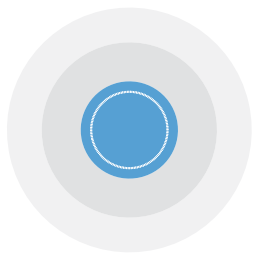




Informing  
better decisions

# ADC CITIES REPORT **ENHANCING LIVEABILITY**





## **ADC Forum Cities Report Editors**

**Anton Roux**, ADC Forum

**Professor John Stanley**, The University of Sydney

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# CHAIRMAN'S FOREWORD

Human civilisation has been referred to as one of the great wonders of the world: the capacity of people to come together to survive and prosper. Perhaps the greatest representation of this is the city, where the teeming intensity is palpable. The modern city is a delicate balance of human interconnections. Yet our cities' ability to adapt in a dynamic world continues to astound and shatter our traditionally static conceptions, designs and projections of human organisation. It is increasingly apparent that our cities' innovative capacities are essential to our collective survival.

The wave of urbanisation sweeping the planet is hard to ignore, particularly for Australia, one of the most urbanised nations in the world. Cities are the great connectors, the hubs of hope and prosperity. The flipside is that, when poorly governed, they can easily become the source of national malaise.

The ADC Cities Summit, held in Melbourne, brought together some of the foremost urban thinkers from Australia and around the world. Together, they sketched out key urban trends and shared insights into the attributes of successful cities. Many fixed prejudices were exploded, such as the dogma surrounding the apparent benefits and inevitability of mega cities. Participants rethought how increased urban density should look, taking into account the development of new cities around the world and how agglomeration benefits in a connected world can accrue on smaller scales than previously thought.

The Summit explored themes such as social and ecological resilience, accessibility, the national planning of cities and settlement policy, new ways of approaching design and planning, and the appropriate sphere of governance for modern cities. Probing questions were raised including: how we track the future of our cities in a world where knowledge and interconnectedness are becoming more significant dimensions of national economic competitiveness; how we can measure and promote inclusiveness; and how we can achieve the necessary elements of surprise that give a city character.

Out of the Summit came a number of visions and a variety of discourses about the future of our cities. This report presents these visions and aims to capture the integrated essence of the discourses, and is thus a reflection of the emerging debate. It can be a point of departure for policy makers and give citizens a glimpse into what their future may hold.

We have included a program overview of the ADC Cities Summit that provides an idea of the direction of each chapter. We have chosen not to provide an executive summary of the report due to the vast amount of rich content, and we want to encourage readers to apprehend the entirety of the report. Nevertheless, many of the key ideas and synthetic insights that emerge from within the report are brought together in the Integrating the City chapter.

The ADC Cities Summit 2010 would not have been possible without the generous support of its major partners: the Australian Government, jointly through the Department of Infrastructure, Transport, Regional Development and Local Government, the Department of Families, Housing, Community Services and Indigenous Affairs, and the Department of the Prime Minister and Cabinet; Accenture; the Victorian Government; and VicUrban. The ADC Cities Summit was also supported by partners: Monash University with its Monash Sustainability Institute; the University of Melbourne; RMIT University; KPMG; and Stockland. I thank them all for their role and contribution to the national dialogue about urbanisation and Australian cities. The initiatives suggested in this report depend on common and ongoing support for well considered urbanisation narratives, both across the political spectrum and between levels of government, and on institutions and processes that transcend electoral cycles. A recurring theme is the need for community engagement as part of any developments.

There is no magic plan for the perfect city. Although modern design and technology are two important ingredients, cities will flourish by creating opportunity through their own narratives while working with their history, location and population to improve liveability.

This national dialogue on cities has been essential for drawing us towards a more desirable, resilient and productive future, and is key to both recognising and creating opportunities for our future. I hope you enjoy reading the *ADC Cities Report – Enhancing Liveability* and that it inspires you to think again about the challenges and opportunities for Australia's cities.

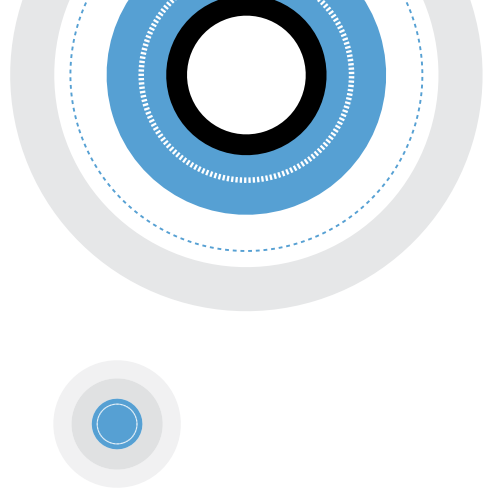


**Michael Roux**  
Chairman, ADC Forum

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# ABOUT ADC FORUM

ADC Forum aims to help leaders make better decisions. It does this through initiatives that challenge conventional wisdom, provoke debate and build greater understanding about the profound, complex and interconnected challenges facing Australia, the region and the world.

ADC Forum, a not-for-profit leadership organisation, brings together business, government and industry leaders, investors, NGOs and the public sector, along with academics and provocateurs of diverse backgrounds.

ADC Forum's signature annual events are the Leadership Retreat and the Future Summit. The Leadership Retreat is held annually on Hayman Island for business, political, academic and community leaders. It is a forum that promotes the fearless exchange of ideas about our country: Australia's defining challenges, both at home and as part of a complex, globalised and fractured world.

The Future Summit, held annually, provides a collaborative framework for Australia's established and emerging leaders to share ideas and exchange views to help shape Australia's future.

ADC Forum offers a range of other initiatives. These range from boardroom briefings and corporate/government consultations, including 'Canberra Connection', to high-profile summits focusing on critical issues such as:

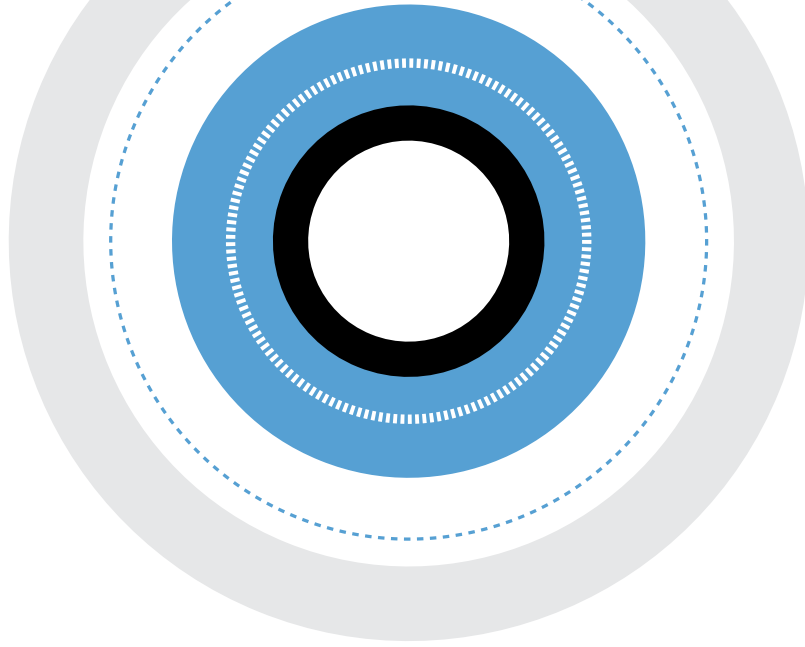
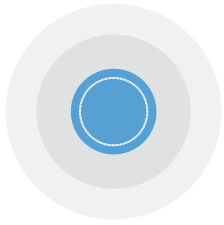
- 2005 National Infrastructure Summit
- 2006 Energy and Minerals Business Council
- 2007 Business Leaders Forum on Climate Change
- 2008 Infrastructure 21 Summit
- 2009 Philanthropy Summit
- 2010 ADC Cities Summit

ADC Forum was founded in 1996 by Australian members of the World Economic Forum (WEF) and aims to:

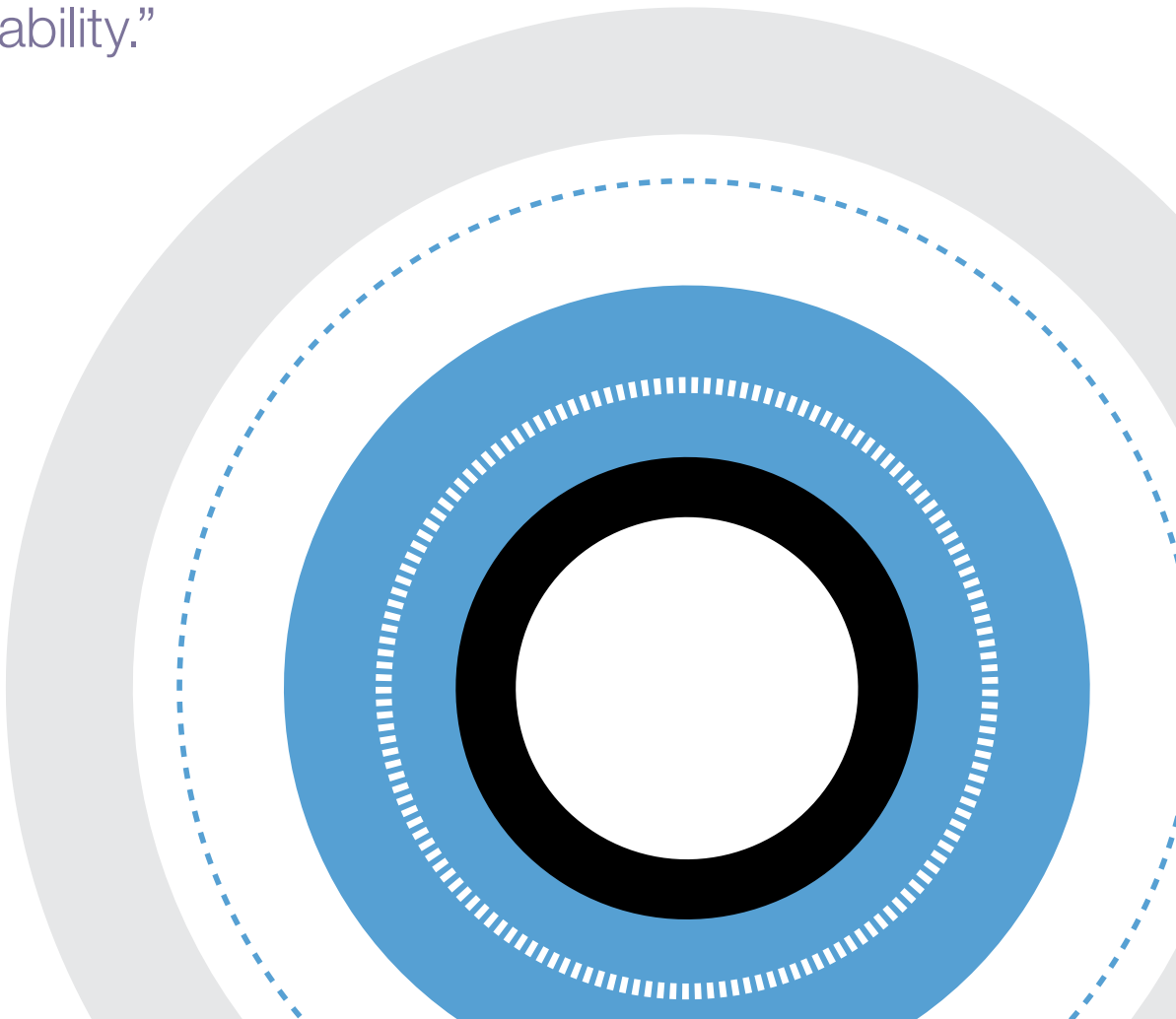
- Promote business excellence by encouraging policy debate on global issues
- Improve the quality of leadership
- Encourage Australia to play a responsible leadership role within the global community
- Offer forums for Australian leaders to listen to international and national experts and leaders



Michael Roux, Chairman, ADC Forum



“There is no magic plan for the perfect city. Although modern design and technology are two important ingredients, cities will flourish by creating opportunity through their own narratives while working with their history, location and population to improve liveability.”









# ADC CITIES SUMMIT PROGRAM OVERVIEW



ADC Forum offers leaders the rare chance to take part in an expansive dialogue about the profound and complex challenges facing Australia. The ADC Cities Summit addressed the unique array of challenges facing Australia's cities, including transportation, productivity, infrastructure, environment, population, urban design and governance.

From an impressive roll call of experts and policy-makers, the ADC Cities Summit harvested the best ideas to help build healthy, sustainable, productive and dynamic future cities. The Summit centred around nine working groups, each outlined below.

## Integrating the City

This working group looked at how all the ideas generated by each working group could be consolidated including possible metrics for success, and how we should manage and transform our cities across the areas of design, accessibility, competitiveness, metastrategy, governance, ecology and inclusiveness.

### Areas discussed:

- Maintaining the integrity of the ideas across all the groups, leveraging the ideas, and developing integrated solutions and methods
- Metrics and indicators for success
- Synthesise thinking and ideas from the 'surprise city'
- Incorporate all categories into principles of metastrategy and governance
- Connect design principles with ideas for governance
- Incorporate ecological, inclusiveness, accessibility and knowledge ideas into design

## The Inclusive City

Social inclusiveness is deeply connected with our ambitions for economic success. Inclusiveness is integral to our democracy, the expectations of people, and is key to building trust among citizens. Maintaining and improving the cohesive and diverse social fabric of our cities is a key foundation of our social-ecological resilience; especially with a growing population, ailing infrastructure and unmet environmental challenges.

Effective governance and achievement of policy outcomes requires trust, a crucial asset and enabler for any city. One litmus test for the functioning of a society is how well it deals

with the excluded, such as the homeless, the downtrodden, and minority groups. This is not to discard the importance of being inclusive of the whole population and increasing the connections between all groups and individuals. The ability of our urban centres to integrate a vast patchwork of communities as well as newcomers through birth or boat, will determine whether Australia lives up to its ideals, or begins to fray with fear, distrust and division. New jobs in meaningful industries that are sensibly located, well designed and affordable – along with intelligent place-making – will be critical to mitigate disaffection, unemployment, homelessness and crime.

### Areas discussed:

- Place-making
- Appropriate and accessible infrastructure, employment and services for communities
- Affordable housing and living
- Social housing
- Homelessness
- Poverty
- Indigenous participation in the economy
- Social and economic inclusion of minorities
- Trust/social fabric/community/social cohesion
- Harmonious families and child safety and enjoyment
- Safety, crime prevention, deterrence and criminal rehabilitation
- Cultural elements – supportive, integrated, respectful, creative, entrepreneurial
- Health including mental health
- Inclusive governance processes and contribution to broader societal goals

## The Ecological City

Urban centres are responsible for three quarters of greenhouse emissions, so reducing our cities' carbon footprint is the first and crucial step in protecting our environment. Climate change offers historic opportunities for cities with the courage and ambition to set out a sustainable path. The probability of climate change urges us to rigorously explore safe and sustainable energy supplies to power our cities. Water scarcity is another national imperative. There is huge potential for new technologies, scientific breakthroughs and lucrative low carbon economies with the productivity potential to generate thousands of new businesses and millions of new jobs in emerging environmental industries.

The spatiality of urban development means we need to consider the cradling effect of the land we inhabit during our planning processes, from climate sustaining forests to spaces for agriculture. Environmental policy needs to consider how we live, where we live, how many of us can live there and how we work.

#### Areas discussed:

- Urban ecological resilience
- Energy generation and storage
- Carbon emissions reduction aiming for zero emissions
- Long-term sea level constraints (1,000 year view) for city viability
- Open space and reforestation
- Agricultural innovation
- Ecological capacity for potential massive population growth
- Water security and management, aiming for closed loop efficiency and proper stratification of water types for human use and consumption
- Waste management (including long-lived and toxic wastes including nuclear waste)

### The Accessible City

Accessibility to services, employment and places is as much about mobility and efficiency as it is about fairness and inclusion; it is what allows a city to function, what keeps a population free, happy and productive. Traditionally, there has been a distinct separation between places where we work, live and play. As the sensibility of 'mixed use' urban development grows roots, infrastructure is improved, transport solutions are optimised, and economic activity is decentralised as befits a knowledge economy, the mobility capacity of our cities is increased so that both the supply side of the equation is improved and the demand side reduced.

Better public transport both within and between cities has transformed the viability of many urban centres around the world. It remains important to properly scale the efficiencies of our transport corridors and not compromise them in the name of shifting urban growth boundaries. Our cities already exhibit signs of unease with dysfunctional traffic congestion on private and public routes costing billions of dollars annually. A successful transport policy can only be ambitious, applying an integrated approach to economic modelling and financing beyond a rigid view of balance sheets in isolation and an incrementalist mindset.

Attempts to decentralise centres of economic activity away from the CBD must be careful to maintain those outer nodes as hubs and generators of both meaningful and globally competitive economic activity, not simply the planned allocation of 'jobs'. Building accessibility needs to be a dynamic process including the various dimensions of transport, as well as economic incentives for viable hubs of business development away from existing CBDs. Increasing urban accessibility will be transformative across multiple policy domains.

#### Areas discussed:

- Mobility capacity
- Intracity speed and efficiency
- Intercity speed and efficiency
- Transport vision and types
- Infrastructure
- Services
- Mixed use concepts
- Place of residence, work and play
- Automobile independence
- Improved roads and rail, including investment in high speed rail and better road hierarchies for higher speed travel eg: Victorian road speeds decreasing with urban sprawl
- Traffic, congestion and commuting inefficiencies eg: freeway bottlenecks, and cars blocked by trams and buses
- Integrated functionality/system functionality

### The Strategic City

The Strategic City working group takes on a broader perspective than mere realisation of the macro trends shaping the future of our cities. From a strategic or metastrategic point-of-view, it is essential to ask what measures of autonomy and influence can we have over those trends? Metastrategic thinking puts all the policy levers up as fair play to consider the future of cities, new and old, their spatiality, location, influence, security, climate and demography.

A population projected to double by 2056, on current policy settings, will effect profound change on Australian culture and society. Most projections of population growth are presented as highly static. Discussion often downplays the influence of policy settings on growth. These projections also assume that the majority of our population growth will find its place in existing cities. Perhaps there is an implicit assumption that globally influential cities must be megacities, though if this is the case, it comes at a time when the concept and presumed benefits of megacities are being brought into question, where some economists are beginning to place limits on the efficiencies of agglomeration well below the population levels of megacities.

One of the responses to both demographic and economic growth around the world has been the creation of new cities, and the potential that brings for greater urban focus, reduced sprawl and the preservation of open spaces. The inception of new cities has been particularly prominent in both China and the Middle East, but it is not just the preserve of the rapidly developing regions of the world. Europe too has plans to build new cities, our local mining industry has always done it by necessity, and Silicon Valley has been a remarkable confluence in the United States. If we entertain the possibility of new cities in Australia, do we start from the seeds of existing towns or consider a greenfield approach?

Flows and connections between our cities as well as foreign cities will play a significant role in our success. Our lot has always been one of distance and this must figure into our thinking, particularly the role of technology and a need for speed, both physical as well as informational. The need is as clear as the obligation to make the long-term economics work across our lower population densities.

The security of our cities is another major challenge, based on a number of factors in addition to traditional notions of threat. Security will be contingent on our ecological carrying capacity including food security, as well as protection from the elements such as bushfires and rising sea levels, which might eventually threaten the viability of several major Australian cities in their current locations. It also depends upon our cultural resilience and social inclusiveness. Both of these issues will weigh heavily on a rapidly increasing population.

Urban strategy must fit within the broader discourse of grand strategy – the art of leadership, encompassing society, the economy, the culture, the land, and the apparatus of state.

#### Areas discussed:

- Grand strategy and the role of cities and land spatiality
- Geomorphology of cities including the old strategic adage of 'higher ground' advantages
- Urban-agricultural-forest balance, in terms of the nature of cities and land zoning and allocation
- New settlements, new cities
- Settlement policy and distribution of population
- Urban functionality and agglomeration thresholds and policy in light of population growth
- Unique urban narratives for cities and regions to attract people and investment
- Innovation regions and regional clusters
- Building co-operation and complementarity between urban centres
- Long-term sea level constraints (1,000 year view) for city viability
- Social-ecological capacity and potential for massive population growth
- Open space (as distinct from public space), preservation of the natural environment and greater integration of the natural environment through urban areas versus in-filling as a solution to increase density
- Using technology and education to leverage a smaller population
- Intercity flow enablers
- Managing security and insecurity for new and old cities
- Subterranean structures – any benefit in an age of bunker busters?

## Governing the City

The ability to adapt and evolve cities into more sustainable and liveable environments largely hinges on the appropriateness and effectiveness of the applicable governance structures. Australia's three-tiered system of government raises unique challenges, not to mention the planning impacts of partisan politics and staggered, multilevel electoral cycles. Urban development cannot happen across the disjunct of three or four year time horizons. Integrated, meaningful and structural urban change often takes decades to come to fruition. A critical element of desirable city growth must be an embedded culture of urban development strategy that embraces the interests of all stakeholders and constituents in a predictable fashion over time.

Our system of government was designed when cities did not play so large a role in the destiny of the nation. This may necessitate the creation of new governing institutions and it may obviate some of the existing roles played by authorities too far removed to understand or manage the situation, and likewise the role of authorities too small to effect meaningful change. This is sometimes called the principle of subsidiarity, where required funding comes from above but planning and implementation occurs at the lowest level of government appropriate for the task.

Appropriate and effective urban governance structures will be critical for leading the development of coherent urban narratives, to give greater strategic focus for our urban centres. Inhabitants and outsiders alike need to know why they should do business or live or travel to a particular urban centre. Moving from attractive urban plan to successful urban change will come from implementing the right economic and policy incentives for behavioural change.

#### Areas discussed:

- Leadership
- Institutions for urban strategy
- Strategic purpose
- Roles and responsibilities across levels of government and other stakeholders
- Inclusion and engagement of stakeholders and constituents
- Sustainable urban development beyond partisan politics and multilevel electoral cycles
- Role of regions and regional clusters
- Local practices of urbanism
- Cultural values – existing values and values contributing to urbanism
- Urbanism enabling regulatory frameworks (include heritage)
- Static regulatory frameworks as well as dynamic regulatory frameworks to meet changing demands including behavioural change
- Incentives to drive behavioural change
- New versus old masterplanning methodologies

## The Knowledge City

Liveable cities are the engines of future economic growth. They need the services of motivated, skilled, cohesive and innovative people in order to maintain their foothold in a competitive global market. Cities need to have the right attributes, including quality of life, to attract inventive and entrepreneurial people to live in them, as well as sufficient investment to support the ideas that will build new knowledge, businesses and industries. We need to create effective and competitive markets, not simply free and lawless ones.

What Australia needs is a more scalable economy outside of the current resources sector. The goal should be economic growth through productivity gains from education and technology, rather than more people simply for the sake of it. More people might add critical mass in some areas but we need to be smarter about people in general.

We need to revolutionise the supply side and outside of the resources sector, develop a more external focus with global markets in mind. This does not mean the end of manufacturing in advanced economies. Manufacturing can attract significant investment to new urban regions. However, these urban regions would need to have greater focus and purpose, with explicit, unique and complementary public narratives about what they are trying to do; and the focus would need to be on higher value-added niche manufacturing, which is already done well in many advanced economies, including to some degree in Australia.

A knowledge city needs to house a culture of learning, collaboration and creativity. It needs to both permit intellectual curiosity and imagination, and eventually be able to commercialise aspects of that without unbalancing the ecology

of the whole process. It needs to consider how design can most effectively catalyse the spaces between the physical environment and its people for inspiration, as well as what it is trying to achieve overall.

Areas discussed:

- Unique urban narratives for cities and regions to attract people and investment
- Innovation regions and regional clusters
- Building co-operation and complementarity between urban centres
- Inspiring places – creative, inventive and entrepreneurial spaces; the nexus of physical space and knowledge sharing, development, collaboration and culture
- Boundaries between work, home and play, including mixed use concepts
- Productivity drivers such as technology and education to leverage a smaller population base for rapid and sustainable economic growth
- Competitiveness and increasing the scalability of the economy to liberate a culture wedded to longer working hours as synonymous with economic growth
- Higher value niche manufacturing and focus on global markets and goods and services oriented to scalable economic growth
- Research, commercialization, and developing new industries
- Greater opportunity for the urban periphery and enabling high added value activity everywhere
- Education and content taken seriously
- Investment in human capital
- An advanced entrepreneurial and creative culture
- Connectedness – sentience and ICT monitoring and communications
- Nation branding

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## The Surprise City

This group was asked to adopt a 'blue sky' approach to the future; to act as provocateurs, and brainstorm new and innovative ideas for our cities. We wanted them to be outrageous and needed them to be radical.

Areas discussed:

- New thinking about the urban
- Enhancing liveability
- Building urban character and identity
- Radical ideas for a better world
- Breakthrough technologies and solutions
- Questioning the assumptions of expert opinion
- Critiquing the status quo
- New systems of governance
- Apocalyptic scenarios and solutions – What if we ran out of rain water in 20 years? What if sea levels rose substantially reducing the Australian land mass by 30%? What if the Australian population grew to 100 million by 2056?

## Designing the City

'Design thinking' suggests a return to purpose-driven thinking from first principles. Design is at once inimical to the 'anything goes' approach to city development, yet sensitive to newer rules-based approaches for cities as evolving complex systems rather than the strictures of more traditional masterplanning.

Intensification of our urban processes is at the heart of recent thinking on designing our cities, but intensification need not mean extreme or high density. For example, public spaces and open spaces have intrinsic value and must be carefully selected, planned and preserved. The trend towards mixed use developments also reflects demand for accessibility, sustainability and inclusiveness. Urban planning and design must also account for the elements, whether extreme weather, bushfires or rising seas. City walls and dykes will not work forever against seas that continue to rise.

Design has a depth beyond aesthetics, or perhaps it makes sense to say that aesthetics are of greater value than many people realise, providing economic, environmental, cultural and psychological benefits. Understanding how people react to spaces and function within those spaces should inform the way in which we design and manage our urban centres in the future. Housing supply solutions will significantly benefit from advances in design and construction productivity. Advanced design has a public utility and is not only the concern of private interests.

Design frameworks must be fluid and adaptable to the changing needs of people. As well as looking towards the needs of the urban populace, and those migrants we hope come, we must also look back to what has been before, to preserve the culture and history of our cities. Our cities are part of who we are, and we are seen as part of our cities.

Areas discussed:

- Design thinking
- Masterplanning – old and new methodologies
- Place-making
- Public space
- Open space and urban-agricultural-forest balance
- Aesthetics and meaning and culture through built form and spaces
- Minimum aesthetic standards in addition to environmental standards, and building and construction standards
- Revolutions in design and construction technology to facilitate population growth
- Connectedness – sentience and ICT monitoring and communications
- Density, intensification, scale, association and extension
- Long-term sea level constraints (1,000 year view) and city viability
- Extreme heat and weather implication for the built environments
- Nation branding
- Psychological aspects of design
- Creativity
- Heritage





# INTEGRATING THE CITY



## Why cities?

Half of the world's population now lives in cities. In Australia, this proportion is higher at over three quarters, spread across 17 cities, each with more than 100,000 people (Australian Government 2010). Australia's cities are the key to our future economic prospects. They provide great opportunities but also major sustainability and liveability challenges.

The share of Gross Domestic Product (GDP) contributed by our cities (about 80 per cent) is higher than the population share living in cities. These relativities provide some insight into why cities are important. The concentration of people in cities increases productivity and liveability, through agglomeration effects in production and consumption. International research suggests that agglomeration effects in production typically range between 3 per cent and 8 per cent, such that doubling city size can be expected to lead to output increasing by 103-108 per cent (Melo et al. in press; Rosenthal and Strange 2003). Relative output increases in knowledge-intensive industries, many of which tend to concentrate in CBDs and other urban hubs – such as universities – are typically higher.

The origins of agglomeration economies have been well understood for some time. They include such sources as improved access to inter-industry information flows (information spillovers), thick labour markets, better access to specialised services (for example, legal services, design and testing, financial services) and to public infrastructure, together with economies of scale that may accrue to individual firms. Porter's (1990) work on clusters reflects some of the potential benefits of agglomeration, with clustering both within an industry sector and across sectors being potential areas for agglomeration benefits. The concept of networks is central to why cities are important.

Agglomeration effects in consumption, an important element of liveability, are a relatively new area of quantitative research. However, recent German analysis indicates clear evidence of agglomeration externalities in consumption, with bigger cities (in population terms) showing benefits for residents from a larger range of service choices, across areas like restaurants and bars, concerts, dancing, theatres and museums (Borck 2007).

Noted urban scholar Robert Cervero has examined efficient urbanisation, considering economic performance and the shape of large cities (Cervero 2001). He finds that

employment densities, urban primacy (importance of the centre) and well functioning infrastructure are positively associated with economic performance. There is a trade-off in city size between agglomeration benefits and the external costs of, for example, traffic congestion, pollution and noise (liveability/sustainability concerns). Large cities that are compact, enjoy good accessibility, matched by efficient transport infrastructure, are among the most efficient urban settlements. These cities do not arise by chance but require decades of careful management and guidance. Cervero suggests that beyond about 5-10 million, the increasing social costs of size exceed the additional benefits.

The tension between agglomeration benefits and external costs is not only an issue of absolute city size. It often arises when cities grow quickly, when provision of infrastructure and services lags demand growth.

In terms of agglomeration benefits, differences in the benefits between density and size are apparent when the form elements, the shape and the structural and design elements of cities are taken into account. For cities such as London, and more recently in planning for Sydney, there is a move towards what has been referred to as the 'city of cities' concept. Urban theorists now go beyond the superficial answer of mega cities. They are beginning to ask why cities over or underperform for their population density and scale. Higher density does not necessarily mean taller buildings. Density includes closer buildings and arrangements of buildings that allow for optimal use of spaces, such as mixing houses and retail uses. With the right linkages, cities of 250,000 - 300,000 people, either standing alone or as substantially self-contained elements within a wider city, can have the benefits of both scale and density to be competitive, without the detriment and burden related to larger populations. The 'city of cities' concept acknowledges population groupings of this scale, and urban planning is increasingly recognizing the benefits of structuring larger groupings of population into modules of this size. This means that entirely new cities can get built with 250,000 - 300,000 people as a meaningful goal, or parts of existing cities can be re-imagined around this sizing. Large conurbations of 250,000 - 300,000 person nodes can provide for a sense of spatial identity and boundary, while maintaining significant public open space such as forests between nodes, and allowing each node to contain many aspects of urbanity, such as theatres, sports teams and large parks and gardens within them.



The logic of this suggests that, provided cities of 250,000 - 300,000 people are embedded with meaningful densities and provided the right elements for a knowledge economy are present, there is no need to fixate on building mega cities. This allows the construction and stimulus for city building to occur in the most desirable strategic locations, taking into account relationships with resources, the environment and the attributes of the cities near and far. The result is that the ideal population threshold for thinking about urban success has been lowered from 5 to 10 million or more, to figures more like 250,000 - 300,000 in favour of outperforming on the dimensions that matter. In a growing population, this creates opportunities to think creatively of building new cities. Within larger cities, the modularity implied by this approach provides an opportunity to soften the consequences of size by thinking village/neighbourhood, a theme that recurs strongly in this chapter.

Productivity, liveability and sustainability must be critical goals for cities. Cities are about finding the right balance between economic productivity, maintaining a high standard of liveability and achieving long-term sustainability, recognising that there are multiple interdependencies between these goal areas. Resolution of this balance will reflect local values and

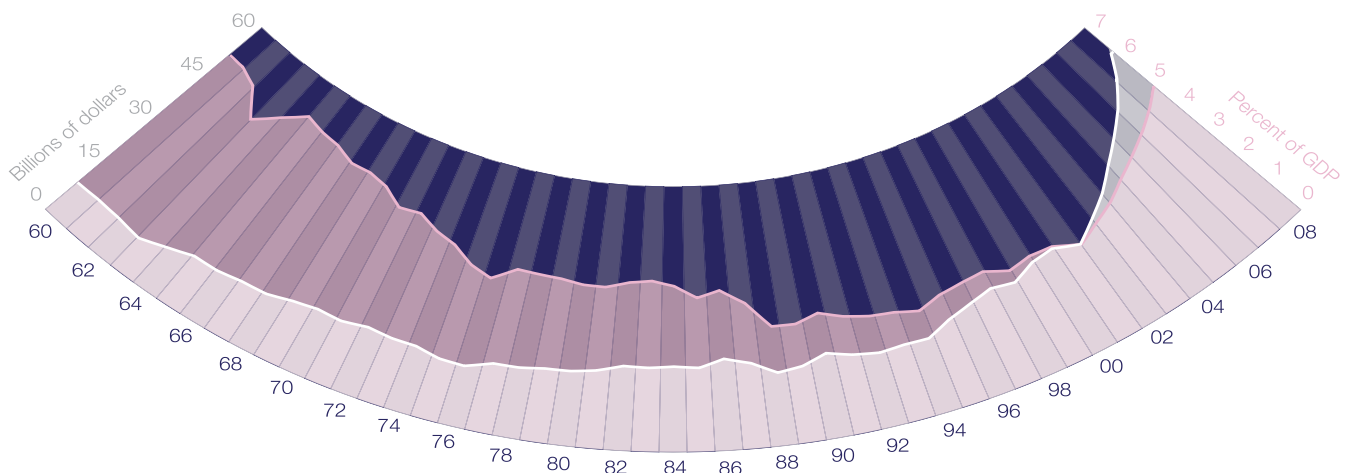
aspirations and will differ between cities and countries. While social inclusion is not specifically nominated within this small number of high level goals, it is recognised as a critical goal as part of sustainability.

Some important aspects of the current state of Australian cities in terms of the three goal areas – productivity, liveability and sustainability – are outlined briefly below, to provide context for discussion of possible future directions.

### Productivity of Australian cities

Restoring a higher rate of productivity growth is central to future economic development. Upgrading the nation's economic infrastructure is a key part of lifting Australia's productivity growth rate. Cities are fundamental in this process. Australia's investment in economic infrastructure halved as a proportion of GDP between the 1960s and 1990s (Figure 1), with declining transport infrastructure spending accounting for half this decline. A corollary of this decline is growing traffic congestion, problems of unreliability and overcrowding on public transport and delays in moving freight, on land and through ports.

**Figure 1**  
**TRANSPORT, UTILITIES AND COMMUNICATION INFRASTRUCTURE FIXED CAPITAL FORMATION (FY1960-2008)**



Source: ARA et al. (2010)

The increase in infrastructure spending that is evident in recent years (Figure 1) needs to be sustained for many more years, to overcome backlogs and lift productivity performance.

National Economics (2008), argues that:

- high income, non-natural resource-based economies depend on sustained innovation to drive economic growth;
- the capacity to innovate depends on knowledge and networks at regional level;
- there is a good correlation between the economic success of a region measured by non-mining gross regional product per person employed and patent activity, and similarly between high-tech business start-ups and patents per capita;
- regions with high productivity have high household incomes and low unemployment rates;
- low productivity regions are rapidly ageing in population, while high productivity regions are ageing slowly;
- successful knowledge-based regions have a high correlation of highly skilled knowledge workers, who tend to migrate to regions with scale and diversity of social and community infrastructure and cultural and lifestyle choices;
- regional centres that have contributed strongly to the improved economic performance of a rural regional group have had high employment growth relative to population growth.

The emphasis on the role of labour skills for productivity growth, and on locational influences that attract skilled labour, is critical. OECD data implies that Australia has one of the highest rates of tertiary level entrance and subsequent graduation among OECD countries, as a proportion of the total cohort in the most common graduating age group.

Australia's proportion was 59 per cent in both 2005 and 2006, well above the OECD average of 37 per cent (OECD 2009a). However, Monash University's Professor Bob Birrell (pers comm.) notes that OECD data does not differentiate between domestic and overseas starts and completions. He indicates that there has been little increase in domestic undergraduate completions since 2000, at a time when the demand for professionals has increased substantially. At the time of the 2006 Census, only half of 18-20 years olds were in any form of post-secondary education. This needs attention if productivity growth is to increase.

The OECD Programme for International Student Assessment (PISA) assesses student knowledge and skills in science, mathematics and reading at age 15. Australia rated fifth for science, sixth for reading and ninth for mathematics in 2006, well above the OECD average - but countries such as Finland and Canada were ahead of Australia on all three indicators (OECD 2009a). The US fares relatively poorly on the PISA measures. In terms of expenditure per student, however, Australia rates much lower. In 2005, Australia rated 14th out of 29 countries on this measure, with average expenditure per student marginally above the OECD average, even after a substantial growth in expenditure per student over the previous decade.<sup>1</sup>

While our higher educational institutions draw students from around the world as well as from Australian feeder institutions, the data suggest that Australia has a mixed scorecard in terms of educational output and that, over the past decade or so, we have been playing catch-up in education. The economic infrastructure pattern was similar. Productivity lags are thus no surprise.

### Liveability of Australian cities

The liveability of Australian cities has become part of 'brand Australia'. Liveability has long been identified as an Australian competitive strength and a critical element in attracting and retaining the brightest and best, and in providing the basis for a high quality of life for all Australians, whether they live in cities or just visit them.

Victoria's Competition and Efficiency Commission (VCEC 2008) has observed that there is no established, uniform definition of liveability. VCEC defined liveability as "reflecting the wellbeing of a community and comprising the many characteristics that make a location a place where people want to live now and in the future" (VCEC 2008 p. 7). The definition suggests high quality liveability can mean different things to different people, in different places and times. Australian cities usually rate highly in widely quoted international measures of liveability. Two widely cited measures are the Mercer Quality of Living Survey and The Economist World's Most Liveable Cities Index. Table 1 sets out Mercer's top 10 ranked cities in 2009. Table 2 shows The Economist top 10 in 2010. Population size is listed for each city and density data is included for The Economist top 10.

<sup>1</sup> In the mid-1990s Australia had one of the lowest expenditure rates per student among OECD countries.

Sydney made the Mercer 2009 top 10, at number 10, while Melbourne (2nd), Perth (7th) and Adelaide (=8th) are all in The Economist 2010 top 10. Vancouver, Auckland and Vienna made it into both top 10 rankings. It is noteworthy that no city in either top 10 has over 5 million people and only two in each have over 2 million. It is also noteworthy that the Australian cities in The Economist top 10, with Calgary, have the lowest gross population densities. A number of cities in

The Economist top 10 have densities that are 2-3 times those of the Australian cities listed. These rankings suggest that beyond a certain population size (approximately 5 million), bigger does not necessarily mean more liveable. Some big cities provide good services and infrastructure – others fall short in these areas. The rankings also suggest that densities higher than those of Australian cities can be consistent with a high liveability rating.

Table 1

**MERCER'S QUALITY OF LIVING SURVEY 2009: TOP 10**

CITY	RANKING	POPULATION*
Vienna	1	1550000
Zurich	2	(1000000)**
Geneva	3	(>400000)**
Vancouver	=4	1830000
Auckland	=4	1050000
Dusseldorf	6	(~600000)**
Munich	7	1600000
Frankfurt	8	2260000
Bern	9	(~300000)**
Sydney	10	3502000

**Notes:**

\* <http://www.citymayors.com/statistics/largest-cities-area-125.html> and

<http://www.citymayors.com/statistics/largest-cities-density-125.html>

\*\* Various sources

Table 2

**THE ECONOMIST WORLD'S MOST LIVEABLE CITIES INDEX 2010: TOP 10**

CITY	RANKING	POPULATION*	DENSITY (PEOPLE/KM <sup>2</sup> )
Vancouver	1	1830000	1650
Melbourne	2	3162000	1500
Vienna	3	1550000	3400
Toronto	4	4367000	2650
Calgary	5	879000	1250
Helsinki	6	1000000	2100
Perth	7	1177000	1200
Adelaide	=8	1002000	1350
Auckland	=8	1050000	2000
Glasgow	10	1200000	3250



While a high liveability rating has been a defining quality of Australia's major cities, a recent trend is concerning. In the 2009 Mercer survey, compared to 2004, Sydney slipped from 5th to 10th, Melbourne from 12th to 18th, Perth from 20th to 21st, Adelaide from 24th to 30th and Brisbane from 24th to 30th. Mercer attributes the rise of those cities that have replaced Australian cities to investment in infrastructure, such as transport and housing. This declining ranking needs attention before it becomes a threat to a key aspect of brand Australia.

The Queensland Government undertook research on priorities for protecting liveability in the face of population growth, before the 2010 Queensland Growth Management Summit. It found that there were concerns about: congestion; strains on infrastructure, public transport and health services; competition for jobs; crowding; and housing affordability. Priorities residents thought should be protected as population grows included: safety in own homes; sense of community; safety in the local community; clean, pollution-free air; ease of getting around; reasonable cost-of-living; great education system; character of housing; laid-back lifestyle and the range of flora and fauna (Queensland Government 2010).

### Sustainability of Australian cities

Our cities face many problems that reduce their economic, social and/or environmental sustainability: problems that are frequent talking points in the media, in political debates and in wider community conversations. Following the Brundtland Commission,<sup>2</sup> sustainable development is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Some key sustainability problems facing Australian cities are:

- the high and growing costs of traffic congestion. Congestion costs in our capital cities were estimated at almost \$10 billion in 2005 and are expected to double by 2020 (BTRE 2007). Traffic congestion is a drag on all three goal areas of productivity, liveability and sustainability;
- high greenhouse gas emissions from our cities, which are amongst the highest per capita in the world. For example, Brisbane's land transport emissions are about three times those of London, per capita, and Melbourne's are over twice those of London per capita (ARA et al. 2010);
- rising house prices and associated supply shortages of new properties for owner occupancy and rental, reflecting disequilibrium in housing markets. The recent report of the National Housing Supply Council (2010) suggests that Australia has 178,000 more potential home buyers than available properties, with the housing supply gap getting larger. There is a shortfall of almost 500,000 dwellings that are both affordable and available for those in the bottom 40 per cent of the income distribution. The Henry Tax Review noted that as at 5 June 2009, 418,000 individuals and families paid more than 30 per cent of their incomes in rent, even after receiving Rent Assistance. This was the highest number since 2000.<sup>3</sup> The review pointed out that Australia faces challenges in providing sufficient affordable housing. Analysis by National Economics (2010) has drawn attention to the connection between Australia's present housing affordability problems and the declining transport infrastructure investment share during the last three decades of the 20th century illustrated in Figure 1 – Transport, Utilities and Communication Infrastructure Fixed Capital Formation (fy1960-2008). This underlines the critical importance of taking integrated approaches to tackling the issues of productivity, liveability and sustainability.
- water shortages and the constraints that water availability may impose on the development of some cities. Without the benefits of a very effective water conservation program, for example, Melbourne could have run out of water in mid-2009 (Skinner 2010). Some supply-side responses to water shortage concerns raise their own sustainability issues, such as the greenhouse gas emissions associated with desalination plants as a major means of supply augmentation;
- rising risks of wildfire at the edges of our cities and of loss of biodiversity, as population and activity growth extends into forested areas and climate change pressures mount, increasing the likely frequency of wildfire and adding to risks that introduced species will out-compete indigenous species.

<sup>2</sup> Brundtland Commission (1987). Our Common Future: Report of the World Commission on Environment and Development

<sup>3</sup> <http://www.taxreview.treasury.gov.au/content/FinalReport>

## Scope of this chapter

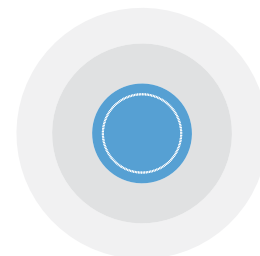
This chapter is mainly about integration in tackling productivity, liveability and sustainability in our cities. It is not intended to be an executive summary of all the material in this report but it does illustrate some of the themes involved in taking a more integrated approach to tackling the opportunities and challenges we face, many of which are set forth in the individual chapters. Those individual chapters provide vital understandings of what integration may mean in particular circumstances, while identifying many opportunities for significantly improving our cities. The key themes considered are:

- Responding to the COAG capital cities strategic planning challenge – where specific outcome indicators are proposed, to help ensure that this process is performance-focussed and accountable.
- The ‘must haves’ – matters that provide key generic platforms for city development, such as a vision of the

kinds of cities we want, provision of the right foundations in our skills, effective and efficient transport systems/ services, getting the most from our existing infrastructure base and ensuring that sustainable funding flows and innovative technologies support our goals.

- Australia’s future population size and distribution (settlement policy) and better cities (rather than necessarily bigger cities). This theme includes a focus on both strategic planning at city level and village/ precinct level regeneration and intensification (especially in middle suburbs).
- Governance arrangements for our cities and,
- Urban design and re-engineering - an area of prospective international competitive advantage.

These various themes are not mutually exclusive and the discussion below crosses between themes, reflecting the importance of an integrated approach to our cities.



## COAG action

### Capital cities strategic planning systems

The December 2009 Council of Australian Governments (COAG) meeting represented a potential watershed in terms of tackling the kinds of issues outlined in 'why cities?' in a coordinated way. The COAG Communique for that meeting noted (COAG 2009, p.7-8):

*COAG today agreed to reforms to ensure our capital cities are well placed to meet the challenges of the future. National criteria for capital city strategic planning systems will provide the platform to re-shape our cities. The criteria will ensure our cities have strong, transparent and long-term plans in place to manage population and economic growth; plans which will address climate change, improve housing affordability and tackle urban congestion. They will also:*

- *provide for future oriented and publicly available long-term strategic plans;*
- *be integrated across functions (for example, land use, infrastructure and transport) and coordinated between all three levels of government;*
- *clearly identify priorities for future investment and policy effort by governments;*
- *provide for effective implementation arrangements and supporting mechanisms; and*
- *support and facilitate economic growth, population growth and demographic change.*

The COAG Communique sets out an agreed National Objective (COAG 2009, p.15):

*To ensure Australian cities are globally competitive, productive, sustainable, liveable and socially inclusive and are well placed to meet future challenges and growth.*

The communique spells out criteria that capital city planning systems will be expected to meet. These criteria are essentially process-based. For these processes to be able to meet the national objective, they need to be extended to encompass outcome objectives. Achieving these will provide some

assurance that the relevant strategic plans will ensure Australian cities are globally competitive, productive, sustainable, liveable and socially inclusive. The inclusion of criteria that cover all three goal areas will highlight the vital importance of taking an integrated approach to plan development.

Supporting this view about the importance of clear targets, the UN Habitat Metropolis Commission 5, on Metropolitan Performance Measurement, has argued (Metropolis 2008, p.7):

*Cities that adopt a strategic approach to urban management are well able to set clear goals and targets for their work through the use of city-wide plans, urban master plans and other strategic documents.*

It is also notable that the Queensland Government has set itself a number of measureable targets for 2020 in its *Toward Q2: Tomorrow's Queensland* program.

### COAG outcomes criteria

This chapter nominates a small number of objectives seen as critical for achieving the three high level goals of productivity, liveability and sustainability, with distinctive visions for each city. Specific 2020 targets are nominated here for most of these criteria, to heighten the focus on real achievements. Where there is not sufficient information to set a target, further work should be undertaken to fill the gap. The proposed national outcome objectives are not exhaustive but they are comprehensive. While some variation on individual targets between different capital cities is a reasonable expectation, a particular city falling short against a number of the targets nominated below (overleaf) warns of faltering progress toward productivity, liveability and sustainability. The targets leave the choice of how to achieve the nominated outcomes up to individual jurisdictions.

Many of the outcome criteria we propose have the virtue of contributing to more than one objective, which emphasises the importance of an integrated approach. The criteria proposed, with relevant targets for a 2020 assessment date, are summarised in Table 3 and their rationales are also outlined.

Table 3

## PROPOSED CRITERIA AND TARGETS FOR ASSESSING CAPITAL CITY STRATEGIC PLANS

MAJOR FOCUS OF CRITERIA AND TARGETS FOR 2020, AGAINST A 2010 BASE	PRODUCTIVITY OUTCOMES	LIVEABILITY OUTCOMES	ENVIRONMENTAL SUSTAINABILITY
<b>Productivity</b> 18% increase in city GDP per capita Youth unemployment rate <3% above overall rate 10 percentage-point increase in mode share for walking, cycling and public transport 95% coverage of Fibre to the Property 75% of working age tertiary/trade qualified at certificate III or above	YES YES YES YES YES	YES YES YES YES YES	MAYBE MAYBE YES YES MAYBE
<b>Liveability</b> Gross urban density to increase >20% All city residents to live within 300m of public open space Halve the percentage of people living below poverty line Halve the number of homeless At least 90% agree that their neighbourhood is a good place to live 10 percentage-point increase in school children walking/cycling to school	YES YES YES YES YES YES	YES YES YES YES YES YES	YES YES YES UNLIKELY LIKELY YES
<b>Environmental Sustainability</b> 30% reduction in GHG emissions on 2000 Solid waste disposal rates to be less than 0.4 tonnes per capita Reduce drinking water consumption by 30% 100% achievement of national air quality targets Increase in native bird species and numbers (work required to set targets)	OPPORTUNITY OPPORTUNITY OPPORTUNITY OPPORTUNITY OPPORTUNITY	YES YES YES YES YES	YES YES YES YES YES


## Productivity criteria and targets

## 1. Minimum 18 per cent increase in city GDP per capita

Growth in GDP per capita is a reflection of productivity increase. This target starts from the 1.1 per cent recent annual productivity growth rate, recognises that sustained increases in spending on infrastructure and skills upgrading

should stimulate faster productivity growth but also that the services sector, where employment growth will be highest, tends to have relatively low rates of productivity increase. Annual productivity increases of greater than 1.5 per cent should be achievable and the nominated target (18 per cent increase in per capita GDP by 2020) assumes an annual growth productivity rate of 1.65 per cent.





cyclists enjoying  
easy access  
to the city in  
Brisbane

**2. Youth unemployment rate to be no more than 3 percentage-points above the overall rate**

The ABS (2009) reported that youth unemployment in May 2009 was 14.3 per cent, almost double the rate for all people. This gap is unacceptable. A target of less than three percentage points difference in the unemployment rate, as between those aged 15-24 and those aged 25 or more, by 2020 is proposed here. This will foster increased social inclusion, reduce the social costs of unemployment and promote economic wellbeing.

**3. The relative modal share of personal trips performed by public transport, walking and cycling combined increased at least 10 percentage-points**

The importance of increasing the proportion of personal travel that is undertaken by the low impact modes of walking, cycling and public transport must be emphasised. Achievement of a 10 percentage-point shift will contribute, in particular, to economic objectives (for example, substantially lower congestion costs; enhanced energy security), environmental objectives (significant reduction in greenhouse gas emissions; improved air quality) and social sustainability and liveability objectives, including improved health and safety outcomes. A 10 percentage-point increase may sound like a tough target over a decade. However, Melbourne has increased its public transport mode share alone by about half this rate in just five years. The Queensland Government recently announced an aim of walking, cycling and public transport increasing their combined mode share by about 17 percentage-points within 20 years, under new plans to tackle population growth.

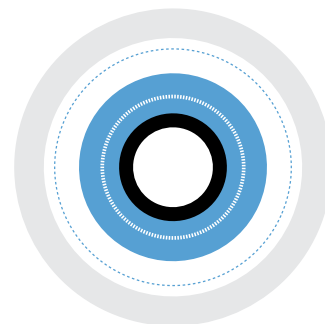
**4. 95 per cent of properties connected by optical fibre**

Recognising the importance of superfast broadband and Australia's current mediocre performance on a number of telecommunications indicators, the federal government has committed to 90 per cent of Australian homes, workplaces and schools having access to this service (at speeds of up to 100 megabytes per second) within eight years. This availability is necessary to allow building of the future knowledge economy. Availability in capital cities will be more economic than in regional centres, so a target of 95 per cent availability of fibre to the premises has been proposed for capital cities by 2020. Achieving this target will mainly be a federal government responsibility but states can influence outcomes at the margin. For example, they may require state land development agencies to include facilities in relevant new developments, whether greenfields or brownfields.

**5. 75 per cent of working age people tertiary/trade qualified at level III or above**

At the time of the 2006 Census, 41 per cent of Australia's capital city labour force held tertiary or trade III/IV level qualifications, with the range from 37.5 per cent for Adelaide to 50.5 per cent for Canberra but with most cities clustering around 39-42 per cent. ABS data for 2007 indicates 45.1 per cent of people aged 15-64 held qualifications at this level, ranging from 41.5 per cent in South Australia to 56.2 per cent in the ACT (ABS 2010). With knowledge-intensive industries central to economic development opportunities, and skilled people enjoying good employment prospects more generally, an increase in this proportion should be planned. Queensland's *Toward Q2: Tomorrow's Queensland* has set a target of 75 per cent holding certificate III or higher qualifications by 2020. That target has been adopted for the present purposes as it is critical for lifting productivity performance.





## Liveability criteria and targets

### 1. Gross urban density to increase at least 20 per cent

Analysis by L.E.K. Consulting suggests that gross urban densities in Australia's capital cities have increased at an average annual rate of between 0.8 per cent (Hobart and Adelaide) and 2.3 per cent (Brisbane) over the 2000-2008 period, with Sydney and Melbourne running at 1.0 and 1.6 per cent respectively. If all cities were to achieve Brisbane's 2000-08 rate of increase, gross densities would be 25 per cent higher in 2020. However, the potential increase in density is constrained by the rate of growth in households. NHSC (2010) implies a rate of growth in demand for national household formation (medium projection) between 2010 and 2020 of about 1.72 per cent per annum compound, or about 18.6 per cent over the decade. Increasing densities in our cities will require them to achieve a faster growth rate. A 20 per cent minimum increase in gross densities is proposed to 2020 but this could arguably be set at a higher rate.

### 2. All city residents to live within 300 metres of public open space by 2020<sup>4</sup>

While increasing gross density is an important policy goal, continuing availability of open space is equally important to ensuring high quality liveability, particularly as city densities increase. The public acceptability of such density increases is likely to be related to the availability of high quality public realm, including open space. For this reason, a target on open space within easy walking distance is included. The particular target proposed was suggested by an Australian urban planner of international standing. Consideration could be given to whether the target should be couched in terms of open space or green space.

### 3. Percentage of people living below the poverty line halved

Research undertaken by the Social Policy Research Centre at the University of NSW, for the Australian Council of Social Service, has estimated that 11.1 per cent of Australians lived in poverty in 2006, compared to 7.6 per cent in 1994 (ACOSS 2007), based on an income of less than 50 per cent of the median disposable income of all Australian households. If however, the European Union definition of poverty had been used, this percentage would have been 19.4 per cent. The target of halving by 2020 would require the rate to fall a little faster than it rose from 1994 to 2006.

### 4. Homelessness at least halved

There are more than 100,000 homeless people in Australia. Social justice arguments support a greater focus on reducing this number. A target of halving the relevant number in each city would represent important progress in reducing inequality and exclusion. Homelessness is a symptom of other problems, such as chronic mental illness, and needs to be tackled on a broad front, not simply via housing solutions.

### 5. At least 90 per cent agreeing that their neighbourhood is a good place to live

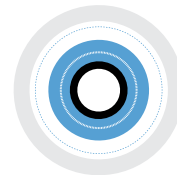
A study in Melbourne supported by the Australian Research Council (ARC) examined links between mobility, social exclusion and wellbeing. Survey respondents were asked whether or not they agreed with the statement, 'I think my neighbourhood is a good place for me to live'. Some 84 per cent of 535 Melbourne respondents agreed or strongly agreed with this statement. This is a solid outcome. Raising this figure to 90 per cent would be a positive indication of an improving sense of community, with the ARC study showing a significant association between the answer to this question and the respondent's subjective wellbeing. Regular sample surveying can easily provide benchmarking against this target for each city.<sup>5</sup>

### 6. At least 10 percentage-points more children walk or cycle to school

If it is safe for children to walk or cycle to school, then a range of conditions which suggest liveability will be present. Traffic will not be seen as threatening and nor will the roadside environment. Whereas half the children going to school in Sydney did so on foot in 1971, the proportion was only one in five early this century (a decline of over 30 percentage-points in about 30 years). While this partly reflects changes in workforce participation, it also reflects safety and security concerns. A policy/local community focus on reversing the declining trend of walking/cycling to school can play an important role in community strengthening and building social capital. A target of a 10 percentage-point increase should be feasible, given the time over which a 30 percentage-point decline occurred.

<sup>4</sup> Each resident should also live within 400 metres of public transport if target 3 is to have any chance of being met. However, we have not flagged the 400 metre target because it is implied in the broader target 3

<sup>5</sup> Australian Research Council Industry Linkage Program Project LP0669046: "Investigating Transport Disadvantage, Social Exclusion and Wellbeing in Metropolitan, Regional and Rural Victoria"



## Sustainability criteria and targets

### 1. Greenhouse gas emissions reduced by at least 30 per cent on 2000 levels

Without additional actions, Australian greenhouse gas emissions are projected to increase to 20 per cent above 2000 levels by 2020. ClimateWorks Australia (2010) has shown that Australia can reduce greenhouse gas emissions to 25 per cent below 2000 levels at an average annual cost of \$A185 per household, using technologies available today. Some key municipalities are already setting more ambitious targets, with City of Sydney (for example) targeting a 70 per cent reduction on a 2006 base and City of Melbourne pursuing zero net greenhouse gas emissions by 2020 for its residents and businesses. A 30 per cent target has been proposed, recognising local government leadership and the importance of local governments to our cities' performance. The Victorian Government's recently announced intention to legislate for emissions cuts of 20 per cent on 2000 levels by 2020, is a positive step in this regard.

### 2. Solid waste disposal rates (all sources) less than 0.4 tonnes per capita

Cities typically generate about two tonnes of solid waste per capita per annum from all sources, about half or more of which is recovered. Recovery rates are higher for commercial/industrial and construction/demolition waste. Lower waste generation rates and improved recovery rates both indicate better sustainability outcomes, although the former has proved harder to achieve. State governments typically have waste reduction strategies in place, intending to further reduce the amount of waste that is disposed. Medium-term targets of 80 per cent recovery for re-use, recycling and energy recovery of commercial/industrial and construction/demolition waste and 65 per cent for municipal waste are already in place in some jurisdictions and further progress by 2020 should be possible. Focusing on waste recovery, however, leaves to one side prospects for waste avoidance. The target proposed allows for achievement by waste avoidance, waste recovery or both.

### 3. Reduce drinking water use by 30 per cent by 2020

The focus is on water use being fit-for-purpose. Pursuit of this principle would lead to greater capture of stormwater, more water recycling and sewer mining. This would replace drinking-quality water being used for purposes for which such lower grade sources are quite suited. The proposed target is a 30 per cent reduction for 2020. The water-sensitive development section of this chapter sets out some important contributors to meeting this target.

### 4. 100 per cent achievement of national air quality targets

A National Environment Protection Measure (NEPM) sets national standards for the six key air pollutants to which most Australians are exposed: carbon monoxide, ozone, sulphur dioxide, nitrogen dioxide, lead and particles. Under this measure, all Australians theoretically have the same level of air quality protection. The standards are legally binding on each level of government. DEH (2004) indicated that urban areas were reporting levels well below national standards for four of the six criteria pollutants but that ozone and particle levels, both of which are linked to motor vehicle use, have remained relatively high (at or above air quality levels), particularly in some cities, and show no discernible downwards trend. More recent data suggests fewer exceedences. The aim should be to meet all targets in all cities by 2020.

### 5. Increased native bird species (diversity) and numbers (abundance)

The Queensland Growth Management Summit acknowledged that a growing population means our biodiversity needs to be protected and restored (Queensland Government 2010). The presence of native bird species (both diversity and abundance) is recognised as an indicator of biodiversity health. Relevant metrics and targets can be developed and assessed by drawing on continuing counting undertaken by Birds Australia, which has 7,000 volunteers regularly reporting relevant data. Native bird diversity and abundance in some Australian cities has increased recently because of drought. Such influences would need to be recognised in assessing trends and setting future targets.



## The 'must haves'

### Vision

A key conclusion of this report is the importance of a vision of how we want our cities to develop and the need for the community at large to buy into the vision-setting process. The Inclusive City working group, for example, stated that:

*The Inclusive City must begin with leadership and vision from government, but this needs to be guided by wider consultation and engagement with communities.*

The Accessible City chapter observes, however, that:

*There is an absence of a clear picture of how and in what cities we want to live in the future... Without a coherent and integrated vision of cities, incremental and pragmatic changes ensue, when transformational change is required.*

Cities were repeatedly envisioned as productive, creative, sustainable, resilient, adaptable, fun, safe, inclusive and governable. Such terms are easily endorsed and would apply to almost any city around the world. Distinctiveness is vital to performance in a global economy, pluralist society and specific ecological context. It was argued that each capital city should seek its particular distinguishing strengths and build the core of its vision for the future around these strengths.

ADC Forum (2008) identified a lack of vision in Australia's key economic infrastructure sectors. These concerns are compounded in our cities, with infrastructure and service planning and delivery systems designed on a functional basis struggling to align across sectors and levels of government on a place-basis. Some progress is being made to improve integration but it remains difficult and a source of constant examination, both in Australia and internationally. The COAG urban strategic planning process provides an opportunity to lift the bar on performance.

Central to developing a vision for a city and its parts is the idea of urban design, in its broadest sense. NZME (2005) argues that urban design encompasses the buildings, places, spaces and networks (both public and private) that make up our towns and cities, and the way people use them. It highlights eight core elements of urban design:

- local character – defined as the distinctive identity of a particular place that results from the interaction of many factors, including built form, people, activity and history;
- connectivity – the physical conditions facilitating access within a region, city, town or neighbourhood;
- density – the concentration of population and activity in an area;
- mixed use – where a variety of different living and working activities are in close proximity within a neighbourhood;
- adaptability – the capacity of urban buildings, neighbourhoods and spaces to adapt to changing needs;
- high quality public realm – all parts of the physical environment of towns and cities that the public has access to, and that form the setting for community and public life;
- integrated decision-making – integration between and within organisations involved in urban policy, planning and implementation, as well as integration of the different urban design elements;
- user participation – the public consultation process, and other forms of involvement in urban design projects, such as surveys or design workshops.

To this set of qualities one should add the capacity to promote inclusion and the imperative of living within global emission constraints. The Inclusive City working group argued that inclusion requires, among other things, affordable living; diversity of places, spaces and people; mobility; proximity of homes, work, services and amenities; participation and engagement.

The Knowledge City working group added a further important dimension of a possible vision for Australia's cities:

*...an Australia that will not just possess the physical infrastructure needed to support knowledge exchange and idea generation and development but whose social institutions and culture have adapted to incorporate effective thoughtfulness as its core.*

Connecting these various dimensions in an integrated approach to our cities is the essence of forming visions for our cities.

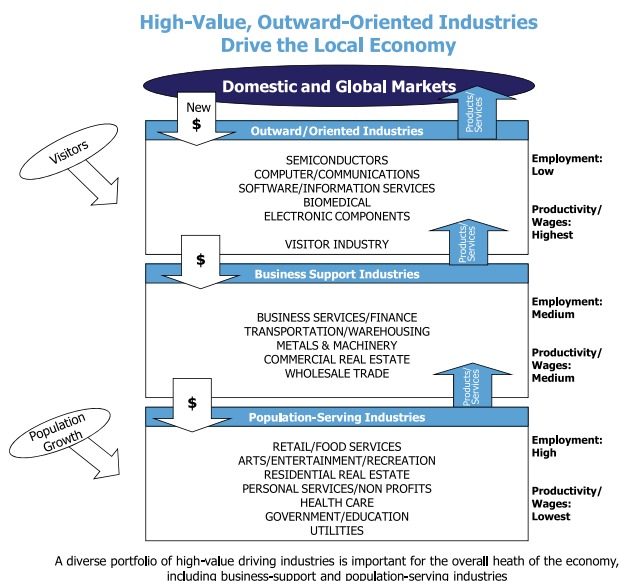
The Surprise City working group provided an important reminder about envisioning cities and associated strategic planning by pointing to the discrepancy between the necessity of ideal futures in city planning and the inevitable instability and non-linearity of a city's evolution. This discrepancy is highlighted by some Australian water supply experience. Skinner (2010), for example, points out how largely unexpected, step changes in stream flows into Melbourne's reservoirs have led to major changes in thinking about future water supply alternatives, increasing the urgency of enhancing system resilience, through integrated water management (including integration with other aspects of urban development).

The Surprise City working group proposed that city planning should include planning for unintended consequences, recognizing the inherent complexity and unpredictability of urban systems. The group's report outlines a number of ways of thinking that can assist this process (co-option;

non-linear mode; extreme counter-factual mode; redefinition mode). Scenario planning will be an important element in this process.

## Knowledge

Professor Ed Blakely, Professor of Urban and Regional Planning at the United States Study Centre, the University of Sydney, provides an overview of the importance of knowledge-based sectors for future economic growth, emphasising their importance for our cities. The following diagram illustrates some relevant sectors and linkages through to other sectors of the economy (the success of the latter being more population-dependent). In an Australian context, educational services could be highlighted as another important example of export-oriented, knowledge-based industries.



Source: Professor Ed Blakely – ADC Cities Summit, 2010

The Knowledge City working group took up this theme and explored directions that should be included in thinking about the knowledge future of our cities. The group highlighted the importance of future-proofing what they called our 'knowledge architecture' in the face of accelerating change, for sustaining the viability of our cities and regions. They define this 'knowledge architecture' as:

*The environment we create to foster knowledge, from processes such as education, institutions ranging from government, business and education, the physical infrastructure of communication, systems of governance and planning associated with these elements, intangibles such as culture, as well as physical locations which attract and support talent.*

This environment then, must map and connect individual and institutional pools of knowledge, facilitating commercial innovation and empowering the community to engage with high level problems, the complexity of which challenges the capacity of our political processes.

The Knowledge City working group stressed the importance of Australia protecting itself against what it described as the 'Dutch Disease', the mining boom driving up the exchange rate and a number of other trade-exposed industries (for example manufacturing or tourism) consequently losing some competitiveness. The importance of broadening our economic base away from such a relatively high reliance on exhaustible resource exports, and boosting productivity more generally, is seen as critical.

Some essentials include:

- physical communications infrastructure consistent with global best practice, to help overcome the disadvantages of distance and allow us to take advantage of our proximity to the Asian growth engine;
- an education system that echoes the changing nature of knowledge and represents both a dynamic resource to our communities and a commercial asset;
- coordination in how information is collected, knowledge is built and wisdom exercised in the decision making processes of our institutions, businesses and individuals. Intelligence will be networked and our processes will be reoriented to use those networks; and
- physical spaces that embrace the uniqueness of their location, while integrating the virtual spaces in which many increasingly spend time.

In terms of vision:

*Our closeness to the growth engine of Asia, particularly when considered in terms of time zone, when married with the freedoms of our young [city] culture, will express itself excitingly in the future as we grab the opportunity to manifest cities that are less bound by the past than by the new...Diversity, sophistication, confidence will motivate our communities to higher levels of achievement and make us a drawcard to talent from the region, and the world, looking to participate in our unique experience.*

Investment in the knowledge architecture is the essential enabler of this vision.

Seven key points:

1. many basic (business) processes will be increasingly subject to global level competition, requiring continuing investment to upgrade productivity and remain viable;
2. the maintenance of a competitive communications infrastructure is a necessary but not sufficient condition, to sustain viability;



3. building, maintaining and attracting skills and talent is essential;
4. we must engage with accelerating technological change;
5. capacity to embrace diversity and complexity is critical in driving creative processes;
6. the relative value of unique advantages will be accentuated. Such advantages include geography and talent; and
7. attracting talent becomes a question of translating unique locational attributes (for example geography) into a point of competitive advantage.

Several factors are important in terms of attracting and retaining talent in the era of the knowledge economy: better density outcomes, good movement systems, high quality liveability, cultural diversity, nodes of high entertainment quality, best practice knowledge generation, finance and good venture capital infrastructure. The last is needed to translate invention through innovation into productivity.

*...a successful Knowledge City strategy requires complementary achievements in the other elements of urban strategy: design, accessibility, environmental sustainability, cultural inclusiveness, housing supply, governance.*

As location becomes less central to knowledge exchange, lifestyle becomes more central to the location decision for talent.

With the traditional functioning of geographic clusters (of businesses/business networks) becoming increasingly more global, it is vital that Australia focuses on building stronger language links with its regional communities. A greater focus on languages such as Mandarin, Indonesian or Spanish is proposed. This has been a Federal government focus in recent years, although the *Sydney Morning Herald* (27th May, 2010 p.5) points out that study of Asian languages has shrunk to new lows in Australian schools. Renewed efforts are needed.

Learning can be expected to be more closely integrated with our workplaces and neighbourhoods. Online access will be an important means of access to knowledge but the learning from engagement will continue to occur predominantly through physical presence in learning centres, which are typically smaller and more accessible. *Learning centres* are expected to become significant at neighbourhood level, an idea also supported by the Inclusive City working group. People will use services available in learning centres either as part of a formally designed learning program or on an as-needed basis, recognizing that such needs can also encompass recreational type purposes. This is one part of the wider need to build knowledge networks through the community, to both spread the net of insight and mobilise the community. An important area for early research concerns identification of the most effective delivery

models for local learning centres, including consideration of how they interface with existing learning institutions and neighbourhood facilities (such as neighbourhood houses), what governance arrangements are appropriate to their operation and how they should be resourced.


Social networking is highlighted as increasingly the basis of many interactions and knowledge sharing:

*Can government become the ultimate manifestation of a social network? Can planning be informed and communicated to some extent through such instruments?*

It can be argued that there is no alternative, seeing the importance of a catalytic role for government in this regard (and reflecting many of the ideas in the Public Value Management paradigm), with all sectors – not just government – being integral to enhancing our knowledge architecture in a networked environment. It is not what we know but how we know, how we learn, that will increasingly deliver competitive advantage in a time of accelerating change. Our cities need to support this process.

An important theme is the idea of 'brand'. The capacity of a city or region to draw talent was seen as deriving from the nexus between economic opportunity and brand. Brand of itself cannot compensate for the absence of economic opportunity. But when brand is strong, with appropriate investment, there is a far greater possibility of success in sustaining existing businesses and developing new opportunities. An essential feature of the Knowledge City is marrying brand with opportunity. Australia's brand can be seen as 'a lifestyle capital of the world'. It is proposed that:

- investment be increased at all levels in our already strong educational sector, taking it further beyond the basics at the higher end to delivering globally leading edge programs, with greater differentiation between institutions, greater involvement from and in local communities and more vocational support to the technical professions that are needed in our region;
- establishing a national Department of the Future, integrating new knowledge networks into processes whereby we can use information to assist planning by government and support business opportunities, as well as mobilising communities;
- intangible factors such as culture and attitudes to diversity must be acknowledged as critical to building the knowledge economy. Language education needs to be aggressively promoted to further build our capacity to build virtual communities in this time zone;
- we better understand the nature and meaning of our brands, internally and internationally. Make sure that our brand is identified with our opportunity in bridging East with West, a cultural fusion that produces something



new. Use our brand to draw talent, against a backdrop where we have leading-edge communication, leading-edge education, proximity to Asia, and the wealth of our resources helping to finance the project.

Other working groups frequently raised education/knowledge as a critical ingredient for progress in their areas of interest. Particular areas where building of knowledge/skill levels are seen as central to further developing our cities as productive, liveable and sustainable, and where integrative skills are recognised as particularly important, include:

- skills in integrated strategic planning, including the development of future visions and supporting policies, programs and actions and the processes needed to undertake such activities successfully.
- Land use/transport-integration is a common area needing these capabilities but integration across a far wider set of functions is needed for our cities to progress;
- networking/engagement skills, which are required as one part of the preceding skill set but extend far beyond the strategic level in their relevance, with local networking being a core skill ingredient for building/enhancing some competitive economic strengths and/or for social capital/community building; and
- design thinking skills, in the broadest possible sense, going far beyond individual buildings to encompass spaces, activity patterns and ways of thinking about integration. This feeds back to the way our professions in this area are trained and upskilled.

## Resilience

An Ecological City is defined here as one that:

*contributes, rather than detracts, from the wellbeing of its residents and visitors and is resilient to increased environmental pressures and the impacts of rapid growth.*

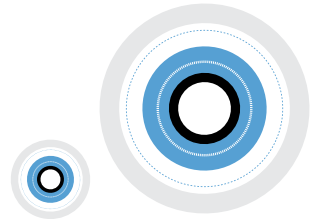
Given the impending consequences of climate change and population growth on our cities and their inhabitants, a primary outcome for governments should be the creation of cities that are resilient to shocks. A long-term vision for sustainable, resilient cities can be developed along three key themes:

- our cities must enhance and make sustainable the value of ecological assets;
- restore the ecological balance to degraded systems;
- treat assets as part of economic activity – ecological assets should not be in competition with the economy.

Targets that indicate progress are set out in the Ecological City chapter. Seven top ideas for this agenda are:

1. All states are to have environmental targets and infrastructure plans in place by 2012 to access national infrastructure funds.
2. Develop a national plan to correct ecological deficit and program for urban areas
  - Assess current state (water quality, air quality, etc)
  - Develop performance standards and targets
  - Direct substantial funding based on a national assessment of outcomes and performance standards
  - Monitor and verify performance against these targets
3. Enact effective and integrated ecological sustainability into all government legislation, across all policy areas
  - Review existing legislation to ensure that sustainability measures are incorporated
  - Amend planning legislation to reflect outcomes of the review
  - Adoption of tax reform that prioritises sustainability and emissions reductions
  - Develop and implement 'carbon efficiency standard' – licensing, planning, consumer protection regulations
4. National program of urban renewal of central activity districts and our major corridors
  - Work towards reversing the current infrastructure spend ratio, which favours road transport over rail by 3 to 1.
  - Incorporate climate change adaptation requirements into planning processes
5. National energy efficiency retrofit program for buildings and industrial developments
  - Establish a national energy efficiency target that drives replacement of inefficient appliances (electric hot water, halogen lighting, old fridges)
  - Start with low income households
  - Ring-fence infrastructure funding for energy efficiency initiatives
  - Capacity-building programs for energy saving by households and business
6. Increase renewable energy use
  - Increase mandatory target above 20 per cent (for example 33 per cent, in alignment with South Australia)
  - Ring-fence funding for ongoing R&D into renewables
  - Remove barriers to renewable energy generation (planning, communications, education, market design)
  - Reform of National Electricity Market to prioritise clean energy supply and achieve renewables targets





## 7. 'Catchment caps' for cities

- Climate-adjusted caps could be developed for each city. Well-designed caps will promote innovative, forward-thinking investment in management of water scarcity. New residential developments should then be designed so the water demand is able to fit within this system cap. The housing developments must be highly water efficient, or a developer could compensate by creating saving elsewhere in the systems, or a combination of both. This will limit inappropriate development in areas of water scarcity.

## Transport

The discussion on transport in this integration chapter is more extensive than for other key areas because traffic congestion in our cities has become a critical focus of community and political concern. The problem demands an integrated approach to solutions, one that illustrates how most problems associated with our cities should be approached.

Integration in the transport context encompasses integration within the transport sector, between transport and land use and beyond these to linked sectors such as social policy. This makes it possible to tackle congestion problems conjointly with reducing greenhouse gas emissions, promoting social inclusion that has mobility origins, and dealing with a number of other problems such as the road toll and energy security. Much effort is being made to improve integration in these areas. The COAG city strategic planning processes should strengthen these efforts.

Declining transport infrastructure spending is identified in the productivity of Australian cities section of this chapter as one contributor to declining productivity growth and

to the growing problems of urban traffic congestion and overcrowded, unreliable public transport services in some cities. Our urban transport systems and associated travel choices, more generally, have been characterised by ARA et al. (2010) as follows:

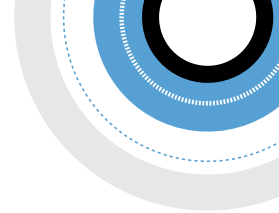
- congestion costs are very high (\$10 billion per annum) and rising, reducing our economic competitiveness and the liveability of our cities;
- road transport greenhouse gas emissions are our third largest source of such emissions and are growing quickly, which is inconsistent with the required directions;
- there is little demonstrable progress in reducing transport-related social exclusion;
- the road toll remains unacceptable, with serious injuries (~30,000 per annum) rising markedly and fatalities remaining at more than 1,400 annually;
- obesity is increasing, partly associated with mobility choices, especially an increasing reliance on the car for personal travel; and
- our energy security is increasingly threatened because of our growing dependence on imported fossil fuels.

These are national issues and they require a national policy and program response, with integration across all levels of government.

The key policy objectives required to improve the productivity, liveability and sustainability of our cities, as they are affected by our city transport systems, are outlined in ARA et al. (2010):

1. Reduce the demand for travel (without reducing activities that can be undertaken)
  - land use planning (increased density, co-location)
  - improved travel planning (for example Travel Smart programs)



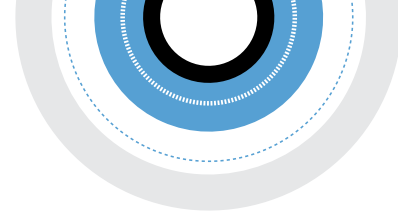


2. Achieve a shift to transport modes with a lower carbon footprint
  - cars to public transport, walking and cycling
  - trucks to rail
3. Improve vehicle use
  - higher car occupancy
  - more efficient freight movements
4. Reduce vehicle emissions intensity
  - more efficient vehicles
  - smaller passenger vehicles
  - alternative fuels
  - intelligent transport systems
  - better driving practices
5. Increase mobility opportunities
  - provision of reasonable base public transport service levels
  - use existing public transport opportunities such as school and community buses more effectively
6. Create a more sustainable freight network
  - focus on freight movement to/from ports, hubs and to key manufacturing/distribution centres and regional centres.
3. More compact (walking and cycling friendly) urban settlements. This requires a much greater focus on delivering higher density mixed use, polycentric cities, with higher development densities along major trunk urban public transport corridors, while supporting strong CBDs. These matters are discussed in greater detail later in this chapter.
4. Increased investment in public transport. Raising the overall urban public transport modal share in our capital cities will require a major investment program and allied increase in services, given current capacity constraints. Priorities should focus on improvements in trunk services to increase modal share and improvements in local services to enhance prospects for social inclusion, while feeding trunk services. It is recognised that this will be difficult in low density areas.
5. Investment in capacity for rail freight and inter-modal hubs, to assist a modal shift of freight towards rail, especially in congested areas, and for long haul general freight movement. This action would be supported by the Road pricing reform proposed in 2 above.
6. Freight efficiency improvements, to improve economic competitiveness and environmental sustainability (for example accelerated introduction of high productivity vehicles, accompanied by reform of road pricing to ensure full cost recovery; completion of limited access orbital roads in major cities, targeting freight movement needs; accelerated roll-out of inter-modal hubs).
7. Reallocation of road space to prioritise low emission modes (for example, high occupancy vehicle lanes). This initiative will help ease congestion costs as well as cut greenhouse gas emissions. It should also help lower the road toll and improve air quality, through promoting smoother traffic flow conditions.
8. Behaviour change programs. For personal travel, these initiatives can be undertaken quickly, to shift mode choices towards lower impact options. Programs like Travel Smart, where Australia has been a leading innovator, are very effective, achieving reductions of up to 20 percent in vehicle kilometres.
9. Establishment of Regional Accessibility Planning Councils to lead the examination of access and mobility problems in regional areas, including urban centres, and the development of a coordinated approach to tackling those problems. This will include making better use of existing resources. This area of investigation should, inter alia, produce proposals for minimum access standards for urban and regional Australia.

Implementing these policies would help to ensure achievement of the mode share target included in Table 3 - Proposed Criteria and Targets for Assessing Capital City Strategic Plans. These initiatives would be encouraged by the following National Land Transport 10-Point Action Program.

1. Improvement of fuel efficiency – to drive significant cuts in transport greenhouse gas emissions. This is likely to require mandatory fuel efficiency targets, in line with European standards within a few years. Such measures have become more urgent with the delaying of the Carbon Pollution Reduction Scheme. Complementary measures facilitating roll-out of low emission (for example electric) vehicles would help achieve this target;
2. Road pricing reform. This should involve replacement of existing charges (excise, registration) with charges that better reflect the full costs associated with road travel, including congestion costs, accident costs, health costs, road damage, air pollution and noise. This matter is elaborated further in the getting best use from existing infrastructure section of this chapter.





10. Implementation of a National Transport Research Program, to consolidate and extend existing knowledge of transport problems, opportunities and solutions. Australian land transport research is fragmented and there is little contact between researchers. Research relating to public transport fares poorly, poorly compared to that for road, car and freight movement. The US Transport Research Board model should be evaluated for its applicability to Australia.

The initiatives outlined above deliver benefits against a number of the problems associated with our current transport choices. The national interest dimensions of the relevant issues facing our city transport systems/services requires leadership, in partnership with other levels of government, in driving the change agenda outlined. Policies and programs should focus on outcomes. The Building Australia program is a positive start in this direction, backed by the December 2009 COAG decisions. There is much work to be done.

### Getting best use from existing infrastructure

The present investment in city infrastructure across a number of sectors is huge. Making the most effective use of that existing infrastructure base is a fundamental precondition for productivity, in particular ADC (2008) identified a number of areas where improvements should be pursued and this report adds to this list. Marginal social cost pricing is a consistent theme of both reports. The purposes of such pricing are to both (1) achieve more efficient use of existing infrastructure and (2) produce a revenue stream that can be used, among other things, to fund specific improvement needs (with revenue hypothecation). Road pricing reform should be a priority, as noted at point 2 in the 10-Point Action Plan for National Land Transport.

#### Road Pricing Reform

Prices for use of Australia's roads bear little or no relationship to the social costs of road use. While trucks and buses are charged for their road damage costs, subject to some charge averaging provisions, the current Australian road-pricing regime has two major shortcomings:

1. other external costs of road use are ignored in setting charges (external costs are particularly substantial in congested urban areas); and,
2. there is no attempt to relate charges for road use to attributable costs for any other category of road user than trucks and buses (over 4.5 tonnes gross vehicle mass).

A reformed transport pricing regime should become the financial heart of a sustainable approach to the national land transport policy, including city transport. A reformed road

pricing system should cover all vehicle classes and all costs attributable to road use. One possible way to structure such a charging system is to levy:

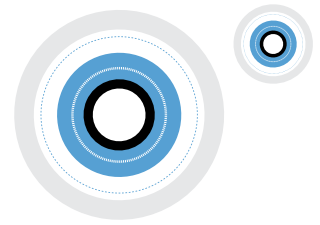
1. a use-based charge to cover road construction/ maintenance costs attributable to light vehicles;
2. tonne-kilometre charges for the additional road damage attributable to heavier vehicles;
3. a use-based charge to cover the external cost component of accident costs;
4. use-based charges to levy the more polluting vehicles for their health (primarily air pollution) costs; and, perhaps most controversially,
5. a congestion pricing to make users accountable for the congestion costs attributable to their road use, by time and location.

Carbon costs attributable to motor vehicle use should be covered through general carbon pricing schemes, such as the Carbon Pollution Reduction Scheme (which should not exempt motor vehicles) or a carbon tax. Existing fuel excise and registration charges would be abolished and replaced by the above charges. The peak group representing road users, the Australian Automobile Association (2006), has proposed a similar pricing scheme. Implementation of such a system would require an intergovernmental agreement because the incidence and scale of revenue flows would change.

These proposals are generally in line with the conclusions of the Henry Tax Review, which found that current road tax arrangements will not meet Australia's future transport challenges.<sup>6</sup> Externality-based charging was proposed, including location-specific charges that would vary by time of day. The Henry Tax Review proposed that any funding shortfalls in providing and operating the road system be met from general taxation revenue or by retaining a network access charge (such as registration) or variable charge (such as fuel tax).

Implementation of such sweeping reform cannot happen overnight. It will take five to 10 years to identify the preferred option, gain community acceptance and implement it on a wide scale. However, it is time to start a community conversation about transport pricing reform, to prepare for eventual change. A wide investigation of issues and possibilities is required, managed by a multi-stakeholder group established for the purpose and with an eminent person as independent chair. This will help reconcile conflicting interests that will emerge, and provide public confidence in the process. Transitioning measures such as peak pricing of toll road use, with discounts for car sharing, can help implementation.

<sup>6</sup> <http://www.taxreview/treasury.gov.au/content/FinalReport>.



### Other ways to improve the efficiency of infrastructure use

Other ways in which existing infrastructure in our cities can be used more efficiently include:

- use of smart systems to optimise demand/supply balances (for example, freeway ramp metering to regulate flows on to congested freeways, increasing flow capacity by about one-fifth; electricity and water usage metering to enable load shifting);
- free or discounted public transport use for travel before or after the peak, another example of load shifting;
- use (and policing) of high occupancy vehicle lanes to raise the passenger carrying capacity of the road system;
- backyards in our suburbs can be made more productive for fruit and vegetables;
- sewer systems can be mined and surface water flows captured for low grade uses.

Integrated approaches to improving the performance of our cities must ensure that first bases are covered and that existing infrastructure efficiency is optimised before expensive upgrades are entertained. There is much to be done here.

### Finance

Many of the changes required for more productive, liveable and sustainable cities will not come cheaply and will require

sustainable funding sources. The Summit discussed several options, with pricing reform and new infrastructure funding methods being central. The Knowledge working group strongly supported Australia imposing a levy (or super tax) on the nation's mineral exports, to support balanced economic growth and help fund initiatives in areas such as infrastructure, although the most appropriate structure for such a levy was not discussed in detail.

The 2010 Federal Budget has provided an additional \$700 million annually from 2013-14 for infrastructure purposes. This appears to be aligned with the timing of the outcomes from the COAG capital cities urban strategic planning processes. As the Federal Budget position improves in coming years, this rate of forward commitment to increased infrastructure will need to increase substantially. The infrastructure needs of the capital cities will be a key priority.

The Accessible City working group argued that every opportunity should be taken to draw on private-sector funding sources to upgrade our city infrastructure base. Some projects can be structured to deliver a reasonable rate of return and these should be suited to private funding/delivery models, provided this does not involve unacceptable loss of wider network control. Given the poor traffic results that have accompanied some major transport projects delivered in this way, governments may need to underwrite initial traffic forecasts or fund the ramp up of a new development and put the project to market once traffic levels have settled.

Improved city public infrastructure usually leads to increased property values. Changes in zoning can also increase values. It is arguable that these respective increases in value are not attributable to the efforts of the relevant landowner and that some or all of the relevant increase in value should be captured for public purposes.

Local governments benefit from increased property values to a small extent, through increased rate revenues. Some local areas in the US have adopted tax increment funding as a means of bringing forward investment spending by local government, in anticipation of the relevant higher future income stream. This idea could be applied in Australia. However, a much larger value gain can usually be potentially captured to help fund relevant public initiatives from which the value increase was derived, whether this is (for example) a public investment initiative or a zoning change. The extent to which such value capture is pursued will depend, in part, on whether (and at what scale) development incentives might be needed to spur private sector efforts.

Other possible funding sources for increased city infrastructure investment include CBD/inner area parking levies, sale of surplus state government land and other government asset divestment. Parking levies do not impact through traffic but are a blunt way to make some road

users who are destined for the CBD/inner area, in particular, accountable for some of the costs of their road use, prior to the implementation of more effective road pricing systems. Some capital cities already impose such a levy but it is arguable that the levy rate is well below any reasonable estimate of the relevant marginal social cost. Higher parking levies are thus a potential area for additional revenue that could be used to enhance the productivity, liveability and sustainability of our cities.

State and other governments are large land-holders, with much of this land in urban areas with prime development potential. Selling this land is a way to generate revenue that could be used to support infrastructure and/or service development, including land development. Or, the land could be directly used for urban re-development purposes (for example converting a school site that is no longer required for education into a residential or mixed-use development, at medium or higher density), including a component of affordable housing.

## Technology

New technologies have the potential to change:

- the way we live, work and play;
- the way we operate our infrastructure, making it more efficient;
- and the way we design our new infrastructure and retrofit existing infrastructure.

The importance of technology in raising productivity levels and contributing to improved liveability and sustainability is widely acknowledged. Many opportunities for better applying existing technologies and for developing new technologies have been identified. The Accessible City working group focussed on this area, among others. Innovations in ICT (Information and Communications Technologies) and ITS (Intelligent Transport Systems) are recognised as already having made significant impact in the transport and logistics sector in areas such as data collection systems, transport and logistics system management and customer information.

There are many further opportunities. Five main areas identified by the Accessible City working group, where technology can make a difference, are:

1. visualisation of alternative scenarios to improve design and speed of the project implementation, reducing cost and risk (this could also include applications in community engagement processes);
2. vehicle and engine design that will reduce and then eliminate carbon and pollution and reduce noise;
3. design of equipment and systems at the interfaces (load/unload) that will reduce cost and improve flow in logistics systems;
4. network control that will greatly increase capacity/rate of throughput (such as that already seen in areas such as freeway ramp metering, and can be expected in coming years for managing vehicle flows on arterial links);
5. virtual reality, video conferencing and web 2.0 collaboration tools that could greatly reduce demand for physical transport. Virtual reality techniques are seen very favourably, with promising progress being noted for future applications (such as Virtual Australia – see Accessible City chapter).

One particular application that warrants attention is the use of GPS technologies for road pricing, as is currently under development in the Netherlands. Going down the Dutch GPS-based path at an early stage could create an area of potential competitive economic strength for Australia as a leading innovator in this field.

Other chapters highlight ways in which new/improved technologies can lift productivity. For example, use of new factory fabrication techniques (unitisation) can help to reduce the cost of new, higher density dwellings. Smart meters can improve resource efficiency in the water and energy sectors and have applications elsewhere, such as transport. Given the need for increasing community engagement in many aspects of our cities technologies that will facilitate the engagement process are particularly important. Social networking tools are already being used for such purposes, with rapid evolution expected.



## Future population, better cities

### Australia's future population

Because such a high proportion of Australians live in cities, it is not possible to separate consideration of the future of our cities from our national population future. Superimposed on existing concerns about our cities (for example, congestion, housing availability and affordability, greenhouse gas emissions), therefore, is the further question of Australia's optimum population size. If significantly greater than it is today, it will directly affect existing problems, including growth pressures facing individual cities, and raises wider settlement policy questions. This is an emotive issue.

Australia has been the subject of a number of different population projections in recent years, with projected numbers for 2050 being successively increased to about 36 million, and even higher in some scenarios. A range of perhaps 26 to 40+ million population by 2050 is possible, the former reflecting a policy decision to have zero net migration and the latter assuming a sustained, very high migration, possibly linked to a humanitarian decision regarding a growing intake of climate refugees.

The ageing population structure reflected in lower range population projections creates concerns among some groups about downwards pressures on Australia's already low rate of productivity increase. The argument for higher, rather than lower, population size is largely driven for some people by assumptions about requirements for economic growth and for others (for example) by security considerations. For others, relatively lower or stable population numbers are required because of resource, greenhouse gas emission and/or biodiversity constraints. To such people an ageing population distribution may simply represent a challenge to better engage older Australians for longer periods. The Strategic working group took up this latter point, proposing that Australia:

*Implement programs designed to get people over 60 years of age into appropriate work and support them properly so we encourage an increasing number of retirees and superannuants to rejoin the workforce.*

Australians need to better understand the consequences of different population outcomes, in terms of totals, their broad spatial distribution and their implications for productivity, liveability and sustainability, before sensible decisions can be made about settlement policies. This is an important conclusion. The Strategic City working group highlighted some big issues:

- Does the growth we are projecting make sense in terms of future prospects for the Australian economy, or is there some other approach that makes sense?
- Will Australia be able to reach its own decisions about population matters in the face of pressure on population densities being experienced elsewhere in the Asia-Pacific region particularly, and the world more generally?
- What are the significant issues that impinge on such decisions arising from international and national climate change laws and codes of behavior?
- How would Australia be able to manage a prosperous economy if there is to be no growth in the workforce?
- What are the food, water and energy (including peak oil) implications of these decisions? Even if we could agree on them, what impact should they have on the planning for a viable future for our children, and the cities in which we will live?

It is proposed that a National Population Council be established:

- to examine alternative possible population futures for Australia and to tease out the economic (productivity), social (including security) and environmental (such as carrying capacity/biodiversity, emission) consequences of these alternatives;
- at arm's length from all governments, with the security of tenure to take a long-term view and the independence to tell it how it sees it, divorced from political pressure;
- with a board comprised of a mix of community leaders and sufficient budget and staffing capability to accomplish its role; and that
- the community be informed and widely engaged by this council in conversations about the alternatives, to provide the basis for better long-term political decision taking about desirable population futures.

The establishment of such a council should complement the role of the new Federal Minister for Population. It would be expected to consider a number of the important settlement policy issues noted by the Summit's Strategic City working group, such as creating new cities (rather than simply adding to existing cities) and developing a major city (or cities) in the north-west, to cater for growing mining communities, together with the range of matters listed above from the Strategic City working group. Australia's exposure to peak oil is also a matter for inclusion in this debate, given our high dependency and apparent lack of preparedness for possible supply disruptions/price hikes.

### Better cities

#### Some components of the discussion

Irrespective of Australia's absolute future population size, Australia's city populations face existing problems. These populations will grow and add to existing problems in some



areas. Achieving the right balance between productivity, liveability and sustainability will require focussed effort over the long-term. To this end, and partly reflecting a 1990s policy thrust of the (then) Federal government, the idea of 'Better Cities' is supported in this report.

The idea of Better Cities encompasses a number of components, including:

- encouraging growth in new cities/regional centres as well as adding numbers to existing cities, with the significance of the new cities option increasing with absolute population size. Past experience with attempts to drive much faster growth in selected Australian inland cities, such as Albury-Wodonga and Bathurst-Orange, suggests a need to think carefully about possible locations for new cities, but a possible Very Fast Train along the Brisbane-Sydney-Melbourne corridor could open new options;
- substantially upgrading the condition of our existing cities, such that they too might be seen as new cities (adapting/retrofitting our cities). A particular focus is the middle-ring suburbs in our capital cities, ideal locations for a greater share of population and economic activity, including a focus on developing a small number of major activity centres (or secondary CBDs) within the larger capital cities;
- focussing on enhanced liveability of villages/precincts in all cities. This is more finely grained than in the preceding point. The local level within our cities was widely seen as critical for developing the future. The village/precinct level section of this chapter explores this aspect in more detail but issues such as driving job creation and innovation from the local level, in areas like energy efficiency, distributed energy generation and water self-sufficiency, promoting local place making and community building are illustrative of the opportunities for Better Cities, coming from a local level perspective. Ideas such as lifting density, delivering mixed use, improving connectivity, enhancing local character and providing high quality public realm permeated Summit discussions on this point, reflecting the dimensions of urban design outlined in the vision section of this chapter;
- pursuing greater community involvement in both planning for, and delivering, city futures. This was seen as integral to building Better Cities at both city-wide and village/precinct levels;
- much wider roll-out of universal design features as the norm, within new and existing buildings and in public places. This has an immediate advantage in terms of inclusion but also creates business development opportunities, given Australia's leading position on accessibility issues;
- designing passive security features in to urban spaces, to make them safer - and hence better - places for all;
- tackling growing problems associated with climate

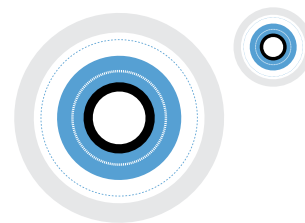
change, such as the heat island effect and growing wildfire risks (in the latter case, including a much greater emphasis on the relatively neglected matter of fire prevention); and

- increasing the availability and affordability of housing, to close the overall demand-supply gap and, in particular, to better meet the housing needs of those in the lower income groups.

The Governance working group pointed out that, across the developed world, there is widespread agreement among urban planners about the principles of effective city planning that should contribute to cities becoming 'Better Cities'. These were seen, in broad terms, as:

- planning should be for whole communities, providing for access to jobs, schools, shops and services, recreational facilities, open space, and for access to other people;
- outward growth of cities should be constrained;
- 'green' areas should be retained within and around cities;
- 'close-to-market' agricultural and horticultural land should be retained as far as possible;
- large cities should have a networked polycentric shape rather than a single central business district;
- higher density and mixed use development should be encouraged at public transport stops, particularly rail stops but also along major public transport routes (for example tram lines and key trunk bus routes);
- all neighbourhoods should have access to urban villages and be walkable and cyclable;
- use of public transport should be encouraged wherever possible;
- use of the car should be discouraged wherever possible;
- open space and recreational space should be accessible to every neighbourhood;
- public space should be at human scale, well designed, encouraging concentrated and varied activity;
- neighbourhoods should have diverse housing to enable people of widely differing ages and economic levels to live there;
- housing, neighbourhoods and cities should be planned to maximise energy and water efficiency;
- planning for industry and freight should include consideration of neighbourhood amenity as well as economic efficiency;
- regional residential and employment land use should be built around public transport;
- regional institutions and services should be located in urban areas;
- cities should have the capability to respond to disasters and the resilience to respond and rebuild.

It is suggested that, without a new governance model, it will be very difficult to reflect these principles.



There are two main levels for discussion of how our cities are envisaged and planned: the city-wide level and the village/precinct level. The city-wide level is where broad policy and program directions for city development are set. At this level strategic land use plans are settled and major supportive, city-shaping infrastructure investment decisions are made. The village/precinct level is the urban space in which people conduct their daily lives and is where their sense of community is likely to be most firmly based. Village/precincts can range from small local centres, through large activity centres to Central Business Districts or parts thereof, with a sense of distinctiveness/identity being a key defining quality. Planning and developing villages/precincts such that a greater range of activities can be undertaken locally will support local job creation, social inclusion and enhance accessibility, while reducing emissions. With careful attention to network planning, congestion costs will also be reduced. Jeb Brugmann makes a powerful point when he argues that 'micro-urban location is the new strategic geography'. A well known illustration of this proposition is Melbourne's laneways, which have taken micro locations and turned them into a striking source of competitive advantage.

Integration at both city-wide and local levels is fundamental to finding and delivering the right way forward for our cities, based on extensive community engagement processes. The usual focus is only at city-wide level. Finding a better fit (stronger integration) between city-wide and village/precinct level policies and strategies must be a fundamental integrating theme for the future of our cities.

The importance of the need for integrated approaches underlies the COAG approach but achieving such an outcome is extremely difficult in systems that have grown up based on functional silos and separation of responsibilities between levels of government.

high density  
development in  
Melbourne's  
Docklands

## City-wide focus

### Increasing density

More compact cities will require increased densities in some areas - typically a much smaller proportion of the existing built-up area than might be thought necessary, perhaps less than 10 per cent.

The need for more compact cities is often seen as a reaction to the social costs of low density growth patterns. Jeb Brugmann argues that more compact settlement patterns also encourage knowledge-intensive job growth. Higher density is also desirable in the context of ageing city populations, achievable through a greater mix of dwelling choices located in well designed communities with ready access to essential services. Increasing densities have the potential to overload local roads and add to congestion and air quality problems, and so active traffic restraints may be needed.

It is recognised that growth will continue at the fringe. However, changing the relative balance towards more compact settlement patterns is widely, if not universally supported, with a particular focus on the middle and inner-ring suburbs (brownfields redevelopment/infill). These areas tend to be relatively job/activity rich and they usually have trunk transport, water and energy infrastructure networks on which to base enhancement and upgrading.

National Economics (2010) points out that there is excess demand for infill construction. Such developments are well serviced in terms of access to employment, remuneration per hour of work and access to quality education, health and recreational services. This should help increase densities, provided this has public acceptance - a matter to which we return below. However, National Economics also warns of a danger of infill development, with the greater concentration of population closer to the metropolitan centre lifting concentrations of higher paid jobs and skilled workers in these areas and the urban fringe becoming a depository for unskilled households. Urban planning must use transport and industry policy and service provision to minimise this risk. National high speed broadband can assist in this regard, by allowing more people to work from home or use work centres close to their homes. Amenity improvements will make these areas nicer places to work.

Increasing density in established suburbs seems to be widely supported by state governments and is increasingly reflected in land-use plans. City-wide strategy must bring all relevant arms of policy to bear on facilitating this development direction. A corollary, for example, would be ceasing construction of new radial freeways on the urban fringe, which are likely to encourage urban sprawl - unless these works are intended to provide links to major regional or interstate centres, and suitable controls limit the encouragement of sprawl.



Strategic zoning incentives were seen as one way to encourage increased densities in selected parts of our cities. Curitiba in Brazil, a world-renowned leader in urban planning and land use/transport integration, has used this approach to promote higher density development in several linear corridors. Strategic zoning incentives could encompass inclusionary zoning, in which additional development rights might be provided in return for achievement of a certain level of affordable housing.

### The high cost of infill development

A critical challenge to increasing density in some existing built-up areas of our cities is the high cost of infill development compared to new housing on the fringe. NHSC (2010) has compared the costs of a two-bedroom unit in an infill development and a three-bedroom greenfield unit with backyard. While the unit was marginally cheaper in Sydney, the infill development was between 25 per cent and 42 per cent more expensive in Adelaide, Melbourne, Perth and Brisbane. This is largely caused by construction cost differences. Simplified work rules and reforms to local planning arrangements can help narrow the gap. NHSC (2010, p.123) suggests some ways in which costs of infill might be reduced:

- reforming the planning system to allow dual occupancy or higher densities as well as greater integration of planning decisions and processes that apply to single sites;
- extending code-based assessments to multi-unit developments;
- providing transparent information upfront about the costs and charges associated with infill development;

- streamlining the development assessment process further, including increased use of private certification, facilitating staged approvals for multi-unit developments, clarifying what development controls apply to a site and using multi-unit design and assessment codes;
- using government development agencies to aggregate land parcels;
- releasing surplus government land such as school sites and other public land for medium and high density developments;
- reforming strata-title provisions that unreasonably impede development;
- minimising local opposition to infill by putting more effort into upfront neighbourhood planning and reducing the scope for local opposition at the development assessment stage for unaffected third parties;
- using independent development assessment panels or similar institutions to facilitate independent assessment and approval of major projects to support infill.

With construction accounting for the major cost disadvantage of infill compared to greenfields development, emphasis must be given to reducing infill construction costs. Emerging modular construction techniques (unitisation) appear likely to be useful but much more will need to be done to improve the affordability of infill development. To assist this, it is proposed that the Federal Treasurer have the Productivity Commission inquire into the cost of medium density residential/mixed use developments in existing inner and middle areas of our cities, paying particular attention to the drivers of construction costs. If significant savings cannot be achieved, it is likely that housing affordability problems will be accentuated, with the associated risk that lower income households will increasingly be forced to the outer suburbs.



*Curitiba's linear corridors based on Bus Rapid Transit are an effective framework for urban development. Major trunk public transport corridors provide an opportunity for an Australian "scaled down" version to increase densities in some parts of inner/middle suburbs, especially along major trunk tram/bus routes.*



### Affordable housing

The provision of affordable housing is a key issue city-wide and at village/precinct level. Federal initiatives (such as NBHSI and NRAS) are useful programs and should be extended and expanded into a rolling five-year program, particularly given the large gap in supply of housing available and affordable to those in the lowest 40 per cent of income distribution (as noted in Sustainability of Australian Cities). Such expansion should be accompanied by a review of the arrangements under which assistance is made available, to help ensure effective delivery. For example, the 10-year rental assistance available under NRAS creates difficulties in attracting investors for this class of asset. Investment certainty will be increased by linking the investment to an asset, rather than to an individual, and providing assistance upfront (equal to the discounted value of the 10-year rental annuity) when construction requires funding. Legislation would prescribe the resultant use.

The tight timelines on delivery under these programs, allied to pressures to respond to the global financial crisis, impose limits on opportunities for local community engagement. An easing of delivery timelines would help implementation by providing improved opportunities for engagement.

Initiatives to reduce the cost of higher density housing in brownfields redevelopments should help increase the supply of affordable housing. For example, inclusionary zoning can be used to require a nominated percentage of affordable housing, an approach that would seem appropriate around major public transport nodes and along linear corridors that are well served by public transport. It is proposed that the Productivity Commission Inquiry suggested earlier in this section include a reference to investigate and report on ways to cost-effectively increase affordable housing within brownfields redevelopments.

Can fringe development solve our housing affordability problems? Recent, very persuasive research by National Economics (2010) suggests that the poor supply side response to Australia's increasing housing demand is primarily attributable to: first, declining transport infrastructure investment, as shown in Figure 1: Transport, Utilities and Communication Infrastructure Fixed Capital Formation (FY1960-2008) (Productivity of Australian cities section), which meant that growing (fringe) suburbs frequently lack high quality transport connections to areas of major employment concentration and services; and second, poor job generation towards the outer suburbs, with declining manufacturing employment (for example) not being replaced by jobs similarly suited to the outer suburbs.<sup>7</sup>

This argument suggests that the long-term solution to our current housing shortages, including affordable housing, must include better transport connections between population growth areas and employment locations and an industry policy that promotes economic activities that are suited to outer area locations (including manufacturing). This will better align housing and employment locations and help drive the supply stimulus needed to restore equilibrium in housing markets. This strategic perspective is critically important and emphasises the vital role of taking an integrated approach to our cities.

New housing on the fringes of our capital cities is typically cheaper than infill development (other than in Sydney) but transport costs are usually higher. This introduces the idea of affordable living. As a key element in promoting affordable living and social inclusion, it is important to ensure that a decent base public transport service level is available city-wide, including in urban fringe areas, so transport costs do not become a source of social and/or economic exclusion to people seeking to reduce their housing costs. Access to regional/local jobs and services is particularly important (as is encouraging greater availability of locally accessible jobs).

The relevant base public transport level should be adequate to enable most people to do most things they require, most of the time. In capital cities this is likely to be a 60-minute, or better, frequency on Mondays to Thursdays from about 6am to 9pm (start of last service) and an hourly service to midnight on Fridays and Saturdays, with a shorter service span on Sundays. Melbourne's experience in recent years, under the Victorian Government's Meeting our Transport Challenges program, shows that this service level works well in helping provide a buffer against mobility-related risks of social exclusion. Good quality road access to employment/activity nodes is also vital for outer suburbs, without adding to pressures for urban sprawl.

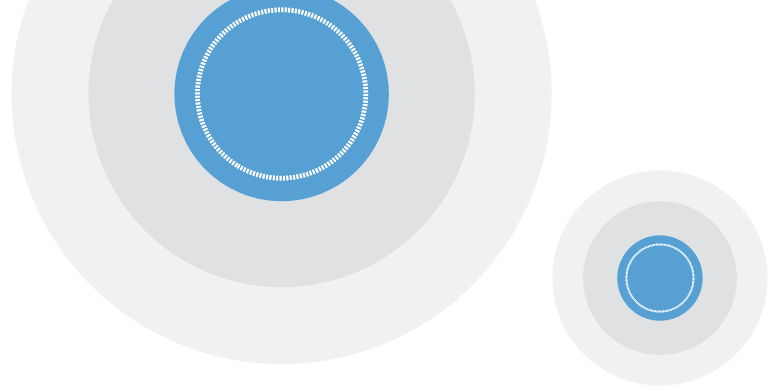
### The need for a dialogue on density

Attempts to increase densities in inner and middle suburbs often encounter 'not in my backyard' (NIMBY) responses. Attempts to lift density are seen as threats to vital village/precinct character, and to personal space and history. Many in the community simply reject the planners' solution. This illustrates a clash between what planners see as the public good and the costs that this policy direction are perceived as imposing on particular groups and individuals.

Successful delivery of higher densities requires both strategic and local level engagement. This must clearly consider and explain the reasons for changing density (social benefits in the broadest sense of the term) and works through ways of

<sup>7</sup> A shortage of private non-superannuation savings for investment in the construction of new dwellings and infrastructure is also an important factor, Australia relying heavily on a growing private debt level to fund increasing consumption since the mid-'90s, rather than supporting increasing investment.





minimising the costs to individuals/groups who perceive they are adversely affected, while maximising local benefits from increased activity possibilities.

It must be stressed that more compact/higher density Australian cities are not proposed as high-rise cities, such as Hong Kong. Finding the right language to describe just what might be envisaged in density terms is difficult. The meaning of a 'more compact city' or a 'higher density' city is not a commonly shared idea. For some Summit participants it meant increased population and activities around urban nodes. For others it meant population and activity increases along major transport corridors. Others associated higher densities with high-rise developments in CBDs, and still others with more people living in their neighbourhood. Outside CBDs, the conception of increased density most widely supported is 'higher density, low rise' development.

A critical conclusion is the need to develop and share a common language that describes development options for our cities in terms of their built form and associated activity patterns - especially as this relates to concepts of density - as well as better framing the arguments for increasing densities in some areas. This language, and the allied conversation about the need for increased densities and the best ways of achieving such increases in particular settings, will be helped by people (developers, councils, state governments) having the capacity to clearly represent what is intended when pursuing policy/development directions that increase people and activities in parts of our cities.

To help this process, some working groups supported the need to develop virtual reality tools able to represent a number of dimensions of urban space and its use. These would help understanding discussion and management of concepts of density. They would aid the formation of village/precinct solutions that work best for particular local communities, while aggregating to the types of changes needed city-wide. Beginnings have been made in this direction internationally. Supporting development and application of such techniques should be a high priority in Australia.

### Urban planning authorities?

Several working groups proposed the establishment of a separate entity, at arm's length from government, to undertake strategic planning of city development. These included Urban Development Authorities; Central Urban Planning Authority; non-statutory bodies at a city level, combining broad coalitions of interests; creation of an overseeing body or authority with a broad mandate to structure and form the city. The commonality of these proposals indicates a general lack of confidence in existing governance arrangements for strategic planning in our capital cities. Examples of concerns include inadequate community engagement around alternative development options, lack of progress in achieving higher densities, and growing traffic congestion and greenhouse gas emissions.



*High quality, compact development in Malmo, Sweden*

However, governance concerns arise about initiatives that might seek to remove decision-making responsibility for major strategic questions of urban development from the elected government (at the appropriate level) and place them with non-elected experts or officials. These are serious concerns, even if the present situation is not working as well as might

be desired. A way forward that maintains decision-making responsibility with elected governments is to support existing processes to perform their roles more successfully, while holding them more accountable for outcomes. The outcome proposals in the COAG action section of this chapter are important in this regards.

It is proposed that a National Centre for Cities be established, with a base in each capital city, to:

- independently gather and disseminate data on city performance on productivity, liveability and sustainability, at both city-wide and local levels;
- research and disseminate possible development futures for cities and parts thereof, to achieve enhanced outcomes;
- increase the level of community debate about alternative possible city futures;
- undertake research that will assist the effective performance of these roles.

The NCC would have a national board composed of representatives of a mix of governments (three levels) and private people selected for their skills in relevant fields, including representatives of NGOs in social and environmental fields. It would need a small core head office staff but could perform most of its work via contract, using (for example) existing universities. The centre could be linked to the United Nations Urban Observatories, to encourage international collaboration (as happens with the Vancouver Urban Observatory, based at Simon Fraser University).

### Village/precinct level

There is a growing sense that the village/precinct level must play a greater strategic role in the future of our cities and be encouraged to do so. The Inclusive working group described the village/precinct this way:

*Our vision for an Inclusive City supports multiple compact urban centres within existing metropolitan areas, and newer, smaller cities... These places will be innovative and sustainable, have distinctive local character, and include diverse and distinctive populations.*

Discussion focus for urban villages/precincts mainly concerns:

- the characteristics expected in such villages/precincts, including being green, well-connected (transport and communications), providing lifelong learning opportunities, creating a distinctive sense of place, containing both public and 'private' open-space opportunities, a strong attachment to community, high levels of social capital, providing active local economic networks/clusters, high inclusiveness, local cultural/artistic opportunities; and,
- local empowerment/governance arrangements in relation to how urban villages/precincts might develop.

The strategic importance of villages/precincts has been discussed recently by the University College London Environment Institute (Rydin and Kendall-Bush 2009). The institute makes the very important point that, while major infrastructure is critical in long-term urban shaping, paradigm shifts in infrastructure can be slow to achieve because of long lead times. UCL argues that scale is important in advancing the productivity, liveability and sustainability of our cities, a theme supported by many of the chapters in this report.

Small-scale urban experimentation is seen as a key part of the urban change process, being easier to achieve than major infrastructure investment and having advantages of flexibility. Alternative approaches can be tried at village/precinct level and, if successful, scaled up. Using a village/precinct focus as a basis for such experimentation has the advantage of providing opportunities for community engagement, including fostering small-scale, community-based innovation and enterprise. Small-scale experimentation can encompass significant technological changes, in areas such as micro-generation (of energy), to make citizens both consumers and producers, increasing buy-in to the change process. Some regional/local initiatives that are emerging in relation to climate change adaptation could provide an effective basis for village/precinct level initiatives.

A particular focus of the Inclusive City working group was ensuring high connectivity of village/precincts within cities, both for transport and communications. In relation to transport, high quality circumferential movement was seen as particularly important for transport between urban nodes, supported by strong local connectivity to, from and within nodes, including for walking and cycling. The transport initiatives outlined in the resilience section of this chapter should help to ensure that trunk networks serving major villages/precincts are of high quality and that local access is easy for walking, cycling and local public transport services.

Ideas such as free wireless internet connection and availability of public internet facilities are ways to help reduce the digital divide and provide a platform for local (village/precinct) development. E-inclusion policies are needed at village/precinct level, to meet the needs of an ageing population, of people with limited education and lacking computer skills, and of marginalised people. Attention to both hardware and software is needed to ensure maximum access to information and continuing learning. Local knowledge networks are seen as being enhanced by these initiatives.

Professor Ed Blakely notes the possibility of developing local telecentres, such as those emerging in Los Angeles. These provide locations at which people can work remotely from their usual place of work, reducing the need to travel while providing opportunities for business and social interaction. Productivity increases are a result. Childcare facilities can be incorporated in such locations.

A key focus for governments and other stakeholders must be the identification of ways to effectively build up the village/precinct level as a key part of future urban development strategy and innovation. Local government will need to be a key player in this devolution of focus. In discussing opportunities at village/precinct level, the Inclusive City working group proposed priority funding support for Urban Revitalisation Partnerships. These are seen as focusing on areas and populations of entrenched disadvantage, promoting place-based, locally tailored solutions and involving multiple layers of governance – for example, the three tiers of government, plus private and not-for-profits across health, crime, employment, education and other domains.

It is proposed that direct federal funding be made available, on a competitive bid basis, to facilitate development of a range of urban villages/precincts. These would be initially for demonstration studies that can be promoted more widely, to enhance productivity, liveability and sustainability (including Urban Revitalisation Partnerships). Priority would be given to initiatives that are effective against multiple goals and should include initiatives that improve the efficiency of use of existing infrastructure (for example, energy and water efficiency initiatives, including co-generation), as well as infrastructure enhancement opportunities.

Relevant funding would be made available for bidding by local stakeholder groups, which may range from local councils, to state urban land authorities in partnership with locals, local foundations and others, including partnerships that may include the private sector. The intent is not to subsidise private commercial development activity but to promote the public benefit component (economic, social and/or environmental, as the case may be) of village/precinct development, which cannot be fully captured by a developer. Positive discrimination may be needed in favour of disadvantaged areas, to ensure their particular needs are adequately represented.

Widespread dissemination of what is learned from village/precinct innovations would become one role of the proposed Australian Centre for Urban Design and the Built Environment and be used by the proposed National Centre for Cities in considering possible urban futures. State and local governments could also usefully provide similar funding opportunities for village/precinct level initiatives, the cost of which is frequently minimal for high local benefits.

## Major activity hubs

One vital subset of urban village/precincts is that small number of activity nodes that sit below the CBDs of our cities – places such as Parramatta and Dandenong. Concentrating on the accelerated development of a small number of such locations is seen as a particularly important component of the development strategies of larger capital cities, often termed promoting a ‘polycentric city’. The advantage of such locations is that they hold the promise of delivering agglomeration economies, grouped around existing infrastructure, but with a city-wide easing of congestion and other adverse consequences that can characterise a very large monocentric city.

Experience suggests that to achieve increased concentration of activity in such locations is difficult. It usually requires ingredients such as relocating government offices, upgrading regional trunk and local transport links and improving the quality of the public realm, including provision of high quality cultural facilities and activities. However, with knowledge-intensive jobs being the foundation for much future economic development and vital to growth of most urban clusters, an occupational structure that supports such activities is likely to be vital to enhancing prospects for successfully growing major urban nodes.

National Economics (2008) points out that successful knowledge-based regions have a high correlation with highly skilled knowledge workers, who tend to migrate to regions with scale and diversity of social and community infrastructure and cultural and lifestyle choices. In urban hubs, in particular, this means ensuring there is a good supply of relevant opportunities that will appeal to knowledge workers. In areas where there is an existing skill mismatch, establishing broadly based, high quality tertiary educational institutions is likely to support self-sustaining growth, building on the idea of ‘campus’ as city. This suggests locations such as those around Monash University have potential for such a centre.

Activity Centre Zoning models can facilitate more efficient development processes in major urban activity areas, following appropriate community consultation. The direct federal funding for village/precinct development initiatives proposed should be available for integrated development initiatives at major urban centres. At these locations state governments might often be the proponent – or at least an important partner – because these centres will typically have an economic significance that extends beyond the local village/precinct and municipality. (Brisbane is a notable exception because of its municipal scale).



## The CBDs

Vibrant CBDs form the heart of productive, liveable cities and must be continually supported in this role. Australia already has some fine examples of central city planning; the major focus for future effort should be in seeking to emulate this performance in other parts of our cities. Improving the capacity of trunk public transport systems that serve CBDs is, however, a key enabler of future development, since capacity constraints on such services are likely to impede the future capture of agglomeration economies.

## The suburbs and fringe areas

It is important to understand that most existing parts of our cities will not be directly affected by increasing densities in coming years. They will remain much as they are, but with a growing focus on building the village/precinct into the lives of residents and a greater focus on using existing areas as what Professor Rob Adams AM, Director of City Design for the City of Melbourne calls the 'lungs of our cities', working as an antidote to carbon emissions and heat sink effects. Our existing suburbs should become increasingly productive in terms of meeting local food requirements and as sources of water and solar harvesting. They may also provide valuable wildlife habitats.

Urban fringe development is recognised as a continuing reality but it is widely acknowledged that the relative importance of development at the fringe should be reduced substantially in most cities. Future development that does take place on the fringe should seek to minimise its ecological footprint and maximise opportunities for inclusion, which means, among other things, attention to dwelling densities, thermal qualities of buildings, water-sensitive urban design, quality public realm, mixed-use activity areas, local employment generation and decent public transport service levels at an early stage in development. The low footprint fringe development subsection includes a short case study on Officer, a project included in the Clinton Climate Initiative, to illustrate what might be possible for such developments and as an area of potential future competitive advantage. National Economics (2010) emphasises the importance of availability of, and access to, employment and services as being vital to how well fringe suburbs can contribute to resolving housing supply shortages. Provision of quality transport connections and services is thus vital, while minimising pressures for urban sprawl.



a Sydney suburb



## Governance arrangements

Australia's current governance arrangements for cities pose problems. Australia has much to be proud of in governance terms, particularly with respect to big-picture issues of judicial independence, protection of property rights and electoral accountability. However, the Strategic City working group argued that this country does not have a structure:

*... which is particularly supportive of subsidiarity – a principle which is critical to genuine community involvement in planning, and the potential to create community through planning. While community engagement in planning can be improved at the margin through better consultation techniques, these structural flaws need to be addressed for sustained progress to be made.*

Similarly, the Ecological City working group pointed out that:

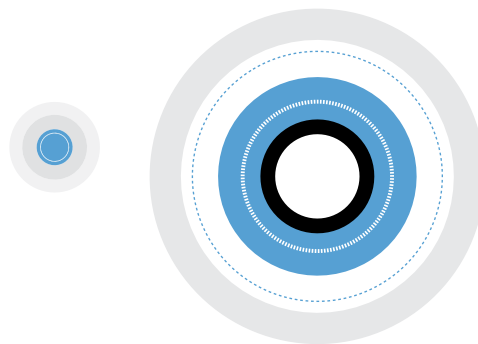
*While state governments prepare metropolitan strategies, they are implemented by a combination of state and a large number of often very small governments. This implementation is often patchy, at best... These governance structures make urban consolidation challenging.*

Much of the preceding discussion in this chapter deals with governance aspects of our cities. A recurring theme has been the fundamental importance of increasing the level of community engagement and empowerment in matters relating to the future of our cities, both at city-wide and local levels. This was also a key theme at the Queensland Growth Management Summit (Queensland Government 2010). The proposed National Centre for Cities, in particular, is intended to help improve governance arrangements, through raising the quality and availability of information and providing supportive opportunities for community engagement/debate about our cities and their future options.

Probably the single most difficult issue identified here is a governance matter, concerning resolution of the conflict between desired strategic directions for city development, which will involve increases in densities in some parts of our cities, and the preferences of local people, who frequently do not accept that increased densities are appropriate in their locality. Long delays in development frequently result, which often leads to ministers calling projects in, taking local government out of the planning decision. Calls in this report for urban planning/development authorities to assume responsibility for such decisions reflect the dissatisfaction with the current arrangements.

If the village/precinct is to assume greater strategic significance, a way to empower and support village/precinct development must be found while accommodating the strategic requirements of increasing density. This resolution might be approached in the following way:

1. The relevant state government establishes population/ job growth targets (growth potential) for each individual municipal area within the capital city, for a specific future time frame (for example 20 years) and targets for affordable housing, as part of its capital city strategic plan. These targets must be reached in negotiation with local government as a collective, to internalise the debate over location within the state/local government decision framework, and both the state and collective of municipal government should sign-off on the targets. The relevant collective for local government in a city will probably be at regional level (an aggregation of councils) but could be all councils in a given city, if that worked for the councils in question. The sum of the resulting targets across a city would exceed expected population/ job growth, because the market will ultimately determine where people live and work, not governmental targets for growth potential. Having targets with upside capacity should help avoid the need for subsequent protracted delays. The targets that are the result of this process would then be a key input to state infrastructure planning processes and to service planning, including provision for what the state will do to help meet affordable housing requirements.
2. The agreement process should identify principles that need to be taken into account in locating the target population/job increases in particular areas. These principles would reflect the intention to pursue transit-oriented development, encourage growth of key activity centres/hubs in a mixed use compact format, achieve high quality public realm, increase diversity in housing choice, provide for affordable housing, optimise the use of existing infrastructure and protect heritage areas and open space.
3. Starting from scratch, a two-year period should be enough to negotiate agreed targets, particularly since some states are already engaged in this process. The resulting targets and development principles would need to be taken into account by individual councils in preparing strategic plans for their areas. The existence of a signed agreement(s) could be a precondition for a state and its capital city being eligible for possible federal financial assistance for urban development projects/ programs that might emerge through the COAG Capital City Strategic Planning processes (including via Infrastructure Australia processes).
4. Individual municipalities would negotiate with their own communities how to best accommodate the future population/job increases and affordable housing numbers that are included within their respective targets, and be given a set period of time within which to make this decision. Since much of this local negotiation could take place in tandem with the strategic negotiation with



the state over municipal targets, it would probably only add a year to the maximum two years suggested for negotiation of new strategic targets. If a council failed to make its local decisions about areas where increased densities would be concentrated within the set time frame, the state could take over negotiations and/or some governmental funding to the municipality could be withheld. The resulting decisions on density, housing diversity and associated issues would be incorporated in local planning schemes, with a view to speeding development implementation timeframes and containing costs.

These ideas allow democratic processes to work at both strategic and local levels, the former in negotiating the respective targets and the latter in settling locations for increases in population/jobs within each municipality. In promoting much greater community engagement in our cities, the Inclusive City working group emphasised the

importance of community engagement involving organised and non-organised community members, groups who are conventionally excluded, using diverse approaches and allowing for continuous input and participation.

Opportunities are identified to help promote productivity, liveability and sustainability of better Australian cities. These ideas were often linked to realising opportunities that may emerge in the process of pursuing necessary structural changes required to respond to climate change. Although many ideas had their origins in this space, the focus is on achieving multiple benefits - for productivity, liveability and sustainability - and an integrated approach. Given the urgency of achieving structural changes in our cities, especially to reduce their greenhouse gas emissions from the built environment and transport, there is a big opportunity to use this restructuring process to forge a significant area of new competitive strength.



Old Parliament House, Brisbane

## Urban design and retrofitting: an opportunity for international competitive advantage

### Energy efficient building

The Ecological City working group argued for a 90 per cent reduction target for greenhouse gas emissions by 2050, reflecting the broad magnitude of emissions reductions canvassed by Stern (2006) and Garnaut (2008). Reductions of this scale can be seen as appropriate for a country whose per capita emissions are high, given limits on the global commons, and also as a potential driver of the kinds of design/technology innovations that could become a source of significant future competitive advantage. Australia's international expertise in construction industry services has been noted (Australian Government 2010). Opportunities are seen to leverage off this base into a range of green design/building/transport/strategic planning initiatives, which will be needed to achieve more sustainable settlement patterns in settings that start at low densities.

A big opportunity is seen in large-scale retrofitting of the existing building stock (via density and individual building qualities, such as double glazing), including use of smart systems, to enhance energy efficiency. Cheap energy has contributed to inefficient equipment and building shells in our cities. Climate Works Australia (2010) has suggested that commercial building retrofitting is the lowest of the low hanging fruit among a wide range of options to cut Australia's greenhouse gas emissions. Melbourne City Council, for example, has an innovative '1200 buildings' program in this area. Almost half the greenhouse gas emissions from the City of Melbourne come from commercial buildings. This program aims to retrofit two-thirds of the city's commercial building stock. Regulation and financial incentives should be used to speed retrofitting to improve energy efficiency performance. Establishment of local expertise provides a base for exporting skills and technologies required for roll-out.

Opportunities are seen in the area of precinct-level energy generation, through techniques such as tri-generation. Tri-generation refers to the concept of producing electricity, heating and cooling through one process. This approach has the potential to significantly reduce greenhouse gas emissions compared to conventional ways of providing building services and using electricity from the grid, especially where brown coal is the energy source. Some individual buildings in Australia use tri-generation but there are no Australian applications at precinct level. Such applications are in place in countries such as Sweden and there are some active assessments of Australian applications under way. The lack of a proper price on carbon supports the need for

the federal government to actively support such initiatives. Regulatory impediments to implementation need to be removed (such as uncertainties associated with connecting to the grid and paying network distribution usage charges and transmission usage charges – there is no reliance on the transmission network when local embedded generation is installed, other than as potential back-up).

The Federal government should conduct support assessments for exemplar precinct level applications of this technology, including greenfields, to identify the most effective development path (this is one specific example of a potentially useful precinct/village level development initiative in sustainability). The City of Sydney, for example, aims to cut its CO<sub>2</sub> emissions 70 per cent by 2030, from a 2006 base, with tri-generation providing 24 per cent of the reduction (and providing 70 per cent of the municipality's energy by that date), according to Business Day in The Age (5th June, 2010, p.2). This may provide a suitable test area. Possible precinct level applications in greenfields developments should also be considered, as part of developing more sustainable new suburbs. Smart grid storage, including electric vehicles, could be included within the opportunity.

### Water-sensitive development

Liveable cities are green in the sense that they have low carbon footprints as well as urban landscapes and waterways that make living in the city attractive from both social and health perspectives. Greener cities are cooler cities. To achieve these objectives in the long-term a liveable city must be an ecologically sustainable city – which in turn requires the city to be water-sensitive. A water-sensitive city manages its water resources to achieve long-term water supply security and also to deliver on the broader social and environmental aspirations of the community. Traditional water sector responses will not be enough to provide the underlying resilience that a city will need to achieve water security and ecological sustainability in the face of further climate change and population growth shocks.

A water-sensitive city is one that integrates water cycle planning with city planning and design. In this respect there are two planning components of importance. The first is the shape and density of cities, with higher density cities generally correlated with greater water efficiency. However, in the face of greater densification, an equally important factor is the way rainwater is captured and used once it falls on urban areas. Traditionally our drainage systems have been designed to rapidly convey stormwater runoff directly to our waterways. Disposing of stormwater with such efficiency also causes significant ecological disturbance from both flows and pollution loads.

Water-sensitive urban design is a best-practice approach to urban water management. Its basic goal is to reduce potable



water demand and to retain and use stormwater in the urban landscape in beneficial ways. Water-sensitive urban design can include: lot-scale features such as raingardens, roof gardens and rainwater tanks; local precinct-scale projects such as bio-retention swales and mini wetlands to treat road drainage; and integrated schemes at a subdivision scale. Such design helps protect the ecological health of our waterways and bays, the greening of the city and has the potential to significantly reduce potable water demand.

Australia, and more particularly Melbourne, is a recognised world leader in the application of water sensitive urban design. One of the lessons from this work is that water resource planning needs to be introduced at the beginning of the urban planning cycle. Good water-sensitive outcomes cannot easily be 'plumbed into' existing urban form.

A section of the Victorian Planning Provisions (Clause 56) applies to new residential subdivisions and requires water-sensitive urban design to be followed; including:

- integrate use of all water resources;
- conserve the supply and reduce the use of potable water;
- use alternative supplies where potable water is not required;
- use best-practice water-sensitive design techniques to conserve, reuse and recycle water and manage stormwater run-off quality and quantity.

This provision should be expanded to include all forms of development, including high density and commercial/industrial projects. Similar provisions should apply nationally. Federal funding for best practice case studies, in partnership with states, would help to drive development in this area and help build Australia's competitive strength in this developing field.

## Low footprint fringe development (the Officer Project)

While governments are typically planning for half or more of new population growth to be accommodated in infill areas, a substantial proportion will still be greenfields developments. To pursue goals of productivity, liveability and sustainability in such locations, new models of development are needed. An example of such a new model is VicUrban's Officer project in Melbourne's south-east, one of a small number internationally that are part of the Clinton Climate Initiative. Key features of the Officer project are illustrated in Table 4: Officer Development Benchmarks showing the differences from a conventional urban fringe development.

Because Officer is being planned based on best-practice sustainability principles for a development of its kind, major reductions in carbon emissions (down two-thirds for household use and one-third for transport use) and potable water use (down 90 per cent) are expected and a high rate of local job availability is projected. The water use outcomes are a reflection of the adoption of water-sensitive urban design principles. Car ownership is expected to be well below the norm at the fringe because of good public transport availability (Officer is served by a rail station), high local walkability/cyclability and high local job availability.

The jobs/population target of 400 jobs per 1,000 residents is about twice the norm for urban fringe municipalities. It will be challenging but this is the kind of target to which to aspire if long work trips are to be minimised in association with urban fringe development. Waste levels are expected to be almost half those of a usual fringe development. These are the kinds of outcomes that need to quickly become the norm for fringe development, if productivity, liveability and sustainability are to be achieved.



**Table 4**  
**OFFICER DEVELOPMENT BENCHMARKS**

INDICATOR	OFFICER AS A CONVENTIONAL	VICURBAN AT OFFICER
Estimated development value	\$1.9b	\$3.0b
Land area	340 ha	340 ha
Residents	8000	15000
Dwellings	2900	6000
Average residential density (net)	12 dwellings/ha	12 dwellings/ha
Average residential lot size	556m <sup>2</sup>	340m <sup>2</sup>
Jobs	3000	6000
Energy demand (MWh/pc/pa)	1.92	1.74
Mains potable water demand (L/pc/pa)	91,000	9,000
Waste to landfill (T/pc/pa)	0.42	0.23
Transport energy (TCO <sub>2</sub> /pc/pa)	2.3	1.5
Household carbon pollution (T/pc/pa)	11.7	4.3
Cost of energy (\$pc/pa, @ \$40/t CO <sub>2</sub> )	780	420
Car ownership (Cars/household)	2	1.5
Retail (approx)	30,000-40,000m <sup>2</sup>	35,000-45,000m <sup>2</sup>
Commercial/other business	10,000m <sup>2</sup>	40,000m <sup>2</sup>
Industrial	57 ha	25 ha
Community infrastructure	Municipal services; 2 primary schools	Civic, health and education hubs, secondary school, 4 primary schools and TAFE

Source: VicUrban

### An Australian Centre for Urban Design and the Built Environment

Building improved productivity, liveability and sustainability into our cities requires use of best-practice approaches on a wide front and, in many cases, the development of best-practice examples for the Australian context. This best-practice can subsequently be used as a basis for exporting Australian expertise in urban design, planning and development. The UK Commission for Architecture and the

Built Environment (CABE) is a model for improving urban design quality and outcomes, in the broadest sense. CABE provides expert independent design advice to improve the quality of what gets built in England, including open space, and has a role to champion and lead the public and professional debate about how to create great places.<sup>8</sup> A wide network of leading local design advisers is engaged to assist CABE achieve its purposes, at nominal charge-out rates, reflecting the widespread professional commitment to the purposes of the organisation.

<sup>8</sup> <http://www.cabe.org.uk/about/what-we-do>. Accessed 11th May 2010.

CABE is a model that should be adapted and implemented in Australia, to:

- promulgate and promote best-practice urban design in the widest sense. As the UK Urban Design Compendium points out, design in this sense covers connections between people and places, movement and urban form, nature and the built environment and processes for ensuring that successful places are delivered and maintained;<sup>9</sup>
- support governments, professionals and other interest groups in the pursuit of best practice urban design;
- research and disseminate information about ways of improving existing practice to enhance productivity, liveability and sustainability;
- build and promote Australia's expertise in urban design.

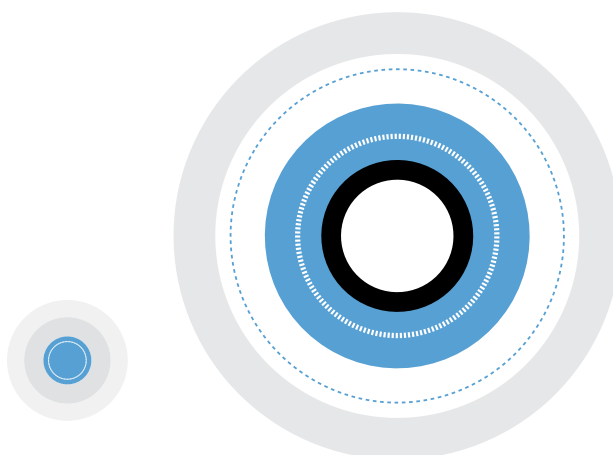
The very strong Cities Summit focus at the village/precinct level as a key to more productive, liveable and sustainable Australian cities highlighted the importance of building a supporting resource mechanism to assist at this level, through facilitating high quality urban design thinking and practice. An Australian version of CABE could play this role. Given the wide design perspective embedded in the Summit thinking, it is suggested that, in the Australian setting, 'architecture' be dropped from the title; that transport issues be seen as integral to scope; and that the entity become a Centre for Urban Design and the Built Environment (CUDBE), supported by government and private sector contributions (including contract research). This entity would need state-based delivery mechanisms, which might be bodies such as Queensland's Board for Urban Places.

Closer examination of the detailed functions of this proposed body and of the proposed National Centre for Cities might lead to the conclusion that a single entity could effectively perform both roles: first, gathering and widely disseminating information about possible city futures and facilitating debate about these matters, to improve decision-taking, as proposed for the NCC; and, second, lifting the bar on the quality of urban design, broadly understood, as suggested for ACUDBE.

## A note on the importance of collaboration

Our cities are complex systems, facing an increasing speed of change and growing uncertainty about how - and how quickly - climate change will impact on city systems. Responding to these circumstances, while tackling immediate and pressing problems in areas such as traffic congestion and housing shortages/affordability, is leading to new ways of thinking about city futures. As reflected in discussions at the 2008 ADC Infrastructure Summit, transformational change is a fundamental requirement to respond to this changing environment. Transformational change should not be based on excessive reliance on highly centralised systems: these do not support resilience. A key theme from the ADC Cities Summit is the importance of building resilient cities, with resilience coming from diversified strategies.

Distributed solutions are one key ingredient in this mix. A wide range of governmental, non-governmental and business agencies plus local communities are needed to assemble integrated solutions. Collaborative engagement across such a wide range of interest groups - institutions, organisations and individuals - is fundamental to driving innovation, while building resilience. Assisting this change process means encouraging a culture that supports collaboration and risk-taking. Skinner (2010) wonders whether this may prove to be the biggest challenge facing our cities in the future. Organisational, institutional and individual capacity to deal with complexity must be supported. A number of the proposals in this, and other chapters, will assist in this regard.



<sup>9</sup> <http://www.urbandesigncompendium.co.uk/importanceofdesign>, accessed 11th May, 2010.

## Concluding remarks

Australia's major cities are among the world's most liveable. Maintaining this status and these strengths will require attention to a number of growing and inter-related pressures, underlining the importance of an integrated approach to the future of our cities. Our cities need to lift their productivity. At the same time they must substantially cut their greenhouse gas emissions and achieve greater social inclusion, particularly linked to affordable housing.

Lifting productivity means focusing on building skills. It means tackling substantial transport infrastructure backlogs, which have become manifest in growing congestion and overcrowded, unreliable public transport systems. Tackling these transport infrastructure backlogs is a key ingredient in resolving housing shortages, through links to employment and services availability (National Economics, 2010). This illustrates why the major issues of our cities cannot be treated in isolation and why functionally aligned systems of public administration must be complemented by approaches that focus strategically on place, developing areas, rather than systems, in an integrated manner.

Rapid population growth highlights problems in our cities and the need for effective, enlightened solutions. Australia needs to debate its population future in aggregate terms and

in terms of settlement policy. This is an emotive issue, which needs a solid information base from which a wide-ranging and engaged community conversation can take place and set policy directions.

Increasing densities in the middle suburbs of our existing cities is critical for future productivity, liveability and sustainability. The vast majority of existing suburban areas will be unaffected. Delivering increasing densities is fundamentally about improving governance and information flows, facilitating greater public engagement and unlocking the potential of urban villages/precincts. These will drive future strategic advantage and build stronger communities. Improving integration between city-wide development intent and village/precinct level delivery is the key challenge for governance. Meaningful community engagement is central to resolution.

The COAG Capital City Strategic Planning process is a big step forward for our cities. To succeed, this work must quickly shift from a focus on process to a focus on outcomes. The Capital cities strategic planning systems section of this chapter proposes key performance indicators and targets that will help to make the process more accountable and effective.

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photo by Toni Wilkinson, courtesy of Community Arts Network WA

# THE INCLUSIVE CITY



## Introduction

Imagine a city that acknowledges traditional custodianship and celebrates cultural diversity of all its citizens. Imagine that this place integrates the places we work, play, shop and live in accessible, even seamless ways. Imagine a mix of social, emergency and private housing for rental and purchase, together with schools, social service and commercial hubs, factories and offices. Imagine, for example, a block of apartments of varying sizes, built over a hub of shared facilities like kindergartens, primary and secondary schools, libraries and interactive centres. Imagine that the citizens of this inclusive city can walk to work, know their neighbours and feel safe in their surrounds. Imagine not that this is a utopia, but an attainable goal.

Cities are about people, and people make cities. Social exclusion affects people who are, for any reason, considered different, and stripped or deprived of power and resources as a result. Social exclusion maps the fault lines of discrimination and marginalisation in any society - on the basis of gender, age, ethnicity, immigration, cultural and language background, indigenous status, sexual preference, physical and mental ability, class, marital status, or poor health. People are forced - literally and metaphorically - to the margins of society both by poor policy and pervasive negative attitudes. These two factors are interdependent. By addressing structural factors - the design of the built environment, infrastructure and institutions - we can begin to tackle disadvantage and marginalisation, and so also counter excluding practices and discourse.

## Principles

Three principles underpin the Inclusive City. The first principle is the acknowledgement that Indigenous Australian cultures and knowledge, traditional and contemporary, are critical to Australia's future. Australian cities must find tangible and sustained ways to celebrate Indigenous cultures and knowledge as a prerequisite to inclusive practice, to change social institutions, enhance wellbeing, and redress past oppression and silence.

While the Inclusive City needs to identify and address all ways in which people are excluded systematically, and to celebrate the diversity that all people and cultures bring to a place, Indigenous Australians have a unique position that must be honoured as an essential step towards national reconciliation, healing and the shaping of our shared future.

The second underlying principle informing the conceptualisation of the Inclusive City is that climate change erodes social inclusion and exacerbates existing inequalities and patterns of exclusion. Without national and local strategies to address this, existing inequalities and patterns of exclusion will worsen. Changes in the physical environment, weather and water resources, for instance, will disrupt primary production, reduce water yield and quality and result in more frequent and severe bushfires and floods. Elevated temperatures cause higher hospitalisation and mortality rates. People living in the inner city, in crowded, poorly maintained and poorly ventilated housing, are at greatest risk.<sup>1</sup> Climate changes may adversely affect the physical and mental health of those vulnerable to social exclusion. These people will also feel the effects of deepening economic hardship and internal migration to towns and cities caused by factors such as loss of arable farmland.

In rapidly expanding urban areas and other places already lacking adequate infrastructure, local migration will exacerbate the inadequate stock of housing, leading to increasing unemployment, and potentially rending the social fabric. Mitigating or adapting to climate change and associated threats is not straightforward; it is complicated by power structures, social inequalities, vested interests, insecurity, lack of information and uncertainty. Those most disadvantaged now are likely to experience even greater stresses and inequalities. Sustainability and resilience must be central to all policies and strategies for the Inclusive City; conversely, a Sustainable City must ensure inclusion. The two goals are interdependent, with no scope for a trade-off.

The third principle draws attention to the multiple, often compounding ways in which some people are presently excluded in cities. The built environment, services and institutions, can all exclude. Accordingly, in the Inclusive City, people from diverse backgrounds and capabilities are central

<sup>1</sup> Basu, R. and J.M. Samet, *Relation between elevated ambient temperature and mortality: A review of the epidemiologic evidence. Epidemiologic Reviews*, 2002. 24(2): p. 190-202.

<sup>2</sup> Imrie, R. and M. Kumar, *Focusing on disability and access in the built environment. Disability & Society*, 1998. 13(3): p. 357-374.

to consideration about design, construction, organisation and administration, as well as planning for the everyday activities of the place.<sup>2</sup> The Inclusive City emphasises core values of fairness, justice and participation over expediency, efficiency and easy pragmatism. It provides opportunities to celebrate the cultures and knowledge of people coming into Australia's cities from various environments, and provides access and ensures ways to maximise their engagement, regardless of background, social position or capability. Structures and mechanisms that ensure the broader, deeper and more sustained engagement of individual citizens, communities and sectors of the population will be needed. By embracing difference and nurturing capability, in its governance as well as activities, the Inclusive City will ensure wellbeing and security. It will, as a result, be cost-effective, efficient, productive and sustainable. Inclusive Cities therefore achieve two superficially contradictory goals: they support and celebrate diversity while building social cohesion and resilience.

## Vision

The Inclusive City will have multiple compact urban centres within existing metropolitan areas, as well as newer, smaller, denser cities. In the Inclusive City, the edge is as important as the centre. This contrasts with earlier ideas of city development in Australia, based on ideas of affordable, single-household dwellings and home ownership. It has proven difficult to ensure fair and effective services, efficient and equitable distribution of transport choices, access to work, walkable neighbourhoods and education, and adequate recreational facilities. Some of the worst examples of exclusion in Australia are among the expanding populations and city boundaries conurbations that, by lack of design and active policies of inclusion, are sites of inequality and exclusion. Accordingly, the built form, the design and activities of cities will be shaped by local aspirations for and ideas about convenience, proximity, and the diversity and quality of opportunities for employment, education, support services, health, walkability and recreation. Residents will have a sense of belonging, identity and security.

The Inclusive City will maximise capability, redress poverty, and provide affordable, accessible and quality facilities and amenities. It will have systems, services and programs to support people who have been historically marginalised, or are at risk of marginalisation and exclusion through economic, social, health or other circumstances. It will be flexible and adaptable, distinctive and resilient, with the technologies, infrastructure and programs to incorporate new populations, including international migrants. The city will ensure the freedom to participate through accessible, efficient, sustainable and affordable transport systems, innovative consultation, and information sharing and knowledge management strategies - including through free wireless and public internet terminals. Government agencies

charged with implementation will understand and act on their interrelated roles in designing for and developing sustainable and inclusive places. Through formal and informal social institutions, often co-located and collaborating – schools, community-based organisations, cultural and interest groups, clubs/societies, sporting clubs and community gardens – the city will build social capital and trust.

The Inclusive City conceptually allows for cities within cities. It will support and encourage creativity and dynamic cultural expression through the imaginative use of public buildings, open recreational spaces within cities and green fields between cities. In realising this, there needs to be commitment to urban revitalisation partnerships, to leveraging assets for social outcomes, and to distinctive place-making. This vision is readily attainable, subject only to political will. Examples already exist in Australia where local governments, in partnership with industries and communities, are beginning to recreate the urban environment, showing it is possible to think creatively about productive relations between physical and social environments.

## Themes

### Governance

Good and effective governance, with effective, sustained community engagement and adequate allocation of resources, is critical to inclusion. Cities are complex and interconnected, requiring coordination between regions and visionary governance structures to manage, monitor and implement strategies, and to align policy between different levels of government and between the state and non-state sectors.

In pursuing this, there is a case for Urban Development Authorities with a broad mandate to deliver sustainable and Inclusive Cities rather than portfolio-based public works departments and separate social service departments. These authorities will be responsible for preparing urban development plans that identify the nature of urban hubs, the mix of public institutions, industry and housing, the nature of movement networks that should connect them and targets for the residential population in terms of density and numbers. They need to be the conduit for Commonwealth funds, with financial incentive and priority given to strategies for inclusion;

#### Critical criteria for the Inclusive City

- Affordable living
- Diversity of places, spaces and people
- Mobility
- Proximity of homes, work, services and amenities
- Social, economic and environmental sustainability
- Participation and engagement



they need to also prioritise investment in each region based on targets for housing diversity and densification, and parallel investment in modal shift, employment, and community facilities, to maximise inclusion. The goal will be to develop new urban areas and renew old ones to ensure expansive employment opportunities, education and training infrastructure, public transport infrastructure and use, and community engagement. Policies need to be developed and implemented to allow the use of assets for social purposes; to revise regulations to allow for mixed development; and put systems in place to encourage collaboration across sectors and between interest groups.

Governance needs to reflect a holistic and integrated approach. Developing inclusive strategies and delivering programs in health, housing, education, crime prevention, childcare, and employment should be integrated to reflect the interconnectedness of these issues and to maximise the government investment outcomes. Funding needs to target programs that successfully integrate multiple policy areas, programs and services. Here, the value of “joined-up services” needs to be translated into accessible, effective service delivery to those most in need of practical and social support.

All levels of government, and private, not-for-profit and community sectors, as well as local populations, need to be actively involved to ensure a broad consensus around shared strategies along with clear responsibilities for delivering them. In particular, urban development agencies require mechanisms to engage authentically with the community regularly and continually and to collaborate with residents to achieve their goals. Measures for social inclusion expected in regional development and local plans need to include targets, implementation methods, and funding plans to provide varied and affordable housing (including community housing), ensure early investment in public transport, walking and cycling options, and provide sustainable infrastructure, economic development strategies, and diverse employment opportunities. The structure of new urban centres must be configured correctly from its inception with a focus on these objectives. A key marker of the Inclusive City is that housing options are matched with increased economic activity, and that street networks will support local pedestrian activity and small-scale business development.

Urban development needs to occur under the direction of multidisciplinary design panels with demonstrated understanding of local values and best practice.<sup>3-6</sup> A funding plan involving state, federal and local agencies, and between state and non-state sectors, needs to be implemented. Projects able to demonstrate state and local commitment should take priority. Disadvantaged pockets within existing localities deserve priority for urban renewal programs, to ensure affordable and inclusive housing and neighbourhood development.<sup>7</sup> Consequently, in an Inclusive City:

- Decision-making needs to be shaped and continually informed by public interests and needs, with various mechanisms to ensure that communities are informed and able to participate.
- Government decision-making needs to be integrated.
- A culture of innovation to build Inclusive Cities will be encouraged.
- Surplus land needs to be audited, with a requirement that land be developed or placed in a common government pool to deliver on key sustainable city objectives.
- Areas of high social disadvantage will be targeted for timely transformation.
- The best use of public land will be better identified, with specific social, economic and environmental outcomes attached to its sale and development.
- Given the potential for intersectoral collaboration by applying inclusionary zoning in urban renewal programs and in rezoned land,<sup>8</sup> public land needs to be identified for sale to facilitate housing and meet demographic needs within hubs of government service, modal choice and economic activity.

#### Urban revitalisation partnerships

- Focus on areas and populations of entrenched disadvantage
- Place-based, locally tailored solutions
- Multiple layers of governance: community, the three tiers of government, private & NFP sectors across health, crime, employment, education and other domains

<sup>3</sup> Worthington, J., *Urban Form for a Sustainable Future: How Sustainable Is Distributed Working in the Networked City?* Journal of Green Building, 2009. 4(4): p. 148-157.

<sup>4</sup> Aigner, S.M., C.B. Flora, and J.M. Hernandez, *The premise and promise of citizenship and civil society for renewing democracies and empowering sustainable communities*. Sociological Inquiry, 2001. 71(4): p. 493-507.

<sup>5</sup> Kozulj, R., *People, cities, growth and technological change - From the golden age to globalization* Technological Forecasting and Social Change, 2003. 70(3): p. 199-230.

<sup>6</sup> Robinson, J., *Developing ordinary cities: city visioning processes in Durban and Johannesburg*. Environment and Planning A, 2008. 40(1): p. 74-87.

<sup>7</sup> Mitlin, D., *Housing and urban poverty: A consideration of the criteria of affordability, diversity and inclusion*. Housing Studies, 2001. 16(4): p. 509-522.

<sup>8</sup> Wrigley, N., C. Guy, and M. Lowe, *Urban regeneration, social inclusion and large store development: The Seacroft development in context*. Urban Studies, 2002. 39(11): p. 2101-2114.



- Through priority funding initiatives, non-profit, government and for-profit sectors will be encouraged to partner and co-locate.

Key indicators of the Inclusive City will include:

- Regular community consultations.
- Number of households with walkable access to goods and services, work and education, as well as public transport.
- Numbers of and accessibility to local jobs.
- Numbers of community, affordable and public housing units within walking distance to activity centres and community services catchments.
- Housing diversification measured by housing type, and awards for design, urban design and planning excellence.
- Road design that promotes shared use of space and optimal use of street frontages for residential amenity and commercial and community activity.
- An increased mix of housing, services, recreational areas, and economic activity and small business development.

## Community engagement and participation

Community participation is essential to good local governance and inclusion. It must be structured to enable people to participate in and contribute to decision-making. Processes for participation are fundamental, and must be integral to strategic planning and development, governing, and operation of future Inclusive Cities.<sup>9</sup> Our vision of smaller, distinctive cities, rather than expanding megacities, reflects their capacity to nurture and protect opportunities for genuine participatory democracy and authentic engagement. The Inclusive City must begin with leadership and vision from government, but this needs to be guided by wider consultation and engagement with communities. Cities need to develop their own priorities, and have access to funds for local initiatives, to support collaborations between communities and local government, and to support local industries to invest.

Inclusive strategies are especially needed in areas where there is entrenched disadvantage and exclusion, and/or where there is little tradition of community consultation and engagement. Consultation and engagement with all sectors of the community is needed in overall planning, not just in relation to specific projects. This will support the unique character of different localities, neighbourhoods and

communities that have potential to foster and strengthen civic identity; promote participation and representation in formal local government institutions; sustain community involvement; and continue to build social capital. Community wellbeing will be a high priority.

At present, consultation and engagement varies between local administrations. But commitment to community collaboration, democratic renewal, public fora - and the engagement of particular sectors to ensure wide representation and a range of perspectives - is already growing. Innovation is needed to promote participation in projects, programs, policy consultation and decision-making.<sup>10</sup> The Inclusive City will ensure that a wide representative range of stakeholders is involved at all decision-making levels. People who are conventionally disempowered - for example, by capability, age, ethnicity or gender - will be encouraged to express their views and to participate in planning and governance.<sup>11-12</sup> Mechanisms of participation will be flexible to allow for changes in the population structure and background due to demographic changes (migration and ageing). Further research is required to understand the limits to current mechanisms for participation, and to find ways to enhance and sustain participation. The Inclusive City will take creative approaches and use informal and formal pathways to increase this.<sup>4-13</sup>

Authentic, sustained community engagement results in more connected and resilient communities. This may be reflected through increased formal involvement and volunteering; increased participation in work-related groups such as unions and professional associations; and increased local associations, including those established around place and purpose. Greater engagement will also be evident in more active use of public space, more care and stewardship of public assets and increased tolerance in communities.

Key indicators may include the following:

- Increases in numbers and diversity of people seeking and gaining public office.

### Community engagement will involve:

- Organised and non-organised community members
- Groups that are conventionally excluded
- Diverse approaches
- Allow for continuous input and participation in decision-making

<sup>9</sup> Heritage, Z. and M. Dooris, *Community participation and empowerment in Healthy Cities*. Health Promotion International, 2009. 24: p. 45-55.

<sup>10</sup> Barnes, M., et al., *Constituting 'the public' in public participation*. Public Administration, 2003. 81(2): p. 379-399.

<sup>11</sup> Cornwall, A., *Whose voices? Whose choices? Reflections on gender and participatory development*. World Development, 2003. 31(8): p. 1325-1342.

<sup>12</sup> McDonagh, E., *Political citizenship and democratization: The gender paradox*. American Political Science Review, 2002. 96(3): p. 535-552.

<sup>13</sup> Balbo, M. and G. Marconi, *International migration, diversity and urban governance in cities of the South*. Habitat International, 2006. 30(3): p. 706-715.

- Increased opportunities to contribute to policy development and decision-making.
- Increasing diversity of methods of community engagement and consultation.
- Decrease in crime, including interpersonal, property and intra-community violence.
- Increase in community celebrations.
- Increase in walking and other uses of public space.
- Decrease in disputes related to local development plans, land valuation and use, and related government decisions.

## Amenity, place and diversity

Powerful geographic, historical and political forces shape the future of cities. Many contemporary cities have places of entrenched disadvantage, where investment in social inclusion and civic enhancement has had only a short-term impact. We need to understand how the local economy, physical setting and structure, and social composition have contributed to such disadvantage and resistance to change. Prioritising resources will help build capacity and transform the physical and social environment in places where disadvantage, inequality, and lack of resources are obvious.

A range of institutions and structures need to be identified and developed to ensure the creation of places that meet the needs of all citizens and celebrate difference. Current regulations and policies need to be reviewed to identify mechanisms that establish or sustain inequality of access to services and inequalities within and between places.

Laws which encourage or enforce the concentration of retailing in shopping malls - rather than local avenues and corner stores - contribute to exclusion, as do laws which spread low density housing ever more broadly across the city, divided by arterial roads, rather than parks surrounded by medium density dwellings. Such laws create cities that exclude people with limited mobility and penalise those who live on the periphery with poor access to amenities. They reduce the potential to build social cohesion and detract from local interactions, support, networks and security. Poor infrastructure, limited educational choices, poor transport, health services and job opportunities drive inequality and exclusion. So does lack of urban density, and the failure to provide and ensure access to goods, services, employment and transport in residential areas. The absence of investment in civic community institutions further inhibits inclusion.

What is needed is high quality infrastructure and housing, with public and private housing of different types; with regulation to restore green spaces and protect the environment; to allow for mixed purposes in urban settings; and to use disused spaces for affordable housing for local people (see Housing, Settlement and Location). Street design, road use, and the designation of other open public spaces all affect social relations in urban neighbourhoods, and the identity, sense of belonging, and engagement of residents. Liveable and safe streets, and other open spaces in urban neighbourhoods, are important for public life and social inclusion.<sup>14-15</sup> Public buildings such as schools will be readily available for community use.

Inclusive Cities will be characterised by technological innovation but will avoid consequent social exclusion and marginalisation. Free-access wireless internet connection and public internet facilities will be widely available to reduce the current digital divide. 'E-inclusion' policies are needed to address the needs of an ageing population, people with limited education or computer skills, and people from other marginalised groups. Attention both to hardware and software will ensure maximum access to information and continuing learning. Systems need to be adaptable, robust, user-friendly, continuously assessed, and flexible to support knowledge networks.<sup>16-17</sup> Key indicators relate to access, safety and security, and the quality of amenities. They will include:

- Proximity of housing to essential services, facilities, public transport and open space.
- Provision of neighbourhood and city places.
- Accessibility to people of all abilities.
- Perceptions of places and spaces as safe and secure.

**Multiple local, shared, public spaces** can promote a sense of belonging and allow for diverse activities.

- Big, small, busy, quiet
- Locally distinctive
- Accessible
- Open spaces and social infrastructure
- Places and spaces for art, sport, gardening, and everyday social interaction
- Adherence to the principles of biodiversity and sustainability
- Wider community use of schools, libraries, civic buildings, private buildings and private spaces, including through co-location and the provision of common facilities

<sup>14</sup> Sauter, D. and M. Huettenmoser, *Liveable streets and social inclusion*. Urban Design International, 2008. 13(2): p. 67-79.

<sup>15</sup> Larsen, E.L. and L. Manderson, "A good spot": *Health promotion discourse, healthy cities and heterogeneity in contemporary Denmark*. Health & Place, 2009. 15(2): p. 606-613.

<sup>16</sup> Mordini, E., et al., *Senior citizens and the ethics of e-inclusion*. Ethics and Information Technology, 2009. 11(3): p. 203-220.

<sup>17</sup> Moutinho, J.L. and M. Heitor, *Building human-centered systems in the network society*. Technological Forecasting and Social Change, 2007. 74(1): p. 100-109.

- Levels of pedestrian activity and use, and informal surveillance of streets and spaces.
- Amenity of places, as measured by biodiversity, quality of microclimate, and investment in shared space and places.

#### Inclusive Cities ensure the best use of all areas to enable

- Affordable living and infrastructure
- Inclusionary zoning with the redevelopment of public housing
- Specific targets and outcomes required from new developments
- Incentives for inclusive residences and services through planning systems, funding and subsidies
- Diverse housing with mandated appropriate open space
- Accessibility and engagement through affordable green transport and social infrastructure
- Tax breaks for those who rent out rooms in urban hubs

### Housing, settlement and location

The physical environment influences the desirability of residential areas. However, choices of accessible and affordable housing, and the proximity of housing to educational facilities, work and services, have contributed to locational inequality. Public (social) housing policy has also contributed to a hierarchy of suburbs in most large Australian cities, despite some divergence in cities between people prosperity and place prosperity. In Brisbane, for example, land near the river is an important driver. In Sydney, location to harbour is

important but variety of stock and proximity to the CBD also influence market prices and residents. In most cities there have been sustained cycles of migration from lower socioeconomic status areas into middle and higher income suburbs, with accrual of wealth such that some suburbs have persisted as areas of entrenched disadvantage. The benefits of economic prosperity in cities should be more evenly distributed, with strategies and programs to avoid ever-expanding wealth-poverty gaps based on location.

Ethnic and other community concentrations provide localities with unique character. Most large Australian cities gain socially and economically from specific patterns of settlement. However, newer communities, as well as those who for structural and historical reasons are disadvantaged, tend to live in areas of entrenched disadvantage with poor access to employment, services and facilities. The gap has grown between urban areas with easy access to diverse and well-paid jobs, good services and resources, and areas where housing is more affordable but where there are few amenities, greater unemployment, and higher welfare dependence.

The Inclusive City will ensure that suburbs and community concentrations are not disadvantaged. The Inclusive City will provide for multi-ethnic, multicultural settlement. The Inclusive City requires planning, urban governance and community engagement to manage change at neighbourhood levels. As cultural demographics change, old communities disappear or feel threatened. As new communities are built, new social exclusions based on migrant status, cultural background, or other community affiliation emerge and must be identified. Cultural diversity also requires flexible planning practices and policies for transit and urban design; recreational and community facilities; and housing policy, design and location.<sup>18-21</sup>

The Inclusive City will provide affordable housing options, public and private, to support a more redistributive form of urban development. Affordable housing is needed in areas where jobs are being created and where high quality public transport exists.

In the Inclusive City, a network of high quality accessible infrastructure (including sources of sustainable energy, transport options, convenient access to food, and diverse local businesses and services) will be in place as new housing is built. Master planned communities, as an example, are frequently located in greenfield sites without basic infrastructure or transport, with little or no attention to the provision of goods and services that create a community out of a collection of houses. In the Inclusive City, residents will be stimulated and encouraged to participate in the community by the design of housing, the location of housing in relation to services, open recreational spaces, and transport.

Planning laws and regulations need to ensure a supportive framework: to restore green spaces and protect the environment; to allow for mixed purposes in urban settings; and to make disused spaces into affordable housing for local people. Public land and buildings need to be optimised rather than dedicated for single use. Transport corridors need to be developed to do more than move cars, becoming places for equitable and appropriate prioritisation of activities and modal mix and activated so they are safe, secure and promote local community and commercial activity. Regulations need to encourage heterogeneity in subdivisions, land use, and structures to support equity. There is particular opportunity in relation to (notional) space above public and private commercial buildings, where apartments could be built, and to take advantage of “indeterminate spaces” to ensure that the Inclusive City enables social justice and social and

<sup>18</sup> Sandercock, L., *Towards a planning imagination for the 21st century*. Journal of the American Planning Association, 2004. 70(2): p. 133-141.

<sup>19</sup> Sandercock, L., *When Strangers Become Neighbours: Managing Cities of Difference*. Planning Theory and Practice, 2000. 1(1): p. 13-30.

<sup>20</sup> Helly, D., *Social cohesion and cultural plurality*. Canadian Journal of Sociology-Cahiers Canadiens De Sociologie, 2003. 28(1): p. 19-42.

<sup>21</sup> Sandercock, L. and G. Attili, *Where Strangers Become Neighbours: Integrating Immigrants in Vancouver, Canada*. 200, Dordrecht: Springer.



## social housing without limitation – Hundertwasserhaus in Vienna, Austria

cultural complexity.<sup>22</sup> Early intervention programs should be incorporated into mainstream services (tenancy management, prisoner release, victim support, mental health and drug and alcohol services) to reduce the vulnerability to homelessness among some sectors of the population. The accommodation and social needs and wishes of “informal actors” such as the homeless need to be taken into account.

A major barrier to inclusion in cities now, and in the future, is low housing stock and lack of options, including a mix of affordable rental and owner-occupied properties. In working towards sufficient, accessible and affordable housing stock, including subsidised housing, a number of practical steps have been considered. A planning system, such as that of an Urban Development Authority, is required to protect, promote and produce more affordable supply, by overlays for adaptability, type and size. This body would prohibit covenants that restrict affordable supply, specify an affordable housing supply outcome in metropolitan and local housing plans, link infrastructure funding to supply outcomes, and ensure the progressive application of universal design standards to new and existing stock. Many of these mechanisms are available, but are less often implemented.

Land development agencies need the power to invest surplus funds in affordable supply, as opposed to paying dividends to Treasury. Local employment creation and investment in infrastructure need to be priorities to strengthen the growth of and extend amenities and services in regional centres, where lower land values may reduce housing rental and purchase prices.

Commonwealth, state and territory governments need to develop a program to provide matching capital grants to provide investment that will expand social housing stock, target depreciation allowances (by dwelling price and life-time costs of fittings) to stimulate affordable supply, continue tax credits (for example, for rental assistance programs), to attract investment in below-market rental accommodation, and to restructure negative gearing. Land tax exemptions for multiple property landlords (by price points and/or target group) need review.

Key outcomes in housing will include:

- Growth of affordable and social housing stock.
- Reduction in the incidence of eviction through financial education and case management.
- Increased availability of affordable housing in accessible areas.
- Improved affordability of housing for lower and moderate-income households.
- Diverse housing and effective interventions to prevent homelessness.

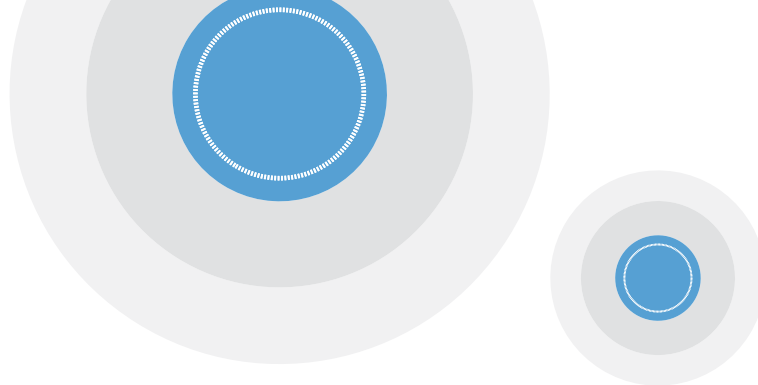


Key indicators include:

- Proportion of housing stock at particular price point (local median for new built and total stock).
- Net additions to and alternatives in social housing stock.
- Number of households in housing affordability stress (for example, households in bottom 40 per cent of income distribution need to pay no more than 30 per cent income in housing costs). An increase in affordability should not be at the expense of moving into transport poverty.
- Numbers of primary and secondary homeless people.

<sup>22</sup> Groth, J. and E. Corijn, *Reclaiming urbanity: Indeterminate spaces, informal actors and urban agenda setting*. Urban Studies, 2005. 42(3): p. 503-526.





## Transport

Good transport is integral to inclusion as well as to community safety. The Inclusive City provides affordable public transport for residents and visitors at most times.<sup>23, 24</sup> People at risk of social exclusion take fewer trips and travel shorter distances: the number and distance of trips falls as their risks of exclusion rise. Lower trip rates are also associated with lower levels of bridging social capital, an important tool for facilitating inclusion in society. Greater mobility through the provision of transport options aids the uptake of other social policy programs designed to facilitate social inclusion – education, work and health-based programs, as well as participation in sport, cultural and leisure activities.

Public transport is commonly less available in outer areas of the larger Australian cities, highlighting the short-term need to invest in improved transport in the periphery while redressing the structure of cities to dilute the contemporary hub/spoke model. Transport needs to be central to strategic planning and policy and, in turn, policy and planning need to take account that transport services are best maintained through accompanying levels of densification. Travel planning and provision is integrated with planning for new housing developments, public services, and recreational and business needs. This requires early investment in infrastructure and services, including at the outset of the design of new developments, and is integral to urban renewal programs. Walking and cycling paths need to be connected to bus, tram and train routes in relation to physical location and timetables, with integrated provision for special needs access. Road networks must be seen and planned primarily as a means of connecting people locally, and to enable convenient, safe, activated and walkable environments that link to activity nodes. Public transport hubs and stops need to be at convenient, accessible locations, not the periphery of shopping and recreational areas.

Planning bodies also need to address the institutional and structural bias in urban transport planning that favours cars. Future planning needs to encourage and ensure the safety of pedestrians, cyclists and vendors on the streets. Transport policies need to be reviewed to discourage the continued use of private transport (for example, fringe benefit taxes which reward high levels of private travel), and to introduce taxes that reflect use (for example, congestion pricing). Policies and planning need to support the development and use of new, low emission modes of transport, such as low emission vehicles and electric cars, to encourage people at risk of social exclusion to use them. Transport alternatives already underway in some Australian cities – such as free bicycle rental programs and additionally subsidised bus travel during non-peak times – are required.

Specific strategies for transport systems include:

- Minimum public transport service provisions across the city.
- Extensive network of walking and cycle tracks separated from urban roads.
- Integration between transport modes in terms of strategy planning and service delivery, including better integration between social policy and transport.
- Urban design which minimises the need for travel.
- Maximising physical access to transport modes.
- Ensuring the participation of those at risk of social exclusion in new sustainable transport options (for example, electric cars, 'kneeling buses' – see Disability, children and Ageing).
- Improved availability of service information.
- Social goals placed in operator contracts and funded by government on social justice grounds, such as the provision of bus services that take pick-ups from aged care settlements.

As in other areas, ongoing community consultation is necessary to ensure a transport system that best meets local needs. Key outcomes in this area include:

- Timely and targeted transformation of areas of high social disadvantage.
- Enhanced levels of social inclusion and higher levels of equality of access to services, jobs, and education, and heightened economic activity.
- Diminished carbon footprint, more efficient conservation and use of non-renewable resources.
- Enhanced public health through safer, more walkable neighbourhoods, higher employment participation, and improved access to support services.

Key indicators include:

- Frequency, regularity, affordability and reliability of public transport.
- Increased public transport use and travel rates for people at risk of social exclusion.
- Continuous improvement in perceptions of availability, reliability and connectivity by people at risk of exclusion.
- Increased use of walking and cycle tracks separated from roads by those at risk of social exclusion.
- Requirements for consideration of transport and mobility needs to be placed in government planning and policy between functional departments, and between government and developers.
- Integration between transport and land use planning mandated in planning law and densification of urban sites along public transport routes.

<sup>23</sup> Mackett, R.L., K. Achuthan, and H. Titheridge, *AMELIA: making streets more accessible for people with mobility difficulties*. Urban Design International, 2008. 13(2): p. 80-89.

<sup>24</sup> Witten, K., D. Exeter, and A. Field, *The quality of urban environments: Mapping variation in access to community resources*. Urban Studies, 2003. 40(1): p. 161-177.

- Mandate universal design features in all new transport vehicles.
- Equal uptake of new sustainable transport options between social inclusion and social exclusion groups.

## Education and employment

The Inclusive City has a resilient economy. Jobs are evenly distributed, secure, well-paid and satisfying. More jobs are closer to where people live, and there are incentives for employers to invest in local areas; local employment growth in turn reduces direct and indirect transport costs to individuals and society and contributes to local identity. Learning is fundamental to the Inclusive City. An ongoing focus on education and learning, from pre-school to vocational training to lifelong learning, is critical to opportunity, wellbeing, and active citizenship. Educational opportunities need to match the employment market, and quality internet services need to provide access to information about job and educational opportunities.

To address education needs and reduce unemployment in the Inclusive City, from a broad perspective we need to:

- Reduce spatial disparities in access to education, skills and work.
- Improve material living standards of people in disadvantaged areas.
- Increase community resilience to economic change and enhance mental health services.
- Provide alternative means of productive engagement in local settings.
- Reduce costs associated with long-term unemployment and joblessness.

The Inclusive City needs shared spaces to encourage learning and working. Employment and learning hubs could combine libraries, neighbourhood houses, community education providers, social enterprises, and rooms for training providers to run programs, including to support people who have faced long-term unemployment.<sup>25, 26</sup> These would be governed by local boards, and would bring together leaders representing different community interests and groups.

Other strategies to improve place-based responses in education and employment to enhance social inclusion include:

- Building in specific social outcomes to public procurement processes, including use of local labour and

take-up of apprentices.

- Identifying and responding to emerging industries' needs, for example green-collar jobs.
- Providing financial opportunities to support small and distinctively local enterprises and support for social enterprises,<sup>27</sup> developing programs to support local business networks, and to support sustainable business practices.
- Providing incentives for employers and employment service providers to locate in areas with high concentrations of jobless families, to provide opportunities for learning and professional development, and to take on apprentices and support community enterprises.
- Investing in community development strategies that strengthen employment opportunities, including for people conventionally excluded from the employment market,<sup>28, 29</sup> and in particular:
  - Targeted training programs for Indigenous Australians.
  - Harnessing technology to provide more varied learning opportunities, particularly to those with learning disadvantages (see also below).
  - Promoting distinct centres of excellence in schools and greater linkages between them.
  - Better alignment of industry-wide skills gaps and targeted training programs.
  - Volunteering programs, including enhancing job experience and competitiveness, as indicated above.
  - Require the shared use of school and community facilities.

Key indicators will include:

- Local employment growth.
- Greater variation in work opportunities and diversity in the workforce at large.
- Increased participation in vocational education and training.
- Increased training in new green job skills.
- Reduction in youth unemployment and under-employment.
- Increased employment of people with disabilities.

## Disability, children and ageing

Cities of the future face a vital challenge in addressing the consequences of a rapidly ageing population: dealing with the significant negative outcomes from the exclusion of people with a disability, with poor mental or physical health, or reduced functions due to ageing. Cities also need to be places that nurture and support children. Changes to family structures and workforce participation are reducing hours and quality of informal and unpaid caring.

<sup>25</sup> Seyfang, G., *Working outside the box: Community currencies, time banks and social inclusion*. Journal of Social Policy, 2004. 33: p. 49-71.

<sup>26</sup> Stepney, P. and P. Davis, *Mental health, social inclusion and the green agenda: An evaluation of a land based rehabilitation project designed to promote occupational access and inclusion of service users in North Somerset, UK*. Social Work in Health Care, 2004. 39(3-4): p. 375-397.

<sup>27</sup> Donald, B. and A. Blay-Palmer, *The urban creative-food economy: producing food for the urban elite or social inclusion opportunity?* Environment and Planning A, 2006. 38(10): p. 1901-1920.

<sup>28</sup> Edwards, C., *Regeneration works? Disabled people and area-based urban renewal*. Critical Social Policy, 2009. 29(4): p. 613-633.

<sup>29</sup> Mosley, P. and L. Steel, *Microfinance, the labour market and social inclusion: A tale of three cities*. Social Policy & Administration, 2004. 38(7): p. 721-743.

In the Inclusive City, policies, services and structures relating to the physical and social environment are designed to support wellbeing. People - including children, the aged and those with disabilities - are supported in all domains of wellbeing: security, safety, health, relationships, community connection, spirituality, standard of living and achieving. Urban communities will gain from the active participation of older people and people with disabilities. The Inclusive City for children will provide a safe environment that facilitates equitable access to high quality opportunities for play, enquiry, learning, socialisation and nurturing. The city will offer children security and wide-ranging opportunities for independence and expression.

The Inclusive City will give opportunities to build the Inclusive local economy that supports people with different capabilities. Key strategies are:

- Removing “architectural disablers” from the design of buildings and places and adhering to a universal standard design.
- Providing adequate services and infrastructure for the local community – supported by all tiers of government.
- Access to services based on individual need and appropriately self-directed.
- Incentives to “downsize” from the family home to release funds for co-payment of care services for those with significant accumulated assets.
- Incentives for workforce participation and volunteering for those with disabilities or beyond retirement age.
- Retaining neighbourhood community infrastructure including shops, healthcare and meeting places, easily accessible by foot and public transport to meet the needs of parents with young children and people who are elderly, have limited mobility, and/or learning difficulties.
- Actively address negative aged and disability stereotypes in the media and government policy.

Key outcomes of an Inclusive City are that people can live in the neighbourhood of their choosing, irrespective of age or capability, and that:

- The built environment is no longer inaccessible, inconvenient, uncomfortable or unsafe for people with disabilities.
- Opportunities for employment, learning, community participation and independence are not limited by the physical environment or misperception.
- All citizens, regardless of age and capability, are respected and have equal opportunity to participate and contribute.
- People co-contribute to the cost of services they use, to the level they can afford.

Key Indicators include:

- Established mechanisms for participation in city planning and governance by older people and those with physical and/or cognitive limitations, and people with mental health problems.
- Monitoring of progress against satisfaction with social inclusion indicators and domains such as wellbeing, access to outdoor spaces and buildings, transport, housing, safety, civic participation, respect and social inclusion, employment, carers, volunteers and volunteering, and availability of health and ageing services.

## Culture, arts and celebration

The Inclusive City honours traditional custodianship and celebrates Indigenous cultures and knowledge, working with local Indigenous communities to ensure this is acknowledged in appropriate ways. There are many ways to achieve this, including through involving Indigenous Australians in caring and planning for the natural environment (and so, to ensure open spaces in Inclusive Cities); in employment; and through using the arts and working with local institutions to create and develop visible and public representations of Indigenous culture, heritage and identity.

The Inclusive City needs to mirror, in creative ways, the people who live in, work at, visit and interact with the place. The creative arts are a powerful and effective way to build social capital and support social inclusion. A cultural policy will support a rich variety of cultural events and communities, with cultural policy and public art intersecting with the processes of urban restructuring. Public art adds to local identity, and can take multiple forms, from interactive sculptures to music events,

### Working towards Inclusion

- Housing diversity targets for each municipality/neighbourhood.
- Minimum density requirements for urban hubs – residential, jobs and services.
- People commute less – fewer, shorter car trips, more green travel.
- Increased use of streets, public spaces and buildings by all community members at all times of day and night service.
- Increase in number and diversity of people involved in city planning, policy and service delivery.
- Increase in participation of traditionally excluded groups.
- Increased community acceptance in planning processes.
- Decrease in disadvantage in most disadvantaged areas including in terms of income, education and unemployment.
- Decrease in number of disadvantaged areas.
- Smaller gap between advantaged and disadvantaged areas.
- Increases in the levels of engagement in public/civic life – participation in public office reflects the community.

installations, and permanent pieces. Although cultural events and permanent art forms can promote inclusion, questions around cultural domination need to be addressed to ensure the successful role of art in the development of inclusion.<sup>30, 31</sup>

Close consulting with communities to develop comprehensive policies will enable the growth and proliferation of arts and cultural events at the heart of each city and urban hub. Governing bodies will work closely with grassroots organisations to develop projects and programs, engage communities, and evaluate 'inclusivity within the city'. One strategy is to engage with city residents to create spaces in the city that welcome and link places, including developing and maintaining small public meeting places that are welcoming and connected. While cultural diversity is reflected and expressed in the built environment, its primary medium is its people. The Inclusive City will enable each to complement the other, ensuring that cities are creative, fun, and safe. Heritage and art walks may strengthen a sense of locality and belonging, and provide work opportunities for residents. Here, Indigenous Australians and other long-term older residents may have especially important roles. The Inclusive City will have a sense of distinctive identity: anchored in Indigenous history and influenced and transformed by the many cultures that co-exist in contemporary Australia and in specific localities.

## Concluding remarks

Inclusive Cities are sustainable. They are also flexible, functional, equitable, affordable and adaptable. Urban design and urban renewal will be based on the co-location of housing, work and other infrastructure and services, as far as possible, to reduce the need for travel, to minimise cost and maximise sustainability. This may entail mainly self-contained urban centres. At the same time, Inclusive Cities will be interconnected to enhance social inclusion and participation.

The Inclusive City will reflect community characteristics and needs, with affordable housing, high quality walking environments, assured environmental health, biodiversity, accessible places and open spaces. Inclusive Cities will increase equality of access to services, jobs and education, and heightened economic activity. Safer and more walkable neighbourhoods, higher employment participation, and improved access to support services will enhance the health and wellbeing of individuals and populations. There will be improved affordable access to housing in areas where new jobs are created and where high quality public transport exists. There will be improvements in education, health, employment and a reduction in crime.

In the Inclusive City, people will be able to work, study, shop and seek support where they live, without unnecessary costs or compromises in quality of life. The opportunity to walk or cycle rather than drive reduces energy costs and improves individual health. People will have greater opportunities to interact, and so to contribute to their cities, their activities and resources on a continuing basis. Social connections, regular interactions and empowerment, in the policies and programs that affect our lives on an everyday basis, enhance wellbeing and strengthen people's sense of safety in and identity with the community. They will build social capital in ways that are productive for families and communities.

Public investment in infrastructure will be guided by community contributions, and will minimise the use of non-renewal energy through the creative mix of traditional patterns with modern technologies. The Inclusive City needs an enabling legal framework, including laws, regulations and ongoing planning and governance processes. It needs commitment to community engagement, empowerment and collaboration. As a result, the Inclusive City will enable improved quality of life and access to opportunity, social interaction and involvement. It will celebrate distinctive places, spaces and peoples; it will nurture, support and inspire. The Inclusive City will be a place for all.

<sup>30</sup> Delhay, C., *Immigrants' artistic practices in Amsterdam, 1970-2007: A political issue of inclusion and exclusion*. Journal of Ethnic and Migration Studies, 2008. 34(8): p. 1301-1321.

<sup>31</sup> Sharp, J., V. Pollock, and R. Paddison, *Just art for a just city: Public art and social inclusion in urban regeneration*. Urban Studies, 2005. 42(5-6): p. 1001-1023.





# THE ECOLOGICAL CITY



## Introduction

The economic value and productivity of a city is underpinned by its ecological performance. This depends largely on a city's resilience to growth and environmental pressures and particularly to the effects of climate change. An ecological city contributes to, rather than detracts from, the wellbeing of its residents and visitors.

This chapter examines the urban challenge and argues a case for change; discusses what makes an ecologically resilient city; puts forward key approaches for achieving these outcomes; and offers targets and ideas.

The focus of this chapter is on ideas and solutions to enhance the resilience of future cities to a range of potential pressures. These pressures could be social, environmental or economic 'shocks' from climate change, water scarcity, increased population or natural disasters. Cities also need to be well positioned to take advantage of new opportunities. Pressures will come from changes such as the dramatic 62 per cent decrease in rainfall in Perth over the past 10 years. However, new opportunities will become available in the form of new technologies, scientific breakthroughs and lucrative low carbon economies. These have the potential to generate thousands of new businesses and millions of new jobs in emerging environmental industries.

A risk-based approach is taken to identifying key threats and opportunities to building resilient cities, developing concrete recommendations to help prepare these cities to address the potential impacts of such events.

### Scope of issues

The scope of this work primarily relates to environmental issues and impacts on future cities. Although issues such as housing affordability and liveability are clearly important,

they will not be examined in detail here. Likewise, population policy will not be explicitly examined but the implications of current projections will be explored.

The focus of attention is not just on capital cities but on all large-scale urban environments, with targets applicable to both regional and capital cities. The scope includes examination of the services provided by cities to surrounding rural areas such as health, retail, recreation and the arts.

### The urban challenge – a case for change

The key challenge for Australian governments is how to allow forecast growth without degrading the ecological performance, quality of life and economic value of our cities. The ideas and responses set out here take into account the potential magnitude of this response. As our cities grow faster than ever before, these pressures, coupled with the inherent problems of ecological degradation in Australia, mean our urban challenge is greater than most other countries:

- Australia, like many other nations, is entering a period where urbanisation is projected to occur at the greatest rate in human history.<sup>1</sup>
- Urbanisation continues to increase as Australia's capital cities are forecast to grow from 13 million to 28 million (or 66 per cent of Australia's population) by 2056.<sup>2</sup>
- Melbourne and Sydney are forecast to double in size to around 8 million people each by 2050.<sup>3</sup>
- 56 per cent of growth in the 60-plus age group is expected to occur in Australian cities.<sup>4</sup>
- Australia's capital cities are forecast to add 6.5 million dwellings in the 50 years to 2056, representing a growth level of 126 per cent. Based on current levels of annual new dwelling construction levels, a shortfall of between one million and 3 million dwellings by 2056 is expected.<sup>5</sup>

<sup>1</sup> United Nations (2004), *World Urbanization Prospects: The 2003 Revision*, Department of Economic and Social Affairs, Population Division, [www.un.org/esa/population/publications/wup2003/WUP2003.htm](http://www.un.org/esa/population/publications/wup2003/WUP2003.htm)

<sup>2</sup> Australian Bureau of Statistics, *Population Projections, Australia, 2006-2101*, cat. no. 3222.0, ABS Canberra, 2008

<sup>3</sup> *ibid*

<sup>4</sup> *ibid*

<sup>5</sup> Reserve Bank of Australia, *Statement on Monetary Policy*, Sydney, 6 August 2009, page 47, Accessed at <http://www.rba.gov.au/PublicationsAndResearch/StatementsOnMonetaryPolicy/Statements/statement-on-monetary-0809.pdf>



- Globally, cities account for around 75 per cent of greenhouse emissions and Australian cities account for around 70 per cent of the national emissions.<sup>6</sup>
- The building sector offers the largest share of cost-effective opportunities for greenhouse gas emissions mitigation in both new buildings and retrofits.<sup>7</sup>
- Climate change adaptation has the potential to generate a greater shift to mass transit passenger systems and new forms of infrastructure such as embedded generation.
- It is estimated that about 80 per cent of urban water supply depends on rainfall.<sup>8</sup> Reduced rainfall is already evident in a number of Australian cities and is projected to worsen as climate change impacts increase.<sup>9</sup>
- Ports and other critical infrastructure will be significantly affected by climate change.

Sixty-five per cent of Australia's GDP is generated in its capital cities.<sup>10</sup> Hence a considerable part of the nation's economic wealth and productivity is at risk if the ecological and quality of life values are not resilient to the pressures of growth. The sheer extent and rate of population growth projected over the next 50 years will exacerbate the challenges facing Australian cities. For example, based on a high growth scenario,<sup>11</sup> both Sydney and Melbourne will double in size four times faster than they took to reach their current sizes. This will place unprecedented pressure on housing and infrastructure demand, and investment levels in property markets to keep pace with growth in the economy.

With the added challenges of climate change and water scarcity, the consequences of poor-performing and unresponsive planning systems could have a significant impact on Australia's economic performance and position

in the global economy. Poor economic performance could manifest in reduced business and consumer confidence leading to decreased business investment, investment in dwellings and housing affordability.

### Population pressure

Cities are being increasingly challenged by growth from increased urbanisation following migration from rural areas and overall population increases from fertility increases and immigration.

Australia's population is projected to grow from around the present 22 million people to 35.9 million people in 2050.<sup>12</sup> This includes Sydney and Melbourne both growing to between 7 million and 8 million people each in that period.

These population drivers also will raise pressures on the resources consumed by the inhabitants of our cities. Demand for resources such as water, energy and open space will intensify.

Globally, this situation is replicated on a larger scale. The Australian Financial Review reports<sup>13</sup> that 15 million people are moving from rural to urban areas each year, yet the majority of China's 1.3 billion people remain in rural areas.

A key need is to understand the implications of population growth on ecological performance and then plan for this growth to occur in our cities and urban areas in a sustainable manner. Long-term ecological health is fundamentally connected to economic wellbeing and the quality of our living conditions.

<sup>6</sup> C40 Cities website: [www.c40cities.org/climatechange.jsp](http://www.c40cities.org/climatechange.jsp) Accessed 18 August 2009

<sup>7</sup> IPCC (Intergovernmental Panel on Climate Change) 2007, *Climate Change 2007: Mitigation of climate change*. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, B. Metz, O.R. Davidson, P.R. Bosch, R. Dave and L.A. Meyer (eds), Cambridge University Press, Cambridge and New York. p. 390 and as cited in Garnaut, R. 2008, *Garnaut Climate Change Review: Final Report*, Cambridge University Press, p.405

<sup>8</sup> Desktop analysis based on average annual consumption and surface storage capacity from publically available data sources

<sup>9</sup> Garnaut, R., 2008, *Garnaut Climate Change Review Final Report*, September 2008, Cambridge University Press, pp.128

<sup>10</sup> Estimates from KPMG economic modelling based ABS Input-Output tables and labour force survey (unpublished)

<sup>11</sup> Australian Bureau of Statistics, *Population Projections, Australia, 2006-2101*, cat. no. 3222.0, ABS Canberra, 2008

<sup>12</sup> Treasury, 2010, 2010 Intergenerational Report accessed at << [http://www.treasury.gov.au/igr/igr2010/report/pdf/01\\_Executive\\_Summary.pdf](http://www.treasury.gov.au/igr/igr2010/report/pdf/01_Executive_Summary.pdf) >> section 1.3

<sup>13</sup> AFR 22 June 2010, page 29

A rapid decline in ecological health will compromise our way of life in respect of food security, water security and living conditions due to extreme weather events. Governments will be forced to divert funds to address the consequences of this decline, compromising our economic prosperity. This diversion will be considerable and will come at a cost to other services.

## Environmental pressures

In simple terms, the ecological impact of cities is a combination of the consumption of resources and the production of wastes, including greenhouse gas emissions. In many cities renewable resource consumption has reached a rate beyond replacement and contamination of natural resources occurs at levels that degrade biological systems. As these impacts have become larger we are reaching tipping points that disrupt our health and economic productivity in unforeseen ways.

Environmental stress from climate change will continue to accelerate. Not only will it impact the availability and cost of reliable food, water and energy supplies – it will threaten the remaining natural ecosystems and biodiversity.

The *Garnaut Climate Review* assessed the vulnerability of Australian assets to climate change. The review concluded that under a ‘no mitigation scenario’ the water supply infrastructure is forecast to experience high impact from climate change by 2030 in NSW, Queensland and Victoria and “extreme” impacts in Western Australia and South Australia.<sup>14</sup> A 50-year trend for significantly reduced rainfall across southern and eastern Australia was recently confirmed in the *State of the Climate Report*.<sup>15</sup>

Under the same ‘no mitigation’ case the climate change impacts on buildings in coastal settlements are projected to be extreme in Queensland by 2100 and high in NSW, South Australia and Victoria over the same period.<sup>16</sup>

Urban heat island effects may become more pronounced as cities grow and the climate warms. Clever design and use of urban vegetation, reflective surfaces and shade will need to be encouraged to mitigate these impacts.

The *State of the Climate Report* also confirms a doubling of the average annual number of hot days since the 1960s. If this continues as projected, peak energy demand and heat-related deaths in poorly designed dwellings are likely to rise as well.

The human health impacts of increased heatwaves and hot days will be an increasing challenge for city design.

The winter peak in temperature deaths is likely to be overtaken by heat-related deaths in nearly all Australian cities by mid-century.<sup>17</sup>

Storm frequency and intensity are predicted to increase from climate change, with cities providing concentrations of damage. The additional costs to business households and governments will rise. Buildings and infrastructure will need higher thresholds of failure to provide the same historical resilience and performance that the community expects, or those expectations will need revision.

Sea level rise presents a direct challenge to existing areas of many cities. The federal government’s report *Climate Change Risks to Australia’s Coast*<sup>18</sup> models a projected 1.1 metre rise in sea level along with an increase in extreme weather events like tidal and storm surges. These changes could lead to the inundation of 250,000 existing houses as well as critical infrastructure such as ports, airports, power stations and bridges. Although it may be necessary to retreat in rural and regional areas, in cities prevention is likely to be more cost-effective. Long-term planning and infrastructure investment will be required for significant protection measures.

## Energy security

Electricity demand on hot days will continue to challenge the grid in major cities and supply interruptions remain more likely.

Energy prices will also continue to rise, irrespective of whether an emissions trading scheme is introduced. Oil shortages, carbon pricing, network upgrades and addressing the lag in infrastructure investment will continue to drive up energy prices. However, price increases will not be enough to achieve the emissions reduction targets.

Transformational technologies will emerge that may solve existing problems, and perhaps in the process create new problems. Electric cars may reduce oil import dependence but increase coal use or, alternatively, drive investment in new-generation gas-fired electricity with carbon capture and storage (CCS). Either way, cost pressures will change. Investment in renewables is generally capital intensive but will have lower operating costs (especially wind, solar and geothermal) and may require energy storage technologies such as hydrogen, batteries and super-capacitors to ensure continuity and security of supply.

<sup>14</sup> Garnaut, R., 2008, *Garnaut Climate Change Review Final Report*, Cambridge University Press, p.136

<sup>15</sup> CSIRO and Bureau of Metrology, 2010, *State of the Climate Report*

<sup>16</sup> Garnaut, R., 2008, *Garnaut Climate Change Review Final Report*, Cambridge University Press, p.138

<sup>17</sup> McMichael, A 2002, *Human Health and Climate Change in Oceania: A Risk Assessment*

<sup>18</sup> Australian Government, Department of Climate Change, *Climate Change Risks to Australia’s Coast*



## Water security

Water security remains essential to the economic wealth of a city. Climate change threatens water security in most Australian cities and significant supply augmentations are now taking place in each city. Significant levels of infrastructure investment will continue to be needed to allow for rising demand while water availability is contracting.

However, major efficiency gains remain to be implemented. Smart delivery and demand-management systems for households, irrigation and industry warrant priority over new augmentations. Big efficiency gains are needed to ensure water security. This is reflected in the targets proposed in this chapter.

## Food security

Urbanisation threatens food production in two ways. First, the rural workforce declines and labour-intensive tasks such as harvesting become more difficult. The introduction of temporary work visas is one way of addressing this.

Second, urban fringe farmland is often converted to residences and other related uses. This potential land use change will drive land values well above any reasonable returns from agriculture. However, some community assets are often not valued by the market and these should be protected through land use planning and zoning.

Protection of food production assets is essential to maintenance of efficient and secure food supply chains. Areas with high value attributes such as productive soils, irrigation and drainage infrastructure should be identified and properly assessed prior to any land use change. Agricultural

buffer zones are also necessary to protect communities from farming-related noises and odours. Some areas may also have rare biosecurity attributes such as absence of diseases. These should also be properly valued in any land-use decision-making.

## Biodiversity


Biodiversity makes a valuable contribution to healthy people and liveable cities. Biodiversity assets in and around urban areas are under increasing threat from urbanisation. This pressure drives increased fragmentation and isolation of remnant ecological communities. These pressures are then compounded by changes to temperature and rainfall patterns that further reduce the viability of these remnant flora and fauna populations.

Redeveloping inner urban, or infill, sites generally reduces development pressures on biodiversity on the urban fringe. However assessment and protection of significant biodiverse values of the inner urban sites is still required.

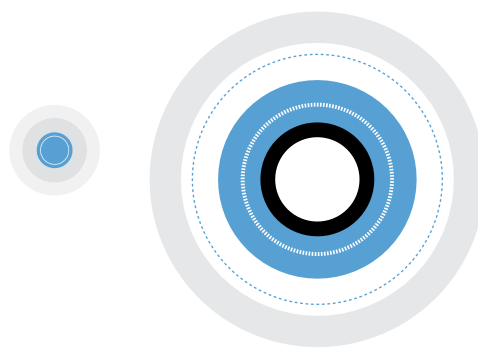
## The challenge for our cities

The challenge now is to plan for growth in our cities and population without creating an irreversible decline in any ecological assets.

Our cities also need to become more resilient to ecological shocks. These shocks will threaten our economic wealth and the social fabric we have become accustomed to. Failure to plan for this growth, and its challenges, will set us up for long-term problems that have major economic costs and will require unpopular regulatory responses.



investment in renewables  
is generally capital  
intensive but will have  
lower operating costs



## What is an ecologically resilient city?

Given the impending consequences of climate change and population growth on our cities and their inhabitants, the primary objective is to create cities that are resilient to shocks.

The principle that underlies decision-making for ecologically resilient cities is driven by a moral obligation to future generations. Intergenerational equity dictates that the escalating cost of managing these shocks should not be passed to future generations by failure to act on redesigning systems now. These compounding and accelerating environmental pressures build a case for change. Fundamentally, an Ecological City must create the platform for economic productivity and social wealth. Conversely, it must avoid an ecological deficit that has to be repaid in the future.

Long-term vision for sustainable, resilient cities is developed along three key themes:

- Our cities must enhance and make sustainable the value of ecological assets.
- Restore the ecological balance to systems that have been degraded.
- Treat assets as part of economic activity – ecological assets should not be in competition with the economy.

### Preferred outcomes

To be consistent with these high level themes, our cities need to be governed in a way that provides the following outcomes:

- City design needs to prioritise the restoration and preservation of our ecological assets. Our role is custodianship rather than ownership.
- Liveability, ecological and economic objectives need closer alignment.
- New city economies should be created based on sustainability-related technologies.
- Internalisation of external costs, including the removal of perverse incentives or barriers (such as FBT breaks for excess vehicle use, or stamp duty disincentives for multi-unit developments compared to house and land packages).
- Greenhouse gas emissions are properly priced in all sectors.
- Continually increase resource productivity.
- Develop and implement a risk-based approach to climate change mitigation and adaptation.
- We need to prepare for what we know is coming – clear scenario planning is needed to support the development of the skills, awareness and capacity to build more resilient cities.
- We also need extra resilience to deal with ‘unknown’ shocks.

- Waiting for a silver bullet is a very high risk approach. Building resilience comes, at least partly, through diversification in the mechanisms and policy levers we use to reach outcomes.
- Avoidance of worsening the situation through poor design and substandard technology, especially in infrastructure and long-life assets.
- Creating resilient infrastructure and dealing with ‘at risk’ infrastructure (for example airports vulnerable to sea level rise).
- The policy toolbox needs flexibility. We should be ready to use any tool or intervention. We should be mindful of outcomes but not lock in – or out – any mechanisms that may, or may not, bring these about.
- A monitoring, evaluation and governance framework that allows identification, adaptation and response to changes and shocks.

## Key approaches for achieving an ecologically resilient city

Clear incentives, governance approaches and regularly measured targets are needed to guide government and private-sector actions to ensure objectives are achieved and measures are adjusted as necessary.

- Target setting is an essential element to achieving desired outcomes. Targets inform the level and rate of intervention required to achieve these outcomes. A robust framework of targets provides for reporting at all levels: from national through to state, municipal, precinct and development-level targets.
- There is an opportunity now to correct and retrofit poorly performing buildings and assets before they cost even more to rectify. Meanwhile we must prevent bad design of new assets that locks in further ecological deficits. Intervention now can correct this trend but there will be a point at which correction becomes too expensive and retrofitting is impossible. We must plan for ecologically resilient cities by putting sustainable city planning at the top of the national agenda.
- Wherever possible, a market-based approach should be used and incentives offered to achieve results. Further intervention will be needed where this is not feasible.

## Setting targets

### Process of target setting

Our cities are experiencing a rapid, unprecedented rate of change. We need targets and a robust monitoring system to better understand and respond to these changes. Further work is needed to develop these targets but a preliminary framework is provided in this paper.

Intensity targets based on population and/or GDP may prove to be more useful than absolute caps in many, but not all, circumstances. This approach allows the decoupling of tension between economic growth and social and environmental sustainability. The intensity targets still need an underlying absolute target, such as maximum concentrations of greenhouse gas or annual emissions caps. This provides a useful tool for engaging a wider audience.

These intensity targets will then need to be aligned at many levels. A national framework for targets is needed and this cascades down into state, local, sectoral and, eventually, building-level targets.

The Commonwealth has a unique role in driving the development of this framework for targets: it could make the framework a precondition for Commonwealth investment in infrastructure to support city development.

To be effective, the aggregate national targets should filter through and align with state, local and sector-specific targets. The targets must be focussed to enable conversion into policy levers and must be translatable to a useful, granular level.

### Targets and monitoring – carbon emissions intensity

The federal government has a carbon emissions commitment of a 60 per cent reduction from 2000 levels by 2050. This is still less than with the reductions recommended by the Intergovernmental Panel on Climate Change (IPCC) and the *Garnaut Climate Review*. The recent Climateworks analysis recommends a tight target of 25 per cent reduction below 2000 levels is achievable within 10 years at low cost.<sup>19</sup>

Currently Australia's annual greenhouse gas emissions are around 600Mt of CO<sub>2</sub>-e. This equates to a per capita average of 26 tCO<sub>2</sub>-e/person. The combination of population growth and emissions reduction targets requires a considerable contraction in per capita emissions intensity.

The easiest of the aforementioned targets is the federal government's target of a 60 per cent reduction by 2050. Even this reduction in combination with the Treasury's 2056 population forecast of 36 million<sup>20</sup> requires an emissions

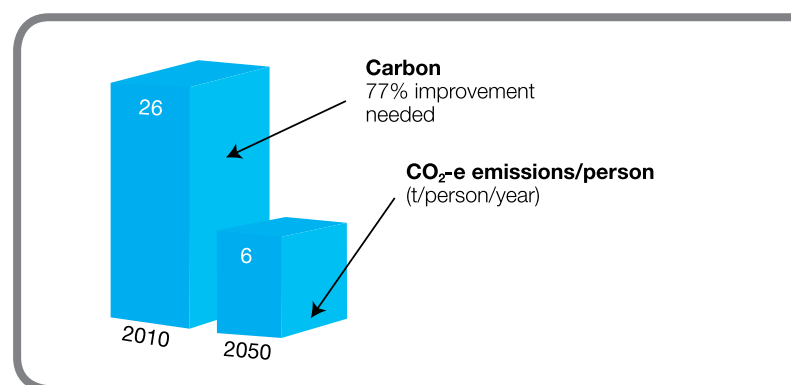
intensity reduction from the current level of 26 tCO<sub>2</sub>-e/person to about 6 tCO<sub>2</sub>-e/person.<sup>21</sup> This is a 77 per cent improvement in the annual emissions performance of each Australian. In terms of planning our cities it is worth noting the amount of Australia's total emissions (26 tCO<sub>2</sub>-e/person) that can be attributed directly to the residential sector is about 5 tCO<sub>2</sub>-e/person and of this 3 tCO<sub>2</sub>-e/person is related to dwellings whilst 2tCO<sub>2</sub>-e/person is from residential related transport.<sup>22</sup>

Residential transport emissions are largely dependent on factors such as city density, mass transit capacity and vehicle fuel types. The Garnaut Climate Change Review found that 'petroleum-based fuels currently account for around 97 per cent of Australian transport energy use.' This is a product of low fuel prices and patterns of urban development that favour car and truck transport (which account for over 85 per cent of transport emissions). However, long-distance freight using rail and shipping means are drastically more carbon efficient.<sup>23</sup>

The energy used in dwellings is primarily, dependent on dwellings' size and thermal performance, appliance efficiency and carbon intensity of the stationary energy supply. Target setting needs to be focussed on these factors as they drive emission levels.

Figure 1  
Improvements required in carbon emissions intensity

Australia's carbon efficiency needs to improve by 77 per cent (tonnes CO<sub>2</sub>-e/per capita) by 2050 to cater for emissions reduction targets and projected population growth.



<sup>19</sup> Climateworks Australia, 2010, *Low Carbon Growth Plan for Australia*

<sup>20</sup> Treasury, 2010, 2010 Intergenerational Report accessed at << [http://www.treasury.gov.au/igr/igr2010/report/pdf/01\\_Executive\\_Summary.pdf](http://www.treasury.gov.au/igr/igr2010/report/pdf/01_Executive_Summary.pdf)

<sup>21</sup> The Garnaut Review suggested a 2050 per capita target of about 4 t CO<sub>2</sub>-e/person to achieve a concentration of 550ppm and about 3 t CO<sub>2</sub>-e/person to achieve a concentration of 450ppm. In Garnaut, R., 2008, *Garnaut Climate Change Review Final Report*, Cambridge University Press, p.208

<sup>22</sup> These estimates includes Scope 1 and Scope 2 emissions but excludes Scope 3 emissions for the residential sector and are based on the 2007 National Greenhouse Gas Inventory

<sup>23</sup> R Garnaut, "Transforming transport", The Garnaut Climate Change Review, (2008) Commonwealth of Australia

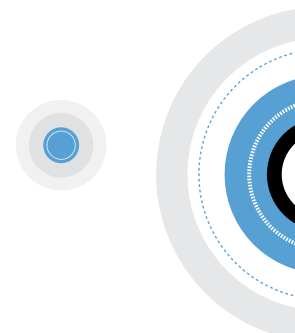


Table 1

### Monitoring – Improvements required in carbon emissions intensity (required to meet Government's 2050 emissions target)

	% OF CURRENT TOTAL NATIONAL EMISSIONS	CURRENT EMISSIONS INTENSITY (T CO <sub>2</sub> -E/PERSON) <sup>24</sup>	2050 TARGET (T CO <sub>2</sub> -E/PERSON) (T CO <sub>2</sub> -E/PERSON)
Total - All sections	100%	26.4	6.2
Residential dwelling related emission	10.2%	2.9	0.7
Residential transport related emissions (excludes freight)	7.4%	2.1	0.5
Total - All Residential	17.5%	5.0	1.2

This reduction will require efficiencies in both supply and demand actions and the change needed is too large to be left only to market forces. Intervention and government leadership would be prudent. Obviously, efficiencies also need to be generated in sectors other than residential emissions.

### Monitoring – water use intensity

Population growth of the size predicted will put water use under pressure, particularly in the face of the increasing scarcity driven by climate change.

Table 2

### Required improvement in average water use intensity to support Treasury's forecast population growth

(Assumes no further extractions from environmental flows)<sup>25</sup>

YEAR	2010	2020	2030	2040	2050
Population	22 m	26 m	29 m	33 m	36 m
Total urban potable water use (M/day) <sup>26</sup>	2730	2730	2730	2730	2730
Average urban Water Usage (/person/day)	155	107	94	84	76

As with carbon emissions reductions, increased efficiencies by all water users will be needed, including industrial, agricultural and residential sectors.

Climate-adjusted 'catchment caps' could be developed for each city. Well designed caps will promote innovative, forward-thinking investment in management of water scarcity. New residential developments should then be designed so the water demand can fit within this system cap. The housing developments must be highly water efficient, or a developer could

<sup>24</sup> 2007 National Greenhouse Gas Inventory.

<sup>25</sup> Treasury, 2010, 2010 Intergenerational Report accessed at << [http://www.treasury.gov.au/igr/igr2010/report/pdf/01\\_Executive\\_Summary.pdf](http://www.treasury.gov.au/igr/igr2010/report/pdf/01_Executive_Summary.pdf)

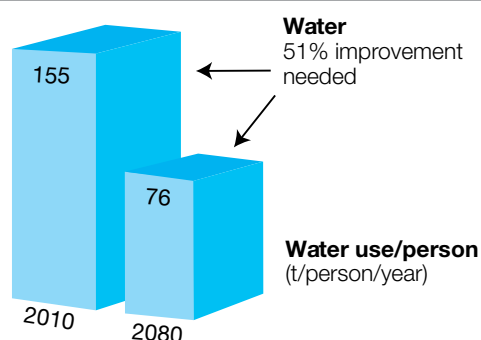
<sup>26</sup> This measure shows how the water use efficiency per person will have to improve to cater for forecast population growth without any supply augmentation. The current urban potable water use estimate is based on the current population of 22 million people and assumes 80% of this population lives in urban areas and uses water at an average of 155 litres/person/day. This is the current Victorian water consumption target.



compensate by creating savings elsewhere in the systems, or both approaches might be combined. This action will limit inappropriate development in areas of water scarcity.

Based on the population projections in table 3 then the per capita water efficiency gain is represented in Figure 2.

**Figure 2**  
**Improvements needed in water efficiency**



### Residential density targets

Density is a measure of land resource consumption – the higher the density of human urban settlement the less land is consumed that could support other uses, such as biodiversity and food production.

The savings in transport and infrastructure spending for building one thousand dwellings as urban redevelopment rather than fringe development are estimated at 4,400 tonnes of GHG per annum, \$86 million upfront for infrastructure and \$250 million for annualised transportation costs over 50 years.<sup>27</sup>

In addition, appropriate dwelling density contributes to the more efficient use of other resources. For example, where existing infrastructure can support additional loads, increased density provides for more efficient infrastructure use.

There is a relationship between density and energy and water consumption – the lowest density cities have much

higher fuel consumption,<sup>28</sup> and water used on private gardens accounts for as much as 40 per cent of residential water use in some cities.<sup>29</sup> Also, building energy performance varies based on its form. If thermal efficiency measures are equal, low density detached dwellings have a high energy load due to their size, whereas medium density dwellings are more carbon efficient than either single detached or high density dwellings.<sup>30</sup>

Residential density targets can assist in assessing the sustainability performance of a development. Measuring the outcomes is important to provide a more precise measure of performance. Assessing outcomes such as emissions, water use and waste will provide better indicators than a density measure on its own. However density does provide a useful proxy in the absence of more detailed performance indicators. The density targets selected in this chapter are adapted from the work of leading experts that suggest that around 35 dwellings per hectare is a benchmark for urban sustainability<sup>31</sup> and the threshold density for decreased car dependence.<sup>32</sup>

### Transport

All Australian cities should develop more density within walking distance – 400 metres – of public transport. This will dramatically reduce car trips and consequent emissions. Frequent, rapid public transport is required to support this development and shift modal share. Research has shown that very frequent and efficient rail services are the most effective public transport for promoting this change; and they produce fewer emissions per passenger than bus systems.<sup>33</sup>

It is recommended that governments reverse their proportion of road to rail infrastructure expenditure. The Australian Government's current investment ratio of roads to rail is currently 3 to 1 in favour of road (\$27.7 billion in road funding from 2008-09 to 2013-14 compared to \$9 billion in passenger and freight rail).

<sup>27</sup> R Trubka R, Newman P and Bilsborough D Assessing the Costs of Alternative Development Paths in Australian Cities

<sup>28</sup> Newman, P. and J. Kenworthy (1999) *Sustainability and Cities: Overcoming Automobile Dependence*, New York: Island Press

<sup>29</sup> SA Government, *Waterproofing Adelaide – A Thirst for Change 2005-2025*

<sup>30</sup> Arup, carbon modelling prepared for the Department of Planning and Local Government (DPLG), Government of South Australia.

<sup>31</sup> P Hall "Sustainable Cities or Town Cramming" in A Layard, S Davoudi, and S Batty (2001) *Planning for a Sustainable Future*, pp101-114

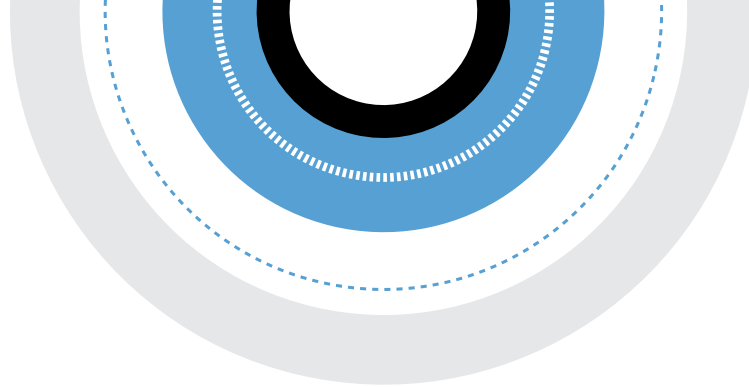
<sup>32</sup> Newman, P., Kenworthy, J., 2006. Urban Design to Reduce Automobile Dependence. *Opolis*, 2(1), p.35-52

<sup>33</sup> J Kenworthy *Transport and Urban Planning for the Post Petroleum Era*, [www.naturaledgeproject.net/documentskenworthytransportpostpetroleum.pdf](http://www.naturaledgeproject.net/documentskenworthytransportpostpetroleum.pdf)

**Table 3**  
**Proposed targets**

Based on the principles described in the previous section, the following framework for targets in 2020 and for 2050 is proposed:

ISSUE	MEASURE	2020 TARGET	2050 TARGET
WATER	Demand - Reduction in mains drinking water use	No mains water for outdoor use  30% per capita reduction from 2000 levels	69% per capita reduction from 2000 levels
	Storm Water	Run off (quantity and quality) at pre-urban levels	
	Alternative supply	Any augmentation from now to be carbon neutral	
CARBON EMISSIONS	Industrial emissions	30% from 2000 levels	95% from 2000 levels
	Total Building and Transport Direct and electricity		
	Demand - New building and suburbs	100% carbon neutrality for new buildings	
	Demand - Retrofit buildings and suburbs	35% reduction from 2000 levels	
	Demand - Transport	15% reduction from 2000 levels	
BIODIVERSITY AND OPEN SPACE	Electricity Supply	20% reduction from 2000 levels	90% reduction from 2000 levels
	Vegetation cover change (in hectares)	Maintain and improve each year	
	Terrestrial carbon improvement	Net increase in urban green space	
	Fauna	No species loss	
LAND	Minimum residential density (in dwellings/hectare)	Average of 25 dwellings per hectare for all new developments	Average of 25 dwellings per hectare for all new developments
	Proximity to mass transit	Design to ensure 60% of new dwellings within 800m	Augment mass transit systems so that 80% of all dwellings are within 800m
FOOD SECURITY	High value sites are identified. (includes areas with - productive soils, - amenity buffer zones, - irrigation assests, - biosecurity values),	100% of high value sites remain	Net gain each year at suburb level
WASTE	Organic waste	95% diverted from landfill	100% conversion for local energy generation
CLIMATE CHANGE ADAPTATION	All major urban expansion and critical infrastructure	All assets have been assessed for resilience to climate change	All assets are resilient to climate change



## The top ideas

1. All states are to have environmental targets and infrastructure plans in place by 2012 to access national infrastructure funds.
2. Develop a national plan to correct ecological deficit and program for urban areas:
  - Assess current state (water quality, air quality etc).
  - Develop performance standards and targets.
  - Direct substantial funding based on national assessment of outcomes and performance standards.
  - Monitor and verify performance against these targets
3. Enact effective and integrated ecological sustainability into all government legislation across all policy areas:
  - Review existing legislation to ensure that sustainability measures are incorporated.
  - Amend planning legislation to reflect outcomes of the review.
  - Adoption of tax reform that prioritises sustainability and emissions reductions.
  - Develop and implement 'carbon efficiency standard' – licensing, planning and consumer protection regulations.
4. National program of urban renewal of central activity districts and our major corridors:
  - Work towards reversing the current infrastructure spend ratio, which favours road transport over rail by 3 to 1.
  - Incorporate climate change adaptation requirements into planning processes.
5. National energy efficiency retrofit program for buildings and industrial developments:
  - Establish a national energy efficiency target that drives renewal of inefficient appliances such as electric hot water, halogen lighting, old fridges.
  - Start with low income households.
  - Ring-fence infrastructure funding for energy efficiency initiatives.
  - Capacity-building programs for energy saving by households and business.
6. Increase renewable energy use:
  - Increase mandatory target above 20 per cent (for example, 33 per cent in alignment with South Australia).
  - Ring-fence funding for continuing R&D into renewables
  - Remove barriers to renewable energy generation (planning, communications, education, market design).
  - Reform of National Electricity Market to prioritise clean energy supply and to achieve renewables targets.

### 7. 'Catchment caps' for cities:

- Climate-adjusted caps could be developed for each city. Well-designed caps will promote innovative, forward thinking investment in management of water scarcity. New residential developments should then be designed so the water demand is able to fit within this system cap. The housing developments must be highly water-efficient, or a developer could compensate by creating saving elsewhere in the systems, or a combination of both of these actions. This will limit inappropriate development in areas of water scarcity.

### Supporting ideas:

- International benchmarking and best practice baselines
- Stable urban growth boundaries by 2030, unless there are demonstrated improvements in land productivity
- Carbon neutral by 2020 for new developments
- Emissions labelling on food
- No species loss
- Carbon neutral water augmentation
- Part of all water savings returned to the environment
- Water-sensitive urban design in all new developments, including road drainage and streetscape works
- No mains drinking water for outdoor use
- Purple pipes for reclaimed water to be laid in the National Broadband Network trenches
- Reduce stormwater run-off and peak flows to pre-urban levels
- Reduce stormwater pollutant loads and concentrations to pre-urban levels
- Investigate sewer mining in high density areas
- Set urban development concentration and capacity limits for CBDs
- Minimum energy performance standards for standby power
- A minimum 7.2 star for new residential buildings under the Australian home energy rating standard
- Additional building retrofit incentives (accelerated depreciation on energy-saving items)
- Prescribe combined heat and power (CHP) or co-generation for savings within buildings and transport developments
- Point-of-sale resources that inform consumers on environmental performance standards
- No residential development without associated public transport infrastructure and local job creation (commercial and industrial zoning, community services)
- National approach to alternative fuel technologies (vehicles and transport)
- Shift from road to mass transport should include cycling infrastructure
- 'Fit for purpose' licensing and/or registration for vehicles
- A congestion tax for over-used urban roads





a lake bed in South Australia  
shows the impact of an  
extended drought







# THE ACCESSIBLE CITY



## Introduction

The deteriorating quality of Australia's land transport systems increasingly threatens both economic prosperity and quality of life in Australia's major cities.

Traffic congestion costs \$10 billion annually and is rising. Road transport is the third-largest source of greenhouse gas emissions and these emissions continue to grow. Many Australians remain socially excluded, in part through inadequate transport systems. The road toll, of about 1,450 fatalities and 30,000 serious injuries annually, remains unacceptably high. Additionally, our energy security is increasingly under threat.

These issues are serious now. Under further pressure from population growth they will be increasingly detrimental to the Australian community, economy and environment.

For our cities to function effectively and remain accessible into the future, Australia, as a nation, requires transport, communications and urban form solutions for moving people, goods and ideas to make our cities more liveable, sustainable and prosperous. This is the vision for the future.

## Principles

Five general principles should guide the development of Accessible Cities, which should:

- Be better places to live, for everyone;
- Underpin growth and jobs;
- Leave a sound legacy for future generations;
- Offer better linkages to regions and other major cities;
- Integrate within and between transport and land use, urban form and new technologies.

The following more specific principles should guide mobility within Accessible Cities:

1. Take a 'systems' approach to the whole network.
2. Limit the need for travel and, if this is not possible, limit the distance to be travelled. For example, by providing work opportunities close to home and making teleconferencing and augmented reality facilities available within local precincts.
3. Relieve people of the need to 'drive' vehicles, thus freeing their travel time for more personal or productive tasks. For example, using non-crowded 'public' transport and intelligent transport systems to permit automatic operation of road vehicles.

4. Separate major flows of freight and passengers via separate networks.

## Enablers and inhibitors

A range of factors inhibits these outcomes. A key inhibitor is the absence of vision: a clear picture of how and in what cities we want to live in the future. Further inhibitors include the fact that existing infrastructure is ageing and in a poor state. There is a need to document and better understand this underspending. Base public transport service levels are poor due to lack of investment while cities have grown beyond historical transport systems. There is no sustainable funding base for infrastructure investment and poor value capture from transport projects.

Land-use planning is neither proactive nor integrated with transport planning. There is a lack of sophistication in the capability to evaluate policy and investment opportunities such as externalities and social costs. We have invested to achieve an effective separation of flows between people, freight and information. Knowledge and skills around sustainable transport planning, research and delivery are generally poor.

Australia lacks a unified national approach to knowledge sharing and research coordination. We have no national federal research funding source (as in the United States or the European Union) and do not share knowledge well.

Another key inhibitor is Australia's car focus. There is a deeply ingrained and disproportionate focus on planning and funding for cars and roads. Pricing does not reflect the cost of externalities such as congestion and emission.

Transport agencies, meanwhile, are not typically geared up for expansion. Nor are the industries required to meet this growing demand. Resources present another problem: Australian engineering has limited capacity for substantial infrastructure capacity expansion.

The key enablers for creating a different future for our cities are:

- A policy framework that focuses on outcomes;
- A clear vision;
- Securing medium-term sources of funding;
- Policy integration;
- Clearer governance;
- Leveraging new technology.

## Initiatives and recommendations

The proposed initiatives seek to achieve the critical outcomes below:

**Capacity and demand management:** Right-sizing capacity and using technology to accommodate growth, manage demand, relieve congestion and deliver acceptable travel times.

**Environmental Improvement:** Reduced greenhouse gas emissions and pollution from transport.

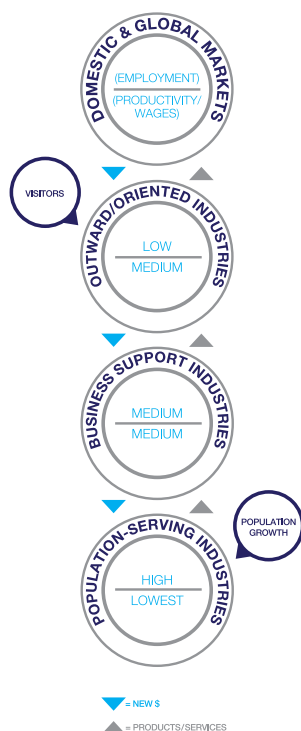
**Social Inclusion:** Adequate accessible public transport options for all, particularly the socially disadvantaged and people with disabilities.

**Health & Safety:** Transport systems to improve community health and wellbeing, with fewer accidents and harmful injuries.

**Energy Security:** Reduced dependence on exhaustible resources, in particular imported fossil fuels.

Achieving these will deliver significant national economic, social and environmental benefits.

The key initiatives and the links between them are described in the diagram below:



## Vision and planning

When there is no coherent and integrated vision of cities, they change in incremental and pragmatic ways even, when transformational change is required. For more than 60 years we have been shaping our cities to suit cars. Population growth and environmental pressures are forcing us to rethink how we live and move around. Yet today there is no clear vision to guide this thinking or even to define what would constitute an 'Ideal City'. Rather, there is a great deal of confusion, and even conflict, on what this means and how to deliver the best outcomes.

Enrique Peñalosa, the former Mayor of Bogota, Colombia and the architect of that city's transformation, talks about setting a goal to make a city for all children. He says: 'Let's just imagine how you want your home to be. How you want your kids to live. Do you want to walk or drive to get bread?' This philosophy drove major changes in urban form, created parks, altered thinking about the rights of private cars and introduced an affordable and highly effective public transport system. We need to build a vision for Australian cities which will make them a 'better place to live' and articulate what this means for how we live and play, move around, communicate and do business.

A major challenge is to engage the community in this debate and build consensus on what the vision should be. Virtual reality technologies provide the opportunity to help people build an understanding of the challenges ahead, open their minds to the possibilities and be part of building the vision.

Realising the ideal city requires an integrated policy suite covering land use, transport planning, energy and water. The policy suite must focus on delivering. To do this, Australia needs to reform its land-use planning regulations to create more powerful planning authorities. Such authorities should have powers to enact proactive policies across transport and land-use planning that recognise externalities and social cost.

Such institutional models would be based upon principles which include:

- A clear mandate, broader than just land use – strategic, with the desired structure and form of the city front and centre, and an emphasis on 'renewal';
- A quality management board, CEO and staff;
- A well drafted and strong legislative base (a 'good' Act);
- Strong ministerial and government Support;
- A healthy budget;
- Power to acquire land and, importantly, corridors; and
- A transport team as part of its skill base.

A clearer vision, integrated planning, and appropriate institutional models, will all be required to deliver more liveable and sustainable cities.



## Community consultation and engagement

Given the magnitude of the forthcoming changes to our cities and the associated costs, gaining community engagement and support for change is critical to success. Without such support, governments will be unable to bring about necessary changes.

Around the world, communities are beginning to see the benefits of creating 'virtual' models of their natural and built environment, above and below ground. A virtual model shows alternative views of what a city may look like over a period of time and, importantly, how it would function. It can show specific impacts on individuals, as well as the community as a whole. It enables everyone to better understand who and what will be affected how, when, where and why, thereby removing much fear and uncertainty, as well as speeding up consensus and reducing time, cost and risk to implement. Cities that have developed such models include Adelaide, Salzburg and Alabama. In the long-term, all flows should be simulated in the model: weather, energy, water, freight, people, waste, information and money - so it is a dynamic model of our world.

The purpose is to simplify the planning and development process, as well as speed the design process by engaging all stakeholders, including the broader community, right from the start - by having them help to build and/or provide feedback on the virtual model. Each project will start as a simple visualisation of the concept and gradually progress into a full working representation of the infrastructure. In the case of, say, new transport infrastructure, this would include the detailed design of roadways and tunnels, as well as vehicles and control software. Once all elements are agreed, the data from the model can be used to generate the engineering specifications to build each piece of the infrastructure, and to guide implementation.

## Funding

Infrastructure funding is a multi-faceted and complex challenge – but it is critical to building more accessible cities. It must therefore be approached with the highest level of intellect, rigour and creativity.

Assessment should be based upon sound simulated and costed models – both operational and economic - to demonstrate the benefits of infrastructure spend.

With the dollars involved in funding infrastructure, governments must use all levers available to maximise the attractiveness of investments to private sector funding for development, construction and operation. Ideally, projects

that can be structured to generate a reasonable rate of return should be delivered using private sector funds. This leaves the maximum amount of public sector dollars available for the projects that cannot deliver a commercial return but can deliver an economic return across broader measures (for example noise, congestion, liveability, inclusion, equity). Most public transport investments will fall into this category as they rarely make commercial returns, although some level of private sector participation may still be possible (for example outsourcing or franchising). Combinations/various forms of public private partnership (PPP) also play a role between these two ends of the spectrum and should be considered, as should Government Community Service Obligations (CSOs) (as a quasi PPP) as a means to bridge the gap between commercial and economic returns.

Australia needs a transformative funding strategy based on some key principles:

- Effective, broad-ranging planning of urban and infrastructure developments will provide clarity and increase certainty for any project proposed. This planning should identify where the indirect value uplift can be captured as a source of funds for the development.
- The value of the infrastructure enhancement or development should be captured and returned to the source of funds. This value creation can be quite broad and include the uplift benefit of land and business values close to the infrastructure development.
- Private funds have to make an acceptable return on capital above their weighted average cost of capital. The largest driver of this is certainty of volume/traffic and the regulatory framework. The greater the level of certainty and term provided in the set-up of the development, the lower the premium demanded above the weighted average cost of capital (WACC). Government underwriting of initial forecasts, or funding the ramp-up period of a new development, will enable projects that would otherwise not attract PPP investors to secure that source of funding and the additional benefits of private sector construction.
- PPPs have a higher track record of delivering on-budget and on-time infrastructure projects than government-run projects.
- Where a new investment, such as a public transport project, cannot in its own right generate a commercial return, consider whether any elements could help alleviate the funding burden, such as station developments or rolling stock PPPs.

Many other countries and jurisdictions have explored the most appropriate and successful infrastructure funding alternatives. There is much to learn from them. Two worthy examples include the Hong Kong Metro and the freight hubs being built in Australia by various parties.



Numerous existing pieces of infrastructure owned by governments could be sold or partially sold to the private sector or sovereign funds (including the Future Fund) to free cash for development of new infrastructure. Examples include the Hunter Valley rail network, existing ports, and major arterial roads in and around most capital cities. Selling down these assets and allowing appropriate pricing models will drive behaviours of use and free cash for other purposes.

Effective and creative infrastructure funding can be the difference between successful and unsuccessful projects. Current thinking is too limited. Learning from others and listening to outcome-driven proposals from the private sector, as well as the more effective use of long-term planning, is critical to creating more accessible cities.

## Technology

As our cities grow and the transport task becomes more complex and challenging, technology offers the opportunity to enhance systems, improve efficiency and make them easier to use and understand. Innovations in information and communications technology (ICT) and intelligent transport systems (ITS) have already changed the way in which we collect data on system performance and usage. They have also improved our ability to manage transport and logistics systems, influence behaviour and provide information - in real time - to customers and managers.

People in Australian cities are already seeing some of the benefits that come from investment in new technologies. Smart cards and real-time information are breaking down barriers and making public transport easier to use. Automatic vehicle location systems have improved fleet management and efficiency. CCTV and incident management systems have increased safety, security and system efficiency. Smart traffic signal systems have increased public transport reliability. However, we are yet to realise the benefits that could flow from comprehensive exploitation of new technology.

There are five main areas where technology can make a difference:

1. Visualisation of alternative scenarios to improve and speed up design and project implementation, reducing cost and risk.
2. Vehicle and engine design that will reduce and then eliminate carbon and pollution and much noise.
3. Design of equipment and systems at the interfaces where loading and unloading occurs to reduce cost and improve flow.
4. Network control that will greatly increase the capacity and rate of throughput.
5. Virtual reality, video conferencing and Web 2.0 collaboration tools that will greatly reduce passenger demand for physical transport.

With effective implementation, the technological changes in these areas will impact on the design of our cities, reducing unwanted travel, and enhancing choice and access to people, facilities, goods and information.

Progress to date has been fragmented, with varying degrees of commitment and funding, and each state and city pursuing separate agendas. Governments should develop comprehensive policies for the adoption, funding and implementation of new technologies. At the same time, there is a need to remove barriers to effective implementation and address issues such as the harmonisation of technologies (for example, Smart Cards) and privacy issues in relation to use of radio frequency identification. Central to these initiatives should be a program to educate governments, transport providers and consumers in order to dispel myths and increase understanding about the benefits that will accrue from encouraging innovation and investing in ICT and ITS technology.

## Research

There is no effective research and development base for multi-modal sustainable urban transport research in Australia. This results in ineffective research and knowledge sharing between industry participants and governments, and ultimately, poorer planning and decision-making. Australia needs a multi-modal integrated transport research program which is inclusive and builds on information resources, sharing knowledge openly and spreading lessons learned across industries and governments. The US Transportation Research Board is a good example of what is required.

Four specific steps to establish an Australian Transport Research Board (ATRB):

1. Funding of a consultancy study to detail a program to form and manage an Australian TRB;
2. Creation of a new division of the Australian Research Council called the ATRB;
3. Establishment of a national standing committee of major figures in transport to guide the set-up;
4. Organisational establishment, including staff to form and manage the development of events such as an annual meeting and funding for creating standing committees and research programs. All existing transport research agencies should be included within this framework, for example, Austroads.

## Governance

Making cities more accessible and improving the movement of goods and people involves effective coordination between stakeholders on multiple levels, particularly the three layers of government. The current institutional environment creates complexity and diffuses accountability in a way that is not conducive to achieving the desired outcomes. Although there has been some incremental improvement in governance structures over the past few years, further change is required.

Recent positive developments have included greater integration between governance of public transport and roads, through departmental mergers (for example the creation of DTMR in Queensland). Also, most states now have some form of integrated public transport agency, although their forms vary considerably by state (Metlink in Melbourne, Translink in Sydney, Transperth in Perth and so on).

The following changes are proposed to create more effective governance structures for our cities.

1. The role of the Commonwealth Government needs to be clarified. The Commonwealth should have an explicit, legislated mandate in several areas. These should include:
  - a national policy and guidelines for cities, their development and governance;
  - funding that adheres to the national policy and guidelines, particularly in the areas of governance and planning. Funding should be more explicitly linked to outcomes;
  - monitoring and reporting of city development and state and local government performance against outcomes.
2. Effective mechanisms for greater integration of all aspects of planning at a state level. Currently there is generally poor coordination of planning across multiple departments such as transport, planning and environment. Changes could include:
  - creation of an oversight body or authority (for example a Department of Cities, the Department for Sydney, Melbourne, Brisbane etc), with a broad mandate to structure and form the city, an emphasis on renewal, and operated at arms length from government.
  - empowering a central agency (such as the DPC) with such a role.
3. Improving coordination in planning between state and local governments. Specific suggestions for improvement include:

- More rapid reform of local government, continuing the process of rationalisation. Excessive fragmentation of local government makes coordination much harder.
- Imposing a greater obligation on local government to produce local transport plans, to be agreed with state government.

## Reducing demand for travel

There is significant pressure to reduce the pressures on infrastructure and city liveability by designing and operating our cities in a way that reduces the demand for travel. Historically, there has been a strong correlation between economic growth and personal travel. As individuals become wealthier, they tend to travel further. Changing our city design, greater use of technology and changing working conventions all have the potential to reduce the demand for travel and its consequences.

Creating a 'network of villages' within a large city offers potential to reduce dependence on a single central hub, which necessitates long journeys. Such villages need to provide good transport links to other hubs and to local areas. Broadband internet technologies offer much greater potential for telecommuting if accompanied by flexible working practices from employers and the tertiary education sector.

Other demand management measures, such as road pricing, high-occupancy vehicle lanes and flexible working hours, can also play a role in reducing the demand for peak travel. Currently there is little or no research or policy development in this area, yet it offers a substantial opportunity to reduce the pressure on infrastructure in cities. Creation and funding of a national travel reduction program would pay significant dividends in long-term city liveability.

## Infrastructure pricing

Much of Australia's critical city infrastructure is poorly priced. The primary objective of infrastructure pricing is economic efficiency. Promoting efficient pricing is central to pursuing reforms to encourage more efficient provision of economic infrastructure. This ensures best use of existing infrastructure assets and provides a sound basis for future investment decisions.

Efficient infrastructure pricing is also critical if the costs of providing economic infrastructure are to be recovered without placing undue burden on taxpayers and selected users.

In simple terms, efficient pricing requires that the prices paid by users for goods and services closely reflect the (avoidable) cost of supply. Prices should be sufficient to generate just enough revenue to enable 'typical' costs (for example,



return on capital, interest payment etc) to be recovered. 'Negative externalities' (such as congestion, pollution) are another important class of costs that can be associated with production. Ideally, costs associated with such externalities should be reflected in prices. Competition plays an important role in ensuring that prices do not depart substantially from short-run marginal costs.

In Australia, roads are the last area of the transport economy not exposed to some level of market-related reform. The existing set of road-user charges – consisting of petrol taxes, registration fees, compulsory third-party insurance, parking charges and ad hoc tolls, mostly for public-private partnership projects – are complex. They bear little or no relationship to the social costs of road use. This adds up to clear incentive for car use. It makes more sense for revenue associated with transport taxes to be directed towards transport problems. In this way the 'problem' can act to generate a solution. In the United States, a 15.5 percent gasoline tax goes directly to the Mass Transit Account – a total of \$5.2 billion in 2006. This was used to reinvest in new transit systems in major cities throughout the United States.

A reformed road pricing system would entail a three-pronged approach.

1. A road-user charge, where people pay according to kilometres they travel every year, with a levy for identified vehicles which demonstrably cause greater road damage. This tax would provide revenue for public infrastructure. Motor vehicles also cause pollution, both carbon pollution and in cities, localised smog.
2. A system may be introduced where all drivers are taxed according to the carbon emissions they make, but only city drivers would be taxed for contributing to smog.
3. A congestion charge to price the cost of slow-moving traffic. This would sort out who really values using the road at peak times. The revenue raised can be directed to providing additional public transport services (as in London). Technology is likely to be the enabler, where every vehicle is fitted with a tracking device. Higher charges would be levied on drivers who drove further at peak times and in designated city areas.

A national program to address infrastructure pricing will be a key component of any cities policy.

## Skills

Expertise and skills in planning, system delivery and transport operations need to be strengthened. Australia's current skills base lacks the depth and breadth it needs for the institutions involved in city development, urban planning and transport.

The recommended establishment of the ATRB would help to address many concerns about skills through the development of standing committees. These committees would help develop solutions for particular fields, assist in knowledge retention and transfer, and hold seminars or conferences on specific issues. New technology tools such as knowledge-sharing websites (research clearinghouses such as [www.sortclearinghouse.info](http://www.sortclearinghouse.info) or [www.worldtransitresearch.com](http://www.worldtransitresearch.com)) enable information exchange for professionals. Finally, virtual professional communities allow for the exchange of ideas and information using new technology. The Travel Demand Management Clearinghouse is a good example ([www.nctr.usf.edu/clearinghouse/](http://www.nctr.usf.edu/clearinghouse/)).

To increase coverage of transport training at universities, programs should be expanded, such as those undertaken by the UK Transport Planning Skills Initiative. New courses should be introduced and delivery mechanisms widened: for instance, to include distance education. Industry training programs should be increased and more short courses offered. Finally, transport planning as a career choice should be more actively marketed. The UK Transport Planning Skills Initiative included increased marketing of transport planning as a profession to young people and offered more industrial apprenticeships and early learning opportunities to entice people into the industry. A similar approach would be appropriate for Australia.

## Concluding remarks

In conclusion, the main priorities for creating and sustaining Accessible Cities in the future are:

1. Creating a compelling vision for our cities, to guide all other policy development, and having integrated policies aligned with that vision.
2. Ensuring community engagement in that vision.
3. Investing in research and deployment of new technologies.
4. A transformative and holistic systems-based approach to infrastructure design and funding.
5. Effective governance structures.
6. A systematic program for the reduction of travel demand.
7. Appropriate infrastructure pricing.
8. Investment in key skill areas.



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