



# Perth as a ‘big’ city: Reflections on urban growth

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## Abstract

The bigness of cities has attracted much attention from urban academics and professionals whose perspective may be divided into two camps: productive science using agglomeration-based analysis or impact science using anxiety-based analysis. The two approaches need to be joined in order to resolve issues of urban ‘bigness’, and in this article the growth of Perth is used to illustrate the potential and challenges of this integration.

## Keywords

density, digital tools, Perth, planning, population, regenerative cities, sustainable design, urban growth

I was born in Perth when there were around 300,000 residents, but grew up in Eastern Australia. I came back to Perth from Hobart in 1964 – it was now big! It was more than twice the size of Hobart, around 500,000. We were big enough to have been seen from space by John Glenn in 1962 and to host the Commonwealth Games, but not enough for a lot of things that happened in the big cities in the East.

We were told we were not big enough for an urban rail system when the first line was closed in 1979. We had to be 1 million. We fought and won that issue, but when Perth did reach 1 million the transport planners started saying our city needed to be bigger and denser if it were to get a decent rail system. I have been rather fascinated with this issue of urban bigness ever since, especially when we showed we could build a very successful railway (McIntosh et al., 2013).

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In 1980 Perth became bigger than Adelaide and we were very proud, as it meant that the West was catching up to the East after giving them most of the 19th century as a start. Perhaps now we would begin to see ourselves as big. In 2015 we hit 2 million, and we are now predicted to pass Brisbane in size sometime in the 2020s and reach 3.5 million by 2050, perhaps 5 million in the lifetime of many alive today (ABS, 2014). That *is* big.

We are not alone in this race to bigness. By 2050 the ABS (2014) suggests Australia would have Melbourne and Sydney with 8 million and Perth and Brisbane at 5 million. Australia would have four very big cities and not much else. This kind of rapid urban growth is not uncommon in the developing world, but it is rare in the developed world. Indeed there are only 11 cities in the wealthy world of over 5 million at the moment.

There are many in Perth, and of course elsewhere in Australia, who are somewhat bewildered by this bigness talk and are rather concerned: ‘What are we doing just getting bigger and bigger? Can’t we stop this? You can’t grow forever. Surely it is going to have human and environmental consequences which we should avoid? Maybe at least we should think about it a bit more?’ (Law, 2013; Weller, 2012; Newman, 2005).<sup>1</sup>

In a recent article in *The Conversation* (Newman, 2015) I discussed the poverty of some of our urban planning tools, especially for traffic, and it stimulated a lot of feedback. One common response – in fact it is always raised whenever I discuss planning issues – was ‘why don’t people just move away from all that stressful traffic and just live in small beautiful country towns?’ Here is what one person said: ‘Given the choice of cramped high rise versus a small acreage with a large house, located near a beach, river or lake, I’m sure people will choose the latter’.

There are of course many people who will make such a choice and are doing the ‘tree change’ or ‘sea change’ shift. But statistically they are not winning. The four big cities are getting bigger more quickly than any other place in Australia.

In Perth over the past eight years we have had a policy of Royalties for the Regions that has taken billions of dollars of state revenue to anywhere outside Perth to help improve their prospects for growth. The policy has led to good projects in regional towns but has failed dismally to attract more people to the regions; Perth’s population has continued to not only grow fast, it is growing faster as a proportion of the state – now it is 79%, up from 75% in 2000 (ABS, 2014).

The same pattern is found around the world, although not as extreme as Perth’s dominance over a region the size of Western Europe. Global rural growth is now on average 0% and global urban growth is 1.84% per year. Cities are now 54% of the global population, whereas the proportion was 34% in 1964, the year I came back to Perth (UN, 2015).

## Why cities?

People are choosing the city because of the opportunities created in big, crowded cities for education, jobs, recreation, health and even proximity to children who are enmeshed in such opportunities. Cities are not just good at providing these opportunities due to overlapping skills and shared labour, but are also much more able to overcome the feudal arrangements which dominate most villages and rural areas. Escaping to the city means a lot if you are a bonded labourer or a woman with no prospects of work or are promised to

someone you hate (Mumford, 1961; Jacobs, 1985; Hall, 2013, 2014 [1988]; Girouard, 1985). Cities can of course deliver people into other forms of slavery, but the choices around the world continue to favour cities over rural areas (Sassen, 1994; Harvey, 2008).

Cities grow because of people-related opportunities. But won't this change with new communications technology and computers? Surely all the links made in cities can now be made virtually and we can get that house near the lake? Telecommunication technology was seen for decades as the way that would enable the city's opportunities to be replicated out in the countryside, so cities have been expected to begin to decline as they decentralized (Webber, 1963, 1964, 1968). It didn't happen.

In fact new ICT jobs and the knowledge economy jobs in general are occurring mostly in areas where people can easily meet face-to-face. Thus we are seeing these jobs are focused in the most crowded central cities and inner suburbs on the planet (Newman and Kenworthy, 2015; Glaeser, 2011). ICT will help make some urban services possible at a distance but mostly we need face-to-face experiences for anything creative and innovative. We can supplement these people-interactions with virtual contact but not replace them. So ICT has increased rather than reduced the numbers of people going to cities, especially increasing the population living in dense, central and inner areas.

My research work has focused on where people live and work and what kind of transport they use to get around. Our data on cities across the world from the 1960s to 1990s showed that densities were going down in most wealthy OECD cities and were rising in the rapidly growing Asian cities (Newman and Kenworthy, 1999). For most of the 20th century in wealthy cities like Perth people moved out into suburbs, seeking a bit of rural romantic bush and a more peaceful lifestyle. However, in the first 15 years of the 21st century we have had a reversal of this process in all developed cities, as more people have moved back in than have moved out (Newman and Kenworthy, 2015). The densities of most cities are now increasing, including Perth, as the demand for housing in inner and central areas outstrips the demand for outer suburban living.

The reasons for this reversal in density are probably many, but two are very clear in our data and are outlined in our book *The End of Automobile Dependence* (2015). Firstly, there is a real attraction to living where there is urban activity – especially is this evident with the young and wealthy, who are trading off their desire for residential space with their desire for location. The second factor is what we call the Marchetti travel time budget: every city has a similar travel time budget of around 1 hour per day on average, and if too many people are going over this then they shift to where they do not have to waste so much time. The demand now in all Australian cities is for greater transit in the suburbs or for housing located where it is possible to beat the traffic, which is slowing every year (Newman and Kenworthy, 2015).

Within the context of increasing urban populations, this density reversal is a good trend, as far as I can see, because it will enable our cities to rebuild as less car dependent and more sustainable. It will direct the urban growth into a positive outcome (Newman, 2006).

Is this how we should look at urban growth? Can we make 'big' cities like Perth into better places to live and work, or do we just put up with the fact that they will be crowded and horrible with human and environmental impacts that are likely to have significant

consequences? Do we embrace urban bigness or do we work to stop it? Is this search for opportunity in cities really worth it?

## **Agglomeration or anxiety**

Schnaiberg and Gould (1994) made a helpful distinction in the way that we use our sciences for either productive analysis or impact analysis. Often the same discipline – whether it be economics or engineering or planning – can be used either to create higher productivity from growth in a particular technology, business or arrangement of people, or used to analyse greater impacts and problems associated with that growth. In this essay I would like to suggest that we need both approaches if our cities are to make the most of their bigness.

In cities the distinction between the two approaches to science or analysis can be labelled agglomeration or anxiety. Agglomeration is how economists and engineers look at the benefits of cities. The economies of scale and density are analysed in terms of how clusters of different skills and jobs can create positive agglomeration elasticities. Engineers and planners seek how to make more opportunities through similar analysis of density and scale efficiencies: better public transport, better recycling, better shops and services, better markets, better universities, all depend to some degree on increasing the size and density.

Anxiety is the basis of urban impact analysis. We worry about certain trends, certain possibilities that may follow from the new development, the new road, the new technology, the increased size and the extra density. So planners, engineers, environmental scientists, economists, etc. seek to outline how the impacts could happen and how to avoid them.

Thus the growth is used to create the new opportunities (productive sciences with agglomeration analysis), but we need to do it with minimal impacts (impact sciences with anxiety analysis). This integrated duality is how we need to approach bigness in cities.

It becomes problematic when those in the agglomeration business only assist urban productivity by suggesting that any kind of urban growth and bigness is better, without ever needing to consider the impact sciences. This causes great concern to the impact sciences and leads to serious questioning about whether growth is ever good. Thus we have authors like Tim Jackson (2009) writing books like *Prosperity without Growth*, creating what is called the ‘de-growth’ movement.

On the other hand, those in the anxiety business, the impact sciences, buy into the anti-growth rhetoric by not taking seriously the value of their own impact sciences. For some, anxiety about growth is just left as a worrisome approach to the future in general, rather than helping to cleverly adopt change that could indeed reduce the impact and make the growth better.

It’s possible to picture these approaches as either optimistic or pessimistic, being based on either hope or despair. Both approaches are needed, and they need to be integrated to create good urban futures. Agglomeration and anxiety each contains truth which we can use. The hope for our cities is that we take the benefits of urban agglomeration and learn from the issues of urban impact analysis. The despair is created

when we blindly accept growth and learn nothing from the anxiety associated with it. But the despair is also created when we accept anxiety as a state of permanent fear about the future for any growth in our cities.

## **What does not work**

Productive sciences are usually the ones to which politicians listen, but if they keep saying that bigger is better, no matter what, then they will become victims of their own rhetoric. I think this happened when the Prime Minister Tony Abbott talked up \$40 billion of big roads and dropped them on the four big cities without doing any serious analysis of their benefit-cost ratios or detailed impacts. The projects are now all dying – East-West Link in Melbourne was killed off by a state election, the Perth Freight Link is dying as court decisions are going against it and no final plan can seem to settle the major design limitations in Fremantle port area, and the West Connex megaproject in Sydney is suffering seriously after being referred to the Auditor General (Newman, 2015). ‘Just do it’ does not work in our cities.

Anxiety about such growth can lead to positive changes that ensure growth really does lead to a better city. But there are a few areas that I believe are anxiety cul-de-sacs, i.e. they don’t actually lead anywhere helpful.

### *Apocalypse*

Firstly, there is little point in taking on the apocalypse. If the bombs rain down, the deadly fungi and viruses arrive, the big earthquake hits, the tidal wave wipes us out, then there is little we can do; certainly there is little in the apocalypse that can provide integrated approaches to urban growth management. Hiding out in the hills is not likely to work, for many. The apocalypse is best left to Hollywood and scary novels to generate a bit of anxiety, but it has little point if it only creates apoplexy (Potter, 2014). I don’t include climate change in this category. We have been well warned about how our cities and regions are causing this and what can be done about it (Diamond, 2009; IPCC, 2014). The next phase of urban growth must enable this major change in how we relate to our environment (Rauland and Newman, 2015); indeed it is a major force in achieving this transformation (Newman, 2014a).

### *Population*

Secondly, it does not help to blame all the problems of urban growth on population. When I speak publicly about cities and future trends, there is always someone who says: ‘Surely the problem is population, we just need to have reduced or no population growth’. High population growth is an issue globally, especially in the developing world and where the rapid population growth is in poorer rural areas. The pressure on natural resources in these areas from rapid population growth is real, as exponential growth soon reduces their fixed resources. But the so-called Demographic Transition to small family sizes is now well understood and also relates to opportunity. If you can improve opportunities in education and work, especially for women, then development rapidly leads to replacement fertility levels (Caldwell et al., 2006; UN, 2015).

It should be no surprise then that cities are mostly where this Demographic Transition is occurring. The main reduction in population growth globally has come from urbanization, as cities provide most of the opportunities and jobs that lead to smaller families. Once families have real choices in their lives they nearly always choose small families, so growth in cities is mostly coming from migration. Bigger cities are a solution to ending rapid global population growth (UN, 2014).

Stopping population growth in our own cities, like Perth, is often an argument about stopping migration into them. Immigration from overseas is of course possible to stop, though this does nothing for global population and would not stop the growth of the four big cities as people migrate from other parts of Australia. Immigrants can be directed to smaller cities and rural areas, but eventually they move to where the opportunities are greatest. Australian history is based on migrants making the most of many of these new opportunities in our big cities (Markus et al., 2010), as Jean Martin has documented (Beilharz et al., 2015).

The history of trying to stop internal migration into cities does not reveal much that has worked. The Russians and Chinese couldn't sustain it and certainly no democratic country has found out how to do it. Military solutions might work in the short-term but, like those of Pol Pot, exact an extremely high price; Phnom Penh's traffic was reduced to zero for a while but has fully returned now. Perth could put troops into the hills and naval patrols around the Perth coastline and we could create very scarce WA visas at the airport . . . but of course that is just fanciful.

One solution that would prevent migration to Perth, Brisbane, Melbourne and Sydney is the destruction of the economy of these cities, especially to prevent them from facilitating responses to the global economy. North Korea has worked this one out. But it's crazy, who would choose this? Philadelphia, Pittsburgh and Liverpool all reduced their populations in the 20th century as they hit the wall economically; they all have since reversed their declines as they found new ways of re-creating their urban economies to be more globally competitive. No politician will ever say they are going to represent their city by ruining economic opportunities in order to stem population growth.

## *Density*

The third anxiety-based cul-de-sac is density: 'I don't mind growth, I just don't want density', or a slight variation: 'Growth is OK but not here'. Density is a big divider between the urban productive sciences and the urban impact sciences; density increases efficiency in most models (Trubka et al., 2010) but there are many impact analyses that begin by trying to demonstrate that there is a problem with density over a certain level. However, I have found no evidence that is consistently able to show this. I first wrote a paper with Trevor Hogan summarizing the evidence about the positives and negatives of urban density in 1981 (Newman and Hogan, 1981). I updated the evidence in 2015, and not much has changed. The issues were presented in an article for *The Fifth Estate* called 'The Top 10 Myths about High Density', which was the most downloaded article for the year (Newman, 2014b).

Urban sociologists and commentators like Lewis Mumford, Jane Jacobs, Mark Baldassare and Paul Wilson have criticized the way density is blamed for social problems which can be addressed by dealing with poverty. 'The rhetoric about the effects of high-rise living must rank as one of the major hoaxes imposed by social scientists on an unsuspecting public' says Australian criminologist and public commentator Paul Wilson (1976). Increasingly it is the rich in Australian cities who are taking over dense, high-rise living due to locational advantages. And local governments are ensuring that this is all that is being provided, as – apart from a few special areas of high amenity – they mostly stop dense developments. Are we going to end up with 'Eco-enclaves surrounded by Mad Max suburbs', as I suggested as the basis of the Divided City – one of four potential scenarios for our future cities (Newman et al., 2009)?

The obsession with the impacts of urban density seems to be largely an Anglo-Saxon cultural issue based on romanticism about rural areas that was transferred to the Australian bush after colonization and exported to the colonies as need for low density suburbs (Williams, 1985; King, 1978). The urban traditions in London, Manchester and other British cities went against this pastoral tradition and were not much different to those in Europe and Asia, i.e. producing opportunities for people and minimizing the impacts of growth, especially through good town planning (Hall, 2013, 2014 [1988]; Newman and Matan, 2013). The four big Australian cities are mainly in that urban tradition, though density remains a focus of most debates about their futures.

The arguments about density are likely to continue to characterize the transition of Australian cities to being bigger. They need to be taken seriously, but the worrisome problems of density, I suggest, are mostly myths and should not provide some overarching policy stance preventing urban growth; embracing the growth of cities and especially their denser development, is a necessary step to enabling the integration of productive and impact sciences in cities.

## **What does work**

There are many elements of town planning that can help us to integrate the productive and impact sciences and hence manage urban growth. I have chosen three that I have found to be emerging as the basis for real opportunities in the future.

### *Sustainable design*

The most significant response to anxiety about population and density is to emphasize the importance of design (Kostoff, 1992; Girouard, 1985). The great cities of the world like Paris, London, Barcelona and New York have design traditions that have shaped their urban growth into urban legacies that we would all like to copy. Density is not feared when we look at those cities, as there has been a history of urban design sensitive to the human qualities of community, creativity and aesthetics (Kostoff, 1992). This applies to any city, no matter what its size or density. Today we have a new element that can be added to this design portfolio: helping to create a more sustainable city for the future.

Sustainability is about integrating the productive and impact sciences, and nowhere is this more obviously needed than in our cities. What this means is that we must create

cities that are constantly reducing their environmental footprint (impact) whilst improving their liveability (productive opportunities) (Newman and Kenworthy, 1999). Sustainable design is where we can facilitate this through better urban land use and infrastructure (Hes and Plessis, 2015; Vallero and Brasier, 2008).

All Australian cities have a strategic plan that tries to help achieve this, though most are not yet planning for the 'big' future, which is where Perth and Brisbane reach 5 million and Sydney and Melbourne reach 8 million. These 'big' city scenarios need to be considered because they are going to take us out of our comfort zone of business-as-usual. These big cities will need to be considered with different models that can reduce their traffic, reduce their energy and water, reduce their waste, reduce their damage to water systems and biodiversity, whilst increasing their opportunities for jobs, education, recreation, health and well-being.

The latest way we have begun to explain how to do this is by using what we call the Theory of Urban Fabrics (Newman and Kenworthy, 2015), which is based around how each city consists of three cities: *walking cities* where the old centres were based around high density, mixed use development that enabled people to walk around 2 km radius from the city centre in 30 minutes or an hour both ways; *transit cities* where the trams and train lines enabled our cities to spread out 20 km in medium density corridors and sub centres; and *automobile cities* where roads and cars enabled us to spread out 50 km or so in low density in every direction. Recognizing, respecting and rejuvenating these urban fabrics is the basis of sustainable design. The demand for more walking cities and transit cities is now increasing every year, so we need to build a polycentric city with fast rail projects and real activity centres in all corridors, especially the highly car dependent ones.

In each new urban development, wherever the urban fabric is created, there needs to be design that incorporates the latest technological innovation. The new design elements that are available now are: solar PV and batteries that can enable any development to be zero carbon at lower cost than coal-fired power (Green et al., 2015); modular construction that can enable 80% less construction waste, 40% less carbon and 20% less cost (Green and Newman, 2014); biophilic urbanism that can create green walls and green roofs, especially in the dense developments, able to cool buildings and neighbourhoods, reduce stormwater pollution, increase biodiversity and improve human health and well-being (Wilson, 1984; Beatley, 2009; Newman, 2014c; Soderlund and Newman, 2015); and pedestrian-focused design of centres that enable people to walk easily across a modern walking city linked to the rest of the urban area through a transit corridor (Gehl, 2010).

### **Digital planning tools**

Planning is one of the last professions to go digital as it has been dominated by paper reports and architectural drawings. This is rapidly changing but the tools to enable this are still under development. It will not be long before every development that is being considered will be submitted online, put out to the public for consideration online and assessed online. Digital planning tools currently being developed will be essential requirements for planners in local and state government in preparation for developments



and will be used by developers, community members and authorities to help resolve the issues of agglomeration and anxiety (Pettit et al., 2014; Newton and Glackin, 2015; Newton et al., 2012; Curtis and Scheurer, 2010).

This process will considerably reduce both preparation time and use of paper, and hopefully will enable communities to recognize how best to integrate their concerns with the need for development and change. Having the ability to trial multiple scenarios for development that show the impacts on financial viability, community facilities, carbon, water, traffic and human health should enable us to create better outcomes towards sustainable design.

### *Local deliberative planning as well as metropolitan scale strategic planning*

The digital tools of 21st-century planning can be used to assist with local planning and can be used to demonstrate compliance with overall strategic planning goals. However, to do so needs a deliberative local system that locks in genuine, community-based feedback (Gollagher and Hartz Karp, 2013; Hartz-Karp and Newman, 2006). And it needs a metropolitan-scale plan that sets some guidelines and goals (Newton, 2008).

It's necessary to describe these means to achieve planning, to integrate the productive and impact sciences for long-term outcomes – but it is a rather dry way to enter the great debate about urban civilization. Cities are the basis of human civilization, as civilization is about opportunity: so if cities are the basis of our future, do we choose to run from them or embrace them?

In the end it depends on our imagination. How do we imagine our future? Can we begin to see not just a city that manages the integration of productive and impact sciences, not just a city that eases the anxiety as it grows, but a city that absolutely inspires us?

## **Regenerative cities**

This possibility is held by the new concept that is beginning to be used about our future cities called Regenerative Cities (Droege, 2006; Girardet, 2014; Lyle, 2011; Hes and Plessis, 2015). This is a city that not only says no to the Extractive City of the past with its constant extraction of more and more resources, creation of more and more wastes and other environmental negatives in exchange for urban growth; it is also a city that says a Sustainable City is not enough even if it begins to reduce the resource inputs and waste outputs; reducing the environmental footprint in exchange for growth in urban opportunities will also not be enough. The next phase with the Regenerative City will be to create more and more human opportunities in jobs and services whilst also regenerating its environmental footprint. This can mean: creating more water resources than it consumes and creating more renewable energy than it consumes so it can support its regional resource needs and begin extracting carbon from the atmosphere; creating more biodiversity through biophilic urbanism so it can regenerate its bioregion; recycling wastes and water in a way that assists its region to create more food than it consumes. All of this while creating more opportunities in a fairer city.

These are seen perhaps as a bit fanciful, but it is remarkable how quickly eco technologies are changing to enable such possibilities (Flannery, 2015), and the first signs of

such cities are appearing with peak car and peak carbon (Newman and Kenworthy, 2015). At CUSP we are being presented with a range of new urban developments (like the LandCorp WGV project and the Greater Curtin project)<sup>2</sup> which have all of the above characteristics planned into their fabric. They are full of innovation and risk but they are being adopted. Such possibilities will not happen, however, if we do not embrace urban growth, as it will be in that process when we can create regenerative possibilities.

## Conclusions

There is little doubt that Perth will continue to grow just as the other three big Australian cities will continue to grow. Perhaps the city will not be as dramatic in its growth as predicted by the ABS as the mining boom slows. But also there are significant areas of innovation appearing, including the sustainable design and regenerative urbanism areas, which will enable jobs to be created. People like living in Perth, so most of the 400,000 who came in the past seven years have stayed. I hope that as we approach the next phase of urban growth in Perth that we can embrace agglomeration benefits and ensure that we deal with the impact anxieties – at the same time.

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## Notes

1. The Committee for Perth has written a number of articles about Perth's potential future and Richard Weller's book *Boomtown 2050* has been influential. Ex-Premier Carmen Lawrence has become an outspoken critic of urban growth in Perth, both density increases and urban sprawl; see *Griffith Review* 47: 'Looking West'.
2. See: <http://www.landcorp.com.au/Residential/White-Gum-Valley/> and <https://properties.curtin.edu.au/whoware/vision.cfm>

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### Author biography

**Peter Newman** is Professor of Sustainability at Curtin University. Over a 35-year academic career he has published 16 books and 300 papers. He was awarded an Order of Australia for his work on urban design and sustainable transport and continues to do research and provide policy advice and media commentary on Australian cities. He was described by Malcolm Turnbull at the recent City Summit as ‘his tutor’.