| STRATEGIC URBAN GROWTH IN MELBOURNE |

Linking Global and Local Sustainability Criteria for an Urban planning proposal

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HOW CAN WE STRATEGICALLY PLAN AN ATTRACTIVE AND DIVERSE HIGH DENSITY AREA IN THE CITY CENTRE OF MELBOURNE TO FACILITATE LESS RESOURCE USE AND PREPARE FOR THE URBANIZATION FOLLOWED BY PROJECTED POPULATION GROWTH?

-BY FOCUSING ON SOCIAL DIVERSITY AND HUMAN TRANSPORT-

EXECUTIVE SUMMARY

Over the next decades more urban development than ever is needed to cater for the world's rapidly increasing population; by 2050 approximately 70% of 9 billion people will be living in urban agglomerations. Architects and planners worldwide have always tried to plan cities in strategic, beautiful and useful ways, but today's unprecedented challenge is how to sustainably build cities for 2.8 billion people the next 40 years. As developers of our future cities architects and planners have a responsibility to assist in equalizing the share of resources; how cities are planned will affect this and can also provide solutions to parts of the problem. Innovative interventions for cities can be identified though systems thinking; linking global knowledge with an understanding of local aspects can guide us towards designing sustainable communities around the world.

The global trends are significant change factors for Melbourne, Australia; a city projected to grow from 4 million to 5 million people over the next 20 years. Melbourne is a city full of character, history and charisma, but Melbourne is also extremely sprawled and much of the city is planned around cars. This thesis investigates the meaning and contradictory aspects of density in urban planning, related to connected infrastructure. After analyzing global and local aspects possible criteria for change are summarized in a toolbox together with a number of strategies on how to redevelop Melbourne for a more sustainable growth. It considers sustainability on both micro and macro level systems and their interconnections, attempting to include all three pillars of sustainability. These strategies and criteria are then applied on a proposal for how to plan and redevelop a site into a diverse high density area using existing infrastructure in the Melbourne City Centre.

CONTENT & STRUCTURE

| SITE |

| CRITERIA |

| PROPOSAL |

INTRODUCTION

During the last couple of years I have had the fortune to see the globe from many different angles while travelling around the world for work and studies. As an architecture student it has been an amazing experience to see cities in all shapes and forms, to analyse their mechanisms, positive and negative aspects, and to see what structures they have grown from. I started studying architecture 7 years ago and I have for a long time thought about what I wanted to do as my final project, trying to sum up what I have learned. At the same time I have been learning more about subjects that I have found particularly interesting and what role architects can have in a global context. I found it somewhat difficult; to choose one single subject when being interested in the complexity and connections between all of them. Therefore, when visiting Melbourne for the first time during summer 2010 I found a complexity in the city that truly interested me at the same time as presenting a summarized picture of the overall global dilemma that architects face today. Melbourne was also interesting because of its differences to cities in my home country; Sweden simply does not have a city of 4 million people, nor the rapid growth that Melbourne is experiencing. Melbourne is what my home town Gothenburg could possibly look like in 100 years. We have similar patterns in terms of suburbanization and western culture, but there are large possibilities for knowledge transfer in terms of immigration and integration into a diverse society, sustainable transport and urban planning schemes. Urban growth is interesting in many ways; the difficulties in identifying what could be derived from local and global challenges and how that knowledge leads to a better understanding of how urban planning can affect the society.

The world is changing rapidly. In the next decades we will need more urban development to cater for the rapidly increasing population; about 70% of 9 billion people will be living in urban agglomerations at 2050.[1] The global population is growing and we are becoming more urbanized at the same time. Never before have humans put so much stress on the environment and its resources, not only because of how they are used or extracted, but also due to the extreme quantities needed to supply enough for the growing population. The majority of the growth will be in developing countries, but due to the lack of resources we can expect both global food crises and migration in and from less rich countries; the developed world will need to share their part and drastically decrease the amounts used. Cities consume resources in abundance due to hosting the majority of the population, but also have the best opportunities to take care of them and change the situation we have today. An important aspect of planning cities for the future is to take care of existing cities in order to move away from old resource consuming habits; new cities will not amend the problems of the current ones.

Architects and planners worldwide have for a long time tried to plan cities in strategic, beautiful and useful ways, but today's unprecedented challenge involves sustainably building cities for 2.8 billion people the next 40 years. Some argue that architects and planners have a responsibility as developers of our future cities to assist in equalizing the share of resources; the way cities are planned will affect this and can also provide solutions to parts of the problem. Many architects are now taking on the challenge, but it has so far been impossible to find definite answers of what would be the best way. How can architects and planners together enhance the lives of the urban population whilst saving resources and communicating global environmental trends?

Sustainability is a global issue with personal impact

Part of the solution for more sustainable development might be found in western societies finding solutions that can be implemented in multiple places; to use systems thinking and see the globe as a whole. Innovative interventions for cities can be shared globally; knowledge and understanding on local aspects could be brought up in a larger context to find other areas of use. An example could be recycling; Sweden has an excellent system for recycling but so does Kenya despite the lack of an official system; micro economy systems have evolved spontaneously around recycling plastic containers and reusing metal from empty oil drums to produce kitchen appliances. Global understanding is the key to success; if there is no incentive or appreciation for why we need to do things, little will

change. Understanding of sustainable development can be used in different ways and contexts; global knowledge exchange can spread the word on innovative ways of living or traditional approaches can be interpreted in new ways to creates inspiration for new solutions. Globalization can be positive if used correctly; global sustainability issues will have personal impact and it is up to all of us to decide how to use the knowledge we can find.

There are definite gains in cooperating internationally, but while working with international projects one has to keep in mind that the world does not look alike everywhere. Different considerations have to be taken into account depending on social structures, culture, and circumstances regarding nature, climate and ecological profiles. There might be risks in planning with an overly top down approach when transferring knowledge; despite ambitious economic or environmental approaches to planning, in-depth social insight can sometimes fall outside the framework. Political governance should assist in including social aspects in order for sustainability to be achieved. Ambitious planning projects with this complexity can be found on all levels; from large plans in China where the need for new urban areas is acute, to local small scale projects where good intentions crash through ill thought through economic structures and market projections.

The residents of Melbourne are fortunate in many ways; it is a fantastic city with lots of character and charisma, history and beauty. The city is growing rapidly and there is a lively ongoing discussion about

The global trends are significant factors of change for the transformation of Melbourne

urban renewal on a high political level generating many ambitious initiatives that could provide high quality city planning for the future. However, the city of greater Melbourne is extremely dependant on cars and much of the city is planned around it. Currently there is an unsustainable trend of sprawl; something that has been a political issue debated for a long time. Melbourne has a good public transport network if compared to international standards, but it still lacks in terms of coverage and efficiency. The city centre is dynamic and full of people, much due to a redevelopment programme initiated by the Caine government in the 1980s that promoted residential growth in the CBD while focusing on pedestrians and laneways. During the 1990s Danish architect Jan Gehl was involved implementing parts of the development. These efforts enabled miracles to happen for the inner city life which despite a previously vibrant history had troubles attracting services and people. Fantastic opportunities lie in taking this even further; extending the city centre and densifying the city while redesigning space formerly designated to the car. If global challenges are taken in to account when preparing Melbourne for future growth the city has a good chance to become an innovative international precedent for other countries to follow.

Grand plans on how to improve the city have been on the political agenda for a long time, both regarding the city centre and the surrounding suburbs. Many reports have been produced; Melbourne 2030 is a good example from 2002, trying to engage citizens for a more dynamic result. But due to changing political structures and reorganizations after state elections, rather few of the grand plans have been implemented in the way they were first intended. There are now new plans on the way with the new government from December 2010, where old strategies (from the opposing political party) are tossed in the bin in favour for new ones. The trend seems to be to oppose whatever suggestion the former government had in order to give room for new ideas, but unfortunately some knowledge appears to be lost on the way.

There are always difficulties coming from an outside perspective when trying to find solutions to something. The challenge of not knowing anything about the city until last year has triggered me to try to understand things better than I perhaps would have in a familiar context; no premade values shaped my decisions and no assumptions were made from old conclusions. There are also benefits of looking at something from a different view, being able to bring new perspectives on an old matter. However, this is just a master thesis; time has been limited and

there is much more to discover learn about all levels of the aspects I mention in this paper. If there are values erroneously described or facts misunderstood they were at least created with the intention of learning more. What drives me forward is an urge to find knowledge about global sustainability aspects resource use in urban agglomerations.

I have in my role as an architect tried to conceptualize the idea of urban sustainable growth within a larger understanding of its global aspects. I have tried to look at the complexity of sustainability both micro and macro systems and their connections by attempting to include parts of all three pillars of sustainability (Environmental, Social and Economic aspects). This is therefore a more theoretical thesis, where I have tried to find as much information as possible in order to create a background for my theories and implementation suggestions. Large parts of the thesis have been devoted to investigating the meaning and contradictory aspects of density in urban planning. The aim has been to create theoretical background for planning a diverse high density area in Melbourne using existing infrastructure. The thesis is divided in to 6 parts with 3 focuses; a global scale discussion (1+2), a local scale describing Melbourne (3+4) and suggestions on how and where to implement the found conclusions to reach sustainable growth (5+6). The first two will serve as program identifying incentives to change, shaping the last parts into design criteria forming into a planning proposal for Melbourne. All three parts contains descriptions, parameters and problems that connect both the global and local scales.

Each chapter tries to answer the following:

- What global aspects needs to be considered for urban renewal projects?
- What role does architects have in the international context?
- What are the local parameters in Melbourne?
- Where could a new redevelopment take place?
- What criteria could be used for redevelopment?
- What could an implementation proposal look like?

The report is aimed to the public to learn more about sustainability in urban planning but foremost to media politicians and other professions who have an interest in taking part of the local debate on how to sustainably let Melbourne grow and sprawl less. Footnotes are displayed in end of each chapter. All images and illustrations are made by the student unless stated differently.

THE MEANING OF SUSTAINABLE DEVELOPMENT

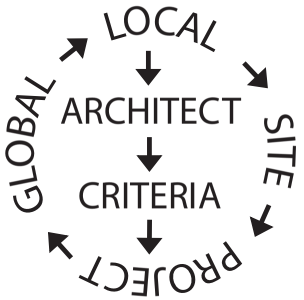
As defined by The Brundtland Commission;
“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

METHODS

Research on site, litterature, statistics and continous discussions with inhabitants of Melbourne.

LIMITATIONS

I have rapidly zoomed in from global to local which have resultet in a focus on density and infrastructure connections even though other related aspects of sustainability would have been interesting to include.



I WHY I	Global, Local
I WHO I	Architect, Criteria
I WHERE I	Site
I WHAT I	Criteria
I HOW I	Proposal

ABBREVIATIONS

UN-Habitat	United Nations Human Settlements Programme
UNEP	United Nations Environmental Programme
UNHCR	United Nations High Commission for Refugees
NGO	Non Governmental Organization
OECD	Organisation for Economic Co-operation and Development
ABS	Australian Bureau of Statistics
CBD	Central Business District

FOOTNOTES I INTRODUCTION I

(1) UN-habitat (2009) Why sustainable cities hold the key to climate change, Urban World p25, March 2009, UN-Habitat, Nairobi,

WHAT GLOBAL ASPECTS NEEDS TO BE CONSIDERED
FOR URBAN RENEWAL PROJECTS?

| GLOBAL |

| ARCHITECT |

| LOCAL |

| SITE |

| CRITERIA |

| PROPOSAL |

GLOBAL GROWTH AND RESOURCE USE

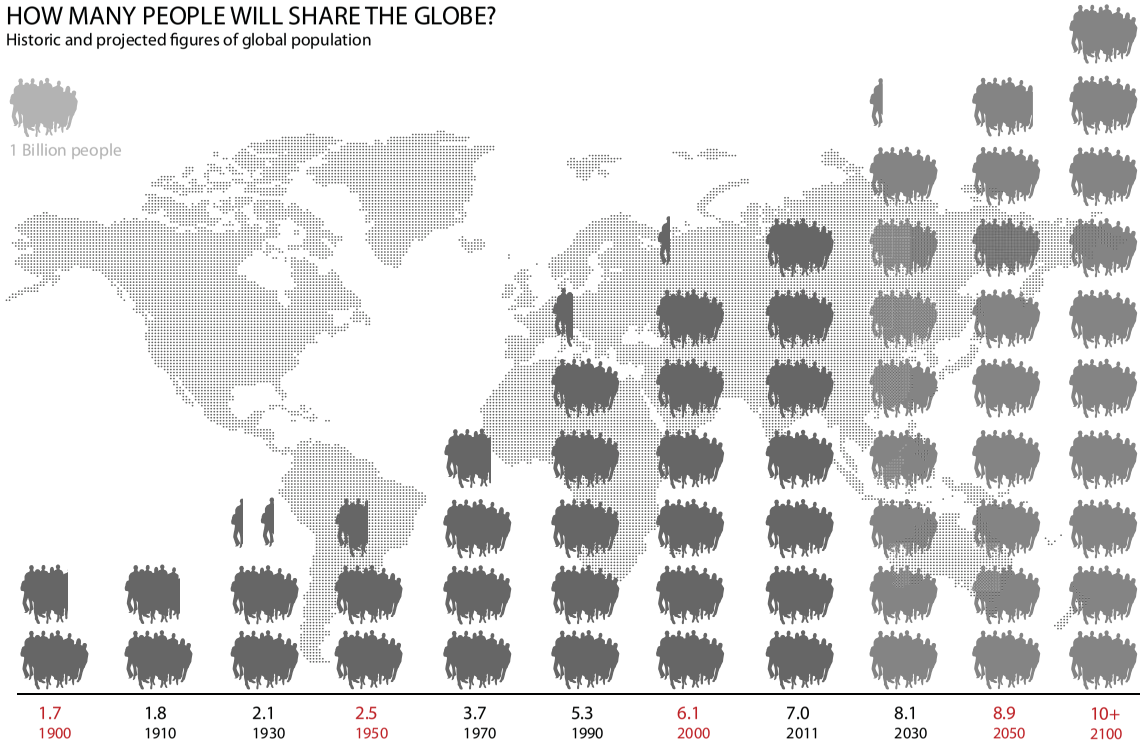
Population growth has occurred in cities since the birth of the first human settlement. But modern times present a new challenge to the globe; rapid population growth on an unprecedentedly seen scale. The United Nations have projected the global population to rise from approximately 6.7 billion to 8.9 billion people in 2050, and recently projected to rise to even further; 10 billion people in 2100.(1) Historically people have been living in cities for a long time and urban growth has occurred with different pace and for different reasons, but the combination of rapid urbanization and population growth creates a global challenge for everyone. About 50% of the global population today are urban settlers, a number that grows every day and is projected to encompass 60% already by 2030. [2] This can be compared to 37% of the global population living in cities in the 1970s.

But not all countries have the same rapid growth rate; it especially differs between developed and developing countries. Australia is one of very few developed countries amongst developing ones in top of the list, a 2.04 % population growth in 2009; close to double of the global average on 1.16%. Sweden had as a comparison 0.89% growth, which is lower than the global average. (3) Population growth depends largely on three factors; birth rate, death rate and migration. The figures for Sweden, much like Australia and many other developed countries, rose due to immigration since the birth rate of these countries are much lower.

The global population is increasing rapidly, but the fact that the growth rate has decreased from 2.2% in the 70s to today's 1.16% should be taken in to consideration. Despite this decrease the figures still indicate 9 billion people in year 2050. Experts however indicate that an increased level of education amongst women in developing countries might slow down the birth rate and thus population growth. (4)

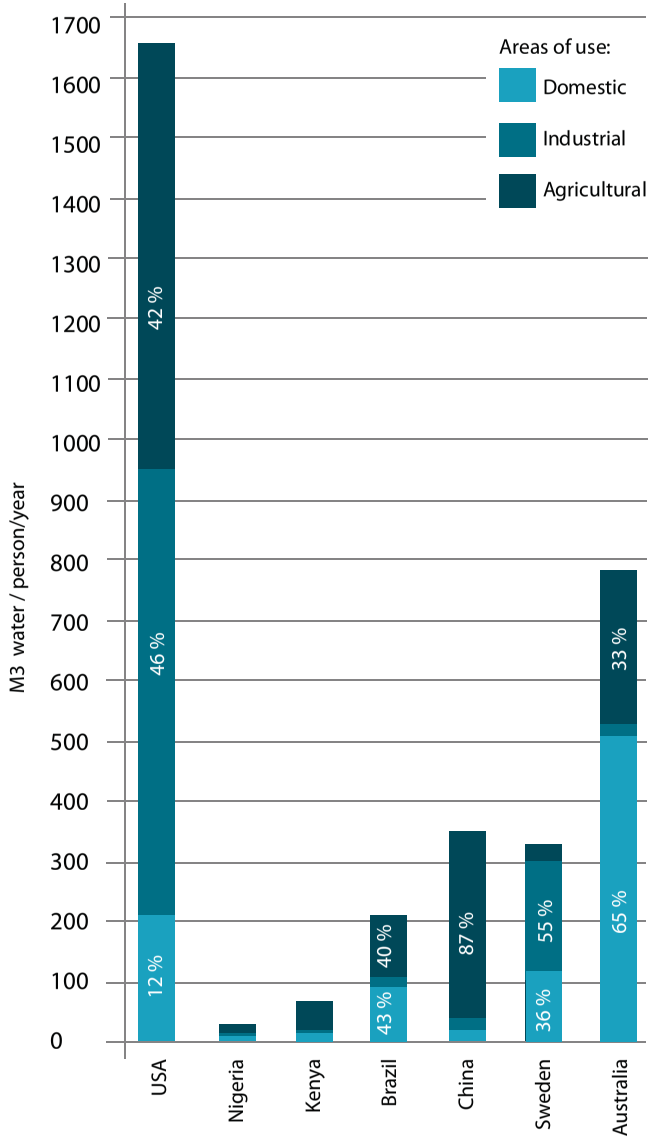
In fact, cities seem to be major catalysts for birth rate reductions where there is a rural immigration to cities and this could affect the growth in developing countries more and more with time. (5) If urbanization affects growth in such a way it suggests that the more urbanized citizens, the lower the population growth rate will be.

In the 1960s, when ecological problems and their impact started to be discussed more seriously, the focus was primarily on the number of people and their impact.(6) But with time the discussion started to turn towards how much resources people used per capita in different countries, and displayed that



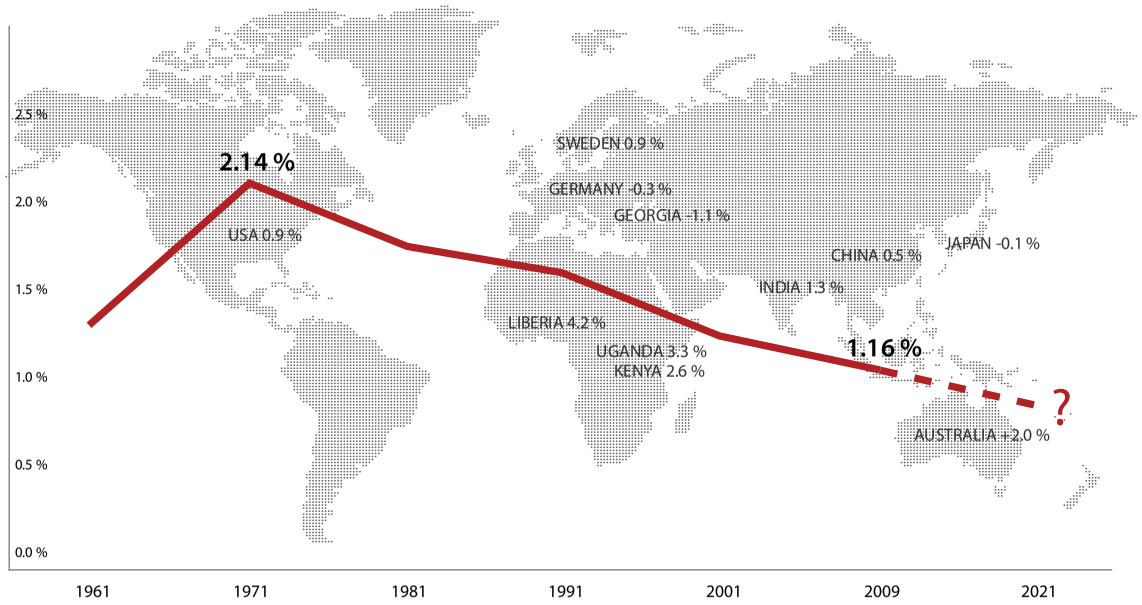
Global statistic and forecasted population growth 1900-2050, data from UN

Water withdrawal from natural resources per capita & year
Percentage per sector of use, year 2000 estimates



Water withdrawal differences, data from Pacific Institute

GLOBAL POPULATION DEVELOPMENT - CONSTANT GROWTH?
Historic growth rates, 2009 data for each country



Global population growth rate, data from World Bank

there was no fair global average. The more people on the planet the more resources we will use, but given that the average person in a developed country use more resources than the average in a developed one, efforts to reduce resource use will have more effect if it is targeted to high consumption pattern countries. In 1992 the richest 1.1 billion people on the planet were consuming 64% of the resources while the poorest 1.1 billion only used 2% of available resources at the time.[7] One could question what these figures would show today, but the answer is definitely that the rich developed world need to share more equally as the global population grows.

An example of resource use is water withdrawal and consumption, where figures from United Nations show that countries have substantially different availability to water. In developed countries such as Australia, US, UK, Sweden or Germany more than 95% of the people have availability to water from improved secure sources. This is dramatically different to less developed countries such as Kenya, Somalia, Rwanda, Mongolia or Cambodia where less than 65% have water available.[8] This is strongly affected by a combination of a limited water sources

with lack of funds and technology. But what is striking is how consumption patterns change with availability. Figures from Pacific Institute shows that Australia withdrew 786 m3per person and year in 2000, which corresponds to 1400 litre withdrawal per person and day for domestic use. [9] It is uncertain how accurate these figures are, but due to a major drought period people in Melbourne reduced their water consumption to use 277 litres per person and day according to a more reliable source. [10] These figures also display, nevertheless not very precise, a variation in withdrawn water in relation to how much we actually use per day. Between 50 and 100 litres of water per person per day are needed to ensure that all health concerns are met, but many developing countries cannot even provide the minimum level.

The overall population figures help us to understand some local impacts of cities, but per capita calculations are vital to understand the global impact. The concentration of people and production in cities concentrates demand for water and other resources and therefore cities generate more waste and pollution than sparsely populated rural areas. A way of analysing resource use for cities is to calculate their Ecological Footprint; [12] a model where the resources needed to supply a city is compared to the area used to produce them. Most industrialized cities today have a much larger footprint than the city itself, which is only possible by using resources from somewhere else. Cities can moderate their apparent ecological impact by importing goods that they consume, relocating the environmental production impact to somewhere else. Even though the production location of these resources are untraceable with this model it is useful to display whether cities consume above their available limits or not. Unfortunately most of the developed cities today are relying on imported resources, putting stress on countries that might already be under severe ecological pressure. A simple example is wood species from rainforests such as Mahogany used to manufacture fashionable furniture, wooden floors and other interior decoration products. [13] This could also be applied to carbon dioxide and energy imported from other countries.

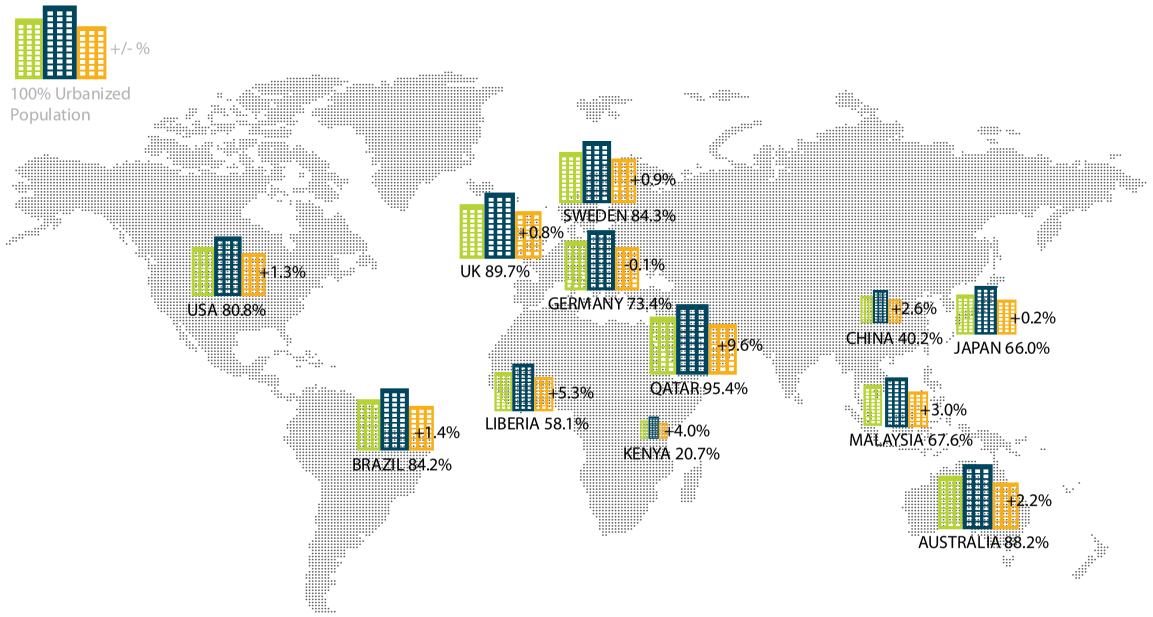
URBANIZATION

"By 2050 70 percent the world's population will live in cities and even greater proportions of pollution, resource consumption, innovation, capital, higher learning, economy, culture and the arts will originate from cities". [14]

A large question is where the growing population can find a good place to live. The urbanization rate is high; more and more people will move in to cities from rural areas in search for a better life. Cities stand for hope of a new life for many people, but also for economic growth and welfare. People move to cities in search for work opportunities, better education, an improved way of living or for freedom. Migration emerges as the clear driver of future urbanization and people move with dreams of a better life both within the same country and internationally. [15] Rapid population growth plus urbanization is together with climate change one of the biggest challenges for architects and planners today and cities will have to be carefully planned

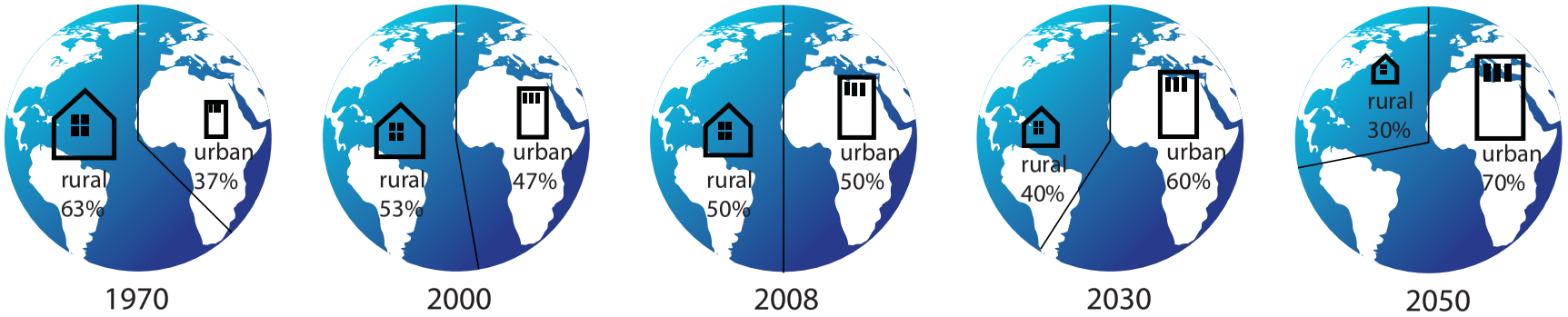
HOW MANY PERCENT LIVE IN CITIES GLOBALLY?

Percentage of urban population and growth figures per country



Percentage of a countries population living in cities and urban population growth index [17]

POPULATION GROWTH + URBANIZATION = LARGER CITIES



Global trends of rural to urban population growth from 1970 to 2050 [16]

for urban growth taking several complex factors in to account. Globalization today plays a large role, sharing influences and global knowledge and enabling more people to travel longer distances. The immigration to cities in most cases comes from within the same country but there are signs of increased international migration based on education, work, culture and a search for another life.

As shown in the graphics on the previous page the percentage of urban population differs significantly between developing countries compared to more developed ones. One should however be aware that different measures of "urban" might have been used in different countries. Kenya as opposed to Sweden has a relatively high urban growth, but a comparingly low rate of existing urban population. This shows that the level of rapid urbanization in countries with similar high growth quickly could create an unsustainable situation where more people move to the cities than the existing structures can handle. Sweden has the opposite figures; high urbanization rate but a lower growth rate. The unplanned areas outside cities all over Africa are growing and present a large challenge to provide services to all the new citizens. Projections show that there will be an increase in dwellers living in unplanned areas (also called slums) to about 1,392 billion in 2020. [18] Urbanization in developing countries is often associated with formation of these large unplanned areas, intense pressure on resources, insecure land tenure and lack of adequate services for water and sanitation. These cities are facing life threatening challenges compared to wealthy developed cities, but both have problems which of neither should be diminished. While developed countries struggle with several serious challenges they are at the same time not the worst from an resource point of view; the western developed countries using up the majority of the global resources at a much higher rate have issues to deal with on a different level in trying to reshape the society to become sustainable.

In People's Republic of China the growth rate is slightly lower than Kenya and has an existing low urbanization level, but 2.6 % of 40.2% total urban population gives the incredible growth rate of 15.2 million urban people each year. That corresponds to almost double the existing urban population in Kenya (8,7 million[19]). Growth around the world will put pressure on cities in different ways and the growth therefore needs to be assessed locally to find solutions. Soon some 500 cities around the world will have more than 1 million people each, which undoubtedly will come to change the way we live on the planet. [20]

Preparing for the global urbanizing population means there are cities to build for approximately 2.8 billion people until 2050 if forecasts come true. [21]

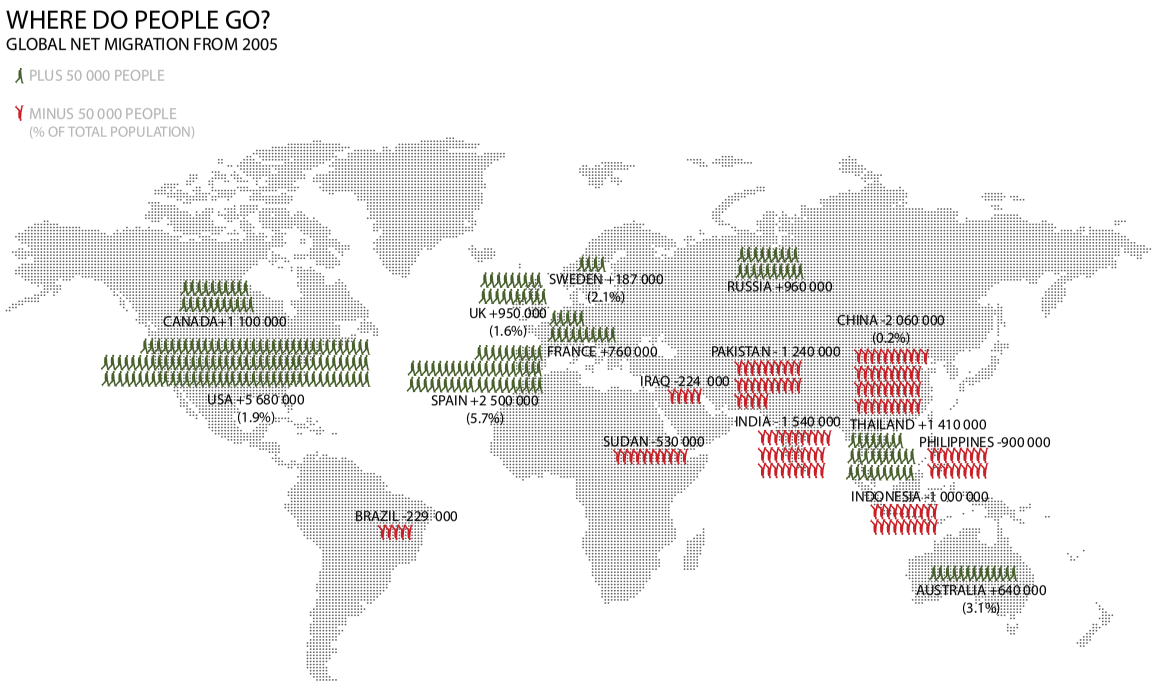
The forecasts from United Nations and World Bank highlight the global complexity of the interaction between people and countries when discussing population growth. The connection between developed or developing countries should be highlighted; looking at issues internationally can help us understand local problems with a global impact.

"City authorities have an important level of influence over both greenhouse gas emissions and adaptation to climate change. … This makes it imperative that we understand the form and content of our urbanisation so that we can reduce our footprint and plan more sustainable and more resilient cities in the future. If we ignore this now, hundreds of millions of people will be at risk from the effects of climate change in the future." [22]

GLOBAL MIGRATION

“As life gets harder in vulnerable places, people will need to migrate both between and within countries. Rich people can help make life easier for poor ones by allowing larger numbers across their borders”. [23]

When the rates of globalization and resource use are increasing, the lack of resources in vulnerable places will generate migration at a higher rate than before. The drivers of urbanization are some factors for migration, but environmental degradation and climate change can be added as major causes for both forced and voluntary migration. Poverty, lack of resources, rising sea levels, failing ecosystems and vulnerability to environmental changes such as extreme weather events will all affect global migration flows. [24] The impact of environmental issues like resource depletion and climate change might be far larger than we understand, and the largest challenge in the future will be to mitigate their effects and avoid actions that might make it worse. People migrate from areas all over the world to escape resource conflicts and climate related disasters such as famine, drought, floods and earthquakes. The last decades manmade disasters such as nuclear catastrophes, wars and political conflicts have had a much larger impact on migration than before. The optimal solution would perhaps to solve such issues within the country, but realistically these problems will also generate international migration flows. The United Nations High Commission for Refugees (UNHCR) states that 358 800asylum applications were made globally in 2010, which is



Global statistics of net migration in each country, data from World Bank [29]

about half compared to 2001.[25] But the unofficial number of people with the need to move is higher; 43.3million people were forcibly displaced around the world in 2010, including 27.1 million internally displaced people and 15.6 million refugees according to UNHCR.[26] Their figures show that despite lower levels of asylum seekers the number of displaced people in the world has increased.

Globalization can be seen negative in some ways, but it does create something I would like to categorize as positive migration; people who move voluntarily in search for knowledge, work or family. But in a rapidly globalizing world a few will also move by free will; such as international students, qualified and specialised labour, or people just seeking a different life. Such voluntary migration has hit areas such as Eastern Europe hard by loosing habitants and threatening economic stability, but also presents opportunities for other countries. Education and academia are large factors for people to move and the receiving country can benefit tremendously from it. Other countries such as Australia have to prepare for increased immigration to cope with the lack of people in work-fit ages, due to a large national baby boom generation in combination with an ageing society. “Education and academia are large factors for people to move and both the receiving country and the ‘home’ country can benefit. Countries,

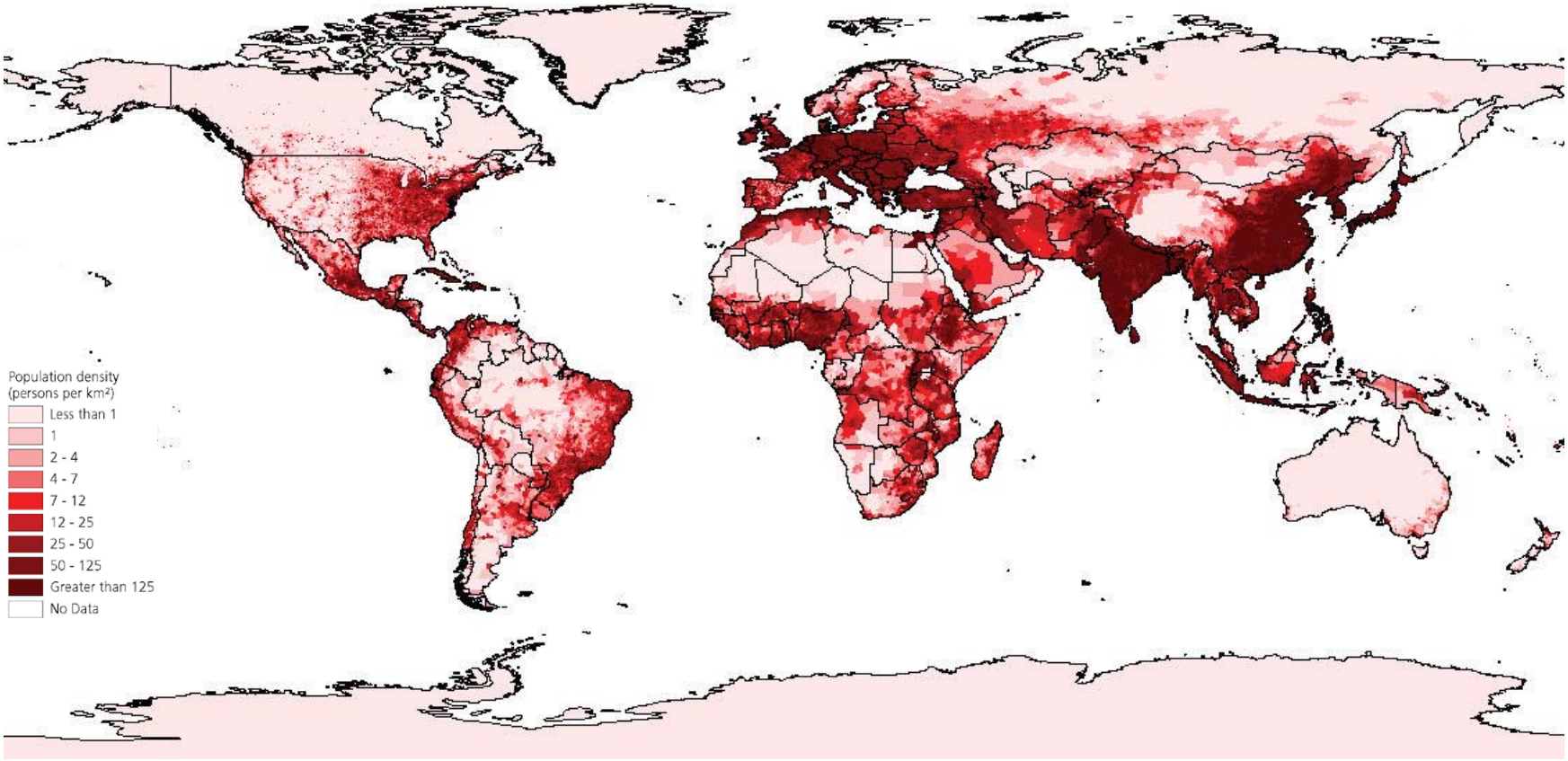
such as Australia, also have to prepare for their ageing societies in terms of the workforce as the demographic balance changes and more people retire than are replaced in the workforce" says Architecture professor Colin Fudge at RMIT University in Australia. This illustrates another complexity of a growing population; the demographic imbalances in some countries will pose other challenge to cities and their habitants.

Australia had 22 000 known refugees in 2007 [27] but net migration of 184 000 people, which suggests that the majority of people moved due to other reasons than being refugees.[28] Large countries such as China and India are showing signs of valuing education as the path to fast global experience and exports large amounts of students and highly skilled workers every year. Australia is growing but will possibly grow even more due to high level of immigration from surrounding countries. The question is how we design our cities in this multicultural growing world, protecting the world's culture, heritage and resources to meet the need for coming generations.

"… it is not the metropolitan living, suburbanisation, or even the human shift to the predominance of the city over rural dwellings that are the principal problems per se. Living in compact, well-planned, walkable and integrated cities is part of the solution to the issue of global sustainability. It is rather the kind of cities that we tend to create: sprawling and bloating." [30]

Much seems to point towards dense cities as a solution to sustainable population growth. The density of cities is an important aspect and as seen on the map of global population density, we have historically tended to gather in the same places due to land productivity or water availability. But the size and density of our settlements has changed and this affects the resources available in the area; it has become necessary to travel further to find enough supplies to support larger cities. Studies on urban growth have shown that compact cities with higher population density have significantly lower ecologic footprints. [31] Urban density will have a key role to play in future management of resources and the areas needed to supply them. Unfortunately figures from the World Bank show that the average global density has gone down.[32] Urbanization has globally led to a perception amongst some people that modern cities are becoming more dense and overcrowded places. Thus people move out from the centre, living on the fringe of cities searching for a balance between the activities cities can offer and the calm of nature. Historically, population growth was solved by consuming more land, something that still occurs.[33] While urban form and land-use activities in the centre of cities have increased significantly, globally the population density is falling and cities are spreading more than before.[34] "Low-density suburban land uses can be more damaging than high-density uses due to the extent of land loss and car dependency that they imply."[35]

"Historically, cities which have higher population and development densities have proved the wealthiest, most dynamic, innovative, diverse and ecologically sustainable" [37]



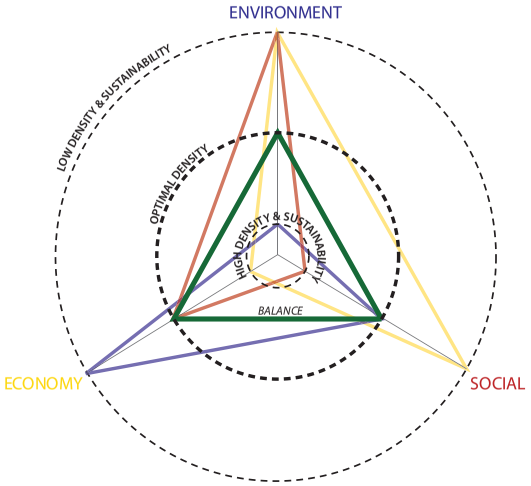
Global density map, Earth trends 2001

DENSITY PARAMETERS

Cities like Calcutta, Shanghai and Nairobi are growing tremendously each year but so does their footprint. But increased density does not automatically make cities more sustainable. While managing the growth of cities in order to prepare for the next generations, the importance of sharing resources globally should also be taken in to account by revaluing the way they are used in cities. This is however difficult, because the more developed a city becomes, the more resources it uses. One can wonder if cities are growing so large that their negative impacts outnumber the opportunities they provide. Despite the fact that more dense cities are more sustainable, there are social problems like poverty, famine or water infrastructure for developing countries to prioritize before managing density solely. This is especially the case if the majority of growth occurs in unplanned informal settlements on the city fringes. One example is Nairobi in Africa where the largest issues lies in distributing resources equally to everyone in one its unplanned settlements Kibera; one of the largest slums in Africa. Here managing density for environmental reasons comes second; the social challenges are far too large to not be dealt with first. But ironically enough the World Bank found in 2005 that developing country cities sometimes

have higher density than developed countries; have on average 125 m2 per person of built up area compared to industrialized countries having 355 m2 per person. (36) That can be used to display that only analysing density in cities does not give an accurate measure of sustainability.

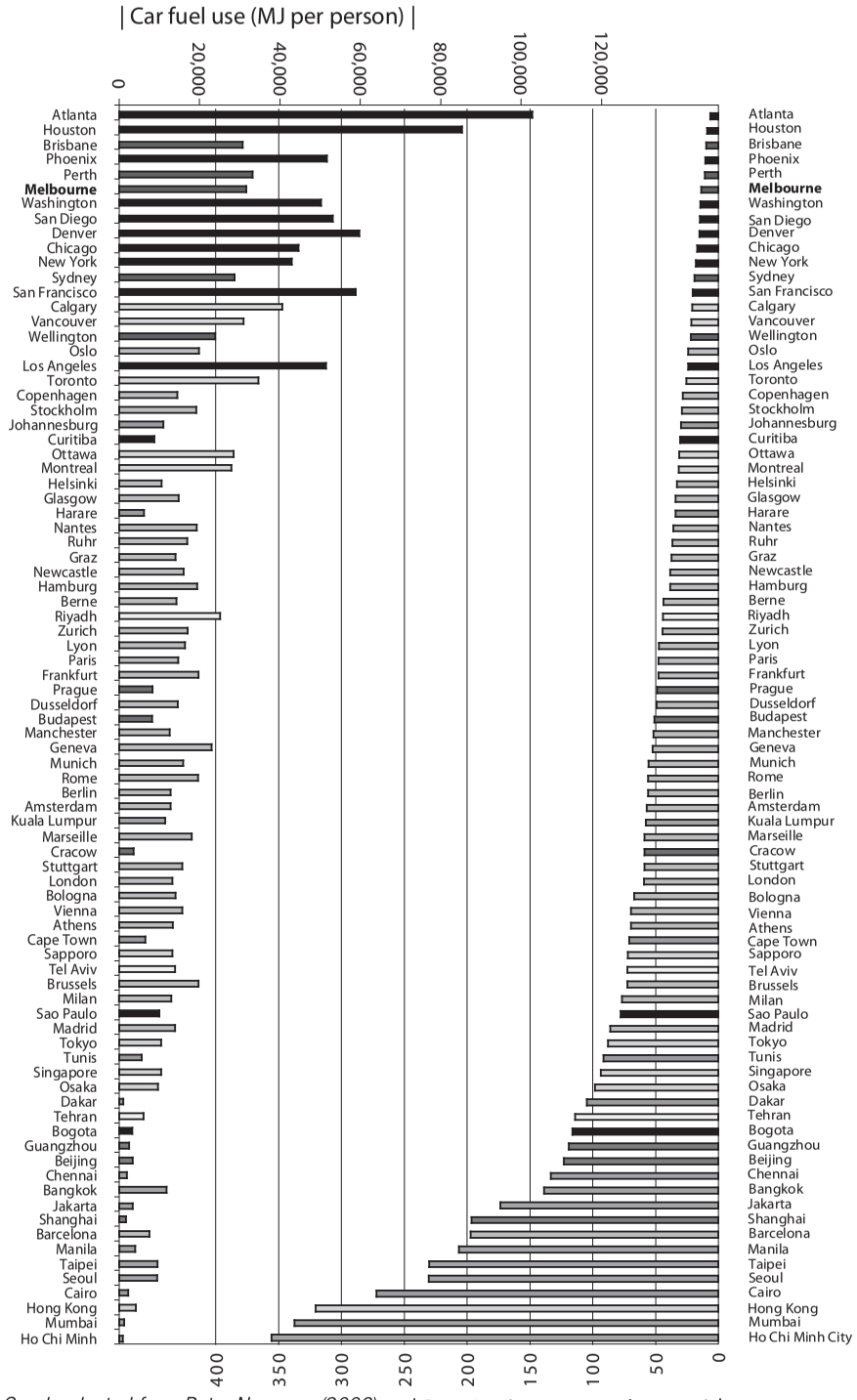
The benefits of high density are many, but I would like to argue we need to look at density across all aspects from the three main areas of sustainability; environmental, social and economic aspects. The question of density might perhaps be closest related to environment via resource use such as transport and land use, but social and economic benefits are not to be neglected in this. Hypothetically, the question can be asked if higher density always means a more sustainable city. According to a report by the United Nations Population Fund the answer is no. By analyzing two studies (38) based on compactness, sustainable transport, density, mixed land uses, diversity, passive solar heating, greening and more, it is suggested that "the relationship between urban density and energy consumption is more complex than often proposed, and that social, urban structure and transportation all play an important role". (39) So to measure if a city is sustainable multiple factors need to be included, where density is one of them. When discussing density the inevitable question of building height also arises. Some experts say, based on looking at case studies of Barcelona in Spain and Malmo in Sweden, that "it is arguable that no new building needs to be higher than 6-8 storeys to achieve high density compact cities for the future." (40) But is there such a thing as an optimal density for a city, and could it become globally applicable? "To halt urban expansion we must find optimal city densities, applicable to diverse settlements patterns" (41) If all factors related to density are categorized according to the three sustainability aspects, is there a maximum or optimal density in cities if they are not all met? Could this also be related to size; how large or small can a city become and still be sustainable?



To illustrate the complexity of optimal density we can assume that all criteria for environmental, social and economic parameters are met as in the graph above. But what if higher density in one parameter means a better economic chance for the developer; could that affect social sustainability to an imbalance? Could an environmental parameter towards higher density mean that the economic gains decrease? Can we presuppose that they are always connected? I believe that the density paradigm should be looked at in a system of sustainability; we will not achieve a sound and healthy, environmentally friendly, wealthy and diverse city only by building a super dense city. Hong Kong could here serve as an example which has 100% urbanization rate and one of the highest densities in the world, but still has a large Ecological Footprint (42) and several socio-political issues. A study of medium sized British cities done in 2000 showed that benefits of high density resulted in improved public transport, and better access to facilities, but it also gave abridged living space, reduced social integration and lack of affordable public housing. (43) The density is along with Ecological Footprint and similar other index, a fundamental way of investigating the level of sustainability of a city. The important aspect is that it should never be measured alone but together with other parameters.

DENSITY AND ACTIVITY

The parameters on how to measure density can be elaborated; building height, person per dwelling, dwellings per square meter or person per square meter. Normally density is calculated to measure the amount of built land we use per person, but it can also be used to understand the activity of the city. By looking at density as person per square meter parameter we can gain a different understanding for the urban life of different parts of the city. This calculation disregarding where people live, could technically include other functions than domestic habitation which means that you could find different density in an office block during different hours of the day. Density can be looked at from different angles;



Graph adapted from Peter Newman (2006)
The environmental impact of cities

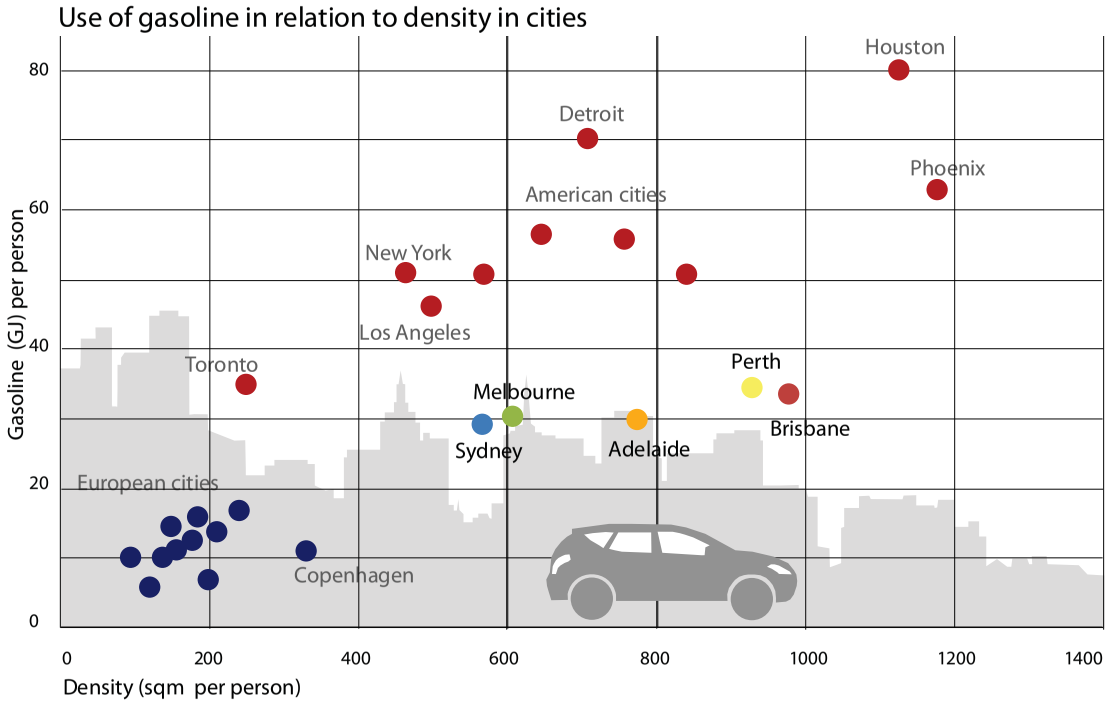
a city could have a relatively high overall density but still have areas of low person density, either in measurement of dwellings or by measuring street life 24 hrs. Cities such as New York or Shanghai can be used as examples of more active cities with public street life longer hours per day. Predominantly residential or office areas can gain density by having mixed use functions that covers more hours of the day. To get vibrant, sustainable and liveable cities, the low density areas closest to the centre should be focused on first when planning for urban growth.

DENSITY INTERNATIONALLY

There are many theories on why higher density in cities is more environmental friendly and the graph shown on previous page suggests there is a direct connection between high density and low fuel consumption. Beside low density increasing fuel, it might also affect and be affected by trends or habits, wealth, how many can afford to use the car more and the availability of efficient public transport. The graph also displays a couple of anomalies suggesting that even though a city has higher density it still can have high fuel consumption. There are a few interesting examples to look closer at; Brussels, Bangkok, Taipei and Seoul all have higher density than the cities with similar fuel consumption which could suggest that these cities perhaps attract more frequent care usage by their planning or have a lack of options for other transport modes. At the same time Harare, Curitiba and Cracow have very low density compared to cities with similarly low fuel consumption. Curitiba in Brazil is well known to be a good example of a sustainable city, where for example the city's recycling system is put together with the public transport system through being able to pay for a bus ride with recyclable garbage. By integrating many of the systems of the city in to one holistic approach, a mix of knowledge transfer on sustainability in schools can here be combined with high level or recycling, protected green areas, reduced car traffic and cheap public transport.[45] The city population has grown 300% since 1965, and urban growth has been concentrated around five large bus streets spreading out from the centre in combination with specially designed bus stops and intersections. (46) Cracow on the other hand has a dense network of very cheap public transport consisting of tramways and bus lines reaching most suburbs. There is also a lack of parking in the city centre which together with the public transport system could explain

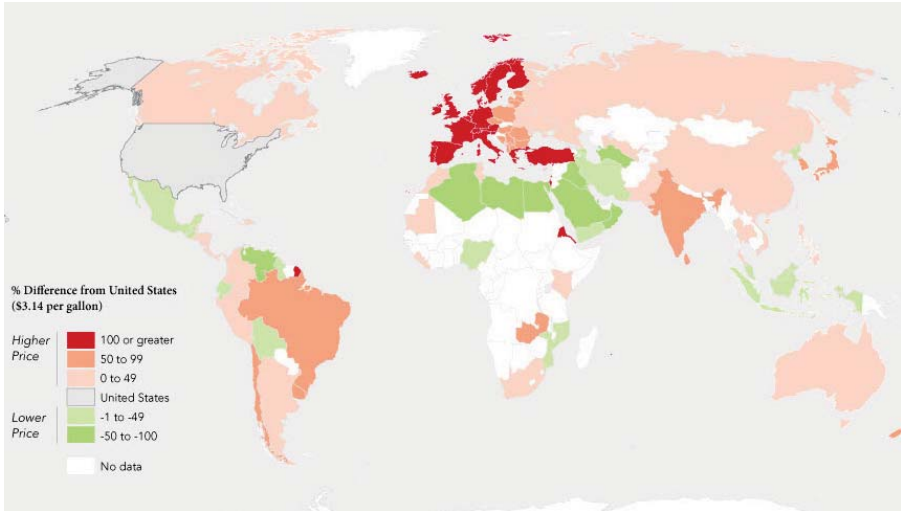
Cracow's low level of fuel consumption.[47] Some argue that cities should be evaluated by their size, and that many networked cities connected in small clusters could be more sustainable than one single compact megacity.[48] This is interesting since many of the cities with highest density are mega cities such as Hong Kong, Ho Chi Minh and Mumbai and could provide with an interesting discussion of what size or shape cities ought to be for maximum sustainability. Cluster cities have the advantage that they give space for green areas and food production between the clusters and that the transport from a city centre to its outskirts becomes shorter than in a large mega city.

Dense housing in Hong Kong



Graph adapted from http://en.wikipedia.org/wiki/Urban_density, data from P Newman, JR Kenworthy

Petrol prices can also affect how much we use the car and raising the prices consciously can be a good global incentive to move away from car dependency. National political systems will need to step up and create a standpoint on where we are going. Image from MelbourneUrbanist. wordpress.com [51]

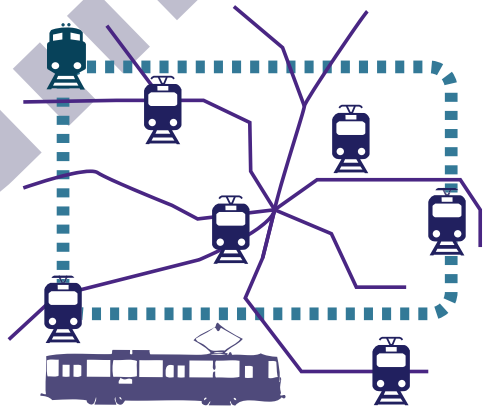


DENSITY AND OIL

Many experts on sustainable urbanism argue that low-density, dispersed cities are unsustainable as they are mostly automobile dependent. But there are also critics with counter arguments that increased density would worsen the situation by causing more expensive real estate, greater road congestion and more air pollution.[49] At a broader level there is evidence to indicate a strong negative correlation between the total energy consumption of a city and its overall urban density; the lower the density, the more energy consumed. [50] This is however strongly related to what kind of fuel and mode of transport we use. Judging that many countries have already reached peak oil, there are little arguments for why we should continue to develop sprawled oil dependant cities with infrastructure systems based on fossil fuels. Even though the technology of new fuel types are advancing, vehicles powered by oil products still represents the majority. A global oil crisis will affect all countries, but developed countries are more dependant and would therefore be hit more severally if the world ran out of oil. As an example all transport of food to urban areas would stop if we cannot find another option, whereas rural areas could still survive with locally grown food supplies. The result of running out of oil could affect our society on more levels than we could probably imagine. By start preparing for a life less oil dependant the worst foreseen impacts could possibly be avoided. We need to start restructuring car dependent cities in order to withstand the impact of declining world oil supplies. Judging how political unrest affects the market, a dramatic price rise could easily change the way a city works when being as dependant on oil as today. Not to mention the political instability oil might cause if the world supplies finish when we are still dependent on it. The sooner we can leave fossil fuels behind us the better.

URBAN SPRAWL AND PUBLIC TRANSPORT

Neglecting to limit sprawl could perhaps be called the way towards the “The national automobile slum” [52] which includes aesthetic values connected to sprawled cities. But when limiting car use other options for transport needs to be identified. Long distance journeys will always continue to use vast amounts of resources, no matter their origin. If car dependency could be replaced with transport based on renewable resources it would be more justifiable. The benefits of public transport are many, but people need to live close to transportation hubs and connective points to create enumerative support for it to be economically justifiable to governments. There needs to be incentives to use public transport in order to achieve efficiency in smart connective systems. Otherwise time consuming multistep solution to travel might be the result; something that less people are likely to engage in. The time is key; most people would travel with the faster option. The urge of living in an affordable house with a garden (see The Australian dream on page 51) feeds the sprawl further, creating demand for car use since many sprawled areas are not reached by efficient public transport. However, if interconnected transportation hubs are smartly planned together with a decreased level of sprawl, they can improve the traffic situation on many levels. The idea of smaller cities connected in clusters here becomes relevant again when up-scaling public transport systems; clusters of connective points might be more efficient than one mega core radial system.



URBAN SPRAWL AND BIKING

It is easy to target visible energy use like fumes or petrol whereas it is perhaps more difficult to visualize energy for things such as walking or biking. Until all energy sources are renewable the travel challenge is to reduce energy use together with reconceptualising the normal usage habits. Human energy used for biking and walking can here be seen as renewable by literally being run on green sources. It is all about

change of mindset; instead of buying a new car that consumes less petrol, which use more resources to produce the new cars and still is running on fossil fuel, the decision can be made to move closer to work to reduce distance and start biking to the office a few days a week. There are many benefits and hopefully travel expenses also go down. Biking emits no carbon dioxide and health benefits are gained by exercising regularly.

Large cities with low density make it very difficult for most people to commute with bikes due to the long distances; if you live 1 hr away by car the chance for biking that same distance is minimal. To walk or bike you need close proximity to most services. When planning for predominantly housing suburbs outside the city boundaries the amount of commuters depending on cars increases while the bikers decrease. With a city that builds outwards and not upwards, the distances become longer and the possibilities of using sustainable transport decreases. Experts have recently emphasized that there are a few key strategies to achieve better conditions for bicyclists. Attracting people by increasing visibility and creating political and financial support can be done by packaging improvements to larger projects. But it is also important that improvements are integrated in the "daily road engineering work in local planning departments and their national counterparts in charge of infrastructure investments".[53] To achieve sustainable impact cycling measures should be integrated in wider political efforts for improving the liveability of communities, traffic calming and parking management measures.[54]

DENSITY AND LAND USE

Cities are in many ways dependant on its infrastructure and food availability relying on transport is one example. Food has historically shaped our cities the way it entered the city via market routes, but the symbiosis between food and city might be even more important today despite being less directly visible.[55] The ratio of urban areas versus farmable land is not optimal; much arable land close to water is today used for building cities on. Cities occupied just 2% of the Earth's surface in 2005, but their habitants use 75% of the planet's available natural resources.[56] These are also old figures in comparison; cities occupied only 1.5 % in 1996 which means that cities today could use 2.5% or more.[57] In combination with population growth this could mean that increased amounts of land will need to be designated for food production. From a planning perspective the growth in population is not equal to the amount of land used to house them, which suggests that we are using more land than we can deal the consequences of. Between 1982 and 1997 the amount of land consumed in the US for urban development increased by 47% while the nation's population grew by only 17%, which clearly shows that we are using more land for cities today.[58] "We cannot and should not fill our agricultural land with large numbers of people. If people live in well-managed urban regions, they can live more densely and benefit from services, education and industry".[59] An increased level of farming is needed to support the unborn population with food. Land usage and the way we deal with long distance transport of food needs to be revalued. Amplified density in the city would mean more area on the city fringe usable for farming and growing food closer to the city would mean shorter transports.

Cities draw on their surrounding ecosystems for goods and services, but can also affect ecosystems far away by importing international goods. The products and emissions from cities can affect regional and even global ecosystems depending on where the resources are taken from. Globally there is a serious issue of exporting foods from poor developing countries, putting extra pressure on the country leaving environmental scars and little food left despite the threat of famine in the host country. Why do rich countries import foods from countries like Kenya or China when they have the ability to grow their own? The answer is probably in most cases money, related to employment costs, regulations and politics. Western food chains seek cheaply produced food to increase their own margin by selling it to more expensive countries such as for example Sweden or Australia. But the problem is that the income in the origin country does rarely benefit the small farmers as much as the single company

The nine billion people question; will we have food for everyone?

owner. With a growing population it does not make much environmental sense to take food from the poor to sell to the rich.

We need to redefine the concept of growth in general but in relation to economics in particular. Constant growth cannot be sustainable since it is based on the theory of endless global resources. The current unjust division of food can be aided by avoiding importing too much food from developing countries and the transport issues solved by not importing food across immense distances. Western countries will need to produce more food and become self more sufficient. It will cost more money for developed countries, but it should be regarded as an investment for global resource security. According to The Economist the cost of food will be a key to future food supplies, and importing cheap food from producers in developing countries giving nothing back is not a sustainable option. In this aspect globalisation is not positive since smaller local markets in developing countries would be able to supply cheaper food to their citizens if global demand would not push up the prices. (60)

Much evidence is pointing towards productive land being harder to find and that it therefore would be more cost efficient to keep the fields in suburban areas and instead build denser cities. Already developed countries need to save productive land for agriculture and cultivate more themselves to become more self sustaining. This could be done in larger systems, but also in small scale systems, such as on roof gardens and community plots in urban settings. Agriculture in cities can also provide developing countries with work and opportunities to reduce malnutrition and decrease urban poverty. (61) Urban gardening could provide basic foods, which will make people living in cities less affected by global food crises to some extent.

SWOT-ANALYSIS ON DENSITY

ENVIRONMENT	-High can reduce transport co2 -High could give incentive for non-carbon transport (more bike lanes)	-High puts more pressure on the built land -Environmental responsibility -Low reduce the amount of land for food production -Low, energy consumption	-Mix of high and low can provide areas for green wedges -Green areas can be relocated to rooftops and assist with water collection -Better public transport possible	-Could reduce available fertile land for cultivation -Could allow less urban green spaces -More artificial surfaces -Pedestrian space given up for car
ECONOMIC	-More people in an area supports services better -Better public transport possible	-Aesthetics might be overlooked in favour for economic growth -Oil dependency	-Knowledge exchange between people -Building costs -New technology	-Density chosen depending on stakeholder group -Affordability
SOCIAL	-More people supports amount of services	-Design of housing -Balance of public realm -Affects transport infrastructure	-Could enable more social diversity -High more knowledge exchange between people -High unplanned could mean incentive for better services -Stronger communities	-High unplanned could mean less resources -Low implies car dependency
	S	W	O	T

To try and explain density in a wider perspective with more direct examples, a SWOT analysis might be applicable displaying further complexity to the paradigm.

HIGH DENSITY

LOW DENSITY

FOOTNOTES | GLOBAL |

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WHAT ROLE DOES ARCHITECTS HAVE
IN THE INTERNATIONAL CONTEXT?

| GLOBAL |

| **ARCHITECT** |

| LOCAL |

| SITE |

| CRITERIA |

| PROPOSAL |

"You very quickly reach a point where you realize that simply putting a solar panel on the roof isn't the issue. ... It's fundamentally about respect for people who we can't see and appreciating how our actions impact on them." (1)

CHALLENGES FOR THE ARCHITECTS

So if cities are the new way of living for most of the global population, what role does architects have in making them sustainable? The cities of tomorrow are built today, but we also have to manage our existing cities. While preparing for rapid urban growth the balance between what people want and what they need must be defined; what can we afford from an environmental perspective? Architects and planners with their collective knowledge on how to build cities have a moral obligation when designing cities; the decisions will affect people for centuries ahead. I believe we need to search further into the future to find new solutions, taking global aspects into account, but keeping in mind what we can learn from history. The obvious solution for an architect or designers might seem easy to find in smart design, but how often do we look at what we actually need on a larger scope before we start drawing? Are all projects environmentally justifiable? What power do architects and planners have to say no to developers and investors to affect the economic decisions taken?

How can architects and planners affect the built environment in their current position? The professional roles of architects and planners differ internationally; sometimes they have a large role to play but sometimes not, depending on country and development systems. Political structures and their instability can largely affect how or why cities are shaped in different ways; haphazardly and unplanned, strictly controlled and well managed or driven by old social structures slowing down the planning process. The profession of being an architect around the world might differ, but we are all doing the same thing; planning and adjusting new and existing cities to manage a more sustainable future.

What kind of cities should be planned for if we take all previously discussed topics in to account? Sustainable urbanization should in my opinion foremost be done from an environmental perspective, since social and economic developments depend on it in to a large extent. I believe we need to put resources use in focus to understand the larger picture; it might be when you start taking resources like water and fossil fuel out of the picture it first becomes obvious how many other structures wouldn't functions without them. When the Brundtland commission in 1972 stated that we should use the resources as to "meets the needs of the present without compromising the ability of future generations to meet their own needs" it was the first time the issue of environmental development was extended outside the frames of the at the time rather closed environmental activist groups. But it has taken us many years to move a short distance from that; almost 40 years have passed and few academic topics and values discussed have been implemented on a broader global scale.

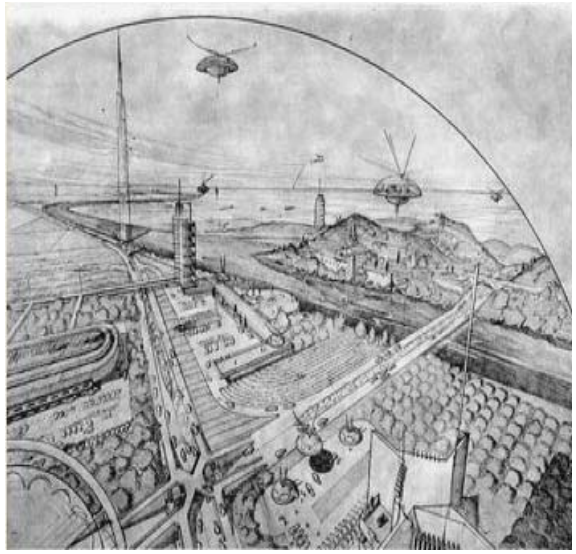
If we look beyond trends and economic growth, what can be found driving development further? Included to a large extent today is green-washing; a trend of trying to solve the environmental problems by merely integrating solar panels of the roof or labelling the building with something green. All professions need to realize the issue is far larger than that and that we all need to do our part.

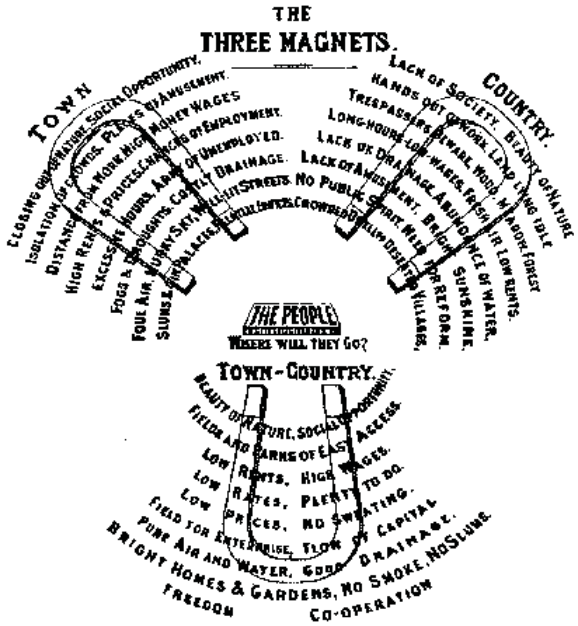
"Cities need to be at the forefront of the overall political debate as they will be called upon to play a greater role in creating awareness, initiating greening policies and leading by example." (2)

THE IDEOLOGY OF THE PERFECT CITY

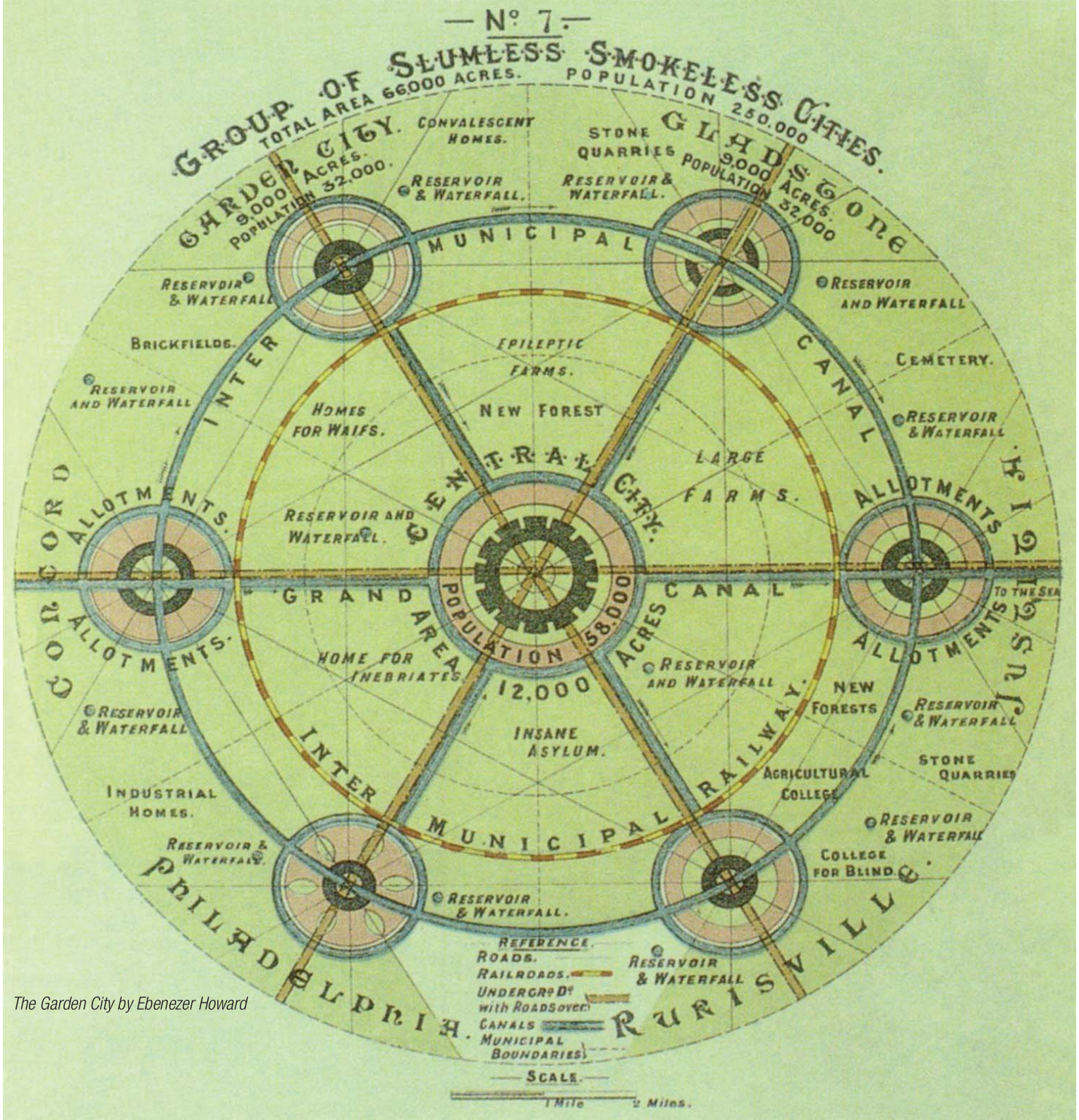
Architects and planners have had ideologies and utopian ideas on how to design the society for a long time. Historically architects have been tending to vary from being designers of small details with projects like furniture and interior decoration, to large urban projects like Frank Lloyd Wrights “The Living city” from 1958 or world creators with concepts like The Radiant City in Chandigarh, India, by Le Corbusier. Architectural ideas and utopias are interesting since even thought they are projections of the future, some aspects might come true or shape the future by their mere publication.

Ebenezer Howard first presented his idea about the Town-Country in 1898, in his publication” To-Morrow: A Peaceful Path to Real Reform”, where he describes a utopian city in which people live in harmony with nature. [3] Already at that stage urban issues like pollution, affordability, work opportunities, distance to work and closing of nature in the city were described. His solution was to create a Town-Country that combined the best of the city with the most wanted from the country into a new concept; it could be seen as a historic utopian creation of the suburb. Many of Howard’s ideas can still be applied explaining why people move to and from cities and suburbs around the world. Infrastructure was also a major part of his ideas where he made a plan of “semi-independent” Garden Cities interconnected with each other via links of roads and water. The Garden Cities themselves where dense and the areas between were saved for farming. They were planned to be self-contained communities surrounded by greenbelts and containing carefully balanced areas of residences, industry, and agriculture.[4] A model like this would perhaps be hard to implement today, but it is easy to drift away with the thoughts of only having bikes and trains as main modes of transport in such a model if its size was strategically planned. His ideas have inspired many people until modern days, where Canberra is an Australian example that was influenced by the garden city ideology. Canberra is an entirely planned city developed after a design competition won by American architect Walter Burley Griffin. The construction started in 1913 but due to global conflicts such as World War II the city bloomed first in late 1950s after more extensive construction. [5] However, the city has occasionally been described as “several suburbs in search of a city” hinting towards problems indicating that it does not work as ideally as planned.[6] Ideas like the Garden City are particularly interesting since they were implemented; posing communication between stakeholders as one of the solutions to implementing such values, otherwise risking being hidden away in the academic world.





Above: Where do people move ? The three magnets and the Town-Country by Ebenezer Howard in 1898
Right: The broad acre city, from “The living city” by Frank Lloyd Wright in 1958

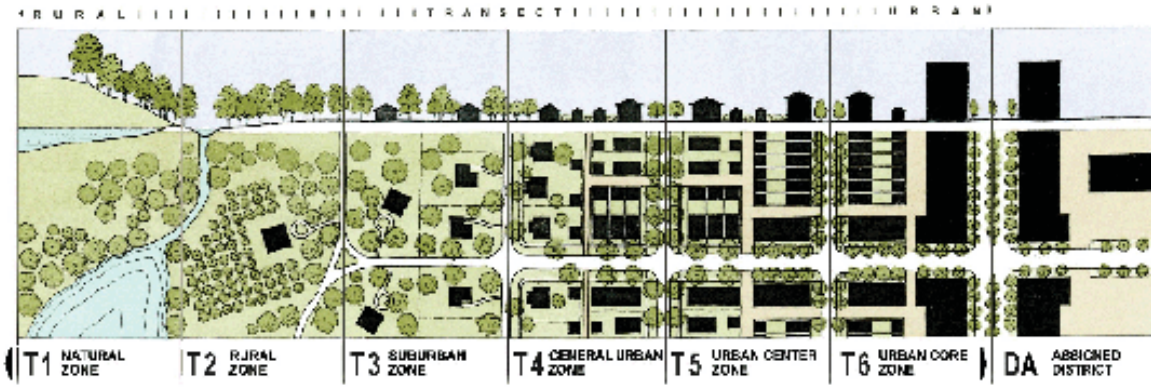


The Garden City by Ebenezer Howard

NEW URBANISM

Another ideal of the perfect city is New Urbanism; a concept that came in the 1980s as criticism against the car dependent society. It is influenced by urban design standards from before 1950, before the use of the automobile started to shape the way cities were planned. New Urbanism is according to a website "giving people many choices for living an urban lifestyle in sustainable, convenient and enjoyable places, while providing the solutions to peak oil and climate change".(7) Strategies contain reducing traffic congestion, increase the supply of affordable housing, historic preservation, walkable neighbourhoods, safe streets and green buildings.(8) The urban design movement supports regional planning for open space, context-appropriate architecture and planning, and balanced development of jobs and housing. The first most famous implementation example is Seaside in Florida, now a tourist attraction that once appeared in the movie The Truman show. Another one is the town Celebration in Florida, a city initiated by the Disney emporium that perhaps is the most well known New Urbanism community today.

Even though New Urbanism started in the 80s many thinkers before that questioned the development that commenced after World War II; amongst the most famous ones is Jane Jacobs with her book "The life and death of American cities". The after war development occurred in cities worldwide and separated functions in the city at the same time as lowering the density, expanding the distances between housing, work, industry and retail and created a car focused "modern" life. New urbanism can be seen as a great example on how to solve that, but unfortunately also as a cliché version of an old city. New Urbanism communities have rather strict rules on how the community should look and how things are supposed to be; there is little flexibility outside the main concept. It is not surprising that Disney is involved given the picturesque environments in these communities, but there seems to be little flexibility to new ideas that could actually make parts of the ideology to work on a larger scale in more modern million people cities. It is a good attempt to look backward learning from old knowledge but since it is based on the concept of Transect Areas they are limited to small sized towns and in some ways seem to promote sprawled suburbs far away from city centres.



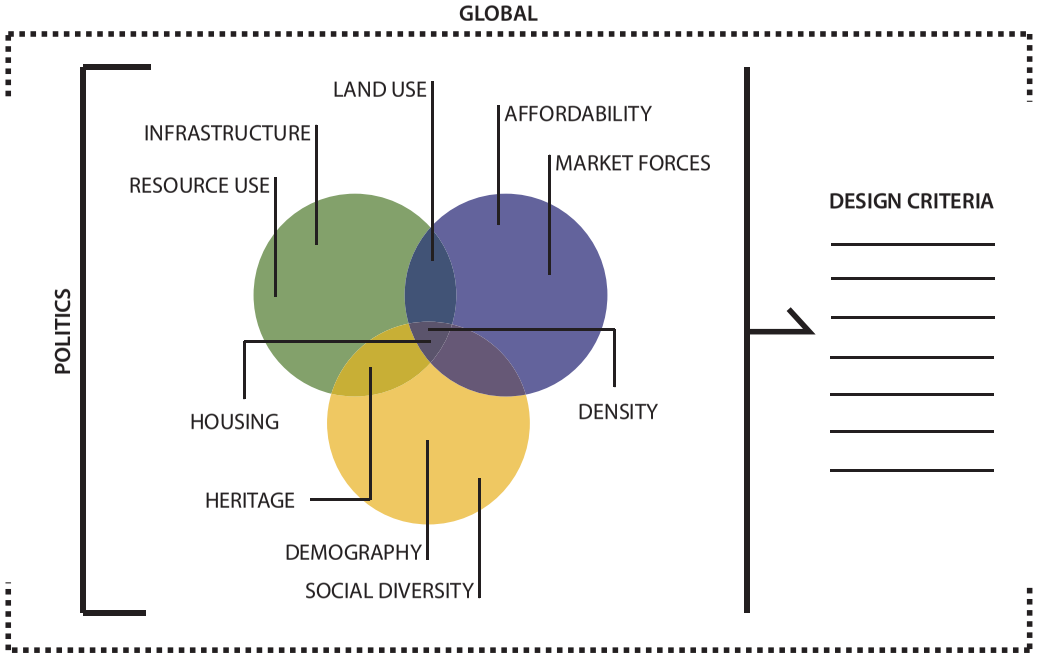
New urbanism transect areas from newurbanism.org

Seaside Florida, photos by Greg Oates and Peter Elmlund

SYSTEMS APPROACH

I think planners can gain a lot from looking at cities with a systems thinking approach, seeing urban agglomerations as a part of a larger puzzle. Creating cities cannot be done with a singular view on beautiful design; it needs to be regarded as a part of a larger whole, understanding the complexity urban areas present in relation to the three pillars of sustainability. Design working towards certain criteria shaping the programme could however make cities easier to look at holistically. Would locally pinpointing smaller questions to larger section make it easier to deal with them? Could that be a way to easier transform in to design criteria? There will however always be a risk of missing connecting points between. The framework of the city is much like sustainability affected by social, economic and environmental factors; the way we look at the city within that concept will affect how our cities look. Sustainability criteria are going to be shaped and will shape cities. We cannot stop climate change or urbanization but we can adapt and redirect the factors becoming more resilient and prepared.

Architects and planners will not be able to implement changes if the inhabitants of cities don't gain awareness of the system and its limits, hence generating more sustainable demands. How can interest and awareness be created amongst the public by bringing sustainability issues to the agenda? Systems thinking could be an approach to see things from a different angle and widening the scope of the questions, communicating how



Project aspects linked to sustainability

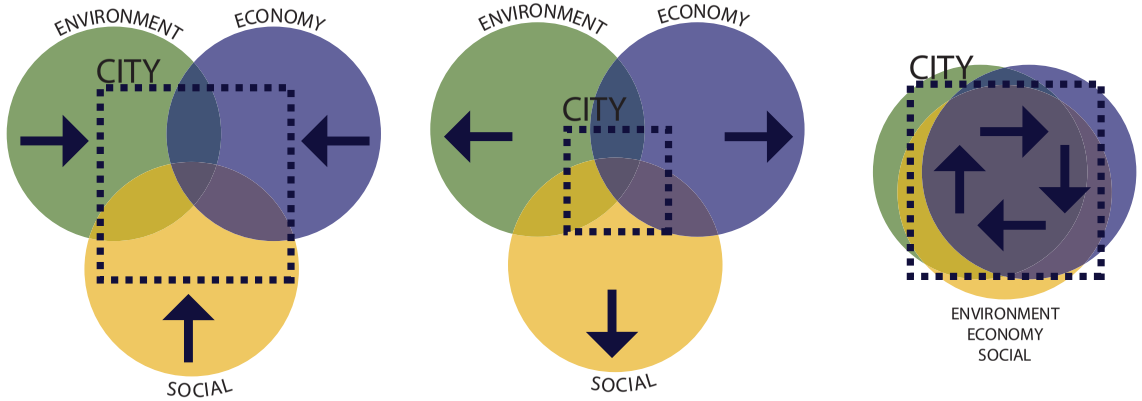
every choice we make is interconnected with a larger image, but possibly also more difficult to push forward. A sustainable city will be one that successfully manages to communicate its values to its citizens through well managed systems adaptable for change. "Design is a powerful conduit for change. As the messages, artefacts and experiences we create pass through the hands, minds and hearts of people, we have an opportunity to weave sustainability in to the broader fabric of culture and to shift consumption and lifestyle aspirations to a more sustainable basis for living"[9] If architects and designers take on the challenge on working both in global and local systems using design and architecture as a knowledge conveyer, benefits could come from being communicated on different scales, reaching more people. Efforts need to be made both on detail scales such as small innovative designs for recycling your coffee cup to large scale biking schemes. Someone once said "the less square meter built, the better the world" but new design or architecture does not necessarily need to mean more resources used, but instead relocated and more wisely used.

Case studies of cities in Asia compared with cities like Brisbane, Vancouver, Curitiba and Manchester, shows that the ones meeting criteria on good governance, urban management, infrastructure and service provision, finance and recovery, innovation and social sustainability prove to be the more sustainable cities.[10] Local environmental systems affect the circumstances of sustainable cities, but by setting general criteria cities can globally be compared on each criterion, creating a larger picture to understand the specific circumstances that affects opportunities or challenges towards sustainability. Planning cities today is also about making them resilient to climate change related disasters. It has been obvious in recent years that cities are extremely vulnerable to global crises such as earthquakes, floods and hurricanes caused by climate change affected weather. Cities now can start to feel the effects caused by earlier actions from carbon emissions and manmade impacts on local ecosystems. Designing sustainable development is according to some experts very much about creating cities of greater choice; to design cities that are capable of responding to changes and shocks in both environmental and human systems. [11] The full impact of climate change is not yet known, but we can see signs coming in the forms of disaster. The larger aspect of sustainability is to prevent further disruption, but it is also imperative that we create cities able to resist such changes.

SOLVING THE GLOBAL GROWTH ISSUE

Growth itself is a paradigm and while debating how to handle the growth of cities one must not forget that the idea of growth is strongly linked with the industrial revolution and economic growth. I believe we must revalue the idea of growth and see how we instead can manage what we have in order to create a sustainable development pattern. Growth has as traditionally conceived for long been seen as something positive but this might no longer be the case; different circumstances today compared to 100 years ago makes it impossible for everything to grow as it has before due consuming resources faster than they can be reproduced. We cannot generalize urban growth in one common way; it is not possible to compare urban growth by poverty migration in Africa with urban growth in Australia, but there are options of looking closer at the parameters viable for change. Land use, energy, water and resource consumption, promoting quality of life and other larger aspects can be analyzed and put in a larger scheme for change on the local scale.

It is important to talk about managing urban growth rather than restricting it. It might take a long time to find solutions that are commonly acceptable, but the important thing is to get everyone onboard going in the same direction, understanding that we all have to share. In some ways it is similar to when two siblings are arguing who should have the larger piece of cake; the bigger one often wins, without a fair battle. When developing countries experience economic growth demand will change and by managing or decreasing growth in the industrialized world other countries can get more space to flourish. But we have to find an optimal level of consumption; the global population is already using more resources than



A simple way of illustrating how sustainability influences the city and vice versa

the globe can replenish. In 2005 we were consuming 2.1 global hectares per person and year, an amount of resources that takes 1.5 years for the globe to reproduce. If the projected 8.9 billion people in 2050 would have the consumption pattern of the average American (8 hectares per capita) we would need 5.3 globes to meet their demand. [12] In other terms we would during one year use resources it would take 5 years and four months to reproduce. [13]

Global issues have to be dealt with on a global scale. The United Nations, The European Union, G8, APEC; all need to create a global framework on how to collaborate on sharing resources, solving conflicts and saving billions of people from unequal living conditions around the world. The utopian future would be to stop using fossil fuels today, stick to the replacement population reproduction rate and not build any more cities. But that is of course a dystopia and even though it theoretically might save the world, few people would agree to act for implementation. The future is also about managing the expectations of the global population in combination with limiting resource use to what we actually need for survival; not an easy task. The Economist states that of all 192 countries in the world right now only 34 are classified as highly capable in comparison to 33 weak and 58 very weak states.[14] This suggests that only around 18% of the world countries have enough capacity to do what is needed; it is imperative to assist others as far as possible.

SHARING KNOWLEDGE

There is currently a knowledge gap between emerging technologies and developed ones. But countries which are still to be developed further might have an advantage today, where building the base of the society can be done by learning from the mistakes already made by other countries. The idea of leapfrogging is an emerging concept for developing countries as a good way to deal with rapid development. With leapfrogging previously made mistakes are shared to avoid being repeated elsewhere, and could also lead to entirely new solutions in new contexts. It has as early as 2004 been described as “the notion that areas which have poorly-developed technology or economic bases can move themselves forward rapidly through the adoption of modern systems without going through intermediary steps.”[15] This could assist countries to skip several steps in the development path other countries have taken before, and jump directly to the benefits of the last lines. The distribution of cheap cell phones in developing countries is a good example where people can take part of a technical solution without having to make a large capital investment. Sharing that knowledge has now been taken further, where people in for example Kenya and Nepal [16] can get micro loans on their phone to start a small business. They might not have an official address or a well paid job, but they have a phone to transfer money through M-pesa; a concept developed locally to assist small businesses. Many phones are being charged with solar power, something that has also generated business for so called mobile charging stations. Other examples can be small remote villages that do not have electricity, but still can get light in the houses in the evening from individual roof mounted solar panels. These examples can be seen as good examples of letting new technology benefit more people. Unfortunately, as with many new development paths, there are bad examples too. Ladakh is a village in remote areas of the Himalayas where new industrialized goods and modern solutions where introduced in a traditionally stabile and sustainable village. The modernization is now destroying large parts of the original culture and giving environmental and social problems. Ladakhi agriculture has been hit particularly hard; it now seems “uneconomic” and many people are abandoning their farms in pursuit of paid jobs outside Ladakh. Children who once learned traditional knowledge from relatives and neighbours are instead sent to Western-style schools ignoring Ladakh’s culture and local resources. People become urban consumers and most are left “educated” but unemployed.[17] Globalization and western cultures can improve the life of people but also destroy heritage and traditional knowledge. Architects around the world can in different ways affect globally by acting locally; sharing awareness and information while protecting local knowledge by promoting discussion on a wider level going outside the frames of our profession.

THE DREAM OF THE ECO-CITY

The eco-city of Masdar is one of many examples how planners and architects deal with building sustainable cities today.[18]

“We realize that not everyone or every country in the world has the resources to build a city such as this. We must remember that the goal of the new city is to set standards and develop new clean and sustainable technologies that can be transferred to other cities around the world.” [19]

“It was important for us to prove that it is possible to create cities without CO2 emission and without waste. So we imposed the limitation on ourselves that all energy and all garbage was to be generated and treated within the area we had been assigned. It was important not just to prove it, but also to do it visibly, so people begin to think about what it is we do.” [20]

Starting off as a highly motivating idea about building one of the most sustainable cities in the world, the result up to now is somewhat confusing. The website for the city of Masdar offers information on new technologies, smart power grids and fantastic business opportunities, but there is a gap missing in social sustainability. [21] A concept initially introduced by the architects was to take part in architecture and planning of traditional Arab cities, incorporating narrow streets, courtyards and thick-walled buildings, but that is also the only thing that seems connected to culture and social sustainability. [22]

The city of Masdar in UAE by Foster & Partners, masdarcity.ae

What has an obvious focus on environment and economy also lacks social aspects after developers have taken over. The amount of resources needed to build such a city is sky high; so once built one could ask who it is for. Who will move there?

The plans are by all means ambitious, but given much is funded with petrol money and collaborated with companies such as Australian mining company Rio Tinto and UK based BP for carbon caption schemes there could be many underlying economic motives. The city will deliver much lower carbon emissions than any current political target which is fantastic. But one million carbon credits will create revenue of USD 15 million, ensuring the emissions from the entire city instead can be produced elsewhere. [23]

The head architect of Masdar, Norman Foster, however acknowledges the complexity of building a city like Masdar and says; “To believe in a sustainable future is to trust that it will result in a better world. The city of the future has to be a more attractive place in which to live and work. If Masdar or any sustainable initiative does not result in a great place to be, if it isn’t a city that you really want to live in or visit, if it does not lift the spirits, then it is not fulfilling a central part of its function.”[24]

If Masdar-type of cities are to be built they need to be complemented with the restructuring of existing cities; only building new cities won't solve the problems of the old ones.

VAUBAN - A CONTRASTING EXAMPLE TO MASDAR

The Vauban district in Freiburg, Germany is a good example of how a city can expand by using already existing parts of the city. Vauban is built on an old military compound, and was planned with an architectural competition in combination with extensive public participatory processes. The 18 main objectives include features such as balance of social groups, public green spaces designed with the local residents, family and children friendliness, and priority to pedestrians, cyclists and public transport to mention a few. [25] In comparison to Masdar, Vauban seems to have focused on the environmental and social parts of sustainability. A large difference apart from that and being located in an existing city, is also the size; Vauban is designed for 5000 habitants, about 10 -20 times less than for Masdar. The scale of such projects will undoubtedly be a challenge if projects similar to Vauban would to grow to the same size of Masdar.

GROWTH IN CHINA

Cities have throughout history been planned from scratch just like Masdar. But the scale of investment and developments in China are until now unprecedented. China needs new cities more than any other country to prepare for projected urbanization growth. Given that the urban growth in China generates 15.2 million [26] more people living in cities each year, it is hard to see how they can all be fitted in existing cities such as the example of Vauban. As any newly developed area, no matter the size, it takes time for functions to establish and people to settle. New areas often rely on nearby old parts of the city for services before new ones have established, and larger cities might even take longer to settle. Looking at examples such as previously mentioned Canberra, entirely planned cities take time to flourish.

The government in China has enormous resources and political power to enable the development of large million-people-cities. According to Vice Minister of Construction in China, Qiu Baoxing, 95% of the booming construction industry accounts for 75% of the nation's total energy consumption. [27] Leapfrogging here gets a new meaning; new technologies and values are used for new cities, building on international collaboration and knowledge. Caofeidian Industry zonewith a part called Caofeidian Eco city, is a one example planned as a collaborative effort between the Chinese Government and external partners. [28] It is a now empty area anticipated to quickly be filled with one

Pudong in Shanghai, China

million people. Swedish architects have been involved designing a master plan, but issues regarding what will happen after the project finishes are still to be raised. [29]

The current rate of construction in China corresponds to building a city the size of Rome in two weeks; in the last decade housing was built for about two times the size of United Kingdom. [30] It is a never before seen growth, but it also opens a window of opportunity for sustainable solutions to be used on a larger scale. And they are trying hard; China now has the world's largest wind turbine factory and is the world's third largest producer of solar cells. [31] The Global Wind Energy Council forecasts that China soon will become the world's largest wind power markets, including power and supply production. [32]
At the same time it is also forecast that China soon will be one of the world's largest energy consumers. If cities like Masdar becomes international precedents for countries like China, the effect can be both rewarding in terms of new values but

catastrophic at the same time. Large cities that on paper seem fantastic might attract no habitants due to lack of cultural depth and lack of participatory planning. A comparison can be made to the Million programme areas in Sweden; new areas to supply the growing population with housing were built quickly and efficiently based on new technology during 1960-70. [33] Areas at first new and exciting on paper are now falling apart due to lack of maintenance. They own a reputation of being filled with social and economic problems plus and being segregated adding to the issues of social and ethnical integration.

In countries like China where much of the land is already built these new modern mega cities pose an immense risk to eradicate existing social, cultural and urban structures. The country has since the Cultural Revolution already lost large amounts of old culture and traditions. It is in my view not difficult to see a repetition of the large displacements of people that occurred in order to create space for the Beijing Olympics in 2008. Allegedly one million people had to move in Beijing to make room for the new Olympic stadiums and other functions. They moved from traditional Hutongs,a type of narrow alleys with courtyard residents, into "modern" flats in entirely new areas.(34) The city of Guangzhou (formerly known as Canton) is one city in China where the government has decided to let the existing city grow by removing old structures replacing them with modern high capacity buildings.[35]
I would like to quote Chinese architect Kongjian Yu at Turenscape, when he talks about "Beautiful Uselessness" in modern urban planning. [36] He considers the gentrification of Chinese cities as "Littlefoot Urbanism". "For more than 1,000 years Chinese girls were forced to bind their feet in the name of beauty. The process was unhealthy, unproductive, ruined the foot's natural function and it smelled bad. But it was considered beautiful. The sacrifice was one of form over function." [37] This describes how fashion values sometimes overlook existing values and how cities and nature in its uncontrolled form can be beautiful too.

Another example is Shanghai World Expo, a global event covering 5 square kilometers of old industrial and housing areas, entirely rebuilt to event grounds in 2010 while saving only a few old structures. It is now again being rebuilt as an upmarket housing area. The expo is however a relatively good example of gentrification of a city; it has been planned with good intentions to clean water from the nearby river, and infrastructure built for the Expo is now being reused. Earlier mentioned Turenscape together with many academic partners have planned the area as sustainable as possible from environmental and economic perspectives. The Expo's main focus was to communicate the theme "Better city, Better life" to participating nations, something that all participants also tried to signal with individual concepts in each pavilion. The good intentions of communicating knowledge on urban life and planning with forums and knowledge exchange, was however shadowed by the enormous amounts of resources used and thrown away to build more than 230 pavilions and service buildings for the short amount of time.[38]

World Expo 2010 Shanghai, China

CITIES FOR PEOPLE

Many questions rise after these chapters, and one is what will happen if projections of population growth are wrong? Will China end up with empty cities habited by no one? To avoid such a case, can China and other countries plan for urban growth but finding a growth rate that would adapt to fluctuant growth? What if the rapid urbanization rate will bring down the birth rate, sustaining the population to generally the same amount as today? And in terms of land use, is it more sustainable to build a new city instead of expanding the old one? Historically urban growth of existing cities over time only seems to increase the distance from the centre to border. Does that indicate we should start over to shorten distances within the cities? No one knows yet, but given the growth rate we have today, some countries will have to build new urban areas to create housing for all no matter what future projections hold.

How can a good mix between creating plans for a larger area while looking at the smaller components not neglecting local conditions to be accomplished? Planning large cities with a top down approach with no relation to existing circumstances might risk architects losing sense of scale and social dimension. Large computer modelled cities with only one large concept such as Masdar, despite good environmental intentions, might make the human feel even smaller and distort the human scale in cities. Clever analytical models similar to Sim City have emerged on the market in China, calculating how the planning of a city will work before being built. [39] This is to me a scaring scenario; perhaps good from a 3D perspective of modelling architecture, but there are in my view not many steps left until architects really starts playing god for real. How some architects "dreams" can be transformed in to a computer modelled shape without any relations to realism or the natural surroundings of project sites is for me unclear.

Cities grown organically over time provide their inhabitants with a multilayer city containing a wider variety of functions, beauty and creativity. I believe that people need to take care of cities we already built and densify them to the largest extent possible, before starting entirely new ones. Even thought that might on some aspects be a tougher task, there is so much to win on all aspects, especially regarding social welfare. This also opens up opportunities for participatory planning working with existing habitants; a good way towards more socially vibrant cities. Creating cities for all kinds of people to enable a more free combination of interactions; mixing demographic, social and economic differences is difficult but should be the aim for truly socially sustainable development projects.

Sketch for Gwuanggyo City by MVRDV

By participating in urban planning projects all involved professions take on a responsibility to create good value architecture; to create sustainable areas that last for more than one generation. We need to create cities people get attracted to live in, cities for people, in order to achieve socially sustainable communities. The environmental and economic aspects will walk hand in hand. Architects and planners on all levels need to share nuanced values on urbanization reducing the impact of cost efficiency and economic growth aspects many developers and politicians seem to favour. All resources will not last forever but it is easy to keep designing and developing the same way as before. The use of resources increases every day and we have to find smarter ways of sharing them between us. We have as architects a responsibility to change what we can within the building industry; by sharing knowledge with people around us and by looking critically on the system new solutions can emerge. The future is depending on how people change their perception about sustainable development.

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| GLOBAL |

| ARCHITECT |

WHAT ARE THE LOCAL PARAMETERS IN MELBOURNE?

| LOCAL |

| SITE |

| CRITERIA |

| PROPOSAL |

"To protect what we like about Melbourne for future generations, we must now take stock and plan for a more compact and sustainable city. With our population set to grow by one million by 2030, Melbourne 2030- planning for sustainable growth prepares the groundwork for where we will live"

–Steve Bracks, Premier of Victoria 1999-2007, in "Melbourne 2030"

AREA DEFINITIONS IN MELBOURNE

Melbourne (SD)	Melbourne Statistical Division
SLA	Statistical Local Area
LGA	Local Government Areas
Melbourne City Centre	The city centre LGA
CBD	Central Business District

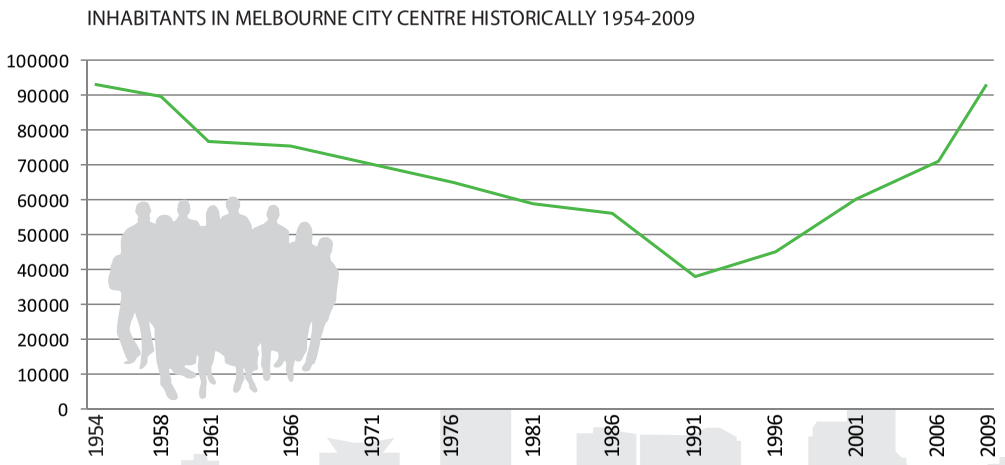
POPULATION GROWTH AND MIGRATION

Melbourne was founded in 1835 with the arrival of British settlers from nearby New South Wales and was the first substantial settlement in the state of Victoria.[1] However, the city was not settled under official auspices but was formed earlier by individual settlers from Tasmania. For a very long time before that the area was inhabited by indigenous Aboriginals. Melbourne has fairly quickly developed from a small colonial settlement to a major city. It now consists of predominantly residential and commercial areas but was for a long time shaped by industries moving into the city, depopulating the city centre in the 1970s. Significant population increase is now occurring in former industrial areas; the former harbour area of Docklands is a recent example.[2]

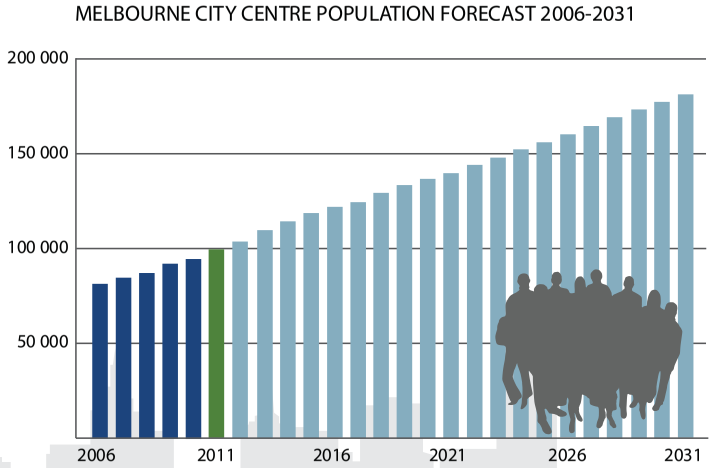
Current proposed redevelopments in the city centre will increase the population to levels not seen since the 1920s, but on a far larger area as the average numbers of persons occupying each dwelling is far lower than in earlier decades.

Australia had in 2009 an overall population growth of 2.0% but an urban population growth of 2.2% which suggests that Australians are becoming more urbanized even though 88.2%already live in urban agglomerations. [3] Just as historically much of the growth was affected by immigration; under half of the growth today is a result of overseas migration. [4] Australia had a total of 4.34 international million in 2005, an impressive 21.3 % of the total population.[5] Much early immigration came from many countries in Europe such as UK, Italy and Greece; something that now has shifted towards Asia. The largest proportion of immigrants to Australia today come from UK, New Zealand, China, Malaysia and other countries in Asia. [6]

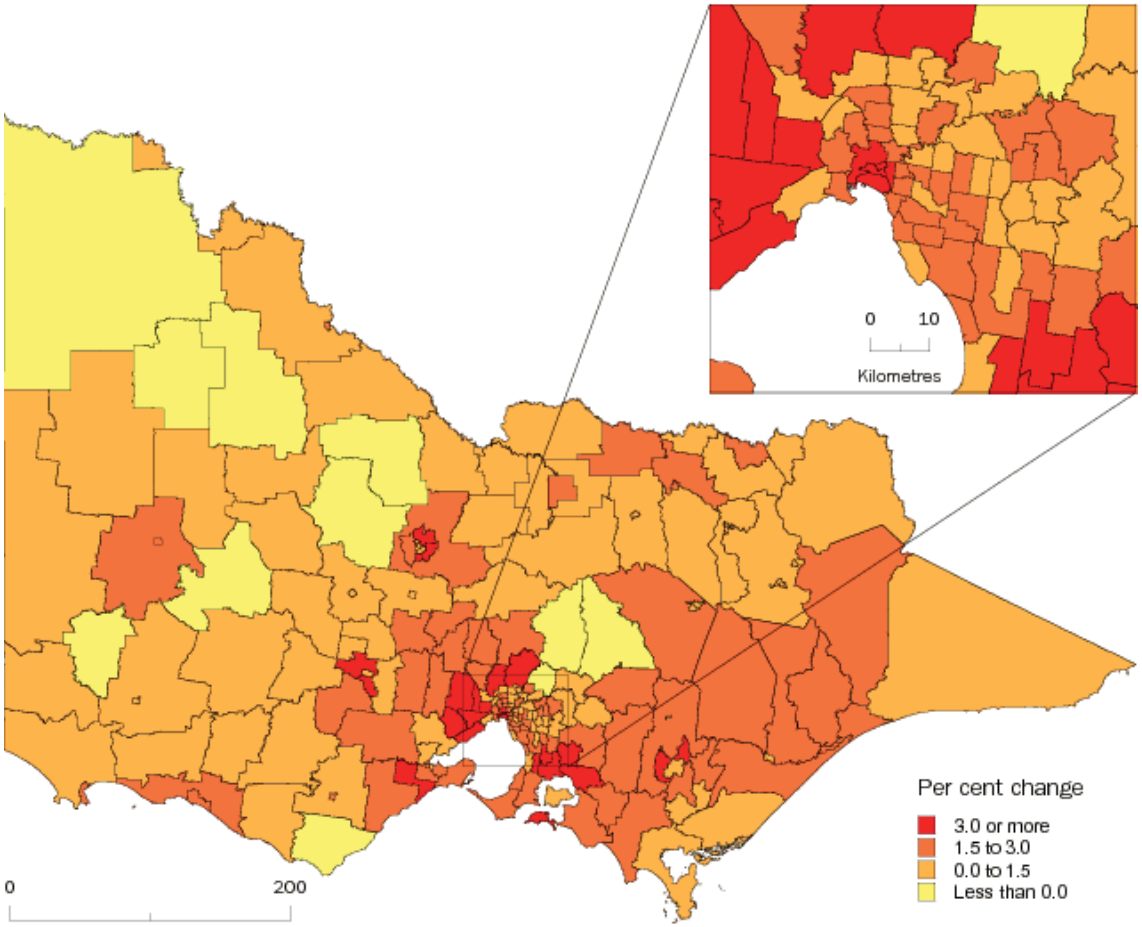
The population of greater Melbourne (SD) had a growth rate of 2.0% between 2009 and 2010, a slight decline from 2.4% from 2008-2009.[7] The population is however projected to rise rapidly from approximately 4 million to 5 million people in 2030.[8] The factors driving this growth are mainly ageing population, baby boom and immigration from Asian countries. Since 2001, Melbourne has gained 605,000 new residents, which creates a large demand for housing all over the city.[9] Melbourne City Centre had the eighth largest increase in population of all Local Governmental Areas in Victoria in 2009-10 and has continued to experience relatively fast growth at a rate of 3.6%. This is slightly lower than 4.0% in 2008-09 and even lower than 5.4% for the five years up to June 2009, which suggests that less



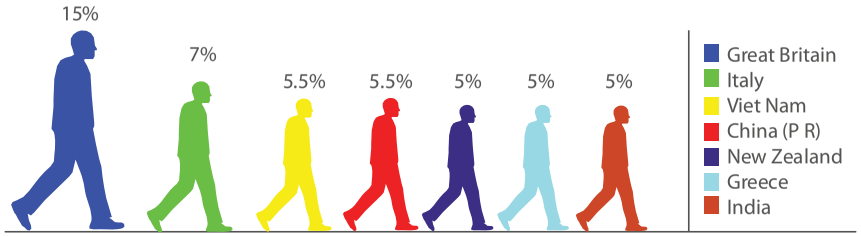
Population in Melbourne City LGA from 1954-2009 [13]



Population forecast for the City of Melbourne [12]



Map from ABS showing growth areas in the state of Victoria with a zoom in on Melbourne [14]



MELBOURNE SD - Land of birth for overseas population, majority groups

Country of birth in Melbourne SD amongst people born abroad, data from ABS 2006 Census

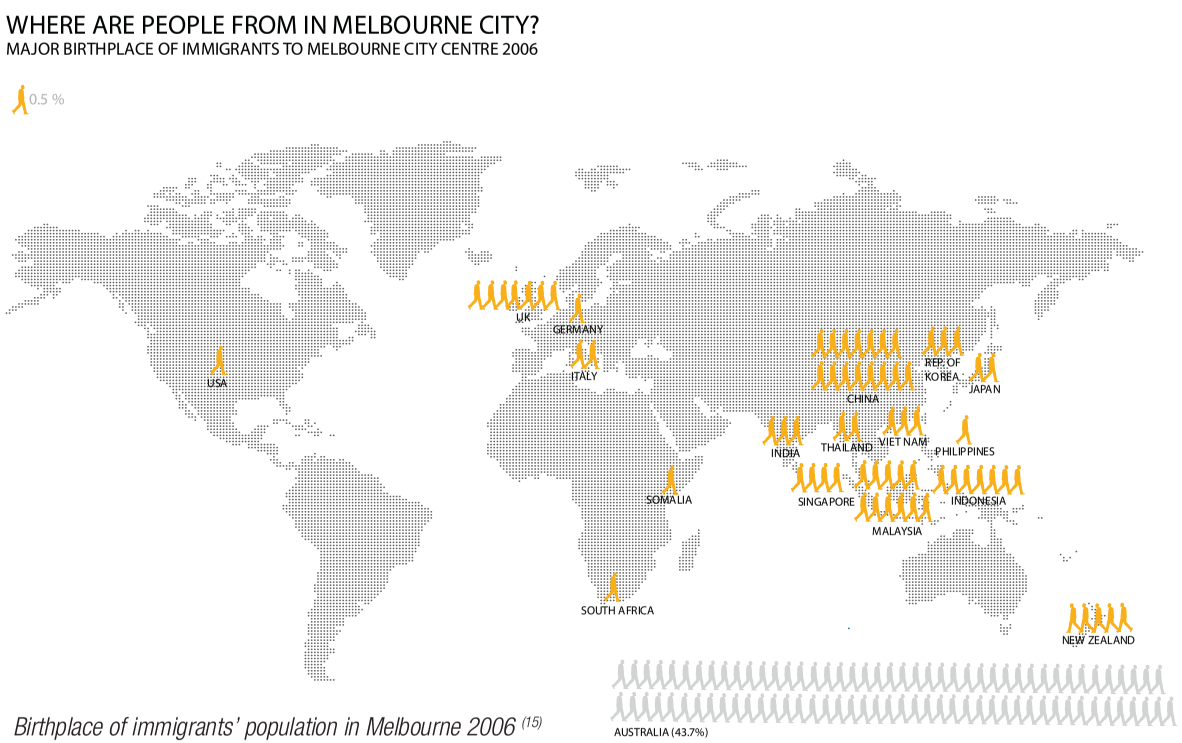
people are moving in to the city than previously. [10] The figures could also be affected by the growth of Docklands, an area that is now experiencing different growth than the first years, and new development areas in the CBD could make the numbers increase again.

In 2006 only 55.5% of the inhabitants of the City of Inner Melbourne stated they were born in Australia, compared to Melbourne (SD) at 64.2% and the national figure of 70.9% which shows that the inner city attracts many migrants. [11] The urban structure of the city and affordability affects where people choose to settle, but existing social structures and housing typologies might also be important factors. All these growth indicators have to be taken into account when planning new areas, but whom the government chooses to build for is a political issue. New areas are planned close to the city centre, but limited affordability in these areas combined with increased urban sprawl generated by more affordable options creates much debate regarding new sites for development. More topics on new development areas are discussed later in this chapter.

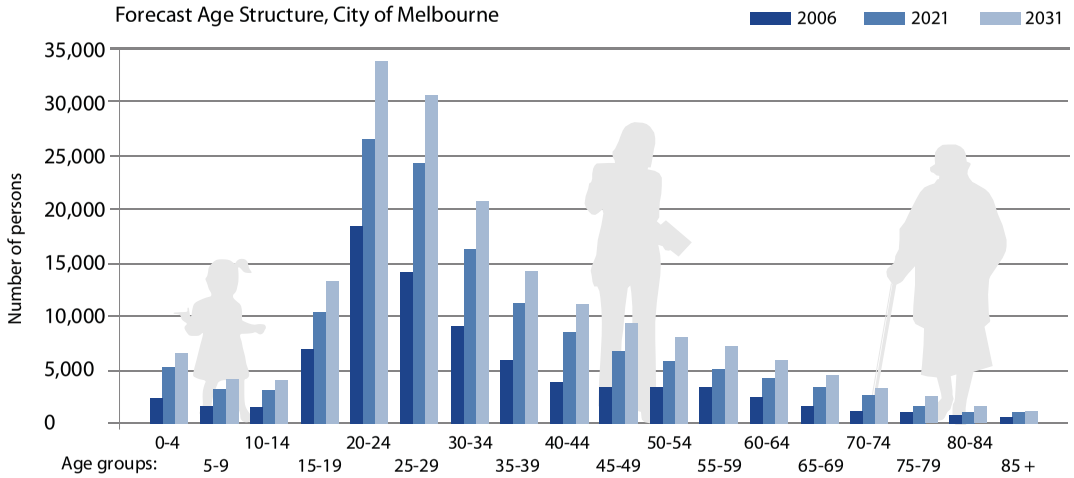
The City of Melbourne has a large and diverse community which is particularly concentrated around the City centre where about 45% of the population are born overseas. [16] The student population is considered a major influence to the city's diversity and means that the immigrants' average age is younger than the national average. [17] International students in Melbourne are an important part of the population growth and most come from Asian

countries like Malaysia, China and Indonesia and arrived between 2001 and 2006. International student education has become a large industry for Australia; by 2009 the third largest export industry in the country, double in size compared to five years earlier. (18) But there was a fall in arrivals of overseas students in 2009-2010, which cut the growth of Melbourne significantly. [19] Many more Melbournians could be considered international by being second or third generation migrants. With the country's history of British immigrants in mind one can easily say that Melbourne is a real melting pot of people and cultures.

Melbournian overseas immigrants integrate well; looking at a map of nationalities in Melbourne it becomes clear that different nationalities are well spread over the city. The city has however a few areas characterized by the main group of inhabitants. Like many other large cities Melbourne has a China town in the CBD with a majority of Asian habitants and services; another one is Springvale where a large group of Vietnamese settlers live. There is also a large group of predominantly British settler descendents in areas such as Mornington, Torrak and South Yarra. Melbourne also attracts a number of permanent overseas migrants to settle in areas such as Kensington and North Melbourne. [20]

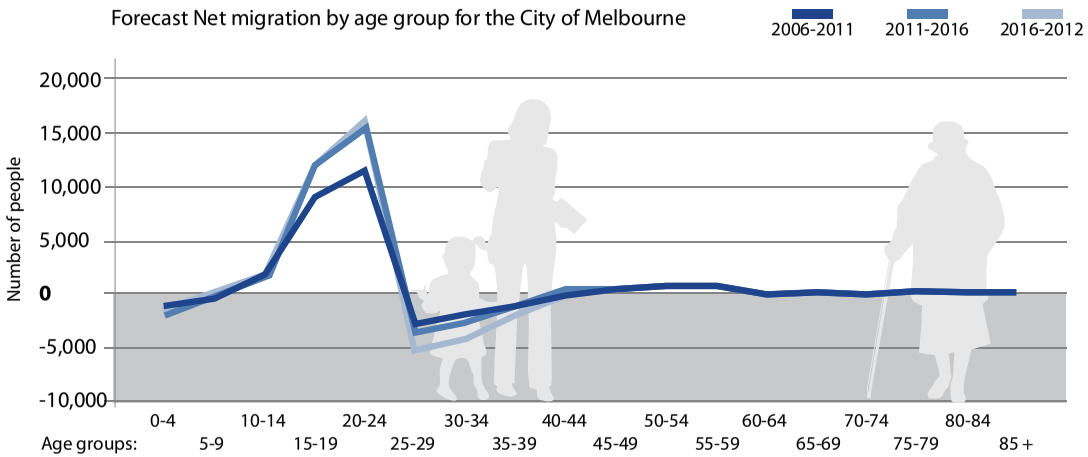


Birthplace of immigrants' population in Melbourne 2006 [15]



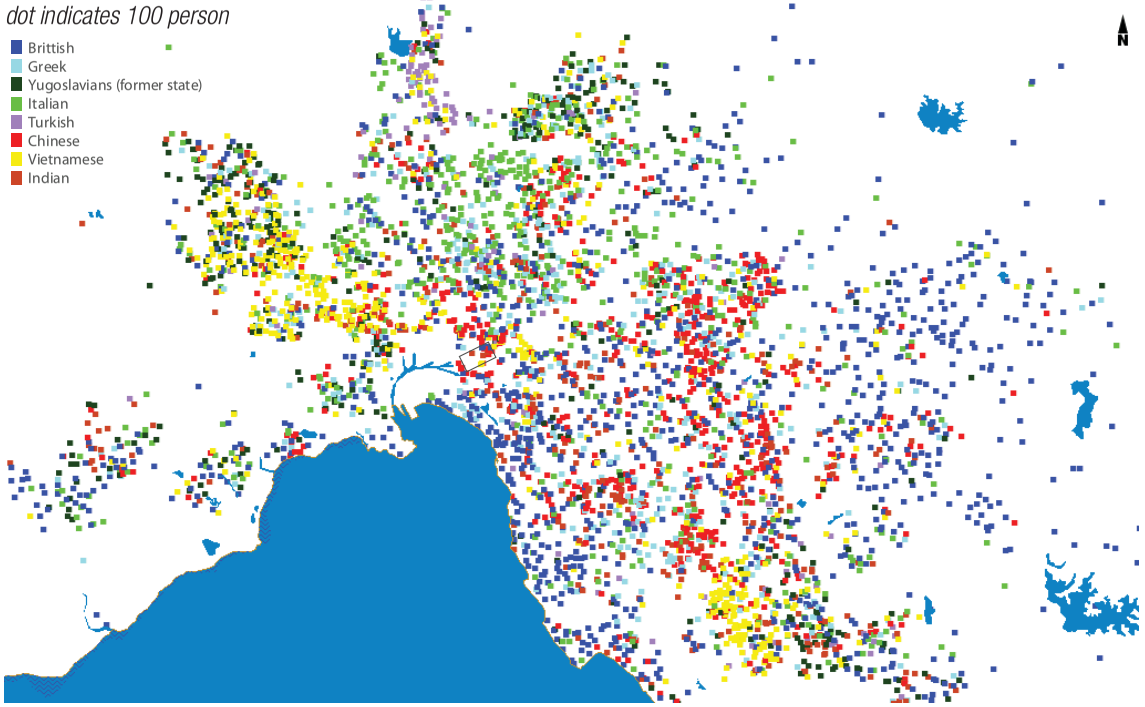
Forecast age structure for City of Melbourne [22]

Looking at migration statistics for Melbourne, areas like the CBD, Carlton, Southbank and Parkville have a substantial in-migration by persons in their late teens and early twenties. A significant trend is also the loss of people in their early thirties, leaving for "more affordable and appropriate housing types" in other areas of Melbourne metropolitan area. This suggests that an increasing number of people in their early thirties move out of the city centre to find housing alternatives in the suburbs. Lately one can also see a small gain in people aged 45-60 due to the development of Docklands. [21] When looking at population statistics, both current and forecasted, there is a significant increase in the amount of people between 15-40 years old. This is an important age group when it comes to find new sustainable housing alternatives since their choices will shape the city for a long time.



Net migration figures for City of Melbourne [23]

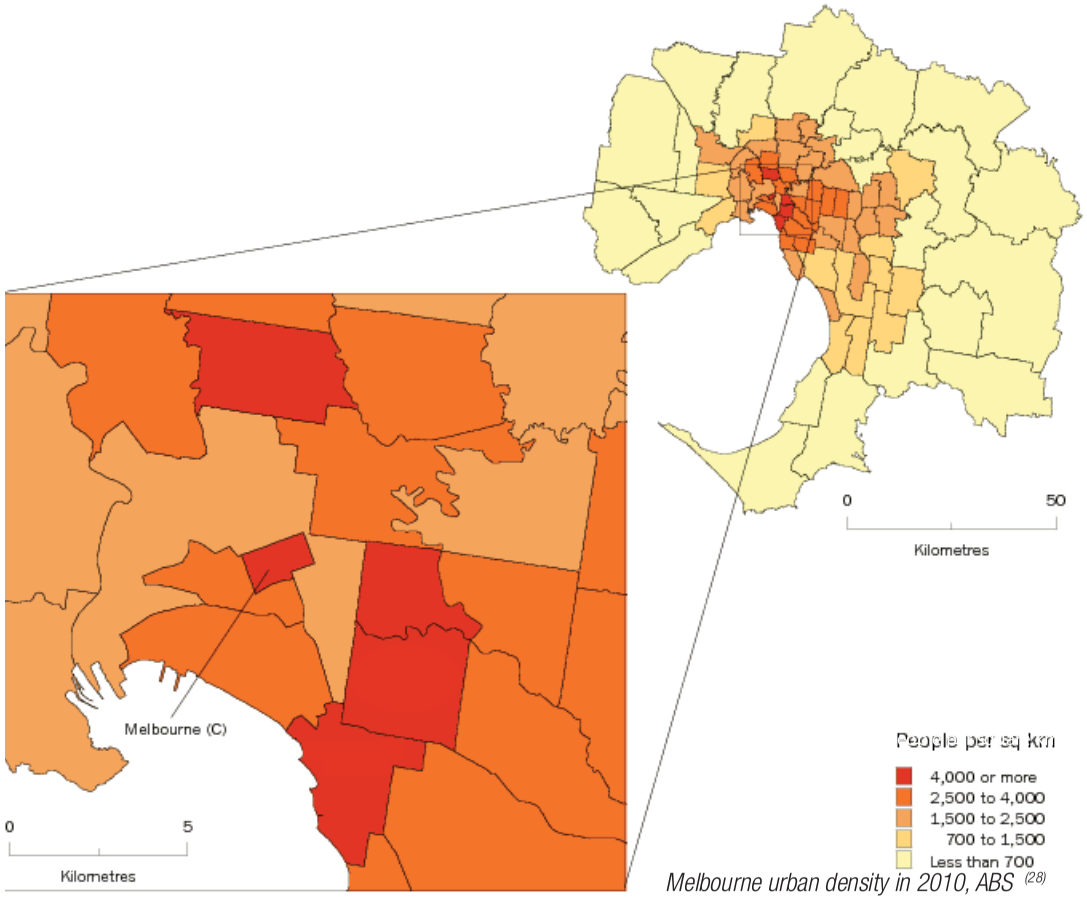
Demographic map of overseas born population in Melbourne [24] *Each dot indicates 100 person*



URBAN DENSITY

In 2010 greater Melbourne had a population density of 530 ppl/km2 and a population of 4.08 million people. [25] The City of Melbourne, which is a smaller geographical area, has a density of 1566 ppl/ km2 which is similar to other Australian cities. Melbourne has a fairly high density compared to other Australian cities, but is still only about 1/4th as dense as London, or half as dense as Stockholm despite having three times the population in the urban area. [26] The City Centre of Melbourne has the radically highest density with 8000 ppl/km2 amongst the Statistical Local Areas followed by St Kilda in the south with 6400 ppl/km2 and Prahran in south east with 5400 ppl/km2 . [27]

The Ecological Footprint is an efficient way of analysing the sustainability of Melbourne; 6.9 gross hectares per person is significantly higher than the global average is 2.1 gross hectares per person. The area of resources needed for the city is 28 times the actual size of Melbourne or 12% larger than the size of the entire state of Victoria. [29] The national footprint of Australia is just under on 6.6 hectares per person. The investigation by Centre for Integrated Sustainability Analysis at the University of Sydney suggests that there is a correlation between income and ecological footprint, something that seems to rise the closer to the CBD people live in Melbourne. [30] But research also shows that residents in denser settlements in high income countries are likely to have a lower per capita emission than in surrounding areas as a result of greater use of public transport



Melbourne urban density in 2010, ABS [28]

systems and living in smaller housing units. Since the CBD has higher density it can therefore possibly have a lower ecological footprint per person. The question of sustainability is here not only about density but connected to the type of lifestyle choices we make and how much resources we use with them. Melbourne still has large low density areas close to the city centre, which easily could increase the density of Metropolitan Melbourne if developed differently. By adding more housing and mixed developments close to the city centre, the existing public transport network could be used and inhabitants may be inclined to be less car dependant. Careful management of urban growth and efficient planning systems could help future growth to facilitate a different way of living in cities, where we move away from the car and focus on modes using fewer resources.

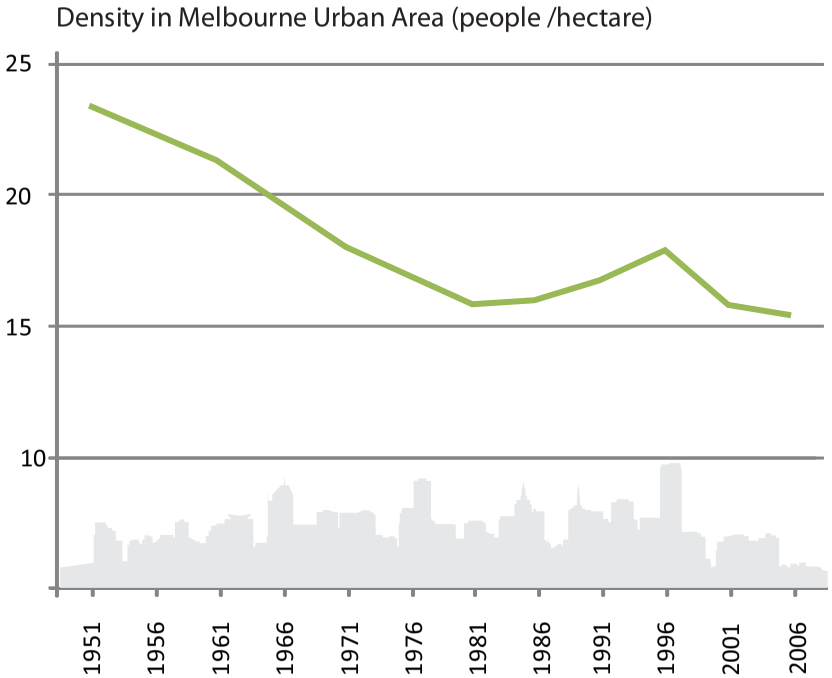
WHAT OPTIONS ARE LEFT FOR SHAPING THE CITY?
From the Endless City by Ricky Burdett [34]

"In essence, perhaps, we have only two. First is the option of the high-density city. This, we tell ourselves, is the anti-suburban model, based on an ideal of diversity and inclusiveness. Those infected by the European prejudice towards cities taking a certain kind of physical form embrace this model in opposition to what they maintain, for a variety of reasons – sometimes snobbish, sometimes well-meaning – to be the shortcomings of the low-density city.

"Low-density urbanism, on the other hand, is a model equated with what is considered the destructive selfishness of the gated community and the environmentally disastrous results of low-density car-orientated suburbs, which allegedly will become unsustainable long before fossil fuels run out and which do nothing to support the traditional energy and vitality of urban life. However, it could equally well be presented as a model of freedom and sturdy individual choice… To those who promote this model, the high density city is, despite the claims of its champions, a claustrophobic, overdeveloped and dehumanizing ant-hill."

Australia has however in the last two decades seen a focus in urban development policy attempting to increase the population density of cities. It has involved a range of policies such as encouraging urban redevelopment and subdivision of land parcels within the built up urban area. [31] There are indications of a slight shift in preferences away from a total dominance of low density, outer suburban living toward where a larger proportion of the population favour living in higher density inner and middle suburban locations. [32] This might however only apply to the very inner areas; if one looks at which suburbs grew the most last year it shows that many people still favour suburban living.

Since cities which have "higher population and densities have proved to be the wealthiest, most dynamic, innovative, diverse and ecologically sustainable" this should ideally be the major target for the future development of Melbourne. [33]



Density development pattern in Melbourne, data from Wikipedia (35)

URBAN GROWTH BOUNDARY

A Growth Boundary is used to indicate the long-term limits of urban development and Melbourne established one in year 2002 to control the sprawling where non-urban values and land uses should prevail in Metropolitan Melbourne. [37] The concept of an urban growth boundary is fairly new and was first introduced in US in the 50s. [38] It is simply meant to stop the city from growing outside its existing area and follows the existing defined urban zones to limit further sprawl. The boundary came into effect after the release of the report Melbourne 2030, where managing urban growth was one of 9 key recommendations in the report.

The previous government extended the urban growth boundary in 2010 to include 46,000 hectares extra for development, and also released 11,000 hectares in 2005. The current government has said it will review the boundary every two years to ensure there is enough land supply. Much point towards new land being released for sale on the boundary to provide cheaper options as the government see the prices go up. Government officials have said that ''Until the mismanagement of land supply is fixed, prices are going to keep going in the same direction and we are going to become the least affordable city in Australia very quickly." [39]

According to an article in The Age in 2010, in the last year many developments on the city fringe were already jumping across the boundary, putting pressure on small communities there. The general ideology seems to be to keep the character of small towns and the shire but this seems difficult when setting a boundary makes people move closer to it. [40] The majority of people living in these areas do however seem to commute out of the area for work, which create little arguments for why further development should occur there. The management of the growth boundary has been criticized for not focusing development towards transport nodes where people can connect to public transport systems. As RMIT planning expert Michael Buxton says in the same article; growth in the outer areas should be concentrated around bigger regional centres where there are more jobs and infrastructure to accommodate people. [41] Another large issue with moving the boundary outwards is land use; the argument relates to fertile farming land being destroyed in favour of new developments. [42] Due to political changes it has now been deprioritized and its existence is under consideration. The political discussion never seems to quite settle due to widespread opinions on possible impacts of a strict boundary. Some experts are afraid of harming the housing market if the boundary is implemented too strictly, risking the affordability of housing options for many people on the urban fringe. Some critics suggest that by setting the growth boundary and limiting further urban sprawl, the housing prices would go through the roof. In an online poll in the local newspaper The Age in July 2010, 75% of 8265 participants voted No to expand Melbourne's city boundaries. [43] It should however be mentioned that Melbourne is divided between two large newspapers and the same poll with the competitor The Herald Sun might give a different result. Many urban areas are already outside the boundary which creates conflicts both politically and locally. To succeed with a politically stabile and publicly understandable boundary it would be wise to create good arguments as to why it is positioned in its current location.

Map of Melbourne Urban Growth Boundary from State Government of Victoria [45]

Some of the suburbs in Melbourne grew immensely from 2008 to 2010 [51]
Map from maps.google.com

St Kilda West	*95%*
Jacanda	*73%*
Lyndhurst	*73%*
Essendon North	*72%*
Hadfield	*70%*
Broadmeadows	*67%*
Sunshine North	*67%*
Albion	*62%*
Dallas	*57%*
Braybrook	*57%*

What Melbourne need is not more urban sprawl but management of the sprawl that already exists

URBAN NODES

Melbourne is very much a radially developed city, with higher development density closer to the centre. By allowing development along the transport nodes many workplaces could be decentralized from the CBD which would help reduce the traffic jams occurring when commuters take their car from the suburb to work every day. Regional centres and connective nodes are also vital to reducing further sprawl. Transport nodes are important for the connectivity of areas and if developments are not focused around them it will add to the environmental impact of the city. By focusing on public transport nodes in the suburban areas a less car dependant way of living could be enabled in the outer areas of Melbourne. It would not make up for the arable land already lost, but would assist in increasing the density along the nodes and saving green areas in between.

The former Labor government set a planning policy on unlimited height restrictions along transport nodes in Melbourne in order to promote high density development around strategic public transport corridors to curb the expansion of sprawled areas. With the change in government in the December 2010 election this has now been removed and the height restriction is back to three storeys. Current planning minister Matthew Guy said “Melbourne risked becoming dysfunctional, and losing its character permanently, unless suburban apartment construction was curbed”. [44]

THE AUSTRALIAN DREAM AND ITS INFRASTRUCTURE ISSUES

The concept of the Australian Dream is a widespread idea in Australia with its roots back in the 50s and a certain lifestyle. It is often defined as living on a quarter acre block in a detached house with the nuclear family consisting of a father, a mother and their children all in one household dwelling. [46] This is something that today might not represent many households but is possibly still the dream for many.

The Australian Dream can be seen as a version of the American one, first mentioned in 1931. The underlying idea originated from the US Declaration of Independence and can freely be translated to "all having their rights to equally rich lives with liberty pursuing happiness". [47] Both have similarities from a planning point of view but the American Dream is more political than the Australian Dream. This way of planning cities was used worldwide as a reaction against industrialism after World War II, resulting in people moving to suburbia and small country houses. [48] This way of living was aided by the widespread ownership of cars at the time and made many cities totally car dependant.

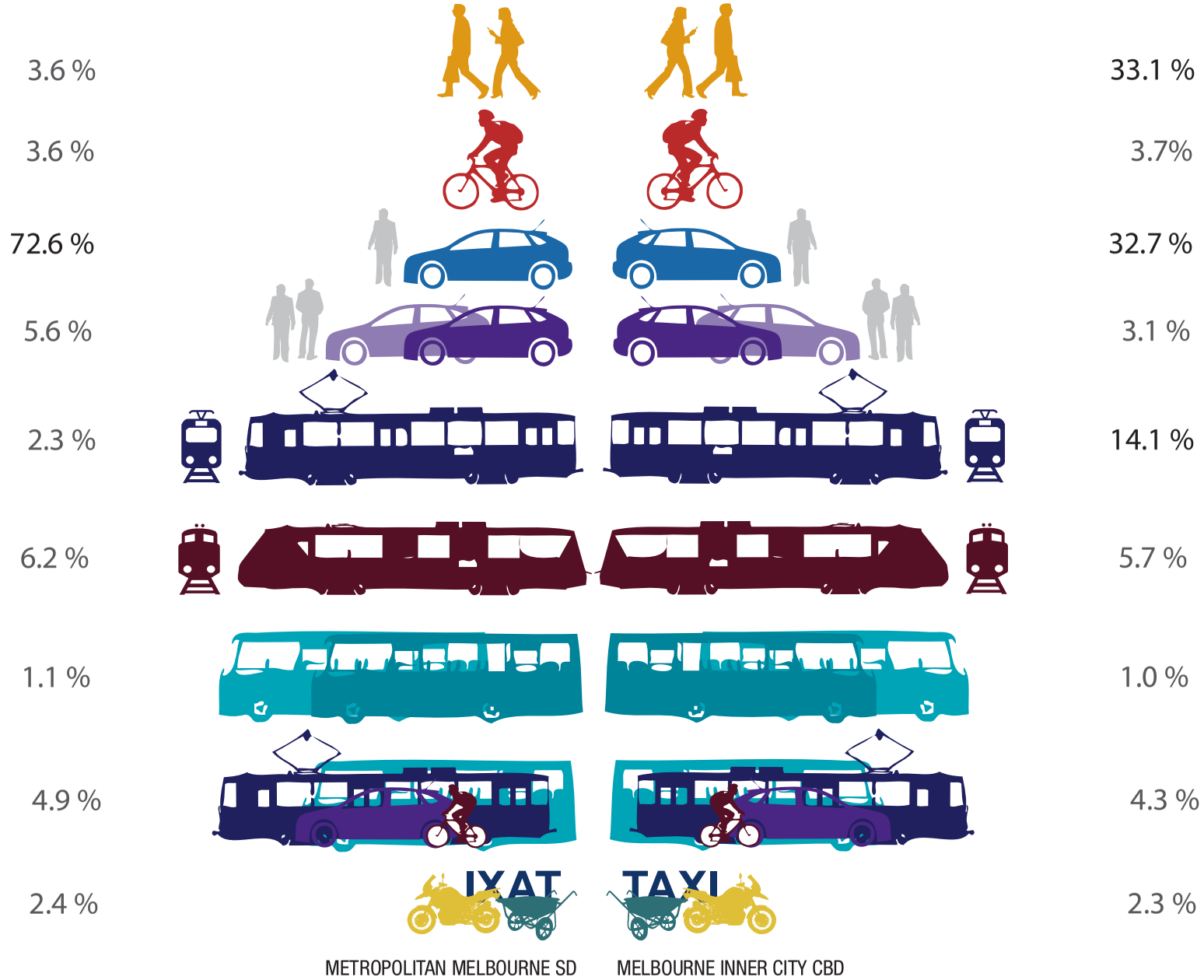
Many still seem to wish to make the dream real in Melbourne, scanning the market for new land to build their own homes on. What people seem to search for is an improved way of life, having more time for the family, and raising them in a safe environment. But ironically, what they might end up with is increased pollution from cars, long hours spent in car queues commuting to and from work and stress about losing time that could have been spent doing other things. People living in peri-urban areas are just as dependant on the city or regional centres for employment and other needs as those living within the city boundaries, which becomes visible in rush hour traffic anywhere in the city. [49] Commuting long distances also means increased transport expenses for many families, living too far away from public transport to see it as a viable option. Affordability is strongly linked to the discussion about the Australian Dream; land and housing are generally seen as cheaper on the city fringes in suburban areas, with exception of trendy coastal areas where prices generally go up. The Australian dream is very much driven by the ideology about how people want to bring up their children; "Intuitively, every parent knows it is the healthiest environment for their child to have sunlight and a garden to play in" as a real estate agent put it. [50]

Selling the Australian dream back then [52]

A newly built version of Australian dream housing in Cranbourne

CAR DEPENDENCY IN AUSTRALIA

Australian cities are highly car dependent – approximately 80% of trips in Australian cities are taken by private automobiles. [53] Australia also has one of the world's highest vehicle ownership rates per capita; 632 cars per 1000 people. [54] The majority of people living in Melbourne (SD) are extremely dependant on cars, and much of the city is planned around the Australian Dream lifestyle. Melbourne has a total of 3.6 million private vehicles using 22,320 km (13,870 mi) of road and has one of the highest lengths of road per capita in the world. [55] In 2006 around 74% of Melbournians took the car to work, but just 6% went by car as a passenger suggesting that most trips to work are done with only one person. [56] The Bureau of Transport and Regional Economics did a forecast in 2004, showing that car use in Melbourne might go up by as much as 28% by 2020. [57] About 18% is due to population growth, so that implies that around 10% of the increase in car use up to 2020 will be due to a change in habits to use the car more frequently.



Mode of transport to work, data from ABS [58]

PUBLIC TRANSPORT

Melbourne has a fairly well connected system consisting of trains, trams and busses. However, the usage of public transport compared to cars is quite low; despite having a partly underground train system in the CBD only 5.7% of the inhabitants of the City Centre of Melbourne use it to go to work. The average train usage is in fact slightly higher on average across the Melbourne SD in comparison despite having lower frequencies. The projected population growth over the next 25 years will pose a large challenge to the infrastructure planners of Melbourne; demand for travel will increase by more than 30%. [59]

TRAINS

Electric trains were used from 1913 in Melbourne and the first lines ran to Flemington Racecourse, St Kilda and Port Melbourne.[60] The city loop metro train system has been running since 1985, radially connecting the CBD with the suburbs. [61] There are today 16 train lines with 211 stations across Melbourne. [62]These train nodes across the city are vital to connecting the city, but an outer circular system could possibly also improve train usage. This would make it unnecessary to go all the way in to the CBD to change lines as today. The Metro train system in Melbourne has been criticised for not being “metro” enough and running like a normal train network. In a city of 4 million people one would assume that city transport would be quick, but according to The Age, trains sometimes run with 40 minute interval on weekends, something that very well could send signals to the public of an inefficient system. [63] If compared to cities like New York or Paris the inner city transport system in Melbourne lacks behind in terms of efficiency. A report launched by Transport Minister Peter Batchelor in 2005 revealed that “Trains, trams and buses are too slow and poorly connected. In many cases they are too infrequent to offer a service that comes even close to matching the car in speed and convenience, even where traffic congestion and parking problems are part of the equation”.[64] There have been lots of efforts to improve the situation and according to the Metropolitan Transport Forum the train network gained 30% patronage between 2005 and 2008. [65] The rail network has again been under investigation and several improvements are proposed but not yet implemented.

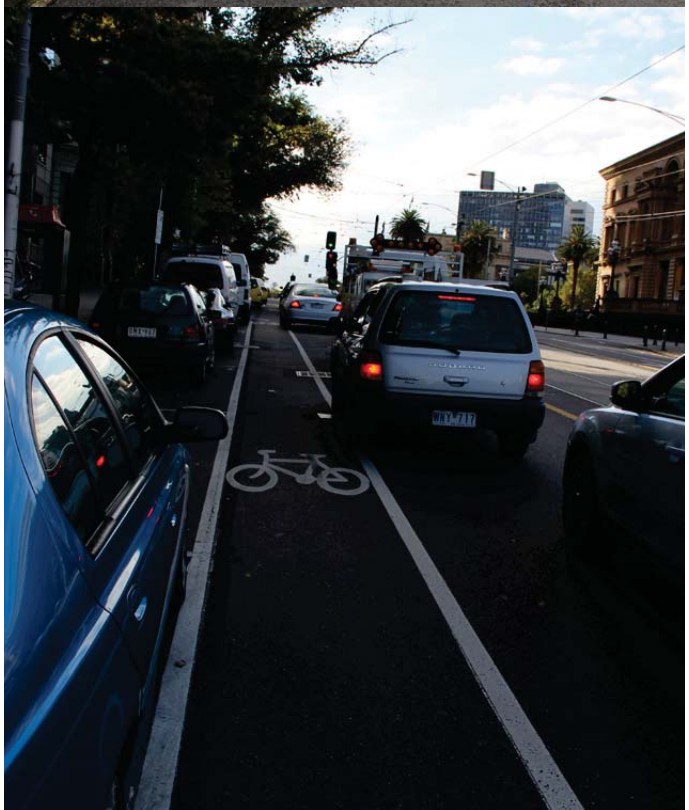
TRAMS

The tram network in Melbourne has roots back to 1885 and is now the largest operational tram network in the world. [66] About 14% of inhabitants living in the CBD use the tram to get to work, using one or more of the 29 operating tramlines. [67] When the trams started operating in the 1880s they ran often and waiting more than 5 minutes was unusual, despite only having a population on half a million people. [68] A challenge to increase tram use in the city is caused by trams often sharing their lane with cars; even a small traffic jam will delay all trams. This makes trams almost as slow as taking the car in rush hour. This is however something that easily could be changed in a few locations by letting the trams having a separate lane, which is already done

on for example Dandenong Road and the light rail to Port Melbourne. To get on to a tram in Melbourne today you must at most stations cross at least two lanes of traffic, in many cases without a pedestrian crossing. It is also rather dangerous getting off the trams, since you are let off on the middle of the road. A few stations in the city centre have a fence towards the cars for example on Flinders Street and Bourke Street. The old tram networks still leave a visible footprint in Melbourne; St Kilda road is a good example where the tram has a separate track with safely designed tram stops along the road protecting pedestrians from the cars. Some of the old trams can now be seen going around the CBD as a free City Circle tourist service.

BUSES

There are more than 300 routes across Melbourne according to Metlink, which seem to serve the suburbs more than the city centre to make up for the lack of tram services. [69] Visually there seem to be very few bus services in Melbourne, which is reflected in the very low usage both in the CBD and Melbourne SD; only 1% take the bus to work. The question is however if buses are economically viable, judging by the low usage they do not seem to compete well with individual car usage. Would people take the bus more if the services were improved? I believe that it is hard to change the mindset to take the bus when it is using the same roads as cars. There are dedicated bus lanes in the city but efficient trains might be more effective in getting to the destination on time due to frequent traffic jams.



BIKING SITUATION TODAY

Being a heavily car dependant city there is not much space for bikes, which creates a dilemma when an increasing number of cyclists in the city try to claim their right of space on the road. The former government in Victoria now recognize biking as a viable transport option and released a “Victorian Cycling Strategy” in March 2009. It aims to increase cycling levels across Victoria and position cycling as a viable and attractive transport option. Goals are to “deliver a better cycling network, promote a culture of cycling, reduce conflicts between cyclists and other road users, better integrate cycling with public transport and integrate cycling with land use planning.” [70] This is however again subject to change since they were initiated by the former government. Two years after the report was released a few improvements have been made but major problems are still to be dealt with. Two targets mentioned in the report, “promote and encourage a culture of cycling” and “reduce conflicts and risks for cyclists” should especially be highlighted, because there is a lively debate about biking going on in Melbourne at the moment.

The Age has written articles about biking and every time heated debates have started on their website soon after the articles were released. [72] The main issue creating a debate seems to be about following the traffic rules. According to traffic rules in Victoria bikes are considered vehicles and should be treated similarly to a car. [73] Bikers have very little safety in traffic and are not allowed on footpaths or sidewalks

and are banned from parks and gardens. The city of Melbourne has fantastic opportunities to extend the biking population; rather flat landscape, warm weather most of the year and a health conscious population. But the lack of safety prevents people from seeing the positive aspects. There is a rather large network of bike paths in the city but an estimate of 95%are |1| in between parked cars and 2 lanes of cars driving 40-60 km/hr or sharing lane with parking spots |2| unconnected which means that they suddenly appear or stop in the middle of a road.[74] An example could be the large number of accidents occurring outside Flinders St Station each year. 78% of crashes at this site were from riders hitting opening car doors despite it being illegal to open car doors into traffic. [75] The explanation is that bikes mostly do not have any other space on the road other than between the parked cars and the flowing traffic. Due to the frequency of such crashes, VicRoads says that road safety allocations should used to improve these locations but I would argue that such a statement can be applied on most streets in Melbourne.

There are a few good examples of safe bike lanes in the city, especially the stretch next to the Yarra River; bikers share a path together with pedestrians that

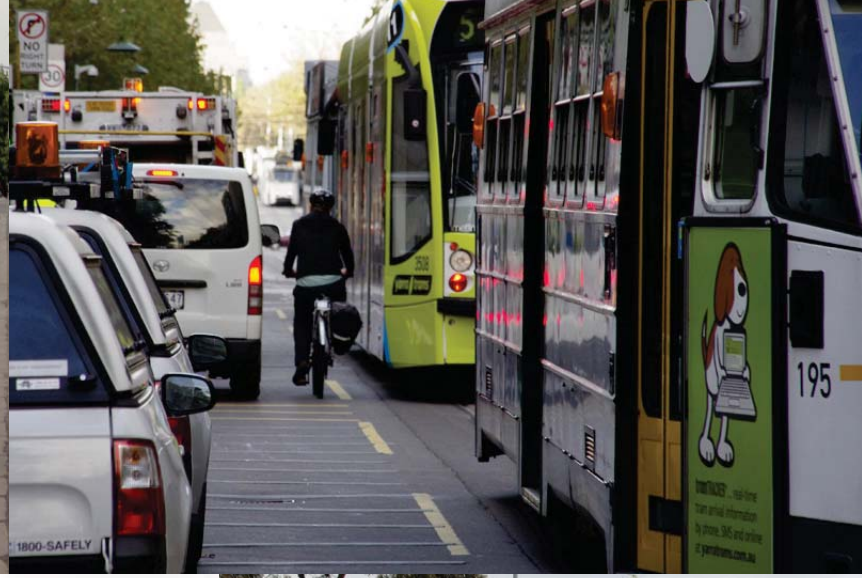
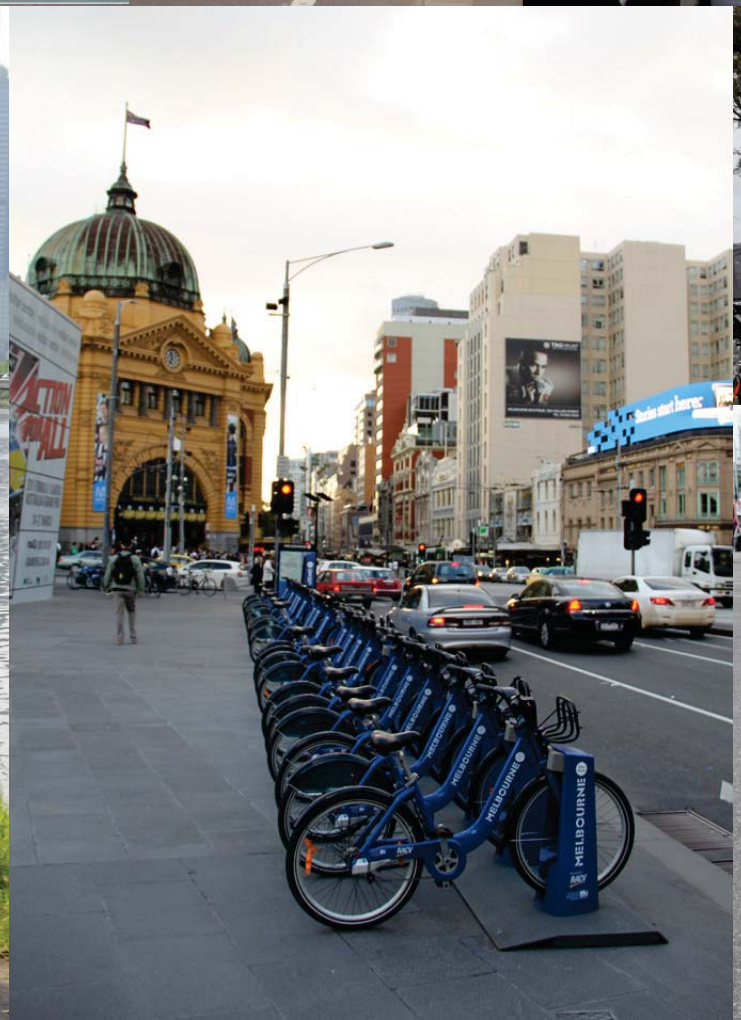


Photo of green bike lane from "good design guide" on www.bv.com.au



is independently located away from the street. An effort has also been made to colour the asphalt green on road bike paths to highlight their visibility. The stakeholder group for biking is today unsurprisingly rather limited; the average bikers are today stressed middle aged men biking to a high level career job, wearing lycra and so many lights to become visible that they sometimes look like blinking Christmas trees. According to the Age bikers sometimes disregards red lights or common sense, possibly caused by traffic stress in combination with feeling neglected and unprioritized on the roads.
Melbourne has just like London, Paris, Berlin, Montreal and other large cities introduced a biking scheme with rental bikes available all over the city centre. The scheme is an ambitious initiative to increase the number of people biking in the city and could really assist in extending the group of people using bikes as the preferred mode of transport for short distance travel. The scheme is rather small compared to international precedents; Melbourne has 450 bikes making 183 trips per day whereas London has 5000 bikes on 315 biking stations which generated a million trips the first ten weeks after introduction.[76] If the scheme managed to attract more users, car drivers could possibly also change behaviour and become more considerate in traffic. A wider range of people might then dare to bike longer stretches which could result in a positive mental spiralling effect about biking in the city.

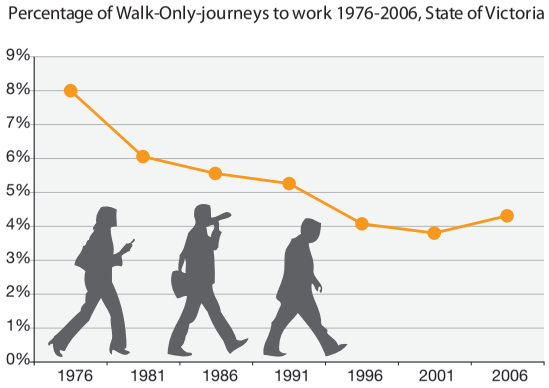
It is however illegal to bike without wearing a helmet in Melbourne, but while having obvious benefits it has also put some constraints on the scheme since customers need to bring their own helmet. This has partly been solved by cheap helmets made available in numerous places, but the main problem with this concept is still the safety of bikers on the road. Before there are safer paths to bike on the bike scheme will probably have a hard time attracting all groups of the society. A different way of thinking about biking is key; by redesigning the position of the biking lanes and changing people's mentality to bikes as vehicles a lot can be changed.

Quote from a debate in the The Age newspaper March 2011 [77]

"Cyclists are the modern day feral. I live in the inner north of Melb. I see a dozen cyclists per day who seem to have a death wish by the way that they ride, and a thousand per day that have an outwardly negative, disgusting attitude to all other road users. Bicycles are classed as VEHICLES and are subject to the laws governing vehicles. That would be news to virtually all cyclists. I don't think any cyclist gives way when they should, almost no cyclist obeys a stop sign, no cyclist riders in a manner that would prevent harm to themselves and others. So, I do not know why the Police ignore this incredibly dangerous behaviour. Fine cyclists to kingdom come, for breaking the law. That will start to correct the problem. I have absolutely no sympathy when one suffers the consequences of their stupidity every now and then. Cyclist, smarten up, be nice... it's only you that gets hurt."

PEDESTRIANS AND CITY CENTRE FUNCTIONS

Being a pedestrian in Melbourne is a fantastic experience because there are sidewalks on almost every large street and safe crossings between them. The inner city grid is incredibly user friendly for travelling street up and street down safely. The Victorian government has invested significantly in walking initiatives the past years, and also released "The Pedestrian Access Strategy" which builds on former achievements to find new areas to work with. But despite the success in reviving street life in the Melbourne CBD during the 1980s and 90s, the number of people in Victoria who walk to work is lower than in the 1970s. [78] The majority of the population in Victoria live in Melbourne, which is why it is important for the city to statute as a good example. The City Centre of Melbourne tops the statistics with an astonishing 33% walking to work in 2006, but there is still much to do in Melbourne SD since the average across the city only is 3.6%.
Like most cities Melbourne has areas strongly categorized by their functions and available housing typologies. Large parts of the CBD are vibrant all night long as a result of increased amounts of services being able to be open where people stay on the streets even after dark. But there are also parts empty in the very heart of the city; blocks mostly occupied by offices changes character completely after office hours; restaurants and cafes close, the streets become empty and little activity is happening except a few gyms open for late working business people. An example is the west end of Bourke Street, often called "the legal precinct", in which most services close at 5pm. A similar problem is prevalent in housing estate areas, but during the day when most people are at work. Activity centres and mixed service streets such as Swanston Street or Bridge Road have a better ability to deal with this, since people both work and live in the area. The successful pedestrian concept from the CBD could benefit the life in many more streets in the city if implemented in more places.



Walk only journeys, graph developed from Pedestrian Access strategy, 2010 [79]

LAND USE AND GREENERY

Australia has in terms of land use and agriculture a fairly sustainable outlook; being a self sustaining continent much food is produced within the country. Melbourne has also given much room for green areas, with a long history of saving historical reserves protected from urban development. This provides the city with an opportunity to continuously foster the green areas in new ways to keep them attractive with functions like urban agriculture or community gardening.

Melbourne has several large planted parks and green areas and has protected them well from overexploitation. This has resulted in several well-managed parks around town; Royal Botanical Gardens, Fitzroy Garden and Albert Park to mention a few. A centrally located park is Flagstaff Gardens, a former cemetery now heritage protected from future changes. (80) There are also several green wedges around the Melbourne SD, which improves the conditions for wildlife within the large 7,673km^2 built up area of the city.

Fitzroy Gardens

Laneways in the CBD are filled with activity and creatiity most hours of the day and add many values to the city

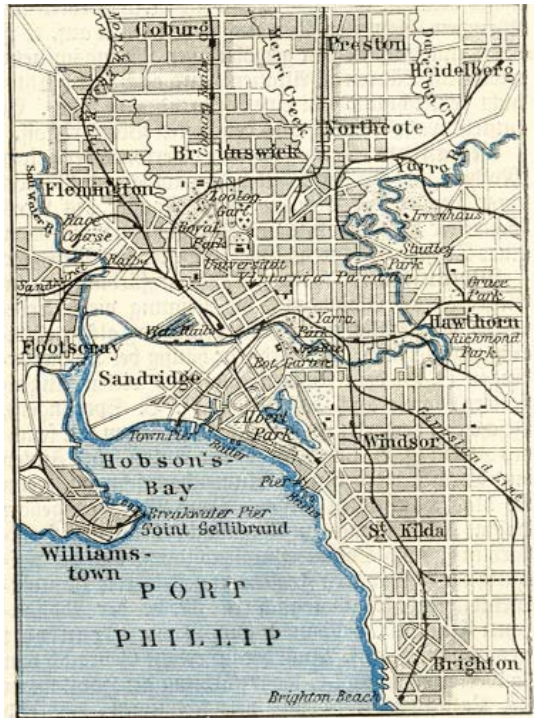
HISTORY AND URBAN CHARACTER VALUES

The Melbourne city grid was first laid out in 1837 by government surveyor Robert Hoddle. It was done together with Governor Bourke who insisted in putting in a few extra smaller east-west bound streets, today noticeable with the prefix “little” in front of the street names. The city had a prime time being somewhat a metropolis for its time during the 1880s and was called “Marvellous Melbourne”.[81] Many of the historically important buildings are from around this time, together with the early 1900 when Melbourne was the first capital of the Australian nation for 27 years.

In the period before WWI new building techniques such as reinforced concrete and innovations like electric street lighting changed the city a immensely. At the same time large department stores opened, modernising the concept of shopping away from the street side commercial activities. Height restrictions were imposed in Melbourne in 1916 prohibiting buildings taller than 132 feet (12 stories) due to a fear of congestion and a strong “City Beautiful” movement (which had Paris as role model for planning). The Great Depression in the 1930s and material restrictions during WWII caused a slower development speed but the city grew again in the 1950s, often visibly by introducing new building styles typical for that period. A plot-ratio was introduced in the early 1960s as a replacement for the previous height limit, favouring the ideal of freestanding buildings with open space ground levels. Numerous old buildings were torn down to create vacant blocks for new office buildings in 1960s & 1970s style at the same time as the city centre started losing population to the suburbs. [82]

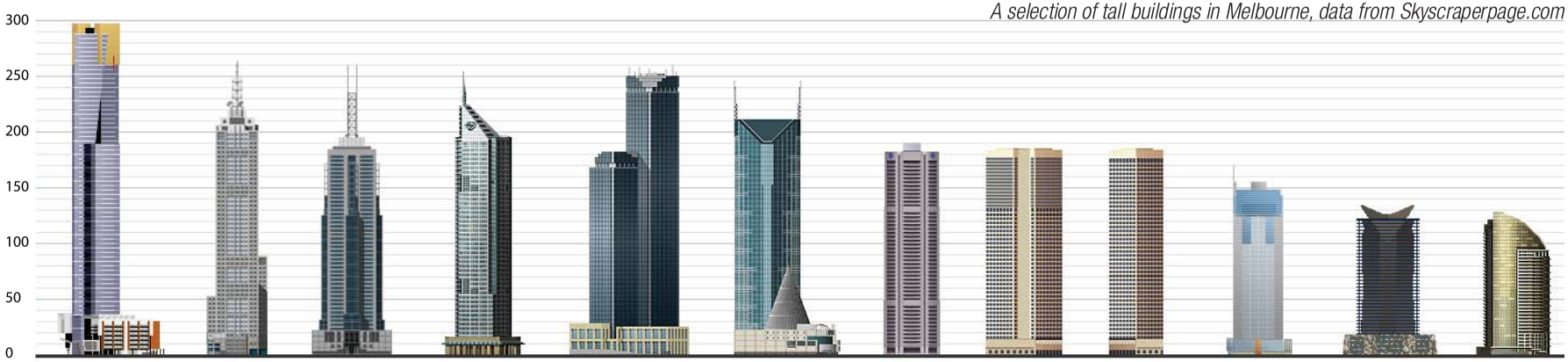
A building boom occurred in the 1980s and early 1990s; large buildings over 50 stories were introduced and the gaps in the streetscapes from the 1960s started to be filled in. In the 1980s the Caine government initiated a project to make public spaces in the CBD more attractive; large efforts were put in improving pedestrian environments, arts facilities were upgraded and in areas like Southbank and the shopping strips on Bourke Street and Swanston Street were developed. Laneways became a popular place to gather and increased the popularity of the CBD by offering small scale narrow lanes with European style cafes, restaurants and bars. At the same time a project called Postcode 3000 attracted more people to live in the CBD again; the population grew immensely and the busy urban street life became what it is today.[83] There are today about 60 buildings taller than 30 stories, measuring a 100 meters or more.[84] The tallest building in Melbourne is the Eureka Tower on Southbank, with a total of 92 floors measuring 297 meters from the ground. [85]

The Economist rated Melbourne as the second most liveable city in the world on 2010, while the magazine Monocle rated Melbourne as 9th in their “Most liveable cities index” the same year. [86] However, it only ranked 25 in Mercers 2010 EcoCity listing, which is based on criteria such as water availability, water potability, waste removal, sewage, air pollution and traffic congestion. [87] But from a global perspective, competing with 221 cities in the latter survey, it still ranks high. The qualities of life are many in Melbourne but the question is how much they cost environmentally.

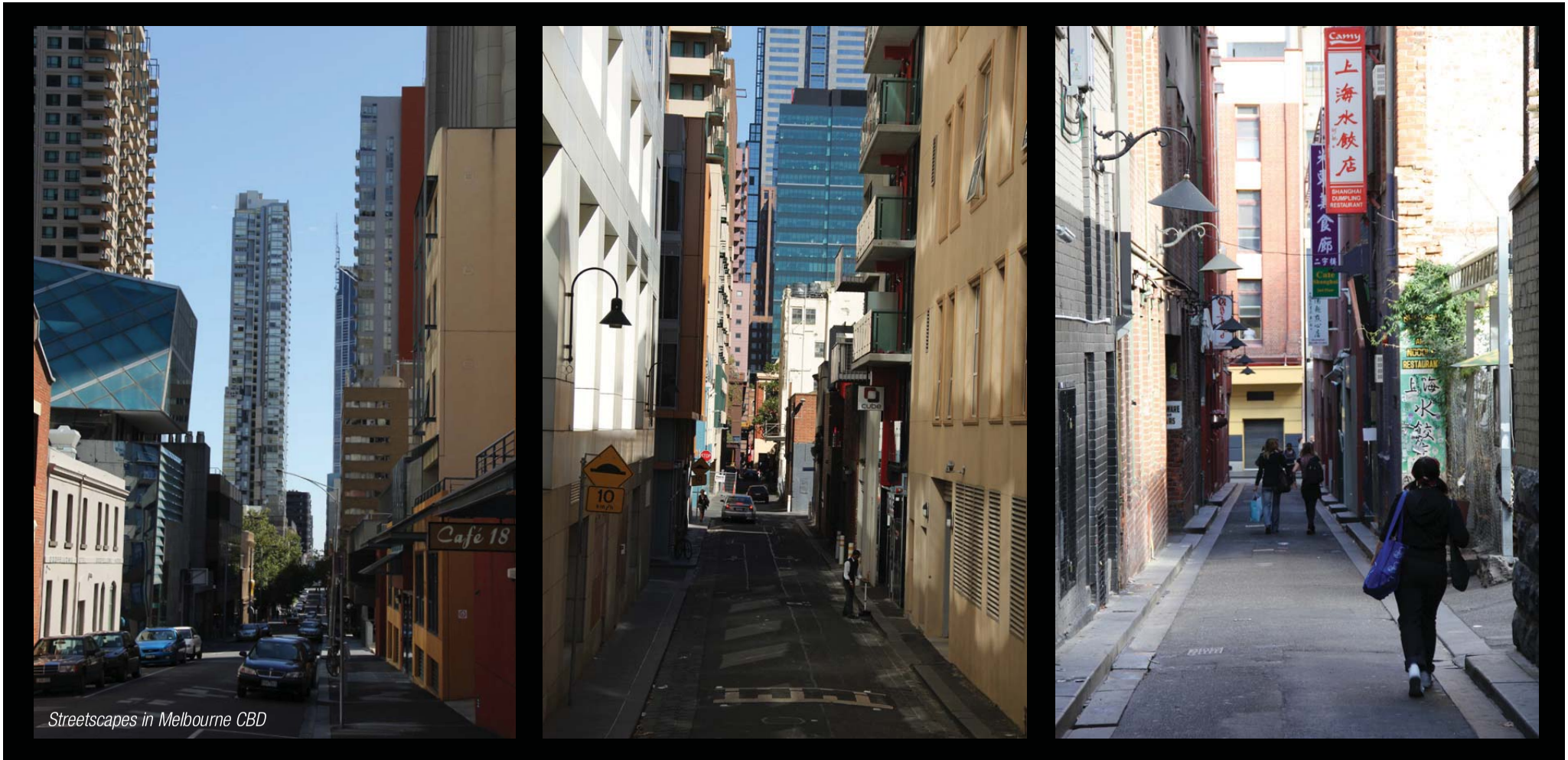


Melbourne 1890 [88]

A selection of tall buildings in Melbourne, data from Skyscraperpage.com



Residential	Offices	Offices	Offices	Offices	Offices	Offices	Mixed use	Offices	Residential	Residential	Residential
297m	262m	260m	253m	270m	246m	190m	185m	185m	170m	134m	128m
91 floors	52 floors	50 floors	53 floors	63 floors	54 floors	50 floors	50 floors	46 floors	45 floors	41 floors	45 floors
built 2006	built 1991	built 1991	built 1991	built 1986	built 1991	built 1977	built 1981	built 1980	built 2006	built 2004	built 2005
Soutbank	CBD	CBD	CBD	CBD	CBD	CBD	CBD	CBD	CBD	Docklands	Docklands

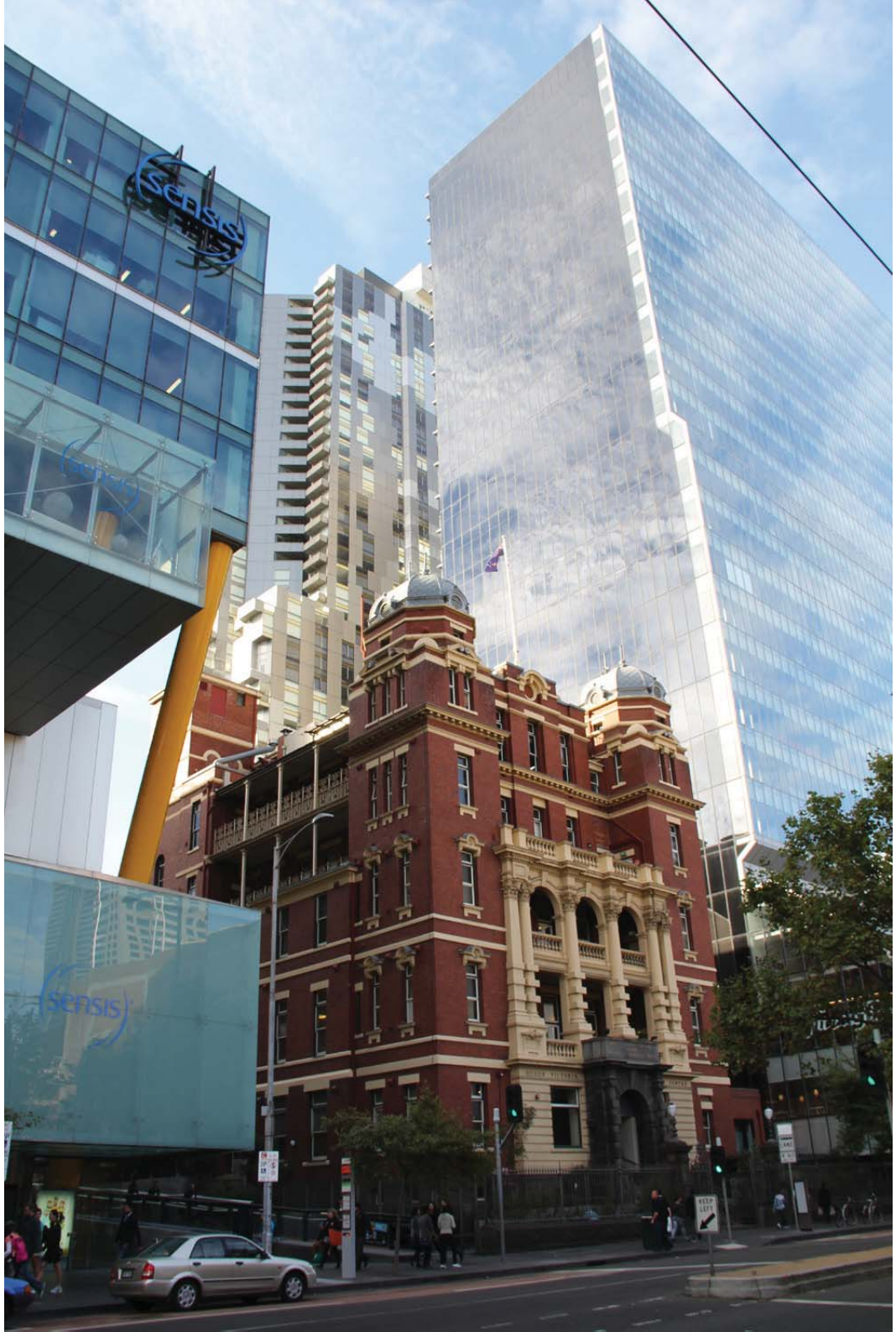


Streetscapes in Melbourne CBD

HERITAGE

Melbourne City Centre today shows few signs of the old industrial harbour city it used to be, since the redevelopments on Yarra River sites occurred from the 1970s. But a substantial number of old public buildings in the CBD have been saved by the Heritage Council Victoria, the one out of three heritage oriented governmental departments that focus on the built environment. The historic layer of Melbourne is rather young compared to European cities due to the late settlement, but heritage listings already contains about 500 identified historic buildings.[89] The heritage regulations protect the old structures of the city and also prevent the urban character from becoming too monolithic, which would be a risk with only new buildings in the city.

Each heritage assessed building with cultural heritage significance and streetscapes located within the City of Melbourne has been graded according to its importance in the Planning scheme Heritage Places Inventory. Streetscapes, that are complete collections of buildings along a street frontage, have also been assessed and graded. [90] These streetscapes are collections of buildings outstanding "either because they are a particularly well preserved group from a similar period or style, or because they are highly significant buildings in their own right." [91] The protection of buildings however seems more important; even the highest level of protection for streets offer possibilities for total redesign. A commonly used technique in Melbourne has in the last years been to keep only the street façades



Typical street façades on Bridge Road


Corner property on Victoria Road

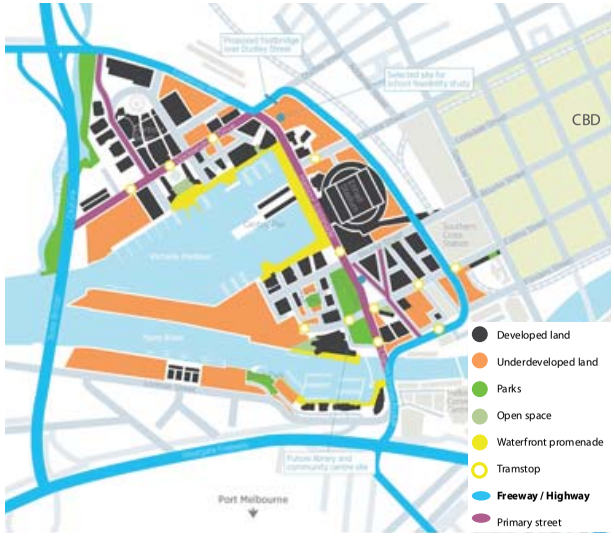
and gut the rest of the property. That enables new buildings with modern fittings and technology at the same time as keeping the character of the street.
It may not be the most considerate way of keeping heritage values but can be useful when the quality of the construction is too weak to refurbish into a higher standard or density.

EXISTING SOLUTIONS TO GROWTH

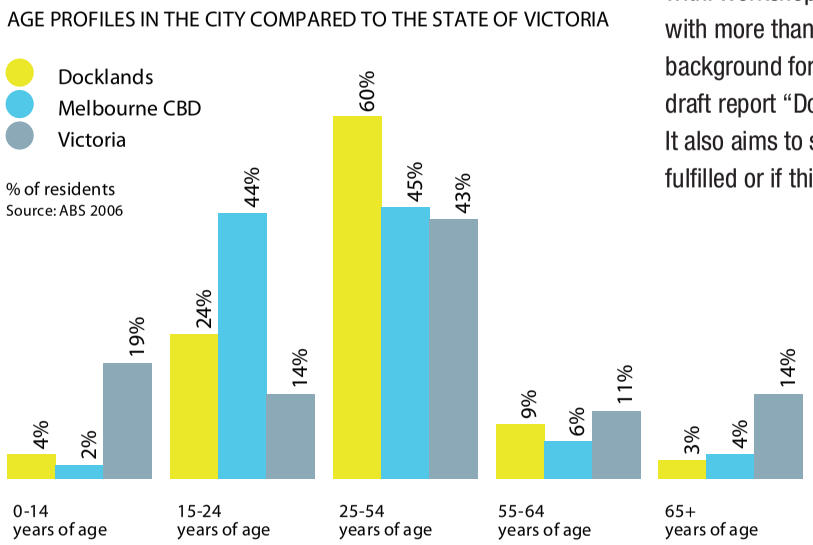
DOCKLANDS - A WATERFRONT REDEVELOPMENT AREA

One attempt to densify Melbourne today is Docklands, a former industrial harbour area now entirely redeveloped since the 1990s. It is geographically close to the CBD in Melbourne and in a good strategic position for redevelopment, but has had some problems integrating with the city. The main issue is a large railway yard, highway and sports stadium located in between the two, cutting off the area from visitors. There are infrastructure connections such as the extension of the tram network, which attempt to attract people to Docklands. But despite the proximity to the CBD one gets a feeling of not belonging there; hence people leave quickly again. Docklands is an example where even though redevelopment of an area is done in stages, it lacks enough remnants of the old harbour character to create enough soul and architectural diversity.

There are several similar waterfront development precedents that seem to have comparable issues; Glasgow, Gothenburg, and Hamburg. They all seem to have a problem with connecting the new area to the existing city; no matter what the barrier is. Possible flaws in the planning also seem to be related to the stakeholders; the social structure is too uniform and needs more diversity. “According to CBS 2006 census the Docklands residents were predominantly professional singles or couples, with higher income and labour force participation rates than was average for either the Melbourne CBD or Victoria. Residents were also younger than the Australian average, and more than half of them were born overseas. This demographic profile is consistent with the precinct’s inner city location and the one and two bedroom high-rise apartments that are its main residential offering”. [92] The age brackets in the demographical description are however rather wide; ages 25-54 were placed in one category, hiding the fact that the majority in the group seem to be over 40 years old.



Development status of Docklands from VicUrban, July 2010 [94]



Demographics in Docklands compared the CBD and Victoria [93]

An analysis of Docklands took place in 2010 to see what could be learned from the outcomes, defining challenges left to work with. Workshops and online discussions with more than 3700 people have been the background for new goals described in a draft report “Docklands, The second Decade”. It also aims to see if intentions have been fulfilled or if things went another direction. Gehl

architects have again been hired as “urban quality consultants” and have looked at the human scale of the development such as the waterfront details and pedestrian paths. A number of ambitious goals have been set with more stakeholders involved; trying to shape Docklands to become more diverse and sustainable, something that hopefully can be implemented after the complete report is finished in mid 2011.

The focus on economic investments shine clear: “Docklands has now enjoyed more than a decade of solid growth – $6 billion of investment attracting residents, visitors, businesses and jobs”
-Justin Madden- former minister of planning in the report “Docklands, the first decade”

View from Docklands towards the CBD

SOUTHBANK

Southbank is an area that started to grow in the 1990s at the same time as the pedestrian revolution took place in the CBD. It is a rather gentrified area, but now growing as an activity and arts centre, with plenty of functions such as galleries, concert halls, restaurants and shopping, hotels and a casino. As the more successful waterfront development area in Melbourne, Southbank is very popular to tourists and has several good pedestrian bridges connecting the area with the CBD despite having the railway blocking the river area from Flinders Street. There are less rail tracks along Flinders Street than towards Docklands and the tracks are elevated above street level which makes it less visually and physically intrusive to pedestrian life.

POLITICALLY PLANNED DEVELOPMENTS

FISHERMANS BEND

Located on vast old industrial grounds near Port Melbourne, the Fishermans Bend development area will be more than three times the size of Docklands. According to newspapers the new area will be developed for 70 000 people and cover 200 hectares of land; an enormous figure compared to Docklands that is built to cater for 15 000 people. [95] Planning Minister Matthew Guy says; “the Kennett government had a vision for Docklands, the Cain government saw [a vision for] Southbank - and now the Baillieu government has a vision for Fishermans Bend”. [96] This indicates that the government want to make this their significant planning proposal for Melbourne. The area is located in Port Philip LGA and is geographically close to the centre, but is totally disconnected from existing public transport network. Located southwest of Southbank it could become well connected to the city, but the West Gate Freeway cuts the area off rather abruptly. Mayor of Port Philip Council Rachel Powning, also sees infrastructure as a major issue; “It is essential that all necessary infrastructure is provided prior to residential development in this area in order to create a truly sustainable new suburb. This includes consideration of public transport connections, infrastructure upgrades to all services and consideration of social infrastructure needs for future population.” [97]
Due to the proximity to water on both sides this development might become a second Docklands if planned without considerations of lessons learned from the Docklands area. There is a high risk of creating a development reserved for a few rich sections of the society with a limited age group. The challenges of developing in a former industry area should also be considered; polluted lands must be sanitized and may create problems for developing such an area for housing. Thus there are many issues to solve before building on this site; it would increase the density of the city and provide with more housing but if the infrastructure problems are not solved first it risks becoming yet another suburb. Such a large area also needs to be developed in stages and the area proposed is far too big to present a diverse quality and in some way faces the same challenges as Masdar if intentions are not followed through to the last stage. A carefully designed time frame together with community involvement and future resident requirements will need to be combined with high standards of sustainability and transport connections.

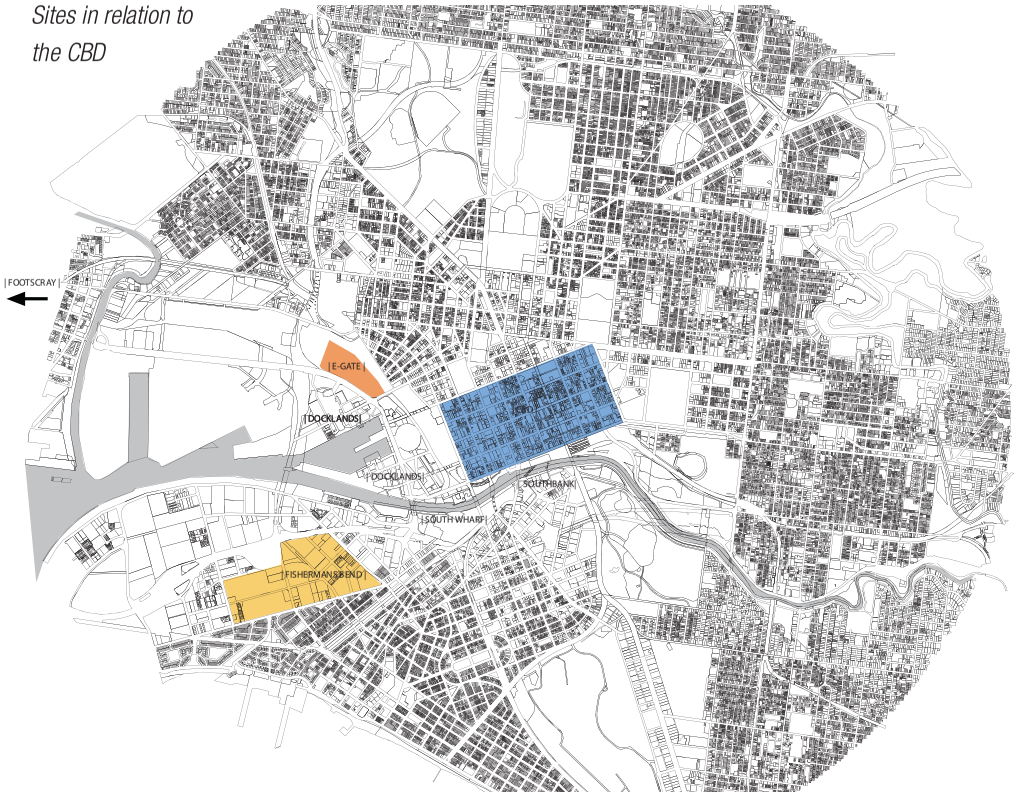
E-GATE

The detailed plans of E-gate were released in March 2011 by the The Age newspaper as a follow up to long existing plans for the area. “The government confirmed E-gate would be the first big part of its plan to shift urban growth from Melbourne’s fringes to its heart” indicating that the government wants to put efforts into densifying the city centre. [98] E-gate is a constructive clever addition to the city, mostly because it can use and connect to existing tram infrastructure and can easily reach the city centre by bike in terms of distance and barriers. According to the article the area would be pedestrian friendly but not car free, and is supposedly aimed for affordable housing. The nearby Footscray road is planned as a boulevard and the “suburb” (as the government choose to call it) would be inspired by the Hoddle grid. This plan is especially good since it in many ways would assist in connecting Docklands with surrounding areas. The question is how this area could be connected further to the CBD, bridging the railway barrier both physically and mentally.

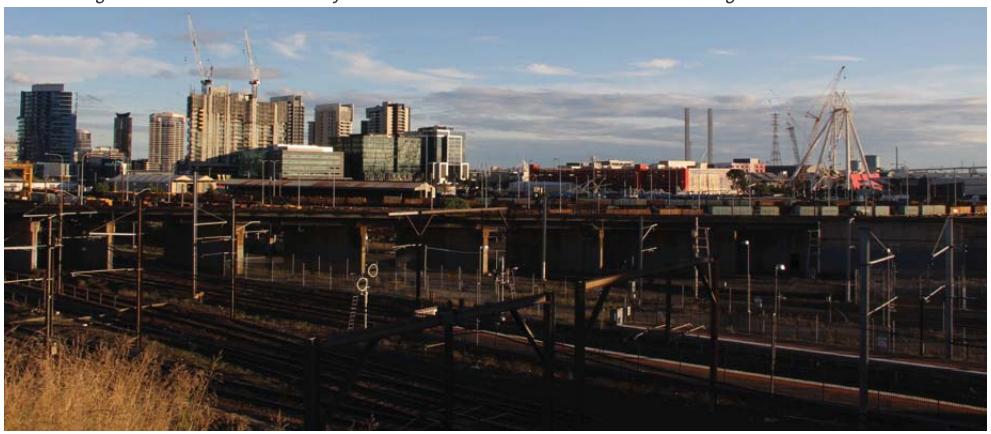
OTHER DEVELOPMENTS

There are a number of other development areas; Footscray, Tarneit, Lockerbie, Kalkallo, Moonee Valley Racecourse, Spring Ridge and Wallara Waters, the list is long. They are either initiated by the government or have emerged as a result of developers buying land on speculation. The common factor is that most of them are located on or close to the city fringe; not the most optimal if sprawl is to be curbed.

Sites in relation to the CBD



View of E-gate located on the old railyard area with Docklands visible in the background



THE HOUSING MARKET AND ITS AFFORDABILITY

The market in Melbourne is characterized by private home ownership, with rather expensive renting possibilities. There is very little cheap public housing, which generally has a bad reputation of only housing people on the outskirts of society with economic, social or criminal problems. This however refers to a limited view on Commission Flats, and not rental housing for the general public market owned by companies connected to the government. Many young Melbournians are either renting expensive flats and town houses, commonly done in share housing conditions to keep costs down, or buying property further away from the city centre. Much newly released property on the market is bought by investors, who are able to sublet the housing at expensive rates due to the desperate need for more housing.

There are major concerns in Victoria that housing prices are increasing too much, which puts pressure on governments to make land available on the city fringes where land that is normally cheaper than in central locations.[99] These will most probably be developed as traditional one family housing adding to the sprawl most likely increasing the urban footprint of Melbourne. Australia did not get affected by the global financial crisis as much as other parts of the world which of course affects the market. Housing prices rose by 33% from 2008 to 2010 creating a large political discussion about affordability during the government elections campaigns in 2010.[100] The median house price in December 2010 for metropolitan Melbourne was $601 500 AUD (3.9 million SEK), at the same time at the price in the inner city suburbs (10krm from CBD) was $881 500 AUD (5.8 million SEK) according to Real Estate Institute of Victoria.[101] This creates difficulties for first time buyers and creates a demand for renting. What many also see as an option is to buy a small house on a cheaper city fringe property. The common belief in the “Australian dream” housing typology attracts families with children to these areas and caters for a large group of the ageing generation. The suburban areas differ to each other in terms of income levels (and thus the market price levels) depending on popularity; there is a certain increase in household income towards the east and south along the coast line. One attempt to improve the situation for first home buyers is to give young people a grant of 7000 AUD when purchasing a property worth less than 750 000 AUD. This is topped up by another grant for people purchasing newly constructed housing. [102] The goal is to enable more people to buy, but has instead resulted in a massively increased prices due to the stiff competition for affordable housing.

Overseas born residents have according to officials at The City of Melbourne LGA council historically been more likely to live in dwellings rented from estate agents, public housing authorities or others. Most of these are also living in apartment buildings over four stories and are more likely to live in such than Australian born residents who predominantly live in “none family” households meaning lone households or shared dwellings like student housing situations. [103]

A trend of the last few years has been developers turning directly to student stakeholders when building flats. The formerly mentioned downturn of international students has affected the market quite a lot and much newly built student housing is now empty. The Age’s Domain, a section covering housing and investment news, states that “arguably none has become a riskier place to put your money than purpose-built student accommodation.” [104] The problem is that even though student immigration is going to fluctuate over the years, it is important to keep building housing for them since forecasts shows it most likely will increase again. The problem is what kind of housing we build for them. Critics have pointed out that “the shoebox-sized units prove

Illustration by Tandberg, The Age, 31 March 2011

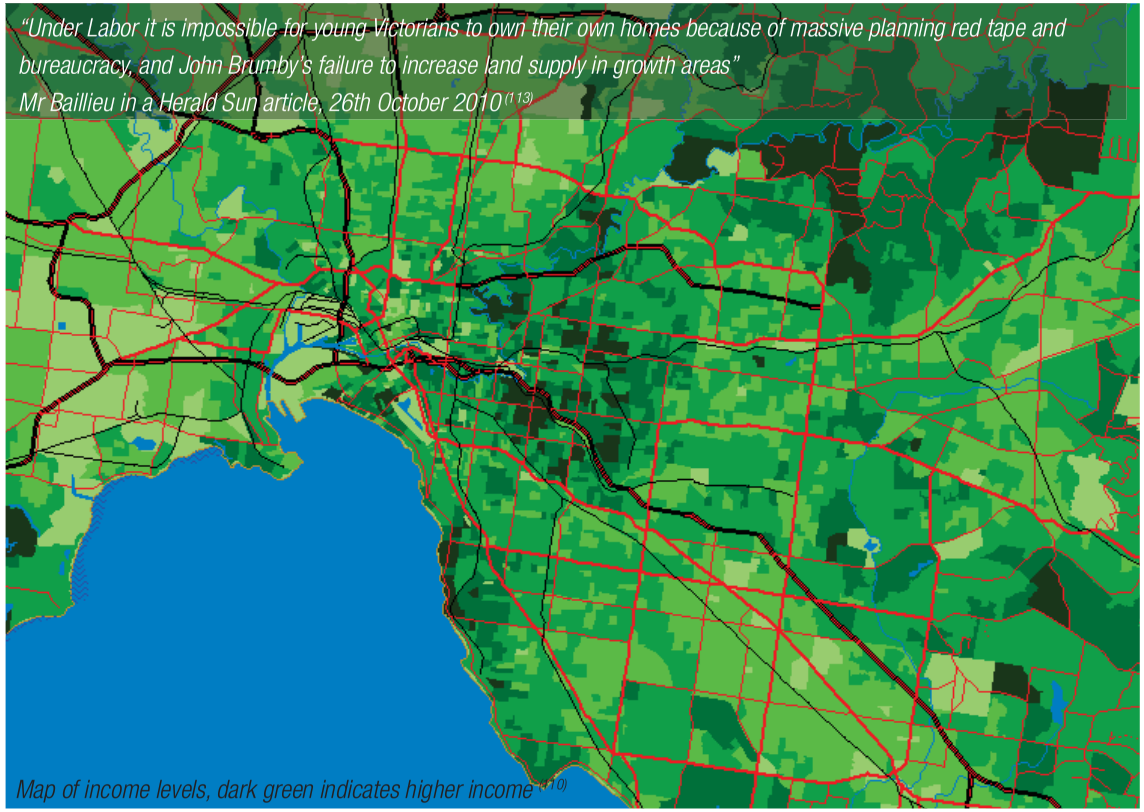
extremely difficult to rent to non-students" which displays a lack of understanding and flexibility for flats built solely for students. [105] The problem is rather that "a shoebox-sized" unit isn't really suitable for anyone. A better more dynamic view seems to be needed on student housing.

New inner-city projects have seemed focused on wealthy middle aged people, with flats impossible to transform into family or students housing. Ms Nicolson, an estate agent in Melbourne, is also noticing housing trends and says that "high and low-density apartments attract different types of buyers and renters…the high density apartment projects often include luxuries such as pools, tennis courts, saunas and gymnasiums". The latter are according to her "popular with empty nesters and high income professionals – many of whom even keep pets and start families in apartments". [106] This indicates a rather out of date view of housing and typical stakeholders amongst some professions working in the housing market. Surely there must be some other ways of categorizing stakeholders for different types of housing. High rise dense apartment developments do not need to be aimed at high income customers and include gyms or pools; a new more flexible approach to indentify stakeholders for new developments must be found.

The Melbourne housing market does now seem, despite still being expensive, to be settling a bit price wise. [107] This could lead to improved opportunities for more affordable housing development in central locations if the trend continues. Housing affordability is a major contributor to both the cost and standard of living, which also affects social sustainability.

The communications manager of Real Estate Institute of Victoria however says that "Melbournians have become more receptive to apartment living, with less demand for backyards and increased acceptance of medium density. But it is also due to the price signals and affordability and many people may not have another option." This proposes that people who wants to live in the city in general are forced to live in smaller, expensive flats. Robert Larocca at the Real Estate Institute of Victoria says; "We need to address the affordability issue by increasing the number of homes that are available…Melbourne's housing needs have to increasingly be met by increased density in existing areas". [109] I strongly agree; by increasing the number of housing options available prices would not be pushed up to such high levels. What is needed is more affordable housing for a mixed group of stakeholders in the centre of the city. This way diverse and attractive area for everyone can be created.

"Under Labor it is impossible for young Victorians to own their own homes because of massive planning red tape and bureaucracy, and John Brumby's failure to increase land supply in growth areas"
Mr Baillieu in a Herald Sun article, 26th October 2010 [113]



Map of income levels, dark green indicates higher income [110]

YESTERDAYS POLITICS AND ONWARDS

There are an large amount of published reports from various bodies within the Victorian Government about how to increase the sustainability of Melbourne; increased biking, improved pedestrian conditions, extended rail service, manage metropolitan growth, a more inclusive city, planning for greenery- the list is long. But what strikes me is how little these reports seem to have made an impact. Melbourne is still largely car dependant and is still continuing to sprawl further. The city centre is on the forefront of design and planning for pedestrians, but the CBD still goes in to gridlock during rush hour and special events on the weekends. The infrastructure issues in the CBD are acute and needs to be dealt with rather soon. The political system plays a large role in this by choosing what to focus efforts on. The two major parties are rather similar in terms of political colour and could undoubtedly benefit from using reports published during each other's governing period. But they seem to have issues with implementing any of these reports as if the similarities between the parties trigger them to act in a way to make them stand out from each other. There is also an issue with time; there is not enough time to implement ideas until the next party comes to power, changing policies and moving away from the former initiatives.

"In the next 30 years, Melbourne will grow by up to one million people and will consolidate its reputation as one of the most liveable, attractive and prosperous areas in the world for residents, business and visitors" (111)

The quote was last updated in 2005, as a part of the Bracks government initiative to create a growth plan for Melbourne, and I am sure most politicians regardless of party would agree on the statement. Melbourne 2030 was first published in October 2002 as an extension of the "Melbourne at 5 Million" report, and had a wide range of optimistic and ambitious plans on how to develop the city in a more sustainable way. Initialized by the Labor government in Victoria it was a key document for implementing a more sustainable future for Melbourne. It has now been thrown away from the political agenda after the Baillieu government won the state election in December 2010.

Transport, one of the most important issues to solve in the next few years, dominated a large part of the report. The previous minister for Transport, Peter Batchelor, said in the report is that transport "proved to be the feature Melbournians most and least liked about their city" which to a large extent sums up the paradigm of the city. The train and the tram networks are largely appreciated despite flaws, biking can really show the way for healthy carbon-dioxide free transport and most people seem to enjoy having large road infrastructure investments for their car use. But the congestion is causing problems, not only by increased time spent travelling, but also infecting the debate on who should be given priority in traffic. It appears to be a chicken and the egg problem; where to start and what to do in the meantime? A change in political focus from car use to public transport is needed, but as long as the infrastructure doesn't serve all people not much will happen. The public transport network is today very much centred around the CBD. Do governmental reports reach all inhabitants of Melbourne and do they feel benefited by them? If car users in the suburbs could be targeted with "we will improve your transport to work" instead of "we will build you a quicker road to work" a lot could be changed. The most recent addition to the discussion in Melbourne is a report called "Shall we dense?" trying to push the Victorian government in the direction towards less sprawl and increased density and argues that 25-30 dwellings per hectare is needed for an area to be more sustainable. If that would be implemented the growth of Melbourne for the next 20 years could be contained within its existing boundary according to RMIT expert Michael Buxton, who also argues that the sprawl in Melbourne is amongst the world's worst. (112)

If the government is to plan development around in suburbs, local centres will be vital when creating enough support to improve public transport in the suburbs. The question is if they are willing to do so, and if there will be enough time to implement such plans before another change in state government happens again. Will political directives have to come from the national government to be strong enough to last political changes? The truth to be told, I think all sides on the political stage should realize that sustainable urbanization of Melbourne needs to happen quicker than political discussions will allow.

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| GLOBAL |

| ARCHITECT |

| LOCAL |

| **SITE** |

| CRITERIA |

| PROPOSAL |

WHERE COULD A NEW REDEVELOPMENT TAKE PLACE?

URBAN STRUCTURE ANALYSIS

Managing growth in Melbourne can be done in many ways. There are a number of solutions already in plan by the government. However, these plans are not optimal for a few reasons. The main issues are that they are either located on the outskirts of the city, unreachable by existing public transport or located on sites without heritage layers, creating a challenge for architectural diversity. Politically located sites are also more sensitive to policy shifts but sometimes have the benefit of not being solely driven by economics. Developer and market based proposals can see potential in smaller sites and be more anchored architecturally but might overlook demands for different stakeholder groups.

EXPANSION OR RENEWAL?

Regardless of who is proposing redevelopment of a site, Melbourne needs to become more dense. Three main aspects should be considered for the location of new sites;

• IMPLEMENT A STRICT URBAN GROWTH BOUNDARY

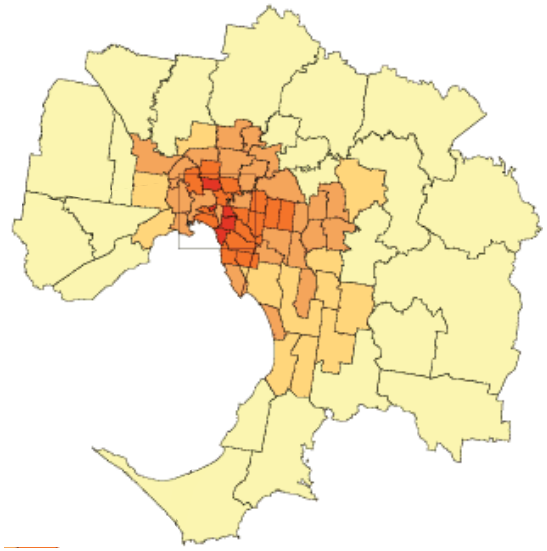
Only development projects within the boundary should be allowed to prevent further sprawl and a larger footprint. The boundary should apply to everyone, including large developers and political stakeholders. If brought up as a law for all Australian cities, the goal to become more sustainable could easier be implemented and newly elected parties would not be able to move nor remove the boundary.

• PLAN DEVELOPMENTS ALONG EXISTING TRANSPORT NODES AND EXTEND THEM

By highlighting and acknowledging the importance of higher density along the public transport nodes these areas can both be better served by local services and efficient transport to other areas of the city

• ENLARGE THE HIGH DENSITY INNER CITY AREA

Find sites in the city centre that can solve connectivity issues in the CBD to enable more efficient public transport



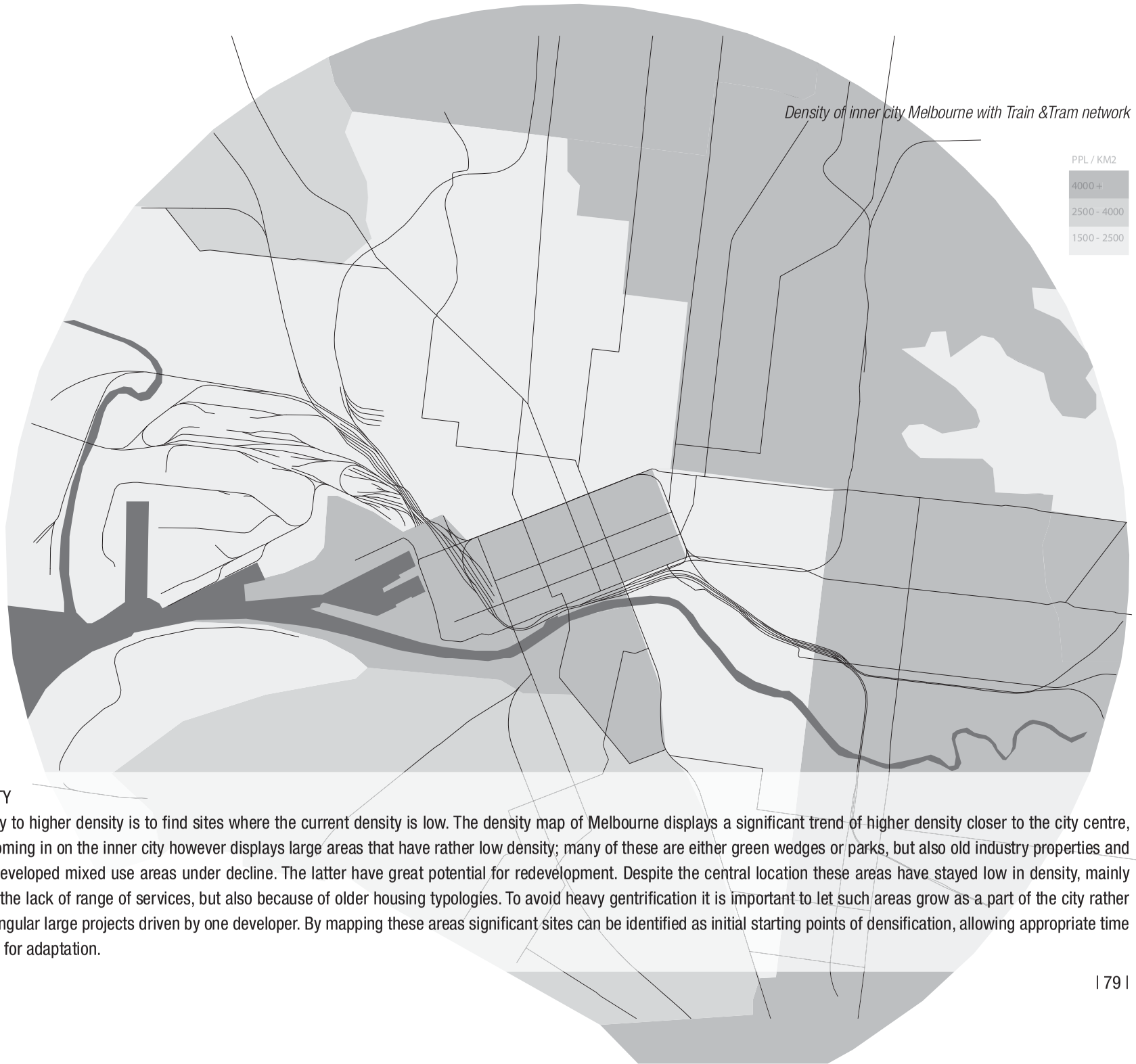
Density in Melbourne, image from ABS [1]

IMPLEMENTATION ASPECTS

I have chosen to focus on the third aspect for a few reasons. The Melbourne 2030 report has served as a background for my theoretical understanding of the city, and there are several aims in the report that have great potential for implementation. It has been important for me to find a site that corresponds to the goals of Melbourne 2030 report in combination to my conclusions from the theoretical analysis. The possibilities to implement these targets and findings have been a background for finding a site that could encompass as many of these targets as possible.

PROXIMITY TO EXISTING INFRASTRUCTURE

In addition to finding a site where there the existing density is low, the growth should be focused so that human transport issues can be handled in the specific area. I believe that by positioning developments close to existing infrastructure many benefits would be generated in terms of higher public transport frequencies due to larger amounts of people using it. The inner city of Melbourne is today the area with most efficient public transport with its tram and inner city train circle. This presents great opportunities for further improvements.



Density of inner city Melbourne with Train &Tram network

DENSITY

The key to higher density is to find sites where the current density is low. The density map of Melbourne displays a significant trend of higher density closer to the city centre, but zooming in on the inner city however displays large areas that have rather low density; many of these are either green wedges or parks, but also old industry properties and underdeveloped mixed use areas under decline. The latter have great potential for redevelopment. Despite the central location these areas have stayed low in density, mainly due to the lack of range of services, but also because of older housing typologies. To avoid heavy gentrification it is important to let such areas grow as a part of the city rather than singular large projects driven by one developer. By mapping these areas significant sites can be identified as initial starting points of densification, allowing appropriate time frames for adaptation.

THE THREAT OF RISING SEA LEVELS

Melbourne is a coastal town and like in many other cities there is a impending threat of water related climate change. “One of the major effects of climate change is likely to be global sea-level rise” and due to how far water reaches in to the city via rivers an assessment of potential harm should be done. [2] A recent study on threats of rising water levels show that large areas of Docklands and South Wharf would be under water if the water level rises with 110 cm. [3] The map to the right displays blue landmasses that would be under risk if the sea-level rose. Even though it might take many years before such a risk becomes reality building in such areas should be avoided if possible. Sea-level rise is only one threat of many, as has been shown with the recent flooding in Brisbane during early 2011.

The threat of rising sea water levels as assessed by Australian Coastal information [4]

URBAN CONNECTIVITY

There are many areas around the north of the city centre that could be utilized far more efficiently than today. What may be most striking when analysing the CBD today is how disconnected the new areas of Docklands and South Wharf are, and how distinct the borders of the CBD are. The two areas where the CBD extends well are towards Southbank in the south and new developments in the area around RMIT University in the north.

I would like to focus on how to make an insertion in the city that would assist Docklands to be less disconnected from the CBD at the same time as preparing for the E-gate development. Given the density analysis versus other criteria already mentioned, I've found that the insertion does not only become a question of density but also of other parameters of renewal. The connectivity parameters are given by a site's location with proximity to public transport and biking lanes, which can assist in promoting a changed mindset of personal travel. High population density can further provide good stability for services and could assist in increasing the support for efficient public transport.

The railyard cutting off Docklands (right) from the CBD (left)

Photo from VicUrban, Docklands Second Decade

EXTENDING THE CBD
| THE SITE |

The area north-west of the CBD has a key location working as a link between the CBD to the newer areas. The site has a strategic position in terms of public transport and is well connected for pedestrians from the CBD. Smaller industries, car shops and run down properties are today occupying the area and could easily be transformed in to a liveable environmentally smart area if redeveloped.
Depending on scale of interventions the site could become varying in density which could also generate a more diverse character. The existing number of services provides with opportunities of redeveloping the area in stages at the same time as it also could offer possibilities for a mixed use area.

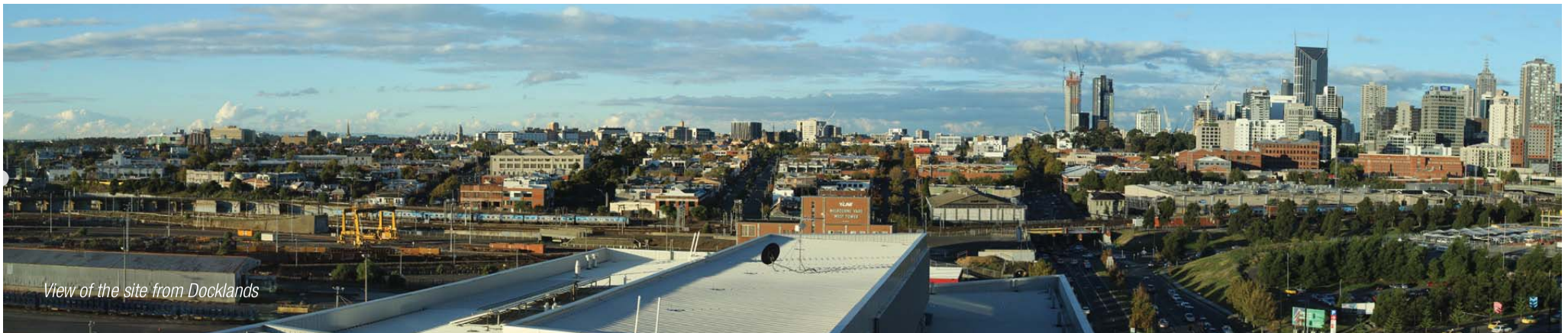
The redevelopment does not have to have sharp boundaries but can fluctuate, connect and stretch differently with its surroundings depending on each street blocks' qualities. A detailed mapping of the area has been done in order to create an understanding of the site. The following pages aims to describe the challenges and opportunities found on a deeper level that can be used to create concepts for renewal.

Site map from google.com from 2010

SITE CHALLENGES

- SCALE & CHARACTER
- DEMOGRAPHICS
- ROAD INFRASTRUCTURE
- PUBLIC TRANSPORT & SERVICES
- LAND USE AND GREENERY
- ZONING AND PLANNING
- HERITAGE

View from Victoria Market on the site towards south east and the RMIT area



View of the site from Docklands

CHARACTER AND SCALE

The site has a very low average building height compared to the CBD; around 1-5 stories compared to the CBDs 5-60 stories. Flagstaff Gardens and the area north of Latrobe Street mark the start of the changed characteristics, where the area turns almost suburban with its car dominated landscape. There are however some buildings with higher aesthetical values towards the north of the site, a few slightly derelict but still full of personality breathing atmosphere from the past.

View along King Street towards the CBD

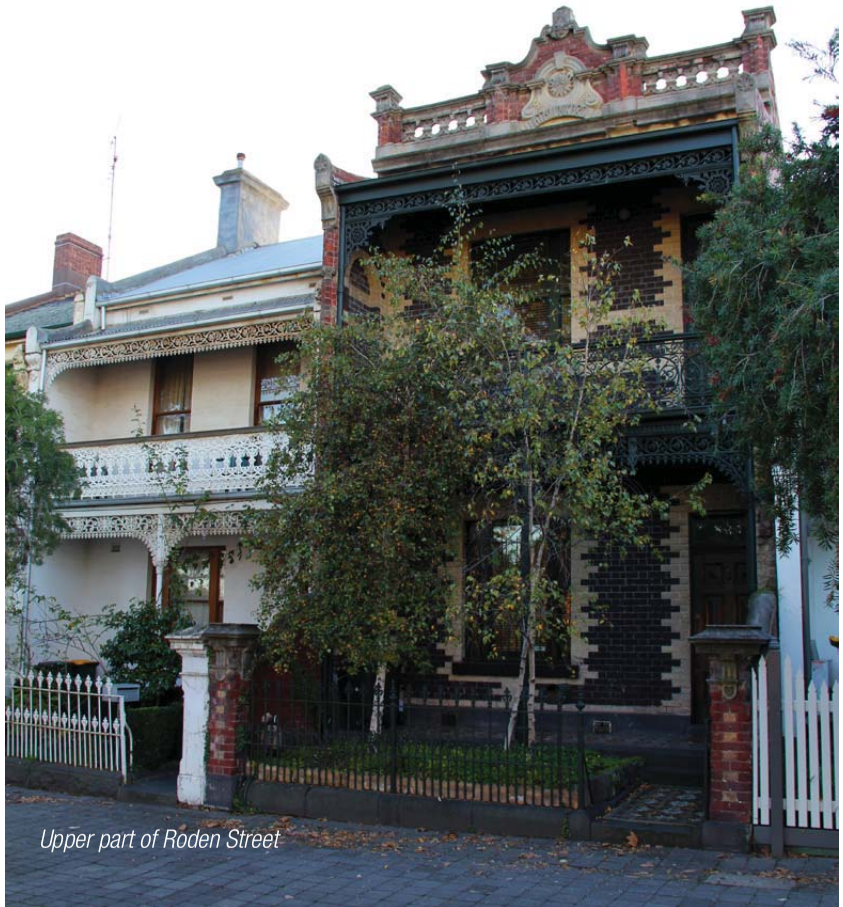
View on Hawke Street towards Docklands

View in the corner of Spencer Street and Dudley Street

Hawke Street

Upper part of Rosslyn Street

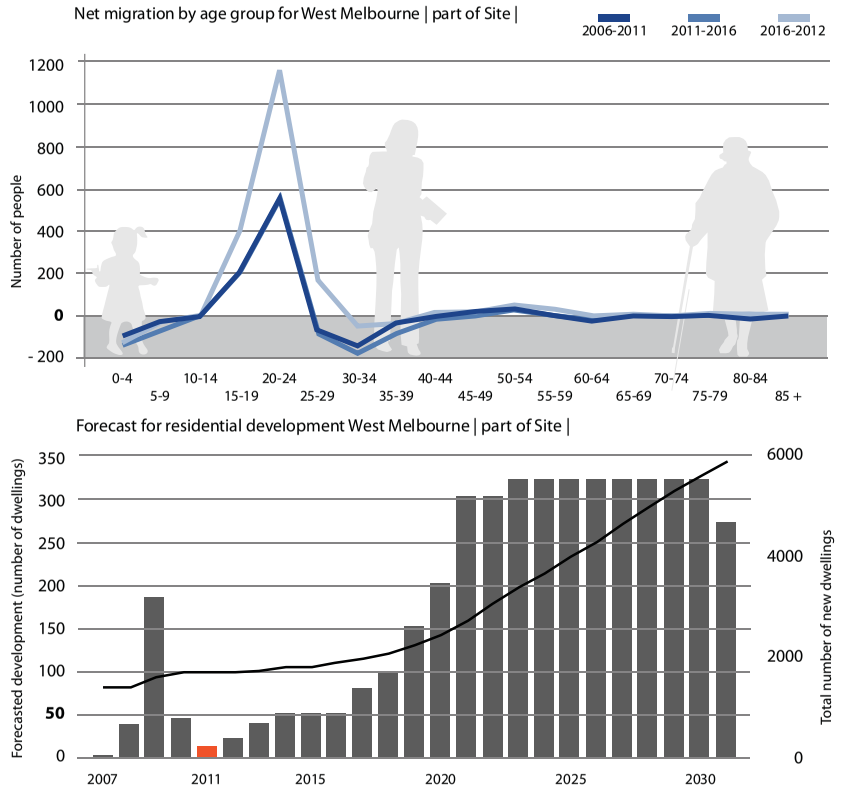
Corner of King Street and Rosslyn Street



Upper part of Roden Street

DEMOGRAPHICS

The site is not very densely populated and it becomes rather obvious that this is an area where people don't linger; most streets are empty both day and night. According to a forecast by the Government in Victoria, it is much likely that the population of West Melbourne, which includes the site, will grow the next coming years. Following the migration projections for the area this growth will consist of a large number of young people. Current trends show migration from the area of people aged 25-40, something that will change slightly according to the forecast. If these figures are wishful thinking or reality will not be clear for a while but developments in the area will need to take a standpoint for or against these projections, which may be affected by the proposed E-gate development.

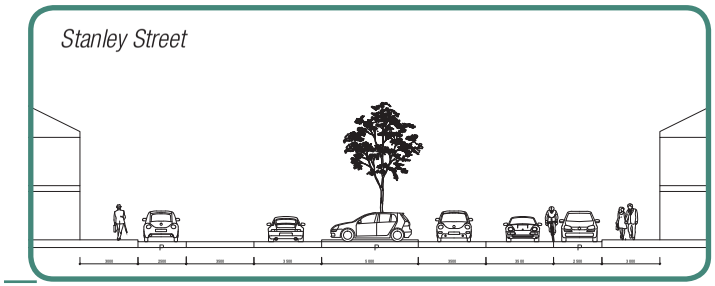


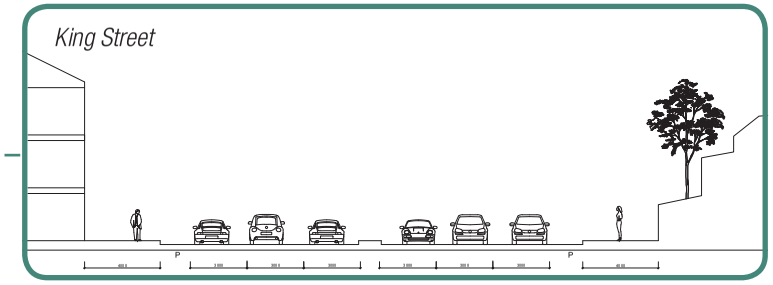
Demographic statistics for West Melbourne [5] , top Forecast for new dwellings West Melbourne [6], Graphs adapted from City of Melbourne data

ROAD INFRASTRUCTURE

When discussing urban areas the speed of the urban fabric can be relevant. The infrastructure through the site is rather heavy; Kings Street and Spencer Street cuts through the area going north towards Victoria Street, and creates the feeling of standing in a highway environment. The cars are everywhere and the streets are not somewhere you stop spontaniously, the tempo and noice levels are simply to high. These streets do however allow sight lines towards the CBD, in the same way that crossing streets such as Dudley Street, Rosslyn Street, Stanley Street and Roden Street visually connect to Docklands and the proposed E-gate area. These streets are wide and slightly overdimensioned, and much slower in pace since there is no through-traffic. These streets are large empty desolate strips, increasing the feeling of the area being one large parking lot dedicated to the car only.

TYPICAL STREET SECTIONS IN THE AREA



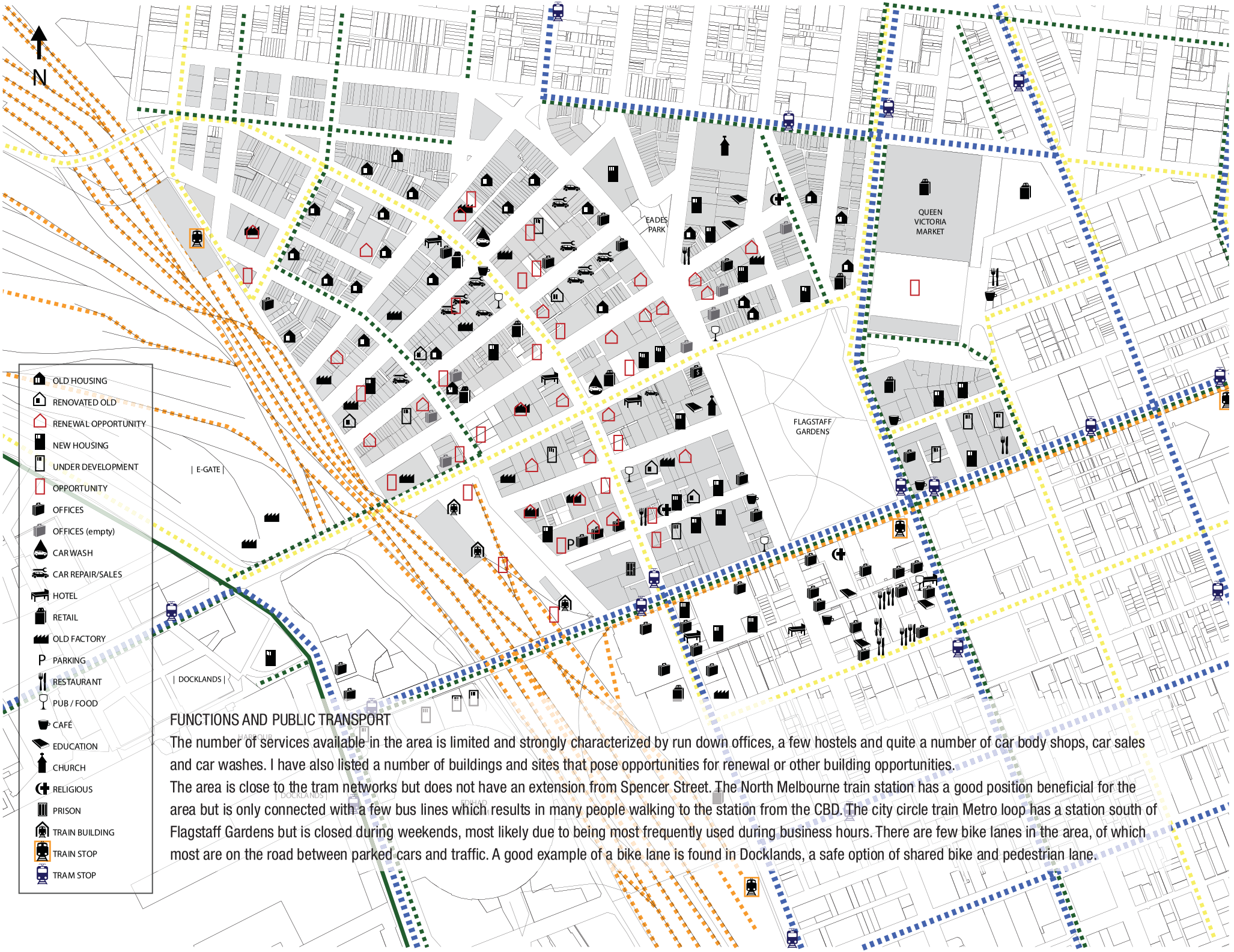


Mid lower part of Spencer Street


Upper part of King Street

Corner of Spencer Street and Latrobe Street


Corner of Rosslyn Street and Adderley Street towards south on Dudley Street



FUNCTIONS AND PUBLIC TRANSPORT

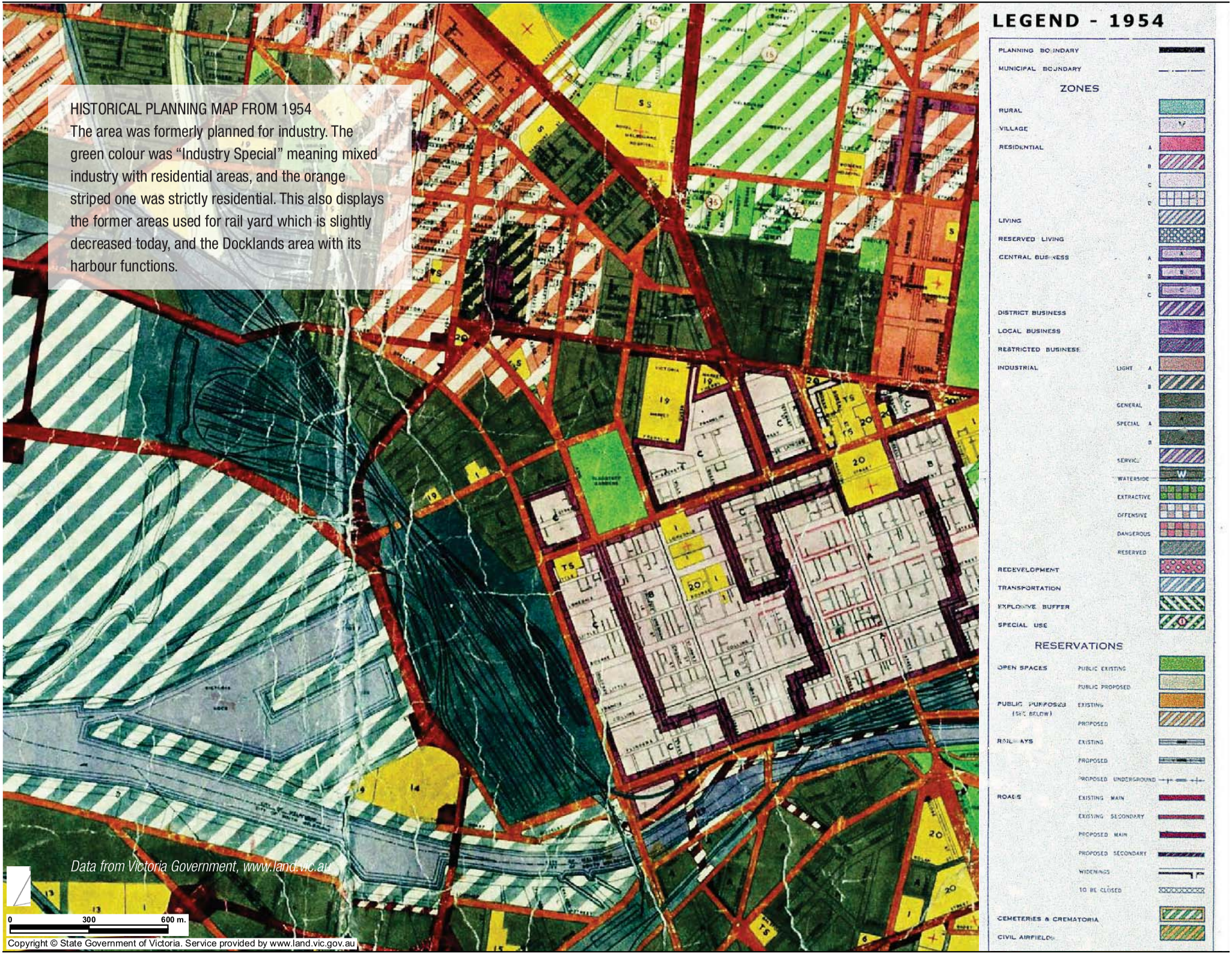
The number of services available in the area is limited and strongly characterized by run down offices, a few hostels and quite a number of car body shops, car sales and car washes. I have also listed a number of buildings and sites that pose opportunities for renewal or other building opportunities.

The area is close to the tram networks but does not have an extension from Spencer Street. The North Melbourne train station has a good position beneficial for the area but is only connected with a few bus lines which results in many people walking to the station from the CBD. The city circle train Metro loop has a station south of Flagstaff Gardens but is closed during weekends, most likely due to being most frequently used during business hours. There are few bike lanes in the area, of which most are on the road between parked cars and traffic. A good example of a bike lane is found in Docklands, a safe option of shared bike and pedestrian lane.

How much space does the car actually use?

LAND USE

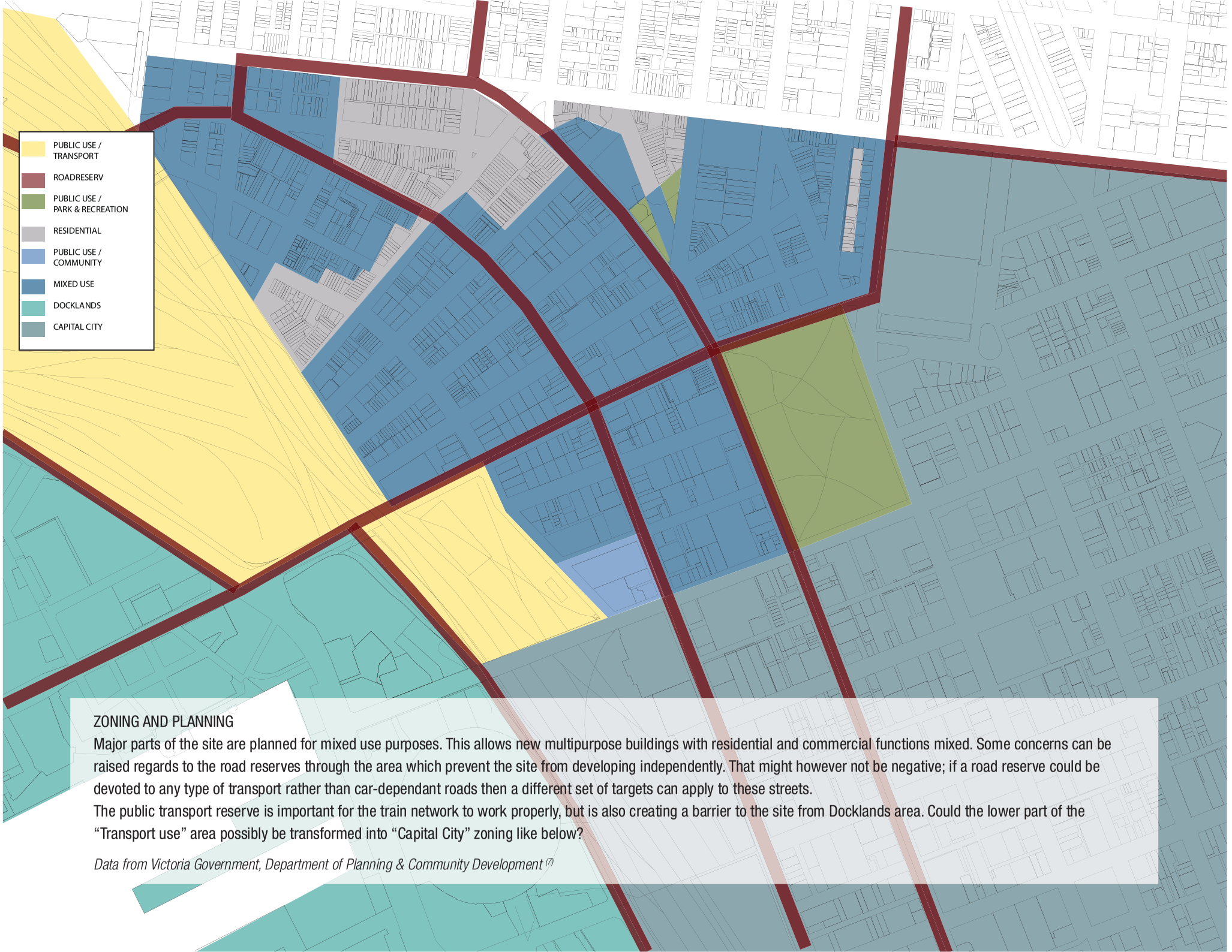
Large extents of this part of the city are used for rail yards. Because of slightly cheaper property prices there are also large amounts of cheap parking for surrounding offices and housing. The rail yard takes up a large amount of space and is bigger than it needs to be; a substantial amount of space is used for train depot, something that could be relocated according to a railway engineer working with rail signaling. Despite the low density there are few green areas except for the occasional trees between parking lots. Flagstaff Garden is the largest park, followed by Eades Place just north on King Street.



HISTORICAL PLANNING MAP FROM 1954

The area was formerly planned for industry. The green colour was “Industry Special” meaning mixed industry with residential areas, and the orange striped one was strictly residential. This also displays the former areas used for rail yard which is slightly decreased today, and the Docklands area with its harbour functions.

Data from Victoria Government, www.land.vic.au

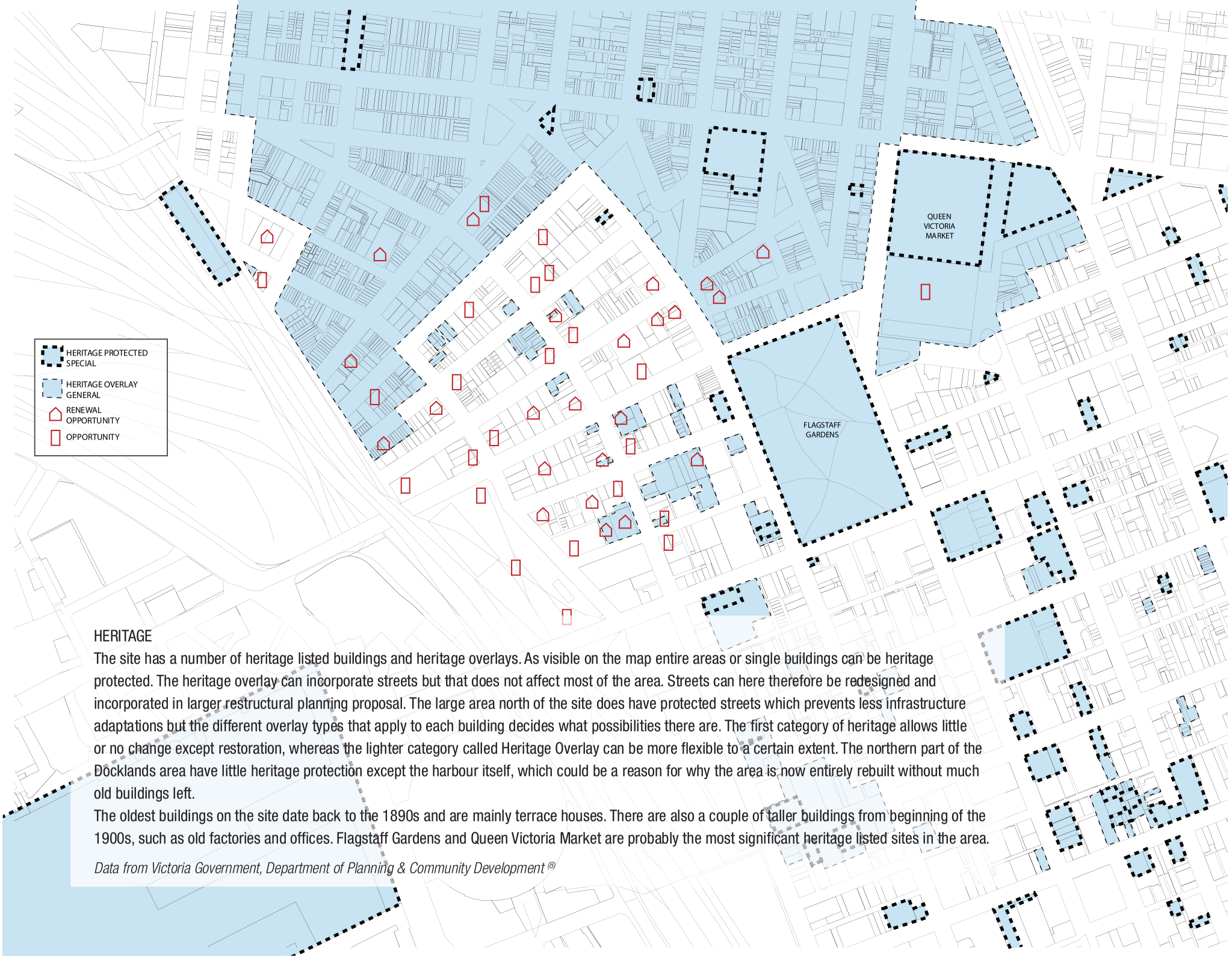


ZONING AND PLANNING

Major parts of the site are planned for mixed use purposes. This allows new multipurpose buildings with residential and commercial functions mixed. Some concerns can be raised regards to the road reserves through the area which prevent the site from developing independently. That might however not be negative; if a road reserve could be devoted to any type of transport rather than car-dependant roads then a different set of targets can apply to these streets.

The public transport reserve is important for the train network to work properly, but is also creating a barrier to the site from Docklands area. Could the lower part of the "Transport use" area possibly be transformed into "Capital City" zoning like below?

Data from Victoria Government, Department of Planning & Community Development [7]



HERITAGE

The site has a number of heritage listed buildings and heritage overlays. As visible on the map entire areas or single buildings can be heritage protected. The heritage overlay can incorporate streets but that does not affect most of the area. Streets can here therefore be redesigned and incorporated in larger restructural planning proposal. The large area north of the site does have protected streets which prevents less infrastructure adaptations but the different overlay types that apply to each building decides what possibilities there are. The first category of heritage allows little or no change except restoration, whereas the lighter category called Heritage Overlay can be more flexible to a certain extent. The northern part of the Docklands area have little heritage protection except the harbour itself, which could be a reason for why the area is now entirely rebuilt without much old buildings left.

The oldest buildings on the site date back to the 1890s and are mainly terrace houses. There are also a couple of taller buildings from beginning of the 1900s, such as old factories and offices. Flagstaff Gardens and Queen Victoria Market are probably the most significant heritage listed sites in the area.

Data from Victoria Government, Department of Planning & Community Development [8]

SITE SWOT ANALYSIS

S

HERITAGE & BUILT ENVIRONMENT
- -Historical character north on the site

LOCATION
- -Proximity to CDB
- -Proximity to transport
- -Secure from flooding
- -View and visual connections

GREENERY
- -Possibilities of new green areas
- -Flagstaff Garden on site

PUBLIC TRANSPORT
- -North Melbourne Train station

W

DISCONNECTED
- -Does not feel like part of the CBD
- -Cut off from Docklands by railyard
- -Feels like the backside of CBD

UNATTRACTIVE
- -Lack of public services
- -Lack of restaurants and cafés

HERITAGE & BUILT ENVIRONMENT
- -Derelict structures
- -Overdimensioned asphalt areas
- -Suburban car dominated street character with low density

TRAFFIC
- -Heavy traffic through the area

PUBLIC TRANSPORT
- -No trams
- -Possible noise from trains

O

HERITAGE & BUILT ENVIRONMENT
- -Existing historic mesh could be used to create character
- -Density can be increased by building on existing structures

SPACE AVAILABLE
- -Empty / neglected plots
- -Space for pedestrians & biking lanes
- -Could connect well with CBD
- -Old rail yard could be used to shorten the distance to Docklands

PUBLIC TRANSPORT
- -Easy to extend existing tramlines

T

HERITAGE & BUILT ENVIRONMENT
- -Heritage could be destroyed if redeveloped

Degradation if no action is taken
- - Further decline could lead to massive demolition
- -Overdevelopment for economic gains

TRAFFIC
- -Infrastructure could take over character

POLITICS
- -Political initiatives could prevent development

(1) Australian Bureau of Statistics (2009) Regional Population Growth, Australia, 2008-09 http://www.abs.gov.au/ausstats/abs@.nsf/Products/3218.0~2008-09~Main+Features~Victoria?OpenDocument#PARALINK1
(2) David Dodman, (2009) Urban density and climate change, Analytical review of interaction between urban growth trends and environmental changes, United Nations Population Fund
(3) Australian Coastal information (2011) http://www.ozcoasts.org.au/climate/Map_images/Melbourne/mapLevel2_East.jsp
(4) Australian Coastal information (2011) http://www.ozcoasts.org.au/climate/Map_images/Melbourne/mapLevel2.jsp
(5) City of Melbourne (19 January 2011) Migration City of Melbourne, http://forecast2.id.com.au/Default.aspx?id=128&pg=5140
(6) City of Melbourne (19 January 2011) Residential Development City of Melbourne, http://forecast2.id.com.au/Default.aspx?id=128&pg=5530
(7) Data from Victoria Government (2011) Department of Planning and Community Development, http://services.land.vic.gov.au/maps/pmo.jsp
(8) See 7

| GLOBAL |

| ARCHITECT |

| LOCAL |

| SITE |

| **CRITERIA** |

| PROPOSAL |

WHAT CRITERIA COULD BE USED
FOR REDEVELOPMENT?

CRITERIA AS A TOOLBOX FOR DEVELOPMENT

The criteria in this chapter are derived from the issues described in the Global and Local chapters and can be seen as a toolbox for developments in Melbourne. It can essentially be used as a guide to what to work on within the chosen site in the city centre, but can also be used when developing areas along the transport nodes.

The reference photos in each chapter are acting as illustrations rather than exact examples of what I am trying to accomplish.

POPULATION GROWTH AND DENSITY

It's a fact that the city is growing rapidly. According to population projections there is an urgent need to build a large number of housing projects. A level of density must be found that fulfils service needs to the area at the same time as being attractive according to local norms; one suggestion to manage growth until 2030 has been at least 30 dwellings per hectare. A higher level of density should be achieved similar to the CBD, so more people can take share in available services to fulfil the increased density aspect mentioned earlier in the site chapter. Finding the optimal density should be done with consideration of the existing urban character and scale.

POPULATION GROWTH AND STAKEHOLDERS
| A CITY FOR ALL? |

The immigration to Australia will mean further growth in Melbourne which will have to be taken into consideration. Stakeholder groups must be identified to cater for the growing group of international people in the city and to facilitate a diverse mix of people, focused on equality. The multicultural society is a true gold mine of exchanging experiences and this should be emphasized.

DEMOGRAPHICS AND MIGRATION

As previously described there are a few demographic challenges to take in to consideration when identifying stakeholders; predominately young people moving in, while most other age groups moving out from the inner city area. Stakeholders should be chosen from a sustainability perspective of how to attract a wider variety of people to the city. The Australian dream and affordability seem to be large factors drawing people out of the city. Families with children is a large group to attract to the city centre in order to limit further urban sprawl. This group is also important to cater for since new generations will set their living standards depending on what they grow up in.

Stakeholder groups in other new redevelopment areas such as Docklands should be reviewed and lessons learned should be incorporated. These areas are attracting older habitants with higher incomes and one should evaluate if and why these groups should be catered for yet again.

"In between a Docklands apartment and the suburban sprawl, there are not many options. We need to start rethinking our models of development. Housing these days tends to assume one size fits all, which has cost us in terms of our well-being, both emotionally and psychologically."

Gilbert Rochecouste, a community building consultant at Village Well [1]

TYPE OF CRITERIA FOR DEVELOPMENTS:

- HOUSING TYPOLOGIES BASED ON STAKEHOLDERS
- BUILDING TECHNOLOGY
- SCALE AND PUBLIC SPACE
- HERITAGE AND RESOURCES
- HERITAGE AND CHARACTER VALUES
- INFRASTRUCTURE
- URBAN FUNCTIONS
- AFFORDABILITY

HOUSING TYPOLOGIES BASED ON STAKEHOLDERS

The identified stakeholders should ideally decide what housing typologies should be built. The current tradition of what is attractive should be accepted while at the same time as new concepts of living should be encouraged. How can stakeholders normally chosing the suburb be attracted to move in to the city? Can sustainable urbanization be achieved while saving the main criteria of the Australian dream concept in a non car dependant city? Student housing is another category that has possibilities of an extended living concept. There are possibilities to allow more modern ways of living in this area and to create new varieties of city life.

WHAT NORMALLY ATTRACTS PEOPLE TO CITY CENTRES?

- Wide range of services
- Wide range of food services; restaurants, cafés etc
- Puls and rhythm of city life
- Entertainment
- Social life around pubs and clubs
- Shopping
- Trends and modern living
- Short distances
- Living closer to work
- More transport options than cars

Vibrant urban life with lots of choice = attractive?

WHAT CRITERIA BASED ON SUBURBAN LIVING WOULD BE NEEDED TO ATTRACT MORE PEOPLE TO THE CITY CENTRE?

- Proximity to nature, with garden possibilities
- Large outdoor areas
- Safety
- Privacy
- Size of living space
- Solving concerns about transporting the family
- Childcare services & schools
- Visibility; the ability to see your children play on the backyard while doing something else
- Outdoor spaces for children
- Noise reduction
- Affordability
- Supermarket availability

Safety + calm + space = attractive?

WHAT CRITERIA COULD BE USED TO ATTRACT INTERNATIONAL STUDENTS?

- Affordability
- Social spaces
- Close to universities
- Personal space
- Close to services

Affordable social central location= attractive?

Urban living with higher density & services on ground floor

A car free area with green common spaces , 1960s Högsbo, Sweden

Urban living with Australian dream qualities, Kungsladugård, Sweden

BUILDING TECHNOLOGY

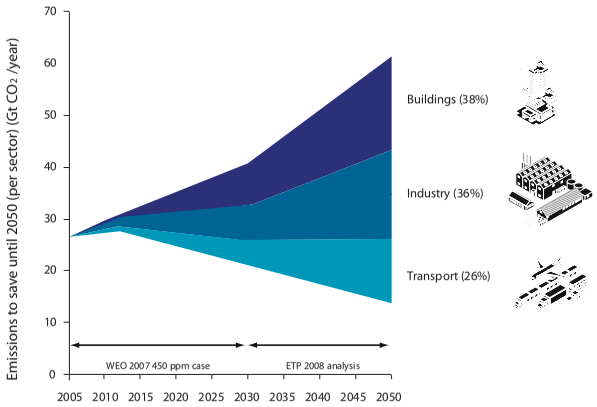
Buildings already represent 40% of energy use globally and if we include the energy consumed in manufacturing, steel, cement, aluminium and glass used in building construction, this number grows to more than 50%.[2] The debate on energy should also include the location of the building; studies show that outer suburban households in a low density environment with single story houses is likely to consume up to 90% more energy than the same typology in inner urban areas. The highest level globally of building certification should be used depending on which has the highest target related to topic, for example BAU, SBGC, BREEAM, LEED AP, GREEN BUILDING.

Energy resources & efficiency:

- Renewable energy sources
- Smart ventilation
- LED lighting
- Efficient insulation
- Energy efficient windows
- Aim towards being energy producing instead of consuming

Building resource use:

- Recycled / recyclable building material
- Water saving and recycling
- Integrated design for technical solutions and recycled material



Projected energy efficiency divided by buildings, industry and transport, graph adapted from World Business Council for Sustainable Development [3]

Adaptaptable facade on Institut de Monde Arab in Paris by Architecture-Studio

Out thinking with a new solution using glass bottles as structural wall, on Lamu Island by Unknown innovator

An integrated design where the facades can changes with time; Council House 2, by DesignInc Melbourne

Greenery in a new way; proposed CentraPark in Sydney by Jean Nouvel

SCALE AND PUBLIC SPACE

The urban character on the proposed site should try to level the density gap between the low rise housing areas north of the site at the same time as communicating towards the high level of urbanization in the CBD. The area should attempt to serve as an extension of the CBD in terms of urban activity and visuals but should at the same time show respect the calmer residential areas north of the site.

A sense of place should be carefully integrated in the renewal. This is important since most space now feels predominately occupied by cars and has little personality outside a few specific heritage buildings.

Active public spaces should be strived for; permeable with connectivity, filled with function.
Building scale; the precedent work of architect Jan Gehl can be used to understand human scale in relation to building heights and public space.

The need for different levels of public space and privacy needs to be identified, defined and solved; permeable or set to a defined area with differentiating levels depending on requirements.

public – semi public – semi private – private areas

HERITAGE AND CHARACTER VALUES

| HOW TO RAISE THE DENSITY WITHOUT DESTROYING EXISTING VALUES |

The key challenge is how to create contrast and variation in a very large planned area. It is therefore imperative to preserve enough of the historical layer on site to avoid the risk of creating a monotonous area. By keeping the development area to a proportional size, small local aspects of each property can be assessed with a higher quality. If local character criteria can spring from the definitions and nature of existing sites the chance of producing individual appeal is higher.

By working with existing identity a multilevel urban appearance can be created with different levels of detail and textures. Valuable old atmospheres should not be destroyed even if the entire building cannot be used; it can be seen as an opportunity to refurbish it in to new dwellings. Everything old is not heritage but can create a nice character in the city. Use -the existing city mesh layer or similar as headline instead of heritage.

The urban street level does not have to change when densifying; using existing structures could create recognizable spaces. The familiar feel has proved to be more comfortable; TV commercials are a well known examples where people buy what they have been exposed to. Unknown colours, shapes etc always feels uncertain at first. Retro fashion has a reason why it's fashionable again. This can be regarded as important for the feeling of soul and scale of the city; something that often gets lost in new mega cities. The importance of keeping visual signs of recognition on site should be highlighted more.
Globalization and international style does however not need to pose a threat to the character; the right mix can instead provide us with different creative solutions. The area will most likely become more attractive if new character values are created in a mix with the existing ones.

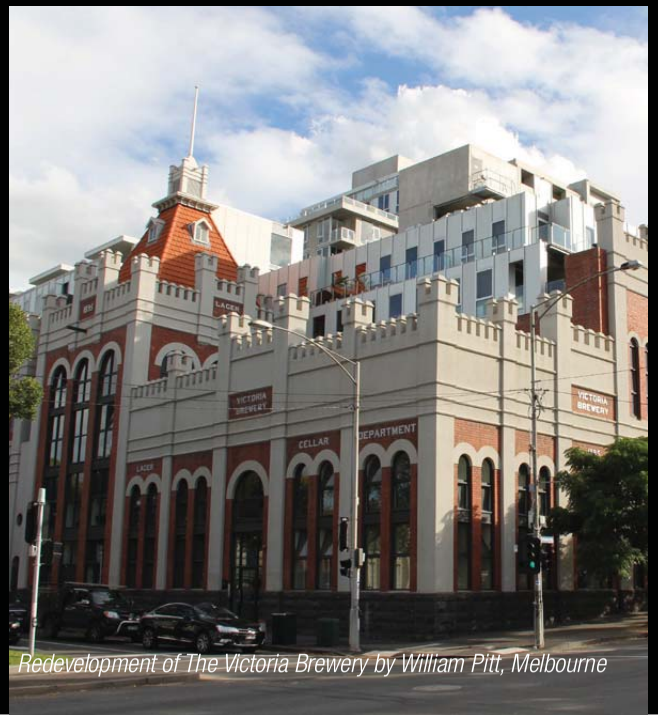
HERITAGE AND RESOURCES

Keeping heritage can be seen as a way of recycling buildings and should be encouraged. The environmental gains can be large when keeping resources on site, preventing old buildings being tossed as trash and replaced by new resources that could have been saved or used for other purposes. Naturally one should investigate local conditions on each property, but can be useful in many ways to keep systems thinking in mind when considering resources used for a project. Regeneration or retrofitting a project can sometimes be more costly, but the character values and environmental gains are high compared to the economic benefits of using new resources.[4] We can do much by using smart materials that are adapted to the cradle to cradle approach, but avoiding waste from materials that have already been produced is possibly even better.

Renewal interacting with the old materials in an interesting way, by Haworth Tompkins Architects, London

Redevelopment on Barry Street, by Hayball Architects, Melbourne

Retrofitting in St Kilda



Redevelopment of The Victoria Brewery by William Pitt, Melbourne

Redevelopment of The Portico by TZG, Sydney

INFRASTRUCTURE

By planning cities for transports based on renewable energy efficient transport together with transport based on the human body, we can design ourselves away from the car dependant city.

The solution to how we increase the density of the city at the same time as making it less car dependant will be crucial for the future of Melbourne. One of the goals of the Future Melbourne report is to be a Connected City, something that is very much related to transport. Effective and integrated public transport, Cycling city, Walking city, Innovative urban freight logistics, Smart city driving and Regional and global transport connections, are a few of the more detailed targets in the report. [5] It is all very ambitious but how can these targets be implemented?

Would it be possible to find a hassle free transport solution to a high density re-evaluated Australian dream, to create a new sustainable way of living? Options to make it easier to let go of the car should be integrated in all new urban projects.
Public transport can be supported by building close to such facilities, both in the inner city and in the suburbs. Shortening the distance between different functions in urban areas can also be seen as a way forward. An improved biking network connecting different parts of the city can also offer opportunities for residents in these areas.

WHAT TO AVOID : CAR ORIENTED DEVELOPMENT
| COD |

The issue of sustainable transport is not only about how much gas is used; but a change of mindset how we transport ourselves. Alternative non-fossil fuel technology will hopefully be found soon, but only focusing on this would be looking in the wrong direction.

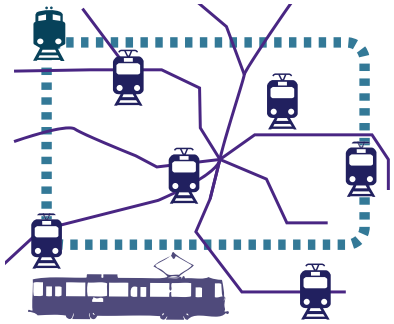
The car dependant city is not only a question of petrol use but also beauty, usability and connectivity of the city. By giving a majority of the space between buildings to cars other functions or alternatives becomes blocked. The speed of cars in a city centre can also change the perceived scale of the street; it seems more difficult to cross the street as a pedestrian and you need more distance from the traffic to feel safe.

Are we degrading the quality of urban life when reserving it to the car?

THREE CONCEPTS TO DEFINE THE CRITERIA FOR MORE SUSTAINABLE INFRASTRUCTURE:
| TOD |
| BOD |
| POD |

| TOD |

TRANSIT ORIENTED DEVELOPMENT
- Build close to larger transit hubs
- Analyse if the 400-800m scale from transit stops in TOD development is fulfilled.
- Enable a transit-oriented development area; mixed-use residential and commercial area
- Increase the number of tram stops
- Allow maximum pedestrian access and safety in relation to public transport stops
- Redesign the street for faster and more efficient trams



| BOD |

BIKE ORIENTED DEVELOPMENT

If long distance bike lanes are included early in the planning process bike commuting is easier to enable. Biking lanes and sidewalks should be easy to access to promote further usage and incentives should be generated on a political level to facilitate extensions of the existing network. Smart street design can allow safer biking and create interest among a wider group of stakeholders than the present situation. Biking could serve as a foundation for high density development if larger groups of people see biking as an attractive alternative to short distance travel. Small scale infrastructure needs less space and can alongsidea changed mindset allow people to travel longer distances independently and carbon dioxide free.

- Making biking a more desirable option for transport
- Allow bikes to take up more space on the street
- Connect the lifestyle of biking with improved health
- Extend and develop the network of bike-commuting routes
- Increase the safety of bikers when interaction with cars is inevitable
- Allow bikes on modes of public transport

| POD |

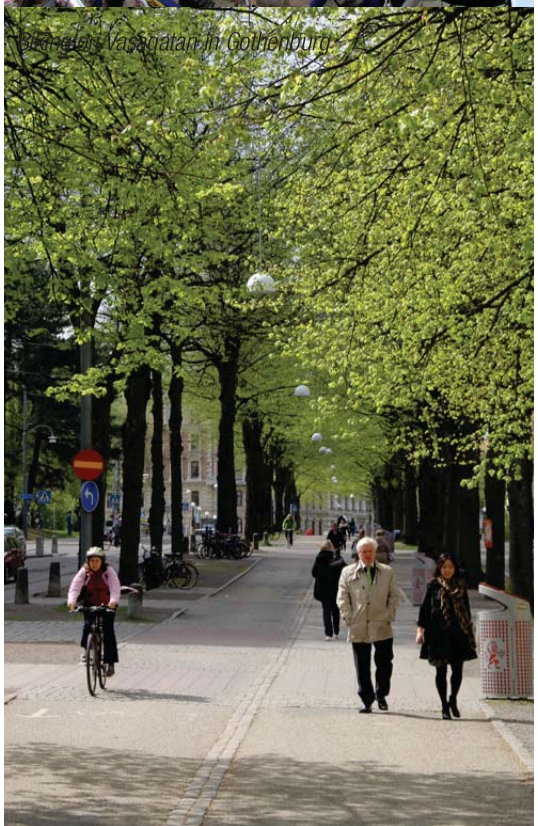
PEDESTRIAN ORIENTED DEVELOPMENT

The amount of walk-ability very much defines a city's urban street life. There are many benefits of planning for pedestrians; health benefits and increased public activities are two examples. Despite taking more time than biking walking can also be a very good alternative from taking the car. The quality and quantity of pedestrian paths in the city is already high but a few criteria can be identified for further improvement:

- Keep the existing concept of being able to walk almost everywhere.
- Accessibility must be prioritized; large staircases and steep height differences make it difficult for many people such as disabled, children and elders to move around freely.
- Safety at pedestrian crossings should be highlighted.
- By giving pedestrians more priority certain benefits achieved such as decreasing car speed.

Large bike parkings on strategic location, Gothenburg

Kungsleden Vasagatan in Gothenburg.



LAND USE AND GREENERY

Apart from the sustainability aspect of urban gardening, could its also be used to attract more people to live in the city? Parks and urban gardening might generate interest for new concepts of urban living; could urban gardening have social benefits outside the traditional norm if reconceptualised? Does everyone need their own private green space and or can it be replaced with something else? Greenery in new concepts could be used to bring benefits to the city without affecting the overall density;

- Allow larger amounts of greenery on the site as a method to decrease parking space and drive-through streets
- Evaluate existing green spaces and enable urban gardening and food production on different smaller scales and height levels
- Extend the concept of greenery to go further than horizontal areas on the ground
- Highlight and enhance local food markets
- Avoid green washing

Other precedents:
Urban agriculture in Gothenburg; Högsbo "Stadsjord" [6]

Community involvment;
Transition Communities in Totnes [7]

Proposed vertical greenery, CentraPark Sydney, by Jean Nouvel & Patrick Blanc

Flagstaff Garden

Urban community garden in St Kilda

Urban Roof Gardening by Roofscapes Inc

URBAN FUNCTIONS

To offer a good mix of functions in the city centre is important to avoid empty business doughnut city or housing sleeping city patterns. The time line of availability is also crucial to facilitate a lively area and can be made possible by strategically positioning services with different peak hours around the neighbourhood.

- Develop a dense mixed use area to ensure numeric support for services
- Enable a large variety of services attractive to different groups of stakeholders
- Focus on long service hours and chose a mix that varies around 24 hrs
- Spread services enough to avoid shopping mall at the same time as keeping them together enough to not make them desolated
- Offer services that could make the area more or less self dependant
- Placing services in strategic well connected locations

AFFORDABILITY

In order to achieve affordable housing projects with a flexible tenure structure, affordable housing needs to be included as a policy directly when planning,
When redeveloping an area an assessment must be made on what to keep and what to leave. Affordability can often be based on premises such as old buildings having lower rent, making the services offered on such sites cheaper too. The chosen site has many abandoned premises but also some functions worth keeping due to their affordability.
One should also keep in mind that there is a chain reaction when people move; the first one moving will create a gap for new habitants in the old settlement. However that can often be a weakly supported argument to move focus away from problems of developments with only one group of stakeholders. What is needed is flexibility and affordability that can serve many types of people creating a diverse area both demographically and ethnically.

Affordable housing does not have to look like this, example from Richmond

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(5) Future Melbourne (2009) http://www.futuremelbourne.com.au/wiki/view/FMPlan/S2G6Connected
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Supporting bike functions

| GLOBAL |

| ARCHITECT |

| LOCAL |

| SITE |

| CRITERIA |

| PROPOSAL |

WHAT COULD AN IMPLEMENTATION PROPOSAL LOOK LIKE?

IMPLEMENTATION PROPOSAL

This implementation proposal acts as a renewal strategy for the urban fabric and is combination of different actions merged into one suggestion. My goal is to create integrated, smart and beautiful design that easily facilitates sustainable living. This proposal is just one of many possible solutions to renew this part the city. The implementation is focused on my site but can be extended further to surrounding areas. I have chosen to focus on illustrating housing typologies together with infrastructure suggestions on a conceptually programmed plan for the redevelopment. This is complemented by more detailed descriptions regarding greenery and heritage. My main strategies could be categorized as umbrella functions to summarize and implement the criteria derived from earlier chapters.

IMPLEMENTATION

One solution to create a more diverse result could be to ask different developers to participate, which could be judged on experience of handling older areas, environmental focus and international knowledge. This could bring different styles and a more mixed character plus new knowledge on sustainable implementation. One should however always let local architects take part to create work opportunities and avoid a generalized global style that could be found anywhere in the world.

STAKEHOLDER INVOLVMENT

Before an implementation can take place a participatory planning process should take place to secure local values and ensure that functions vital for the area's survival are kept. In order for the local community to feel involved it is important that each street develop action groups involving stakeholders to communicate the sustainability ideas and learn about new possibilities at the same time as maintaining the local character of buildings.

TIME LINE

Growth should be done in segments and phases first stage would be to improve the infrastructure to make the area less car focused. By starting to extend the tram lines the area could become more accessible and attractive. Biking lanes and safe pedestrian crossings would follow closely with measures to decrease car traffic throught the area. Housing projects could then be developed depending on availability of each site, to increase population density and improve the state of many old buildings in the area.

SET LIMITATIONS AND FACTORS TO THE SITE

- Flagstaff Garden

I have deliberatelly chosen not to work with Flagstaff Garden for a few reasons. The first one is the heritage protection; being an old graveyard I think it should be undisturbed. The second one is height differences; one early idea was to close of Kings Street and let the park flow down but the 3 meter high concrete wall and current traffic flows poses challenges that I have not had time to work with.

| MAIN STRATEGIES |

| REPRIORITIZE INFRASTRUCTURE |

EXTENDED PUBLIC TRANSPORT

MORE BIKES & MORE PEDESTRIANS

STREET RECLAIMING - LESS CARS

| LEVEL THE URBAN SCALE WITH

3 BUILDING TYPOLOGIES |

INCREASE THE DENSITY

KEEP A HERITAGE LAYER

DIVERSIFY DEMOGRAPHICS

FACILITATE 24HRS FUNCTIONS

INCREASE URBAN GREENERY

- E-gate

I have taken the implementation of E-gate as a prerequisite for my proposal. The proposed position and density of parts of my the site therefore aims to connect to the location and possible character scenarios on the other side of the rail yard.

- The railyard

I believe plans for bridging the railyard will come soon, but I have chosen to work with the current rails needed for personal transport trains staying in their current positions. I am however displaying a proposal on how to use parts of the train depot.

Map of redirected traffic flows

| REPRIORITIZE INFRASTRUCTURE | STREET RECLAIMING - LESS CARS

- Decrease Speed

King Street and Spencer Street in particular. Working with elevated pedestrian crossings actings as speedbumps for cars at the same time as safer pedestrian crossings are accomplished.

- Policy of car quota in new housing

Only 10 % of the inhabitants on Manhattan have a car which could be a good role model for what to acchieve [1]

- Car share

Meet the need of using cars occasionally without private ownership by providing car share facilities

Car share from goget.com.au

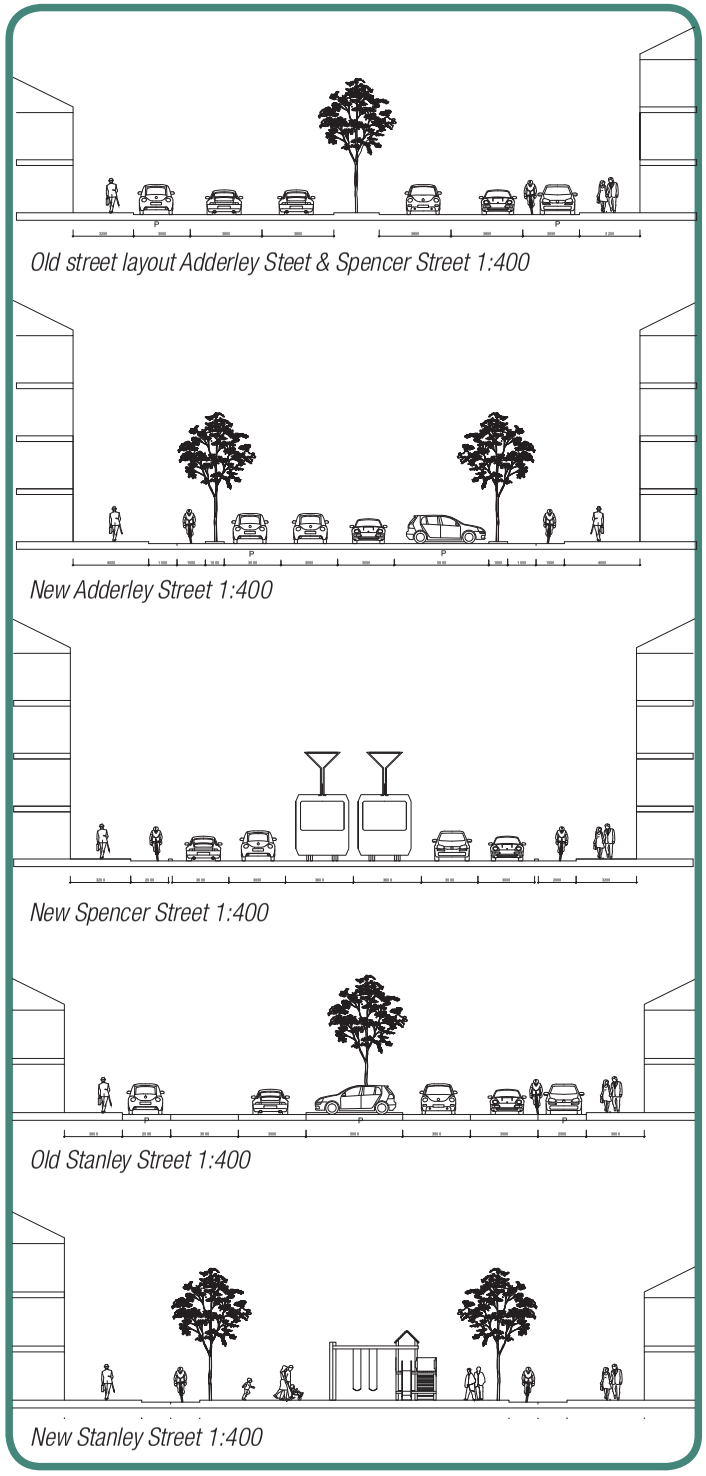
- Smart parking

Less on streets and more in basements, hidden away not disturbing urban street life

- A new Cul de Sac Concept

Changing a few streets in to parks

(See more on page 122)



Old street layout Adderley Steet & Spencer Street 1:400

New Adderley Street 1:400

New Spencer Street 1:400

Old Stanley Street 1:400

New Stanley Street 1:400


E-GATE
NEW TRAM STOP
NEW TRAM LINE
OLD TRAM LINE
NEW BIKE PATH
OLD BIKE PATH
OLD BIKE PATH
TRAIN TRACKS
NEW PEDESTRIAN CROSSING
SMART BIKE PARKING
BIKE SCHEME STN
E-GATE DEVELOPMENT
E-GATE

EXTENDED PUBLIC TRANSPORT

- New tram line extensions:

Spencer Street going up to North Melbourne Train Station
Docklands Drive to Victoria Market

- New tram stops in strategic locations

- Open Flagstaff station on Weekends

- Safe tramstops with space for safe crossing

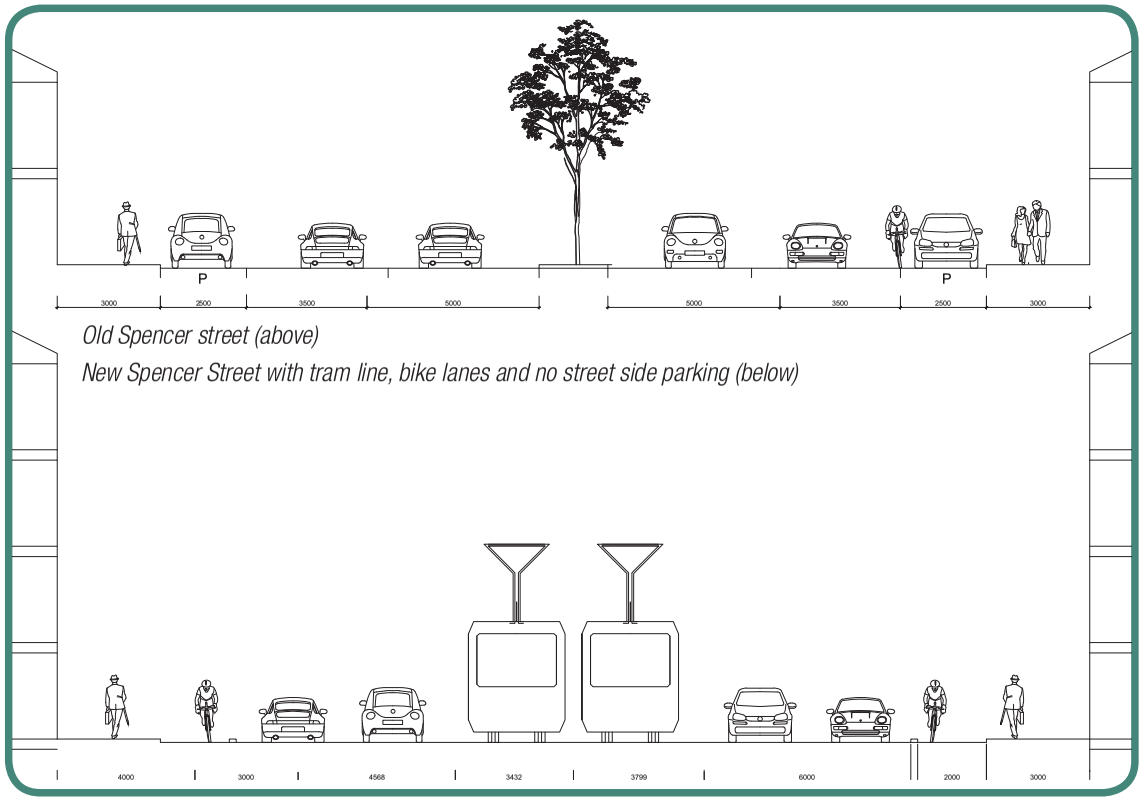
MORE PEDESTRIANS

- Existing CBD qualities should be extended

- Slightly elevated pedestrian crossings acting as speed bumps to decrease the speed of cars

- Café culture should be encouraged

- Human scale on street facades including solar shading, rain protection, shopping and restaurant windows



Old Spencer street (above)
New Spencer Street with tram line, bike lanes and no street side parking (below)

MORE BIKES

- New bike lanes in connection with existing path

- New position of bike lanes separated from traffic

- New bike parking concept outdoors

Better stands, some with roofs

- Bike parking indoors

on ground floor in housing complex

- Increased availability of supporting facilities;

Bike shops, showers and lockers, and bike scheme bikes in new locations

- Safety measures

Signs and communication suggestions such as specific traffic lights for bikes and road paint

| LEVEL THE URBAN SCALE WITH 3 BUILDING TYPOLOGIES |

KEEP A HERITAGE LAYER

There are many building on the site that are suitable for regeneration or restoration; a proposal as to what kind density and function can be found on page 121.

Depending on the status of each building, given by if it is heritage or not, quality of construction and character of façade the following options should be done:

- Refurbishing

Keep the building but renovate surfaces and applicances as needed

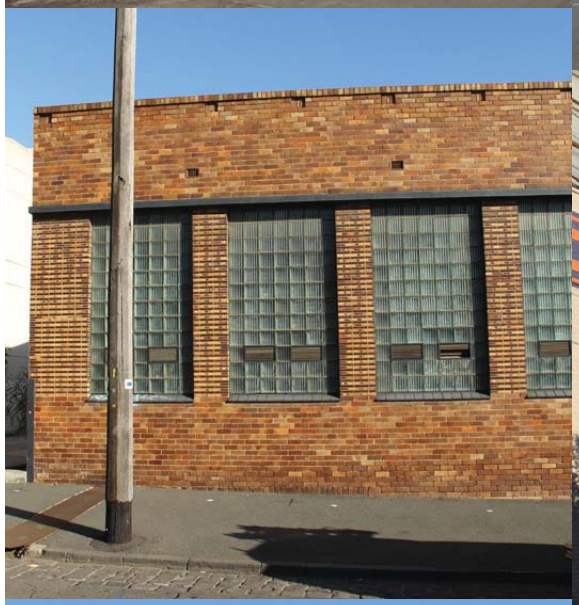
- Rebuilding

Keeping facades or other valuable parts of but rebuild the rest to meet modern standards

- Demolishing

If the existing building does not have sufficient standard to keep it can be demolished, but this option is less preferable

The gteneral approach should furthermore be to keep small narrow streets and use them as they are or redesign them into new Laneways with functions. The most interesting example of this can be found in the old McDougall building on Spencer Street.



INCREASE URBAN GREENERY

- Urban small scale cultivation with solutions like "The little Veggie Patch" on smaller sites [2]

- Vertical greenery

- Roof tops as green social space with gardening functions (see more on typologies)

- Parks with gardening on the Cul de Sac streets (see more on typologies)

The little Veggie Patch concept, littleveggiepatchco.com.au Image from The Age

Local markets in cities are good opportunities to revive the city by selling and buying locally grown produce and is a nice addition to a diverse urban atmosphere. The challenging aspcects the modern man is time and ambition. Could the concept of "Slow Urbanism" perhaps be part of the solution?

Large outdoor areas could facilitate small scale cultivation for most families with a community garden feeling. These could also generate work opportunities. Outdoor areas could be used for children to play on.

These measures should be added because we need to globally, not because green roofs and urban agriculture seems trendy and pretty. The green spaces in the city acts as lungs, decreasing the CO2 gases creating a healthier environment. One planted tree can decrease CO2 emissions by x in its lifetime.

The Queen Victoria Market in Melbourne provides a good opportunity to buy fresh goods and could be a good opportunity to revive the city if enhanced. The area around the market could be used to either increase the population density or possibly be used for cultivation. Food used to provide a social gathering at markets, away from the anonymous large supermarkets, which could be regained with local markets.

24 HR FUNCTIONS

- Create functions that allow the city to be lively all hours of the day; Gym, Restaurant, Café, Music Hall, Offices, Community spaces

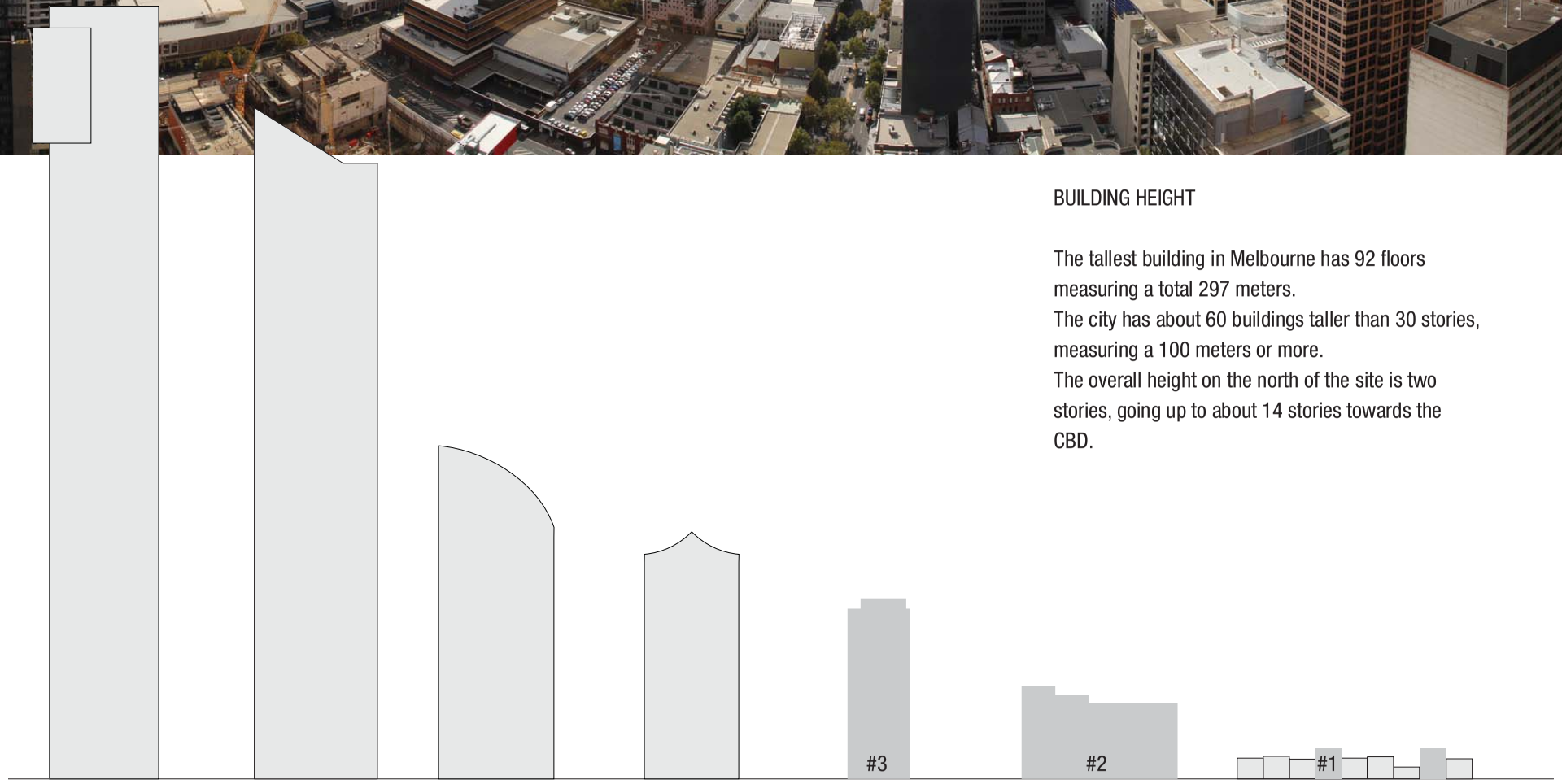
- Creative meeting places; art displays, community cafes, library,
- Childcare facilities

- Create space for more offices integrated with housing to have activities 24hrs.

- Create an outstanding architectural intervention for social integration and meeting place to be located southwest on the site.

BUILDING HEIGHT

The tallest building in Melbourne has 92 floors measuring a total 297 meters.
The city has about 60 buildings taller than 30 stories, measuring a 100 meters or more.
The overall height on the north of the site is two stories, going up to about 14 stories towards the CBD.



Eureka Tower
Southbank
297 m

Bourke Place
CBD
258 m

Victoria Point
Docklands
128 m

Dockside Tower
CBD
95 m

Multifunction building
SITE
70 m

Roof terrace housing
SITE
36 m

Green courtyard housing
SITE
4 - 10 m

| INCREASE THE DENSITY |
| DIVERSIFY DEMOGRAPHICS |

HOUSING TYPOLOGIES

The following pages describe 3 housing typologies used in this proposal. They vary from 3 stories to 20 depending on typology. The new housing developments (mainly the red category with new developments) should be seen as symbols for where new housing could be built rather than exactly designed proposals; the main feature is that they generate outdoor areas and follow sight lines from existing structures.

All old buildings should be assessed and redeveloped as previously mentioned. All buildings should use building technology and rating systems as mentioned in the Criteria chapter.

Note that the plan marks property borders and not building footprints

#1 MULTIFUNCTION BUILDING

THE MULTIFUNCTIONAL URBAN LIVELY LIVING
These can be inserted in a group or singular and serve as corner buildings. This typology allows a wider range of affordability as it lets top and bottom subsidizing the middle floors. It is important that these buildings are located close to public transport stops. Parking for both companies and tenants are located in the basement. Services in the ground floor should be aimed at start up businesses and small companies, preferrably owned by international stakeholders and new citizens to create interesting variety and potential for innovative initiatives.

| STAKEHOLDERS| companies, young professional first timers, students, professional/student young immigrants, middle aged

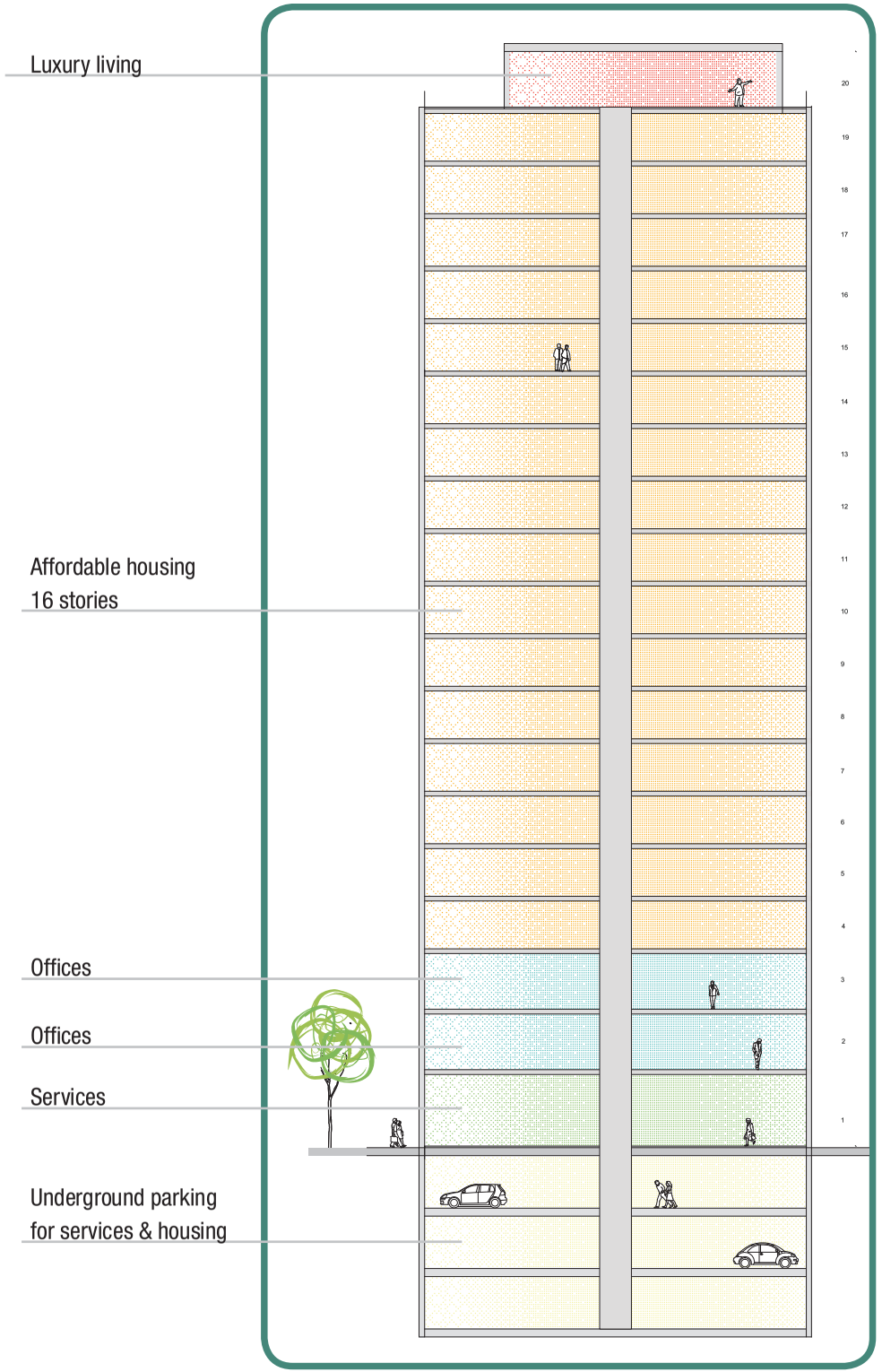
| OWNERSHIP STATUS |= rental
THREE DIMENSIONAL PROPERTY CONTRACTS:
Commercial, Offices, Private x2

| FLAT TYPOLOGY | = 2-4 room flats in middle (where first timers can start family in larger ones or students can do share housing), spacious luxury flats on top 3 rooms.

| SERVICE TYPE | = bottom floors for shops and restaurants /cafés, 1st (2nd) floor for offices

| SITES | (1) Southern part of the area towards Docklands (2) on the parking site next to Queen Victoria Market (where current parking space is relocated to the basement) (3) Corners for high density

Specifications:
Facades adaptive to sun with flexible curtains
Architecture should visually connect with Docklands in scale.



#2 ROOF TERRACE HOUSING

ROOF TOP GREEN TERRACES WITH GARDENING POSSIBILITIES
Property towards Flagstaff Gardens to enjoy the view of the city together with proximity of the park. Balconies facing greenery and long distance views

| STAKEHOLDERS | = families, middle aged, elders

| OWNERSHIP STATUS | = private and rental cooperation

| FLAT TYPOLOGY | = 3-5 room flats

| SERVICE TYPE| = Bottom floor for mixed services

| SITES | (1) Both west and east side of Flagstaff gardens (2) Southern parts area towards the railway/ sea / Docklands;

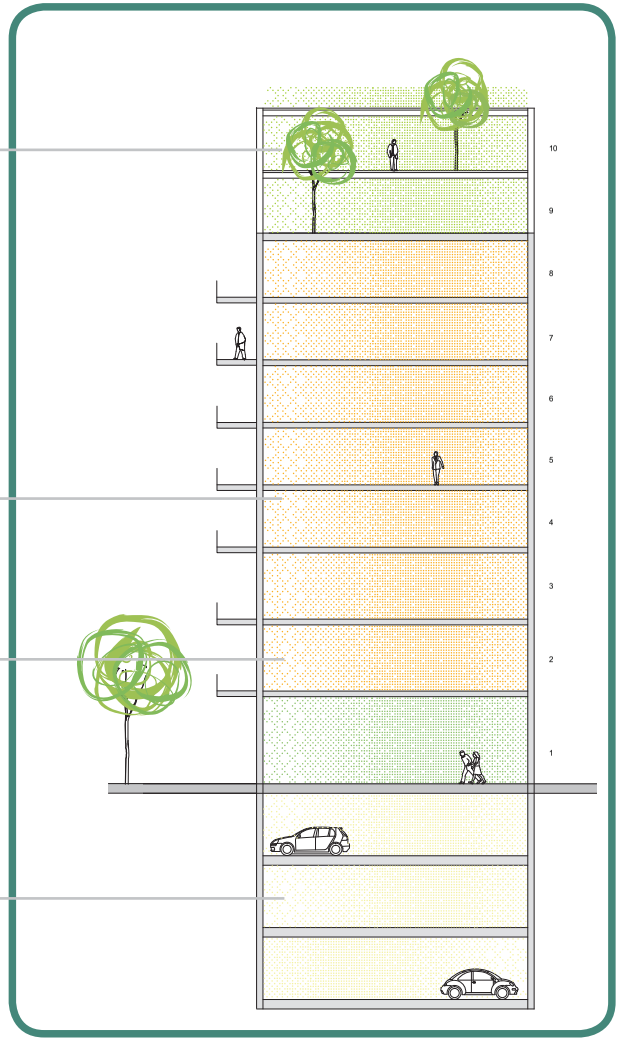
Specifications:
Roofs are gardens with water recycling systems

Roof top Garden Plots on varying levels

Housing 9 stories

Shops & Services

Underground parking for services & housing



#1 GREEN COURTYARD HOUSING

URBAN LIVING WITH AUSTRALIAN DREAM QUALITIES

Housing streets recreated into Cul the sac streets with older heritage housing mixed with 3 floor refurbished townhouses. 5 story street corners facilitates a variety of services connecting the area to a vibrant neighbourhood.

| STAKEHOLDERS | = young families and elders

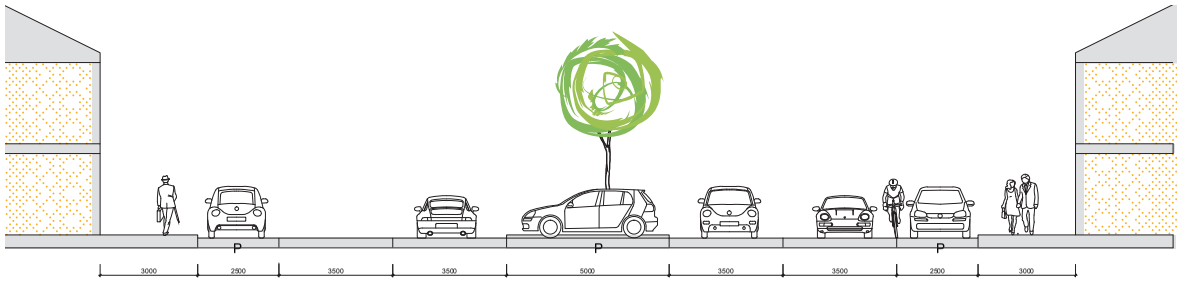
| OWNERSHIP STATUS | = private and some rental

| FLAT TYPOLOGY | = Larger 4-5 bedroom houses and existing variety

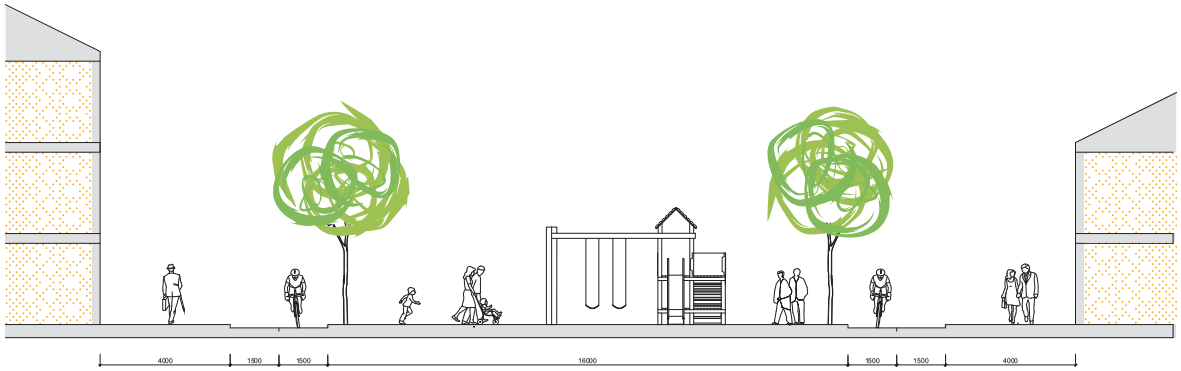
| SERVICE TYPE | = Street corners for food stores, cafés, restaurants

| SITES | (1) Northern parts of the site with certain heritage overlays

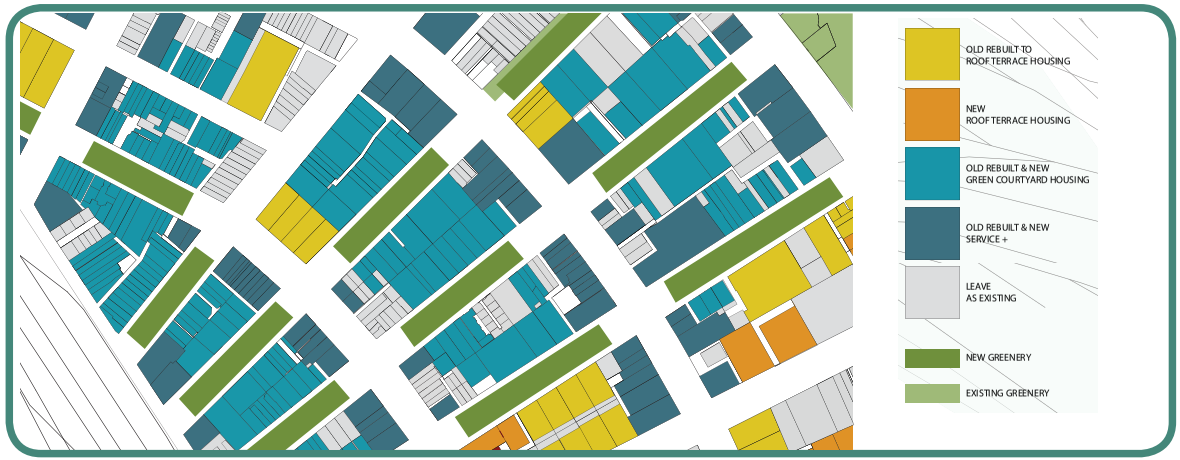
Specifications:
All roofs to be equipped with solar panels. Due to the large size of the area it could become a large solar panel energy farm if collectively managed.



Old Stanley Street



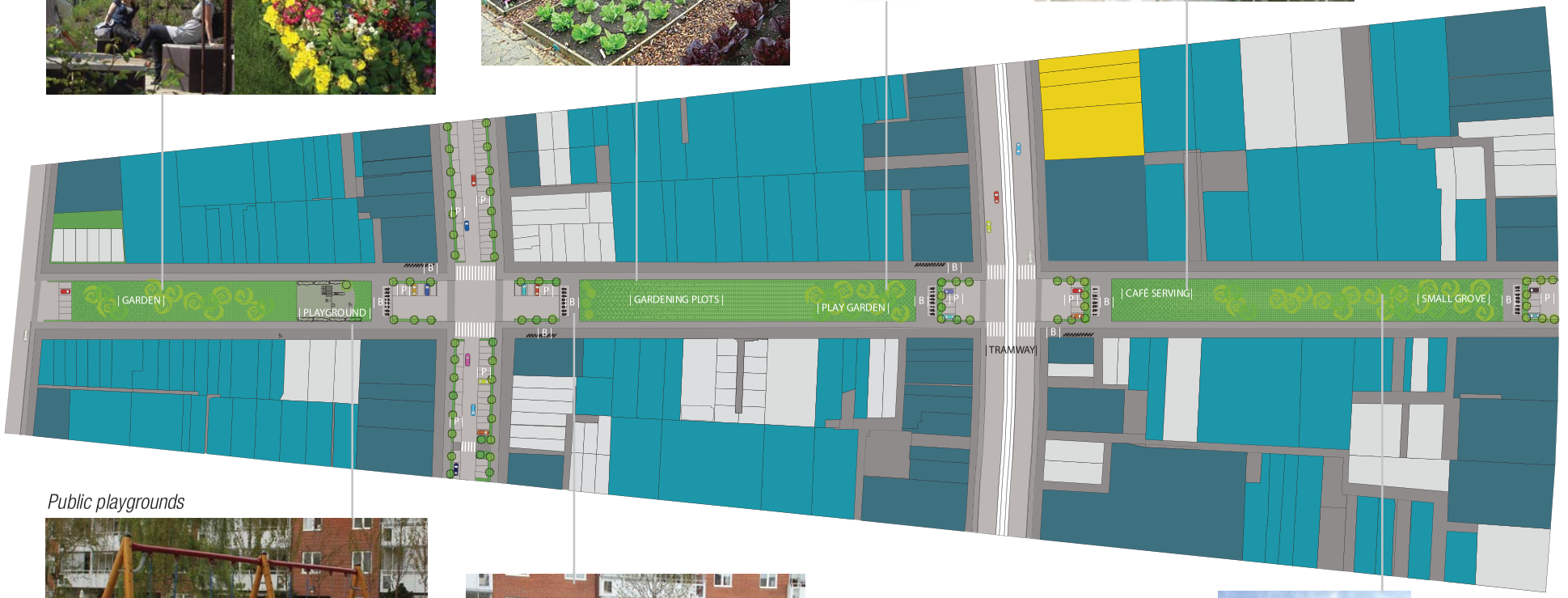
New layout with wider pedestrian path, new bike lanes, park in the middle and only parking on the corners



Garden with architectural features

Urban agriculture

Lush café serving areas



Public playgrounds

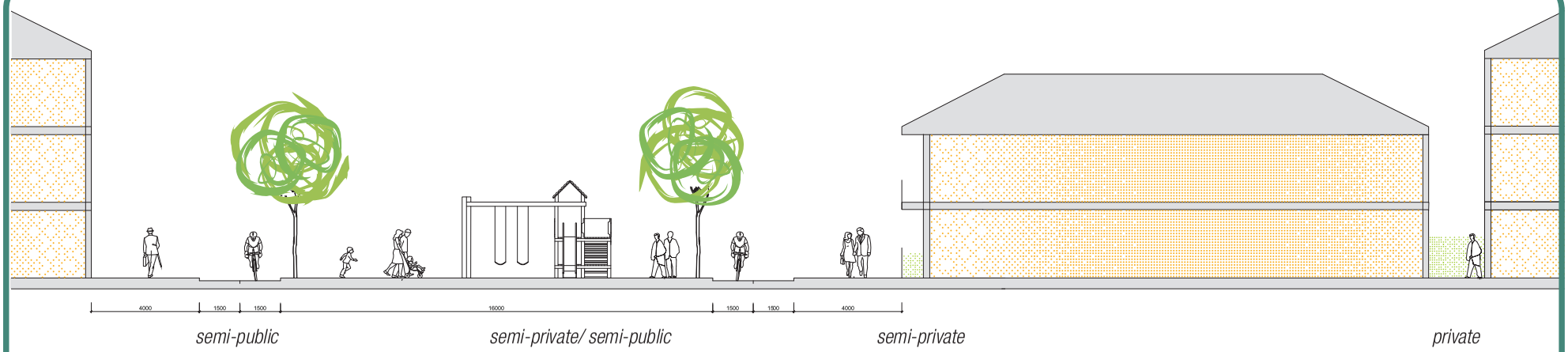
Functions on green streets can vary with community needs and personal adaptation

Weather protected bike parking

Green plantations of bushes & trees

FOOTNOTES | PROPOSAL |

(1) http://www.dn.se/resor/newyork/new-york-pa-tva-hjul
(2) http://littleveggiepatchco.com.au/



It is important to acknowledge the need of privacy and half public/private rooms in the city. The actually arisen privacy levels within this proposal will be known first when built.

The old "parking lot street" could be turned into a park with excellent views down towards Docklands and the new E-gate development

CONCLUSION

This has been a really interesting journey and I believe this thesis has reached as far as it could with my current time limitations, written during only one semester. However, the topics chosen for this thesis are vast and there is much more to investigate; both global conditions affecting the project and local design aspects for the site redeveloped. This thesis provides one possible path towards how to strategically plan an area in the city centre of Melbourne, but there are many other possible solutions. Planning urban environments to facilitate lower resource use and prepare for the increased urbanization caused by projected population growth is a complex task and even though it might be too large to be fairly described within a master thesis, I still enjoyed researching as much as possible within the given frames. There are plenty more environmental, social and economic dimensions to urban growth and the need to address them from a more sustainable point of view is globally urgent.

Changing the density of Australian cities is a major task. The political status of discussions about environment and sustainability is rising and it will be interesting to see what changes will occur the next couple of years. It is imperative for all politicians in Melbourne to realize the importance of transforming the concept of urban planning in order to handle growth sustainably in the next few decades. I started this process by reading reports like “Melbourne 2030” and “Transforming Australian cities” as a background to understand the planning politics of Melbourne. I quickly came to realize that the problem does not lie in ambitions or goals; it is sticking to the plan and changing the mindset of all Melbournians that is the real challenge. Prof. Rob Adams, director of city design in Melbourne, once suggested that urban design proposals have to be presented in the most appealing and interesting way as possible for all stakeholders to succeed in keeping the interest of all politicians disregarding electoral outcomes. It seems like the trick for sustaining new ideas politically is to create a win-win situation for everyone involved with each new proposal, managing economic, environmental and social expectations.

Creating a proposal grounded in the local context after zooming in from the global scale is not easy. The global aspects affecting urban growth interested me deeply and it would be of great interest to continue the search further for a global understanding to local issues, interlinking all parts of the world. I believe I have found some of the relevant aspects to urban planning and approached them from different directions, but time limitations left less time for the actual design than I first intended. More emphasis would be needed on the final design proposal, but I am also happy about everything I learned while writing the first chapters and the outcome of them. It would be very interesting to research further on comparable urban redevelopment areas with similar challenges to Melbourne; to find specific lessons learned from individual projects and find common nominators for a better understanding of future developments. The challenge of rebuilding old industrial areas exists in many cities, and much like Melbourne there are physical and mental borders to bridge before achieving fully connected urban areas. The possibility to bridge over the railyard in Melbourne is a great opportunity to connect the city in a better way and if I had more time I probably would have extended my site further east and south to include the railyard.

I tried to conceptualize the idea of urban growth in relation to sprawl and density by combining scales, which I consider worked well. But I am critical of a too zoomed out ‘top down’ approach to planning; therefore it was important for me to include the more detailed aspects of the project for it to become realistic, such as street sections on a site level, even though they became less detailed than first intended. A challenge with a project like this is to ensure that the analysis doesn’t become the entire project, without a final conclusion for implementation. What is the best way to take a project from start to finish while keeping all the original intentions intact, all the way from analysis to a built environment? Much of the answer might be found in participatory planning where we can involve the community in the larger concepts, communicating ideas well enough to create community involvement. Systems thinking assists in understanding the complexity of a situation, putting larger aspects in connection to local prerequisites. I believe it is by putting local aspects such as urban sprawl and the “Australian dream” in connection to global environmental issues that we can change peoples’ mindset. This is probably the main reason to why I chose to work on the range of scales that I did, trying to highlight the global impacts

of local actions.

It is now that we can make a difference; by preparing for a different more resource efficient way of living the world's resources will hopefully be enough for all of us. With increased levels of migration, both forced and voluntary, Australia will have a key role to play in the Asia Pacific region and the importance of opening up the borders for more people couldn't be emphasized more. Political benefits of collaborating globally will soon hopefully become more obvious not only from an economic perspective but a more holistic viewpoint where social outcomes matter more than money. Many are now working with sustainable development on global and local levels and the prospects look fairly good. But we all need to go together and act now if new cities for 2.8 billion more people are to be built sustainably. The understanding of global aspects is crucial for better urban environment in all cities, no matter what part of the world they are.

The aspects of climate change and sea-level rise are briefly mentioned in this thesis but could be further elaborated, both on global and local scales. Catastrophes like flooding, hurricanes, earth quakes, bush fires and tsunamis are becoming more common and can hit without a warning. How do we build cities to resist such phenomena and how can we create a society open for people migrating from disaster prone areas? The full effects on our environment from CO2 emissions and climate change are still to be discovered but we can try to project likely scenarios and adapt as much as we can. Environment and city are interlinked in the global system and how we build urban areas today will also decide the future effect cities will have on our climate.

The thesis is my understanding of the global issues architects face today. To take part in the debate on urban renewal and urbanization connected to massive population growth is for me more important than finding the most beautiful concept of a stylish one building architecture project. Urban connectivity and sustainability interests me more. An obvious continuation of this project would be to make it politically supported; collaborate with local architects and planners and have workshops with the inhabitants in the area. I would connect a project team to find elaborate building designs, do investigations on how the public-private levels can vary across all housing typologies and how this can create a lively public space that allows a greater diversity without compromising social sustainability. But before doing that it is imperative to analyse and understand the complexity of the urban situation which is why I started with the extended analysis. I have simply been trying to identify aspects of growth that could build a framework for my future work.

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APPENDIX

OTHER POSSIBLE SITES TO CONSIDER IN FUTURE WORK:

+1 How McDougall Inc could be developed

+2 How the Queen Victoria Market place could be developed

+3 What is the potential for a Flagstaff Gardens extension

+4 What is the potential for crossing over the railyard to Docklands and E-gate

OTHER APPENDIX:

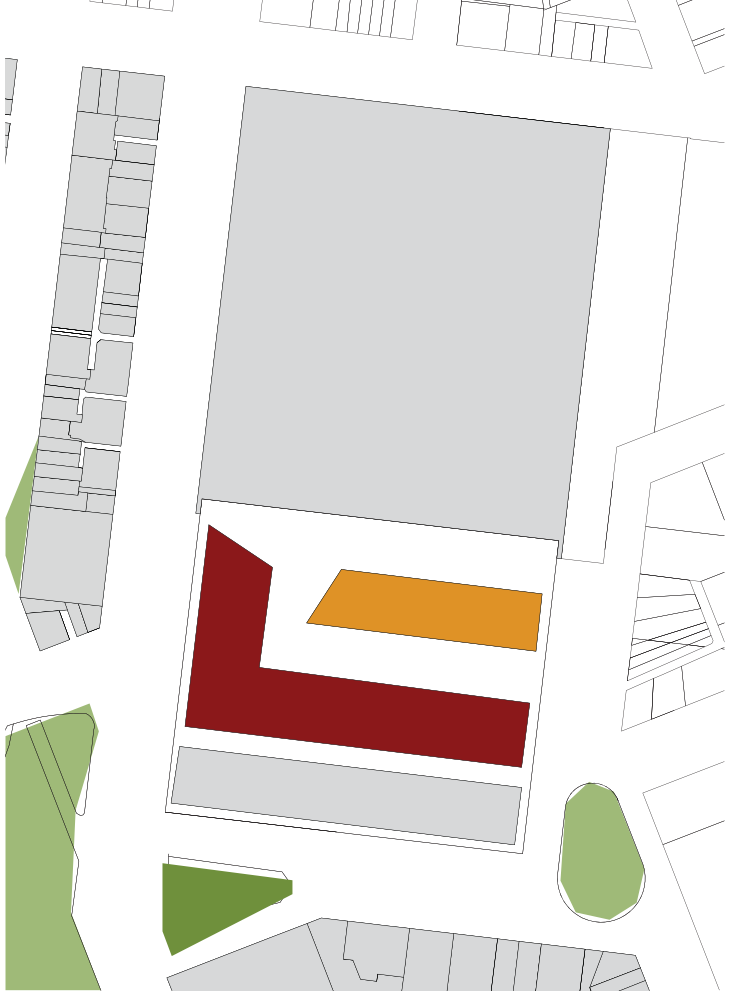
+5 Goals of Melbourne 2030

+1 McDOUGALL LANEWAY

A new laneway development can take place in the block of McDougall & Sons old printing factory. A feel of old genuine patina; old cobble stone, aged brick and a slightly industrialized romantizised feeling meets you when you sneak in on the laneway to the courtyard. What today is a parking lot could easily be transformed in to a vibrant space for creative meetings, workshops, cafés with enough soace to make this a green hidden away oasis safely kept away from the alarm of the busy streets outside.

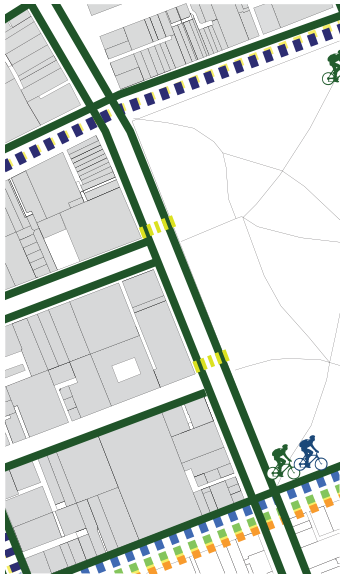
+2 NEW VICTORIA MARKET

With a long history of providing the Melbournians with fresh produce this area is in need of an update. Much development is happening south east of the Queen Victoria Market but similarly to rest of the site not much is happening north west of La Trobe Street. The parking lot that today is used by customers coming from the suburbs can easily be located underground. A new 20 story Multifunction building can be accompanied by a lower 10 story Roof Terrace building towards the old market parts. Ground floor of the new builings can be equipped with different services and functions complementing the existing market. The area should be kept like a patio with traditional blue stone paving and planted trees to provide shade and places to relax. The buildings can at the same time contain parking in the basement for both the market and its residents on top, who will at the same time be able to support the market with customers.



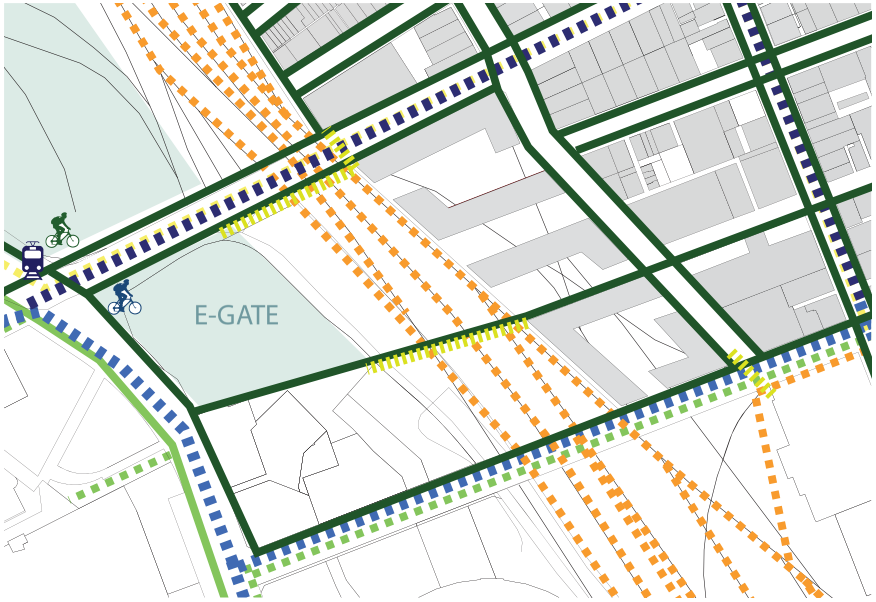
+3 FLAGSTAGG GARDENS EXTENSION

There are many interesting possibilities but also challenges with trying to extend Flagstaff Gardens. The purpose would be to make it more accessible from the west side, where the height difference poses a problem together with the traffic. The first option would be to create safe pedestrian crossings on street level. Further more elaborate options might be to create pedestrian bridges to 2nd and 3rd floor of builings on opposite side, or redirect traffic to a tunnel and let the street become a green slope down towards the city blocks, where further extensions of the green mesh could be done to connecting streets.



+4 BRIDGING THE RAILYARD

The railyard is one of the largest barriers between the CBD and Docklands, cutting them apart both mentally and physically. The proposal involves building on parts of the old yard, but further measures are needed to connect the east and west sides of the rails. A first step could be to create pedestrian and bicycle paths across the railyard, and possibly towards the E-gate development to create further connectivity. A more drastic proposal is to dig-in the tracks to create an open site for redevelopment, like the successful Federation square development on Flinders Street, which has also been discussed by planners in Melbourne. Could the railway instead of a barrier be seen as a generator for new strategies and designs? It would be interesting to investigate what functions and buildings could sit on top of the rail tunnel and how this could attract more people to cross the rail lines; it would certainly link Docklands more to be a part of the CBD.



+5 CHOSEN GOALS FROM MELBOURNE 2030

1 A MORE COMPACT CITY
- Build up activity centres as a focus for high-quality development, activity and living for the whole community
- Broaden the base of activity centres that are currently dominated by shopping to include a wider range of services over longer hours and restrict out-of-centres development
- Locate a substancial proportion of new housing in or close to activity centres and other strategic redevelopment sites that offer good access to services and transport

2 BETTER MANAGEMENT OF METROPOLITAN GROWTH
- Establish an urban growth boundary to set clear limits to metropolitan Melbournes outward development
- Concentrate urban expansion into growth areas that are served by high-capacity public transport
- Manage the sequence of development in growth areas so that services are available from early in the life of new communities
- Protect green wedges of metropolitan Melbourne from inappropriate development

(3 NETWORK WITH THE REGIONAL CITIES)

(4 A MORE PROSPEROUS CITY)

5 A GREAT PLACE TO BE
- Promote good urban design to make the environment more livable and attractive
- Recognise and promote cultural identity, neighbourhood character and sense of place
- Improve community safety and encourage neighbourhood design that makes people feel safe
- Protect heritage places and values
- Promote excellent neighbourhood design to create attractive, walkable and diverse communities
- Improve the quality and distribution of local open space and ensure long-term protection of public open space

(6 A FAIRER CITY)

(7 A GREENER CITY)

8 BETTER TRANSPORT LINKS
- Upgrade and develop the principal public transport network and local public transport services to connect activity centres and link Melbourne to regional cties
- Improve the operation of the existing public transport network with faster, more reliable and efficient on-road and rail public transport
- Plan urban development to make jobs and community services more accessible
- Coordinate development of all transport modes to provide a comprehensive transport system
- Manage the road system to achieve intergration, choice and balance by developing an efficient and safe network and making the most of existing infrastructure
- Review transport practices, including design, construction and management, to reduce environmental impact
- Give more priority to cycling and walking in planning urban development and in managing our road system and neighbourhoods
- Promote the use of sustainable personal transport options

(9 BETTER PLANNING DECISIONS, CAREFUL MANAGEMENT)