

Appendix 8. Delivering Sustainable Urban Mobility

Introduction

Australia is one of the most urbanised countries in the world, with almost two-thirds of the population concentrated in five cities. The large number of cars and trucks in urban areas cause traffic congestion costing billions of dollars, harm human health, and add to greenhouse gas emissions.

Throughout the 20th century there are examples in Australian cities of forward-thinking urban planning that were successful within the constraints and priorities of the time. However, from the late 20th century through to today, urban plans for Australian cities have increasingly *not* delivered urban mobility that is sustainable in the long-term. A business-as-usual approach will not work – a major rethink is required.

The report by the Australian Council of Learned Academies (ACOLA), SAF08 *Delivering Sustainable Urban Mobility* (<http://acola.org.au/wp/8-delivering-sustainable-urban-mobility/>) brings together research on optimising mobility options in and between urban areas. This research was sourced from disciplines as varied as history, urban policy and design, technology commercialisation, health and medical science, and interdisciplinary research management. The report calls for a new approach to urban transport that prioritises *people* rather than one particular mode of transport, to ensure our future cities are productive, liveable and accessible.

Increasing pressure on Australian cities

Only 3 per cent of the world's population lived in urban centres 200 years ago. Today, half the world's population lives in cities, and this is expected to increase to 75 per cent by 2050, when world population is projected to reach nine billion.

In Australia, population is forecast to reach 37 million by 2050, with Melbourne and Sydney alone expected to exceed 14 million this century. Without proper infrastructure management, congestion costs in Australian capital cities are forecast to grow from \$13.7 billion in 2011 to around \$53.3 billion in 2031.

Australians desire and deserve equitable, reliable and cost effective mobility choices – no matter whether they live in inner cities (where transport choices are greatest) or outer urban locations (where the practical mobility choice usually is only a car, even for short trips). Some aspects of transport systems in Australian cities are more than 100 years old. Several cities have grown to extend well beyond the reach of public transport. Adding roads is not necessarily the solution for the urban mobility challenges of today and tomorrow.

Australian transport infrastructure spending has declined over the past 40 years. Australia's current infrastructure shortfall in urban areas is estimated at \$145 billion. The cost of addressing this deficit may exceed \$350 billion by 2025, but if implemented well such investment in Australia's mobility infrastructure is forecast to lead to a continuing annual economic benefit of \$75 billion.

There are also environmental pressures. As the Australian population increases, and is further concentrated in major cities with an increasing proportion of older people, the social inequities and economic consequences of fossil fuel dependence will intensify.

Cities cover less than 2 per cent of the Earth's surface, but use 78 per cent of world energy. Globally there are ~1.2 billion cars (a figure that is expected to double by 2030), but their use is inefficient with the average car parked 96 per cent of the time. In major Australian cities, about three-quarters of the journeys to work in 2011 were by car.

Australian cities generally rate high on measures of liveability, but they have environmental footprints that are not sustainable. The expansive nature of Australia's largest cities has consequences for water quality, air quality and ocean cleanliness. Transport is a major source (about a quarter, globally) of greenhouse gas emissions, with Australia one of the world's highest emitters in this sector.

As well as contributing to climate change, cities and their transport systems are affected by its impacts. A high proportion of the world's cities with populations of one million or more are on the coast and hence vulnerable to sea-level rise. Cities act as amplifiers of global warming, creating urban heat islands. Many cities are introducing trees, open green spaces and other vegetation to reduce local temperatures. But cities have limited capacity to withstand the combined pressures of population expansion, climate change and outdated transport.

Sustainable urban design

Transport plays an essential role in economic and social development, ensuring access to jobs, housing, goods and services, providing mobility, and opening up isolated regions. Access, mobility and how we shape our cities have a profound influence on perceptions of quality of life.

Sustainable urban planning involves reducing or avoiding the need to travel by bringing workplaces closer to homes, increasing the number of homes in areas with the greatest number of jobs, and improving transport links between work and home.

The approach of 'smart growth' or a 'compact city' reduces urban sprawl by focusing on walkable city centres, bicycle-friendly land use, and mixed-use neighbourhood development. Traditionally, the central business district and inner city have been the most important employment hubs. However, in recent years there has been growth in employment in health and education services in suburban locations, and an increased importance of the 'forgotten middle suburbs' as places for future employment growth.

Furthermore, online retail and teleworking in Australia currently represent less than 10 per cent of the workforce, but this is forecast to grow rapidly. Digital technology and human behaviour are deeply interlinked, so increased telecommuting will change labour markets and retail models, and lead to a decentralised city design.

Transport technology

Australia faces a fuel security risk. In 2013–14, Australia's net import bill for crude oil and petroleum products was \$30.7 billion, or 2 per cent of GDP. As a country heavily reliant on road transport, it is surprising that Australia has small and declining fuel stocks, holding no more than three weeks' worth of oil and refined fuels onshore.

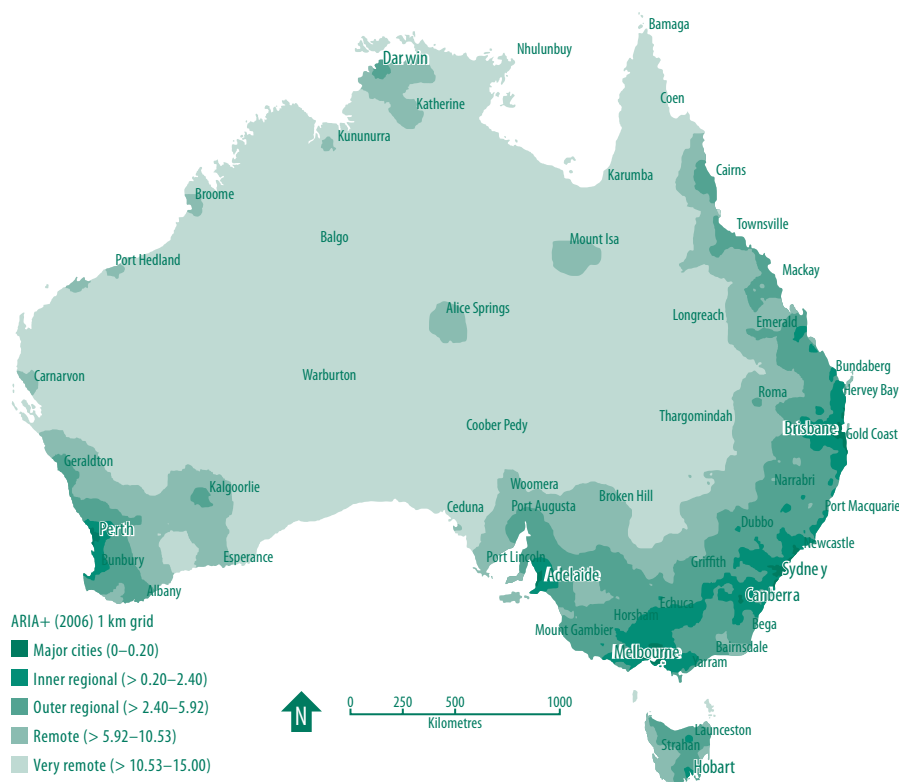
Sustainable urban planning could address this risk by considering more environmentally friendly transport options, and improved energy efficiency of public and private

transport. Greater use of electric cars drawing on renewable energy grids, use of biofuels, gaseous fuels and synthetic fuels, and greater use of other energy technologies such as fuel cells, would reduce dependence on imported transport fuels, as well as lowering emissions. The provision of attractive public transport alternatives can discourage the habit, attitude and inertia of road use.

The cost of moving freight by road is more than double the cost by rail, and the greenhouse gas emissions for road are more than triple those of rail. Despite this, over the past 40 years the share of rail freight compared to heavy vehicles has steadily declined in Australia.

High-speed data transmission, digital sensors and data analytics ('big data') could better manage the flow of people, vehicles and goods through cities. Many cities already use technology to help manage traffic congestion, to police the streets and to allocate resources and services on the basis of real-time information.

Technology and innovation will be key to meeting the challenge of urban congestion. But technology alone will not be enough. Meeting the challenges of urban transport and the urban built environment will require long-term, nimble policy development and sustained investment in innovative mobility infrastructure.



People living in rural and remote parts of Australia face major accessibility challenges. (Data sources: GISCA, The University of Adelaide, GeoScience Australia and Australian Bureau of Statistics)

Conclusion

Urban mobility planning in the 21st century must aim to ensure the accessibility needs of citizens and businesses are met at the lowest individual and collective environmental and social impacts and economic cost. Best practice planning for Australian cities will deliver new and economically sound responses to our citizens and businesses for sustainable living, working and playing.

Delivering Sustainable Urban Mobility envisages a far-sighted urban planning approach – across all tiers of government – for a resilient, nationally competitive future.

Areas requiring action include:

1. the development of compact, mixed-use cities that reduce travel requirements;
2. a shift to low carbon transport options;
3. improved vehicle occupancy rates and efficiency of freight transport;
4. reduced vehicle emissions intensity, especially greenhouse gases and air pollutants; and
5. increased public transport and urban design to increase opportunities for active travel (including walking and cycling) to address Australia's level of chronic disease and obesity.

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