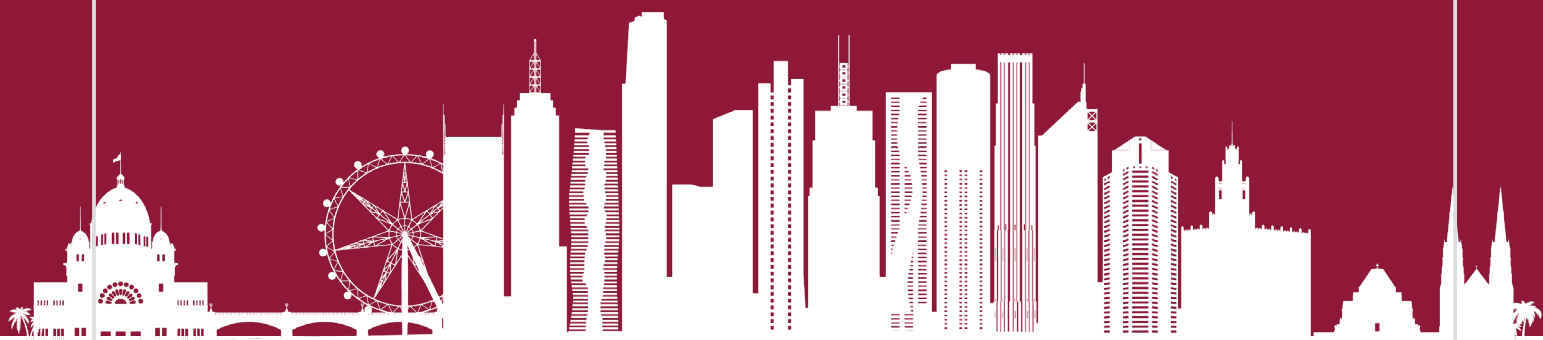


URBAN SYSTEMS TRANSFORMATION

MELBOURNE



THE URBAN CHALLENGE

Future Earth Australia, hosted by the Australian Academy of Science, is leading a process to co-design a national strategy for Australian sustainable cities.

Australia is already one of the most urbanised countries in the world, with 89% of the population living in urban areas (UNDESA, 2014) and 67% living in the capital cities. Australia's estimated resident population of 24.6 million people, as at June 2017, is projected to increase to between 37.4 and 49.2 million people by 2066 (ABS, 2018). All capital cities are projected to grow at a greater pace than the rest of their respective state or territory (ABS, 2018). Some are seeking to constrain growth; others, including many regional centres, are looking for extra or renewed growth.

Our urban environments are an interrelated system comprising social, economic, ecological and technical spheres. Urban systems transformation is needed to ensure that people can move around efficiently, live in safe and healthy homes, receive adequate education and medical care and enjoy lives of social equity in a healthy and biodiverse environment.

The metropolitan plans for most Australian capital cities include consistent sustainability planning and design principles such as containing urban sprawl, reducing car dependency and providing greater housing choices. However, in practice, urban decision-making is subject to numerous complex drivers—social, environmental, economic, institutional, technological—with the potential to create barriers to sustainable development.

The challenge lies in ensuring effective and consistent urban policy and decision-making in the complex urban institutional environment (across spatial scales and decision-making levels, and across sectors), with genuine stakeholder and community engagement

that understands the many and varied underlying aspirations and values. In turn, this process needs to be guided by shared visioning of our urban futures, underpinned by approaches to co-produce, share and implement knowledge to inform decision-making. In this context all decision-makers and stakeholders are both providers and users of knowledge.

However, current urban development and decision-making is characterised by a lack of shared vision and excessive fragmentation in institutional arrangements and in relevant knowledge development, translation and use.

RESPONDING TO THE CHALLENGE

Future Earth Australia is working to improve the appreciation of the underlying barriers and enablers to sustainable urban development, and the supporting development, synthesis, translation, accessibility and application of relevant knowledge. Through a nationwide consultative process, it is co-developing a national strategy for the sustainable development of Australia's cities and communities over the coming decades.

Through a series of workshops in the capital cities, Future Earth Australia asked policymakers, practitioners, researchers, business and community stakeholders to contribute to the development of local and national strategies. Each workshop included a special focus on the specific city and the surrounding region, as well as implications for a national approach.

THE IMPORTANCE OF A NATIONAL STRATEGY

To be successful, transformational strategies will need to include shared urban visions of feasible and desirable futures, with a focus on:

- key systemic leverage opportunities
- collaborative and aligned urban governance integrated across systems, sectors and scales
- effective stakeholder and community engagement across multiple goals and diverse values
- co-produced knowledge development and use by policy and urban decision-makers.

These elements should all be supported by continuing learning and adaptive management. A national strategy will provide governments, practitioners, businesses, communities and researchers with recommendations for cost-effective and integrated urban systems transformation.

To help us achieve these goals, workshop participants are asked to consider:

- current issues and future visions for their city and region
- how to improve engagement outcomes with stakeholder and community groups by policy and decision-makers
- actions that if taken locally (at state/territory level) and nationally would increase the sustainable development of the city/region
- how such actions might contribute to a national strategy for urban systems transformation.

A national strategy will also help Australia meet our commitments under the United Nations' Sustainable Development Goals (SDGs). SDG 11 is to 'make cities and human settlements inclusive, safe, resilient and sustainable', but transformation is underpinned by integration of all 17 of the goals.

Melbourne workshop

On 8 February 2019 Future Earth Australia held the fifth in a series of national workshops for its project 'Urban systems transformation: sustainable cities'. The Melbourne workshop was hosted by the Centre of Urban Research at RMIT University. Stakeholders from territory government, city councils, universities, local businesses, NGOs and research groups participated.

This document summarises discussions grouped under the following workshop themes: urban visioning initiatives and pathways; collaborative governance and decision-making; stakeholder and community engagement; and co-produced knowledge development, usage and learning.





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SPEAKERS

Professor Jago Dodson, Director, Centre for Urban Research (CUR), RMIT University

Professor Dodson paid respect to traditional owners and welcomed participants to the workshop. CUR welcomes the opportunity to cooperate and collaborate with a large collective of different research organisations—representatives from four universities were present—and to put aside competition. Working with partners in industry, government and the NGO sector helps researchers shape future urban directions.

Professor Billie Giles-Corti, Director, Urban Futures ECP and CRE Healthy Liveable Communities, RMIT University

Melbourne is meant to be one of most liveable cities in the world, but it does have challenges, particularly in the outer suburbs. There will be problem if, as predicted, Melbourne's population grows to eight million by 2050. Does that mean we need to curb immigration? Even if we do, internal movements between states and within Victoria will lead to growth in Melbourne.

Professor Giles-Corti and her team are interested in how to manage this situation. Should Melbourne continue to build on the urban fringe, propagating urban sprawl? The spreading concretisation and profusion of black roofs (see image) is intensifying the urban heat effect. That's not to say that inner-city developments with high-density high rises are problem free. The social impacts of super dense developments are questionable.

Traffic is a major issue for cities across the globe. In Melbourne, the number of commuter trips has increased as more people live in the outer suburbs. Only 20% of



the people who work in the city live in the city, and current transport infrastructure is struggling to support this.

Autonomous vehicles are often touted as a way forward, but how will this reduce traffic? And what will the health impacts be? Shouldn't there be greater support for active transport? The focus is currently on the technical, rather than social and policy, framework of electric and autonomous vehicles, but with chronic disease being a bigger problem than vehicle accidents, should this be the case?

So how do we green a city? How do we cool a city? What about biodiversity? We need transformational cross-disciplinary work. The Urban Futures Enabling Capability Platform at RMIT researching urban transformation—how to plan, design, build and govern.

Professor Chris Ryan, Director, Victorian Eco-Innovation Lab, University of Melbourne

The Visions and Pathways 2040 project is developing pathways for cities to de-carbonise to 80% and increase resilience by 2040.

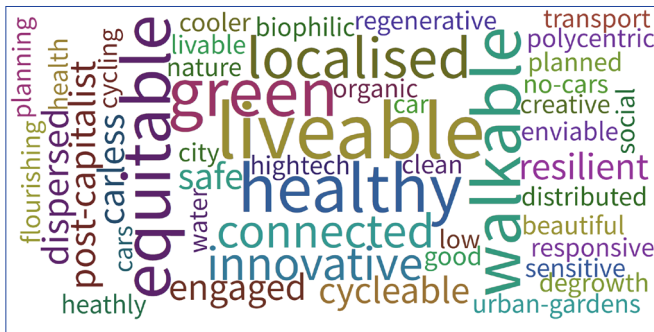
Cities are interconnected systems that evolve over time. They are technological, physical, cultural, social and ecological systems. Cities are classic wicked systems, which means that it is impossible to work effectively on one part alone. It's about technological change but also the narrative of life. Urban life is inscribed on the urban form.

The *Visions and Pathways 2040* report found that an 80% reduction in emissions can be attained in Melbourne by adopting a range of governance, policy and social inputs. A dynamic physical model was created that shows how carbon emissions across the city might look under different scenarios. A significant finding of this project has been to recognise the importance of good visualisations to get people engaged in transformation.

VISIONS FOR MELBOURNE

Participants were asked to consider their vision for a sustainable future in Melbourne and to use their devices to enter applicable words into an online poll to generate a word cloud.

The most popular answers to the question 'What is your vision for a sustainable future in Melbourne?', were *liveable* with six entries, *healthy*, *equitable* and *green* with five and *walkable*, *localised* and *connected* with four (word cloud 1).



Word cloud 1: Vision for a sustainable future in Melbourne

The term *equitable* had a slightly different meaning to different people. Some felt it was a synonym for *inclusive*, for example ensuring that all people have access to walkable areas and cycling paths, that this type of amenity was not limited to the inner city. In cities the risk of inequality is high, with concentrations of disadvantage away from the city. People can lead very different lives in the same city.

Green scored highly, with participants agreeing that this encompassed green infrastructure, biodiversity, biophilia and the relationship of people to nature.

There need to be integrated plans to make the city more equitable in terms of transport and facilities. At present, many new developments in the outer suburb/city fringe do not have appropriate public transport. From an equity point of view, residents should have access to services without having to drive long distances. It was noted that public transport will not meet the needs of some groups, such as the elderly or disabled. Cars can provide mobility and enable older and less mobile people to maintain social connections.

When asked to express a vision for Melbourne for 2030 to 2050 the word *regenerative* was entered four times

and *net zero* three (word cloud 2). For some, *net zero* referred to energy and renewables, and for others it implied regeneration, recycling and reuse. The concept of 'net positive' was also raised—the idea that now we need to start putting extra back into the system to repair the damage humanity has inflicted.



Word cloud 2: Vision for Melbourne in 2030–2050

The most popular words entered for a national sustainable vision were *renewable* and *inclusive* with seven entries each (word cloud 3). *Innovative* was entered six times, generating robust discussion about the need for more innovative design and policy in Australia. Singapore and Stockholm were cited as countries that have strong visions for a sustainable future supported by innovative national policies and governance.



Word cloud 3: Vision for a sustainable future nationally

Although Australia has pockets of innovation, larger scale initiatives often do not get traction. Frequently, the answers to urban problems are known but, whether due to changes in government or policy agendas, the appropriate solutions are not applied. Projects such as the UN SDGs should be used to guide big infrastructure projects and urban planning.

Education was entered three times. Currently, planning modules are taught in a highly disciplinary fashion with little integration with other subjects. Universities are training people to become specialised, whereas we need to be cross-disciplinary. However, to change

the structure of a course or to introduce a new degree that tackles new concepts or more innovative projects requires time. A new degree takes an average of two years to approve and four years for students to graduate from. It is hard to respond rapidly to new theories and techniques.

Education was discussed in terms of public understanding. It was noted that our own cultural biases are inherent in these discussions. For example, the fringe is always seen as bad, but *many* people make a positive choice to live there: they want space. The language used in conversations about outer suburbs and regional areas is very negative. Often planning conversations are driven by people who live in the inner city and do not understand this other point of view.

WHAT DO WE NEED TO KNOW TO ACHIEVE THIS VISION?

To shift behaviours and encourage people to be more sustainable there needs to be a better understanding of motivation and issues such as why people live where they live, understanding peoples' relationship to their surroundings and how resources, including food, are valued. It is difficult to articulate a common vision for a sustainable future even within tables at the workshop! There is not one vision, but multiple visions. Therefore, there needs to be an understanding of commonalities and divergence.

Modelling of physical quantitative data combined with qualitative socio-cultural techniques will improve understanding of the choices and compromises people make when planning. Outputs can help decision-makers better understand the cross section of motivations for living sustainably or non-sustainably, and the physical and social drivers of sustainability.

Governance models should increase focus on equality and social inclusion. This includes the future of work; it is essential that social participation is considered alongside economic factors. Technology will affect the type and number of jobs available and this will have social impacts—consider, for example, the global impact of ridesharing companies such as Uber.

Social changes must be factored into urban futures; changes to the demography and cultural spread of the city, climate change impacts and growing inequality

will all impact upon collective sustainability. It is well known that integrated planning across multiple sectors is required and that multiple government departments must be involved. However, an issue for planners and state representatives is governance. Much of the decision-making is based upon the current legislative framework, which drives the work of government departments. If legislative Acts don't 'talk to each other', if their content is difficult to align, it becomes difficult for different departments to work together.

How to move forward? Potentially the conversation is not just about increased work across silos but is about developing a whole new framework for planning.



Participants worked in groups to consider if there are specific knowledge gaps that can be addressed to support transformational change towards sustainable cities. Participants in the process of developing co-produced solutions might be influenced by collaborative governance and decision-making. At the end of the session, the group discussed the benefits and pitfalls of stakeholder and community engagement.

KNOWLEDGE GAPS

For transformational change to happen, the capacity of decision-makers needs to increase, and the roles of the Victorian Planning Agency, local governments and federal departments clarified. Do decision-makers have the knowledge to make transformative changes? To improve private and public sector collaboration there should be greater funding opportunities and incentives within the policy environment.

An important concept is that perfect knowledge is not needed to make a vision reality. Real-world

experimentation, setting up pilots and trials, can be highly effective in moving towards a vision. There needs to be a shift in attitude, an understanding that sometimes it is safe to fail. There should be a culture of experimentation that is valued and learnt from creating a diversity of potential interventions.

There is a definite gap in knowledge about how to change people's behaviour, and a lack of understanding about community-wide behaviours and what people do and do not know about the sustainability of their own community. Community knowledge in areas such as eco-literacy and traditional knowledge may be limited, as many communities have lost their connection to nature.

More long-term monitoring data of both the physical and social aspects of the urban environment is needed. An awareness and analysis of vulnerabilities would better inform resilience strategies. Knowledge hubs and open data repositories are useful for capturing urban knowledge. Place-based examples and demonstration projects are potent research tools.

CO-PRODUCED SOLUTIONS

To co-produce solutions requires effective partnerships and genuine collaboration. There are effective systems in place, such as the National Cities Performance Framework¹ and the UN SDGs. On a smaller scale, projects such as Melbourne's *Healthy Waterways Strategy (2018–2028)*² provide a good example of a co-produced solution. The project enables community members to access results from past and current waterway monitoring efforts in their region. It is an effective mechanism for engagement and can lead to informed advocacy.

COLLABORATIVE GOVERNANCE AND DECISION-MAKING

Integrated planning is often not very successful—why is this? One possibility is that different sectors are subject to different drivers. There are no mechanisms at present to change that structure, but there is vested interest to maintain the status quo.

Fishermans Bend is an urban renewal project guided by a framework for sustainable development³ and a

long-term strategic plan. It's a chance to try something different. Other agents for change are the 100 Resilient Cities⁴ project and the work of the Greater Sydney Commission. These take a whole-of-city and cross-sector approach to sustainable development.

Systems thinking

We need to recast urban systems provisioning with a co-production perspective. Scenario thinking and envisioning forums have been successful in generating common goals and solutions from multiple sources, but deeper engagement with the community is also needed. We can learn from engagement with Indigenous communities. We must appreciate that community engagement takes more time.

How can successful pockets of sustainable development be scaled up to the whole city? Should successful processes be written into planning procedures, and even enforced? There are lots of theoretical models for transition management. Systems approaches should simplify transition management, particularly if changes and options are effectively visualised. Participants must feel valued and want to participate in the change to their environment. It is very important that coordinators are effective communicators.

Guiding frameworks for sustainable development must be supported by good data that is translatable into easy-to-understand performance measures. There are opportunities to make structural changes following episodes of disruption, for example, the restructuring following Hurricane Katrina. Even transport disruptions can be used to re-assess and guide new models for travel.

Government

From a community point of view, there are too many different agencies, departments and organisations involved in urban systems, with overlapping responsibilities. Figuring out who does what can be overwhelming. There are too many councils, but amalgamations are fraught. To optimise government would require blending top-down guiding frameworks across agencies with support from stakeholders and the community. Perhaps collaborative government isn't always needed.

1. <https://smart-cities.dashboard.gov.au/all-cities/overview>

2. <https://yoursay.melbournewater.com.au/healthy-waterways>

3. www.fishermansbend.vic.gov.au/framework

4. www.100resilientcities.org/

There are structural aspects of state and federal government organisations that complicate collaborative governance. Funding and power need to be shared. Political 'short termism' is also a problem—leadership is stymied by the brevity of political cycles. Would an elected major like Sadiq Khan make a difference?

Costs

Environmental costing is critical and should be an integral part of general costing. There is increasing interest in the concept of calculating a dollar value for ecosystem services and for calculating ecological footprints.

New financial models are critical, for example there might be a bottom-up approach based on crowd funding that is matched by local and state funding. Internalised versus external costs should be considered. The external costs that planning imposes on the environment should be calculated, along with the cost of land, materials, etc.



STAKEHOLDER AND COMMUNITY ENGAGEMENT

It was noted that community engagement should be recognised as an opportunity, but if engagement is not done well that there may be poor outcomes, and that too much engagement can be off-putting. Tried and tested techniques for keeping people interested include dynamic social media campaigns, focus groups and incorporating the creative arts into campaigns by developing quality visual aids.

It is intrinsically hard to engage the community. There are often problems with representation bias and competing and conflicting priorities. Messaging must be appropriately targeted to capture a cross section of the population. Echo chambers should be avoided.

Regional partnerships are important for good community partnership platforms. Regional-based platforms should encompass members from a wide

range of sectors, including councils, government departments and community representatives. Any priorities can then be delivered straight to cabinet, cutting out the middlemen. This process has worked in Victoria and, although the consultations often do attract the same people, the goodwill factor is high. As a result, several outcomes went directly to cabinet and were funded.

EMERGING THEMES AND TAKE-HOME MESSAGES

The CEOs of big developers need to be convinced about these visions for a sustainable future. There were no representatives at the workshops, but the conversations must happen if collaborative projects are going to succeed. Of the seven biggest tech companies, only one has a good sustainability policy.

How can we engage with other sustainability ventures, such as Sustainable Melbourne? How do we create partnerships and collaborative programs more quickly? The UN Global Compact Cities Programme at RMIT University is testing partnership methodologies across seven municipalities across Australia.

To truly affect transformational change is a challenge that would require a considerable shift in policy. Policymakers would need to be convinced of something new and practical. There are many strategies and policy documents that refer to the same issues and solutions in slightly different words. The fact that many planning documents are not fully implemented is telling. What is needed is a document that differentiates itself by being practical and innovative, containing pragmatic suggestions to take to leaders and CEOs.

A national strategy for urban systems transformation will not deliver on implementation unless it supported by government and has secured funding. It is important that the voice of non-academics/researchers is strongly reflected in the strategy and that it is communicated to state and local governments, CEOs and planners.

MELBOURNE

Melbourne sprawls across 9993 km² around Port Phillip Bay, reaching 30 km from the CBD to Dandenong in the east, 40 km to the Mornington Peninsula in the south and 20 km to the north and west (City of Melbourne, 2019b). Before European settlement, the area around the Yarra River was an important meeting place for people of the Kulin nation.

FACTS AND FIGURES

Greater Melbourne's population in 2016 was 4 323 072, making it the second biggest Australian city after Sydney (Australian Bureau of Statistics, 2018).

Melbourne citizens come from more than 200 countries, speak 260 languages and practice 135 faiths (World Cities Culture Forum, 2019). At least 40% of the population was born overseas, with the most common countries of birth being recorded as India, China, England, Vietnam and New Zealand (Australian Bureau of Statistics, 2018).

REGIONAL CHALLENGES

Growing and aging population

By 2026, Melbourne is projected to reach six million residents and overtake Sydney to become Australia's largest city (McCrindle, 2018). The population is predicted to reach seven million by 2031 and eight million by 2037 (McCrindle, 2018).

In addition to significant ongoing population growth, Melbourne will see a significant proportion of its population move into the 65 years old and older bracket. By 2051, those over 65 will increase to 20.5% of total population (in contrast to the current 13.8%) (State of Victoria Department of Environment, Land, Water and Planning, 2016). This will cause substantial change in demand for community services and infrastructure.

Congestion and growth linkages

Congestion and transport are key issues affecting liveability for Melbourne residents. By 2050, Melbourne's transport network will need to handle an extra 10.4 million trips per day (Victorian Department for Environment, 2016). Congestion costs Melbourne city \$4.6 billion every year and is projected to cost \$10 billion by 2030 (City of Melbourne, 2018). Driverless vehicles may contribute to congestion as they become conventional transport modes (City of Melbourne, 2018).

The City of Melbourne is currently undertaking a *Transport Strategy* refresh, and preferred options for tackling congestion include encouragement of active transport and the introduction of a user-pays road pricing system, either according to zones or per kilometre (City of Melbourne, 2018).



Housing affordability

House prices in Australian cities have risen due to growing real incomes, certain taxation settings and low interest rates (Yates, 2017). Over the next 35 years, Melbourne will need a further 1.6 million new homes to house its growing population (Victorian Department for Environment, 2016).

Climate change

Melbourne is likely to experience ongoing changes to its climate, including less rainfall and longer and more frequent periods of drought, more frequent and intense heavy downpours, more frequent days of extreme heat, heatwaves and fire weather and rising sea levels (City of Melbourne, 2019a). It is expected that by 2051, at least 26 days in the year will exceed 35 degrees (Resilient Melbourne, 2016). The current system of public transport has repeatedly failed during extreme heat events, with train and tram services being cancelled or speed severely restricted. Sea level rise is projected to increase average sea levels along the Victorian coast by 15 cm by 2030 (City of Melbourne, 2019a).

MAJOR PLANNING DOCUMENTS

Plan Melbourne 2017–2050

Plan Melbourne 2017–2050 contains 90 policies across six thematic areas: managing population growth; growing the economy; creating affordable and accessible housing; improving transport; responding to climate change; and connecting communities (Victorian Department for Environment, 2016). A separate five-year implementation plan sets out how *Plan Melbourne* will be delivered. The plan contains a coherent section on incorporating and supporting regional Victoria in its planning and functionality.

Resilient Melbourne Strategy (2016)

The *Resilient Melbourne Strategy* is a joint project of 32 local councils in Greater Melbourne, the Victorian Government and 100 Resilient Cities (an initiative funded by the Rockefeller Foundation). Released in 2016, it is the first resilience strategy for metropolitan Melbourne and has been led by local government (as opposed to state). The strategy sets out action areas for Melbourne councils to improve their communities' ability to adapt, absorb and survive 'shocks' to the system.

The strategy is designed around four key resilience building objectives: stronger together (empowering communities to take active responsibility for their well-being); shared places (creating infrastructure and activities to promote cohesion and equality of opportunity); a dynamic economy (providing diverse local employment opportunities to create an adaptive workforce); and a healthy environment (enabling strong ecosystems alongside a growing population).

Melbourne 2030: Planning for sustainable growth (2002)

In anticipation of Melbourne's continued population growth, *Melbourne 2030* (released in 2002) set out the Victorian Government's plan to maintain the liveability of established areas while concentrating major change in strategically chosen redevelopment sites such as activity centres and undeveloped land (Victorian Department of Infrastructure, 2002). *Melbourne 2030* established the Urban Growth Boundary as a tool to manage expansion, and this measure has been retained in present day planning for the city. In 2008, the Victorian government released two updates in response to an audit of the plan: *Planning for all of Melbourne and Melbourne @ 5 Million*.

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