

Sydney, NSW



Chapter 2

# Productivity





## Chapter 2

# Productivity

Many factors contribute to productivity: the skills of the workforce; technology; openness of the economy and trade barrier liberalisation; micro economic reforms; and workplace relations. Cities are centres of economic activity, where the workforce, industry and institutions are concentrated. How efficiently our cities connect people, industries, business and markets, and how effectively their economic and human capital is utilised has significant impact on the productivity of our cities and their contribution to national productivity growth.

Australia's cities with populations of greater than 100 000 people contribute nearly 80% of the national Gross Domestic Product and employ nearly 75% of its workforce. They are the principal location for approximately 70% of Australia's businesses, including 80% of large corporations (Australian Government 2010a). In Australia, our cities are also important conduits for our strong resource and agricultural sectors and export industries.

The Australian Government has been pursuing an extensive reform agenda to improve productivity, recognising that productivity growth is crucial to increasing the living standards and overall wellbeing of Australia's people. The Australian Government's policy agenda for productivity includes infrastructure investment, education and skills development, innovation and technological advancements, energy efficiency, and consideration of various ways to encourage an increase in workforce participation. These directions are all aimed at securing the nation's long term prosperity whilst maximising educational and economic opportunities for all.

Cities offer the potential for greater productivity gains where specialised or complementary activities can cluster together. The benefits that accrue from such concentrations of activities known as agglomerations, include greater opportunities for innovation and sharing of knowledge and services.

The *Intergenerational Report 2010* was unequivocal about the potential impact that an ageing population and associated decline in workforce participation may have on future economic growth. With an ageing population, productivity will be the key driver of living standards in the future.

The development of Australia's cities will also be central to improving productivity performance. Much of a city's capacity to accommodate population increases while supporting productivity growth is reliant on the efficacy and adequacy of its infrastructure, including its housing stock. The sustainability of Australia's cities will also be dependent on better governance in the planning and organisation of city infrastructure and more efficient use of existing infrastructure.

*2010 Intergenerational Report, page xv*

The challenge of lifting the productivity of our cities is two-fold: improving their efficiency; and encouraging innovation, training and development of knowledge and skills.

'Australia remains a prime location for doing business ... To progress even further, the country will need to increase the sophistication of its businesses ... and strengthen its innovation capacity.'

*The Global Competitiveness Report 2010-11,  
World Economic Forum page 28*

The potential for cities to further unlock productivity and agglomeration opportunities is constrained by a number of factors. These include competition for space and infrastructure use and investment; conflicts between land uses; heavy vehicle congestion around airports or sea ports; complex, inconsistent and inadequate cross-border rules for the freight industry;

and inadequate coordination and governance structures within and across the three levels of government and into the private sector.

A federal partnership is warranted to address the productivity and global competitiveness challenges facing our cities.

<b>IMPROVING LABOUR AND CAPITAL PRODUCTIVITY</b>	<p>Improving the performance of both labour and capital is required to secure long-term national productivity.</p> <p>Sustained and targeted investments in people and capital are required into the future.</p>
<b>INTEGRATING LAND USE AND INFRASTRUCTURE PLANNING</b>	<p>The distribution of people and jobs, inadequate infrastructure, and conflicting land use activities, can serve to limit the productive capacity of our cities.</p> <p>However, effective integration of land use and infrastructure planning can deliver economic efficiencies and social opportunity.</p>
<b>PROTECTING CORRIDORS, SITES AND BUFFERS</b>	<p>A major impediment to the placement of new infrastructure or the expansion of existing infrastructure is the lack of planning for, and protection of, critical infrastructure corridors and sites. A further concern is the need for adequate protection of buffers to prevent facilities from being encroached upon by incompatible land uses.</p> <p>Best practice approaches to plan and protect corridors, sites and buffers are required as part of good integrated land use and infrastructure planning.</p>
<b>INVESTING IN URBAN PASSENGER TRANSPORT</b>	<p>Transport infrastructure is costly in terms of both capital investment and maintenance. Yet it is often not managed or used to its full capacity.</p> <p>How we may use smart infrastructure, pricing and travel demand mechanisms to gain increased efficiency in the use of transport investments is the subject of much national and international investigation and trialling.</p>
<b>IMPROVING ECONOMIC INFRASTRUCTURE</b>	<p>Ensuring our roads, railways, ports, airports, communications, water and electricity networks can adequately provide for economic and population growth is a constant challenge.</p> <p>The Australian Government is continuing to strengthen its relationship with industry, State, Territory and Local Government to facilitate the provision and efficient use of nationally significant infrastructure.</p>
<b>UTILISING SMART INFRASTRUCTURE</b>	<p>New technologies can improve and enhance safety, efficiency, cost-effectiveness and the environmental performance of infrastructure networks.</p> <p>Smart infrastructure encompasses a broad range of information and electronics technologies.</p>
<b>ENHANCING CONNECTIVITY THROUGH THE NATIONAL BROADBAND NETWORK</b>	<p>An accessible high speed national broadband network is fundamental to improving communications and connectivity for businesses and communities and to maximise the application and benefits of smart infrastructure.</p> <p>Increasing the capacity for industry and communities to access information and services, and to conduct business transactions online can reduce the need for travel and improve our international competitiveness by overcoming our relative geographical isolation.</p>
<b>SUPPORTING EDUCATION, RESEARCH AND INNOVATION</b>	<p>While the nation develops many innovative approaches to city problems, in too many instances opportunities to generate new wealth for the nation are missed.</p> <p>There is a need to help foster more innovative systems and approaches within our cities, and to share this knowledge, information and expertise across regional areas.</p>

## Improving labour and capital productivity

Improving Australia's productivity requires an understanding of why a decline of productivity has occurred and what can be done to accelerate productivity growth? Australia's Productivity Commission estimates that the decline in multifactor productivity growth can be attributed to three industry sectors: mining; agriculture; and electricity, gas, water and waste services (Productivity Commission 2010). The Commission estimates indicate that these three sectors accounted for almost 80% of the recent decline in productivity growth relative to the 1998–99 to 2003–04 cycle. More explanation is available in chapter 4 of the background paper to this discussion paper.

The need for large recent urban infrastructure investments (not including the stimulus package) highlight the importance of on-going investment over the long term to prepare for population growth and a changing climate—including less predictable rainfall patterns, sea level rise and coastal erosion. Whilst this recent infrastructure investment will contribute to supporting our productivity over the long term, ongoing productivity improvements will depend on the efficient use of infrastructure and sustained and well targeted investments to harness our productivity potential.

This is particularly true in our cities. Our investment in education and training is continuing to support long term productivity improvements by ensuring we maintain our skilled workforce into the future. Infrastructure investments in our

cities which facilitate people accessing education and training opportunities and jobs also underpin improved productivity by harnessing the potential of our workforce.

## Integrating land use and infrastructure planning

The efficiency of Australian cities as economic systems is diminished by poor planning, coordination and/or implementation. The low density nature of our cities compared with many of our international competitors means that we travel further each day to complete our daily activities and to move freight around.

These challenges are compounded by the vast distances between our cities, and between Australian cities and the rest of the world, as well as the limited investment in economic infrastructure in our cities in the last decade compared with earlier decades, leading to congestion and delays on our roads and on public transport.

Recent population and economic growth has put a spotlight on the need for governments to expand their investment and reform agenda in economic infrastructure to ensure that road and rail freight networks are well planned and managed, not just to the edges of cities but through them to the economic gateways of the nation, our ports and airports. We also need to ensure that the movement of people within cities is well planned and managed, and that conflicts between incompatible land uses do not undermine productivity.

Launceston, TAS



### Case study: Gold Coast light rail

The Gold Coast is Queensland's second largest city and is one of the fastest growing regions in Australia with a population of 600 000 that is increasing by 15 000 each year.

The Australian Government is investing \$365 million towards the Gold Coast Rapid Transit system. This involves the construction of a 13 kilometre light rail system to link key activity centres from Griffith University (Gold Coast Campus) to Broadbeach via Southport. This is the first stage of a broader system that is planned to connect Helensvale with Coolangatta. The capital cost to governments of the project is now expected to be in the order of \$949 million with the final cost to be determined through the tender process for the Operator Franchise Public Private Partnership. The Queensland Government and Gold Coast City Council are meeting the balance of costs.

The project is expected to see a reduction in greenhouse gas emissions over 10 years that is in the order of 114 000 tonnes (net). In addition, it is expected to see significant reductions in the number of daily car trips to key activity centres along the light rail corridor.

As a result of the rapid transit system, the wider public transport network will be enhanced with four million bus service kilometres to be re-directed across the city.

The rapid transit system will also support the Council's "Our Living City" Urban Planning Scheme through new urban planning opportunities with Council planning to upgrade precincts around key stations and provide for Transit Oriented Developments along the corridor.

The first section of the Gold Coast Rapid Transit system is expected to be completed in 2014.

### Protecting corridors, sites and buffers

In managing growth effectively, a specific area of concern is the need to improve the planning, protection and acquisition of corridors, strategic sites and buffers for nationally significant economic infrastructure networks in, and between, the major cities of Australia. The capacity of jurisdictions to implement long-term plans without the encroachment of incompatible land uses into areas needed for infrastructure, or prohibitively expensive land purchases, depends on long term planning and timely statutory protection of critical lands.

The Australian Government is working with the other levels of government in analysing best practice approaches to facilitating the efficient planning and development of nationally significant economic infrastructure, particularly in relation to the long term planning and protection of critical infrastructure corridors, strategic sites and buffer zones.

The Australian Government is also investing in the possibility of high speed rail along the eastern seaboard and is working with the NSW Government on an aviation strategic plan for the Sydney region. Both these investigations may call for the protection of corridors and/or strategic sites.



Gold Coast, QLD



Townsville, QLD

### Case Study: Long-term planning and acquisition of strategic corridors and sites in Western Australia

The Western Australian Planning Commission is a statutory authority with state-wide responsibilities for urban, rural and regional land use planning and land development matters. The Commission is supported by the Department of Planning through human resources and professional advice.

The Commission can plan, then provide statutory protection for, and ultimately acquire, properties reserved under regional schemes for primary and regional roads as well as other transport modes, non-transport infrastructure needs, parks and conservation areas, and major land development projects. As such, it has the power to plan and reserve land for major infrastructure corridors and interchange sites such as freight terminals and rail lines.

The Western Australian Planning Commission acquires reserved land on a long-term strategic basis and mostly acquires land voluntarily, as land is offered for sale to the general market or at the request of landowners. In this way land acquisition is generally not of community concern. Land which is affected by a reservation in a regional scheme can generally remain in private ownership or at least private management until the government needs it for a public purpose.

The purchase of land is funded by the Metropolitan Region Improvement Tax—a small and secure component of land tax which the Commission receives annually and outside the normal budget allocation processes of the Western Australia Government. In 2009–10 the Planning Commission acquired 46 properties totalling 195.7 hectares at a cost of approximately \$68 million.

The Planning Commission provides a role model for long-term planning and strategic land acquisition for significant projects.

### Investing in urban passenger transport

The transport challenges facing our cities are considerable and the solutions are complex and long-term, requiring sophisticated approaches to ensure optimal outcomes from investments. People and businesses need genuine options for their transport needs, including alternatives to reduce their reliance and dependence on motor vehicles. A number of means are available, including better land use planning; improving the efficiency of freight and quality of public transport; encouraging more people to walk and cycle; use of technology and smart infrastructure; and appropriate pricing and travel demand management.

Historically, the Australian Government has not been a major funder of city public transport systems. However, in recognition of the critical role public transport plays to improve the liveability of our cities, the Australian Government has committed over \$7.3 billion for metropolitan rail system improvements in capital cities since 2008 (refer to the case study).

It makes sense to make the most of the infrastructure we have already before investing in any more. Optimising our existing networks is a high priority and one that Infrastructure Australia, in particular, is pursuing.

The option of more effective pricing gives clearer and more consistent signals to commuters and carriers of freight about the real cost of road use or other mode such as air or rail. Road congestion charging has already been introduced in cities like London, Singapore and Stockholm. The experiences and lessons from these international examples are worthy of further consideration. There are also ongoing debates about whether road pricing is warranted, or even cost effective, in Australia's biggest cities. However, the widespread adoption of affordable Global Positioning System technologies may provide more options in future. The social implications of such approaches will also need careful consideration.

Local Government too, has an important role in maximising returns on our investment in urban transport. Local jurisdictions in Brisbane, Melbourne and inner Sydney, for example, are taking the lead on developing 'active transport' options—making it easier to ride bicycles and walk throughout the city. They are also supporting local infrastructure to encourage motorists to consider the benefits of electric vehicles. While these vehicles will not reduce congestion, they will at least start to lessen the worst environmental aspects of vehicle use within cities.

Recently, Australia has experienced some pronounced changes in personal transport use. Between 2004 and 2008, Australia's population grew by an average rate of 1.5% per annum, but

travel demand grew by only 0.6% per annum. In addition, while in earlier decades 90% of growth was in the form of increased car travel, more recently this has fallen to 30% of growth. Taken together, these two factors have led to growth in car travel of only 0.2% per annum in recent years (BITRE 2009a). These trends reflect similar changes in Europe and the United States where car travel has been falling as an overall proportion of travel.

Investment in urban rail and bus transport can also be used to leverage more sustainable urban development forms. For example, combining infrastructure investment with new forms of housing and commercial development along transport routes can create more accessible, less carbon dependent communities and businesses.

### Case Study: Investment in urban railways

Investment in railways in Australia's urban centres has not kept pace with population growth in recent decades.

The Australian Government has sought to assist State and Territory Governments to address this by investing in urban rail projects. Federal investment is now planned at \$7.4 billion and provides for a major rail project in every state capital on the mainland.

Long term integrated land use and transport planning in Victoria identified the need for significant new rail investment in response to the rapid growth in ridership on Melbourne's trains, including growth of about 47 per cent in the preceding five years alone. In addition, there was a need to develop a new rail line to serve the rapidly growing western suburbs and to separate regional trains from metropolitan trains in order to improve the capacity and reliability of both. A seven-stage rail network strategy was developed to, firstly, maximise utilisation of the existing infrastructure through operational and pricing initiatives and, subsequently, to construct a new rail link through the western suburbs (the Regional

Rail Link) and a new metro crossing beneath central Melbourne.

Similar planning for the development of the rail network in Adelaide identified the need to lift the speed and frequency of train services on the Gawler rail line, including electrification and re-sleepering of the line, and to extend the Noarlunga line to Seaford to serve the rapidly growing southern suburbs.

The Regional Rail Link, Melbourne Metro, Gawler and Noarlunga-Seaford rail projects were submitted to Infrastructure Australia for advice to the Australian Government on their importance and on the robustness of the work done in preparing the projects for funding. Infrastructure Australia advised that the projects met the stringent criteria applied by Infrastructure Australia and were ready to proceed.

In 2009, the Australian Government committed \$3.2 billion for the construction of the Regional Rail Link in Victoria and more than \$584 million for the Adelaide projects. All these projects are now in construction. The Australian Government also provided funding of \$40 million for a business case for the first stage of the Melbourne Metro project.

## Improving economic infrastructure

Economic infrastructure is the hard infrastructure—such as roads, railways, communications, water and electricity networks—that is essential for cities to effectively function and contribute to Australia’s economic capacity. In Australian cities, productivity is directly linked to infrastructure that supports the economy. In comparison with other countries, Australia relies heavily on its transportation sector, which accounted for 4.7% of GDP in 2007–08 (BITRE 2009), continuing a growing contribution over the past 20 years.

Ensuring that infrastructure can adequately provide for economic growth, population growth and transport demands is a constant challenge. Freight and passenger transport between major cities is projected to double by 2025 (BITRE 2009a).

In many Australian cities growth has outpaced the ability or priority given to fund and build new infrastructure. Increasingly, cities need to overcome shortfalls through innovative approaches to ensure that infrastructure is used more efficiently and alternative funding sources are secured.

The Australian Government has, for a long time, contributed funding to the nation’s economic infrastructure. However, until recently, its focus has generally not been in the cities, but rather on connecting Australia’s cities with a quality road and rail network.

Infrastructure Australia was established by the Australian Government in 2008 to review, and advise on, infrastructure reform and investment initiatives of national significance. Infrastructure Australia has a crucial role in developing long-term strategies and national regulatory reform and is working with the Council of Australian Governments to agree to, and deliver on, these objectives. To this end it has published National Public-Private Partnership Guidelines and initiated work on a National Ports Strategy, a National Freight Strategy, as well as strategies for energy, water and public transport network planning.

The Building Australia Fund was established on 1 January 2009 by the *Nation-Building Funds Act 2008* to finance capital investment in transport infrastructure (such as roads, rail, urban transport and ports), communications (such as broadband), and energy and water infrastructure (such as dams and power stations).

The Government committed \$22 billion in its 2009–10 Budget to improve the quality, adequacy and efficiency of transport, communications, energy, education and health infrastructure across Australia.

A number of other significant Australian Government funding programs for economic infrastructure also exist. Some of these are project based and others are in the form of special purpose grants. Much of this funding has been focussed on land transport, particularly roads. Without the use of complementary demand-side measures, such as road pricing and congestion charging, some proposals for additional road capacity are unlikely to lead to sustained reductions in congestion and may further impact the environment and reduce urban amenity. However, there is a role for road projects to support the transformation of our cities and improve access to our ports and major road freight networks, provided they make better use of existing networks and facilitate the efficient movement of road based freight transport.

Further realignment and reprioritisation of existing and planned funding for nationally significant economic infrastructure would seek to ensure that:

- there is a clear policy framework for economic infrastructure, building on existing policy reforms
- air and sea ports are well supported by connecting infrastructure
- major national infrastructure is resilient to future climate scenarios
- infrastructure corridors and sites are protected for the long term
- regulatory and planning reform is leveraged to obtain the best value from Australian Government investments

### Case Study: Proposed Moorebank Intermodal Freight Terminal

An example of the Australian Government's interest in major productivity-based infrastructure is the proposed Moorebank Intermodal Freight Terminal in New South Wales. The Government will provide funding to be used to develop a comprehensive business case, create designs, gain approvals and develop and implement a strategy for an intermodal transport hub at Moorebank, as well as relocate the Defence's School of Military Engineering to Holsworthy.

It is envisaged that the Moorebank Intermodal Freight Terminal could become an integrated transport solution for the movement of freight to, from, and within the Sydney basin. It would therefore support national productivity, reduce business costs and reduce urban traffic congestion, through more efficient distribution of containers by rail.

Preliminary analysis by Infrastructure Australia projects that the terminal will take over 1 million trucks off Sydney roads every year from 2020, which will also reduce greenhouse gas emissions and motor vehicle accident rates. A decision to proceed with the project will be dependent on the outcomes of detailed community consultation and assessment.

### Utilising smart infrastructure

Smart infrastructure involves combining information technology with infrastructure to provide information that can help to improve an asset's operation. Smart infrastructure initiatives and technologies present us with an opportunity to build intelligence into the systems on which the Australian economy depends, such as transport, communication, health, energy and water.

It can be used to deliver productivity benefits that directly address some of the key challenges faced by our cities, particularly those being faced by Australia's urban transport systems.

The potential benefits of next generation smart transport infrastructure, especially cooperative systems, are expected to be substantial. This is largely because these systems are able to 'see further' to generate real-time information, and provide drivers with more time and advice to support safety, congestion mitigation and driving in a way that maximises fuel efficiency.

Most transport-related smart infrastructure may broadly be categorised as:

- Direct traffic management technologies, such as traffic light synchronisation, ramp meters, and responsive speed limits. The main benefits are reduced congestion with associated environmental and safety benefits, as well as the potential for increased throughput.

- Provision of information to transport users (both public and private transport), with the direct benefit of allowing greater choice, certainty and reliability for users, and with the indirect benefits associated with reducing congestion.
- Smart infrastructure to inform maintenance decisions, such as sensors embedded in infrastructure, which can improve safety and reduce maintenance costs.

Examples currently in use or being developed on roads and motorways in Australia are:

- monitoring of freeway conditions and identifying flow impediments
- ramp metering (signals that control the flow of traffic onto the freeway)
- dynamic messaging signs and variable messaging signals
- emergency vehicle notification systems and incident management systems
- variable speed limits
- real time traffic information
- collision avoidance systems
- dynamic traffic light sequence
- cordon zones with congestion pricing
- electronic toll collection.

A recent report undertaken by Access Economics—*The Economic Benefits of Intelligent Technologies 2009*—reviews the potential economic benefits that may flow from the implementation of smart technologies and systems in different parts of the economy, including transport.

The report found that the benefits far outweigh the initial capital costs involved, estimating that the implementation of smart, integrated transport systems, accompanied by regulatory and governance reform, could boost the net present value of GDP by between \$6 billion and \$13 billion over a 10 year period, and boost the number of jobs by 30 000.

### Case Study: Advanced Train Management System

Much of the signalling infrastructure across the interstate freight rail network is at the end of its physical life. The cost to replace this infrastructure on a like-for-like basis is high. At the same time, advances in information technology systems (software and hardware) and communications systems have created opportunities to move to a new generation of train control.

The Advanced Train Management System (ATMS), proposed by the Australian Rail Track Corporation replaces track-side infrastructure with digital mobile communications based control and global positioning technology. This technology will improve train control and deliver system-wide efficiencies for rail freight, resulting in increased capacity. It will also benefit passengers who use the interstate network.

Following the Australian Government-funded \$15.8 million ATMS 'Blueprint' (Phase 1) completed in 2006, the Australian Government has invested a further \$45 million to trial the ATMS between Port Augusta and Crystal Brook in South Australia (Phase 2) as part of the Nation Building Program - Economic Stimulus Package equity contribution to the Australian Rail Track Corporation.

The trial will further develop the ATMS and, if successful, full implementation across the rail network will be considered. If deployed, the system will replace existing high-maintenance, geographical-based track side signalling infrastructure with 'rolling virtual proximity' signalling. The system will utilise Global Positioning System technology and high speed 3G broadband data to define safe travelling distances between trains, provide real time information to drivers and enable new digital network control centres to direct all traffic on Australian Rail Track Corporation's network.

## Enhancing connectivity through the National Broadband Network

For a city and its residents to compete globally in a world dominated by rapid flows of information, the infrastructure connecting the city to the commercial telecommunications network must be able to meet both current and future requirements. This warrants dramatically increasing bandwidth.

For these reasons the Australian Government has announced the roll-out of the National Broadband Network.

The National Broadband Network is fundamental to realising the potential of 'smart infrastructure' and is central to the Government's strategy on improved communications. With the utility of a wide spread, high speed network the applications of the new information and communication

technologies will extend into almost all facets of work and life.

The roll-out of high speed broadband is expected to:

- improve the productivity of Australian businesses, allow them to expand their customer base and grow revenues, regardless of their location
- enhance education, health and other services delivery for all Australians regardless of location
- connect our cities and regional centres nationally and globally
- facilitate greater take-up of teleworking, which, in turn, allows workplace flexibility, eases traffic congestion and enhances regional employment opportunities
- allows the use of smart technology to better manage our natural resources, infrastructure and issues such as congestion

Through the Australian Government's investment, high speed broadband will increasingly become available to all Australians. Under current Government policy, 93% of Australian homes, schools and businesses, will be connected via fibre optic cabling, capable of delivering speeds up to 100 megabits per second. The remaining premises will be connected via next generation wireless and satellite technologies delivering broadband speeds of 12 megabits per second or more.

## Supporting education, research and innovation

To compete globally, cities increasingly rely on 'human capital' for competitive advantage. Human capital is developed through access to education and training—highly skilled people are more likely to engage in paid work, and to work for longer. Cities can build, retain and attract skilled workers if they offer accessible employment and training opportunities and a desirable quality of life.

The current reforms to education, training, employment services and workplace relations will help all areas of Australia, including its cities, to build human capital and a more skilled workforce. In the recent economic crisis, while the Australian labour market displayed remarkable resilience, it was not immune to the impact of the downturn. In general, metropolitan areas fared better than non-metropolitan areas, but a number of metropolitan regions were disproportionately affected, as a result of their reliance on industries that were particularly vulnerable to the impact of the global recession, such as manufacturing. In building productivity and resilience, it will be important to recognise these vulnerabilities and be aware of the significant threats cities must prepare for, including economic down-turns, security threats, natural disasters and climate change.

Innovation is critical to future productivity and maintaining or building competitive advantage. It requires the bringing together of a broad range of educational, social and physical enablers. Encouraging innovation in our cities requires:

- economic opportunities for talented individuals and businesses
- lifestyle opportunities that attract talented individuals
- transport and communications to provide connections within and beyond our cities.

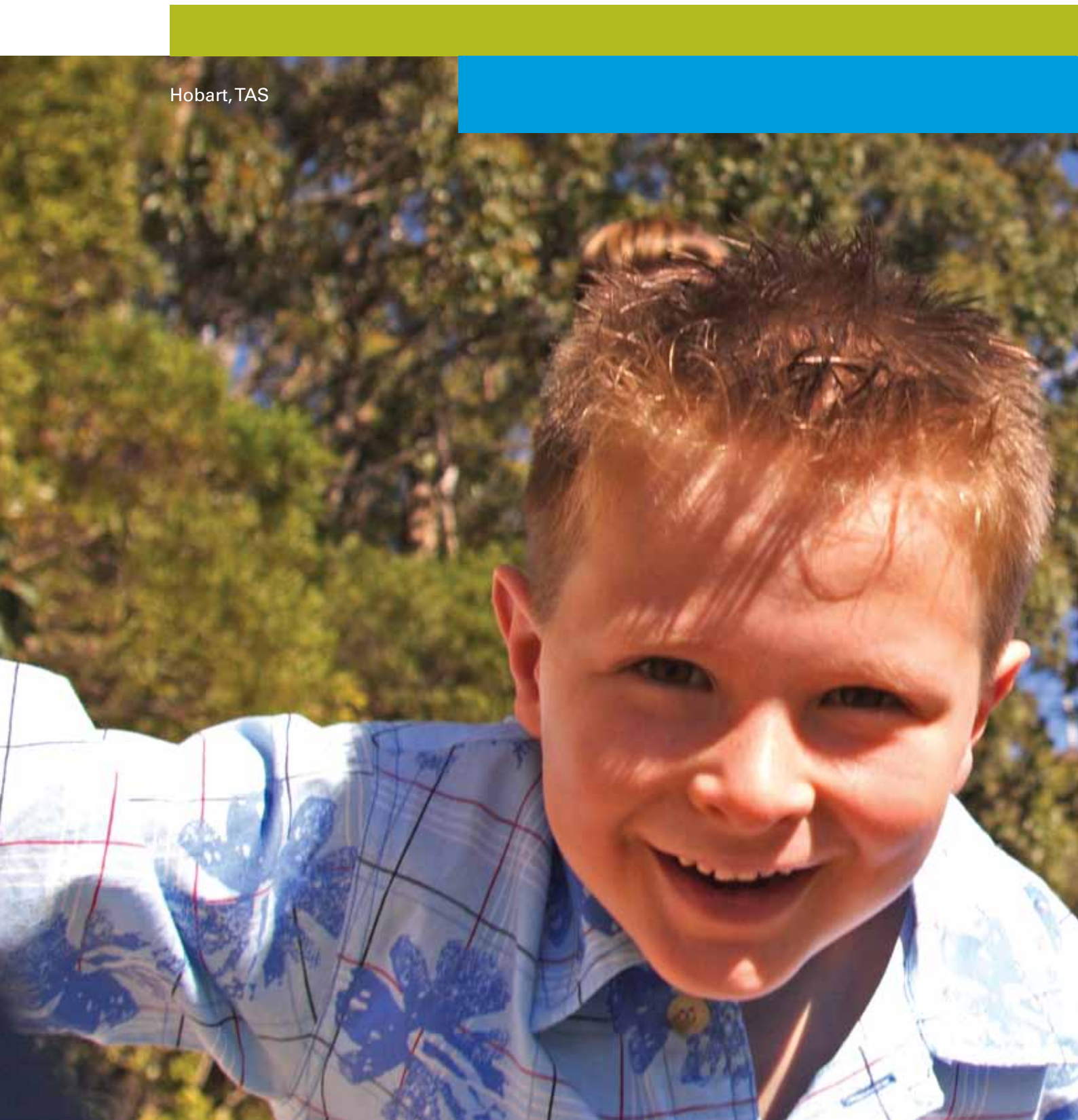
Innovation does not just happen. It will involve decisions made in both private sector and government sectors to invest time, effort and money in exploring new ideas and business models. From a business perspective, the profit motive and competition will be important drivers of innovation. Similarly, flexibility in the workplace and regulatory environment can facilitate the adoption of new practices and processes.

The Organisation for Economic Co-operation and Development (OECD) *Innovation Strategy*, released in May 2010, states that innovation is central to economic performance and social welfare, and notes evidence confirming the links between innovation and growth. The strategy states that innovation "is a powerful engine for development and for addressing social and global challenges. And it holds the key, both in advanced and emerging economies, to employment generation and enhanced productivity growth through knowledge creation and its subsequent application and diffusion."

To compete globally, cities increasingly rely on 'intellectual capital' for competitive advantage. In recent decades, skill shortages have imposed constraints on economic growth and continue to do so.

Developing a skilled labour force and increasing the participation rates within city populations is related to the availability and accessibility of employment and training opportunities. There is also a strong relationship between economic success and the amenity offered by cities. With an increasingly mobile global workforce, attracting people with high levels of skill to our cities is related to the quality of life that the cities offer.

Hobart, TAS



Chapter 3

# Sustainability





## Chapter 3

# Sustainability

Sustainable development refers to ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (Brundtland, 1987).

---

Recent trends in population growth and urban development are intensifying the challenges facing our communities and the pressures on our built and natural environments.

The projected increase in Australia’s population over the next 40 years, together with continued economic growth, will put pressure on our increasingly fragile ecosystems. It will also place pressure on our cities and their supporting infrastructure.

*Australia’s Future Tax System 2010 Report to the Treasurer,  
December 2009*

Demand for essential goods and services such as water, energy and land continues to increase whilst supply comes under mounting pressure. At the same time, waste generation in Australia continues to grow. If left to develop in an unsustainable manner, Australian cities and regions will increasingly contribute to and be impacted by the degradation of the physical environment that underpins our way of life. An added pressure is the physical consequences of climate change, which will add to—and in some cases compound—other environmental challenges.

Solutions to these challenges require a co-ordinated and comprehensive response, targeted at all areas of the urban form and its associated systems such as energy, water, sewage, transport, waste management communications, urban planning and development processes. It is essential that mechanisms be established to allow for effective decision-making and that communities, the private sector and government work together to better manage the environment and prepare for climate change.

The Australian Government has several roles with respect to sustainability, including the facilitation of changes to how we plan for and construct new developments, buildings and infrastructure; support for other levels of government to help them manage their existing assets; the regulation of matters of national environmental significance; and support for communities as they adjust to a changing climate and better manage areas of conservation or heritage importance.

### Sustainable Population

The Government is currently developing a *Sustainable Population Strategy* scheduled for release in 2011. The Strategy will consider how population size, distribution, composition and growth rate affect the sustainability of Australia’s economy, environment and society. Australia’s cities play an important role in meeting the nation’s future population needs and the Strategy will have strong links to the development of the *National Urban Policy*.

<b>PROTECTING AND SUSTAINING OUR NATURAL ENVIRONMENT</b>	<p>Cities and their populations are having a detrimental impact on natural ecosystem services vital to human life. Native ecosystems are at risk of being displaced or degraded by expanding urban areas with negative consequences for air and water quality, biodiversity and amenity.</p> <p>Options to support the 'greening' of Australian cities include promoting the importance of green infrastructure into the fabric of urban systems, revising the current patterns of city development and continuing to protect our natural environment and ecosystems.</p>
<b>IMPROVING WATER, ENERGY AND FOOD SECURITY</b>	<p>The secure supply of water, energy and food to our cities is becoming an increasing issue as our cities expand and adapt to a changing climate.</p> <p>Options to support the security of these vital systems are continually being developed, with considerable investments being made in many of Australia's major cities.</p>
<b>REDUCING RESOURCE CONSUMPTION AND WASTE</b>	<p>Cities and their populations greatly affect the environment through the demand for resources. Current patterns of consumption of non-renewable resources and production of waste are a key challenge for the future of our cities.</p> <p>Options to reduce our consumption of finite resources include using and reusing resources more efficiently and minimising waste production through incentives and regulatory reform. It will also be important to examine how our cities can provide additional resource security through effective management and alternative supplies.</p>
<b>REDUCING GREENHOUSE GAS EMISSIONS AND IMPROVING AIR QUALITY</b>	<p>Australia has one of the highest per capita carbon emissions in the world, with our cities being significant emitters of greenhouse gases.</p> <p>The Australian Government is committed to reducing carbon emissions and is supporting innovation in renewable energy technology and investing in energy efficiency measures.</p> <p>There is also scope to further reduce ambient levels of the main air pollutants in urban areas by focusing on the major sources of these pollutants, including motor vehicles, wood heaters, non-road engines and paints.</p>
<b>INCREASING RESILIENCE TO THE EFFECTS OF CLIMATE CHANGE</b>	<p>Australian cities and regions (both on the coast and inland) will likely face increased challenges from climate change. Depending on location this may include extreme weather and storm surge events, rising sea levels, cyclonic activity, increasing temperatures, heatwaves and bushfires.</p> <p>Options that continue to minimise the exposure of our cities and regions to climate change risk need to be developed and applied. In doing so, future investment and work with other levels of government, industry and the community will need to fully consider climate change risks.</p>

## Protecting and sustaining our natural environment

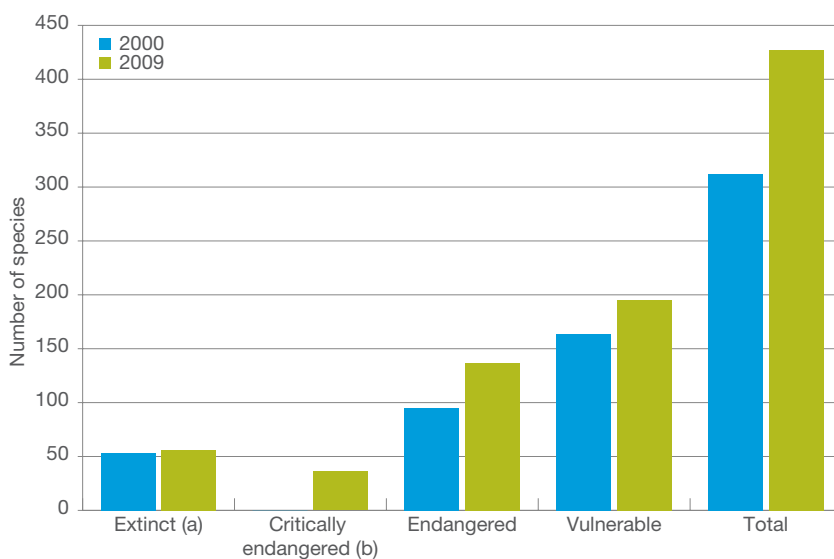
The Australian community values its natural areas and places of open space within cities, for recreation and relaxation opportunities as well as for the positive influence they have on visual amenity and urban liveability. Supporting the greening of our cities and infrastructure is therefore important.

In addition, conserving ecosystems and biodiversity is important for maintaining the essential ecological services that underpin life and are fundamental to continuing high living standards. Native plants, animals and other

organisms contribute to a healthy environment through the maintenance of clean water, clean air and healthy soils. They also provide significant economic benefits, for example through tourism, agriculture, and a range of cultural and recreational services.

Over the past decade, there has been an increase in the number of threatened fauna species from 312 in the year 2000 to 427 in 2009. Of the list of threatened fauna species in 2009, just under half (46%) were listed as vulnerable, around two-fifths (41%) were listed as endangered or critically endangered, and just over one in 10 (13%) were listed as extinct.

Figure 5 Threatened fauna species



(a) Includes the category 'extinct in the wild'. (b) The conservation status category 'Critically endangered' was not used until October 2001. (c) The conservation status category 'Conservation dependent' was not used until December 2006.

Source: Department of Environment, Water, Heritage and the Arts, *Environmental Protection and Biodiversity Conservation Act 1999* list of threatened fauna (last viewed April 2010)

Water pollution from urban development can impact on our natural fresh water and marine life, threatening one of Australia's greatest natural assets.

Many actions can help protect the environment. Land use planning in particular, is vitally important in shaping urban form and ensuring that Australia's most productive and environmentally sensitive land is protected. Whilst the States and

Territories have direct responsibilities for land use planning, the Australian Government has a role in regulating matters of national environmental significance, including those in and around urban areas, under the *Environmental Protection and Biodiversity Conservation Act 1999*.

## Improving water, energy and food security

Over the last decade some Australian cities experienced electricity and water shortages, resulting in brownouts and blackouts in relation to energy, and the need for stringent water restrictions in the case of potable water. There has been significant investment in these utilities over recent years to address both production and distribution of water and energy. Managing competition for water allocations for agriculture, communities and industry is currently a national priority.

Agriculture is one of Australia's major export industries. Australian cities have generally been located in the most fertile and agriculturally productive parts of the continent which is otherwise largely characterised by low fertility

soils and low or unreliable rainfall. Many cities, as they expand, have urbanised areas which previously served as food sources for the city and export markets, placing greater reliance on produce being provided from neighbouring regions and pushing some food production into more marginal agricultural lands.

The north-west and south-west growth centres of Sydney, for example, contain 52% of Sydney's vegetable farming properties, 60% of greenhouse industries and 46% of hydroponic vegetables in the region (Malcolm & Fahd, 2009). These areas are also designated to be progressively released for urban development over the next two decades. If these farms are unable to relocate to other parts of the Sydney region, their eventual loss will have a significant impact on local food production.

### Case study: Water for the Future

Australia faces major challenges in ensuring sustainable water supply in the face of drying climate and rising demand for water. Population growth will necessitate further investments in urban water infrastructure and increase the potential benefits from reform. The Australian Government is responding through its *Water for the Future* initiative, which is built on four key priorities: taking action on climate change; using water wisely; securing water supplies; and supporting healthy rivers and wetlands.

In the urban water sector, *Water for the Future* is helping cities and towns secure their water supplies and prepare for a future with less water by:

- supporting Local Governments in the Murray-Darling Basin to assist in community-wide planning and water savings initiatives
- investing in desalination, water recycling and stormwater harvesting and reuse projects to reduce reliance on rainfall
- funding practical projects that save water and reduce water losses in towns and cities across Australia.

Through *Water for the Future*, the Government is investing over \$1.5 billion to help communities to diversify and secure urban water supplies and respond to reduced and more variable rainfall. This funding is being provided through a range of programs for stormwater harvesting and reuse, wastewater recycling, desalination, water metering and other practical water saving initiatives.

Almost half of this funding is delivered through the National Urban Water and Desalination Plan for water security projects in larger urban centres. Funding has been provided to State and Local Governments and state authorities to support the construction of: desalination plants in Adelaide and Perth; 35 stormwater harvesting and reuse projects located in most metropolitan areas; and water recycling projects in Adelaide, Geelong, West Werribee and Newcastle. Two centres of excellence have also been funded under this plan to support research, development and commercialisation of new energy efficient water recycling and desalination technologies. The Centre of Excellence in Desalination is located in Perth and the Centre of Excellence in Water Recycling is located in Brisbane. In 2010, the Australian Government announced a further \$100 million for stormwater harvesting and reuse.

In managing future growth in our cities, it will be important to continue to challenge the assumptions and values of past urban development. As the Prime Minister has stated:

We need to reconsider whether our current model of growth is right for an Australia where land use is increasingly contested, for example, between market gardens versus development on our suburban outskirts.

*Prime Minister Julia Gillard,  
Speech to the Western Sydney Regional Organisation of  
Councils, 2010.*

In recent years, many farming regions in Australia have been subject to drought, affecting the price and availability of produce. Drought also brought many urban regions, such as South East Queensland, to the brink of running out of water. Continuing to service the food, water and energy

needs of urban Australia will remain a constant challenge to ensure they are reliable, secure and sustainable. Climate change is also placing further strains on these systems.

Urban expansion and increased demand for energy and water also presents challenges in so far as these demands need to be met through costly infrastructure and network upgrades.

Albury, NSW

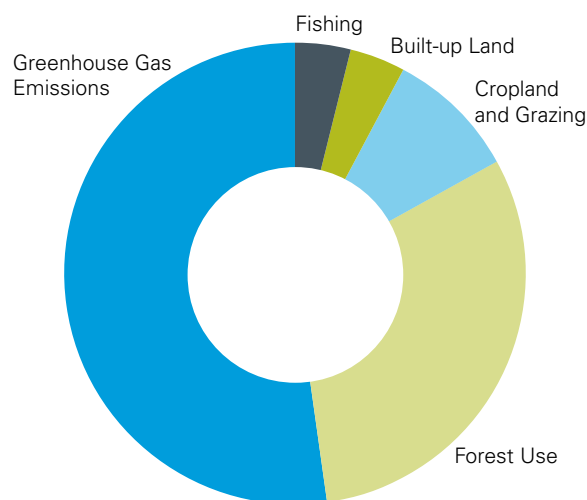


## Reducing resource consumption and waste

As a result of high intensity industrial and urban activities, cities consume vast amounts of resources and produce large amounts of waste. Cities around the world are under increasing pressure to improve environmental outcomes, with many addressing these challenges through creativity and technology. Community attitudes are also shifting towards a greater concern for the environment and the need for a sustainable future.

An 'ecological footprint' is a measure of resource consumption and waste production. The State of the Environment Report 2006 highlighted that Australian cities have ecological footprints two to three times the global average. The human settlements chapter refers to an indicator for ecological footprint that uses data from the Living Planet Report, produced by the World Wildlife Fund. According to the Living Planet Report 2010 (Pollard et al 2010) Australia's ecological footprint is estimated to be approximately 7.5 global hectares per capita, with more than 50% due to greenhouse gas emissions (Figure 2).

Figure 6 Composition of Australia's ecological footprint, 2010



Source: Adapted from Pollard et al 2010 p 39

Energy consumption across the nation has also steadily increased over the past three decades, with most of this energy produced from non-renewable sources such as coal and oil. These resources will become progressively depleted in the years ahead.

### Case study: National Waste Policy: Less Waste, More Resources

In November 2009, all Australian governments agreed to the National Waste Policy: Less Waste, More Resources—a strategic approach to reducing the amount of waste being created and turning waste into a resource. The Australian Government has committed \$23 million over a five-year period to drive implementation of the policy, support product stewardship arrangements, reduce market impediments to recycled materials, improve sustainable procurement by governments, provide meaningful national data and deliver better management of hazardous waste.

The National Waste Policy: Less Waste, More Resources sets the direction for Australia over the

next 10 years, to produce less waste for disposal and manage waste as a resource to deliver economic, environmental and social benefits. The policy establishes a comprehensive work program for national coordinated action on waste across six key areas:

- taking responsibility
- improving the market
- pursuing sustainability
- reducing hazard and risk
- providing the evidence
- tailoring solutions

Under the policy the Australian Government agreed to develop and enact national legislation to support voluntary, co-regulatory and mandatory product stewardship and extended producer responsibility schemes. The Australian Government is working in partnership with States and Territories to implement this plan.

There are other concerning environmental trends such as an increase in per capita waste production. Australia is generating increasing levels of waste and the nature of this waste is changing, with more electronic and other complex goods entering the stream. Australia's obligations relating to hazardous and toxic materials and waste are also evolving. We need to be smarter and more innovative as a nation in addressing these trends. Australians have, however, substantially increased efforts to recycle.

The decisions we make today to protect our environment, enhance our resource use and locate, design and construct the infrastructure and services that support our cities and regions, will have lasting consequences. Fortunately many actions that can be taken are mutually beneficial to addressing climate change and protecting and enhancing our natural environment.

Brisbane, QLD



## Reducing greenhouse gas emissions and improving air quality

Globally, greenhouse gas emissions grew by 70% between 1970 and 2004 (Intergovernmental Panel on Climate Change, 2007).

Australian cities generate very high carbon emissions and air pollution from our heavy reliance on carbon fuels for energy and transport. Carbon emissions from transport are principally due to the length of trips necessitated by our dispersed cities and our extensive use of private motor vehicles. There are options to reduce emissions and improve air quality from all transport modes (for example by shifting to hybrid and electric vehicles, and changing to cleaner fuels) and to encourage a shift from higher to lower impact modes (such as rail freight, public transport, walking and cycling).

Australia's consumption of carbon-based energy not only contributes to our greenhouse gas emissions, it also potentially exposes many businesses and households to the impacts of price rises associated with a predicted depletion of fossil fuel resources. To address these concerns, there is a need for continued investment in renewable energy technology, energy efficiency measures and consideration of the energy implications of any new infrastructure.

The high intensity nature of cities provides opportunities to exploit economies of scale in reducing emissions through energy efficient design and construction of the built environment, including the performance of residential and commercial buildings, transport systems, and urban planning and management. Australia has adopted a target of 20% renewable energy by 2020 and current initiatives in energy efficiency are expected to deliver more than 38 tonnes of abatement over the next 10 years (Prime Minister's Task Group on Energy Efficiency, 2010). However, addressing the high consumption behaviours and lifestyles of Australians is also fundamental to the transition to more sustainable cities.

Other options for addressing greenhouse gas emissions include modifications to taxation and regulatory frameworks; higher standards for new buildings and supporting energy efficient retrofits of existing structures; and what conditions we place on investments. Carbon offset business opportunities linked to funding programs can provide incentives for behaviour change.

In terms of air quality, Australian cities compare relatively well with many cities across the world, including neighbouring countries in South East Asia. However, levels of some air pollutants for Australia's largest cities remain at or above accepted air quality standards and have relatively high rates of respiratory illness such as coughs, bronchitis and asthma and, in severe cases, developmental problems in children (DEH 2005).

An increasing population and associated increase in energy use, along with higher temperatures as a result of climate change, will place great pressure on our ability to maintain air quality.

The Australian Government is working with the States and Territories to introduce new national measures to reduce air pollutants. There is scope to reduce ambient levels of the main air

pollutants, particles and ozone, in urban areas through tackling the major sources, including motor vehicles, wood heaters, non-road engines and paints.

## Increasing resilience to the effects of climate change

According to current estimates for Australia undertaken by CSIRO, average temperatures are expected to rise by approximately 1°C by 2030. By 2070, best estimates indicate warming could be 3.4°C based on a high emissions scenario. In the absence of effective mitigation, greenhouse gas emissions will continue to exacerbate the physical impacts of climate change (CSIRO & Bureau of Meteorology (BOM) 2007).

Most of Australia's cities are in coastal regions, which are vulnerable to rising sea levels and extreme weather events. In the past decade, Australian cities have all been affected by extreme weather events, such as long droughts, heatwaves, severe storms, bushfires, and extensive flooding. As these events are forecast to rise in frequency and intensity, Australian cities have to become more resilient through adapting to, and mitigating the effects of climate change.

### Case study: Responses to climate change

The impacts of climate change will have significant regional variation across Australia and are likely to require specific localised responses.

Local Governments have an important role in educating and preparing their communities for natural disasters and the local impacts of climate change. However, local councils are also faced with many competing responsibilities and resource constraints.

A number of Australian Government programs (including Local Adaptation Pathways Program, National Disaster Resilience and Regional and Local Community Infrastructure Program) are enhancing State and Territory Government initiatives in supporting local Councils to plan and manage change.

In 2009, the Cairns Regional Council completed a local climate change risk assessment focusing on its urban management systems (including local

land use planning, development frameworks and decision-making processes), and prepared a detailed action plan recommending priorities to adapt existing policies to high-risk climate variables.

The Council's corporate plan was then updated to embed 'planning for the impacts of climate change mitigation and adaptation measures' as a core component in delivering integrated planning for the region. A five-year climate change strategy was adopted and disaster mitigation works, including stormwater drainage and beach protection, are now well underway to protect the city centre and surrounding suburbs against flooding.

The new multi-purpose community centre, which will function as a coordination facility for emergency services in the event of a disaster, will be located to ensure it is outside the storm surge risk area and will be built to withstand Category 5 cyclone standards.

The effects of drought and extreme weather events such as bushfires and heat waves illustrate the potential for damage and loss, as such events become more frequent or severe. Changes in long term rainfall and temperature patterns are affecting traditional water supplies, particularly in the southern and eastern regions of the country where the largest cities and populations are located. Currently, Perth is the most adversely affected major city in Australia, with water storage levels at less than 30% of capacity as at October 2010 (BOM 2010).

Our coastal communities, which are experiencing high growth rates as a result of the 'sea-change' phenomenon, are particularly vulnerable. Based on the findings of a risk assessment undertaken by the Australian Government, up to 247 600 existing residential buildings nationally (worth up to \$63 billion) are at potential risk from inundation under a sea level rise of 1.1metre (Department of Climate Change 2009).

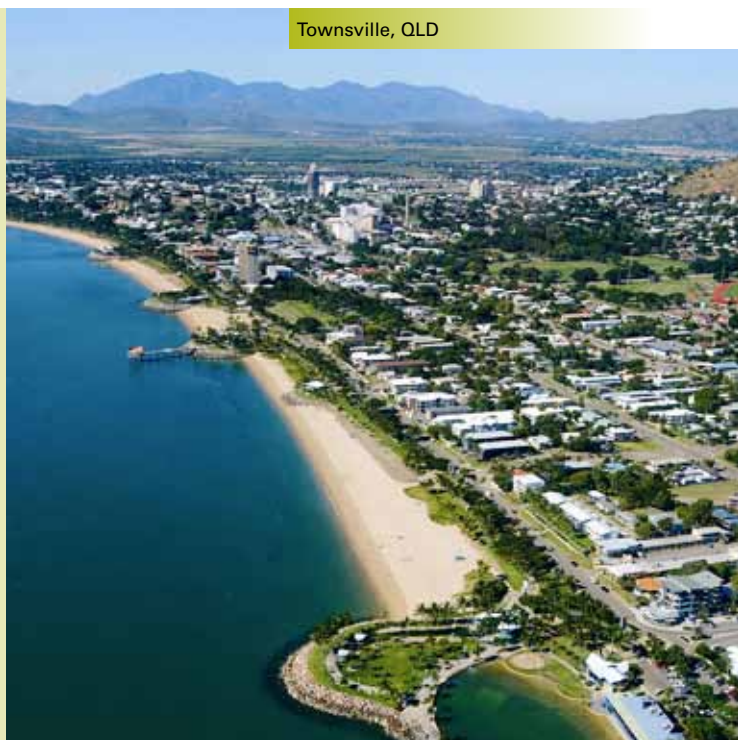
There is opportunity to drive emissions reductions and climate change adaptation simultaneously in urban environments. Land use

planning, for example, can reduce the exposure of communities and infrastructure in vulnerable regions through the allocation of land to particular developments or the prevention of certain activities. It can also reduce emissions through better integration of land use and infrastructure planning.

Planning processes have generally not taken risks from a changing climate into account and existing infrastructure has generally been designed, constructed and maintained, based on historical climate data. There are significant areas of existing development at risk from rising sea levels and storm surge. Similarly, the outward expansion of our cities has located some new residential development into areas of increasing bushfire risk.

Individuals, communities, governments and the corporate sector are beginning to weigh up the impacts of land use and development decisions in light of climate change risks and environmental constraints, such as future water supply, although more still needs to be done to support effective decision making.

Townsville, QLD



The Australian Government, in its position paper *Adapting to Climate Change in Australia*, identified six initial priority areas for adaptation action - coastal management, water, infrastructure, natural systems of national significance, preparation for and management of natural disasters, and agriculture.

Strategies to support these priority areas of action may include updated and nationally consistent design standards and performance criteria to reflect new risks, or providing investment in ongoing science and research at a national level to help inform decision-makers.

Consideration of future climate change in the planning and management of major infrastructure, communications, power, water, transport and buildings will improve the resilience of our cities and regions. The development of strategies to address the vulnerability of existing infrastructure and residential development to climate change will also be needed.

How our businesses, communities and governments respond to the challenges and seize opportunities to minimise the ecological impact of Australia's cities and regions, will be crucial in determining the nation's progress towards economic, social and environmental sustainability.

Some State, Territory and Local Governments and bodies such as the Council of Capital City Lord Mayors have begun to implement initiatives to adapt to climate change. Industry partnerships such as the Green Building Council and the Australian Sustainable Built Environment Council have been promoting the good economic sense that it makes for industry to be strong participants in the sustainability agenda.



Newcastle, NSW

Cairns, QLD



Chapter 4

# Liveability





## Chapter 4

# Liveability

Liveability refers to the way the urban environment supports the quality of life and wellbeing of communities. Quality of life and well-being encompasses mental and physical health, happiness and life satisfaction for individuals and supportive social relationships in communities. Quality of life is enhanced by environmental sustainability, in particular with regard to low levels of pollution and access to quality open space and natural landscapes. Well-being is important to economic prosperity as poor health and depleted social cohesion have high economic costs as well as social costs.

---

Our city populations are projected to grow and change over the next 50 years. The increasing proportion of older people, in particular, will need to be considered in planning and designing our cities.

A critical question for urban policy makers is how and where we can accommodate growth in order to maximise economic efficiency, minimise impacts on the environment, and retain a good quality of life for our communities.

The patterns of urban development that characterised Australian cities for the latter half of the twentieth century—of expanding low density ‘greenfield’ suburbs of detached houses accessed mostly by car—are no longer considered environmentally sustainable, do not meet the needs and preferences of all Australian households, and economically are not the best use of scarce resources such as land and water.

There is growing public debate about the desirability and the necessity of more compact city forms, with more medium and higher density housing replacing older forms of residential development and other uses within existing urban ‘infill’ areas. The suggestion is also that mixed land uses are

desirable so that residents have convenient access to facilities and services.

Alternative types of city development, such as concentrations of residential housing and commercial activity in centres supported by good public transport or along transport corridors, known as ‘transit-oriented’ development, offer the potential to supply more housing in locations that are accessible to a range of jobs, services and community facilities in our cities.

Healthy, safe and inclusive communities are imperative for ensuring Australian cities are vibrant, positive places to live, work, raise families and visit. Communities with poorer health, higher rates of crime and social disadvantage tend to be concentrated in locations with poor accessibility to education, employment and services. The social exclusion experienced in these communities affects the broader fabric of society. A continuing challenge in cities is to ensure people can live in an environment which is safe, has opportunities, and has access to education, health services, and jobs.

<b>BALANCING INFILL AND GREENFIELD DEVELOPMENT</b>	<p>Low density urban expansion has been the standard solution to accommodating population growth in Australian cities. The upfront capital cost may be cheaper for home owners, but the long term costs for households (travel, time and social), the impacts on the natural environment, and the costs of infrastructure and maintenance for governments, are considerable. On the other hand, simply infilling existing areas without improving the amenity for existing residents, is problematic.</p> <p>A suitable balance between infill development, located in existing urban areas and along transport corridors, and greenfield development, which should also be supported with adequate infrastructure, is required.</p>
<b>FACILITATING THE SUPPLY OF APPROPRIATE HOUSING</b>	<p>The current and projected supply of dwellings does not match the changing needs of the growing population in terms of amount, diversity, accessibility and affordability.</p> <p>A variety of dwelling types is required to suit the growing proportions of smaller households and older people. Governments across Australia, including through the COAG, are considering ways to encourage a greater supply of housing, a greater diversity of dwelling types and a better range of affordable, appropriate housing to meet the needs of households over their life stages. It is recognised that housing also needs to be located in well serviced and connected communities, distributed across metropolitan regions.</p>
<b>SUPPORTING AFFORDABLE LIVING</b>	<p>Living affordability includes the costs of running a home and transportation to and from home, work and other activities. Residents in some outer-metropolitan growth areas are particularly vulnerable to rising energy and fuel prices.</p> <p>Governments are considering options to improve the distribution of a more diverse range of affordable housing in existing well-connected location and improving accessibility by public transport, as well as generating more diverse employment opportunities and services, in outer urban centres.</p>
<b>IMPROVING TRANSPORT OPTIONS AND REDUCING OUR DEPENDENCE ON PRIVATE VEHICLES</b>	<p>The planning of Australian cities has been largely based around private motor vehicles as the primary means of transportation. The increase in car usage has a number of consequences for our cities, including pollution, greenhouse gas emissions, traffic congestion, road safety issues and increasingly sedentary lifestyles.</p> <p>Many residents of our cities do not have access to, or cannot drive, a car. As a result, these residents are greatly restricted when it comes to accessing jobs, services, shops, social and other activities.</p> <p>Transport options that allow people who do not drive to participate equitably in the life of the city, need to be a priority. These include supporting improved land use planning, funding public transport improvements and supporting Local Government to provide amenable cycling and walking environments.</p>
<b>IMPROVING THE QUALITY OF THE PUBLIC DOMAIN</b>	<p>The public domain can provide environmental amenities such as shade and greenery, aesthetically pleasing buildings and infrastructure, art and cultural facilities and a sense of safety and security. Whether publicly or privately owned, the public domain provides much of the character and amenity of a place. It influences whether a person can enjoy spending time in that place, whether they would like to live in a particular locality and whether they would locate their business there.</p> <p>Local Government, in particular, is responsible for planning and managing much of the public domain. However, the decisions of all levels of government, as well as individuals, impact on the quality of our cities. Continued investment in the public domain in our urban centres and neighbourhoods is needed to ensure they are enjoyable, encourage social interaction, and provide opportunities for a variety of activity and exercise. Attention to detail and design in public spaces can improve quality of life for residents and attract visitors to our cities.</p>

<b>IMPROVING PUBLIC HEALTH OUTCOMES</b>	Built environments that are designed to enable people to travel safely by walking, cycling or using public transport, and that provide access to quality open space, can help increase levels of physical activity and reduce car use. This has positive benefits for the health and wellbeing of people in urban communities.  Many public health outcomes for urban communities can be improved through better designed built environments and transport networks that encourage active travel.
<b>REDRESSING SPATIALLY CONCENTRATED SOCIAL DISADVANTAGE</b>	Socially disadvantaged households tend to be spatially concentrated in cities, particularly in locations with poor accessibility to education, employment and services.  Spatially concentrated disadvantage can be addressed in a number of ways, including by facilitating appropriate housing with good accessibility, and helping to upgrade, revitalise and provide better infrastructure in specific risk areas.

## Balancing infill and greenfield development

The economic, environmental and social outcomes of our cities are heavily influenced by their shape and structure.

One common problem faced in all metropolitan planning is how to address the overall shape and growth of the metropolitan area. There is a difficult balance between expanding city development outwards into agricultural lands or native landscapes (otherwise referred to as 'greenfield' development) versus infill in existing urban areas.

Most new urban development occurs in greenfields areas at the urban edge. Sydney, in contrast to other Australian cities, had less than a quarter of its growth in new areas between 2001 and 2006 (BITRE 2010), and this trend continues.

Melbourne is looking at how it can accommodate more of its population along transport corridors such as tram lines, whilst leaving surrounding areas unaffected by an increase in urban density (see case study below).

Communities in many new growth areas in outer metropolitan regions have a shortage of employment and education opportunities, and often have longer travel times and distances to services and facilities. Households therefore spend more of their income on transport costs and are highly vulnerable to rising fuel costs where public transport options are limited (Dodson & Sipe 2009).

On the other hand, increasingly strong demand for housing in inner city areas closer to the employment, services and cultural facilities of the central business district puts pressure on house prices and rental costs, making inner-city housing less affordable to low and middle income households.

The comparative costs of providing and maintaining physical and social infrastructure to support new development in urban infill, as opposed to greenfield development, are not straightforward for governments because the costs of the construction of higher density housing and augmenting infrastructure in established areas are relatively high. On balance, there appear to be greater overall benefits in favour of infill over greenfield.

In developing its strategic plan for Melbourne, *Melbourne 2030*, the Victorian Government commissioned a cost-benefit analysis that explored options for Melbourne's future growth and development. The report concluded that moving to a more compact city with broader housing choice and supported by investment in public transport, would result in significant social, economic and environmental benefits, far outweighing the increased additional capital infrastructure costs. The report suggested that the added value associated with a movement to the urban form advocated by *Melbourne 2030* would result in a 2.8 percent lift in Gross State Product for Victoria.

### Case study: Intensification of land use in transport corridors

Intensification of land use in existing transport corridors has the potential to achieve both land use and transport objectives. Intensification is important in providing an alternative to urban expansion, and allows people to live closer to where jobs and other activities are most concentrated. It can also maximise the utilisation of existing transport and social infrastructure, rather than creating the need for new infrastructure.

A joint study was undertaken by the City of Melbourne and the Department of Transport (Victoria) to examine the potential to intensify development along tram and bus routes in inner Melbourne. The

study was a joint winner of the 2009 Prime Minister's Award for Urban Design.

The study concluded that there was considerable scope for such developments. A funding proposal for a demonstration project on the Route 86 tram line through Melbourne's inner northern suburbs was subsequently submitted to Infrastructure Australia. It was initiated by Local Government (Darebin Council) and subject to extensive community consultation. The project includes initiatives to encourage land use intensification (including improvements to the public realm) and improvements to the tram route to better support the redevelopment. Infrastructure Australia has reviewed the project and concluded that it meets all of its criteria and is ready to proceed.

Polycentric city structures refer to the concentration of development into activity centres, rather than broadly dispersed across suburbs or concentrated solely within an inner central business district. Parramatta, Dandenong and Joondalup are all examples of polycentric-type regional centres.

Regional centres can efficiently and cost-effectively provide transport and other infrastructure closer to where a large proportion of the urban population lives. Locating a range of activities, such as offices, shops, services and housing in and around centres reduces the need to travel. This consequently provides convenience and time savings, and reduces greenhouse emissions. Centres in inner cities are already home to many of our major corporations, universities and civic functions, and have the best public transport. Further development of the inner cities can maximise agglomeration potential (that is, organisations may be more productive if they are located close to one another, even if they are competitors).

The Australian Government and its COAG partners have acknowledged the need for long-term planning and investment strategies to support urban growth and change. This is particularly reflected in the national criteria for future strategic planning of capital cities that call for 15 to 30 year, long-term integrated strategic plans supported by five to 15 year, medium-term

prioritised infrastructure and land-use plans (refer to Appendix A).

Whilst there continues to be community debate about the merits of different urban forms, what is clear is that our community is changing and growing, requiring a greater diversity of options for where and how people live, work and enjoy recreation time.

The Australian Government can support the directions of States and Territories to plan for growth in more sustainable urban forms and structures through the taxation system, divestment of its land assets and capital investments. It is already helping to shape and renew our cities for the future through the investments it makes in housing, transport and economic infrastructure. The decisions that governments make about the location of nationally significant infrastructure like airports, defence force facilities and major public facilities (such as tertiary education institutions and hospitals and community facilities) all have an impact on shaping our cities. By linking a broader set of outcomes to infrastructure investment, and joining up investments across governments and into the private sector, greater benefits can be achieved for communities.

## Facilitating the supply of appropriate housing

Access to adequate and affordable housing is fundamental to supporting our quality of life. An important concern is that, on current trends, our national housing stock will not meet the needs of our growing and changing communities in terms of sufficient supply, diversity, affordability, and mobility requirements. As described in the *State of Australian Cities 2010* report, houses are, on average, being built with more bedrooms, but the number of people per household has generally been shrinking.

Housing is recognised as a high priority by COAG, which has placed a particular emphasis on the need to increase the quantity and affordability of housing.

Despite significant public and private resources directed to housing, there is an undersupply in the total number of dwellings, particularly for lower income households. Projected population growth, expected to mainly occur in our four largest cities, means that there will be a need for 3.2 million additional homes by 2029 to meet underlying demand. The National Housing Supply Council (2010) predicts that the current shortfall in housing supply will increase to 640 600 dwellings by 2029 unless the market responds to increasing demand. An ongoing shortfall will put pressure on housing affordability.

While the built form in many older areas is being progressively upgraded by owners, there are significant areas where the capital value in homes is much lower than the underlying value of the land on which it sits. Of particular significance is the existence of large public housing estates which are in need of upgrade, presenting opportunities for a co-ordinated approach to better community and environmental outcomes.

Population ageing means our cities will also need to be planned and designed to cater for the needs of a greater proportion of older people, and this can be achieved by incorporating universal design features in both residential and non residential building, transportation and in

the public domain. The need to facilitate age friendly housing and match housing stock to demographic change is also a challenge.

## Affordable living

Consideration of living affordability, which includes transportation and the operational costs of a home as well as the initial cost of house and land, reveals significant community vulnerabilities and inequities. Many less affluent households live in outer lying areas where housing costs are more affordable. They therefore, however, carry a higher cost burden for transport and are particularly vulnerable to increasing petrol prices.

How we invest in housing has the potential to deliver not only on the goal of liveability but also on sustainability and productivity. Connecting investment in housing and social and economic infrastructure to achieve improved living affordability and accessibility, as well as productivity, has substantial further potential.

To provide for our communities, urban development needs to offer a diversity of housing options that incorporate a substantial component of affordable housing that is age-friendly, innovative and has good environmental performance. Such developments will be best placed in areas that are well serviced by public transport, that are close to facilities and services, and promote active travel. Areas that are disadvantaged, and/or regional centres that are able to support growth could be targeted.

*Australia's Future Tax System* (Treasury 2009) noted that some existing taxes on housing, especially stamp duties, are inefficient and can impede housing supply. The review suggested that reforms such as introducing a broad based land tax, along with changes to the taxation of rental housing and rent assistance, would go some way toward improving housing affordability. The report also suggested that a serious community discussion is needed on the distribution and quality of housing across Australia.

## Improving transport options and reducing our dependence on private vehicles

In many respects, the private car provides unparalleled efficiency, flexibility and convenience. On the other hand, there are significant downsides associated with our level of dependence on vehicle usage, particularly in our cities. Traffic congestion, carbon emissions and other pollutants, increased obesity and morbidity due to sedentary lifestyles, vulnerability to increased petrol prices and social isolation for those without access to a car are all problems associated with urban forms that don't offer effective transport alternatives to car usage.

Spending time commuting also has a social cost, for example, reducing the amount of time available for families to spend together, impacting on their quality of life.

Investment in infrastructure to support travel using public and active transport, as discussed earlier in this paper, when coordinated effectively into existing networks and integrated with land use and good urban design, can help reduce car dependency and enhance liveability for communities across metropolitan areas. Improving the frequency, flexibility and reliability of public transport services, making information about services readily available, and ensuring services are accessible to people with disability, can also help make public transport a more favourable option for communities and provide more opportunities for disadvantaged individuals and households.

## Improving the quality of the public domain

The planning and design of local neighbourhoods and urban centres affect well-being and quality of life. Contributing factors include water and air quality, noise, temperature, access to open space and opportunities to exercise and socially interact.

We need to ensure that neighbourhoods and centres in our cities encourage social interaction,

provide opportunities for activity and exercise, and can be enjoyed by people of all ages and abilities. The potential of high amenity environments to generate economic activity and support environmental sustainability is encouraging, and many of Australia's major cities have seen significant investments in the quality of the public realm on this basis.

To improve the quality of the public domain, the Australian Government encourages innovation in the built environment, funding approaches and governance arrangements.

Capturing a significant proportion of the land value uplift that results from urban domain improvements could help fund the associated capital investments.

## Protecting our heritage

So much of the quality of our public domain is influenced by our built and natural heritage. Heritage is vital to Australia's identity—our spirit and ingenuity, our historic buildings, and our unique, living landscapes. Our heritage is a legacy from our past, a living, integral part of life today, and the stories and places we pass on to future generations.

Indigenous heritage, often neglected in highly built up areas, is a unique part of Australian cities to be honoured.

Governments are committed to the preservation of our heritage and continue to support the identification, management and protection of heritage places around Australia, including in our cities.

## Improving public health outcomes

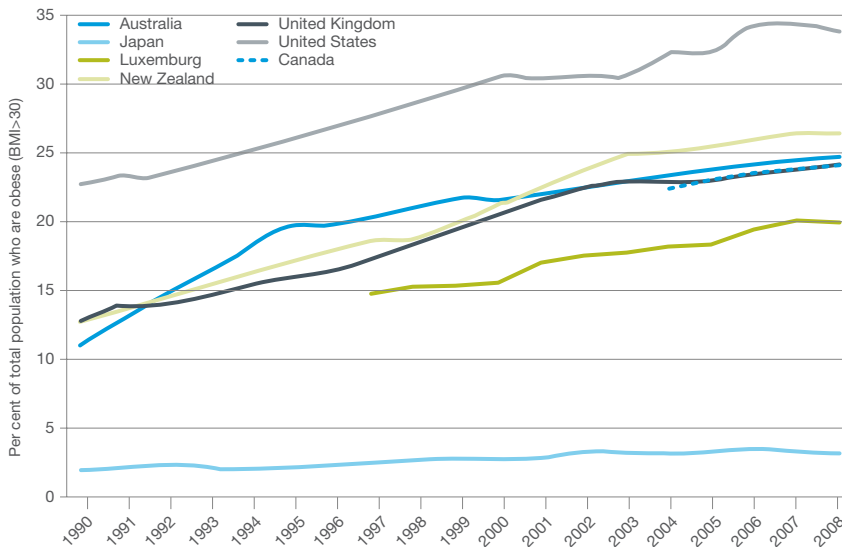
A worrying trend in Australia in recent decades has been the increasing rates of obesity, diabetes and other lifestyle-related health problems. This has coincided with more sedentary lifestyles and increased reliance on private motor vehicles for travel. Of most concern today is that one in four children and three in five adults are now classified as overweight or obese, part of a bigger public health concern for governments. The cost of obesity, and related health risks, is increasing every year.

The Preventative Health Taskforce identified that *'There is an urgent and immediate need to address the growing prevalence of obesity and overweight in Australia'* (Australian Government 2009). The principal factors for the rising prevalence of obesity are poor diet and insufficient exercise. Whilst the Taskforce

acknowledged that the major cities have lower rates of obesity compared to regional Australia, it also identified that urban environments are a major factor in determining activity levels amongst the adult population of Australia.

Active travel, that is walking, cycling and where these are in combination with the use of public transport, can contribute to increased levels of physical activity. Whereas walking, cycling and public transport accounted for over 80% of trips to school in Sydney in 1971, the proportion of children driven to school rose from 15% to 57% by 2003 (New South Wales Ministry of Transport 2008). Prioritising walking and cycling infrastructure in local areas and addressing concerns about safety (for example traffic safety or personal safety) can help encourage more people to use active travel modes rather than driving.

Figure 7 Prevalence of obesity in Australia and selected OECD countries



Source: OECD health data (June 2010). Chart shows averages based on measured data (not self-reported) for body mass index.

Creating liveable places can contribute to improving public health outcomes through urban design by providing opportunities for incidental physical activities such as walking and cycling for travel, as well as easy access to social, sporting, recreational and cultural activities.

The planning and design of the urban environment can also improve public health outcomes by reducing noise, air pollution and exposure to high summer temperatures by providing quality green and open spaces, and good building and precinct design. Design for safe and socially inclusive living is essential for mental health.

### Redressing spatially concentrated social disadvantage

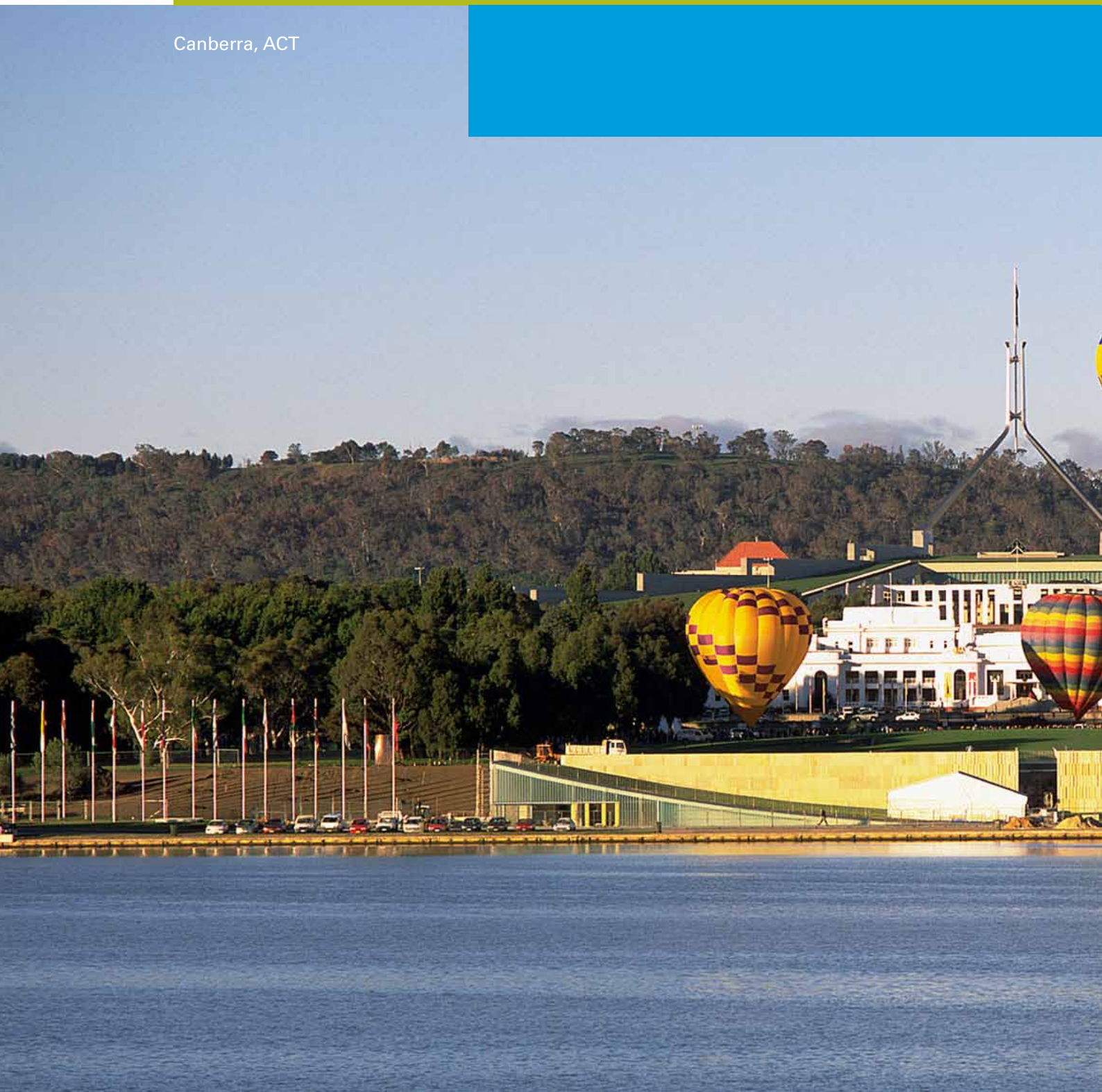
There are concentrations of disadvantaged communities in poorly connected and underserved areas in our cities. The potential for social isolation of individuals and families in these locations is an issue of concern particularly in outer suburbs where jobs, education and health services are less accessible and where transport options are limited. Isolation affects an individual's wellbeing, and depletes the social cohesion and productivity of the community at large.

With areas of substantial unemployment or under-employment constituting a waste of human capital and a loss of both social and economic opportunity, governments need to explore innovative approaches to maximising workforce potential. Upgrading, revitalising and providing infrastructure in specific places can help arrest these trends, which, if unaddressed, risk undermining the goals of national productivity and social cohesion.

The Government's key role is to improve the life chances of vulnerable Australians. Therefore, decisions regarding housing, transport and other infrastructure must consider how to achieve the best outcomes for these communities and reduce locational disadvantage of these areas. Consultation with relevant government agencies, and private and not-for-profit sectors, will be critical to enhancing the opportunities for these communities by aligning and building upon existing initiatives and reforms, and enabling a linked up approach to service delivery.



Canberra, ACT



## Chapter 5

# Improving the governance and planning of cities





## Chapter 5

# Improving the governance and planning of cities

Most of the major cities in Australia have a suite of metropolitan plans and infrastructure investment programs underway.

The Australian Government, with the COAG Reform Council, is working with State and Territory Governments to support improvements in capital city strategic planning, and to share best practice planning approaches (see Appendix A). The *National Urban Policy* will provide a framework for the Australian Government to support the State and Territory Governments to meet their capital city and broader strategic planning objectives.

In managing cities, considerable time and resources are used in administrative processes. Despite statements of continuing commitment over the last two decades to reduce red tape and pursue micro-economic reforms within all levels of government, there is frustration that reforms are progressing too slowly.

The experience in many reform areas is that the process of problem identification, policy development and agreement, legislative change and actual implementation, is extremely time-consuming. There are varying reasons for this, including lack of resources allocated to the reform task, resistance to change from stakeholders, internal and external to governments, and other competing priorities.

### IMPROVING THE PLANNING AND MANAGEMENT OF CITIES

Lack of integration and poor strategic alignment of metropolitan planning and infrastructure delivery detracts from productivity, sustainability and liveability of cities. A high proportion of Local Government authorities are struggling to keep up with infrastructure demands and the delivery of facilities and services to local communities. In addition, there are sites of national or State or Territory significance that are affected by the decisions of multiple jurisdictions and planning bodies.

Options to ensure that metropolitan planning and governance supports nationally agreed principles and outcomes need to be considered. Consideration should also be given to what are the most appropriate levels of government to deliver facilities and services in the most efficient and effective ways.

### STREAMLINING ADMINISTRATIVE PROCESSES

Cumbersome administrative processes and 'red tape' can slow down the planning, release and development of land, infrastructure and vital services. This represents significant cost to businesses, government and the community. Efficient and effective assessment and approval processes for development is in everybody's interests. The focus should be on minimising time and costs for proponents and government administrative bodies, but this needs to be balanced with appropriate consideration for, and input from, stakeholders and communities.

## Improving the planning and management of cities

### Extending the use of COAG-agreed criteria

The COAG agreed criteria for planning systems (see Appendix A) currently only apply to the planning of our capital cities. Yet the criteria are about sound planning generally, and could usefully inform planning beyond the capitals. It is suggested that State and Local Governments broadly embrace the COAG national objective for cities and the planning criteria, for all major cities.

### Planning systems

Finding the right balance between public and private rights and expectations in planning systems at all levels of government raises heated debate around the nation. Yet there is an interest for business, communities and governments alike not to waste time and resources in unnecessary regulation. An appropriate balance of community participation and individual freedom, and certainty over what can be developed on public and private land, should be sought.

The Australian Government will continue to work with COAG to foster and assist with creating more integrated planning systems for our cities. This includes a commitment to work closely with States, Territories and Local Government to facilitate a more integrated approach to planning on and around Commonwealth land and areas of Australian Government responsibility.

### Local Government

Managing cities and facilitating change strategically within cities is at times made more difficult by the fragmentation of Local Government in some of our largest cities

As described in the *State of Australian Cities 2010* report, most of Australia's capital cities have acquired a patchwork of Local Government jurisdictions covering relatively small land areas. This includes Sydney (43 local government areas), Melbourne (31), Perth (30) and Adelaide (19). The exception is Brisbane, which has only five Local Government areas.

As with planning reform, there is debate over wasted resources and opportunities associated with smaller local authorities versus a local desire for adequate representation and decision-making power.

In cities that have many small councils there may be merit in a national and community discussion involving all levels of government on reforming Local Government through the creation of larger entities that can plan, finance and coordinate over larger population areas, and achieve greater economies of scale in service delivery and asset management.

A detailed assessment of the outcomes resulting from recent council amalgamations, particularly in city areas, could be a good next step.

### Research and measuring our success

The Australian Government produced the *State of Australian Cities 2010* report to gain a better appreciation of Australian cities, their dynamics and the challenges confronting them. *Our Cities—Building a productive, sustainable and liveable future* builds on that work and draws upon further research within and external to governments. BITRE has also been increasing research into cities, and recently published a report into *Population growth, jobs growth and community flows in Perth 2010*. This will be followed by reports on other major cities.

It is clear, however, that with the increasing complexity of cities and the interrelationship between components of cities and their communities, we need to develop a deeper understanding of cities to manage and guide them well.

Whilst the research community is endeavouring to understand the complex dynamics and interrelationships within and between cities, such research is not coordinated. There are overlaps and continuing gaps.

In particular there is a lack of spatial data on all of our cities to show the impact of population growth, planning decisions and urban development patterns.

### Streamlining administrative processes

The private sector and COAG have expressed frustration at the complexity, delays and costs associated with planning systems, particularly getting land rezoned and development approvals. There is concern that this is unnecessarily contributing to increased costs of housing and other development.

Housing supply is a major challenge for the Australian Government today, with associated issues including housing affordability, mortgage and rental stress, homelessness and rising demands on social housing providers. As well as the timeliness of development approvals, there is concern about the inability to translate State strategic plans into the statutory land use plans administered, and usually initiated, by Local Government.

Adelaide, SA



#### Case study: Adelaide Integrated Design Strategy

One initiative connecting governance reform with improved amenity outcomes and economic opportunity is the Adelaide Integrated Design Strategy, supported by the Australian Government under the Local Government Reform Fund. The project will identify opportunities to improve the

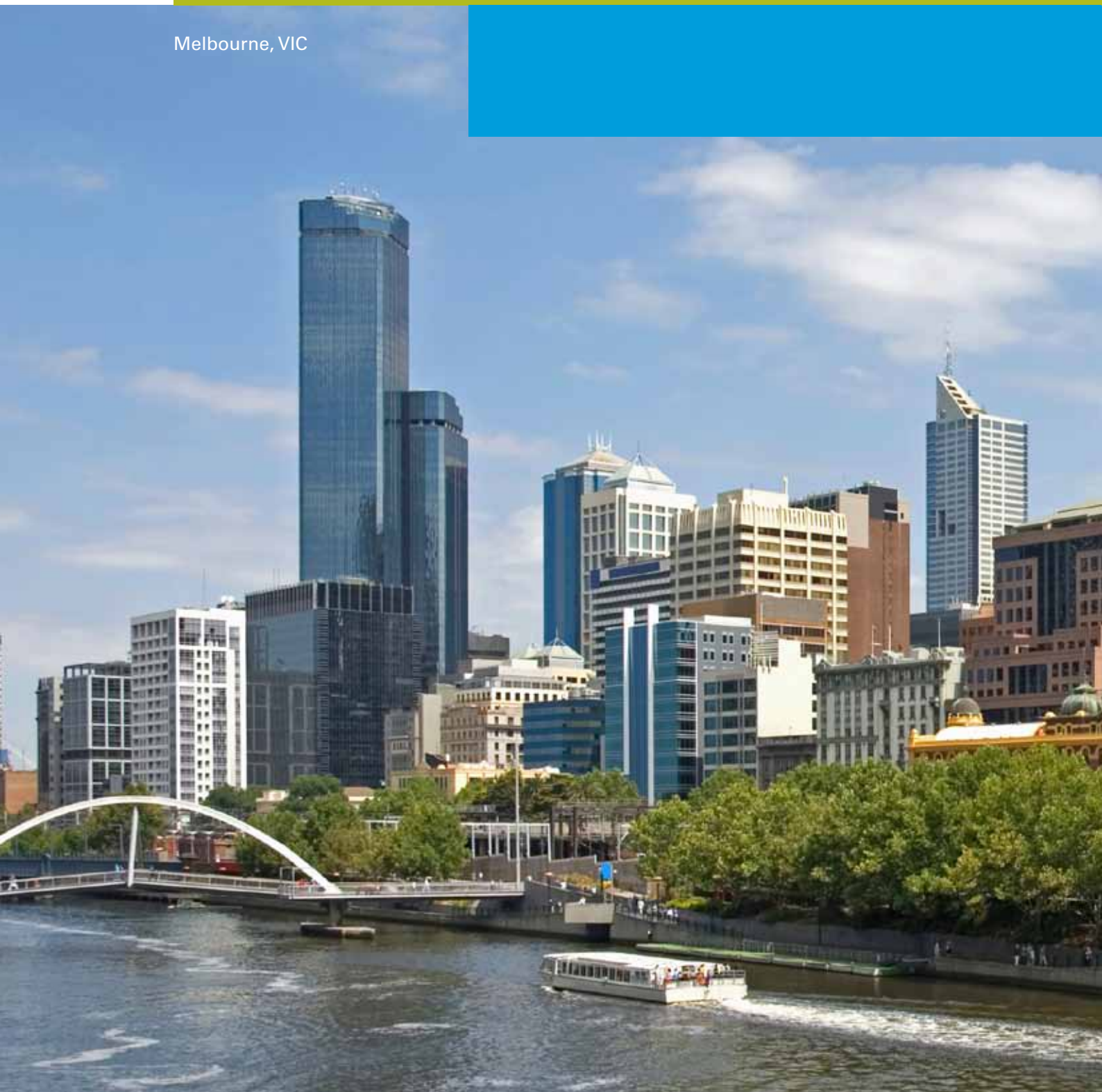
productivity, liveability and sustainability of Adelaide as well as plan for future growth. An Integrated Design Commission, involving both the South Australian and Local Governments, has been established to consider a broad range of areas including planning, infrastructure, transport and energy, urban ecology and landscape, and industrial and product design.

Consequently, there is strong national interest in microeconomic reform of development approval processes associated with housing as well as significant development proposals, such as resource and infrastructure approvals. A number of ministerial councils are progressing work in these areas, but there is not uniform agreement across jurisdictions or among Local Governments on the nature and pace of reform.

There are elements of State and Territory planning legislation, such as whether States can undertake rezoning not initiated by Local Government, and the extent of third party appeals, which could be amended to enhance the ability of jurisdictions to put strategic plans into effect.

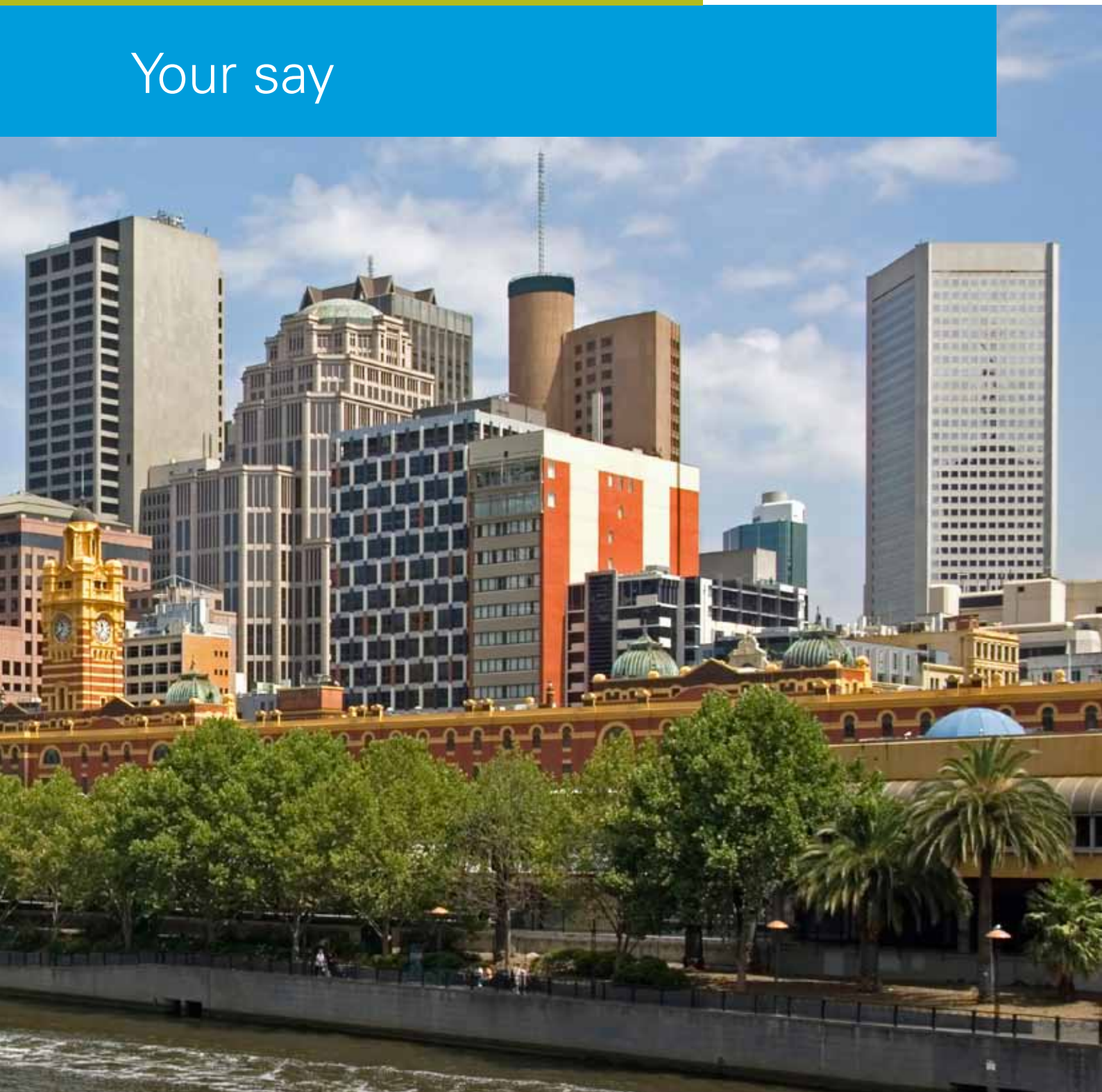


Melbourne, VIC



## Chapter 6

# Your say



A photograph of a modern city skyline with various skyscrapers and buildings, viewed from a distance across a green area with trees.

## Chapter 6

# Your say

To meet the challenges of our cities, the Australian Government will focus its role in Australian cities on the three aspirations of increased productivity, sustainability and liveability as well as for improving the governance and planning of cities.

This discussion paper is the Australian Government's next step towards a comprehensive long term policy to help shape our cities to meet these aspirations.

---

Your feedback will guide how we make our cities more productive, sustainable and liveable. Following consideration of your comments, the Australian Government will set out the policy and program actions that are needed to achieve what we want for our cities.

A website at <[www.majorcities.gov.au/discussion\\_paper](http://www.majorcities.gov.au/discussion_paper)> allows you to:

- view and download this *Our Cities* discussion paper and associated background paper
  - respond to *Our Cities* discussion paper by either:
    - » downloading and filling out a discussion paper feedback survey which can then be submitted by pressing the 'submit' button on the last page, or
    - » registering your details and uploading a written submission.
- Note: you need to register for this process and this may take up to three business days.

You will need to submit your response by **Tuesday 1 March 2011**.

If you are not able to access the website, you can request a feedback survey or submission form to be mailed out to you. Please contact 1800 155 798.

## Questions to guide your comments

### Our aspirations

1. What is your vision for Australian cities?  
What should our cities look like in 2030 or even 2050?
2. What do you think may be the **differing challenges and opportunities** faced by regional cities or cities of different sizes and stages of development?

### Harnessing our productivity

3. What would you consider to be the **biggest productivity challenges** for our cities and what approaches would you encourage governments and businesses to pursue?
4. To what extent can infrastructure planning and investment guide more **efficient use of existing infrastructure and resources**?
5. How do we better plan for and protect the **infrastructure corridors, strategic sites** and **buffers** we need for the future operation of our cities?
6. What do you consider to be the most **significant transport issues** affecting our cities, and what approaches would you encourage governments to pursue?
7. How do we best **integrate and leverage** continuing **investment in infrastructure** by all levels of government, especially for **transport, water, sewerage and energy supply**?
8. What is the role for **pricing reform** (such as water, roads or carbon pricing) in meeting the challenges of Australian cities?
9. How do we best promote and harness **private investment** in the infrastructure needs of our cities?
10. What opportunities do you see for governments to achieve better outcomes for urban communities, by **leveraging their investments in other activities** such as **health and education**?
11. What performance targets should governments set for our **public transport systems**? How would these be applied, and what would their effect be?
12. How can governments best use their leverage to **foster more innovation** and support the economy of our cities? How will this enhance our competitive advantage in a global context?

### Advancing our sustainability

13. How can we best **protect and enhance land and habitats** in and around our cities where they are ecologically sensitive, of heritage value, or highly productive agriculturally?
14. How do you think we can best support more efficient use of **resources** (such as water, energy and food) in our cities?
15. How can we best plan and build our cities and infrastructure to achieve a **lower ecological footprint**?
16. What are the best steps that could be taken to encourage a concerted effort by communities, businesses and all levels of government to **reduce greenhouse gas emissions** in cities?
17. How can we ensure that **climate change risk** is taken into consideration in the design, construction and operation of cities, infrastructure and buildings?

### Enhancing our liveability

18. What do you think of the concept of more **compact development** using a variety of building types (such as townhouses and apartments) rather than primarily expanding on the urban fringes?
19. What is the best way to **balance density** with **urban amenity and renewal**?
20. What do you think about the suggestion that transport, housing and social infrastructure should be **concentrated in and around activity centres** and along **transport corridors** so that jobs and services are located near where people live? How could this be done most effectively?
21. How do we achieve a greater **diversity of dwelling types** and range of affordable, appropriate housing to meet the needs of occupants across their life stages?
22. What actions, incentives and disincentives do we need to reduce people's **dependency on private motor vehicles** in urban areas?
23. How can **active transport** (walking and cycling) and **public transport** be most effectively used to meet the transport challenges of our cities?
24. What characteristics of the urban environment can encourage people to **walk or cycle** more?

### Improving the governance and planning of cities

25. How could the **planning arrangements** (across all three levels of government) operate differently to improve outcomes for Australia's cities?
26. Do you think that COAG's current review of **capital city planning systems** should be expanded to incorporate more of Australia's major cities?
27. What could governments do to **improve planning and management** of our major cities?
28. How can we better coordinate and plan **across local government boundaries**?