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Implications of the Covid-19 Pandemic: Canvassing Opinion from Planning Professionals

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ABSTRACT

By the end of 2020, the COVID-19 pandemic had exceeded 83 million cases worldwide. Given the shared origins of planning and public health, new living and social conditions have prompted an interest in how urban planning could respond to the pandemic's associated implications. In 2020, a national online survey Plan My Australia was conducted among planning experts (n = 161), in part, to identify new challenges facing urban planning and design due to the pandemic. The findings reported here revealed that many experts identified better planning for future pandemics in Australia could require some reconsideration of city size, urban density, self-sufficiency, public transport use, open space provision and housing design.

KEYWORDS

Urban planning; urban design; health; pandemics; Public Open Space

Introduction

COVID-19 was declared a pandemic by The World Health Organization (WHO) on 11 March 2020, when 118,000 cases had been reported from 110 countries. By the end of 2020, the pandemic had exceeded 83 million cases worldwide, with hotspots mostly in cities. Historically, disease has shaped cities (Sennett, 2018). Some of the most well-known proposals in urban planning history, such as Ebenezer Howard's Garden Cities, were a response to the overcrowding, pollution and pathology of Industrial Revolution cities. London's Metropolitan Board of Works developed mid-nineteenth century sanitation systems in response to public health crises such as cholera outbreaks (Pisano, 2020). However, despite the mutual historical origins of urban planning and public health when both disciplines worked collaboratively to address the health of urban populations and subsequent convergences from time to time, the two disciplines have largely come to function as disconnected domains of knowledge and action.

Before the COVID-19 pandemic, the twenty-first century's most significant public health challenge was the rising rate of non-communicable diseases (Branca *et al.*, 2019; Garry & Checchi, 2020; Peres *et al.*, 2019). Now, a growing body of scientific evidence highlights that public health risks are posed by new threats such as climate change (Koop & Van Leeuwen, 2017; Stone *et al.*, 2012) and pandemics (Capolongo *et al.*, 2018;

Newman, 2020; Sharifi & Khavarian-Garmsir, 2020; Zachreson *et al.*, 2021). The adaptation of urban areas is emerging as one of the greatest challenges that urban planners will face in this century. As urban areas grow and redevelop, there is pressure for urban planning to be adaptive in implementing policies that both enhance opportunities for health and wellbeing and assist urban areas in adapting to new threats. Indeed, careful planning and design of cities can generate many health and wellbeing, social, cultural, ecological, environmental and economic benefits that improve the conditions for urban populations (Capolongo *et al.*, 2018; Su *et al.*, 2016). This situation raises the question, ‘what do planning professionals think are the urban design and planning implications of the Covid-19 pandemic?’ Here we report on a survey that canvassed professional perceptions of urban planning issues that have arisen from the pandemic.

Our paper is structured in the following manner. The following background section sets out current policy frameworks for managing pandemics and their broader impact on society, and subsequently, the role of urban planning. The methods section sets out the survey instrument used to garner responses from planning experts around Australia about their opinions on the urban design and planning implications of the COVID-19 pandemic. The results section provides an overview of the respondents’ demographics. Subsequently, the proposals, suggestions and critiques of respondents are stratified into regional, metropolitan and dwelling scales. The penultimate discussion section describes the possible policy implications and provides some cautionary notes about how the results are interpreted. These relate to some assumptions made by respondents which may not conform to current empirical research (e.g. Batty, 2020; Pisano, 2020) and the pandemic’s ongoing evolution. Finally, the paper concludes with brief reflections on the findings.

Background

Pandemics, Preparedness and Policy

In a premonitory statement in 2019, the Global Preparedness Monitoring Board asserted, ‘The world is not prepared for the next pandemic’ (Global Preparedness Monitoring Board, 2019, p. IV). As it explained:

For too long, we have allowed a cycle of panic and neglect when it comes to pandemics: we ramp up efforts when there is a serious threat, then quickly forget about them when the threat subsides. It is well past time to act (Global Preparedness Monitoring Board, 2019, p. IV).

Compounding this, officials responsible for developing planning responses often rely on information and trends via very complex modelling. These plans are developed with only limited scenarios or pre-event concepts in mind and often ignore the fact that the solutions to, or management of, a pandemic are dependent on its underlying traits and actual characteristics, which cannot be known with any certainty *apriori* (Maciejewski *et al.*, 2011).

Nonetheless, many countries have national ‘action plans’ for managing pandemics and their broader impact on society (Australian Government, 2018b). The typical objectives of such planning are to maintain society’s essential functions, strengthen the community,

economy and affected individuals ability to remain resilient and recover, and reduce the overall severity of the emergency (Australian Government, 2018b).

Urban Planning and Pandemic Preparedness

While vaccinations are the first line of defence against influenza viruses, the development of vaccines for a new strain of virus usually takes months or years (Chandra *et al.*, 2013). In the interim, only short-term measures, including social distancing, and in extreme cases, lockdowns and quarantines, can protect citizens from a severe epidemic outbreak. Other measures involve creating spatial barriers, relocating populations to 'safe' areas, or imposing travel restrictions (Chandra *et al.*, 2013).

The recent COVID-19 social isolation restrictions have highlighted the importance of city planning in ensuring that communities allow people to recreate, eat, socialise, exercise, and connect with nature locally. In recent years, there has been a renewed interest in the connections between urban planning and public health, especially as related to transportation, walking, and physical activity (Cerin *et al.*, 2007; Handy *et al.*, 2002; Saelens *et al.*, 2003; Sallis *et al.*, 2006). However, planning documents generally do not refer to pandemics, and pandemic 'action plans' generally do not refer to urban form's role in reducing disease transmission and successful self-isolation.

Such lacunae occur despite researchers reinforcing that 'whenever possible, local governments should incorporate health concerns into urban policies' and the prominent role that cities and urbanisation play in pandemics (Alirol *et al.*, 2011, p. 137). A recent study investigating the relationship between public health and architecture highlighted an urgent need to recognise the benefits of collaboration between public health and planning workforces from local to global levels (Azzopardi-Muscat *et al.*, 2020).

Demographers project that cities will absorb some three billion people in a matter of decades – making the need for urban planning to consider pandemics even more urgent. Indeed, cities will need to accommodate this enormous and unprecedented influx as they face unparalleled exposure to pandemic disease due to new levels and forms of connectivity (Mead, 2010). Cities are also incubators, where all the conditions occur for outbreaks to happen (Alirol *et al.*, 2011).

The COVID-19 outbreak prompted a group of designers, architects and urban planners to ask, 'How we can [sic] re-design the concept of public health in relation to the built environment and the contemporary cities [sic]?' (Capolongo *et al.*, 2020, p. 13). The study produced a 'decalogue of public health opportunities' and concluded that the lessons of COVID-19 are: 'people health is connected and dependent on the planet [sic] health and cities are the fulcrum of their relationship' (Capolongo *et al.*, 2020, p. 20). Despite speculation amongst planners on how cities could be shaped to be resilient to the threat posed by pandemics, there was little informed commentary on this issue when this project commenced. That has begun to change in Australia and internationally (e.g. Batty, 2020; Greater Sydney Commission, 2020; Pisano, 2020). We aimed to capture the thinking of experts early in the health crisis about how urban planning could reduce pandemics' threat through urban forms that reduce disease transmission and improve liveability in times of self-isolation.

Methods

In this study, we have utilised descriptive research methods in the form of a cross-sectional survey of experts (Kelley *et al.*, 2003). This study was a part of the larger 'Plan My Australia' (PMA) project that surveyed planning experts and a broader sample of the community in Australia (in two separate surveys) to examine how planning might accommodate a population increase in Australia from 25 to 53 million by 2101 as projected by the Australian Bureau of Statistics (2013). This paper draws only from the 'planning experts' study.

A non-random purposive sampling technique (Kelley *et al.*, 2003) was used to identify planners who had demonstrated expertise in urban planning theory and practice.¹ The Planning Institute of Australia (PIA) assisted in distributing the questionnaire by approaching members about the survey and providing email addresses of current members who agreed to participate. These experts, plus a limited number of others known to the authors, created a substantial population ($n = 579$) contacted via email and provided a link to the Survey Monkey 'Plan My Australia (PMA): Experts Survey.' The survey link was released on 23 March 2020 and remained open for two weeks. This survey occurred during the first major wave in Australia when reported cases jumped from 1694 to 5797 (Australian Government, 2020). The online survey provided a convenience sample of ($n = 161$). A response rate of 27% was achieved to the question: 'Although the long-term consequences of COVID-19 are yet to emerge, how do you think planning and design could assist cities to better prepare for any future pandemics?'

Qualitative survey responses were exported to N-Vivo (Version 12). Comments were categorised into categories.² Where respondents comments related to more than one category (e.g. urban density, public open space), responses were split and categorised accordingly. Demographic details (age, gender, birthplace, occupation and length of Australian residency) and response categories were examined quantitatively.³

Results

A total of 161 participants responded to the survey. The respondents' demographic characteristics are summarised in Table 1. Respondents were majority male (73%), Australian born (67%) and long-term residents of Australia (85%). While a diverse range of occupations was presented, urban planning (40%) was most frequently reported. Respondents came from each Australian state and territory, although there was less representation from the smaller jurisdictions of Tasmania, the Australian Capital Territory, Northern Territory and South Australia.

When prompted about how planning and design could assist cities in preparing for pandemics, respondents provided 226 open-ended responses. These were mapped against the main themes (see Table 2). For clarity, comments were then organised according to three spatial scales: the regional, metropolitan, and dwelling scales. While there is a necessary overlap between these nested scales, it relates the planning proposals to logical levels within Australian urban planning frameworks. We reproduce selected responses that best illustrate the major themes captured by the survey.

Table 1. Demographic characteristics of survey respondents (n = 161).

	No (%) n = 161	Total responses (n)
Gender*		
Male	108 (73.0)	148
Female	40 (27.0)	
Age*		
25–34	15 (10.5)	143
35–44	26 (18.1)	
45–54	44 (30.9)	
55–64	26 (18.1)	
65–74	25 (17.5)	
75+	7 (4.9)	
Birthplace*		151
Australia	101 (66.8)	
China	2 (1.31)	
Germany	3 (2.0)	
India	2 (1.31)	
New Zealand	3 (2.0)	
South Africa	4 (2.6)	
United Kingdom	23 (15.2)	
United States	3 (2.0)	
Other	10 (6.6)	
Occupation*		148
Architecture	4 (2.7)	
Development Assessment	9 (6.1)	
Environmental planning and natural resources management	5 (3.4)	
Landscape architecture	4 (2.7)	
Place-making	2 (1.4)	
Regional and rural planning	22 (14.9)	
Social community/services planning	5 (3.4)	
Transport planning	7 (4.7)	
Urban design	13 (8.8)	
Urban development/renewal	9 (6.1)	
Urban planning	60 (40.5)	
Other	8 (5.3)	
Length of Australian residency*		148
0–9 years	8 (5.4)	
10–19 years	13 (8.8)	
20+ years	127 (85.8)	
Current state of residence*		145
Western Australia	31 (21.3)	
New South Wales	42 (28.9)	
Victoria	22 (15.1)	
Queensland	28 (19.3)	
Tasmania	4 (2.7)	
Australian Capital Territory	8 (5.5)	
Northern Territory	1 (0.7)	
South Australia	9 (6.2)	

*Missing data not reported

Commentary in Relation to the Regional Scale

Of the categorised survey responses (n = 226), 18 related to ‘density.’ At a broad scale, respondents expressed concern about the development of ‘crowded’, ‘entangled’ megacities⁴ with ‘extreme density,’⁵ claiming ‘boosting already over-crowded cities such as Melbourne and Sydney seems unlikely post-COVID-19 – large cities are a bit on the nose.’ This related to a perception that ‘the bigger the city, the harder to control the spread of a pandemic.’ Others felt that Australia’s ‘reliance on one or two megacities makes us vulnerable.’ While most respondents were cautious about suggesting an upper

Table 2. Thematic classification of themes raised.

Themes raised	Number of categorised responses (n = 226)
Public Open Spaces	28
Access to services, transport and infrastructure	27
Technology, workplace, commuting and connectivity	22
Flexibility, adaptation, contingency	22
Private Open Spaces	20
Smaller, self-contained cities	19
Health services, infrastructure and equity	19
Urban density	18
Policy, reform, coordination and efficiency	18
Self-sufficiency, sustainability and resilience	16
Population dispersion	10
Domestic or international travel	6
Total	226

population limit for cities, one survey participant noted that the ‘maximum optimum sustainable size’ was 5 million people.

Rather than dense megacities, respondents generally felt population should be distributed ‘across the country (to provide better separation between large population centres), for the long-term sustainability of cities and community.’ Indeed, 19 responses related to achieving ‘smaller self-contained cities’ and 10 to ‘population dispersion.’ Some survey participants noted that ‘distinct smaller cities’ with ‘well-equipped health facilities’ would much more easily manage a pandemic ‘than large dense cities.’ Participants felt that policymakers could achieve containment between regional cities by ‘introducing effective borders within states.’ While no respondents specified precisely the size of these new cities, one noted ‘in light of the recent health crisis we should seriously consider thousands of smaller communities that are designed around self-sustaining bioregions.’ Another referred to Germany as a possible exemplar of this dispersed model where ‘most people live in small or mid-sized towns.’

Respondents argued that Australia needs to ‘build resilience in our transport and supply chains’ to yield improved national self-sufficiency and avoid ‘industries which are essential to daily life being held hostage’ to external shocks. Reflecting this, 16 of the total number of categorised responses (n = 226) related to ‘self-sufficiency, sustainability and resilience.’ One participant cited the example of post-war Britain and how ‘policymakers insisted on preserving agricultural land for home consumption,’ a lesson they regarded ‘had been slowly forgotten.’ Some respondents asserted that politicians should ‘stop external pilfering of Australian resources and manage them for the future for all Australians’ to ensure national self-sufficiency.⁶ Finally, several respondents indicated that limiting global and domestic travel (6 categorised responses), reducing consumption and enabling ‘sustainable growth and environmental protection’ were the best pathways to national autonomy.

Respondents felt that such a broadscale transformation would require a shift in the way Australia is governed. Indeed, 18 of the total number of categorised responses related to policy, reform, coordination and efficiency. Some respondents attested that greater federal coordination was required. As they explained, ‘we need constitutional reform to strengthen Commonwealth powers over jurisdictions which overlap state boundaries. Why do we have different environmental and health standards and regulations in each

state when phenomena take no notice of arbitrary state boundaries.’ Other respondents felt better ‘central policy coordination for consistency in communication’ could address policy inconsistency and overlap.

Commentary in Relation to the Metropolitan Scale

Some respondents noted that a dispersed population within cities ‘is an added protection’ and reduces transmission and increases liveability in lockdowns. Indeed, 10 responses related to the need to disperse population, and 18 cautioned about the possible negative implications of ‘density.’ As one noted:

This most recent pandemic poses questions about whether higher density living is the best form of living, particularly when trying to contain the spread of disease instead of boosting patronage in public transport.

Another warned that ‘Covid-19 has had the greatest impact on humans in high areas of densification.’ In response, respondents regarded that ‘lower density, non-contiguous development ‘would be far preferable in these times of reducing the spread of COVID-19 through populations’ (Figure 1). As one respondent further explained:

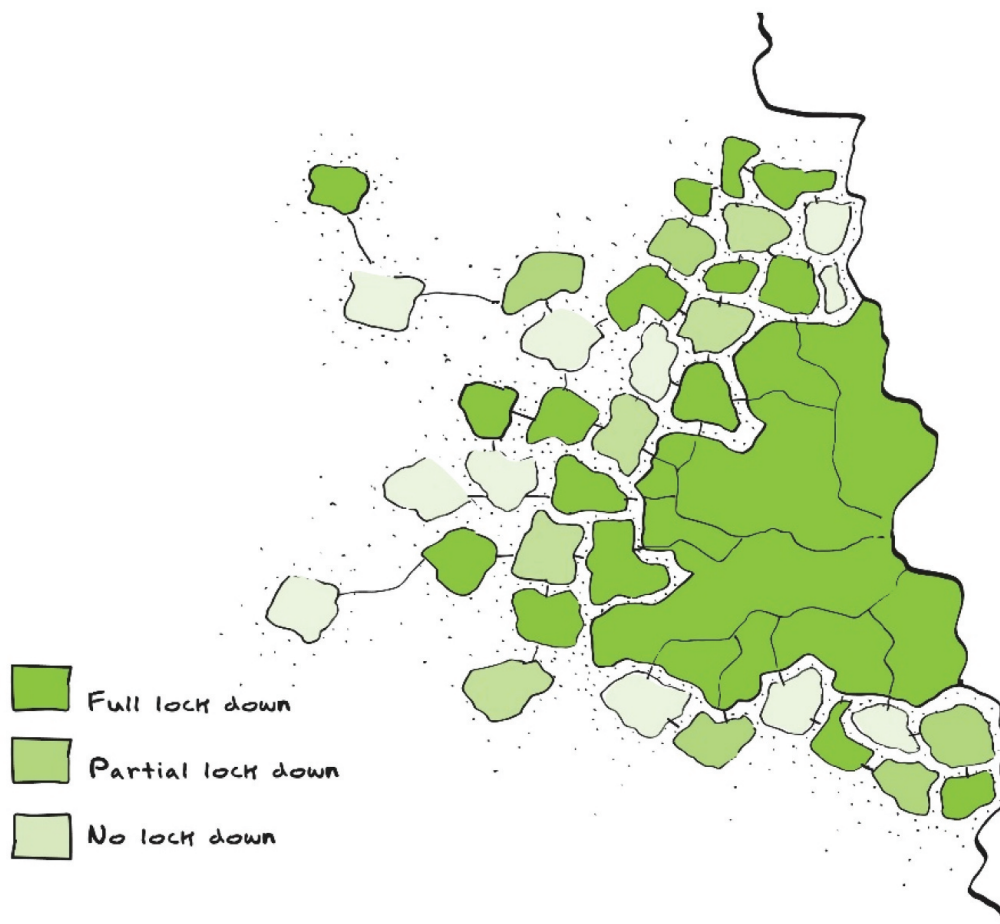


Figure 1. Some respondents regarded that ‘lower density, non-contiguous development ‘would be far preferable in these times of reducing the spread of COVID-19 through populations.

The way we are working has been disrupted permanently, and a lot more people will stay at home - which starts to make sprawl tempting again. If you only have to make your way into the city two times a week, why not live on the edge of the earth if you can have a garden.

Another participant noted dispersion could be achieved through creating a series of 'urban villages within our larger existing urban areas, separated by networks of natural & usable open space, which also provide the major public transport corridors to the main business and community nodes' (Figure 2). Despite some planners' tendency to engage in 'sprawl-bashing', the majority view was expressed in these terms; 'Australia is more fortunate than most countries in that our densities are low, even in cities.' With this in mind, the implication was questioning whether 'we can do much more.'

Some respondents referred to current planning regimes, which attempt to 'address sprawl through density', as 'counter-intuitive to controlling pandemics and maintaining physical health.' A number cited the need for academics of the built environment 'to re-think density and intensity.'

Nonetheless, support for reduced urban densities also had its critics. One survey participant noted that 'COVID-19 has very quickly opened the way for anti-density advocates to put persuasive anti-urban arguments ... which risks returning to pro-suburban low-density policies such as those adopted by New South Wales and Queensland in response to the 1880s-1920s bubonic plague and 1918-19 influenza

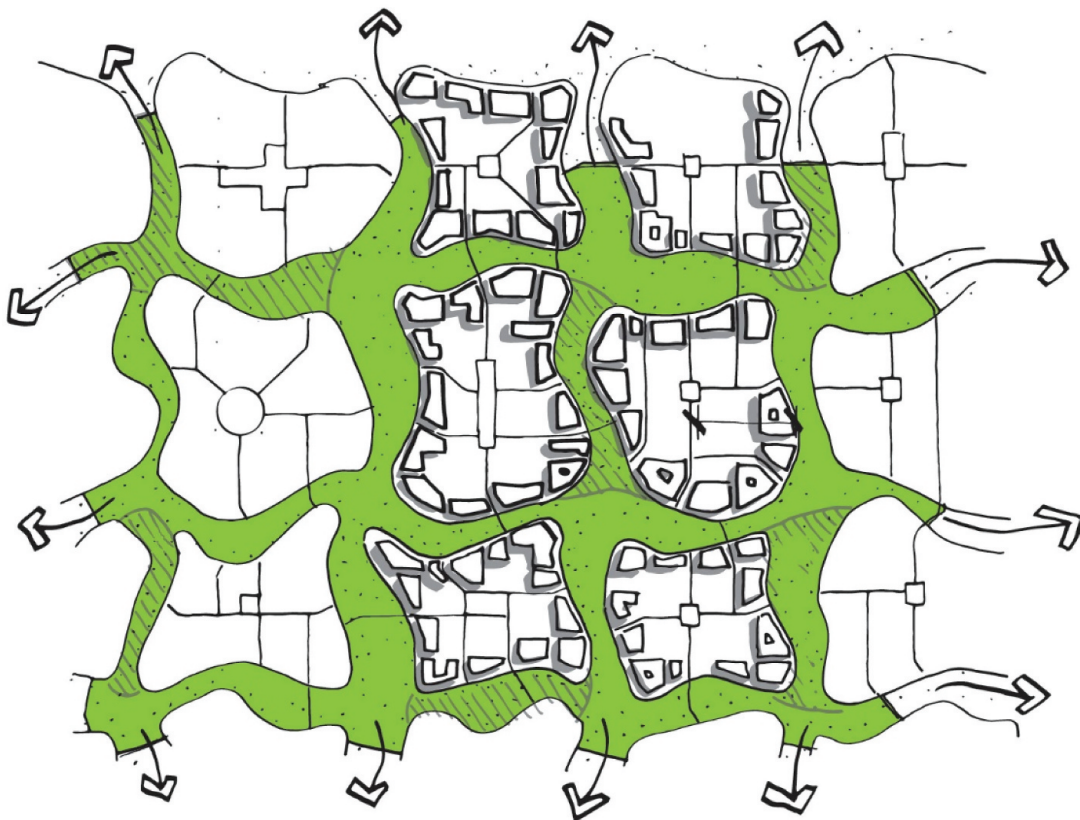


Figure 2. Participants noted dispersion could be achieved through creating a series of 'urban villages within our larger existing urban areas, separated by networks of natural & usable open space networks, which also provide the major public transport networks to the main business and community nodes.'

pandemics.’ Others noted that while ‘lower densities would reduce infection rates, spatial engineering would be very much a second-best solution to the problem.’

Of the categorised survey responses, 28 related to ‘public open spaces’ (POS). Indeed, respondents made repeated comments about the importance of POS, such as:

The flocking of the world’s (and Australia’s) urban populations to urban parks and regional open spaces during COVID-19 provides evidence that more attention is required regarding access to quantitatively-adequate open space for city dwellers, particularly if we are to achieve urban densities that support sustainability, productivity, liveability and feasibility.

Other respondents supported this view claiming ‘future healthy cities will have more POS per capita’ (Figure 3). In particular, some noted the importance of ‘larger open space requirements to enable isolation in place with ready access to nature ... especially requiring remnant vegetation to be retained to help with mental mindsets.’ Survey participants particularly noted the importance of ‘open space in dense urban environments’ because of the ‘restorative benefits of being able to get outdoors and escape home confines.’

Some respondents noted that higher POS provision could flow from requiring ‘exclusive entities such as private clubs, resorts and government agencies’ to free up land for public recreational purposes. Several respondents indicated that the design of parks needs to change to enable park users to ‘socially distance.’ To this end, several survey participants felt that POS required ‘a greater variety of pathways’ and ‘enough space to

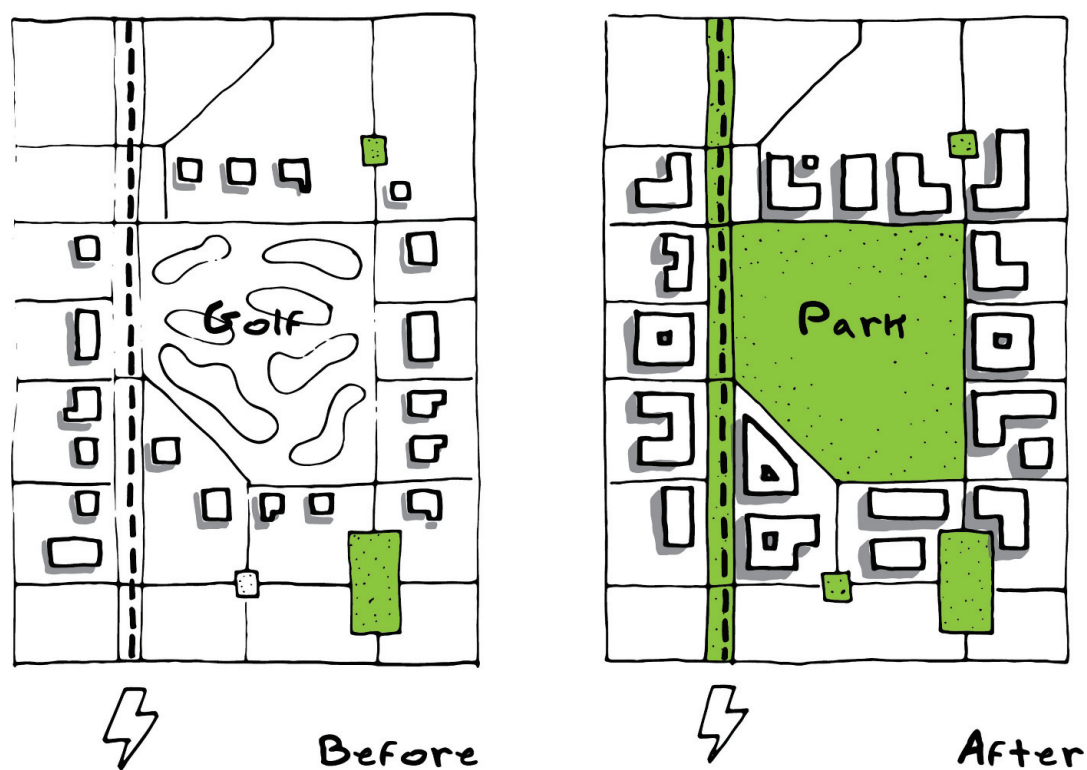


Figure 3. Many respondents supported the view that ‘future healthy cities will have more POS per capita.’ Some respondents felt this could be provided by freeing up land controlled by government agencies and golf clubs.

circulate for exercise safely.’ Others felt ‘exercise areas and playgrounds’ need to be re-thought ‘to enable people to more readily use them in times of social distancing.’

There was a consensus amongst our respondents that within cities ‘travel increases spread’ and as such ‘travel could be restricted and disease isolated.’ In particular, some respondents highlighted an ‘over-dependence’ on public transport, noting that ‘mass gathering within a closed space’ had ‘helped to spread the pandemic.’

While respondents noted that public transport would still play a role, they cautioned that ‘transport facilities of railway hubs, airports and coach bus stations’ might need ‘more space and facilities’ for social distancing. Others reasoned, ‘We cannot solely rely on public transport to meet the transport demand during the virus outbreak. We may need to have a backup transport system.’ The view was expressed that reduced public transport reliance required policymakers to ‘integrate jobs with residential activity and reduce the need for gathering in public transport’ and ‘reduce commuting and inter-regional flows.’ Others cited opportunities in pedestrian, bike or automated electric vehicle travel to reduce reliance on public transport for commuting and assist ‘in achieving social distancing measures.’ Several respondents referred to the potential of active transport to bolster the suite of transport options. Proposals in this respect included ‘green corridors for active recreation’ and more ‘walking and cycling infrastructure’ relative to ‘roadways’ (Figure 4).

Respondents consistently indicated that in a future where the threat of pandemics is prevalent, it would be necessary for cities to be, as much as possible, self-sufficient and as such, ‘less reliant on megacities.’ Reflecting this, 16 responses related to ‘self-sufficiency, sustainability and resilience.’ As one participant noted: ‘planning cities, and their regions, to be more self-sufficient . . . would greatly assist in the event of a major pandemic . . . as they can be operated within a lockdown scenario to maintain functioning economies outside of the areas affected by the pandemic.’ Respondents noted several different areas that policymakers should target for increased self-sufficiency, including jobs, ‘food production’, ‘local businesses and industries, education, health’ and ‘energy.’ Respondents differed on the urban form which would enable this self-sufficiency. Some maintained that ‘ensuring access to essentials reinforces the need for compact urban settlements’ while others invoked the major theme in advocating ‘smaller less dense cities where people have access to land – not just dwellings’ because ‘land becomes useful for growing food and promoting greater self-sufficiency and resilience.’

Respondents also echoed these sentiments for neighbourhoods, advocating that:

All social, economic and other wellbeing needs should be accessible within walking distance of residential areas. This would allow urban form and communities to be more resilient, adapt quickly and have a greater capacity to operate autonomously.

In a similar vein, other survey participants emphasised the need for ‘local autonomy’ so that ‘suburbs can sustain themselves within a network of production and exchange.’ This opinion was reflected in 27 of the total categorised responses relating to ‘access to services, transport and infrastructure.’ Such autonomy they felt could be enabled by a ‘mixing of uses (live-work-food), social housing, good employment opportunities, and easy access to local shops to provide essentials, e.g. doctor, pharmacy, bottle shop, greengrocer, butcher, bakery, post office.’ The result of this ‘localised, slower and

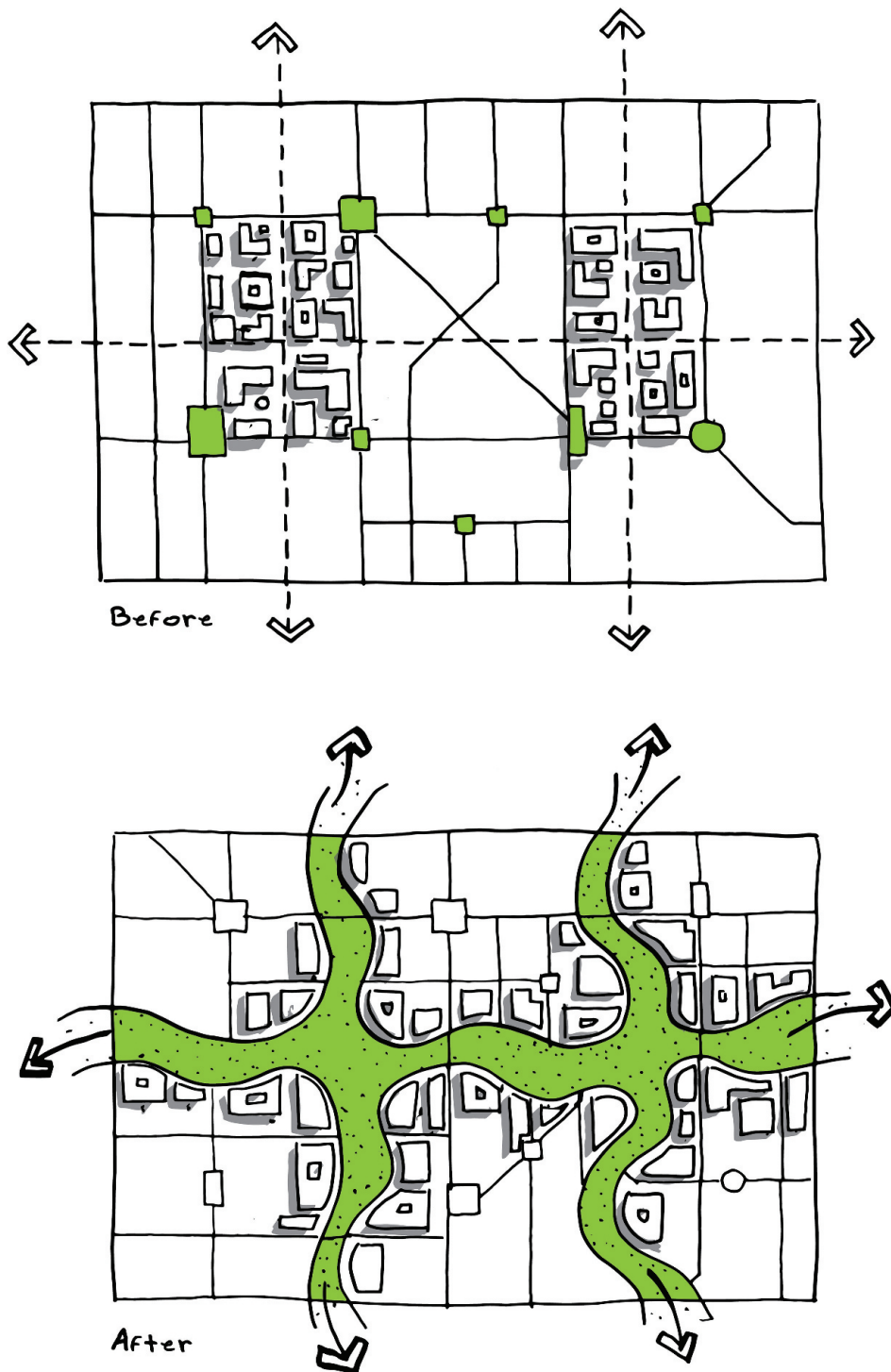


Figure 4. Some respondents cited opportunities in pedestrian or bike travel to reduce reliance on public transport for commuting and assist ‘in achieving social distancing measures.’ Proposals in this respect included ‘green corridors for active recreation.’ At the same time, some respondents felt that an ‘over-dependence’ on public transport, such as in TOD, had ‘helped to spread the pandemic.’

sensitive approach to urbanisation’ would be to ‘reduce the need to travel long distances to access services.’

Perhaps predictably, respondents made several proposals for the provision of local health services. Indeed 19 of the responses related to ‘health services, infrastructure and equity.’ Some respondents noted that increased risk and prevalence of pandemics

logically would require that policymakers give health infrastructure ‘the same or greater priority than that given to other sorts of defence infrastructure, e.g. submarines’ and as such provide a ‘major boost in investment in health and wellbeing services and facilities to cope with the pressure on these services.’ As part of this health services prioritisation, they felt that policymakers should ensure there is an ‘equitable distribution of health services and hospitals in non-metro areas’ and that all hospitals ‘should be capable of doing the same functions’ – as opposed to the polarisation of health services between ‘larger hospitals’ and ‘small suburban hospitals.’ To some degree, respondents felt policymakers and planners could achieve this through ‘public-private partnerships and developer contributions in new estates where access to healthcare is limited.’

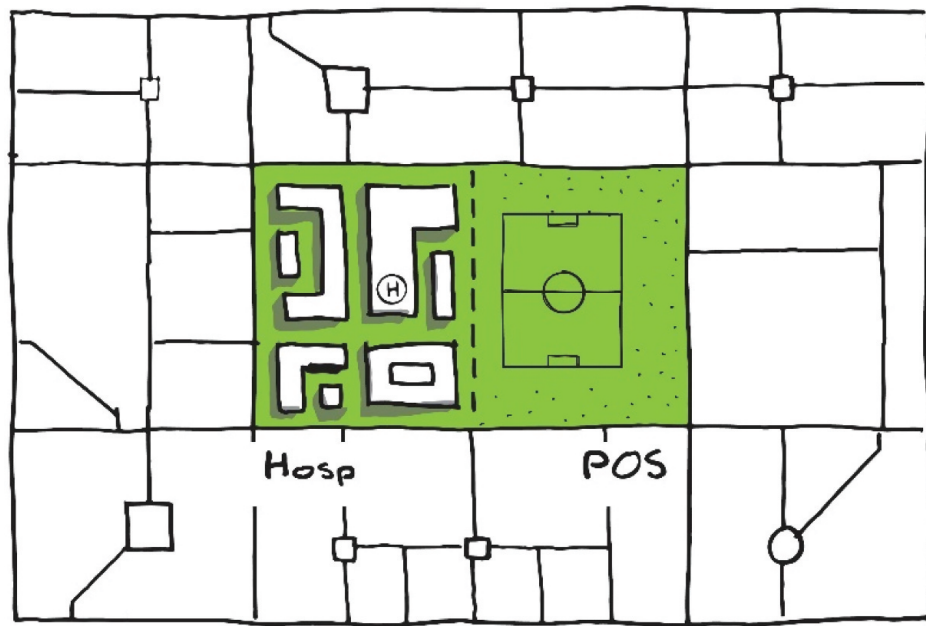
Survey participants also made numerous comments about the flexibility required in land-use planning. Indeed 22 of the responses related to ‘flexibility, adaptation and contingency,’ which some respondents felt could be achieved through ‘scenario planning for future epidemics.’ Examples of the flexibility were that ‘shopping centre design needs to have the flexibility to quickly switch from an enclosed space to easily accessed goods collection points.’ Another was that ‘multi-use buildings, including schools, government offices, conference centres and community centres, should be able to be readily converted to emergency treatment areas.’ In a similar vein was the view that ‘multi-purpose community facilities should be able to be readily transformed to include testing and quarantine stations.’ Others added ‘major venues (such as sporting grounds or arenas)’ for such temporary adaptive re-use. A suggestion was that hospitals be adjacent to ‘adaptable, large community spaces ... that governments can commandeer as extra hospital bed space’ (Figure 5).

There was a relative consensus that such land-use planning requires a shift in planners’ mindset to allow for ‘greater flexibility in planning processes to permit innovation that may not be compliant with development approvals’ and the ‘ability to fast track planning requirements to boost pandemic preparedness.’

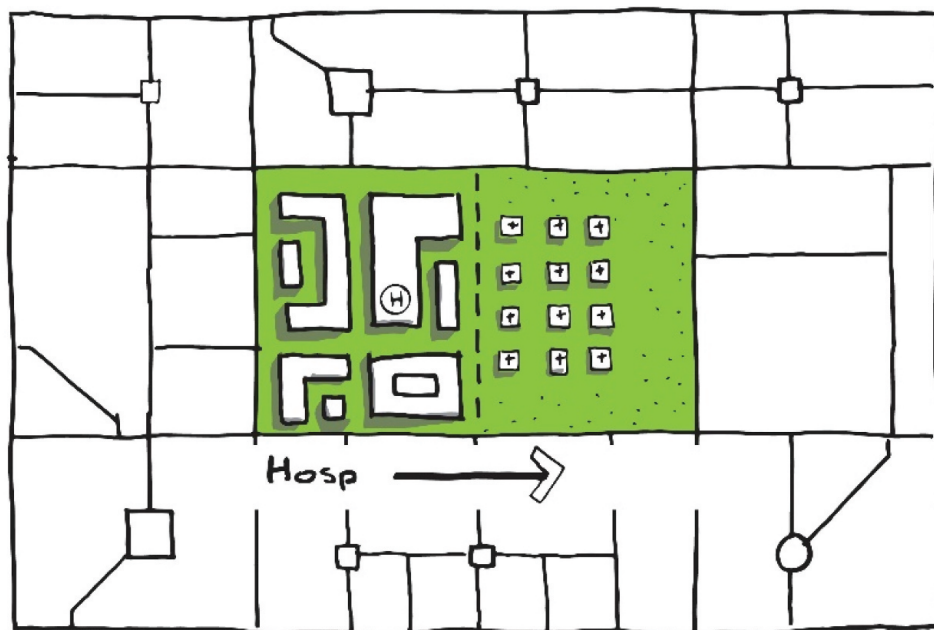
Commentary in Relation to the Dwelling Scale

The survey elicited an array of commentary about how planners and designers should approach housing design. In particular, respondents noted the importance of ‘access to private space, and quality of internal environments to improve the quality of life in circumstances during physical distancing or lockdown’. Indeed, 20 of the total categorised responses related to ‘private open spaces.’ Improved access to private open space would variously require ‘larger lots for detached housing to ensure that isolation can occur easily’, ‘common roof gardens, so residents in dense developments have somewhere to escape other than a balcony,’ ‘retained balcony or garden space for all dwellings’ and ‘more aerated spaces between high-rise buildings.’ Respondents noted that the current ‘push for increasingly small lot sizes would need review; the goal being to have a house and garden that does not compromise mental and physical health when required to remain at home’ and that ‘backyards may become more popular’ again (Figure 6).

Respondents also made specific references to the implications for housing design to achieve reduced disease transmission during pandemics. These included a ‘greater emphasis on three-storey walk-up flats to achieve higher densities, as high-rise dwellings require people to stand close in lifts’ (Figure 7). Others noted that planners should



Not during pandemic



During pandemic

Figure 5. One suggestion was that hospitals be adjacent to ‘adaptable, large community spaces ... that governments can commandeer as extra hospital bed space.’

reconsider the ‘extent of common internal areas of future buildings.’ Several respondents pointed out that ‘dispersal of populations in gross terms is not likely to influence spread ... as it is contact at the micro level that seems to count most,’ reinforcing the importance of site-scale measures to reduce transmission (Figure 8).

In such medium to high-density settings, survey participants noted that ‘apartments need to be high-quality liveable homes ... if you are locked down in them.’ They

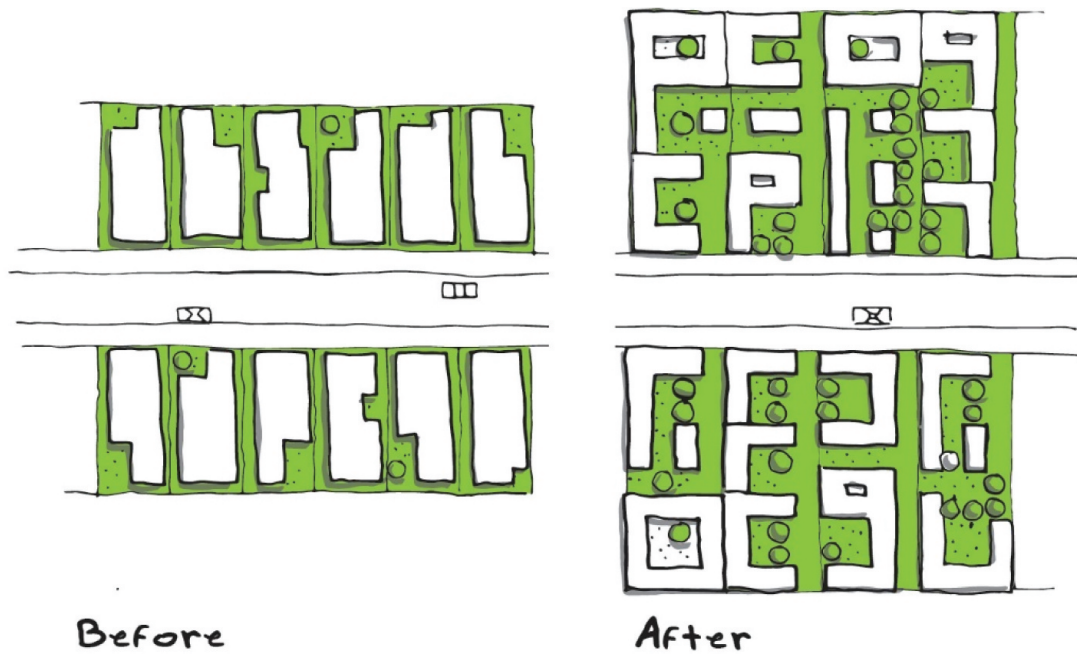


Figure 6. Respondents noted that the current ‘push for increasingly small lot sizes would need review; the goal being to have a house and garden that does not compromise mental and physical health when required to remain at home’ and that ‘backyards may become more popular again.’

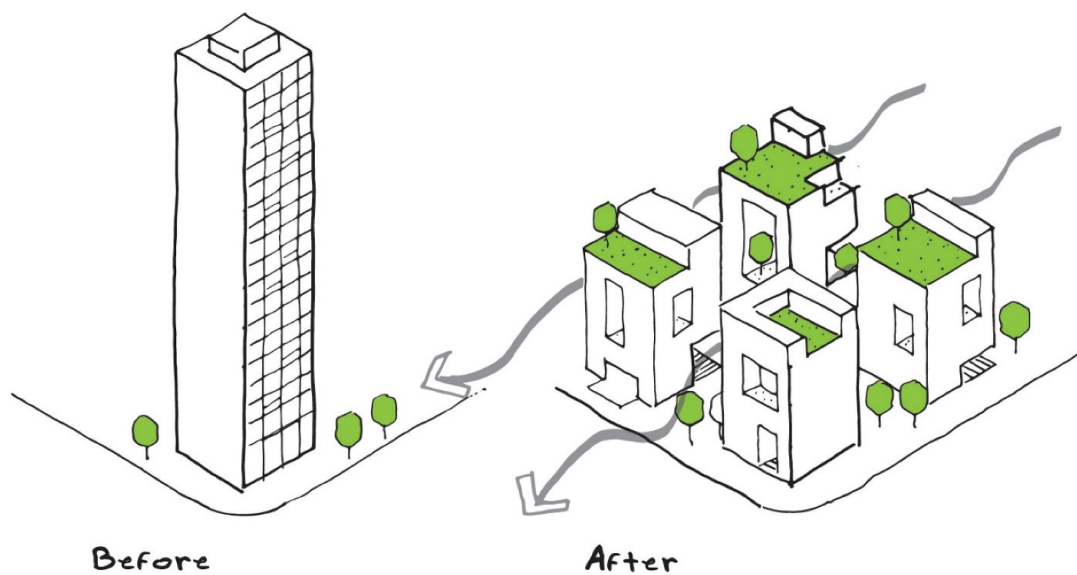


Figure 7. Respondents also made specific references to how housing design could reduce disease transmission during pandemics. These included a ‘greater emphasis on three-storey walk-up flats to achieve higher densities, as high-rise dwellings require people to stand close in lifts.’

considered that planners and designers could achieve this, in part, through mandated ‘minimum dwelling sizes ... for mental health and internal quarantine reasons [along with] common circulation spaces.’ Others cited the importance of ‘encouraging natural

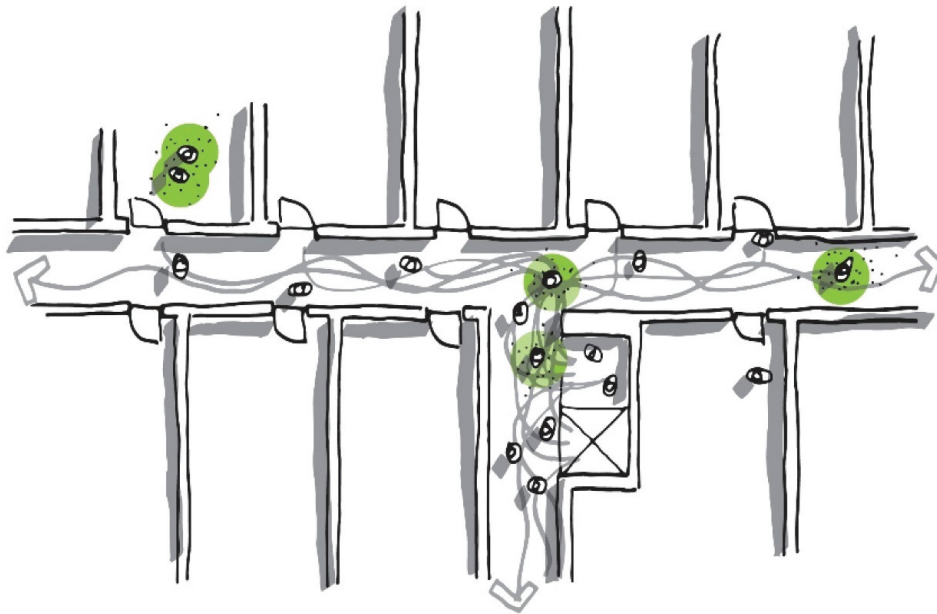


Figure 8. Several respondents pointed out that ‘dispersal of populations in gross terms is not likely to influence spread ... as it is contact at the micro level that seems to count most,’ reinforcing the importance of site-scale measures to reduce transmission. This could involve re-thinking lifts and narrow corridors which ‘require people to stand close.’

airflow and breezeways.’ Such micro-design strategies, they felt, could help mitigate concerns around ‘shared air conditioning systems during a pandemic.’

To encourage remote learning and working, respondents felt dwellings should be ‘equipped for work [with] home office opportunities’, which would be enabled through ‘improved digital connectivity – through fibre to the premises – to enable work flexibility.’ In apartments, in particular, respondents indicated that they should contain flexible spaces capable of accommodating a home office. Reflecting this, 22 of the total categorised responses (n = 226) related to ‘technology, workplace, commuting and connectivity.’

Discussion

The proposals tabled in this paper view public health issues through a distinctive planning lens, ranging broadly in scale and thus relating to different levels within Australia’s planning system. Some reinforce relatively longstanding aspirations and values around productive, sustainable and liveable cities (Bolleter & Weller, 2013; Thompson & Maginn, 2012). More counterintuitively, others challenge conventional planning wisdom.

Potential Policy Relevance

Australia is committed to the United Nations ‘Sustainable Development Goals’ (SDGs) (Australian Government, 2018c). This paper’s relevance is to SDG Goal 11: ‘Make cities and human settlements inclusive, safe, resilient and sustainable’ and Goal 3 ‘Good health and wellbeing’ (United Nations Environment Programme, 2019). Supporting such international agendas, Australia has high-level urban and regional planning frameworks at the

Federal (e.g. Australian Government, 2015, 2019) and State Government levels (e.g. Infrastructure New South Wales, 2018; Queensland Government, 2017; Western Australian Planning Commission, 2012). While the Federal Government has had periodic involvement in high-level planning for cities in Australia since the 1940s, State Governments have been chiefly responsible for population growth planning within their jurisdictions. The responsibility for specific development decisions is mostly under the control of local governments; however, State Governments tend to ‘hold all the power and the purse strings’ (Dovey & Woodcock, 2014, p. 68) and regulate building design outcomes (Such as the Western Australian Residential Design Codes; West Australian Planning Commission & Department of Planning, 2015). Nevertheless, even before the pandemic hit, there were signs of growing if grudging recognition of the economic, social and environmental rationales of a national settlement strategy (Australian Government, 2018a). Many respondents would have supported the PIA’s lobbying for the necessity of a continental-wide planning framework to better integrate short term decision-making and long term sustainability (Planning Institute of Australia, 2018).

Our respondents’ regional-scale proposals are typically related to the scale of state-wide planning strategies, which have been enacted in three states: Western Australia, Queensland and New South Wales. In broad terms, several of our survey participants advocated for boosting the populations of largely self-sufficient regional cities to allow effective quarantine between cities in pandemic situations and alleviate density in the primate capital cities. These responses recalled the rhetoric of the urban decentralisation movement of the 1960s-1980s that endorsed the quality of life advantages of non-metropolitan living. Aspirations for regional development and population growth still exist, to some degree, in State planning strategies; however, they are typically undercut by capital city planning documents that simultaneously allow major growth to occur.

City-wide proposals made by the respondents related most closely to the metropolitan scale of planning for Australia’s capital cities. In recent years this planning has incorporated targets for densification and Transit-Oriented Development (TOD) (Newman, 2007). While TOD promotes physical activity and accessibility to services, some of our respondents perceived it could inadvertently create the conditions – such as population density, shared communal spaces and public transit use – in which communicable disease can thrive. Responding to this, several of our respondents’ comments indicate that planners could provide for a higher uptake of active and alternative personal transport. Regardless, there was the implicit endorsement of the new orthodoxy around planning for ‘30 minute cities’, an adaptation of the Marchetti constant (Kenworthy & Newman, 2015).

An ‘infill good, sprawl bad’ polarity embedded in metropolitan planning policies has tended to dominate arguments about urban form in Australia (Gleeson, 2006, p. 21) and the developed world more generally (Bruegmann, 2005). In contrast, many of our respondents have suggested that traditional suburban form – with its generous provision of private open space, a home office and a fast internet connection – is potentially more self-contained than higher density dwellings in pandemics. This position looks back to some of the perils of consolidation policy provocatively canvassed by Troy (1996). Some evidence for the potential of traditional suburbs to be (relatively) self-sufficient can be found in the severe economic depressions of the 1890s and 1930s, as well as the Second World War during which ‘poor supplies, indifferent urban services and recurrent shortage’ made the ‘quarter-acre block’

a prized gesture towards self-sufficiency (Davison, 2006; Hall, 2010; Seddon, 1994, p. 25). While most contemporary Australian suburbs are far from self-sufficient, the latent potential of suburbia in this respect is noted (Davison, 2006, p. 212).

Our respondents' site scale proposals relate most closely to building design guidelines like Western Australia's Apartment Design Guide and New South Wales's State Environmental Planning Policy (SEPP) 65 (New South Wales Government, 2017). The implications of our research for these policies relate to consideration of new design directions, notably the inclusion of flexible office space for each apartment, a reconsideration of internal communal spaces, and an increase in private or public open space provision to bolster liveability during lockdowns (Bolleter & Ramalho, 2019). Our respondents' desire for greater self-sufficiency could also find expression in productive gardens and composting facilities.

These aspirations are already partly reflected in the policies. However, different apartment guidelines currently apply in each Australian city, with some providing more comprehensive guidance on the design features that impact health and wellbeing than others (Foster et al., 2019). For example, private internal and external space standards differ between states, and some states lack minimum apartment size standards altogether. Evidence is currently lacking on whether these policy-specific minimum standards are appropriate for health under optimal circumstances (Foster et al., 2019), let alone during social distancing when people spend more time at home. Nonetheless, the design quality that these apartment design codes aspire to will likely become increasingly important in a post-COVID world and as Australia's apartment dwelling population increases (Australian Bureau of Statistics, 2017).

The Need for a Balanced Response

While our respondents' proposals are worthy of some consideration by the planning community, they do not necessarily reflect what might be more evidenced-based effective approaches to planning and urban design. Moreover, many factors inform planning decisions. Health and alleviating communicable disease are front-of-mind factors in the current global environment, but other agendas remain critical. These relate to economics (e.g. development feasibility), society (e.g. facilitating cultural diversity), climate (e.g. building solar orientation), and sustainability (itself a multidimensional phenomenon), amongst many others. As such, urban planners should consider urban planning-driven pandemic responses as part of a much broader picture.

There is a risk that heavy-handed policy response to COVID-19 may have unintended consequences. Many of our respondents have been explicitly anti-density since living in cities seems to be the antithesis of 'social distancing'. However, an infrequent health issue must not compromise what decades of research have shown, i.e. that compact neighbourhoods can boost physical activity and wellbeing and subsequently reduce diabetes and obesity (Ewing *et al.*, 2014). For example, a response to COVID-19 that seeks to promote a more libertarian form of growth in car-dependent outer-suburban areas could compound cardiovascular disease, the leading cause of death and disease burden in Australia (The Department of Health, 2020).

Another reason to be cautious of our respondents' anti-density sentiment is that it could derive from confusion about whether urban density constitutes concentrations of people or buildings. Building density does not necessarily mean population density and likely disease transmission. Indeed, the determining factor is likely to be the number of people in a room or apartment corridor. An explicit focus on urban density related to 'buildings' might be ill-advised and a relatively blunt measure; it could be beneficial to consider how we deliver density to avoid crowding and support resilient residential environments.

The Importance of Non-spatial Responses

While spatial design and planning can reduce pandemic transmission, they are only part of a broader suite of measures that policymakers should adopt.⁷ Several of our respondents indicated the limits of spatial planning in this respect, to quote one: 'virus control being a health and governance issue rather than built environment planning and design issue.' As another expressed, 'the governance, strategic preparedness, value of sovereign risk and investment in health security seem to outweigh design.' Our survey's lack of epidemiology specialists highlights the need for future research to unite epidemiology and urban planning through ongoing collaboration and dialogue (Corburn, 2004).

The Unknown Nature of Future Pandemics

Urban planning strategies dealing with a future pandemic will depend on its underlying traits and actual characteristics, which cannot be known with any certainty *a priori*. As such, planning responses to COVID-19 may not be suitable for a future pandemic. The question then becomes, 'how can urban planning flexibly prepare for future pandemics to respond to the uncertainties they present?'

Furthermore, at the time of article submission, the COVID-19 pandemic remains current worldwide, and the full implications are unknown. Moreover, we do not have conclusive evidence of correlations between urban density and disease transmission.⁸ The results reported here are only potential directions in which urban planning practice could venture in responding to future pandemics. As such, we intend it as a provocation, as opposed to a prescription.

Finally, the limitations of the survey approach should be noted. The response rate was not high (27%); however, it is within an acceptable range. Other limitations relate to using a cross-sectional survey of experts (Fincham, 2008; Kelley *et al.*, 2003), which some critics claim unwittingly fosters another form of elitism in addressing planning problems (Morgan *et al.*, 1979). Nonetheless, this was our main target group in picking up reflections on how the pandemic might spell significant shifts in current thinking about planning for cities and regions in Australia.

Conclusion

Responses elicited in this study highlighted divided opinions amongst Australian planners regarding how urban planning in Australia might plan for a future that includes pandemics. The study found the expert respondents to have differing opinions on a range

of important health-related planning issues such as density, urban form and transport. However, there was some consensus on the importance of public and private open space, self-sufficiency, and planning flexibility. Many expert opinions highlighted the interplay between the somewhat parallel public health and urban planning fields as comments focused on perceived links between density and the spread of a pandemic. The results indicate that one of the more benign but beneficial impacts of COVID-19 has been re-igniting and re-focussing thinking on a raft of planning issues, including regional settlement patterns, public and private open space provision, housing design, urban density and mass transit connectivity. As others have cautioned (Pratt, 2020), just what enduring legacies result remains to be seen.

Notes

1. We use the term urban planning broadly to encapsulate regional planning, urban design, landscape architecture and architecture.
2. Please note we have minimally edited the comments for grammatical purposes and/or clarity.
3. Approval to conduct this component of a larger research project was provided by the University of Western Australia following its ethics review and approval procedures.
4. The term ‘megacities’ refers to cities with a population of over 10 million, however respondents used the term to refer, in some cases, to Melbourne and Sydney which are approximately half that size.
5. Respondents made frequent reference to varying urban densities (e.g. ‘low density’) however what these terms mean precisely connote varies. As a general guide, in the Australian context, low density (net density) is generally less than 40 dwellings per hectare, medium-density between 40 and 100 dwellings per hectare, 100 dwellings per hectare or above is high density.
6. Nonetheless, such commentary was offset by a small number of respondents who were ‘disturbed by isolationist approaches.’
7. One problem facing planners and urban designers is the legacy of urban growth has already entrenched many of the spatial conditions for pandemics to spread.
8. Nonetheless, in Australia most clusters were in cities, and lockdowns after the first wave in Australia focused on particular areas of cities. Moreover, small regional centres in Australia had few if any cases of COVID, even during the first wave.

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