MAV Sustainable Communities National Summit 2017

‘Urban Design for climate change; what can local government and communities do?’

Prof Rob Adams AM
Director City Design and Projects
Growth
70% of the world's population will live in cities

Climate change
Cities are responsible for 75-80% of the world's greenhouse gases

Economy
70-80% of National GDP’s

Social cohesion
Cities for people

Original Source: Jeb Brugmann
What does that mean for Melbourne?

- Current population: 4.25 million
- Projected population by 2050: 10 million

**Challenges**

1. ‘We need to more than double the existing capacity of our city in 33 years’
2. ‘We need to do this against the backdrop of climate change’
Cities of Hope

The great global migration from rural areas to megacities is reaching a peak. But forget the doomsayers – these sprawling urban landscapes will be humanity’s salvation, argues Doug Saunders

CHONGQING IS A DENSE AND SMOKY INLAND CITY, the heavy-industry, high-rise home to more than 30 million people. It is to China what Chicago was to 20th-century America, or Manchester to 19th-century England, and it’s growing at an extraordinary rate. Every day a tide of 1900 new arrivals washes in to Chongqing. Every day an extra 140,000 sqm of floor space is constructed for new residents. It’s a vast megalopolis, a megacity of the sort that will soon take over the world.

I met Mr and Mrs Zhang on the day they first arrived in Chongqing from their rural village. It had taken them almost 10 years to save enough money to move, and endured extraordinary sacrifice: a brutal savings regime and years living in a fetid slum far away from their children, whom they saw only once a year. On the week I visited them in the sweltering heat of the Sichuan summer, they had pooled together their accumulated cash from years of sweat labour in motorcycle-parts factories, and had paid the full purchase price of 190,000 yuan (S$24,200) for a clean and elegant three-bedroom apartment, turning them, legally, into city-dwellers. In the next few months they will bring their parents over from the village, shutting the farm down and ending their family’s millennia-long connection to the fields. The driving force behind their exodus, Mrs Zhang, is a sparkplug of a woman with tired eyes but a pitbull’s tenacity, who long ago resolved to save her family from peasant farming at any cost.

The Zhangs are the archetypal people of the 21st century, and we ignore their story at our peril. For the defining force of this century, almost certainly more significant than war, recession and perhaps even climate change, will be the huge and final shift of human populations from rural areas to
Framework for achieving this

1 Density
2 Mixed use
3 High quality public realm
4 Local Character
5 Connectivity

6 Public participation
7 Integrated Action
8 Adaptability

= Economic vitality, social cohesion and Sustainability.
Repurposing our Cities

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sustainability

1982

685 dwellings

= 5 dwellings
• convenience stores

Source: City of Melbourne, Census of Land Use and Employment
Note: Dwelling dots show the density of dwellings in CLUE Blocks, which roughly equates to CBD blocks.
sustainability

2002

13,398 dwellings

Source: City of Melbourne, Census of Land Use and Employment
Note: Dwelling dots show the density of dwellings in CLUE Blocks, which roughly equates to CBD blocks.
Repurposing our Cities

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=E=

Economic vitality, social cohesion and Sustainability.

Bib. Value of Urban Design – Ministry for the Environment New Zealand
1982
604
food and beverage establishments

1 food and beverage establishment

Source: City of Melbourne, Census of Land Use and Employment
Note: Dots show the density of establishments in CLUE Blocks, which roughly equate to CBD blocks.
2002
1,117
food and beverage establishments

1 food and beverage establishment

Source: City of Melbourne, Census of Land Use and Employment
Note: Dots show the density of establishments in CLUE Blocks, which roughly equate to CBD blocks.
2012
1,978
food and beverage establishments

1 food and beverage establishment

Source: City of Melbourne, Census of Land Use and Employment
Note: Dots show the density of establishments in CL UF Blocks, which roughly equate to CBD blocks.
1982
1,906
retail establishments

Source: City of Melbourne, Census of Land Use and Employment
Note: Dots show the density of establishments in CLUE Blocks, which roughly equate to CBD blocks.
1992
1,566
retail establishments

Source: City of Melbourne, Census of Land Use and Employment
Note: Dots show the density of establishments in CLUE Blocks, which roughly equate to CBD blocks.
2012
2,423
retail establishments

Source: City of Melbourne, Census of Land Use and Employment
Note: Dots show the density of establishments in CLUE Blocks, which roughly equate to CBD blocks.
48% of the study area has redeveloped within a single generation.
Total Land Uses (primary and secondary)
Repurposing our Cities

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Bib. Value of Urban Design – Ministry for the Environment New Zealand
investing in public spaces

waterways
built form
street patterns
public transport
parks

clear structure
distinct character
accessibility
good fit with people’s intentions
sustainability
continuity and change
variety versus consistency
animation senses
equity
Bluestone and asphalt are traditional materials in central Melbourne. As well as historic precedent, bluestone and asphalt harmonise with each other to provide a neutral background consistent with the formality of the city's streets. Bluestone is extremely durable and gives excellent grip. Asphalt will remain as the most common footpath surface but will gradually be replaced with sawn bluestone slabs similar to those used outside the Town Hall and in the City Square. Although paving the footpaths in bluestone has a high initial cost the Council considers it is a worthwhile long-term investment.

Use this Note in conjunction with the Bluestone Paving Units Specification (see page 4 of this Technical Note).

Note prepared by: CITY PROJECTS DIVISION  
Date Published: September 1993
extent of bluestone paving in 1985
extent of bluestone paving in Jan 2014
street trees since 1993
senses
1980s
2 Sidewalk Cafes
2004
389 Sidewalk Cafes
2014
534 Sidewalk Cafes
good fit with people’s intentions
public space in 1983 accessible all hours
public space in 2004 accessible all hours
accessible business hours
pedestrian zone - lunchtimes
public space in 2011 or 2014?
accessible all hours
accessible business hours
pedestrian zone - lunchtimes
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Bib. Value of Urban Design – Ministry for the Environment New Zealand
1836
City block plan

19th century subdivision

20th century consolidation of land
Total Lanes, Arcades and Alleys
434

Average per Block
6

Total Through-block Links
179

Total with a Cluster of Street Art
17
Repurposing our Cities

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Bib. Value of Urban Design – Ministry for the Environment New Zealand
total no. of pedestrians per day – Swanston street
Growth in no. of cyclists commuting to work in municipality has increased.

In 2017 bicycles now represent close to 17% of total vehicles on roads, footpaths and parks, in the central city up from 1% in 2002 and 4% in 2006.
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Bib. Value of Urban Design – Ministry for the Environment New Zealand
Parks and Gardens
Useful Life Expectancy

- 30% loss in 10 years
- 48% loss in 20 years
1800s
- Melbourne founded
- Carlton Gardens
- Alexandra Avenue
- Elm Trees
- Plane Trees
- Periods of drought
- Water restrictions
- Climate change awareness

1900s
- Reminder of European origins
- Aesthetic quality
- Provide shade
- Reclaim land
- Cultivate or tame landscape
- Reminder of nature & growth
- Improve value land
- Develop neighbourhoods
- Revegetation
- Natives as patriotic
- Concept of tree as an ‘asset’ emerges

2000s
- Urban intensification
- Urban Heat Island mitigation
- Biodiversity
- Water sensitive urban design
- Sustainability
- Recognition of public realm
- Health and wellbeing benefits
173 people died in the 2009 bushfires

374 people died due to the 2009 heatwave
Cool the city by 4°C
Strategies and Targets

**Strategy 1: Increase canopy cover**
Increase public realm canopy cover from 22 per cent to 40 per cent by 2040.

**Strategy 2: Increase urban forest diversity**
The urban forest will be composed of no more than 5 per cent of any tree species, no more than 10 per cent of any genus and no more than 20 per cent of any one family.

**Strategy 3: Improve vegetation health**
90 per cent of the City of Melbourne’s tree population will be healthy by 2040.

**Strategy 4: Improve soil moisture and water quality**
Soil moisture levels will be maintained at levels to provide healthy growth of vegetation. Become a water sensitive city.

**Strategy 5: Improve urban ecology**
Melbourne’s green spaces will protect and enhance a level of biodiversity which contributes to the delivery of ecosystem services.

**Strategy 6: Engage the community**
The community will have a broader understanding of the importance of our urban forest, increase their connection to it and engage with its process of evolution.
Explore Melbourne's Urban Forest

The City of Melbourne maintains more than 70,000 trees. This website enables you to explore this dataset and some of the challenges facing Melbourne's Urban Forest.

Explore the Map  Learn about the Issues  Attend the Workshops

- Visit the Urban Forest conversation website
- Email the Urban Forest team
Mon 23/09/2013

You are a nice tree and I can see you out my window. Hope you are well. Have a nice day. Jamie

Dear Jamie, Thank you for your email. I am well and very much enjoying the beautiful weather today. I hope you are too. Kind Regards, Chinese Elm 1030595.

Chinese Elm 1030595…(or can I call you Dale??), I am loving the weather…but I am stuck inside and am so jealous of you soaking up the sun. You seem to be having a ball out there today. What did you get up to on the weekend? Jamie

Dale… I like it. Sorry that you are stuck inside. A lunchtime stroll is a must today. I am really enjoying stretching my stomata and giving my chloroplasts a good workout. I spent the weekend well hydrated and preparing for the summer ahead. You?

Dale, I got a little dehydrated on Friday night and then spent the rest of the weekend re-hydrating. ;-) You have a prime location for tonight’s Brownlow….you might see some interesting things later in the evening. If you get a chance can you please drop a branch on a Collingwood player or twos head. Anyway, I might pop down and say g’day later in the day if I get a chance. Jamie
SOUTH YARRA URBAN FOREST
PRECINCT PLAN 2013 – 2023
FINAL DRAFT
Repurposing our Cities

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Bib. Value of Urban Design – Ministry for the Environment New Zealand
Figure 2: Total Annual Water Flowing Into Melbourne’s Main Water Supply Storage Reservoirs
(Taxies, Upper Yarra, D’Shannon and Maronbah Reservoirs)
Before –
Fitzroy Gardens Former Depot
Area 9,000m2

After –
Modernised Depot
New public gardens 4,000m2
New visitor centre
New underground stormwater 5ML
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Bib. Value of Urban Design – Ministry for the Environment New Zealand
Postcode 3000 target 8000 units in 15 years
Sustainability Strategies

Sustainable Buildings
City as a catchment
1200 Buildings
Urban Forest
Open Space
City Switch
Biodiversity
Zero carbon
Climate resilient
Resource efficient
Zero waste
mid 1990s

2005
Queensbridge Square

BEFORE

AFTER
Southbank Boulevard

BEFORE

AFTER
‘Green street’ construction
Before – 529m²

After – 4900m² = $14m
Neill - Drummond streets Carlton
Over the last 30 years the City has converted over 80 hectares of asphalt to pedestrian or park uses.

Neill street Carlton
ACTION 1: TRANSFORMATION, CREATING NEW OPEN SPACE

Design response

Existing conditions
rates history

- non-residential rates
- residential rates
Daily population
People using the city during an average weekday

2008: 735,000
2010: 778,000
2012: 830,000
2014: 854,000

Source: City of Melbourne
Population growth
Total number of residents, persons

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>80,154</td>
</tr>
<tr>
<td>2010</td>
<td>97,623</td>
</tr>
<tr>
<td>2012</td>
<td>105,418</td>
</tr>
<tr>
<td>2015</td>
<td>128,980</td>
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</tbody>
</table>
Business growth
Number of jobs in Melbourne municipality

<table>
<thead>
<tr>
<th>Year</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>319,729</td>
</tr>
<tr>
<td>2009</td>
<td>415,498</td>
</tr>
<tr>
<td>2012</td>
<td>435,832</td>
</tr>
<tr>
<td>2015</td>
<td>450,336</td>
</tr>
</tbody>
</table>

Source: City of Melbourne
Motor vehicle ownership

Motor Vehicles registered in the municipality per capita

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2012</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.87</td>
<td>0.80</td>
<td>0.74</td>
</tr>
</tbody>
</table>
Melbourne: Oil & Mortgage Vulnerability
Melbourne @ 5 million 2022
South-east worst hit by bankruptcy

Mortgage stress takes heavy toll

By MARC MONCRIEF
DATA EDITOR

The postcode with the third-highest count covers the area north from Hoppers Crossing to Caroline Springs. That area had 67 bankruptcies, equating to a leap of nearly 30 per cent between that area and second-placed Frankston.

The median number of bankruptcies for postcodes statewide was eight.

Taking population into account, the south-east remained a notable hub of financial stress.

The 3975 postcode, which borders Cranbourne to the north, had 16 bankruptcies out of an estimated 2011 population of fewer than 3000. Comparable rates could only be found in rural areas, with populations so small that two or three bankruptcies could make a statistically significant impact.

Leanne Petrides, manager of the Cranbourne Information and Support Service, said she was not surprised at the surge in bankruptcies.

“This is an area of high socio-economic disadvantage,” Ms Petrides said. “We’ve got massive growth and there is not necessarily the infrastructure to support the growth.”

Ms Petrides said many of the people who sought help through her agency were casual workers who could find themselves out of work suddenly.

“They are the first ones to go and they are left with very high debts they cannot reach,” she said.

The bankruptcy data, provided by the Insolvency and Trustee Service Australia, has only previously been disclosed on a state-by-state basis.

Victoria as a whole had 4518 bankruptcies, a 21 per cent drop on the previous year’s 5716. Queensland posted 6148 bankruptcies in the same period, though New South Wales’ 8135 was by far the highest of any state.
Surge in abuse reports stretches crisis services to breaking point

NICOLE BRADY

REPORTS of family violence to police are at a record high in Victoria, straining legal, crisis accommodation, support and treatment services.

In the last financial year, police attended 40,682 family violence incidents, a figure that has increased steadily from 29,648 in 2006-07.

Police and those working with victims welcomed the 31 per cent leap in reports. They say it is a sign that more women feel confident that police will respond with seriousness and sensitivity. There is debate, however, as to whether the rise proves there is more violence or more reports — or both.

All groups acknowledged that police statistics were "just the tip of the iceberg", as family violence was notoriously under-reported, said Deb Bryant, chief of the Women's Domestic Violence Crisis Service. The Australian Bureau of Statistics found in its personal safety survey in 2005 that 36.2 per cent of women who experienced physical violence at the hands of a male partner (current or previous), boyfriend or date in the previous 12 months did not report the incident to police.

The abuse is not always physical. Under Victorian law, family violence intervention orders are available to those experiencing physical, sexual, emotional or financial abuse. These are civil orders made by magistrates but it is a crime to breach them.

Police are more likely to be called to homes in lower socio-economic areas, with reports peaking in the districts of Casey, Hume and Brimbank, taking in suburbs such as Cranbourne, Narre Warren, Broadmeadows, Kelorn, Sunshine and St Albans.

Public health expert Angela Talt of La Trobe University said research by the World Health Organization showed "the most common pattern is that men and women with lower education levels, greater poverty levels, more disability — they're the group that experience the most family violence." That doesn't mean it does not happen in more affluent homes. Dr Talt agreed with anti-violence campaigner Danny Blay that violence against women "exists everywhere from Braybrook to Balwyn".

Middle and upper-class women have more options and rarely call police.

Middle and upper-class women have more options, experts say, and rarely call in external services such as police. They are more likely to have assets and income to escape to other rooms in larger homes, hotels or rental accommodation. They are also more likely to know and use their legal rights, and houses in wealthier suburbs are solid and spaced apart, meaning neighbours are less likely to hear abuse and take action.

At the initiative of Chief Commissioner Ken Lay, Victoria Police is increasing its number of family violence units. Trained officers deal with the cases and can initiate after-hours intervention orders or family violence notices after being called to an incident. These generally require offenders to leave the home and leave the family alone until the case is heard by a magistrate, usually within days.

But family violence response services are being stretched to breaking point. Emergency accommodation and counselling services for women and children are struggling to meet demand.

“We are very, very stretched at the moment: all of our crisis and outreach services are under a lot of pressure,” Ms Bryant said.

Mr Blay, executive officer of the Men's Referral Service, which directs men to violence prevention programs, said some metropolitan programs had month-long waiting lists.

“We know in terms of quality practice that if a man calls a service and says, 'I need to do something about my violence', he needs to be able to have that conversation with a skilled male family violence worker within 48 hours, otherwise things calm down and don't seem so bad and the window of opportunity closes and often we'll never hear from him again,” Mr Blay said.

“If you put him on a waiting list, you're not doing anyone any favours, and potentially making things worse.”

Home truth about men's violence against partners
An Access Economics report prepared for Diabetes Australia estimates the total economic cost of obesity in Australia in 2008 was a staggering $58 billion.

"people who used public transport on a particular day, also spent an average 41 minutes walking and/or cycling as part of their travel." Chris Loader The Age March 12 2010
1970: 5,000 students
2010: 14,200 students
It's 6am and, while most people are still tucked up in bed, this sleepy commuter is doing his bit to save the state $85 million.
Melbourne @ 8 Million by 2050.

Status Quo is not an option! At the same time destroying the Australian dream of a home and land package is not an option.

So what are our options?

‘The 7.5% City’
860,000 people @ 200 persons per Hectare

ACTIVITY CENTRES 3% OF METRO AREA
3000 residents ... and rising

South Yarra reaches for the sky to satisfy demand for housing

Clay Lucas
City Editor

Just over a decade ago, just over 100 homes dotted the streets between South Yarra railway station and Chapel Street.

Back then a local council report suggested that, all things going well, an extra 200 new homes might be added to the area by 2015.

Instead, one development alone - the Charles Thorney-courted 50-level apartment tower on the Toorak Road and Chapel Street corner - is poised to provide another 450 apartments.

Welcome to booming Forrest Hill, named after Charles Forrest, who once owned the land where Melbourne High School now stands.

In 2006, a handful of people lived on these eight hectares, bordered by Chapel Street, Toorak Road, the Yarra River and South Yarra railway station.

Today, light industrial and office buildings have been torn down, replaced by apartment towers - at a construction cost of more than $2 billion. More than 8000 residents now live here. There are more than 50 towers in the precinct either completed or under way, and Stonnington Council now expects an eventual 20,000 residents.

The growth hasn’t been painless: car traffic brings the streets to a standstill regularly.

"It’s changed from having almost nil population," says councillor Matthew Keen, whose ward takes in the area. "South Yarra station is congested, and bus and train times have expanded."
3% of Metro Area

Urban Corridors
Land Capacity Analysis

CADAstral PARCELS

Metro Cadastral Parcels  1,571,532
# Results

<table>
<thead>
<tr>
<th></th>
<th>Tram</th>
<th>Target Bus Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites available for densification</td>
<td>12,439</td>
<td>22,038</td>
</tr>
<tr>
<td>Total area (Ha)</td>
<td>1,418</td>
<td>5,275</td>
</tr>
<tr>
<td>Current population</td>
<td>48,630</td>
<td>158,250</td>
</tr>
</tbody>
</table>

**Proposed Density Range 180 - 450**

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net population increase</td>
<td>1,003,950</td>
<td>2,457,310</td>
</tr>
</tbody>
</table>
NOW

Nicholson Street, East Brunswick – looking south to the city
POSSIBLE FUTURE

Nicholson Street, East Brunswick – artists impression
Known redevelopment sites 1.5% yield 500,000 persons @ 200 persons per
Status Quo Melbourne @ 8 million

Will cost $440,000,000,000 extra over 50 years assuming that half of all future housing is built on the periphery of Melbourne.

This is equivalent to the cost of 12 National Broadband Networks. Imagine how many schools, hospitals and community centres we could build with this?
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Bib. Value of Urban Design – Ministry for the Environment New Zealand
TRANSFORMING CITIES TO ACHIEVE A FINANCIALLY AND ECOLOGICALLY SUSTAINABLE FUTURE