

Packed like sardines: Urban consolidation and transport planning practice

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Abstract

Internationally, there is a consensus that connecting housing policy with transport policy is essential for enhancing the sustainability and liveability of cities. However, policy and practice to improve the integration of public transport with high-density housing developments are severely lacking in Australia. We examine the turn in Melbourne's strategic policy objectives towards urban consolidation and investigate how this has been reflected in current transport planning practice. We found that Melbourne's current transport plans and planning practices do not reflect the turn to urban consolidation. We also found that limited foundational knowledge is one barrier to the reform of these well-established practices.

1. Introduction

Infrastructure Australia (2019) has reported that transport accounts for 19% of Australia's greenhouse emissions, second only to energy production. Unlike the reductions occurring in other sectors, the emissions from transport have increased by 60% since 1990. Recent research suggests that alternatives such as autonomous electric vehicles, while potentially reducing greenhouse emissions, risk a host of unintended consequences and, at this time, must be regarded as an unproven strategy (Ribeiro et al., 2023). The rapid uptake of sustainable modes such as public transport, walking and cycling remains a proven strategy to curb this unacceptable trend.

Internationally, there is a consensus that connecting housing policy with transport policy is essential for enhancing the sustainability and liveability of cities (Burke & Brown, 2005; Geurs & Van Wee, 2004). However, policy and practice to improve the integration of public transport with high-density housing developments are severely lacking in Australia (Stanley, 2016). Despite recent growth in high-density housing in Australian cities, its complex and interconnected relationship with public transport is poorly understood. Without understanding the impacts of high-density housing on public transport, our ability to adequately plan and cater for the future transport needs of residents is limited, risking a significant decline in urban liveability.

The authors of this paper have commenced a research project examining the nexus between high-density housing and public transport. The project, currently in its early stages, will address three research questions:

1. What are the critical factors associated with public transport use by residents living in high-density housing?

2. What are the direct and indirect effects of high-density housing on public transport use?
3. How does high-density housing shape public transport service provision over time?

This paper examines current transport planning practices in the context of the policy turn to high-density development. This focus on practice provides a foundation for the core research project to influence ongoing reform. It contributes a detailed understanding of the extent to which transport and land use planning are aligned.

The paper focuses on Melbourne as a case study. Melbourne is representative of a policy shift throughout Australia towards urban consolidation and transit-oriented development (Australian Parliament and Jones, 1992). Yet we find that the key tools, such as the state's transport plans, planning ordinances and impact assessment frameworks, by which this policy is given effect, have been slow to respond to these new strategic objectives. We also show how the lessons from Melbourne are applicable across Australia and may have application in other auto-dependent cities seeking to adopt a more sustainable urban form.

The research method is a content analysis of relevant planning strategies that directed Melbourne's development over the last century. We review the critical statutory transport planning instruments to determine the degree to which they acknowledge the policy shift towards urban consolidation. The analysis deploys relational planning as a theoretical lens which makes explicit the relationship between planning practice and public policy.

The following section describes relational planning, which offers an alternative view to the traditional modernist and post-modernist planning concepts (Healey, 2007, Beauregard, 2015).

The third section charts the evolution of Melbourne's strategic planning policy to understand the policy intent concerning urban density.

The fourth section reviews the current state transport plans and statutory planning requirements that are the key instruments that govern transport considerations within the planning decision-making process. This includes the current planning requirements found in Melbourne's planning scheme and the guidance provided by the applicable transport agencies and contrasts requirements with the changes in stated strategic objectives.

The penultimate section discusses the key issues from this review, highlighting the gap between strategic intentions and daily practice. This focuses attention on the implications for ongoing urban and transport policy development as context for the current research program. The paper concludes with a brief discussion of suggested next steps.

2. Understanding planning's place in public policy

Relational planning is a turn from planning conceived as a logical process of devising means to a desired end or as a form of urban governance devised to support vested interests (Healey, 2007). Relational planning focuses attention on the interrelationships between actors that cause some outcomes to be favoured over others. In this relational context, a planner is one actor among many other actors and any planning outcome is the result of a process of social construction emerging from a network of actors and actants (Latour, 2005).

In the traditional Weberian concept of planning, planners are assumed to devise plans to deliver agreed goals or objectives. When the desired objective fails to materialise, this is seen as evidence of planning failure. For example, as early as 1982 Haratis stated in the first issue of *Urban Policy and Research* that "There appears to be a growing cynicism about the usefulness of urban research at a time when initiatives and explanation are most needed" (p.1). The 1992 Commonwealth Parliamentary inquiry into the patterns of urban development also questioned whether "the community derives good value from the existing planning processes" (Australian

Parliament and Jones, 1992). These examples follow a school of thought that posits planners have little useful influence on the decisions that shape our cities (Burke and Hayward, 1990).

These concerns about the nature of planning have given rise to the use of new theoretical frameworks to better understand planning and its role in modern society. Humans have been building cities for millennia, yet urban planning as a profession is relatively new and is continuing to evolve. Beauregard (2015) argued that planning theory can be divided into three waves of thought: naïve materialism, historical materialism, and semiotic materialism. The most recent of these schools of thought, semiotic materialism, is represented through Actor-Network Theory (A-NT) developed by Latour and his colleagues to address the shortcomings inherent in modernist schools of thought. A-NT's concept of social construction provides a theoretical foundation for relational planning.

Before discussing the application of A-NT to the problems of urban form, it is worth briefly summarising Beauregard's topology of planning. Early planning was based on a naïve materialism that understood planning as an extension of the design disciplines leading to blueprints for city layout and physical manifestations. Beauregard notes that this early version of planning was criticised as naïvely serving the interests of capital, saying:

These activities mainly served economic interests, and government planners were portrayed as wilfully ignorant of the many ways people and cities were harmed so that capitalists could profit. ...Having succumbed to the conceit of physical determinism, they were blind to the real material roots of society's ills—the contradictions of capitalism. (Beauregard, 2015, p. 3)

In Beauregard's (2015) thesis, the shortcomings inherent in physical determinism gave way to a second materialism, Marx's historical materialism. Marxism and related theoretical developments provided a means for critical theorists to take modern, instrumental planning to task.

Believing that the world could be known objectively and that facts, independent of ideology, could guide decision making, they were reproached for posturing as purveyors of technical truths and thus placing themselves outside politics. The ills of the city were presented as objective conditions whose solutions could be found in scientific analysis (Beauregard, 2015, p. 3).

While Marxism inspired new theoretical frameworks by which to critique planning practice, it has struggled to offer an alternative mode of practice (Boelens, 2010; Fainstein, 2014). Beauregard says of Latour and A-NT:

... thus offers a way out of an intellectual dead end in which, I believe, planners have become trapped. Planning can now be reconnected with the materiality of the world in a way that is theoretically defensible and practically consequential. That is neither a naïve materialism nor a historical materialism clinging to the culture/nature divide. Rather, it is a materialism that accepts the inseparability of humans, nature, and technologies. (Beauregard, 2015, p. 10)

From the perspective of A-NT, planning is less concerned about determining outcomes in the sense of a Weberian means to an end logic, but instead, its focus is to understand the processes of social construction and the roles played by a host of human, material and non-material actors that influence urban outcomes. Armed with the knowledge of how things settle in a particular state, planners are then better able to postulate strategies that may lead to different and, hopefully, better outcomes.

It is important to note that A-NT is not a unified theory – indeed, its creators question whether it's a theory at all – instead, A-NT appears as a collection of methodologies serving the common objective of understanding the processes and practices of social construction (Latour, 2005). Latour, one of the founding scholars in this field, has developed one of the more popular methodologies drawing from his own experience as an ethnographer. This ethnographic approach is adopted for the remainder of the paper as we trace the development of urban density as a policy objective and how it is expressed in current transport planning practices.

The development of urban consolidation as a policy objective and the corresponding response in transport planning and practice provide the context in which everyday decisions are made. In relational planning, this context, this network of project proposals, planners, practices and policy, is what determines the urban form. To the extent that this urban form fails to match the policy objectives it is not a planning failure per se but reflects a failure to establish a more supportive context.

Tracing the development of the current urban consolidation policy must be bounded by the available time and resources. Interest in changing urban form is a global concern, and Australia provides an empirical example from which lessons can be drawn. Within Australia, urban consolidation policy has been adopted by most of the nation's capital cities and has been the subject of at least two Commonwealth Parliamentary inquiries. As a matter of practicality, the remainder of this paper will address the national move toward urban consolidation and will use Melbourne as a particular case study. Melbourne has a history of deliberative planning that is readily accessible with our available resources.

3. Tracing Melbourne's urban consolidation policies

Melbourne, as we know it today, was established in 1835 on the unceded lands of the people of the Kulin nation, and by the end of that century it had grown to a city of 500,000 people (Infrastructure Victoria, 2016). The gold rush allowed Victoria to grow into a wealthy colony and a self-governing state. Yet early in the twentieth century, living conditions in some areas had become so poor that there was pressure for the government to enforce minimum housing standards. The inquiry into living conditions, *Housing of the people in the metropolis* (1913) found that the "housing of people in a portion of the metropolis is most disgraceful, and that the conditions are...a menace not only to themselves [the residents] but to the health of the community at large" (quoted in Infrastructure Victoria, p.8). This inquiry was followed by a Royal Commission (1915), which led to the city's first strategic plan, the 1929 *Plan for the general development*. Mees (2000, p.170) describes the plan as a "classic specimen of the 'City Beautiful' genre which concentrated on proposals for large scale road widening on the model of Haussmann's Paris."

Before the 1929 plan, controls had already imposed standards for minimum lot sizes. The 1899 Victoria Public Health Act, for example, required habitable lots to be a minimum of 1650 square feet (153m²) and be provided with rear access for waste removal. The 1929 plan notes that council bylaws had raised the minimum standard to 5000 square feet (464m²) "to make a better-conditioned building site" (Metropolitan Town Planning Commission, 1929, p.251).

The depression of the 1930s meant that the 1929 plan was not implemented as intended. Nevertheless, the plan's zoning regime reflected the prevailing concept of the "Australian ideals of housing, and in accordance with the standard which has generally been maintained during recent years." (Metropolitan Town Planning Commission, 1929, p. 170). This ideal was represented by a minimum lot size of 6000 sq ft (557 m²) and a density of no more than 30 persons per acre (74 persons per hectare). The 1929 plan further noted that "if the zoning provisions outlined were given effect, housing areas would be protected against the over

crowding and unsanitary conditions which unfortunately are to be found in the isolated parts of this metropolis.” (Metropolitan Town Planning Commission, 1929, p. 247) Furthermore, the plan discouraged flat construction noting that “During the last decade or so, flats became a popular form of housing... The zoning recommendations made by the Commission have been designed to make the building or use of flats a less attractive option.” (Metropolitan Town Planning Commission, 1929, p. 250)

So, at the start of the twentieth century, the plan was for Melbourne to become a low-density city. The planners at this early stage were aware that this development would be accompanied by growth in traffic volumes. “There is a direct relation between the density and character of development and the volume of traffic” (Metropolitan Town Planning Commission, 1929, p. 53), and this would require that “probably one-quarter of the developed area of this City is set aside for use by the general public for means of communication by roads” (Metropolitan Town Planning Commission, 1929, p.51).

The *1954 Metropolitan Strategy* continued to favour detached housing over other forms of development, notwithstanding latent demand for a more diverse range of housing options. Despite the policies favouring detached housing, a flat boom emerged in the 50s and continued through the 60s, responding to the demand for small, low-cost accommodation. However, this form of development was still seen as undesirable and anti-social. Local councils, acting on resident concerns, tightened building regulations to prohibit flat construction, further enforcing the dominance of detached housing.

The *1971 Planning Policies for Metropolitan Melbourne* addressed the need for more greenfield development areas to accommodate the ever-growing number of detached dwellings. The 1971 plan introduced the concept of growth corridors directing growth outwards into designated corridors defined by transport routes separated by green wedges. These designated transport corridors followed the existing rail lines and the proposed suburban freeways. The growing demand for car travel was addressed in the 1969 Transport Plan which proposed an extensive metropolitan freeway network and a new parking regime to address the ever-growing fleet of motor vehicles.

Soon after the 1971 Plan and in the wake of the controversy following the freeway proposals, the orthodoxy of detached housing policy began to change. It became increasingly apparent that the State couldn’t support the continued outward expansion with the same services, such as public transport, schools and other amenities, available in the established areas. It was also apparent that the population was declining in the older, established areas leaving the existing services under-utilised. There was a growing mismatch between under-utilised services in the established areas and unmet demand in the growth areas.

The *1981 Metropolitan Strategy* took a tentative step towards consolidation. The 1981 Strategy documented the concern with the population decline in the inner city and recognised that this left existing infrastructure poorly utilised.

The strategy promotes comprehensive planning for fringe growth and its essential services and facilities, but at the same time encourages as much growth as can readily be accommodated in existing areas where infrastructure exists.

...

It calls for a vigorous Central Melbourne, continued but slower growth in the outer urban area and greater activity at district centres identified along existing transport routes. (Melbourne and Metropolitan Board of Works, 1981, p.3)

Following the 1981 plan, *Postcode 3000*, a City of Melbourne strategy, sought to address the declining population specifically within the central area:

This goal reflected the desire to reverse the trend of a declining population and reduction in the range of available housing. The population decline was seen to have a negative impact on the operation of consumer-oriented business and personal services, public facilities and the scope and quality of civic and public life. The population diversity was also declining. (Baird 1994)

In 1995, the *Living Suburbs* strategy further emphasised the utilisation of existing infrastructure as a rationale for consolidation:

Existing water, drainage, sewerage, tram and train networks are not being used to their full capacity in the inner city and some of the older middle suburbs. (Government of Victoria, 1995, p.60)

Inner and middle Melbourne are generally well endowed with facilities, even as their populations age and decline. On the other hand, many outer suburbs do not have sufficient services to meet the growing needs of the people living there. (Government of Victoria, 1995, p.61)

With this in mind, the Victorian Government will encourage new development and redevelopment near bus and tram routes, railway stations and freeway interchanges. Transport facilities will in turn be provided to support urban development projects, with appropriate contributions from developers. (Government of Victoria, 1995, p.67)

Particular attention will be paid to developing and promoting centres offering a range of activities, services and employment opportunities. It is expected that each of these centres - or activity clusters - will be integrated with medium-density housing and directly served by several forms of transport. (Government of Victoria, 1995, p.67)

In 2002, Melbourne 2030 further embraced the concept of a “compact city” by developing “strategic redevelopment sites with the established metropolitan urban areas to reduce the pressure for urban expansion”. This policy was further supported by the introduction of an Urban Growth Boundary.

Focusing a substantial proportion of this development at activity centres that have good access to the Principal Public Transport Network...will help to reduce car trips and decrease the share of trips that need to be made by car. It will make the most of access to existing facilities and services, ensure that centres remain viable and vibrant, and reduce development pressures on other existing urban areas. (State of Victoria, 2002, p. 32)

The current metropolitan planning strategy, Plan Melbourne 2017-2050, continues the policy objective for a more compact city and embraces many of the supporting rationales from the earlier plans.

The social, economic and environmental benefits of creating a more compact, sustainable city are profound. Some of the benefits of compact, higher-density neighbourhoods are as follows:

Social

It encourages positive social interaction and diversity, improves the viability of (and access to) community services and enables more (and better integrated) housing.

Economic

It enhances the economic viability of development, improves the economic viability of infrastructure delivery and utilises existing infrastructure.

Transport

It creates sustainable demand for more transport options—including public transport, walking and cycling—and can reduce overall travel time.

Environmental

It creates opportunities for efficient use of resources and materials, creates less pollution through the promotion of sustainable transport, preserves and helps fund the maintenance of public open space, creates new public open space, reduces overall demand for development land, and avoids expanding suburbs without supporting services. (State of Victoria, 2017, p. 46)

These plans show a turn in Melbourne's planning objectives from the Beautiful City vision of detached suburban housing served by motor vehicles to the 20-minute neighbourhood concept prioritising walking, cycling and public transport. However, while strategies can be changed with the stroke of a pen, changing the built form of a city is more challenging. In 1929, Melbourne was already a city of one million; by 1981, it had grown to almost three million, and today the population is over five million. The pattern of subdivision is well established, and most of the houses of the future are already standing today. The legacy of Melbourne's early plans continues to influence what can be done today and into the future, independent of any new plans and strategies.

Many urban commentators have objected to urban consolidation policy in part because urban density can not be readily changed through conventional planning tools. This concern is an acknowledgement of the context of the existing city and that change to the urban form will be incremental.

It is highly implausible that urban consolidation could achieve such an outcome, however, without simultaneously unleashing the sort of community backlash that accompanied the medium density boom of the late 1960s, and which culminated in the heavily criticised restrictive local government controls that confront us today. (Burke and Hayward, 1990, p.153)

Others even question the degree to which the planning can effect change. The 1992 Parliamentary Review of Patterns of Urban Settlement found "that there is no organisation taking a strong lead in the decision-making process. The difficulty with the planning process is that it more often rubber stamps what is put forward than a force which directs development." (Australia Parliament and Jones, 1992, p.58).

Notwithstanding the sceptical views, urban consolidation has occurred and is an ongoing feature throughout Melbourne and other major Australian cities. For Melbourne, between 2006 and 2021, there have been notable population increases driven by infill development in many inner area local government areas (Table 1). In all inner areas, growth in household numbers has been greater than population growth, indicating a shift, on average, towards fewer people per household. For the rest of Melbourne, the increase in household numbers has kept pace with the increase in population.

The people moving into these areas have enjoyed access to the existing services, including public transport. Tram patronage, for example, has increased by 40% over 2006-2021¹, confirming the nexus between urban policy and transport outcomes.

Table 1: Inner Melbourne: Change in Population and Households 2006-2021

| LGA | Population | | | Households | | |
|-------------------|------------|-----------|--------|------------|-----------|--------|
| | 2006 | 2021 | Change | 2006 | 2021 | Change |
| Bayside (C) | 87,937 | 101,306 | 15% | 36,862 | 43,102 | 17% |
| Boroondara (C) | 154,454 | 167,900 | 9% | 63,090 | 72,924 | 16% |
| Darebin (C) | 128,063 | 148,570 | 16% | 55,342 | 68,366 | 24% |
| Glen Eira (C) | 124,083 | 148,908 | 20% | 54,434 | 66,235 | 22% |
| Maribyrnong (C) | 63,143 | 85,209 | 35% | 27,880 | 40,501 | 45% |
| Melbourne (C) | 71,382 | 149,615 | 110% | 41,239 | 103,368 | 151% |
| Moonee Valley (C) | 107,091 | 121,851 | 14% | 46,112 | 55,115 | 20% |
| Moreland (C) | 135,766 | 171,357 | 26% | 59,293 | 78,310 | 32% |
| Port Phillip (C) | 85,096 | 101,942 | 20% | 49,217 | 63,301 | 29% |
| Stonnington (C) | 89,885 | 104,703 | 16% | 45,061 | 59,609 | 32% |
| Inner Total | 1,046,900 | 1,301,361 | 24% | 478,530 | 650,831 | 36% |
| Rest of Melbourne | 2,476,966 | 3,441,995 | 39% | 960,325 | 1,327,478 | 38% |

Source: Census of Population and Housing Data. Australian Bureau of Statistics (ABS), Canberra, Australia.
<https://www.abs.gov.au/census>

4. Transport planning and consolidation

In an integrated planning regime, the shift to a policy of consolidation would be reflected in a complementary shift in transport policy. Similarly, as the urban form changes, there should be observable changes within the transport system. These expected changes could include supportive policies facilitating transit-oriented development or reactive policies responding to the growing population (Guers & Van Wee, 2004).

This section examines Melbourne's current transport plans and planning practices seeking evidence of supportive and reactive policies. Supportive policies would be expected in the forward-looking transport plans that guide the State's investment in new public transport services and the local planning requirements imposed on new developments. Evidence of reactive policies could be in public transport service changes and service patterns implemented in response to new developments.

The discussion that follows is divided into two parts. The first part reviews Victoria's current transport plans seeking evidence of specific interventions supporting urban consolidation, and the second part reviews the statutory planning requirements that govern new developments. Further research is being taken to investigate service changes that have been implemented and will be reported separately.

4.1 Urban consolidation and Victoria's transport plans

There is some debate about whether Victoria has a current transport plan. The Transport Integration Act 2010 requires the Department of Transport² (DoT) to prepare and periodically

¹ Annual tram patronage is sourced from the author's private files in most cases compiled from the annual reports of the applicable agency at the time.

² Renamed as the Department of Transport and Planning from 1 January 2023.

revise a transport plan. However, a 2019 review by the Auditor-General found that DoT has failed to meet these requirements (Barry, 2021). The DoT, however, maintains that it has 40 separate plans and strategies which fulfill the requirements of the Act. The Auditor noted that only 13 of the 40 plans nominated by the DoT are publicly available.

Table 2: Current Transport Plans and Consolidation

| Plan | How Consolidation Policy is addressed | |
|---|---|--|
| Plan Melbourne 2017–2050 (2017) | Establishes consolidation as a policy objective (discussed in the previous section) | |
| Victorian Infrastructure Plan (2017) | Supports urban consolidation through major investment but provides no comprehensive transport strategy or plan. | |
| Connecting Regional Victoria: Victoria's Regional Network Development Plan (2016) | Not applicable | |
| Fishermans Bend Integrated Transport Plan (2017) | Support consolidation within the study area through an integrated transport plan | |
| Network Development Plan–Metropolitan Rail (2012, updated 2016) | No reference to consolidation or higher density | |
| Trains, Trams, Jobs 2015-2025: Victorian Rolling Stock Strategy (2015) | Not applicable | |
| Delivering the Goods–Victorian Freight Plan (2018) | Not applicable | |
| Growing our Rail Network 2018-2025 (2018) | No reference to consolidation or higher density | |
| Victorian Cycling Strategy (2018-2028) (2018) | No reference to consolidation or higher density | |
| Victoria's Bus Plan | No reference to consolidation or higher density | |
| Towards Zero 2016-2020 Road Safety Strategy (2016) | Not applicable | |
| Movement and Place (2019) | Provides general design guidance for new developments | |
| Suburban Rail Loop–Strategic Assessment | Supports urban consolidation at six locations | |

| | | |
|---------------|--|--|
| Legend | Plan not applicable to urban consolidation | |
| | Plan acknowledges urban consolidation | |
| | Plan partially acknowledges urban consolidation | |
| | Plan makes no link or reference to urban consolidation | |

Source: Author's analysis of the publicly available reports referenced by Barry (2021).

A review of the available transport plans (Table 2) highlights that few of these plans address consolidation or high-density development as a specific policy objective. Of the plans

reviewed, four were deemed “not applicable” due to their area of focus, five provided some or partial acknowledgement of urban consolidation, and the remaining four provided no acknowledgement.

The plans acknowledging urban consolidation included the current land use strategy, Plan Melbourne 2017-2050, which establishes Melbourne’s consolidation policy but, notably, was only endorsed by the Minister for Planning. The Victorian Infrastructure Plan noted the government’s support for higher urban density and offers the Suburban Rail Loop as a supporting project. The Suburban Rail Loop was the subject of a separate assessment which argued the project would promote urban consolidation at the six station locations. The project is limited to providing rail infrastructure, with other integrated transport and urban elements excluded from the scope. The Fishermans Bend Integrated Plan is the only plan reviewed that was found to provide an integrated transport response to the urban consolidation but is limited to this precinct. The Movement and Place report offers a way of “thinking in transport and land use planning” consistent with urban consolidation but is not presented as a plan per se.

The DoT’s plans also included four modal plans (two rail plans, one cycling and one bus plan). None of these addressed the need to support urban consolidation or provide a modal response to the population growth associated with higher densities.

The Auditor-General’s report noted that the Transport Integration Act requires DoT to “demonstrate an integrated approach to transport and land use planning” (Barry, 2021 p.13). Yet this review and previous Auditor-General reviews show that a considered response to urban consolidation is generally lacking in the current transport plans and the supporting transport policy is limited to one rail project and to one development precinct.

4.2 Statutory transport planning requirements

The other avenue for an integrated planning response to urban consolidation is the statutory planning system. It has been argued that statutory planning ordinances primarily hold sway over development outcomes (Taylor and van Bommel-Misrachi, 2017). These planning provisions govern decision-making at the local, practical level unlike the city’s strategic plan(s). These decisions, taken project by project, ultimately shape the city.

The Victorian Planning Provisions (VPPs) govern land development throughout the state. The current controls were established in 1996 through the Planning and Environment (Planning Schemes) Act, building on a tradition of legally binding ordinances which started in the 1920s. The VPPs are subject to regular updates to incorporate changing policies and practices.

Transport planning requirements are addressed in Clause 18 of the current VPPs. These require that:

Planning should ensure a safe, integrated and sustainable transport system that:

- Provides access to social and economic opportunities to support individual and community well-being.
- Facilitates economic prosperity.
- Actively contributes to environmental sustainability.
- Facilitates network-wide efficient, coordinated and reliable movements of people and goods.
- Supports health and well-being.

These objectives, at face value, align with Plan Melbourne’s strategic directions. In practice, however, transport planners are required to comply with the requirements of the relevant

transport agencies. In Melbourne, VicRoads is the referral agency recognised by the planning scheme for all road transport. VicRoads requires project proponents to prepare Transport Impact Assessment Reports for any proposal that “impacts the safety or operational efficiency” of the road network. VicRoads, in the interests of national consistency, has adopted the Austroads’ assessment guide.

Austroads, the peak organisation for Australian road agencies, is charged with producing nationally consistent standards and guides for use by transport planners, engineers and designers. Austroads’ publication *Integrated Transport Assessments for Developments*:

...guides planners and engineers who design, develop and manage a variety of land use developments in identifying and managing the impacts on the road system arising from these developments. It aims to ensure consistency in the assessment and treatment of traffic impacts, while addressing the needs of all road users and the effect on the broader community. (Green and Lewis, 2020)

The Austroads’ assessment guide addresses *all road users*, including private motorists, public transport users, walkers, cyclists, and freight. However, the guide provides no direct information distinguishing between transit-oriented, higher-density development and conventional developments. Nor does the guide provide any location-specific requirements as it is prepared for a national audience. For quantitative assessments, the Austroads’ guide defers to the guide prepared by the Roads and Maritime Service of New South Wales noting that:

The NSW guide is currently the most comprehensive Australian reference on the subject. However, it is noted that the base data were collected many years ago and need to be updated with more recent data.

A previous review (Cooley et al., 2016) of the guides in use across Australia and New Zealand found:

...it is clear that considerable improvement is needed within each individual guideline and across TIA guidance in Australia and New Zealand more generally. Information regarding sustainable development objectives in TIAs, the legislative framework and the incorporation of multimodal transport considerations represent key areas for improvement.

Figure 1 is an extract from RMS’s publication *Guide to Traffic Generating Developments*. From this extract, it is clear the guide relates exclusively to the consideration of vehicle (car) trips and provides planners with no quantitative guidance to estimate the demand for travel by other modes nor any guidance of how this demand will be integrated into existing services.

Tracing the various national and state practice guides there is little to be found that would assist developers or planners in assessing whether their designs and proposals are an adequate response to the requirements of Clause 18. The guidance is dominated by the consideration of traffic generation and the associated impact on vehicular traffic flows.

Figure 1: Extract from RMS Guide to Traffic Generating Developments (Aug 2013)

| High density residential flat dwellings | | | | |
|--|----------------|--------------|------------------|----------------|
| Ten surveys were conducted in 2012, eight within Sydney, and one each in the Hunter and Illawarra. All developments were (i) close to public transport, (ii) greater than six storeys and (iii) almost exclusively residential in nature. The weekday trip generation rates were as follows: | | | | |
| Weekday Rates | Sydney Average | Sydney Range | Regional Average | Regional Range |
| AM peak (1 hour) vehicle trips per unit | 0.19 | 0.07-0.32 | 0.53 | 0.39-0.67 |
| AM peak (1 hour) vehicle trips per car space | 0.15 | 0.09-0.29 | 0.35 | 0.32-0.37 |
| AM peak (1 hour) vehicle trips per bedroom | 0.09 | 0.03-0.13 | 0.21 | 0.20-0.22 |
| PM peak (1 hour) vehicle trips per unit | 0.15 | 0.06-0.41 | 0.32 | 0.22-0.42 |
| PM peak (1 hour) vehicle trips per car space | 0.12 | 0.05-0.28 | 0.26 | 0.11-0.40 |
| PM peak (1 hour) vehicle trips per bedroom | 0.07 | 0.03-0.17 | 0.15 | 0.07-0.22 |
| Daily vehicle trips per unit | 1.52 | 0.77-3.14 | 4.58 | 4.37-4.78 |
| Daily vehicle trips per car space | 1.34 | 0.56-2.16 | 3.22 | 2.26-4.18 |
| Daily vehicle trips per bedroom | 0.72 | 0.35-1.29 | 1.93 | 1.59-2.26 |

Note: Available from <https://standards.transport.nsw.gov.au/search-standard/>

In contrast to the general transport requirements of Clause 18, the VPPs impose specific parking requirements for any new developments. Clause 52.06 specifies minimum parking requirements for residential, commercial and other types of development. Taylor and van Bommel-Misrachi (2017) provide a detailed review of the VPPs' parking requirements demonstrating a misalignment between the current ordinances and Melbourne's current strategic land use strategies. They trace the current parking provisions to the metropolitan-wide requirements established in 1956. They note that these requirements have remained largely unchanged since then, notwithstanding clear shifts in strategic policy since 1981 to encourage a more sustainable urban form.

Further transport requirements are addressed in Clause 56 Residential Subdivision. Clause 56.04 Lot Design requires "95 per cent of dwellings to be located no more than 400 metre [sic] street walking distance from the nearest existing or proposed bus stop, 600 metres street walking distance from the nearest existing or proposed tram stop and 800 metres street walking distance from the nearest existing or proposed railway station". Clause 56.06 Access and Mobility Management provides additional detailed provisions to deliver "compact and walkable neighbourhoods", to "provide for walking" and "to contribute to reduced car dependence".

In practice, however, new developments are being built that fall short of these transport requirements (Kroen et al., 2021). A review of new urban developments in Melbourne's growth areas on the urban fringe found "only 4% of dwellings...are within 1km of an activity centre" and "only 25% of dwellings are within 400m walking distance of a public transport stop" (Kroen et al, 2021, p.ii). The design and implementation of these developments illustrate a disconnect between policy intent and actual outcomes.

The previous section traced the shift in urban consolidation policy from the City Beautiful concepts of the 1920s to the current 20-minute neighbourhood concepts of the current Plan Melbourne. This section examined the current transport plans and found little support for urban consolidation in either the state's existing transport plans or in the development planning instruments. Little evidence demonstrates the integration of land use and transport planning. Furthermore, it was found that urban consolidation is occurring, yet the transport response to this shift in urban form is far from clear.

5. Discussion: The implications for planning

The preceding section, using the principles of relational planning, traced the evolution of Melbourne's urban consolidation objectives and contrasted this with the policy instruments used to implement this policy. The focus of the analysis does not question the merits of the policy intent but rather more simply asks how this intent is being implemented. Planning, as a performative profession, should be equally concerned with how policy is given effect as much as with the merits of any policy. The former is the primary concern of planners tasked with policy implementation.

We found that Melbourne is a car-dependent city by design. Through the first half of the twentieth century, city planners catered to the popular demand for living in detached homes with gardens. The motor vehicle made this possible by removing the nexus between public transport provision and the opening of new development areas. Houses could be built remotely from existing tram, train and bus services in the knowledge that most households would have access to private motor vehicles to meet their daily travel needs.

However, detached homes did not suit everyone, and throughout the twentieth century, there was a demand for higher-density development. Similarly, it was acknowledged that not everyone would have ready access to a car and that some public transport would continue to be needed. However, such provisions were not seen as urgent and could be addressed as and when resources could be found.

In the later stages of the twentieth century, the folly of this strategy became apparent. Automobility, amongst other concerns, became unbearable as unchecked outward growth required evermore resources to address the growing congestion arising from individualised travel. The 1969 Transport Plan laid bare the infrastructure required to meet the demand for travel generated by this development pattern. Creek valleys would be filled, established communities would be demolished, and others would be fragmented to deliver the infrastructure needed for the car (Gurciullo, 2020). Parking for the growing vehicle fleet was made a mandatory development requirement (Taylor and van Bommel-Misrachi, 2017). It became a significant consideration for unit development, together with the preparation of traffic impact assessments to preserve the "safety and efficient operation" of the road network.

Following the trail, an important turn in Melbourne's strategic goals started in 1981 and emerged as a complete policy package in 2002. We found that urban consolidation and a new commitment to transit, walking, and cycling were embraced as a policy priority. The policy position continues to be a theme of Melbourne's current strategic plan.

We then examined Melbourne's transport plans and planning guidelines to understand how this policy was to be given effect. We found that these made little reference to the shift in the State's objectives for metropolitan development. At the local level, guides for traffic impact assessment were rebranded as transport assessments without any new foundational knowledge to give effect to the new policy objectives. Parking requirements remained as they were first developed to support a car-based, suburbanised city. To the extent that the policy objectives were mandated through the planning ordinances, we found evidence to show that the actual outcomes fell well below the specified requirements.

6. Conclusion

The growing population within the established urban area has increased the demand for public transport (and other modes). Yet transport policy and practice, as represented in the current transport plans and assessment guides, appear indifferent to these important city-shaping trends. The authors of the current practice guides note the lack of research into the operational nexus between transport and urban development that is needed to inform better practice. The

absence of this foundational knowledge is a barrier to the overdue reform of these well-established practices.

The current research project being undertaken by the authors of this paper seeks to address part of this knowledge gap. This paper is a step that describes a problem within our current transport planning practices. Further investigation is needed to understand why current planning practices replicate past policies rather than embrace and support the new policy priorities.

The research is being undertaken to compile empirical data that describes the nexus between high-density development and public transport outcomes. This alone will not provide a full picture. Further work is also needed to explore the nexus with other modes of transport, including walking and cycling. Armed with this knowledge, further work will be needed to review and refine key planning instruments such as the current planning ordinances and assessment guides. That this work is long overdue emphasises the urgency with which it must be undertaken.

References

- Allmendinger, P. and Tewdwr-Jones, M. 1997. *Mind the gap: Planning theory–practice and the translation of knowledge into action—A comment on Alexander (1997)*. Environment and Planning B: Planning and Design, 24(6), 802-806. doi:10.1068/b240802
- Australia Parliament and Jones, B. 1992. *Patterns of urban settlement: consolidating the future? Report of the House of Representatives Standing Committee for Long Term Strategies*. Australian Govt. Publishing Service Canberra
- Barry, D. 2021. *Integrated Transport Planning. Independent assurance report to Parliament*. Victorian Government Printer.
- Beauregard, R.A., 2015. *Planning matter: Acting with things*. University of Chicago Press.
- Burke, M., and Brown, L. 2005. *Rating the Transport Sustainability of New Urban Developments: a starting point and ways forward*. 28th Australasian Transport Research Forum
- Burke, T. and Hayward, D. 1990. *Housing Melburnians for the Next Twenty Years: Problems, Prospects and Possibilities*, 8:3, p.122-151,
- Cooley, K., De Gruyter, C. and Delbosc, A. 2016. *A best practice evaluation of traffic impact assessment guidelines in Australia and New Zealand*. In 38th Australasian Transport Research Forum (ATRF), Melbourne, Australia.
- Geurs, K. T., and Van Wee, B. 2004. *Land-use/transport interaction models as tools for sustainability impact assessments of transport investments: review and research directions*. European Journal of Transport Infrastructure and Research, Vol. 4, No. 3, pp. 333-355.
- Gurciullo, S. 2020. *Deleting freeways: Community opposition to inner urban arterial roads in the 1970s*. Provenance (18), 45-62.
- Government of Victoria, 1995. *Living Suburbs: a Plan for Metropolitan Melbourne into the 21st Century*. Accessed from: <http://www.dtpli.vic.gov.au/planning/plans-and-policies/planning-for-melbourne/melbournes-strategic-planning-history/living-suburbs-1995>.
- Green, D. and Lewis, K. 2020. *Guide to traffic management part 12: integrated transport assessments for developments* (No. AGTM12-20).
- Haratsis, Brian, 1982. *Editorial*, Urban Policy and Research
- Healey, P., 2007. *Urban complexity and spatial strategies: Towards a relational planning for our times*. Routledge.

- Infrastructure Australia, 2019. *An assessment of Australia's future infrastructure needs*.
- Infrastructure Victoria, 2016. *Learning from the past. A history of infrastructure planning in Victoria*. Accessed from: <https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/04/Learning-from-the-past.pdf>
- Kroen, A., Goodman, R., Gunn, L. and Pemberton, S. 2021. *Early delivery of equitable and healthy transport options in new suburbs—Final report*.
- Latour, B. 2005. *Reassembling the social : an introduction to actor-network-theory*. Oxford: Oxford University Press.
- Mees, P., 2000. *A very public solution: Transport in the dispersed city*. Melbourne University Press
- Melbourne and Metropolitan Board of Works, 1954. *Melbourne Metropolitan Planning Scheme 1954*. Accessed from: <http://www.dtpli.vic.gov.au/planning/plans-and-policies/planning-for-melbourne/melbournes-strategic-planning-history/melbourne-metropolitan-planning-scheme-1954>.
- Melbourne and Metropolitan Board of Works, 1971. *Planning Policies for the Melbourne Metropolitan Region* Accessed from: <http://www.dtpli.vic.gov.au/planning/plans-and-policies/planning-for-melbourne/melbournes-strategic-planning-history/planning-policies-for-metropolitan-melbourne-1971>.
- Melbourne and Metropolitan Board of Works, 1981. *Metropolitan Strategy Implementation*. Accessed from: <http://www.dtpli.vic.gov.au/planning/plans-and-policies/planning-for-melbourne/melbournes-strategic-planning-history/metropolitan-strategy-implementation-1981>.
- Metropolitan Town Planning Commission, 1929. *Plan of General Development: Melbourne*. Accessed from: <https://www.planning.vic.gov.au/policy-and-strategy/planning-for-melbourne/melbournes-strategic-planning-history/plan-for-general-development-1929>
- Ribeiro Pimenta, A., Kamruzzaman, M. and Currie, G. 2023. *Long-term effects of autonomous vehicles on the built environment: a systematic scoping review towards conceptual frameworks*. Transport Reviews, pp.1-35.
- Stanley, J. 2016. *Australian Infrastructure Plan has some way to go to give our cities what they need*. The Conversation, Victoria, Australia
- State of Victoria, 2002. *Melbourne 2030—Planning for Sustainable Growth*. Accessed from: <http://www.dtpli.vic.gov.au/planning/plans-and-policies/planning-for-melbourne/melbournes-strategic-planning-history/melbourne-2030-planning-for-sustainable-growth>.
- State of Victoria, 2017. *Plan Melbourne 2017-2030*. Accessed from: https://planmelbourne.vic.gov.au/__data/assets/pdf_file/0007/377206/Plan_Melbourne_2017-2050_Strategy_.pdf
- Taylor, E.J. and van Bommel-Misrachi, R. 2017. *The elephant in the scheme: Planning for and around car parking in Melbourne, 1929–2016*. Land use policy, 60, pp.287-297.