GRATTAN
Institute

June 2010

The Cities We Need

Jane-Frances Kelly

Founding members

Founding Members

Australian Government

State Government Victoria

THE UNIVERSITY OF MELBOURNE

bhpbilliton
resourcing the future

Senior Institutional Affiliates

National Australia Bank

Institutional Affiliates

Arup

Urbis

Table of Contents

Overview

As the world continues to urbanise, cities become more important. Perhaps Wellington E. Webb, former Mayor of Denver, put it best when he said 'the 19th century was a century of empires, the 20th century was a century of nation states. The 21st century will be a century of cities.'[1]

Anyone who has visited a wide range of overseas cities will quickly realise that Australian cities function relatively well. International city league tables tend to confirm this view, and our cities rank highly on a range of indices which measure 'liveability'. However, this strong performance does not mean that Australian cities work well for everyone; that they couldn't be better, or that they are as well prepared for change as they might be.

Put simply, rankings have shortcomings, and our 'liveability' is based on a very imperfect picture of what life in our cities is actually like.

This leaves us with an open question – how should we judge our cities? There are different ways of thinking about what matters in a city. This paper argues that the most important characteristic of a city is whether it meets the needs of its residents, both material and psychological. Despite the fact that these needs are central to our lives, they are often at the periphery of conversations about the future of Australian cities.

With these criteria in mind, it is clear that while our cities operate well, there is much room for improvement. To achieve meaningful change we have to acknowledge that cities are hugely complicated, and that many of their constituent parts are interdependent. Therefore it is useful to think about cities as systems: to think about how the challenges we face affect not only a particular aspect of a city, but how they affect the whole. While we have much expertise on these issues, it is not clear that the institutions which govern and manage our cities have sufficiently evolved to take the resultant trade-offs into account.

This kind of thinking is important because our cities *are* facing real challenges. Australian cities are vulnerable to climate change. Our population is ageing, with serious implications for the economy. There is a shortage of investment in infrastructure and education. More and more of us are living alone, and further from the services we need. If we want to build cities that meet our needs, we have to prepare for these challenges with interdependencies in mind.

We also need to be clear about what it is we want. What would success – i.e. Australian cities that meet people's needs and allow them to thrive – look like? We propose a series of criteria that a city should meet for it to be deemed successful.

The question then becomes: how do we ensure our cities will meet our needs both now and in the future? The answer to this will inevitably involve hard choices and trade-offs. We do not propose a set of solutions or prescriptions. Instead we lay out ten questions about our urban future that we must get serious about.

These fit into an overarching question: as we manage growth and change in our cities, how bold are we prepared to be to get the cities we really need?

---

[1] Webb (2000)

About this paper:

The paper **does not seek to provide definitive accounts** of how cities work, or provide a comprehensive list of what is important. Rather, it is exploratory, and aims to propose an agenda for deciding how we might go about getting the cities we need.

In particular**, it's not about providing solutions**, or saying what different parts of government should be doing. We think there is a need for more discussion before the territorial negotiations about who does what begin. Agreement on diagnosis can make possible more progress than is often imagined.

In a broad sense, **the paper is an invitation to a conversation**. We recognise that having a discussion about the future of our cities is an important part of achieving progress *and* that the nature of the discussion matters. By framing the issue in a fresh way, we hope to stimulate a more productive and thoughtful conversation.

The **intended audience is anyone who cares about the future of our cities**. Hopefully, this is a general audience in addition to policy experts and decision-makers.

1.   Australian cities: the context

1.1 Most Australians live in cities

The Australian nation was built by clearing trees, farming the land, connecting telegraphs and laying railways over mountains and across deserts. Indeed, Australia is often identified as a rural country: a nation of bush and coast.

However, the day-to-day experience of the vast majority of Australians is urban. Even in 1851, rates of urbanisation were unusually high, with 40 per cent of Australians living in cities. By the late 1970s – excluding city-states such as the Vatican – Australia had the most urban population in the world.[2] Today, nine in ten Australians live in urban areas,[3] and around 75 per cent of the total population lives in major cities.[4] This dominance of urban settlements is illustrated in Figure 1.

In short, Australia is an urban country. How its cities operate, and whether they meet our needs is vitally important to the nation as a whole. Indeed, our cities are 'perhaps the most important factor in our quality of life'.[5]

As the Australian population grows, the role of cities will become even more central. Between now and 2050, roughly three quarters of Australia's projected population growth is expected to

occur in state capitals.[6] As Treasury Secretary Ken Henry noted in a recent speech, when it comes to cities 'getting it wrong is likely to be very costly'.[7]

Figure 1– Australia as an urban nation
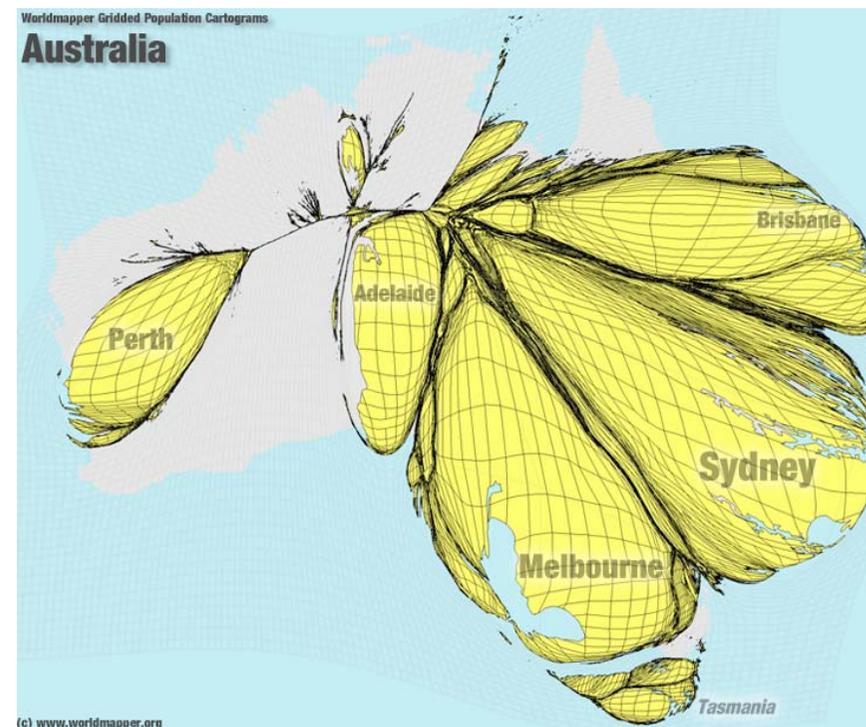
Figure 1 reshapes Australia according to where the population lives.
Source: Worldmapper. Worldmapper Gridded Population Cartograms, Australia.

---

[2] Scott (1978)
[3] United Nations Population Division (2008)
[4] Major Cities Unit (2010)
[5] House of Representatives Standing Committee for Long Term Strategies (1992)

[6] See ABS (2008b) which suggests in the base case that over the period 2006-2056 72 per cent of growth will be in capital cities.
[7] Henry (2010)

1.2 What are Australian cities like and why?

Australian cities are all different: they differ on many dimensions, from size and shape to demography and climate. Sydney has almost three times the population of Perth.[8] The median family in Canberra earns roughly 60 per cent more than the equivalent family in Hobart,[9] and 15 per cent of Adelaide's population is over 65, compared to 5 per cent in Darwin.[10]

Underlying these and many other differences, our cities share a number of distinct similarities which arguably contribute to 'what makes them Australian'. Three of the most significant of these features are:

- the size and dominance of capital cities;

- immigration; and

- low density.

The following section takes a look at these characteristics and discusses why they may have come about. This discussion results in two reflections about the development of Australian cities, and their underlying similarities:

- the influence of planning has not been strong; and

- this may arise, in part, due to the history of their governance.

---

[8] ABS (2010a)
[9] ABS (2008a)
[10] ABS (2007a & 2007b)

Australia is dominated by its large capital cities

Although we do not have a 'mega-city' like Tokyo or New York, one of the striking features of our cities is their size. This is particularly true in contrast to older countries. The Netherlands, for example, has roughly the same number of people as Australia (17m compared to Australia's 22m), but Amsterdam – its biggest city – is less than a quarter of the size of Sydney (see Figure 2).

Figure 2 - cities in Australia and The Netherlands by population
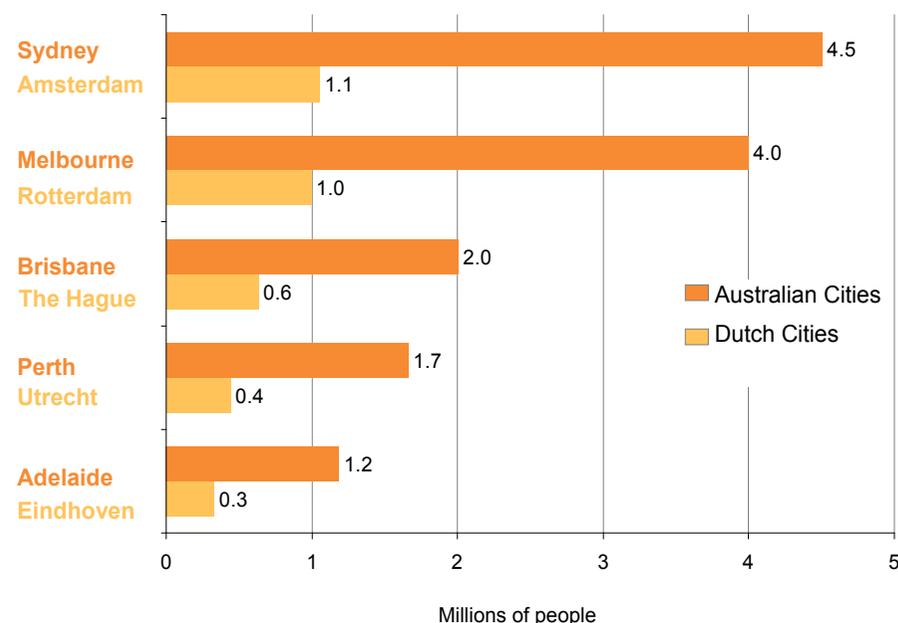
Sources: Australian Bureau of Statistics (2010e); Centraal Bureau voor de Statistiek (2010)

The concentration of people in a handful of cities has deep historical roots. Unlike most countries, in Australia towns were created first, and rural populations followed. Instead of emerging slowly from farming communities, our cities began as administrative bases for the Colonies.[11]

The focus on capital cities was reinforced by their status as political centres. Not only did capital cities provide government jobs, but their proximity to political power made cities natural places for businesses to locate. Our port capitals then grew as centres of trade – and have remained an important part of the economy since the early days of European settlement when Australia was not self-sufficient for food.[12]

Australian cities continue to be heavily influenced by immigration

From British settlement onwards, Australia has been a nation of immigrants. Since the end of World War II, nearly seven million people have come to Australia as new settlers.[13] A great many of these new arrivals have stayed in cities. Immigration is, primarily, a city phenomenon. It is estimated that capital cities alone absorb around 85 per cent of immigrants,[14] and that nine in ten Australians who were born overseas live in our major cities.[15]

The rate of immigration has been closely related to economic cycles. In the mid 1970s, for example, net migration dropped sharply as job opportunities became limited. One of the major

contributions new Australians have made is through the supply of labour.

Immigration has also shaped our urban landscapes. Not only have immigrants created demand for housing, and grown our cities, but they have played a part in the dominance of low density living. Many people came to Australia from crowded and polluted urban environments, and were understandably keen for the clean air, space, and privacy that suburban living offered.

Australian cities are low-density cities

Australian cities have long been characterised by low-density development. Not only are our cities populous, but they are typically spread over large areas. Cities in Europe, Asia and the Americas tend to be smaller, or have many more people in the same amount of space (see Figure 3).

Just as the dominance of our capital cities has a long history, so too does the ideal of low density living. The notion of the 'quarter acre block' – cited in almost every discussion about growth in Australian cities – began in the 1790s with a despatch from Governor Arthur Phillip suggesting that each house should have 60x150 feet of space: roughly a quarter of an acre. Why would Phillip have suggested this size? Primarily because this was an age before publicly provided infrastructure. Many households had to be responsible for producing their own food and absorbing their own waste. Having land around the house enabled the average family to be self-sufficient – with enough to eat, and adequate sanitation.[16]

---

[11] House of Representatives Standing Committee for Long Term Strategies (1992)
[12] Ibid.
[13] Department of Immigration (2009)
[14] Based on retrospective figures in ABS (2008b)
[15] Department of Immigration (2009)

[16] For more on the quarter acre block, see Boyd (1987).

Figure 3 – Scale map of global cities

Perth, Australia — 2M
Paris, France — 10M
Montreal, Canada — 4M

Melbourne, Australia — 4M
Sao Paulo, Brazil — 18M

Sydney, Australia — 4M
Seoul, South Korea — 20M
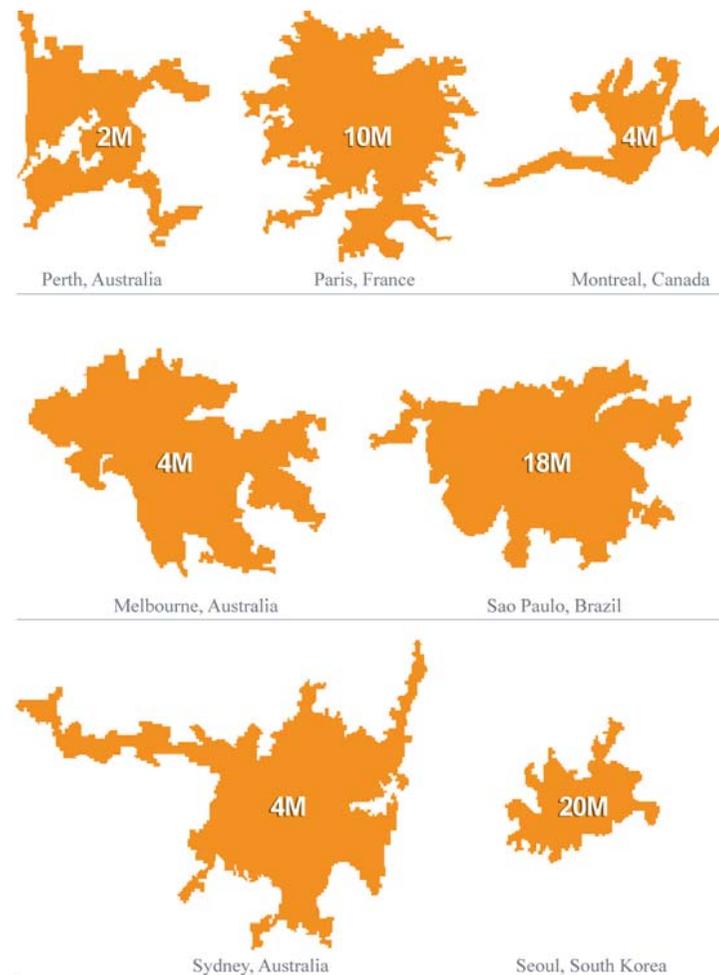
Source: van Susteren (2007)

It is important to note that residential lots are no longer this size, and haven't been for almost half a century. Block sizes have decreased as suburbs have changed, first with the delivery of essential services and later with rising land prices. On average the quarter acre block is now an eighth of an acre.

Even after the imperative to grow food and deal with our own waste had disappeared, other forces promoted low-density living. Transport technology was one strong element. Cities that developed when walking was the primary mode of travel are often compact. (Interestingly, evidence of this kind of development can still be found in the denser inner areas of Sydney).[17] In contrast, however, the majority of Australian cities were built in the age of mechanised transport.

The first stage of this development coincided with the advent of rail-based transit in the second half of the nineteenth century. This allowed cities to expand along an arterial network of trams or trains.

Figure 4 – The quarter acre block

Greensborough, Melbourne, 1936
Source: Museum Victoria

---

[17] House of Representatives Standing Committee for Long Term Strategies (1992)

Figure 5 – the development of cities and transit systems

Traditional Walking City
- High density
- Mixed use
- Organic

Transit City
- Mixed density
- Mixed use
- Grid based
- Centralised

Tram Suburbs

Rail Transit "Pedestrian Pockets"

Automobile Dependent City
- Low density
- Separated uses
- Arterial grid and cul de sac based
- Decentralised
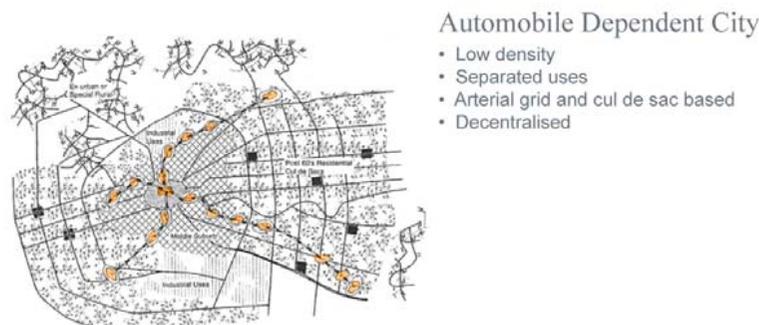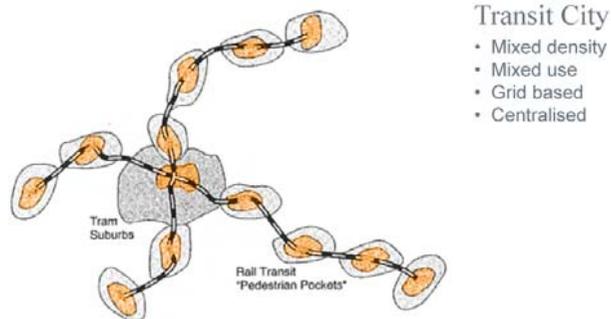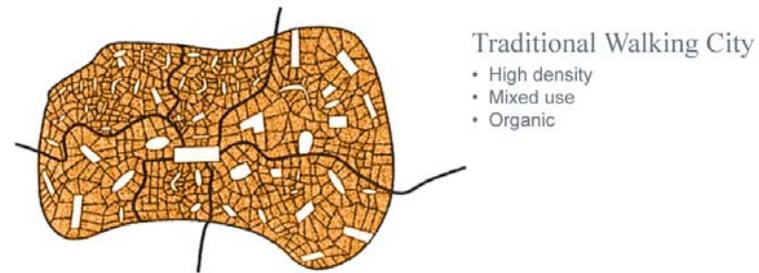
The typical star-shaped footprint of a transit city changed with the wide-spread adoption of the car in the 1950s. Free from reliance on trains and trams, people were able to live between and beyond the network. (See Figure 5 on the left.[18])

Cultural forces have also played a strong part. In addition to the imperatives of early settlers and the cultural preferences of migrants, some Australians have continued to place a high value on detached housing for the privacy, space, flexibility and easy access to the outdoors it offers. The absence of geographic barriers and the rise of real wages in the post war period made this 'great Australian dream' more affordable.

The phenomenon of building large houses on a big block continues today. In fact, recent research suggests that new homes built in Australia are bigger than anywhere else in the world (see Figure 6).

Planning has not had a strong influence on the shape of our cities

Notwithstanding the strong cultural forces at play, reflections on the underlying drivers which have shaped our cities suggest that by and large we have not chosen our urban form. Orienting cities around car travel, for example, was never subject to a major debate. As the 1992 Parliamentary Report on urban settlement suggests:

A major debate about the relative merits of the 'compact city' as against the 'dispersed city' never occurred - the view that we

---

[18] Figure adapted from diagram in Newman & Kenworthy (1999) as cited in Scheurer (2001).

would be an increasingly car dominated urban society was taken for granted.[19]

Figure 6 – Average new house size by country
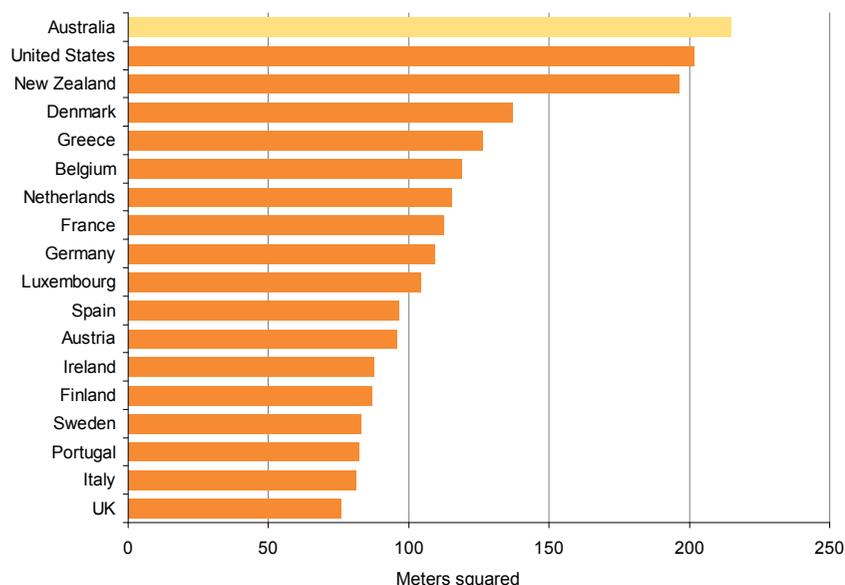
Source: James (2009)

Planning has not been a strong determinant of our urban outcomes. Planners were rarely given the power to alter urban environments. Although planning and planners have made significant contributions to our cities, they have not set the agenda for some of the key underlying variables. Indeed, Government's role has been less about directing and more about reacting to growth.

This may arise, in part, due to the history and nature of governance of Australian cities

Three levels of government have a role in metropolitan governance in Australia – although none of these (with the possible exception of Brisbane) are contiguous with the geographical boundaries of cities themselves. This leads to a mixed picture when it comes to urban government.

Commonwealth government policies on trade, industry, immigration and housing have direct impacts on the rate, location and nature of urban growth in Australia. However, the Commonwealth has only taken an interest in metropolitan policy *per se* at certain times, notably in the 1940s, mid 70s and the early 90s.[20]

As the States preceded the Commonwealth they are the 'main players' in the game, responsible for metropolitan planning strategy, and directly providing education, health, police, transport, and other services.

Local governments were mostly set up during the 19th century, and provide a range of basic services, roads, waste, and community, recreational and cultural services. With the exception of Brisbane, where 20 local council areas were merged in 1925 to form the City of Brisbane, local government is particularly fragmented in Australia, despite some amalgamation in the 1990s (for example, reducing the number of councils in Adelaide from 30

---

[19] House of Representatives Standing Committee for Long Term Strategies (1992)

[20] This section is adapted from Foster (2004).

to 19). This contrasts with local government in British cities, which is relatively unfragmented, with major cities covered by one or two major councils plus a few others at the fringes. It shares some features with cities in the US, where a large central-city council is often surrounded by dozens of small suburban councils, each responsible for raising its own revenue and providing a full range of services.

There is, therefore, a Commonwealth level that has much direct influence – including through raising the bulk of the money – but is only occasionally involved, a state level which is the main provider of planning and services, and a highly fragmented local level.

2.   Why worry about Australian cities?

2.1   Aren't Australia's cities outperforming most?

Among the many hundreds of cities across the globe, Australian cities regularly come out towards the top of various city rankings. But does this mean that our cities are really functioning well?

To answer that question, we should ask ourselves what these measures can and can't do. There are scores of published indices. Three of the best known large-scale surveys are complied by the Economist, Mercer and Monocle. These indices, and many others, rank cities according to diverse criteria, including cost of living, 'liveability', economic competitiveness, infrastructure, and environmental issues. Despite the range of criteria covered, these indices tend to take a narrow perspective –often that of globally mobile, highly educated professionals. They have much less to say about whether a city is 'liveable' from the perspective of someone struggling with the costs of living and with limited access to the possibilities our cities have to offer.

One of the biggest problems with rankings is that they do not report on the *range* of a city's performance on any given indicator. For example, while cities might score well on average income, the size of the gap between rich and poor is not reflected. We should ask ourselves whether it is enough that a city provides a great experience for a small group of people.

There is also an issue with measurement. Even for material measures, there are issues in collating accurate and comparable city-level data, (see Box 1). More troublingly, indices struggle to

measure intangible things, particularly peoples' needs beyond the material. As a consequence rankings paint a very imperfect picture about what life in the city is actually like.

Box 1 – City Data Issues

'Big or small, cities need reliable and comparable information for urban planning and for their safe, sustainable and prosperous development'.[18] Unfortunately, data is often not reported consistently at a city level. The EU Urban Audit project, along with databases like the OECD Regional Statistics, are exceptions. Typically, information is collected at national, state, or community levels, reflecting the structure of governments. Many data series which are measured regularly and accurately for a country – GDP or literacy rates, for example – are often unavailable for cities. This is particularly true for social indicators. In Australia high quality research, such as Community Indicators Victoria project, provides a snapshot for just a few of Australia's urban locations.

Gaps in city-level data are compounded by the fact that typically the information we do have for cities is compiled infrequently. The infrequency of city-level data makes it more difficult to evaluate policies, because without longitudinal research it is almost impossible to answer the question: are we making progress?

Finally, we know little about what people actually want or expect from their city, and how they make decisions. Why do people choose to live where they do? What are people prioritising when they buy a particular type of house? Why do people commute as they do? Understanding what people seek and why, is an essential first step on the path to improving our cities.

---

[21] European Union (2010)

There are other important dimensions – particularly in terms of health and the broader environment – which are often not included. On a number of these dimensions we should be frank about the fact that Australia's performance is relatively poor: that, for example, Australia is near the top of the list when it comes to obesity,[22] municipal waste production,[23] and carbon emissions.[24]

Indeed, no country or city is flawless. Regardless of rankings, no city has completely conquered the problems of homelessness, crime, violence or pollution. In other words: even in a world of perfect indicators, topping the rankings would not be reason enough to rest on our laurels. Even the best performing cities will be overtaken by others if they don't continue to improve.

2.2   What are our needs?

There are many different ways of thinking about what matters most in cities – covered by a vast array of literature. Historically, analyses have focussed on structural elements, such as labour, infrastructure, regulation and so on. These approaches are valuable, but by virtue of being fragmented they can miss much that is important in city life.

The shortcomings of the global city indices still leave us with the question of how we *should* judge how well our cities are doing. We propose that this should be done according to how well our

cities meet the needs of all their residents, insofar as those needs are affected by cities.

Cities are important because they are places of exchange. They are our largest marketplaces and underpin our prosperity. However, at a basic level our cities are important because they are where people live their lives. To live a good life, certain needs must be met. So, when evaluating how our cities are doing, the question we should ask ourselves is this: how well do cities address people's needs?

The first step in answering this question is to set out what these needs might be. This is no easy task: defining needs is difficult and faces many pitfalls. While some needs can be identified using objective data (the biological needs for food, water, warmth, and so on), other needs are subjective. There are substantial grey areas. We have to be conscious, for example, of the distinction between needs and desires: while many people may feel that they need a bigger house, or an overseas holiday, these may be different in quality to other material and psychological needs.

Despite the wealth of detailed theoretical literature, there is no consensus about what precisely our needs are, how they should be measured, or how they change over time. And notwithstanding Maslow's appealing framework,[25] there is no simple hierarchy of needs. Indeed, context is critical to how we understand needs. The UK's Young Foundation found that 'for some people, whether refugees or unemployed teenagers, a mobile phone may be as important or a higher priority than having a square meal'.[26]

---

[22] Although obesity estimates are difficult to compare, the most recent OECD health survey puts Australia as the fifth most obese nation. See OECD (2009).
[23] In 2008, Australia was the 7th largest producer of municipal waste per capita when compared with 28 other OECD countries (behind Ireland, Norway, US, Denmark, Luxembourg and Switzerland). See OECD (2008).
[24] It is a much publicised fact that Australia has one of the highest per capita carbon emissions in the world, especially among developed countries. See, for example, Climate Analysis Indicators Tool (2010).

---

[25] Maslow (1943)
[26] The Young Foundation (2009)

There is no consensus on a definitive list of needs, and this paper doesn't attempt to create one. Instead, we will look at a set of needs that have frequently been identified as being important for human thriving,[27] and discuss the ways in which our cities affect these needs. Looking at our cities through this 'needs lens' is important, as it helps us understand how cities affect our lives.

The role of cities in responding to our needs

Broadly speaking, people have both material and psychological needs. In policy and political terms, material needs tend to be prioritised - in part because they are easier to measure and influence. Material needs are not to be underestimated. Past decades of economic growth have left most people better off and this is an achievement to be celebrated. But we should remember that psychological needs, which relate to our mental wellbeing, are just as important. This broader view of our wellbeing was recognised recently in a report to the President of France by Nobel Laureates Joseph Stiglitz and Amartya Sen: "Current wellbeing has to do with both economic resources, such as income, and with non-economic aspects of people's lives (what they do and what they can do, how they feel, and the natural environment they live in).[28]

Cities have a role in addressing *both* the material and psychological needs of individuals, and also the needs we have as individual members of a community (the 'broader environment'). Figure 7 illustrates a set of needs that are important to consider when we think about how cities operate.

Figure 7– An example of a needs set relevant to cities

Material needs	
Food, shelter, water	Having enough food to eat, affordable housing, access to potable water, fresh air to breathe.
Personal security	Being safe, free from bodily harm.
Health	Health affects both the length of our life and its quality.
Income	Earning enough income to make satisfying material needs possible.
Psychological needs	
Competence	Having a sense of agency or capacity to influence outcomes. Competence is developed through education, and experiences of success and achievement in the workplace and at home.
Autonomy	Freedom from coercion and exploitation (sense of individual liberty); having options and the information to make informed choices without external interference.
Relatedness	Feeling cared for and significant to others. Participating, feeling involved with and integral to a social world around us. Also includes needs relating to identity and a sense of belonging.
The broader environment	
Health of the environment	We depend on the natural environment for our sustained survival.

Along with material needs, Figure 7 includes three needs which research has shown to be central to human thriving: 'relatedness', 'competency' and 'autonomy', as well as the broader need to sustain the environment that sustains us.

---

[27] Betts & Dan (2008)
[28] Stiglitz, Sen & Fitoussi (2009)

Again, this is not a definitive list. There are other important aspects to living a good life which our cities strongly influence: see, for example, Box 2 (over page) which briefly touches on the importance of the visual character of our cities and on the need for contemplation. It is also important to note that some of these needs are strongly inter-related.

Below, we discuss the role of cities in meeting these needs. We devote most attention to psychological needs, as we are less familiar with thinking about these in relation to our cities.

Cities and our material needs

Obviously our cities have a significant impact on our material needs. This impact ranges from the ability to provide everyone with comfortable places to live, to the economic opportunities on offer.

Availability and affordability of housing can differ considerably from city to city, which will have an influence on homelessness. The degree to which food, especially healthy food, is accessible and affordable varies between, and within, cities.

In addition to providing adequate food and water, a city has a big effect on the health of its residents. Some of these things we take for granted such as adequate waste removal and the sanitation that helps prevent disease. Other aspects of the city are important: the location and accessibility of health services; the degree to which cities prioritise walking and cycling; whether or not communities provide parks and sports grounds. These dimensions, among others, can either promote or discourage healthy lives – particularly in terms of physical activity and obesity.

Whether a city is safe or not also has a significant impact on people's wellbeing. This is true both in terms of actual personal security, and also whether residents *feel* safe to do the things they want to do.

Finally, whether a city is economically successful or not is clearly central to creating incomes for people, while the structure of the city – along with the transport system – affects whether residents can access these jobs.

Cities and our psychological needs

There is much policy and political activity on these material issues such as housing affordability, economic strategies that aim to increase the number of jobs available, and so on. We are much less used to thinking about psychological needs, and how the nature of our cities affects them, even though there is increasing appreciation of their importance in people's lives.

It is important to acknowledge that needs (and whether or not they are being met) may vary according to a range of dimensions. People living in different parts of the city, people of different ages, and people from different backgrounds may all have differing priorities and can experience different unmet needs. Notwithstanding these different emphases, however, there is a broad consensus that the needs outlined below are to some degree essential to human thriving.[29]

---

[29] Betts & Dan (2008)

Box 2
The visual character of cities
Good design – of housing, public spaces, neighbourhoods and the characteristic 'look' of a city – is important because of the effect it has on us. We know intuitively that it is much more pleasant to be in visually appealing spaces even if it is more difficult to quantify the effect they have on us. People find different kinds of things beautiful – some gravitate towards those which give a sense of serenity amongst the chaos of the city, while others see unity in variety – but it is normal to care about what the places we live in look like.

Contemplation
Contemplation is also an important part of life, a way of reflecting on oneself, ideas and the world at large. But cities are often frenetic, filled with noise, action and competing messages. When this happens we must constantly be alive to our immediate environment, scanning, filtering and responding, all of which can leave us feeling scrambled. Communities throughout history have created special places, which are often beautiful, such as churches, mosques, parks and gardens, where we can reflect – or simply sit and watch the world go by – and help us lead meaningful lives.

Competence is having the agency or capacity to influence outcomes. An important part in developing competence is having opportunities to learn and succeed, particularly through education. As with jobs, city infrastructure can make it easier or harder to access education. The location of schools and other educational institutions, and how accessible they are, will affect city-dwellers' opportunities to develop competence.

Opportunities to develop competence also depend on the breadth of horizons apparent to an individual, which in turn can be affected by the neighbourhood in which people live. If someone lives in a disadvantaged area where there are few role models for different ways of living one's life, one's horizons may be more limited.

Autonomy is centred on a sense of individual liberty, and an ability to choose. How autonomous people are is affected by how free they are to act in a way they see fit and to live the life they want to live. Throughout history people have moved to cities not just for economic opportunities, but for self-reinvention. While some people see the city as an anonymous, uncaring place, others appreciate that, in the city, if you want to live your life in a particular, even unusual, way you can – precisely *because* people 'don't care'. You are also much more likely in the city to come across people with similar interests, no matter how unusual, because the scale of cities allows for specialisation. If a city is big enough, it can support everything from a shop that sells every kind of kite to an amplified ukulele collective.

Preferences for autonomy can be expressed in the freedom and flexibility of owning a car and a detached house. But having a city with *only* this type of neighbourhood can reduce autonomy: individuals without access to a car can be isolated and disempowered. One common way this is manifested is a sense of being 'stuck at home'. This, however, is not just a consequence of limited transport, but can also be affected by the availability of childcare and other services.

A city in which there is a lack of public safety – or, importantly, one in which residents perceive a lack of safety – can reduce not

only our physical health, but also our autonomy, as people are forced to modify their behaviour, and restrict their activities.

Finally, how cities function is very important for responding to the human need for **relatedness.** There is a large body of evidence that social interaction is critical to human flourishing; we know intuitively that our relationships are critically important in our lives. But while it seems obvious that one of the most important aspirations in our lives is to have a social life, we are not used to thinking about the role that our cities play. In fact, social interaction is affected by city structure and design at a range of spatial levels, from housing, through to streets and neighbourhoods, and up to the overall structure of cities.

The fastest-growing type of household in Australia is single-person households, but there are vanishingly few options for co-housing arrangements, leaving many people, older women in particular, with only one choice of how to live – alone.

Whether streets are built primarily for cars or for people makes a difference to the amount of social interaction possible in a neighbourhood, as does the amount and quality of public space. Growth of cities without sufficient regard to transport infrastructure can leave people spending hours sitting on congested roads, or on long commutes to work, leaving little time for activities that increase, rather than decrease, wellbeing.

If, through its housing options, transport accessibility, and other features, a city is 'building in' isolation, rather than opportunities for interaction, there can be significant implications not only for relatedness, but also for mental health.

Finally, cities can help provide a 'sense of belonging' for its residents. Because we are not all the same, successful cities have a range of neighbourhoods with different characteristics, so that people can gravitate to the style of place that suits them.

Human scale, mixed-use streets, public spaces that really work, neighbourhoods with distinctive identities – all these and more seem intuitively as if they would have an effect on our psychological wellbeing. We vote with our feet and house-buying power where they exist.

But too little is known about how our cities make a difference to our psychological needs. We lack data, even a basic understanding about what works and what doesn't. Without understanding whether these needs are being met, we get only a limited picture of how well our cities are functioning. Data focusing on people's psychological needs is particularly scarce.

More work is required, including ethnographic approaches, about how people actually live their lives and experience living in a city. We also need to understand more about how needs change over time, particularly as the population ages.

Cities and the broader environment

Of course, not all needs relevant to our wellbeing are met at the individual level. In particular, there is also a broader need to maintain the surroundings which house our cities. Failure to pay attention to these more collective needs risks damaging or destroying the environment which supports us.

2.3 Are our cities ready to meet our needs in the future?

We should also consider whether cities are ready to meet our needs in the future.

Even if Australian cities were the best in the world for all of their residents, we need to be aware that the fortunes can change. New York in the 1970s, for example, experienced an alarming increase in crime and a reduction in public services, which battered the city's economy, reputation and its sense of itself. Over a period of ten years nearly a million people left the city – a population decline that took more than two decades to reverse.[30]

Avoiding complacency is particularly important because Australian cities are facing changing circumstances. In particular, our cities will have to deal with:

- population and social change;
- economic change; and
- environmental change and resource constraints.

Passivity in the face of these changes will make meeting our needs even harder. We will now take a look at each of these three areas in more detail.

Population and social change

Since 1900 Australia's population has increased more than five-fold. In Australia, cities have absorbed most of this growth, a trend that is predicted to continue.[31] Commonwealth Treasury forecasts that by 2050 Sydney and Melbourne will have around 7 million people each, Brisbane around 4 million, and Perth nearly 3.5 million.[32]

These increases have fuelled a considerable amount of public anxiety (see Box 3 on the public face of population growth). Although much of this anxiety is based more on rhetoric than evidence – and often ignores the benefits and opportunities that come with population growth – it is clear that as cities gain residents, some needs will become harder to meet.

This is most obvious in the case of material needs, particularly in areas such as housing, where there is already a shortage.[33] The National Housing Supply Council's most recent estimate suggests that there is a shortfall of around 178,000 homes, and population growth will exacerbate this unmet need.[34]

There are also challenges associated with immigration. Although Australian cities have largely been a positive story in terms of uniting different cultures and ethnicities, there is no guarantee that future decades will be similarly successful. While noting the long-run benefits of ethnic diversity, some American research suggests that, in the short- to medium-term, immigration and diversity can reduce trust, community cooperation and friendship:

---

[30] Gralla (2009)

[31] ABS (2008b)
[32] Henry (2010)
[33] Particularly for low and middle income rental housing. See Department of Families Housing Community Services and Indigenous Affairs (2009).
[34] National Housing Supply Council (2010)

'diversity seems to bring out the turtle in all of us'.[35] Similarly, recent research from the Scanlon Foundation suggests that both people born in Australia and immigrants alike are less trusting and feel less safe walking alone at night if they live in areas with high levels of immigration.[36]

Our ability to meet our health needs must also increase as populations grow. This is particularly true in light of our ageing population. Treasury predicts that on the current trajectory by 2050 *half* of Government spending would be on health, age-related pensions, and aged care.[37]

In addition to population growth and demographic shifts, the makeup of Australian households continues to change. Not only are fewer people living in the average house (since 1911 the average household has shrunk from 4.5 to 2.6 people)[38] but more people are living alone. It is projected that by 2026, roughly 3.1 million Australians will be living by themselves.[39] This trend interacts with the ageing population, as many of these people are likely to be elderly. Whether these Australians – along with the broader community – experience sufficient social interaction and relatedness, will hinge on decisions we make about how our cities grow.

Box 3 – Population growth in the press
Population growth in our cities has captured public attention. The headlines below present some of the newspaper coverage published in recent months, and reflect the growing anxiety some people feel about the growth in our cities.

The city is choking thanks to our idea of transport nirvana

Population boom means double trouble for the west

The outer limits

AUSTRALIA 2050
Bulging Sydney can't force people to go bush

BUILDING
Decade of growth looms

Melbourne becoming the Aussie LA

No plan, no land. What now?

A city's constant growing pains

Big is not necessarily better when it comes to population

Rampant growth threatens market gardens

Migrant intake a strain on cities

Competing vision lacks a liveable balance

---

[35] Putnam (2007)
[36] See Markus (2009). It's important to note that the Scanlon research found that Australians' attitudes were generally positive about the effects of immigration.
[37] Commonwealth Treasury (2010)
[38] Australian Government (2010a)
[39] ABS (2010b)

Economic Change

Australia's cities are not only home to the majority of people, but also the majority of the economic activity. Nearly 80 per cent of Australia's GDP is produced in our major cities.[40]

In a global environment where developing countries can supply low-skill labour at low wages (with increasingly high productivity), our continued prosperity depends largely on the ability of our labour force to adapt. This means expanding services and creating innovating jobs, activities which largely happen in cities.

A broad concern in this regard is the slowdown in Australia's productivity growth.[41] This is troubling when we consider that over the last 40 years, gains in labour productivity (measured by the value of an hour's work) accounted for more than 80 per cent of the increase in Australia's material living standards.[42]

One part of increasing productivity growth will be investing in physical and human capital. The World Economic Forum's most recent Global Competitiveness Report ranked Australia only 25th for the overall quality of our infrastructure.[43]

Australia faces a shortfall in road and rail transport, and ports, as well as water and energy infrastructure. Private sector estimates of this shortfall range in value from $445bn to $770bn.[44] This gap will need to close if we hope to make commuting faster and to move goods more quickly and cheaply. The Bureau for Transport and Regional Economics estimates that in our capital cities, the avoidable cost of road congestion alone was $9.4 billion in 2005.[45]

Equally important is our investment in human capital. Unless we're able to educate Australians of all ages – from primary school basics to reskilling adults who are changing professions – we not only risk economic consequences, but a decline in our incomes and our sense of competence.

Climate change and resource constraints

Australian cities – more so than many cities in developed countries – are vulnerable to the effects of climate change. Our cities are coastal and are subject to the threats of rising seas and storm surges, as well as drought, bushfire and water shortages. The CSIRO suggests that in just two decades the incidence of days above 35ºC will rise dramatically, and rainfall in southern and eastern Australia is expected to continue to decline.[46] Predicted climate change could damage buildings and infrastructure, as well as making food supplies less reliable.

This has clear consequences for our basic needs, as changes in climate may affect or interrupt the fundamental systems that provide food, water and energy. There are also consequences for health. For example, cities tend to have a large number of elderly people: over 70 per cent of Australians over the age of 65 live in cities. As the incidence of very hot days increases, this group is at greater risk of heat-related illness and deaths.

---

[40] Defined as cities with more than 100,000 people. See Raskall, as cited by the Major Cities Unit (2010).
[41] A trend which has motivated forthcoming research from Grattan Institute's Productivity Program.
[42] Commonwealth Treasury (2010)
[43] World Economic Forum (2009)
[44] For a discussion see Infrastructure Partnerships Australia (2009).

[45] Bureau of Transport and Regional Economics (2007)
[46] CSIRO and Bureau of Meteorology (2007)

There may also be lifestyle consequences that have psychological impacts. Future city-dwellers may have less access to traditional recreation and social activities, as lakes, sporting fields, and parks suffer from reduced water supplies. Water shortages may also result in the imposition of more restrictions, reducing not only our ability to have a garden, but our choices and sense of autonomy.

It is important to remain level-headed and acknowledge that for some resources – water and energy, for example – it is possible that in the long term, technology will enable our cities to increase our sustainable supplies. However, this will come at increased cost, and continuing to use resources at current levels will be expensive. The increased financial burden of, for example, desalinated water or clean energy may not seem crippling, but it may make it substantially harder for some city dwellers to meet their material needs.

In addition to adaptation, there is the issue of mitigating our cities' carbon emissions. Australia has committed to reducing greenhouse gas emissions by 5 per cent by 2020, and aims to reduce emissions by 60 per cent by 2050.[47] Achieving these goals will involve substantial change, and will affect aspects of the city which are at the very core of how it operates. This includes how infrastructure networks are organised, the energy sources and building materials we use, and the way we travel. Put simply, the shift to creating resilient, low-carbon cities is something we need to think very seriously about.

More generally, it is clear that these three challenges – population, economy, and the environment – interact in complex ways. Crudely put: our economic situation will affect how we deal with the environment; how we deal with the environment will affect our economic circumstances; and population growth affects both.

These are also challenges which will change over time, and in some ways have a long time horizon. But as we saw with the quarter acre block in section 1.2, some decisions about cities can act as a catalyst for widespread and long-term effects, shaping the city for generations, and conditioning – and sometimes constraining – the options of the generations that follow.

'The city, however, does not tell its past, but contains it like the lines of a hand'

Italo Calvino, Invisible Cities

---

[47] Australian Government (2010b)

3. How should we think about cities?

3.1 Cities are marked by interdependence

The words city and civilisation share the same root. 'Civilisation', defined loosely for our purposes, has been described as the processes by which people learned how to live alongside and rely on others outside close groups of kin. These processes began over 8000 years ago when we started to live in large, settled groups, and eventually, in cities. Living in large groups confers a range of benefits, and over time these benefits have attracted more and more people to city living (see Box 4 on 'Why do we have cities at all?').

The living arrangements associated with large groups are radically different to those that have gone before. City dwellers have largely stopped producing their own food, collecting their own water or being self-reliant for security. The many products that are bought and sold, the electricity that lights our cities and powers our trains, all of it is made possible thanks to the specialised efforts of thousands of people. Modern Australian cities are not collections of self-sustaining individuals, but rather collections of individuals whose activities are woven in with those of many others, physically, financially, socially, virtually and at various scales.

Box 4 – Why do we have cities at all?

The rapid urbanisation of developing nations like India and China reminds us that economic advantages have been central to the rise of cities. These advantages stem primarily from scale: as cities increase in size, firms – and people within them – can specialise.

Having high densities of people also encourages creativity and allows ideas to spread. This is particularly important as we move towards a knowledge-based economy.

The concentration of people and resources has other benefits. It enables greater access to education and health services, and lowers the cost of providing a wide range of other government activities. Cities also stimulate the growth of cultural institutions and create opportunities for social interaction. In addition, they often provide people with a variety of jobs, recreation, entertainment, food and architecture – amongst many other opportunities and facilities.

The benefits of aggregation and freedom of choice are therefore prime reasons people congregate in cities, and this is unlikely to change. Cities have made great endeavours possible, supporting us with resources, capital, ideas and people to achieve collectively what would be impossible as isolated individuals. The many extraordinary human achievements that have occurred in cities are testament to this.

Underpinning these individuals is a network of 'systems' that allow people to live the non self-sufficient lives that are characteristic of cities. These systems are the infrastructures and networks without which a city simply would not function.

The logic behind describing these elements as 'systems' is that they share certain properties. Chief among these are: the presence of many moving and interconnected components; the existence regulating mechanisms like feedback loops; and having emergent behaviour produced by complex interactions between constituent parts (see Box 5 on 'What is Systems Thinking?').

Box 5 What is 'systems thinking'?
Systems thinking is an approach to thinking about issues or problems that have many parts which interact in complex and sometimes unexpected ways. For example, consider one small section (or loop) of the transport system:
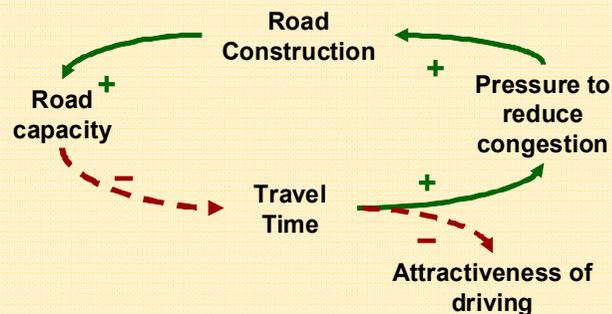
'systems thinking' cont
In this diagram green arrows connect two parts which move together, whereas red (dashed) links denote inverse effects. For example, an *increase* in road capacity results in *decrease* in transport time.[41]

To interpret the loop, we might start with travel time – something which changes people's behaviour. If commuting times grow (by virtue, say, of population growth and congestion), there is an increase in pressure to build new roads. This takes time, but will eventually lead to increased road construction, and capacity. The extra capacity should reduce congestion, and decrease travel time.

However, as travel time decreases, driving once again becomes increasingly attractive, which makes the congestion situation worse. This is a feedback loop.

Clearly there is much more complexity required here. What, for example, are other determinants of 'attractiveness of driving'? What role does the accessibility and affordability of public transport play? How are these things influenced by population growth, and the size of the city? What about the the role of job locations, or the zoning of different areas? These issues obviously play a part in the transport system, and are discussed in more depth in section 3.2.

Although highly simplified, this single loop nonetheless begins to illustrate the general 'systems' approach: i.e. thinking about a range of interconnected elements, and trying to understand the ways in which they interact.

---

[48] Sterman, (2000)

There are many ways in which cities' systems can be delineated. One intuitively appealing framework is to think of cities as having seven core systems: energy, water, food, transport, business & commerce, communication, and people services.[49] These are expanded on in Figure 8.

Figure 8 – Systems important to city operation

Energy
- The system which provides energy. This includes infrastructure for power generation and transmission

Water
- The system which delivers water to households as well as for commercial uses. The system also provides sanitation and deals with some forms of waste

Food
- The system responsible for providing food to cities. This network stretches out into rural areas, and overseas, as a majority of food consumed in the city is grown outside.

Transport
- The system responsible for mobility – both of people and goods. This includes the road network, cars, trains, trams, taxis, cycling paths, sea and airports, and is highly dependent on land use

Business & Commerce
- The economic system which underpins commerce. This includes the degree of regulation, market design and the openness to trade.

Communication
- The system which provides for telecommunications, including phones, broadband and wireless internet

People services
- Essential services provided in the city including health, education and public safety. Although these systems are vital, how they function is rarely determined at a city level.

At a city level, one significant quality of these systems is that they are interdependent. Transport uses a large amount of energy and so the way our transport system is organised will influence our energy system. The quality of the communications network in a city has an influence on the business environment, which in turn is influenced by how easily goods can be freighted across the transport system.

There are many of these links, or 'interfaces'. Consider, for example, the water system. Although links between the water and foods systems are relatively clear, the water system affects much more than our agriculture. Every economic transaction – be it in the country or the city – involves a 'virtual exchange' of water.[50] While producing a kilo of rice takes roughly 1,500 litres,[51] manufacturing a car requires an estimated 150,000 litres.[52] In this way, our water system is deeply interwoven with the broader economy.

Water also has increasingly strong interfaces with the energy system. One of these interactions happens through the process of desalination and pumping, which makes water an energy intensive resource. Similarly, water can be a significant input for energy generation using hydro technology, coal, and some types of biofuels.

Some interdependencies – far from a comprehensive list – are outlined in Figure 9.

---

[49] With the exception of 'food' this parallels the framework used by Dirks & Keeling (2009).

[50] The idea of 'virtual' or 'embedded' water is suggested and explored in a number of papers by Tony Allan, including Allan (1997).
[51] Meyer (1997)
[52] IBM (2010)

Figure 9 – Illustrative interdependencies with the water system

Commerce & Business

Water flows through almost all transactions, and is required for "city" manufactures, like cars

Water System

Food System

Water and the food system are fundamentally linked. In Australia around 65% of water is used in agriculture**

Energy production – for example, coal and hydro – can be very water intensive

The need to supply water through desalination would increase the energy intensity of water

Energy System

**Source: Australian Government (2010c)

It is important to note that all the systems in Figure 8 could find themselves at the centre of such a diagram. The central point is that *the systems which make it possible for a city to operate, are interdependent in many ways.* In this view, the city can be thought of as a 'macrosystem': a whole that arises as a result of many interacting, interconnected systems.

Technology has the potential to make these systems even more interconnected. This is often referred to as the 'smart cities' vision, in which systems are connected via networks of real-time information and other data. In this view, technology will increasingly provide "ubiquitous, networked intelligence"[54] to help manage everything from water and waste, to carbon emissions. In addition to resource management, the connectivity provided by technology can extend to "new ways of planning, working, and living that make social connections stronger and lead to cooperative sustainable behaviour."[55]

The many elements within each system, and the interdependencies between them, ultimately render an amazingly complex picture. We cannot hope for a complete 'theory' or understanding of our cities. But when we are aware that cities have systems properties it makes it more likely that we can understand, and then respond, to complex issues that arise within them. More specifically, systems thinking may helpful for:

- dealing with causes, rather than symptoms;

- helping to anticipate knock-on consequences;

- making less frequent interventions; and

- helping us understand and address 'city-sized' problems.

---

[54] Casalengo & Mitchell (2008)
[55] Ibid.

Systems thinking is even more relevant today than it used to be, not because we have become more 'siloed' in our approaches – indeed much progress has been made in pulling different perspectives together – but because city systems are becoming increasingly interconnected and interdependent. Our institutions should continue to evolve with our thinking. In an ideal world, the ways in which we govern and manage our cities would continue to adapt to reflect our increasing understanding of the complexity inherent to all cities.

At the most basic level, thinking about systems is important because it reflects how cities operate. And how well systems function – both individually, and in concert – *has huge influence on whether cities make our needs easier or harder to meet.*

To illustrate this idea, we will have a look at one system – transport – in more detail.

### 3.2   How systems meet our needs: the example of transport

City residents use transport for a host of purposes: commuting to and from work, shopping, taking children to school, visiting friends or going to see a film, among many other reasons.

These different purposes reflect the fact that the transport system is important in addressing a range of needs. Lack of transport may make it harder to access education and health services, with clear implications for competence and wellbeing. As a recent report noted, young mothers often experience transport as:
" *'horrible' and 'hard'. Transport difficulties create significant barriers to accessing services, social networks and community*

participation'.[56] Autonomy can also be affected in the absence of transport access, as people become stuck at home.

The extent to which a transport system helps meet people's needs depends both on how it is structured, and the different transport modes on which it relies. Figure 3 (section 1.2), illustrated how Australian cities have had a tendency to develop over large areas. As both a consequence and cause of this, the transport system has been predominantly geared towards car travel. This is particularly true outside the centre of the city, as shown in Figure 10.

**Figure 10 – Outer suburb dependence on cars for commuting**

■ High percentage of people commute by car >75%
■
□ Low percentage of people commute by car <40%
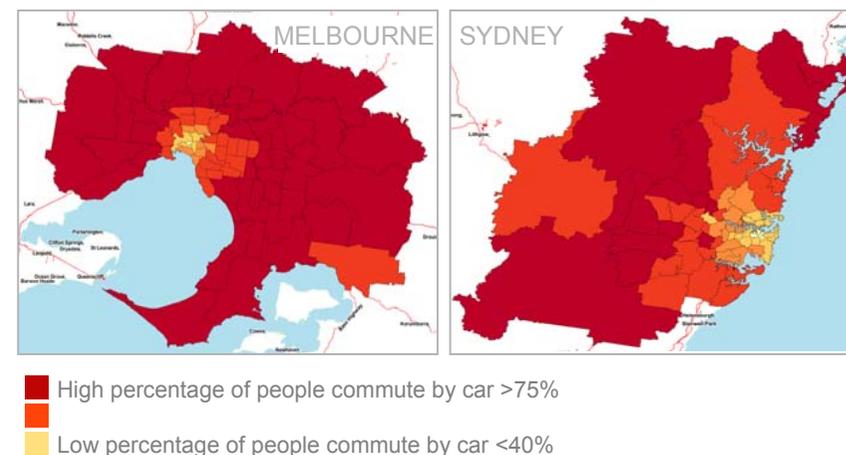
Source: ABS (2010c and 2010d)

---

[56] Fritze (2007)

Cars can be costly to buy and run, and make household budgets subject to movements in petrol prices. This is particularly the case in fringe areas where people are more likely to rely on cars. Many of these areas contain a large number of first homebuyers who have settled due to land availability and lower housing prices. The result is that areas on the fringe are vulnerable to not only fuel price increases, but also interest rate rises and inflation. This is illustrated by the VAMPIRE Index (see Figure 11). A dependence on cars can also make it more difficult for young people, lower incomes earners, seniors, disabled people and minority groups.[57]

Figure 11 – Exposure to mortgage and fuel costs (VAMPIRE INDEX)

■ High exposure to mortgage and fuel cost increases

■

■ Low exposure to mortgage and fuel cost increases
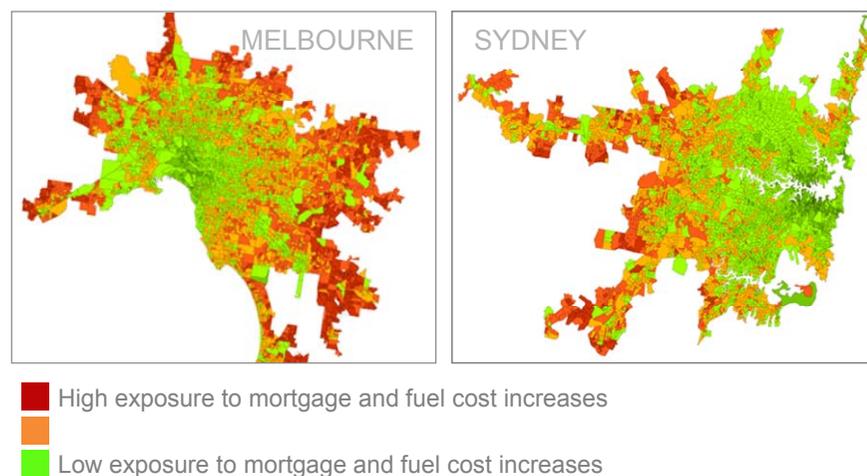
Source: Dodson & Sipe (2008)

When a full range of needs are considered, *how* people get to where they're going can also be an important dimension. Cities that promote walking and cycling not only have obvious health benefits – particularly important in the context of the growing concerns about obesity – but may increase public safety. Walking-friendly suburbs with more activity are likely to result in a greater number of 'eyes on the street', which has a positive impact on personal security, and reduces the need for formal policing.

Finally, roads and car-related infrastructure (including car parking) use large amounts of space, do little to add to the visual appeal of neighbourhoods, and contribute to both air and noise pollution.[58]

All this is not to say that a well functioning road system and high levels of car ownership are bad things. On the contrary, these elements will continue to have a central role in sensible visions of what future transport systems might look like.

One implication of the systems approach is that there is more to a transport system than the network of roads, railways, bike lanes and so on. A crucial determinant of whether a transport system works is *land use*. How cities are structured, and how suburbs operate have a strong influence on how hard or easy it is for residents to get to where they need to go. The proximity of housing to jobs, schools, childcare, shopping, and recreation clearly has an impact on what is required of the transport system. If, for example, everybody worked in the city centre, then the morning commute would be a problem almost regardless of the quality of the transport system.

---

[58] A number of reports cite research which suggests that 40 percent of Australians are exposed to undesirable traffic noise and that ten percent are exposed to excessive traffic noise. See, for example, National Transport Commission (2001).

---

[57] Currie (2009)

The time it takes to travel to work can be a particularly important variable. Time spent commuting is time spent away from more productive or fulfilling activities. Data from the HILDA survey, for example, shows that over ten per cent of working parents spend more time each week commuting (between 10 and 15 hours), than they do with their children.[59] Furthermore, the same data set highlights that the 'more time employees spend commuting, the less frequently they socialise with friends and relatives and   [the] less likely they are to be active members of sporting groups or community organisations'.[60] In this way, thoughtful planning which links transport and land-use may have significant implications for our experience of relatedness.

In addition to land use, transport has interfaces with other systems. The outcomes of our transport and land-use decisions will have an impact on how much energy we use, and our ability to tackle the problems associated with climate change. Swift and efficient movement of people and goods is important for productivity, and the economy. Transport also interfaces with other systems, such as food and communications.

Taking a systems approach is often tricky – in many cases even where decision-makers have accepted the need for systems thinking, traditional approaches continue to be used because it is unclear how a systems approach would work. As a result urban policy has often focussed on individual systems in cities, often without regard to the trade-offs that are being made about our needs. As well as paying attention to how systems interact to meet our needs, policymakers need to develop a more

sophisticated understanding of how real-world systems can function better. We know from systems research that understanding aspects of systems such as feedback loops can be immensely powerful in improving how well they meet our needs.

Perhaps the clearest implication of all this is that cities involve a daunting degree of complexity. Indeed, applying this kind of thinking at a concrete policy level is one of the biggest challenges facing our cities – and will be a focus of future Grattan reports.

Drawing on experience from Australian and overseas cities, the Grattan Institute will aim to contribute to furthering our understanding of how the core systems in a city meet the needs of its residents, and where the most important leverage points are.

---

[59] Flood & Barbato (2005)
[60] Ibid.

4.   Where to from here?

4.1   We have an unusual opportunity

Australian cities are in a strong starting place

Although the challenges we face are serious, Australian cities are well placed to respond.

Australia's low levels of government debt, unemployment, and our mild experience of the global recession have made our economy the envy of many developed countries. In addition, Australia will also continue to benefit from the rise of our region: the shift of economic power to Asia and the Pacific provides a great opportunity and a strong economic platform for the project of developing cities to meet our needs.

Australia's growing population also gives us an opportunity to change our cities for the better. New investment and construction is required to accommodate more people – and this is easier to shape than changing existing structures. Growth can make change more visible, and illustrate the benefits of different types of development. A rising population lets a city shape not only its built form, but its economy too, through the new ideas and skills offered by its migrants.

Very few cities in the world have this combination of strengths, and together they provide Australian cities with an opportunity to flourish in a changing environment.

Australians are good at working together and accommodating change

Not only do we have a strong platform, but we can be optimistic about our ability to respond to challenges. One of the primary reasons we have avoided social problems which plague other cities is our tolerance of diversity and change. Australia moved rapidly from White Australia Policy being law in the 1960s to becoming a diverse nation by the late 1970s. This shift happened quickly, and without many of the deep divisions that have marred lives in many cities overseas.

We can also draw strength from our resilience, and willingness to work together to address serious problems. Australian urban communities have shown themselves to be resilient in the face of natural disaster, such as when Darwin was destroyed by Cyclone Tracy. We have been able to modify our behaviour in the face of drought and water shortages. Often this quality is about people coming together and looking out for one another – today you can see it in any bushfire-threatened community.

4.2   What might a successful Australian city look like?

There are lots of ways of being successful – and Australian cities are different from each other today and will continue to be different in the future. Successful Australian cities should have the capacity to respond to people's needs both now and in the future - only in this way can cities consistently and sustainably make possible the things that make life worth living for all their residents.

Any measure of success needs sufficient flexibility to capture the many different ways in which needs are met and people benefit in cities. Of course, we should not expect that cities can be everything to everyone – there is no perfect city – and in fact cities can and should specialise to some degree. But because our needs are diverse and interrelated, cities do need to be good at most things.

The following characterisation of a successful Australian city can be criticised for its general, broad approach, until we imagine what it means to not succeed on any of these dimensions. They are all necessary. It is also possible to fixate on a definition of success that is too narrow. For example, aiming to 'maximise productivity' would pass over a range of things that are important to us, such as the quality of our social lives and a balance between work and the rest of our lives.

Successful cities would meet the full range of our needs

Starting with the most basic needs, successful Australian cities must have robust food and water supplies, good air quality and the capacity to successfully deal with waste. They should have the capacity to provide shelter to all its inhabitants – because we are concerned with the needs of all Australians, it is important that our cities are characterised by relative equity in access to opportunities and resources, including affordable housing, through either ownership or renting. Successful cities do not allow their most vulnerable residents to 'fall through the cracks', of which homelessness is the most acute example. The consequences of this become a problem for the wider population, but also and more importantly, it is the right thing to do.

Safety is another basic need, and cities should be policed well, without recourse to over-intrusive security measures, which would impinge on the autonomy of its residents.

Cities need access to resources, high quality economic infrastructure and regulation, to provide good jobs and business opportunities. Many economists think that mixing of ethnicity, age, culture and education is important for a modern knowledge economy, in order to stimulate and disperse ideas. So successful Australian cities will not have 'ghettos', not just because they are barriers to social mobility, but also because they are bad for the economy.

Recognising that competence is an important psychological need, cities should also promote access to education so the skills, knowledge and capacities of its residents can be developed and furthered.

Transport is an important enabler of many of our needs, both material and psychological. We must be able travel both within and outside of the city with reasonable efficiency; a successful city has accessible and reliable transport options, which have been successfully transitioned to low-carbon technologies.

In addition to supporting the economy, transport and telecommunications infrastructure also enable social interaction, making it easier to connect with family and friends, to spectate or to participate in sport, or to attend the varied arts, cultural and entertainment activities that also characterise a successful city.

Diversity and cohesion both matter

Further recognising that our psychological needs are just as important as material needs, successful cities also have a variety

of neighbourhoods, public places and private places that a range of people enjoy. For many, these places produce any number of opportunities and possibilities, allowing people to do what they want to do. And as part of this, a successful city creates a characteristic sense of itself, a sense of identity such that its residents can all belong in the city and be from that city.

This aspect of the city is made of mental pictures – people imagine the city in many different ways, depending on all sorts of individual characteristics. Yet the aspect of these that people share are what create communities and underpin our cities as great places to live.

Part of the challenge facing Australian cities is to evolve ways of being and belonging that will make them great places for future generations. The stories that we share about who we are and what brings us together are what will set the tone for our communities. Our stories will shape our responses to future challenges and the nature of our cities.

Finally, in order to remain successful, cities must change themselves in response to shifting needs and challenges. They need effective, resilient and adaptable decision-making processes to be able to deal with the kinds of challenges identified in section 2. Infrastructure and institutions should be flexible and should encourage participation and innovation.

Australian cities might end up looking quite different if they met the full range of our needs – but if we are willing to be bold, we could imagine and then bring into being the cities that we need. 'Boldness' in this sense does not mean a radical top-down change, or stronger central planning. Indeed there are some senses in which 'not planning' is very important (see Box 6).

How might we be able to tell if we had successful cities? Below is a hypothetical (and deliberately unfinished) report card (Figure 12).

Figure 12 – Hypothetical report card for successful cities

REPORT CARD

✓ Resilient food, water and waste systems; clean air

✓ Affordable and diverse housing

✓ Good health, including mental health

✓ Personal and public safety

✓ Economic and education opportunities

✓ Accessible and reliable transport

✓ Good quality telecommunications

✓ Social capital, cohesion and belonging

✓ Diversity of population and neighbourhoods

✓ Health of the broader environment

✓ Beautiful places

✓ Inclusive and adaptable decision-making

✓

✓

Box 6 – To plan or not to plan

Urban planning arose in Europe in the 17th century, as a means to manage population growth. Industrialisation and the rise of modernism have promoted this approach. Some city plans have aspired to be blueprints for managing societies more efficiently.

However, cities are interdependent, evolving places whose behaviour we can neither completely predict nor control. They have given rise to new technologies, social movements and unexpected ecological problems, all of which have changed our lives, sometimes in ways we would not have chosen.

Planning is indispensible to maintaining and improving cities as great places to live. But good planning also requires not planning; recognition that vibrant city life is partly spontaneous and that, in the long run, cities are likely to produce ways of living that we did not anticipate. That is no bad thing. We simply need to adapt and find ways to nurture what we value most.

In addition, we should remember that history matters. Cities evolve under the influence of available resources, economic infrastructure and prevalent social norms. The longer patterns endure, the more other systems rely on them and the more entrenched they become.

Choices made today will matter in the long term. As a community we should plan in a careful and coordinated way, using the city's network aspects to our advantage, but leaving room for adaptation and spontaneity. We should find a vibrant balance between design and randomness where city life can prosper.

4.3   Given all this, what are the questions we need to ask?

This section will outline ten questions that we believe should frame the conversation about the future of our cities. We have deliberately not set out solutions, because we believe that currently the right questions are not being asked.

This report argues that we should strive for our cities to meet a wider range of needs, for a wider range of people. With this as the goal, the questions proposed are all things we should get serious about. Clearly, there are many other decisions which will need to be made. We do not attempt to list every issue, but rather to propose a set of issues that we believe are critical to the future development of Australia's cities.

These questions should be read with the following issues in mind:

- we should recognise the complexity of city issues;

- these are questions for everybody; and

- obviously all these questions have cost implications that will need to be taken into account as solutions are considered.

We should recognise the complexity of city issues

Creating an agenda for cities policy is often done through the lens of a particular discipline. Different viewpoints are provided by urban planners, policy specialists, economists, social scientists, ecologists, epidemiologists, engineers, and many more.

The result is that our understanding of the challenges facing our cities can become fragmented. Specialties, and specialist knowledge, are obviously important – but partial solutions generated from particular perspectives are unlikely to be able to deal with the scale and pace of emerging problems. This is particularly true when we think about the interrelatedness of the needs we should try to promote, and the many interfaces between city systems that define how the city functions.[61]

These questions are for everybody

Australia has tended to have an activist government, born of the fact that it was a new country that needed to be built from the ground up. But these questions are far from just being for the various levels of government (even though they have an important role in setting 'the rules of the game'). Government alone cannot – and should not – create successful cities.

The same can be said of markets. They have a critical role to play in allowing individuals to express their preferences through freely choosing between available options, but in the presence of externalities they can fail to address broader community needs.

Finally, to think that change comes just through government action or through markets would be to miss the role of how each individual, through their networks and behaviour, affects the way that places evolve. We usually over-estimate the short-term consequences of our actions, but under-estimate the long-term effects of our actions and decisions. How we choose to live in our cities changes them every day, and over time, huge shifts become possible.

So these questions – and acting on the answers – should involve all of us.

---

[61] Kearns, Barnett & Beatty (2007)

1. **How do we make sure that the basic city 'input and output' systems – food, water, air, and waste – are able to serve growing populations?**

   Is it acceptable to keep using resources at the current rate? If not, what is the best way to alter attitudes and behaviour? How much of a difference can new technology make in improving our energy food and water systems?

2. **Are our cities ready to cope with climate change?**

   How resilient is the infrastructure in our cities? Are cities willing to make the changes and investments required to make our systems more robust as they shift to a low-carbon basis? If not, what might this mean for how cities are able to meet our needs?

3. **Personal security is a basic human need. What is the right balance between acting to make our cities safe, and 'over-policing'?**

   Safety is arguably our most fundamental need, but there should be a balance between policing, and autonomy. In this context, one contemporary issue we need to think about is how we manage our leisure – and in particular our alcohol consumption?

4. **What mix of housing types do we need in our cities?**

   Different people have different housing needs. As demographics and living patterns continue to change, how can we ensure that housing markets are structured to provide both enough housing, and sufficient variety? Does new housing provide people with enough links to other important systems, like transport and human services?

5. **What geographic size and shape do we want our cities to be? Does this imply a change in average density?**

   Placing an emphasis on expanding outwards has trade-offs. Are we willing to curb the drive for the space, flexibility and privacy that have been a hallmark of Australian cities? Can the material and psychological costs associated with fringe development be better accounted for?

6. **How much should we act to ensure our cities remain economically competitive in a changing economy?**

   To maintain growth in productivity and wages, the economy has to adapt to a changing environment. To what extent are we willing to tolerate the short-term costs of flexibility, which particularly affect those in out-moded industries? How much of today's money are we willing to invest in the human and physical capital of the future?

7. **What role does the structure of a city play in ensuring equitable access to opportunities, including jobs and education?**

   To what extent are long commutes and poor public transport provision a barrier to getting skills and jobs? Are some people further disadvantaged because they live in a disadvantaged area?

8. **How do we improve social interaction in our cities?**

   We need to think carefully about how important our social lives are to us. Can the design of neighbourhoods play a part by providing us with more opportunities to interact?

9. **How important is how our cities look?**

   It's normal to care about how our cities look. To what extent are we willing to pay for better design, and appealing spaces? When is an emphasis on beauty important?

10. **Who should make these decisions? And how?**

    As we manage growth and change in our cities, are our institutions set up to ensure the full range of our needs will be met? Are they sufficiently evolved to account for the trade-offs and interdependencies inherent to cities? How can residents be better engaged in the future of their neighbourhoods?

Figure 13 – Indicative mapping of questions to people's needs

Questions (What we should be asking)	Needs (why it matters)
1. How do we ensure that the basic 'input and output' systems – food, water, air, and waste – are able to serve growing populations?	Food, water and health
2. Are our cities ready to cope with climate change?	Food, water, health and the broader environment
3. What is the right balance between acting to make our cities safe, and the 'over-policing'?	Autonomy and personal security
4. What mix of housing types do we need in our cities?	Relatedness, autonomy and shelter
5. What geographic size and shape do we want our cities to be? Does this imply a change in average density?	Autonomy, relatedness, health and the broader environment
6. How much should we act to ensure our cities remain economically competitive in a changing economy?	Income and competence
7. What role does the structure of a city play in ensuring equitable access to opportunities, including jobs and education?	Income and competence
8. How do we improve social interaction in our cities?	Relatedness and autonomy
9. How important is how our cities look?	Beauty and contemplation
10. Who should make these decisions? And how?	Important for a range of needs, and implementation issues.

We have discussed the importance of cities to Australia as a nation, the effect they have on whether the needs of city-dwellers are met, and the current and future challenges our cities face.

Figure 13 lists the questions Grattan believes we need to get serious about if we are to have cities meet a wider range of needs for a wider range of people. The table makes explicit some of the needs associated with the questions. Its purpose is simply to highlight some of the important links between the people's needs, and the proposed agenda. It's worth noting that this is not a complete mapping. Indeed, the way in which systems interact would make a comprehensive list very unwieldy.

4.4 The Grattan Cities Research Program

Issues facing our cities are many, varied and urgent; there is a full agenda for governments – and for all of us – in thinking about how our cities might develop and grow in the future.

The Grattan Cities Program has selected three priority issues for research, on the basis that they:

- address some of the most important needs and decisions outlined in the preceding section;

- are likely to have a substantial and wide-ranging impact on Australian cities;

- are amenable to evidence-based analysis; and

- maximise the benefits of a multi-disciplinary approach.

4.5 Cities – who decides?

In the face of challenges and rapid change, difficult decisions must be made about our cities – and adhered to. It is vital that effective decision-making arrangements are in place, and that they are clearly understood. Currently though, our approach to managing cities can be inconsistent, fragmented and focussed on the short-term. Further, decision-making is not informed by a clear understanding of what Australians want for, or from, their cities.

The work will analyse successful cities around the world, and identify some of the factors associated with their improvement and strong performance. Governance and institutional arrangements associated with success, and responding to challenges, will be of particular interest. Evidence will be gathered through in-depth interviews with experts in selected overseas cities, from policy documents and other published materials, and from socio-economic data. The project will suggest which elements of city governance operate most effectively, and which, given Australian social, cultural, historical, and political contexts, we might learn from.

4.6 Cities and social interaction

There is strong evidence that people want social interaction and need it to thrive. Social interaction also increases safety and promotes better understanding of those around us, thereby increasing social cohesion. Whether Australian cities can absorb higher populations whilst improving the lives of all their inhabitants, will depend in part on the quality of their social interactions.

Some kinds of urban design encourage social interaction, while others may be 'building in' isolation, with consequences for the quality of people's lived experience and mental health. Yet at all spatial levels – from housing, streets, neighbourhoods and infrastructure provision, up to the overall structure of cities – it is rare for these needs to be sufficiently taken into account.

This research will examine what we know about what works, and what has failed, and will offer ideas on how to improve the social life of our cities.

4.7 Development and market design for growing cities

The population of our cities is not only growing fast, but its composition is undergoing dramatic change. The number of people in average households is shrinking, and single-person households are increasing. Despite demographic and lifestyle

change, property developments are generally continuing in-line with historic patterns, for example, with a predominance of new housing built as large, detached dwellings on greenfield sites. Such development offers many advantages, but also presents downsides, including high costs of living and long commutes.

It is likely that there will be – if there is not already – a mismatch between the location and the type of housing Australians need and want, and what is being supplied. Freedom of choice about how, and where, to live is essential. But it is also important that property markets reflect the full range of pros and cons of different types of development, and are responsive to changing demand. This project will examine the regulatory, taxation and cost frameworks facing developers, and how they affect development trends. The research will seek to identify perverse effects or market failures in current arrangements, and opportunities for markets to better deliver the range of developments sought by a changing population.

5. References and bibliography

5.1 References

Allan, J. A. (1997). *'Virtual Water': A Long Term Solution for Water Short Middle Eastern Economies*. Paper presented at the British Association Festival of Science.

Australian Bureau of Statistics. (2010a). *Australian Demographic Statistics, Sep. 2009.* Cat. No. 3101.0 ABS, Canberra.

Australian Bureau of Statistics. (2010b). *Australian Social Trends, Dec 2009* Cat. No. 4102.0 ABS, Canberra.

Australian Bureau of Statistics. (2010c). People who travelled to work by car in Melbbourne in 2006. Accessible from http://www.censusdata.abs.gov.au/ABSNavigation/prenav/SelectSubArea?subarea=Statistical+Local+Area&MapStats=View+MapStats+%3E&collection=Census&period=2006&areacode=205&geography=&method=Place+of+Usual+Residence&productlabel=Proportion+of+People+who+travelled+to+work+by+Car&producttype=MapStats&topic=Transport+Access+&navmapdisplayed=true&javascript=true&breadcrumb=TLPS&topholder=0&leftholder=0&currentaction=501&action=401&textversion=false&subaction=-1

Australian Bureau of Statistics. (2010d). People who travelled to work by car in Sydney in 2006. Accessible from http://www.censusdata.abs.gov.au/ABSNavigation/prenav/SelectSubArea?subarea=Statistical+Local+Area&MapStats=View+MapStats+%3E&collection=Census&period=2006&areacode=105&geography=&method=Place+of+Usual+Residence&productlabel=Proportion+of+People+who+travelled+to+work+by+Car&producttype=MapStats&topic=Transport+Access+&navmapdisplayed=true&javascript=true&breadcrumb=TLPS&topholder=0&leftholder=0&currentaction=501&action=401&textversion=false&subaction=-1

Australian Bureau of Statistics. (2010e). *Regional Population Growth.* Cat. No. 3218.0 ABS, Canberra.

Australian Bureau of Statistics. (2008a). Population by Age and Sex, Australia, 2006. Cat. No. 3235.0 ABS, Canberra.

Australian Bureau of Statistics. (2008b). *Population Projections, Australia, 2006 to 2101.* Cat. No. 3222.0 ABS, Canberra.

Australian Bureau of Statistics. (2007a). *2006 Census Community Profile Series - Canberra.* Cat. No. 2003.0 ABS, Canberra.

Australian Bureau of Statistics. (2007b). *2006 Census Community Profile Series - Greater Hobart.* Cat. No. 2003.0 ABS, Canberra.

Australian Government. (2010a). *Family Facts & Figures.* Australian Institute of Family Studies. Accessible from http://www.aifs.gov.au/institute/info/charts/households/havsizedata.html

Australian Government. (2010b). *National Targets.* Department of Climate Change and Energy Efficiency. Accessible from http://www.climatechange.gov.au/en/government/reduce/national-targets.aspx

Australian Government. (2010c). *Water use in Australia.* National Water Commission. Accessible from http://www.nwc.gov.au/www/html/236-water-use-in-australia.asp

Betts, W., & Dan, V. (2008). *Mind and Matter: The importance of psychological needs for social policy.* The Young Foundation.

Boyd, R. (1987). *Australia's Home*. Melbourne: Melbourne University Press.

Bureau of Transport and Regional Economics. (2007). *Estimating urban traffic and congestion cost trends for Australian cities, Working Paper 71.*

Calvino, I. (1997). *Invisible Cities*. London: Vintage.

Casalengo, F., & Mitchell, W. J. (2008). *Connected Sustainable Cities.* MIT Mobile Experience Lab Publishing.

Centraal Bureau voor de Statistiek. (2010). *Population dynamics; birth, death and migration per region.* Statline. Database accessible from

http://statline.cbs.nl/StatWeb/publication/?DM=SLEN&PA=37259eng&D1=0-1,3,8-9,14,16,21-22,24&D2=0&D3=87-88,91-92,97&D4=48-49&LA=EN&HDR=T&STB=G1,G2,G3&VW=T

Climate Analysis Indicators Tool. (2010). *Total GHG Emissions in 2005 (includes land use change).* World Resources Institute. Accessible from http://cait.wri.org/cait.php?page=yearly&mode=view

Commonwealth Treasury. (2010). *Australia to 2050: future challenges, Intergenerational Report 2010.* Accessible from http://www.treasury.gov.au/igr/igr2010/default.asp

CSIRO and Bureau of Meteorology. (2007). *Climate Change in Australia Technical Report.* Accessible from http://www.csiro.au/resources/Climate-Change-Technical-Report-2007.html

Currie, G. (2009). Australian Urban Transport and Social Disadvantage. *The Australian Economic Review, 42*(2), 201-208

Department of Families Housing Community Services and Indigenous Affairs. (2009). *Regulation and Growth of the Not-For-Profit Housing Sector: Discussion Paper* Accessible from http://fahcsia.gov.au/sa/housing/pubs/homelessness/not-for-profithousingsector/Pages/affordable_housing.aspx

Department of Immigration. (2009). *Fact Sheet 2 - Key Facts in Immigration.*

Dirks, S., & Keeling, M. (2009). *A Vision of Smarter Cities.* IBM Global Services. Accessible from ftp://public.dhe.ibm.com/common/ssi/pm/xb/n/gbe03227usen/GBE03227USEN.PDF

Dodson, J., & Sipe, N. (2008). *Unsettling Suburbia: The New Landscape of Oil and Mortgage Vulnerability in Australian Cities, Urban Research Program Research Paper 17.* Griffith University. Accessible from http://www.griffith.edu.au/__data/assets/pdf_file/0003/88851/urp-rp17-dodson-sipe-2008.pdf

European Union. (2010). Urban Audit Database.Accessible from http://www.urbanaudit.org/.

Flood, M., & Barbato, C. (2005). *Off to Work: Commuting in Australia, Discussion paper No 78.* The Australia Institute. Accessible from http://www.vcoss.org.au/documents/VCOSS per cent20docs/Transport/VCOSSYoungMums+Transport per cent20LR.pdf

Foster, C. (2004). *Cities: Continuity and Change*. Melbourne: OUP.

Fritze, J. (2007). *"You might as well just stay at home": Young mums and transport in Victoria.* Victorian Council of Social Service. Accessible from http://www.vcoss.org.au/documents/VCOSS per cent20docs/Transport/VCOSSYoungMums+Transport per cent20LR.pdf

Gralla, J. (2009). *New York City fears return to 1970s.* Reuters. Accessible from http://www.reuters.com/article/idUSTRE50Q6IH20090127

Henry, K. (2010). *'To Build Or Not To Build'* Address to the conference on the Economics of Infrastructure in a Globalised World: Issues, Lessons and Future Challenges.

House of Representatives Standing Committee for Long Term Strategies. (1992). *Patterns of Urban Settlement: Consolidating the Future?* Canberra: Australian Government Publishing Service.

IBM. (2010). *Smarter Water for a Smart Planet.* Accessible from http://www-07.ibm.com/innovation/au/smarterplanet/opinion/opinion_water.html

Infrastructure Partnerships Australia. (2009). *Financing Infrastructure 2009.* Accessible from http://www.infrastructure.org.au/Content/FinancingInfrastructure.aspx

James, C. (2009). *Australian homes are biggest in the world – Housing market trends.* Commsec. Accessible from http://images.comsec.com.au/ipo/UploadedImages/craigjames3f6189175551497fada1a4769f74d09c.pdf

Kearns, A., Barnett, G., & Beaty, M. (2007). A social-ecological perspective of health in urban environments. *NSW Public Health Bulletin, 18*(3-4), 48-50

Major Cities Unit. (2010). *State of Australian Cities 2010.* Infrastructure Australia. Accessible from http://www.infrastructureaustralia.gov.au/files/MCU_SOAC.pdf

Markus, A. (2009). *Mapping Social Cohesion.* Scanlon Foundation, Monash Institute for the Study of Global Movements. Accessible from http://www.globalmovements.monash.edu.au/news/documents/Social per cent20Cohesion per cent20Report per cent202009_final.pdf

Maslow, A. H. (1943). A Theory of Human Motivation. *Psychological Review, 50*, 370-396

Meyer, W. (1997). *Water for Food – the continuing debate.* CSIRO. Accessible from http://www.clw.csiro.au/issues/water/water_for_food.html

National Housing Supply Council. (2010). *2nd State of Supply Report.* Accessible from http://www.nhsc.org.au/state_of_supply/2009_ssr_rpt/StateofSupplyReport_2010.pdf

National Transport Commission. (2001). *Australia's Vehicle Noise Limits Too Loud: NRTC Report.* Accessible from http://www.ntc.gov.au/NewsDetail.aspx?newsid=00025

OECD. (2008). Environment: Municipal Waste. In *OECD Factbook 2008: Economic, Environmental and Social Statistics*. Paris: OECD.

OECD. (2009). *Health at a Glance 2009: OECD Indicators.* OECD. Accessible from http://www.oecdilibrary.org/content/book/health_glance-2009-en

Putnam, R. D. (2007). E Pluribus Unum: Diversity and Community in the Twenty-first Century, The 2006 Johan Skytte Prize Lecture. *Scandinavian Political Studies, 30*(2), 151.

Scheurer, J. (2001). *Urban Ecology, Innovations in Housing Policy and the Future of Cities: Towards Sustainability in Neighbourhood Communities.* Murdoch University.

Scott, P. (Ed.). (1978). *Australian Cities and Public Policy*. Melbourne: Georgian House.

Sterman, J. D. (2000). *Business Dynamics: systems thinking and modeling for a complex world*. Boston: Irwin/McGraw-Hill.

Stiglitz, J., Sen, A., & Fitoussi, J. (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress.* Accessible from http://www.stiglitz-sen-fitoussi.fr/en/index.htm

The Young Foundation. (2009). *Sinking and Swimming: Understanding Britain's Unmet Needs.*

United Nations Population Division. (2008). *World Urbanization Prospects: The 2007 Revision Population Database.* United Nations. Database accessible from http://www.un.org/esa/population/publications/wup2007/2007WUP_Highlights_web.pdf

van Susteren, A. (2007). *Metropolitan World Atlas*. Rotterdam: 010 Publishers.

Webb, W. (2000). *Address to the United States Conference of Mayors, Lyon.* Accessible from http://www.channelingreality.com/NAU/International_Cities.htm

World Economic Forum. (2009). *Global Competitiveness Report 2009-10.* Accessible from http://www.weforum.org/pdf/GCR09/GCR20092010fullreport.pdf

Worldmapper. *Worldmapper Gridded Population Cartograms, Australia.* Accessible from http://www.worldmapper.org/countrycartograms/carto_aus.htm

5.2 Bibliography

Alford, G., & Whiteman, J. (2009). *Macro-Urban Form, Transport Energy Use and Greenhouse Gas Emission: An Investigation for Melbourne.* Transport Policy Analysis and Research Unit, Department of Transport.

Australian Bureau of Statistics. (2010f). *Adelaide: A Social Atlas: 2006 Census of population and housing.* Cat. No. 2030.4 ABS, Canberra.

Australian Bureau of Statistics. (2010g). *Brisbane: A Social Atlas: 2006 Census of population and housing.* Cat. No. 2030.3 ABS, Canberra.

Australian Bureau of Statistics. (2010h). *Canberra: A Social Atlas: 2006 Census of population and housing.* Cat. No. 2030.8 ABS, Canberra.

Australian Bureau of Statistics. (2010i). *Darwin: A Social Atlas: 2006 Census of population and housing.* Cat. No. 2030.7 ABS, Canberra.

Australian Bureau of Statistics. (2010j). *Hobart: A Social Atlas: 2006 Census of population and housing.* Cat. No. 2030.6 ABS, Canberra.

Australian Bureau of Statistics. (2010k). *Perth: A Social Atlas: 2006 Census of population and housing.* Cat. No. 2030.5 ABS, Canberra.

Australian Government. (2010d). *State of the Environment.* Department of the Environment, Water, Heritage and the Arts. Accessible from www.environment.gov.au/soe/2006/publications/report/human-settlements.html

Bohm, C., & Coombs, M. (2009). *Australian citizenship: a chronology of major developments in policy and law.* Parliamentary Library Background Note

Bureau of Infrastructure Transport & Regional Economics. (2009). *Australian Transport Statistics Yearbook 2009.* Accessible from http://www.btre.gov.au/info.aspx?NodeId=111&ResourceId=710

Burnley, I. H., Muprhy, P. and Fagan, R. . (1997). *Immigration and Australian Cities*. Sydney: The Federation Press.

Forster, C. (2006). The Challenge of Change: Australian Cities and Urban Planning in the New Millennium. *Geographical Research, 44*(2), 173-182

Frost, L. (1990). *Australian Cities in Comparative View*. South Yarra: McPhee Gribble.

Gleeson, B. (2007). *The Endangered State of Australian Cities, Urban Research Program Paper.* Griffith University. Accessible from http://www98.griffith.edu.au/dspace/bitstream/10072/18343/1/48909_1.pdf

Hamnett, S., & Freestone, R. (Eds.). (2000). *The Australian Metropolis*. St Leonards: Allen & Unwin.

Mees, P. (2000). *A Very Public Solution: Transport in the Dispersed City*. Carlton: Melbourne University Press.

Mees, P., O'Connell, G., & Stone, J. (2008). Travel to Work in Australian Capital Cities, 1976-2006. *Urban Policy and Research, 26*(3), 363-378

Melosi, M. (2004). *The Automobile Shapes the City.* University of Michigan-Dearborn and Benson Ford Research Centre. Accessible from http://www.autolife.umd.umich.edu/Environment/E_Casestudy/E_casestudy1.htm

Meyer, M., & Miller, E. (2001). *Urban Transportation Planning: A Decision oriented Approach (2nd Ed)*. New York: McGraw-Hill.

New South Wales Transport and Infrastructure Transport Data Centre. (2009). *2007 Household Travel Survey Summary Report: 2009 Release.* NSW Transport and Infrastructure. Accessible from http://www.transport.nsw.gov.au/sites/default/file/tdc/documents/hts-report-2007.pdf?q=tdc/documents/hts-report-2007.pdf

Newman, P., & Kenworthy, J. (1999). *Sustainability and Cities - Overcoming Automobile Dependence*. Washington D.C.: Island Press.

Randolph, B. (2004). The Changing Australian City: New Patterns, New Policies and New Research Needs. *Urban Policy and Research, 22*(4), 481-493

Rodrigue, J., Comtois, C., & Slack, B. (2010). *The Geography of Transport Systems.* Accessible from
http://people.hofstra.edu/geotrans/index.html

Sandercock, L. (1975). *Cities for Sale: Property, politics and urban planning in Australia*. Melbourne: Melbourne University Press.

Senbergs, Z., & Currie, G. (2007). *Forced Car Ownership – Links to Transit and Accessibility*. Paper presented at the Peak Oil, Petrol Prices and Climate Change: Preparing Victoria for the Future.

Strachan, G. (2009). Systems thinking. In A. Stibbe (Ed.), *The Handbook of Sustainability Literacy*. UK: Green Books.

Tavan, G. (1997). 'Good neighbours': Community organisations, migrant assimilation and Australian society and culture, 1950-1961. *Australian Historical Studies, 27*(109), 77-89

Troy, P. (1996). *The Perils of Urban Consolidation: A discussion of Australian housing and urban development policies.* Sydney: The Federation Press.

Wilkins, R., Warren, D., & Hahn, M. (2009). *Families, Incomes and Jobs, Volume 4: A Statistical Report on Waves 1 to 6 of the HILDA Survey.* Melbourne Institute of Applied Economic and Social Research, The University of Melbourne. Accessible from
http://www.melbourneinstitute.com/hilda/statreport/statreport-v4-2009.pdf

Wooton, B. (2004). *Cities as Complex Adaptive Systems.* Generation5. Accessible from www.generation5.org/content/2004/complexCities.asp

World Economic Forum. (2009). *The Bubble Is Close to Bursting: A Forecast of the Main Economic and Geopolitical Water Issues Likely to Arise in the World during the Next Two Decades.* Accessible from
http://www.weforum.org/pdf/water/WaterInitiativeFutureWaterNeeds.pdf