastern Freeway, Stirling to Crafers (SA; $4.57m) Tram Route 86 Demonstration Project, Stages B and C (Vic; Stbc)	Integrating Sydney's Motorway Network Melbourne Metro Stage 2 (Vic; $tbc) Dandenong Rail Capacity (Vic; $tbc) Queensland National Managed Motorways – Bruce Highway, Beams Road to Caboolture Road (Qld; $202m) Queensland National Managed Motorways – Pacific Motorway, Gateway to Logan (Qld; $4.6m)	Eastern Busway – Stages 2b and 3 (Qld; $825m ($2008 real)	Brisbane Cross River Rail – core project (Qld; BCR 1.34; $5,311m) Victorian National Managed Motorways – Monash Freeway, High Street to Warrigal Road (Vic; BCR 11.5; $14.3m) Victorian National Managed Motorways – Monash Freeway, Warrigal Road to Clyde Road (Vic; BCR 6.9; $100.7m) Melbourne Metro Stage 1 (Vic; BCR 1.3; $tbc)
Competitive international gateways	Port Hedland Inner Harbour – Capacity Enhancements (WA; North West Iron Ore Alliance; Hancock; $500m – $1,000m) Transforming the Pilbara: Pilbara Cities (WA; $2,900m) Port of Hastings (incl. Peninsula Link rail freight corridor) (Vic; $tbc) Eyre Peninsula Port Proposals (SA, Centrex; $tbc) Port Botany and Sydney Airport Transport Improvement Plan (NSW; $tbc)	Abbot Point Multi Purpose Harbour (Qld; $3,300m ($2010 real) Smart Port ICT (Vic; $16m) South West (Bunbury) Infrastructure (WA; $605m) Freight Access to Port of Brisbane and Brisbane Airport – Gateway Motorway North (Qld; $1,159m – $2,710m) Freight Access to Port of Adelaide – Northern Connector (SA; $1,191m) Melbourne International Freight Terminal (Vic; $tbc) Bell Bay Intermodal Expansion Project (Tas; $150m)	*National Ports Strategy* – 30 year plans for ports and landside connections Oakajee Port (potential equity injection) (WA; c.$5,400m ($2010 real)) Darwin East Arm Port Expansion (potential equity injection) (NT; $336m)	

	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.	**Real potential** Initiatives in this category clearly address a nationally significant issue or problem and there has been a considerable amount of analysis of potential solutions.	**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.	**Ready to proceed** Initiatives in this category meet all of Infrastructure Australia's criteria.
National freight network	Northern Sydney Road Freight Access – F3-M2 (NSW; $4,750m ($2008)) Australian Digital Train Control System (Australasian Railways Association; $20m) Mount Isa to Townsville Rail Corridor Upgrade (QLD; $333m) Transcontinental Rail Link – Mildura to Menindee (Mildura Development Corporation; $400m) Bruce Highway Upgrade Strategy (Qld; $22,500m including Cooroy to Curra) Bruce Highway – Cooroy to Curra Section A (Qld; $852m) Warrego Highway Upgrade Strategy – Helidon to Morven (Qld; $670m) Tasmanian Rail Revitalisation Programme (Tas; $240m) Hobart to Launceston Transport Strategy (Tas; $1,662m)	Western Interstate Freight Terminal (Vic; $tbc) North South Rail Freight Corridors including Northern Sydney Freight (Australian Rail Track Corporation and NSW; $n/a) Advanced Train Management System (Australian Rail Track Corporation; $500m) East West Rail Freight Corridor (Australian Rail Track Corporation; $n/a) Green Triangle Freight Transport Program (SA/Vic; $112m) East West Link (Vic; $tbc)	*National Land Freight Strategy*	Pacific Highway Corridor Upgrades (NSW, BCR 1.5; $6,400m ($2010 real))
Essential Indigenous infrastructure	*An infrastructure policy framework is being developed for essential Indigenous infrastructure. As this is progressed, Infrastructure Australia's Indigenous Infrastructure Sub-Committee will work with stakeholders to identify potential projects.*			
Adaptable and secure water supplies	An Innovation Strategy for Tasmania: Focus on Food Bowl Concept (Tas; $tbc)	Tasmanian Water and Sewerage Reform (Tas; $1,000m)	*Infrastructure Australia proposes reforms around planning for water security, independent pricing, competition in bulk supply and consumer choice over levels of reliability*	
A true national energy market		Mid-West Energy – Stage 2 (WA; $280m)	*Infrastructure Australia supports proposed reforms to regulatory provisions regarding connection of remote renewable energy generation and electricity transmission connections between states*	
Digital infrastructure				National Broadband Network
Total capex (est)	**$48,070m**	**$10,071m**	**$6,561m**	**$11,826m**
Total estimated infrastructure priority list capital costs: $76,528m				

(1) Each project in the list includes the name of the project proponent(s), and estimated benefit cost ratio (BCR) for ready to proceed projects. For some projects, the estimated capital cost has been withheld at the request of the proponent. Some capital costs are expressed in outturn dollars, unless a 'real' cost estimate has been provided by the proponent, in which case the base year for the 'real' estimate is provided. Total capex (est) does not include those projects whose capital estimate has been withheld. Where a range has been provided, the highest figure has been included in the total. Unless stated otherwise, the capital cost and the benefit cost ratio (BCR) are those estimated by the proponent.

(2) See the project summaries at Appendix E for an explanation of proponent acronyms. Orange text indicates a new or re-submitted submission in 2011/12.

(3) Potential private sector involvement – many publicly driven projects could be structured to be part-supported or enhanced by private investment, and most privately sponsored projects could be made certain and potentially enhanced by government funding and/or regulation and/or customer support. The opportunity for user pay principles is particularly relevant for projects in the telecommunications, energy and water sectors, as well as ports, road and rail freight and urban motorways in the transport sector.

Appendix E
Description of projects in the 2012 infrastructure priority list

Priorities under the transforming our cities theme

Brisbane Cross River Rail (Queensland Government)

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

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

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

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

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

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

The full Cross River Rail solution includes:

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

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

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

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

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

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

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

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

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

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

Melbourne Metro Stages 1 and 2 (Victorian Government)

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

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

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

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

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

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

The proposal to Infrastructure Australia is for:

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

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

Integrating Sydney's Motorway Network

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

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

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

Dandenong Rail Capacity Program (Victorian Government)

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

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

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

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

Potential initiatives could include:

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

Tram Route 86 Demonstration Project (Victorian Government)

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

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

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

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

Melton Rail Line Duplication and Electrification (Victorian Government)

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

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

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

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

North West Sydney Public Transport Strategy – North West Rail Link

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

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

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

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

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

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

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

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

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

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

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

This proposal seeks to deliver:

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

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

South Road (South Australian Government)

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

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

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

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

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

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

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

Priorities under the international gateways theme

Darwin East Arm Port Expansion (Northern Territory Government)

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

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

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

The project was estimated to cost $336 million.

Oakajee Port Common-User Services (Western Australian Government)

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

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

The Common Use Infrastructure proposes to deliver a:

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

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

South West (Bunbury) Infrastructure (Western Australian Government)

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

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

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

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

Abbot Point Multi Purpose Harbour (Queensland Government)

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

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

The scope of Stage 1 includes:

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

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

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

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

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

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

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

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

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

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

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

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

The project is estimated to cost $1.191 billion.

Melbourne International Freight Terminal (Victorian Government)

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

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

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

Bell Bay Intermodal Expansion Project (Tasmanian Government)

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

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

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

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

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

Smart Port ICT (Victorian Government)

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

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

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

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

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

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

The project proposes:

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

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

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

Transforming the Pilbara – Pilbara Cities (Western Australian Government)

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

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

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

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

The program is estimated to cost $2.9 billion.

Port of Hastings Development (Victorian Government)

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

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

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

Eyre Peninsula Port Proposals (South Australian Government)

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

The proposals submitted to Infrastructure Australia include two potential developments:

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

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

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

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

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

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

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

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

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

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

Priorities under the national freight network theme

Pacific Highway Corridor Upgrades (New South Wales Government)

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

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

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

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

Western Interstate Freight Terminal (Victorian Government)

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

The Western Interstate Freight Terminal involves:

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

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

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

The north-south freight corridor runs between Brisbane and Melbourne. It comprises the densest general freight route in Australia with a number of segments critically important to national prosperity. The corridors cover the existing lines including the Southern Sydney Freight Line (currently under construction).

Upgrades to the line between North Strathfield and Gosford are the subject of a current study by the Australian and New South Wales Governments. The Australian Government has announced a package of capacity and efficiency enhancement for the Australian Rail Track Corporation's New South Wales North Coast line. The corridor also includes the proposed Inland Rail Route between Melbourne and Brisbane which would bypass the Sydney area.

Advanced Train Management System (Australian Rail Track Corporation)

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

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

The project is estimated to cost over $500 million.

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

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

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

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

The project has an estimated cost of $112 million.

East West Rail Freight Corridor (Australian Rail Track Corporation)

The East West Rail Freight Corridor links the principal cities and industrial centres in eastern Australia such as Melbourne and Sydney with those on the west such as Perth. Projected growth in rail freight makes increases in the efficiency and capacity of the corridor a national priority. The Australian Rail Track Corporation manages most of the corridor and has identified a package of works needed to boost performance of the rail sector.

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

East West Link (Victorian Government)

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

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

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

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

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

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

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

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

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

The project consists of:

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

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

Australian Digital Train Control System (Australasian Railways Association)

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

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

Mount Isa to Townsville Rail Corridor Upgrade (Queensland Government)

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

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

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

The project has an estimated cost of $333 million.

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

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

The proposal consists of:

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

The project has an estimated cost of $400 million.

Bruce Highway Upgrade Strategy (Queensland Government)

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

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

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

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

Bruce Highway – Cooroy to Curra Section A

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

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

The objectives of the project are to:

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

Warrego Highway – Helidon to Morven (Queensland Government)

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

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

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

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

The project has an estimated cost of $670 million.

Tasmanian Rail Revitalisation Programme (Tasmanian Government)

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

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

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

The project has an estimated cost of $240 million.

Hobart to Launceston Transport Strategy

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

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

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

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

Priorities under the adaptable and secure water supplies theme

Tasmania Water and Sewerage Program (Tasmanian Government)

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

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

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

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

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

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

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

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

Priorities under the national energy grid theme

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

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

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

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

Acknowledgements

Photographs

Clean Energy Council – front cover

Fremantle Ports – inside cover

Willoughby City Council – pages 6-7

Sydney Ports Corporation – pages 10 and 31

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

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

Department of Transport, Victorian Government – pages 15 and 55

Australian Financial Review – page 21

Newspix/Lincoln Baker – page 22

Institute of Public Works Engineering Australia – page 23

Newspix/Bruce Long – page 29

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

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Contacts

Infrastructure Australia
GPO Box 594
CANBERRA ACT 2601
AUSTRALIA

T +61 2 8114 1900
F +61 2 8114 1932

E mail@infrastructureaustralia.gov.au
W www.infrastructureaustralia.gov.au

Australian Government
Infrastructure Australia