PEER REVIEWED

FINAL REPORT NO. 412

From mixed tenure development to mixed tenure neighbourhoods

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Publication Date October 2023
DOI 10.18408/ahuri5229701

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ISBN

978-1-922498-79-3

Key words

Mixed tenure, design research, development models, neighbourhoods, design quality, public land, affordable and sustainable dwellings, project pipeline, supply, finance, urban renewal.

Series

AHURI Final Report

Number

412

ISSN

1834-7223

Publisher

Australian Housing and Urban Research Institute Limited
Melbourne, Australia

DOI

10.18408/ahuri5229701

Format

PDF, online only

URL

https://www.ahuri.edu.au/research/final-reports/412

Recommended citation

Khor, L., Taylor, L., Glackin, S., Rowley, S., Siebel, S., Tinios, D., Aziz, R. (2023) *From mixed tenure development to mixed tenure neighbourhoods,* AHURI Final Report No. 412, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/412, doi: 10.18408/ahuri5229701.

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Acknowledgements

This material was produced with funding from the Australian Government and state and territory governments. AHURI Limited gratefully acknowledges the financial and other support it has received from these governments, without which this work would not have been possible.

A Masters of Architecture Design Studio led by Lee-Anne Khor at Monash University was carried out in conjunction with this research. Student acknowledgements: Pip Bruce, Edward Cavarsan, Hashanah Chang, Nadine Freijah, Mariam Geme, Nethmi Hevanahannadige, Amanda Jap, Rose Kheng Lot, Ciara Losty, Mark Muwuluke, Neil Nan, Shruti Randive, Aria Rouzbahani, Savini Senevirathne, Brahn Smillie-Fearn, Kieran Stack, and Taylar Stanton.

AHURI Limited also gratefully acknowledges the contributions, both financial and in-kind, of its university research partners who have helped make the completion of this material possible.

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Acronyms and abbreviations used in this report

ABS	Australian Bureau of Statistics
AHURI	Australian Housing and Urban Research Institute Limited
BAU	Business as usual
BHC	Brisbane Housing Company
BtR	Build to rent
BtS	Build to sell
CHP	Community housing provider
CHP##	Community housing provider interviewee
FOI	Features of interest
GMV	Greenwich Millennium Village
LGA	Local government area
LG##	Local government interviewee
MT	mixed tenure
NBESP	Nation Building Economic Stimulus Package social housing program
NFP	Not for profit
NHFIC	National Housing Finance and Investment Corporation
NRAS	National Rental Affordability Scheme
NSW	New South Wales, Australia
OH##	Other housing interviewee (e.g. developer, architect, academic)
OSM	Open Street Maps
POI	Points of interest
PPP	Public private partnerships
QLD	Queensland, Australia
SA1	Statistical Area 1 scale (roughly 200 dwellings)
SEIFA	Socio-Economic Indicator for Areas
SHA	State housing authority
SG##	State government interviewee
VIC	Victoria, Australia
WA	Western Australia

Glossary

A list of definitions for terms commonly used by AHURI is available on the AHURI website ahuri.edu.au/glossary.

Executive summary

Key points

- Mixed tenure (MT) outcomes are variable. Success measures differ for various stakeholders, locations and project types.
- Tenure mix benchmarks are accepted as best practice but are not clearly linked to how success is understood or achieved.
- A neighbourhood-scale approach to MT housing delivered on existing state housing authority (SHA) sites offers a smaller scale and more rapid mode of development delivery when compared to typical MT models.
- MT neighbourhoods require shifts in how planning, infrastructure and funding are packaged, enabling once-off, site-based processes to be adapted for operations across distributed sites in a neighbourhood over time.
- Other advantages of MT neighbourhood models include tenant and asset management consistent with long-term funding models, retention of established communities and networks through incremental and opt-in processes, and engagement.
- Some SHA land assets are more useful than others for generating uplift through MT neighbourhood design. SHA assets that do not contribute ongoing neighbourhood improvements can be sold to subsidise the delivery of additional social housing.
- An estimated 12,378 small-scale social housing assets could deliver more than 40,000 net new dwellings through renewal of MT neighbourhoods in Brisbane, Sydney and Melbourne. Greater capacities are possible utilising other ‘lazy land’ and project pipelines in regional towns.

Mixed tenure (MT) developments are an established and growing platform for the delivery of social and affordable housing, internationally and across Australia. Their popularity comes from a range of factors, linked in part to asset management and divesting of outdated stock for newer dwellings as part of semi-private developments, and in part to social outcomes, including improving locational and social mix. However, the rationales and success measures for MT housing vary across stakeholders, locations, and project types, which limits the efficacy and replicability of outcomes.

While typical MT housing models exist in Australia, they tend to be high-density apartment outcomes in high-value areas, driven by development viability. Complex funding arrangements preclude the involvement of smaller builders and community housing providers (CHPs), or necessitate 'bespoke' solutions, constraining the capacity for ongoing growth and improvement of the sector. Criticised as short-term responses to existing social and planning issues, typical MT projects often fail to leverage broader long-term benefits and point to a misalignment between housing and strategic development policies. Increasing the supply, diversity and distribution of MT housing in the short-term, and contributing to strategic renewal initiatives in the long-term, requires the interrelated issue of land assembly, planning, design, procurement and delivery to be reconsidered.

This study examines potential pathways for transitioning from bespoke MT projects towards replicable models for neighbourhood-level development. For the purposes of the research, MT development is defined as housing projects that leverage existing public land assets—although interviews and document analyses also refer comparatively to other models of MT, such as inclusionary zoning in developments on private land. This study leverages the quantum of small-scale public assets and underutilised government land to test 'real world' scenarios for MT neighbourhood renewal against two overarching research questions:

- What are the measures of success in MT developments?
- What opportunities exist to replicate successful MT developments at a neighbourhood scale?

Key findings

The cross-sector study enabled a multi-criteria assessment of the benefits and constraints associated with MT neighbourhoods for different stakeholders, including CHPs and tenants. The findings are structured around five key questions that form the sections of the report.

Table 1: Key findings

Section	Findings
1. Why does Australia need a model for MT neighbourhoods?	• Opportunities exist to deliver small-scale MT in low-rise residential areas, but funding models favour larger-scale development. • MT developments are often 'bespoke'; complex funding processes work against the replicability of successful outcomes. • Working at neighbourhood scale provides flexibility for achieving dwelling and tenure mixes, cross-sector partnerships, capacity building and long-term uplift.
2. How is success measured for MT developments?	• The 70:30 split of private:affordable housing is accepted as best practice but is not always appropriate. Mix is dependent on funding, project scale, tenant types and the role of the private sector. • 'Pepper-potting' MT via separate floors or buildings and tenure-blind designs that enable tenants to shift between different forms of mixed-income housing are often preferred by CHPs. • Dwelling quality in private BtS projects does not always meet social housing standards. Quality and durability have longer-lasting impacts than tenure mix ratios.
3. Where can MT neighbourhoods be delivered?	• MT projects are typically city-centred, where market acceptance, access to services and land values support higher-density outcomes. • MT projects also occur at considerable distance to the CBD, led by land availability, regeneration policies and partnerships. • Areas with about 15 per cent small-scale social housing assets and/or lazy government land offer prime locations for MT neighbourhoods. • Neighbourhood-scaled advantages are more readily achieved when planning frameworks support medium- and high-density housing.
4. What is a viable scale for MT neighbourhood renewal?	• A design-led MT neighbourhood model enables the scale and nature of development to be tailored to specific sites. • Prevailing dwelling prices and land values are key determinants of MT neighbourhood outcomes. Direct development subsidy increases with lower land values; there is almost always a capital shortfall. • Low-value areas have fewer opportunities to leverage existing government assets. Maximising local amenities and delivering initial projects that catalyse uplift for future developments are key. • MT neighbourhoods can be delivered by cross-subsidising social housing via sale and development of existing public assets, and potentially deliver other, less subsidy-intensive affordable housing products on a greater scale.
5. How can best practices resolve barriers to successful MT development?	• Access to land is important but is only one component of feasible MT delivery. • Adopting a whole-of-life approach to buildings and communities amplifies MT neighbourhood outcomes (20–40 years). • Developer attitudes to MT projects matter, and can influence what works in MT neighbourhoods, e.g. presales and de-risking. • Housing diversity is critical for the life cycle and quality of a neighbourhood, community retention and building social capital. • Onsite amenities and non-residential uses are important for the ongoing management of MT housing, and are integral to the longer-term success of a MT neighbourhood. • Lower parking rates than typically required by planning would meet MT demand and enable better design outcomes. Decoupling parking from dwellings can facilitate better MT outcomes.

Policy development options

The availability of sites in appropriate locations is a key imperative of successful and viable MT development. Whole-of-government asset management is required to leverage social, built and financial uplifts. Table 2 provides a summary of policy recommendations contained in the report.

Table 2: Policy development options

Issue	Policy options
Dwelling / tenure mix	• Australia needs a consistent definition of 'affordable housing'. • A whole-of-life approach to buildings and communities is necessary for effective MT neighbourhood renewal—typically 40 years, but at least 20. • Tenure-blind and mixed income developments enable tenants and dwellings to shift between different subsidised or market housing forms. • Increasing the social housing stock provides more options for decanting existing tenants while areas are redeveloped.
Built form and design	• Private housing in MT neighbourhoods should conform to SHA/CHP design standards. An increase in the quality and whole-of-life view of private housing in Australia is needed to enable successful tenure-blind MT housing. • Onsite amenities and non-residential uses are important for stakeholders involved in ongoing MT management. These are also important from a planning perspective and integral to an effective MT neighbourhood model. • Funding models should always consider/support onsite maintenance and other support services.
Planning, land and funding	• Each state and territory has its own policy settings and approval processes regarding, e.g. third party objection and appeal rights, code-assessable vs performance-based zoning, and 'fast-tracking' of affordable housing. There is capacity to compare benefits more closely. • Jurisdictional planning differences also occur across local government areas (LGAs), making a one-size-fits-all MT model impossible. Greater consistency across jurisdictions would aid the development of appropriate funding models and approaches to MT development. • Lower rates of car parking provision than typically set by planning requirements would both meet MT demand and enable better design outcomes. Decoupling parking from dwellings and reducing parking requirements allows MT developments to include more housing and shared amenities, minimises crossovers and local impacts, while still meeting the needs of residents and visitors. • Local and state governments should review landholdings and identify sites with potential for MT neighbourhood development. Site selections should consider local accessibility and amenities; both are critical to MT neighbourhoods. Key factors include walking distance to shops, public transport (although quality and frequency expectations vary), schools, health facilities and work opportunities. • Greater and more consistent capital funding is required, especially in light of increased construction and lending costs. CHPs involved in MT (especially in Victoria and NSW) have more established models but struggle mainly with upfront funding certainty. Public land assets can be used to cross-subsidise social housing development and generate a net increase in social housing.

The study

This study employed a mixed-methods research approach to examine expanded opportunities for, and benefits of, MT development in Australia, involving: literature and case-study reviews; stakeholder interviews; geospatial analysis of existing and future MT project locations; the development of MT neighbourhood design scenarios applied to 'real world' sites; testing the proposed MT neighbourhood model through validation workshops; feasibility assessment of different cross-subsidy and procurement approaches.

A desktop review of global literature around MT housing, international project exemplars and local MT case studies explored and categorised the drivers and objectives of MT housing—including which factors were considered important to successful MT projects, and how 'success' is understood.

We examined innovative examples of overseas projects including affordable, non-market based, and co-operative housing practices, neighbourhood effects, and novel financing arrangements. Paralleled by a review of 120 MT case studies in NSW, QLD, VIC and WA, the combined case-study examination was used to translate best practices to built MT outcomes in Australia, illustrating what is achievable on the ground.

To supplement the case studies, 26 expert interviews were conducted over the course of the project in 2022–2023, with participants in VIC, NSW, QLD and WA. The interview participants included:

- four representatives from state government
- five representatives from local government
- 10 community housing providers
- seven other housing representatives (wearing 'multiple hats' as board members for housing organisations or government advisors, comprising one developer, four architects / consultants and two academics).

To explore the importance of location, geospatial analysis was used to determine the spatial attributes of viable MT developments. The high-level survey of 120 MT projects in NSW, QLD, VIC and WA was mapped against a range of socio-demographic, financial and built environment factors to define the typical contexts in which MT developments occurred, by city. Using these outcomes, as well as visible trends in city policy regarding location, the areas most suitable for business as usual (BAU) projects were determined, as well as those that would be more suited to a regenerative model.

A Masters of Architecture design studio, involving 17 students from Monash University, explored site-specific design opportunities for increasing the diversity and frequency of MT housing in each of the four jurisdictions. The studio environment encouraged students to generate speculative and innovative design ideas. Drawing on the case studies, literature and geospatial analysis, the research team further tested place-specific constraints and potentials for delivering replicable models for MT neighbourhoods in selected locations, identifying how medium-density redevelopment might better respond to contemporary resident needs, as well as deliver broader benefits to address the multiple imperatives of stakeholder groups involved in MT redevelopment.

From the geospatial analysis and design research, a range of MT neighbourhood scenarios were presented for stakeholder feedback through four workshops (one in QLD, one in VIC and two in NSW). These workshops enabled the research to engage with 'real world' processes and constraints around land assembly, planning, partnerships and development delivery. The insights led to potential approaches for cross-subsidising and procuring development at different stages of MT neighbourhood renewal.

The mixed-methods investigation synthesises best practices with a 'real world' understanding of MT drivers and constraints for multiple stakeholders. The integration of traditional and practice-based research identifies key policy pathways for upscaling and diversifying MT housing outcomes in Australia.

1. Why does Australia need a model for mixed tenure neighbourhoods?

Shifting focus from MT development to MT neighbourhoods has the capacity to:

- **deliver more equitable distributions and a greater range of affordable and social housing options in well-serviced locations**
- **leverage greater value from small-scale public housing stock and surplus government land assets in established suburbs**
- **increase involvement by more stakeholders, including small and medium builders**
- **build capacity in the CHP sector**
- **support the longer-term (40-year) asset-management time frames of the affordable housing sector**
- **support the place-based success measures cited in international literature and by stakeholders.**

This study examines the expanded opportunities for, and benefits of, mixed tenure (MT) housing development in Australia. MT developments have been criticised as short-term responses to existing social and planning issues that fail to leverage potentials for larger-scale positive effects over the longer term. This section introduces the policy context and approach to the mixed-methods investigation. Drawing on local and international case-study examples, we profile the range of tenure mix tools, including typical ratios and social policy rationales, and provide an outline of the typical drivers and delivery models for MT development.

A discussion of the contested measures of success in MT housing—and the impacts these may have on project pipelines and partnerships—points to the need for alternative approaches to MT development. We make a case for shifting the typical lens of inquiry from MT developments to MT neighbourhoods as a means of increasing the volume, diversity and quality of affordable and social housing supply, while opening opportunities for achieving broader urban upgrades and alternative finance, delivery and management arrangements.

1.1 Introduction

Mixed tenure (MT) is typically defined as a development that contains a variety of dwelling products across a range of dwelling tenures, and is usually delivered on government-owned land. These tenures include social housing (public housing and housing delivered by community housing providers [CHPs]) and normally private ownership products, although sometimes private rental dwellings are included. MT developments are an established and growing platform for the delivery of social and affordable housing, internationally and across Australia. Their popularity stems from a range of factors including strategies around asset management (including divesting outdated stock) and the delivery of newer dwellings directly by government and the not-for-profit (NFP) sector and in partnership with the private sector. Social outcomes are also a key driver of MT developments including improving location and social-mix characteristics and social housing tenant outcomes. However, the rationales for MT development, as well as measures of success, vary across stakeholders, locations and project types. While there are some typical models for MT in Australia, funding models often necessitate complex or 'bespoke' solutions.

Previous AHURI studies demonstrate that neighbourhood-scale planning and design—as opposed to the development of standalone projects—offers a number of potential benefits around housing diversity, improved local amenities, sustainable services and technology, design quality and overall tenant outcomes (Dühr, Berry et al. 2023; Murray, Bertram et al. 2015; Newton, Murray et al. 2011). This research project builds on those studies to examine a potential pathway from individual MT projects through to neighbourhood-level development, and discusses the benefits such a model might bring to a range of stakeholders including CHPs and social housing tenants. This research aims to answer two main research questions:

- What are the measures of success in MT developments?
- What opportunities exist to replicate successful MT developments at a neighbourhood scale?

1.2 Policy context

MT policies are widely established as a tool for increasing affordable and social housing supply (Arthurson and Darcy 2015; Atkinson 2008; Groenhart 2013). MT developments are commonly understood to be multi-residential projects with a mix of private market, affordable (such as key worker) and / or social housing. A ratio of 70 per cent private market to 30 per cent social/affordable housing is often used as a benchmark for determining tenure mix (Darcy and Rogers 2019)—however, exactly what underpins the 70:30 split is not well understood.

While MT developments are designed to deliver affordable housing, outcomes are clouded by the lack of a consistent definition of 'affordable housing' across Australia. The term can be as vague as the one adopted in the Western Australian housing strategy, which doesn't define tenure at all: 'housing that households on low to moderate incomes can afford to access while meeting other essential living costs' (Department of Communities 2020). More robust definitions include tenure within the definition, and include subsidy and eligibility requirements. For example:

> *Affordable housing includes rental housing priced at below market rents and earmarked for eligible low to moderate-income households and owner-occupied housing for eligible low to-moderate-income households that is provided under a subsidised loan or shared equity arrangement and/or is legally encumbered with covenants that impose an affordability requirement. (Rowley, James et al. 2017: 9)*

A nationally consistent definition of affordable housing would greatly aid the measurement of success of those schemes designed to increase affordable housing supply and eliminate the inclusion of low-cost market products—which are low cost due to their location, size or quality—from the definition.

The absence of a sustainable capital funding model for social housing in Australia has produced a significant supply-demand gap (Groenhart and Burke 2014; Lawson, Pawson et al. 2018). This shortfall is compounded by an ageing and inappropriate social housing stock (NSW Auditor-General's Office 2013; Victorian Auditor-General's Office 2017) and diminishing affordability of market rental options (Gurran, Hulse et al. 2021). State housing authorities (SHAs) have tried to facilitate growth and renewal of affordable and social housing by leveraging public land assets through MT development, with varying outcomes. Scholars attribute the variability of MT outcomes to inconsistent measures of success, impeding the extraction of project and policy lessons (Nygaard, Pinnegar et al. 2021). An empirical study of MT objectives and outcomes is needed to clarify policy benefits (Chisholm, Pierse et al. 2021; Wood 2003) and determine evidence-based benchmarks that can be used to upscale successful MT initiatives. This study aims to address this gap.

In response to the escalating demand for social housing, state and federal governments have recently announced unprecedented funding programs to speed up new supply (Benedict, Gurran et al. 2022). At the same time, legacy issues arising from historically poor asset-management strategies have compelled SHAs to sell high-value properties to increase revenue and transfer stock to the community housing sector to mitigate maintenance and management liabilities (Sharam, McNelis et al. 2021; Victorian Auditor-General's Office 2017). The rapid delivery of new supply and ongoing divestment of existing assets raises questions about the alignment between social housing and broader urban development policies.

The role of social and affordable housing in achieving strategic urban outcomes is particularly relevant in established urban areas, where state governments are directing the majority of new housing supply (Newton, Newman et al. 2022) and where SHAs have a quantum of small-scale and ageing landholdings (Murray, Bertram et al. 2015). The strategic sale, renewal and acquisition of social housing to achieve MT outcomes in these areas of the city could have a significant impact on achieving current infill targets, improving the quality and diversity of housing choices in appropriate locations, as well as supporting broader urban policies and community benefits. However, inconsistent or competing success measures for MT development are impeding the development of replicable design and delivery models, which are needed to underpin more effective asset-management strategies.

Market-led infill is often fragmented, negating the positive changes that higher-density development can bring to the public realm and the level of amenity it offers. The transformations that are taking place have often detrimentally impacted the sustainability and quality of residential neighbourhoods (Infrastructure Victoria 2023; London, Bertram et al. 2016). Offering few benefits to existing residents, market-led infill housing is often met with community resistance (Currie and Sorensen 2019; Kim 2016).

In the context of this study, resistance to higher-density infill is compounded by the stigma associated with social housing development, which can add to already contested project proposals, lengthy development delays and compromised social cohesion within urban communities (Arthurson 2010; McCormick, Joseph et al. 2012; Raynor, Panza et al. 2020). The collective impact of individual developments is, in turn, exacerbating challenges for increasing affordable housing supply and achieving sustainable and high quality urban environments in the long-term (Khor, Pasman et al. 2020). This report contends that new development models are needed to demonstrate the collective benefits of good quality urban transformations, and to garner community support for sustainable and equitable housing change.

While the claims for social mix and mixed tenure are disputed, MT developments are seen as vehicles for improving ongoing amenity, reducing local stigma associated with concentrated public housing, and offsetting the exclusionary effects of high-cost areas (de Oliver 2016; Easthope, Crommelin et al. 2020; Palm and Whitzman 2019). MT development is also increasingly seen as a vehicle to transfer tenant and asset management to CHPs (Smyth 2017; Tersteeg and Pinkster 2016).

The role and capacity of CHPs differs widely across jurisdictions. Without funding certainty for capital development and ongoing asset management, questions remain around their capacity to contend with the supply and maintenance problems they are inheriting from SHAs. While larger CHPs have developed extensive assets and a longer-term asset-management perspective, as stock ages their capacity is contingent on the same asset and policy cycles that have driven stock transfers by SHAs.

Shifting focus from individual developments to neighbourhoods increases opportunities for community housing organisations, local service providers and small to medium builders to access MT partnerships. Upscaling MT opportunities through replicable neighbourhood-scale models, integrated with local planning codes, has the potential to build capacity across diverse housing providers, including the NFP housing sector.

1.3 Existing research: drivers of mixed tenure

A key aim of this research project is to determine evidence-based benchmarks that can be used to upscale successful MT outcomes at a neighbourhood scale. However, measures of success for MT developments differ across project types and stakeholder groups involved in the various phases of planning, finance, procurement, design, delivery, ongoing use and management of MT housing.

To determine meaningful benchmarks, it is first necessary to outline the range of definitions and drivers of MT developments in different contexts. Some drivers are in tension. For example, the tension between maximising housing supply versus valuing the provision of local amenities and services; or between opportunities to leverage 'lazy' public land versus a principle of retaining public ownership of land assets. This section unpacks such tensions by drawing together a review of existing literature and existing MT project outcomes, providing a framework for the development of a MT neighbourhood model.

Mixed tenure development models

The scale of MT developments can range from a single building or site with multiple dwellings to whole suburbs for thousands of residents. Irrespective of size, MT arrangements can add considerable complexity to the planning, procurement, implementation and management structures of a project. Market sales or market-rate rentals are included in some MT models to cross-subsidise social and affordable housing supply; in others, market housing forms the primary tenure. Public, community and other forms of affordable housing (National Rental Affordability Scheme [NRAS], subsidised) can be mandated, or 'voluntarily' included based on feasibility, management strategies or stakeholder priorities. In some instances, CHPs act as developers; in others, they partner with private industry as housing service providers. The various models of MT development pose different risks for the stakeholders involved, and impact on project locations, the dwelling types delivered and the ability to replicate outcomes.

Despite the complex variables involved, typical MT developments in Australia can be categorised into four models (Figure 1).

Figure 1: Examples of typical MT development models

Source left to right: Citta Property Group; Menai Civil Contractors; Hassells; LandCorp

1. Renewal of high-value public housing estates in urbanised areas

Public private partnerships (PPPs) involving joint ventures between CHPs and private developers based on competitive tenders set by state governments, often with a predefined mix of social, affordable and private housing. These are usually large-scale projects with long time frames (3–7+ years), typically delivering hundreds or thousands of medium- and high-density dwellings on high-value land (e.g. inner city, transport corridors, activity centres). Development is predominantly residential, often driven by a political preference for leveraging public land assets and transferring social housing management from government to community sectors. An increase in dwelling density and yield is usually emphasised.

2. Redevelopment of broadacre / urban fringe public housing estates

This involves the sale of land assets to a private developer with development including a fixed proportion of stock retained as social housing. CHPs are involved through direct development of portions of the estate, or spot purchases/transfers. Often carried out as a dispersal strategy to break up concentrations of social disadvantage, or to intensify underutilised land assets and mitigate risks associated with inappropriate and ageing dwelling stock.

3. Catalysts for new centres

More recently, MT housing is being included in the early stages of new centre development. Cockburn Central in WA is an outer suburban example. It started in 2013 with the MT project Living Spaces, which contributed to the activation of a new transport-oriented mixed-use precinct. Today, the centre is planned to expand into Cockburn West and Cockburn East. Kelvin Grove in QLD is an inner-city example that involved the redevelopment of a 16.6-hectare former Defence site. Four low-income rental projects make up a small part of the new education and residential hub, co-developed as a partnership between the QLD government and Queensland University of Technology. Unlike urban estate renewal (Example 1), new centre developments include delivery of local amenities and services, which encourage further private sector development through risk reduction.

4. Bespoke or experimental projects

These are smaller projects delivered on discrete allotments by CHPs or private developers, and more recently, involving alternative finance and tenure structures such as impact investment, philanthropy, build to rent (BtR), and rent to buy. Bespoke projects can be prompted by inclusionary zoning targets set by local governments; the opportunistic use of sites made available to CHPs or surplus to government needs; innovation projects; or self-initiated developments. The mix of tenures is driven by project-specific aims and stakeholder needs, with private sales/rentals used to cross-subsidise social and affordable offerings. A complex ‘alchemy’ of individual approaches is characteristic, making successful project outcomes challenging to measure or replicate. Table 3 lists examples of tenure mixes and drivers.

Table 3: Examples of bespoke or experimental MT projects

Model	Tenure mixing	Drivers / objectives
Inclusionary zoning	5–20% owned and/or managed by CHPs in private developments.	Set by LGAs, incentivised by planning concessions; or condition of land sale (surplus land, first right of refusal).
Shared equity	100% affordable in small-scale projects; spot purchase in larger developments.	Tailored to specific resident groups, e.g. older single women who cannot access private finance but are ineligible for social housing.
CHP-led	Typically a mix of social and affordable (NRAS), but can include some private market for cross-subsidy.	Ad hoc land availability drives development types and feasibility, often requiring clever site responses. CHP allocation of tenure mix informed by long-term resident cohesion and management considerations.
Institutional BtR	Mostly private; proportion offered at 20% discount for key workers.	CHPs are often involved through allocation and reporting only.
Alternative finance	Target of 20% affordable.	Nightingale, Assemble, other emerging tenure models. Discounted sale to CHPs.
Innovation and demonstration projects	Deemed by stakeholder agendas/ contributions and PPP arrangements.	Step-changes in design, construction or sustainability, e.g. Nicholson, VIC; White Gum Valley, WA. Affordability often cited as a project driver, but specific MT objectives not articulated.

Source: Authors' analysis of case studies and literature.

Contested measures of success

The broad spectrum of project types in Australia, with differing locations, scales, drivers and objectives, is one reason why the merits of MT development are contested. Among the range of project imperatives, time is arguably one of the most critical factors for evaluating the success of MT outcomes. International literature emphasises that successful MT developments are contingent on prolonged stakeholder cooperation, which doesn't stop once the building works are finished (Bailey and Manzi 2008; Read and Sanderford 2017; Sharam, McNelis et al. 2021). Rather, long-term management, ongoing upgrades and flexible programming strategies are required to maintain high quality living outcomes and accommodate changes in resident numbers, mix and needs. Nevertheless, long-term tenant-oriented interests must be weighed against the imperatives of housing providers and the short-term realities of development delivery, particularly when relying on the private market to increase MT housing supply, as is planned in Australia (Benedict, Gurran et al. 2022).

The intrinsic purpose of MT housing and how success is measured varies by stakeholders, from enabling a quantity and feasibility of new social housing in a constrained political and funding context, to long-term management, to the enhancement of local place-making and amenities (Darcy and Rogers 2019; Rogers and Dufty-Jones 2015; Stubbs, Storer et al. 2017). While MT projects can be driven by large-scale social and economic claims (social mix, public housing renewal), the evaluation of specific project outcomes and lessons is much more limited. In particular, the impacts of long lead times, supply, and management are not well understood, and rarely assessed.

Related to the issue of time is the scale of development. Prevailing MT models for public estate renewal (urban or broadacre) and new centre development are large-scale. Project locations are constrained by suitable land supply. MT precincts take a long time, are complex to realise, and risky for small builders and community housing organisations. As such, MT housing outcomes are typically delivered by a limited pool of established actors and can suffer from a similar lack of housing choice currently offered by the market. A wider range of stakeholders are involved in bespoke MT projects, with a greater diversity of dwellings and urban innovations achieved. However, such projects are often one-offs. Without a possibility for continuing practice, opportunities to streamline processes, expand knowledge and refine project outcomes are typically lost, and with them the necessary inputs to transition a project from unique demonstration to replicable model.

A diverse range of stakeholders makes MT projects more resilient, but adds a complex ownership structure. For example, land might be leased from local government, private apartments built by developers, social housing managed by community housing organisations, and affordable housing jointly owned, built, and managed by building groups, public authorities or housing co-operatives.

MT housing delivered in new centres offers some insights for fostering development partnerships and project improvements over time. International experiences suggest that wide financial and non-material support can be achieved once the project is seen as a successful hub that not only improves the lives of residents but is embedded in a macro-level strategy that benefits the surrounding areas as well (more than housing 2017). The design process should be iterative and participative, adding project depth over time, allowing advancements in small steps and keeping technical systems as simple as possible (Pearl and Wentz 2015). An accompanying organisational structure is needed that aims to promote, moderate and channel the resulting cross-milieu contacts (Texier-Ast 2018).

Distinguishing between local neighbourhood effects, wider networks that aren't necessarily place-based, and the impacts that 'spill over' from changes in surrounding areas are important factors when developing and evaluating MT developments. Even in large housing estates, small social, cultural and economic distances help foster social interaction, which is increasingly acknowledged as the main reason for spatial social sorting (Brown and Yates 2012). The reciprocal influences of broader networks, and finer-grain distributions of services and amenity, are especially relevant when considering MT projects in established areas of regional towns (Bailey, Besemer et al. 2015; Rose, Germain et al. 2013).

Successfully delivering MT hinges on many factors, starting with a firm conviction, a clear vision, and long-term project commitment. Factors that will most likely lead to successful MT outcomes are summarised in Table 4, which draws together a review of international best practice, academic literature and policy reviews.

Table 4: Success factors for MT housing (from international literature)

	Housing co-production	Social cohesion	Risks
Governance	Early involvement, resident empowerment Complementarity of stakeholder inputs Community groups augmented by part-time service staff	Increased participation Reduce risk of: • rent arrears • high maintenance • vandalism • turnover costs	Diluted social mix Spatially divided Failed engagement Developer-led outcomes Gentrification smokescreen
	Goals	**Process**	**Commitment**
Partnerships	Local community benefits Sharing resources Shared agenda Effective leadership Respect for the partners Plan for contributions and benefits Hybrid financing	Agreed strategy with precise responsibilities, methods, and timelines: • What will be done? • Why do we want it? • Who is responsible? • How is it implemented? • When should it be ready?	Inclusive management Community engagement Localised tenure strategy Professional maintenance Same standards for all housing Consistent policy formation Transparency
	Types of mixing	**Facilitate interaction**	**Tenure blindness**
Design	Fully integrated: 'Salt and peppered' dwelling units Clustered: 'Pepper-potting' of buildings or levels Segregated: complexes or sites, 'least social interaction'	Place-making Community spaces Access to services Connected footpaths Green open spaces Recreation facilities	Minimises stigma Retained over time Increases community cohesion Grows social capital
	Whole-of-life approach	**Resident involvement**	**Asset management**
Management	Public transparency Voluntary local monitoring Regulatory power Competition between investors Fund for NFPs	Organisational robustness Strategic collaboration High ownership rate Neighbourhood governance	Stock rationalisation Stock realignment Dispersing disadvantage Managing residualisation

Source: Authors' analysis of case studies and literature.

Social policy drivers and tenure mix ratios

Based on prevalent social policies in Australia and the UK, Stubbs (2018) distinguishes three approaches to MT development:

- *Dilution:* reducing the number of social housing dwellings in an area, particularly through the break-up of large public housing estates.
- *Diversification:* introducing social mix into homogenous or gentrifying areas using planning levers such as inclusionary zoning.
- *Dispersal:* relocating social housing tenants from disadvantaged neighbourhoods, often involving spot purchases or headleasing.

Similar classifications permeate the literature on MT housing, with the upward mobility of disadvantaged cohorts and social capital enhancements often cited as drivers (Leviten-Reid and Matthew 2018; Ziersch and Arthurson 2007). However, some scholars contend that social mobility is rarely affected by tenure mix, noting that the bridging of class divides only occurs in specific contexts and for a limited amount of time (Nast and Blokland 2014).

Stubbs' (2018) classifications broadly align with the typical MT development models defined by this research. However, the proportion of tenure mixing achieved by each model varies considerably (Table 5). The comparison of MT outcomes for different development types demonstrates the impact that social and political drivers can have on the benchmarks set at the outset of a project, as well as the place-specific realities of development delivery for different stakeholders.

Table 5: Tenure mixes achieved by development types and policy approaches

MT development type	MT policy approach	Tenure mix social (S) : affordable (A) : private (P)
1. Urban renewal	Dilution, dispersal	20–30% (S) : 70–80% (P)
2. Broadacre renewal	Dilution, dispersal	No net loss, typically <10% increase in social housing supply
3. Mixed-use centres	Diversification	20–30% (S) : 20–30% (A) : 40–50% (P) On nominated MT sites within a precinct
4. Smaller, bespoke	Diversification	Variable, examples include: Nightingale: 5–20% (S) : 20% (A): 60–75% (P) Assemble: 20% (S) : 40% (A): 40% (P)* BHC (Brisbane Housing Company): 50–60% (S): 40–50% (A) Cross-subsidised projects: 45% (S): 45% (A) : 10% (P)

* Assemble private market = Build to rent (BtR), Build to sell (BtS), or Build to rent to own.

Source: Authors' analysis of case studies and literature.

The classifications of *dilution, diversification* and *dispersal* underscore the tendency of governments (and scholarship) to position MT development as shorter-term responses to existing social and planning issues—for example, the concentration of disadvantage, inequitable access to services—rather than their potential to have larger-scale positive effects over the longer term. An evidence gap exists about the ways that MT projects might create new value for urban environments and deliver reciprocal benefits for tenants, communities and cross-sector stakeholders alike.

From MT development towards MT neighbourhoods

Mechanisms that enable a greater range of MT housing to be effectively upscaled and delivered across more locations in the city are particularly important. Increasingly complex socio-physical dimensions of MT housing are paralleled by uncertain funding streams and mounting development pressures. A framework for navigating complex, uncertain and changeable MT project imperatives is required.

This research proposes to shift the typical lens of inquiry from MT development to MT neighbourhoods as a means of testing a more flexible model for financing, delivering and managing MT housing outcomes. Dühr, Berry et al. (2023) describe neighbourhoods as:

> *the 'in-between scales' between individual buildings and the urban scale … The neighbourhood scale offers sustainability gains and economies of scale for decentralised systems (such as water and energy) and opportunities for integrated land-use and transport planning, biodiversity planning and social sustainability. (2023: 32)*

Our research operates within this 'in-between scale' enabling the complex social, economic and physical imperatives of MT development to be realigned with broader urban and ecological renewal strategies (Hajer, Pelzer et al. 2020). The project proposes to leverage the quantum of small-scale social housing assets that are distributed across established areas of Australia's cities and regions as a basis for developing a flexible model for MT neighbourhood renewal.

The exploration of a MT neighbourhood model builds on previous AHURI studies that demonstrated the potential of strategically coordinating small public housing landholdings for precinct-scaled redevelopment in Melbourne's middle suburbs (Murray, Bertram et al. 2013; 2015). The studies illustrated the design, planning and procurement innovations that can be replicated at scale under dedicated government funding programs. As well, the studies underscored the importance of aligning housing policies with broader urban renewal strategies to ensure that investments could deliver the greatest public benefits, and that built outcomes did not merely exacerbate the challenges associated with BAU market housing (Infrastructure Victoria 2023). For example, almost 70 per cent of projects delivered in VIC under the Nation Building Economic Stimulus Package – Social Housing Program (NBESP) were for low-density fringe expansion, resulting in just 30 per cent of the dwellings supplied. Whereas infill redevelopment in the middle regions of the city accounted for 30 per cent of projects and almost half of the dwelling yield (Murray, Bertram et al. 2013). The disproportionate number of low-density projects was, in part, driven by the speed and scale of the NBESP. Fringe expansion presented 'development-ready' options and, at that time, was the primary vehicle for affordable housing supply under the metropolitan planning scheme.

This project operates in a social housing funding landscape that eclipses the magnitude of the $5.2 billion NBESP program. Victoria's Big Housing Build alone ($5.3 billion) has exceeded the NBESP funding pool. An additional $10 billion has been committed by the federal government for new social housing supply, alongside a range of government and institutional funding initiatives in other state jurisdictions (Benedict, Gurran et al. 2022). Increasing the diversity and volume of successful MT outcomes in established urban areas is a common national challenge. In the current funding context, a replicable and distributed model for MT neighbourhoods is timely.

Precedents for distributed, neighbourhood-scaled housing development already exist within Australia (Figure 2)—albeit with projects that are few and far between. These neighbourhood-scaled projects offer both real and potential advantages, including:

- cross-subsidy of housing renewal
- dwelling diversity and viability of higher-density typologies
- more equitable locations of affordable housing
- distributed design benefits across multiple projects
- construction innovation
- procurement of small builders to deliver standardised building
- decanting and utilisation of social housing—enabling incremental and opt-in staging tied to broader urban strategies and community outcomes.

The Hilton Revitalisation Project in WA offers an example of government-led assembly of 50 small-scale properties for subdivision and sale, with 16 selected properties retained for redevelopment by multiple small builders. A design competition generated a specific infill model for the program, allowing effective 'sharing' of design services across multiple sites. By comparison, the CHP-led redevelopment of discontiguous sites in Ashwood VIC offers insights for cross-subsidising a diversity of housing to achieve replicable MT outcomes through neighbourhood-scaled renewal of small and medium government land assets.

Caggara House in QLD provides a case study for working with the life cycles of both residents and property assets to achieve MT neighbourhoods. The five-storey building optimises strategic redevelopment opportunities offered by its location behind a commercial strip, accommodating 57 elderly public housing tenants who were already living in the area but needing more maintainable homes. Relocating these residents in place freed up $25 million worth of government housing for renewal or reallocation to larger families. The landscaped open-air podium within the development connects to communal facilities where residents can host visitors and hold activities, maintain links with old neighbours and find occasion to meet new ones.

Figure 2: Potentials of MT neighbourhood development

Cross-subsidy, dwelling diversity
Ashwood Chadstone Gateway VIC.
HousingFirst; FMSA Architecture.
Sale of 27 townhouses across 3 sites + 45 apartments to private market. CHP retained 201 apartments + 9 townhouses. 210 dwellings (74% social) across 6 former public sites (55 dwellings). Public open space upgrades, cafe + ongoing community programs.

Ageing in place, decanting.
Cagarra House, Mt Gravatt, QLD.
BHC; Arkhfield. 57 apartments for seniors relocating in place (100% social). Former public grade carpark. Frees up $25M of underutilised public housing stock. Potential 2nd stage development as coordinated MT neighbourhood with cross-subsidy sales.

Small builders, design innovation
Hilton Revitalisation Project, WA.
DHC, Bernard Seeber Architects. 50 public assets in a heritage precinct. Subdivision, sale and delivery of 32 compact timber-framed social dwellings on 16 lots. Design and construction innovative (competition).

Source top to bottom: HousingFirst and author's mapping; BHC and author's mapping; Bernard Seeber Architects and design competition site by Western Australian Government Department of Communities.

1.4 Research methods

This project employs a mixed-methods research approach involving:

- literature and case-study reviews
- stakeholder interviews
- geospatial analysis of existing and future MT project locations
- the development of MT neighbourhood design scenarios applied to 'real world' sites
- testing of the proposed MT neighbourhood model through a research validation workshop
- feasibility assessment of different approaches to cross-subsidising and procuring development.

The synthesis of the mixed-methods research was guided by two overarching research questions:

- What are the measures of success in MT developments?
- What opportunities exist to replicate successful MT developments at a neighbourhood scale?

Literature review

A desktop review was undertaken of global literature about MT housing, international project exemplars and local MT case studies. The review sought to characterise the drivers and objectives of MT housing, which factors are considered important to successful MT projects, and how 'success' is understood.

The review included both peer-reviewed and 'grey' literature on the themes of MT, mixed income[1], and social mix housing. The review takes a big picture approach to related issues of segregation, PPPs, governance, participation, management and design. The global overview of best practice in MT housing provides a context through which to understand the MT experience in Australia. The focus is on international success factors from Europe, North America and Oceania where comparable housing services and supply processes could be translated to Australia.

Case-study review

We examined a number of innovative examples of overseas projects, including affordable, non-market-based and co-operative housing practices, neighbourhood effects, and novel financing arrangements. Best practices were extracted from individual Asian, European and UK case studies, alongside success factors from the aggregate literature, which includes the American experience. This examination is paralleled by a review of local MT case studies, focussing on the spatial distribution and outcomes in NSW, QLD, VIC and WA, illustrating what is achievable on the ground. This review includes a high-level survey of 120 national case studies derived from public domain sources.

The review focusses on MT developments—however, a few exceptions were made where smaller scale developments designed to accommodate specific social housing cohorts (i.e. 100% social housing) were considered innovative or offered lessons for achieving MT neighbourhoods by leveraging small-scale public land assets. From this list, eight case studies were selected for more detailed examination of siting, design provisions, built quality, tenure mix and partnerships.

The outcomes from the literature and case-study reviews were used to inform stakeholder interview questions, generate a framework and spatial data for GIS analysis, and set project parameters for testing in design scenarios.

1 'Mixed income' typically refers to developments that contain housing suitable for households across the income spectrum, from public housing tenants through to homeowners.

Stakeholder interviews

Twenty-six expert interviews were conducted in the course of this project in 2022–2023, with various participants in VIC, NSW, QLD and WA:

- four state government representatives (quoted in this report as SG##)
- five local government representatives (LG##)
- 10 community housing providers (CHP##)
- seven other housing representatives (OH##)
  (often wearing 'multiple hats' as board members for housing organisations or government advisors: one developer, four architects / consultants, two academics).

Each interview has been summarised with time-coded quotes, thematically clustered, and de-identified where possible. Analysing the interviews resulted in a summary of common themes sorted by topic and weighed by the number of times each point was mentioned. The themes inform the generation of MT neighbourhood design scenarios and reflective assessment of a replicable MT neighbourhood model.

Geospatial analysis

Geospatial analysis has been used to:

- determine the spatial attributes of viable MT developments
- dually test assumptions from practice and literature about MT projects being located in areas of higher land value with good social mix
- identify the typical locational parameters of MT projects across each jurisdiction.

A high-level survey of 120 existing MT projects in NSW, QLD, VIC and WA was mapped against a range of socio-demographic, financial and built environment factors to profile the typical contexts in which MT developments have occurred, by city. By mapping these outcomes against existing distributions of social housing stock, as well as visible trends in urban policy, areas most suitable to business as usual (BAU) MT projects were determined, as well as those that would be more suited to a neighbourhood renewal model.

The geospatial analysis for the project takes three forms:

1. Place-based assessments of existing MT projects providing benchmarks for the typical locational characteristics of viable MT housing.
2. Metro-level measures of these projects' relative access to amenities and services.
3. Creation of a composite dataset of social and indexes that consider the locational advantages of current and possible locations of 'business as usual' MT projects, as well as identifying potential areas for achieving urban renewal through a MT neighbourhood model.

Datasets include land-use zoning and state-held points of interest, capturing the range of services (see Appendix 2), overlaid with four-way intersections (promoting walkability / permeability), population density, and liquor licences (proxy for night-time economies). Due to the variance in datasets, the methodology is varied per state, but is generally comparable across borders.

Design research

The area analysis is adopted in the neighbourhood-scaled design research, which tests the outcomes that are possible when small-scale SHA assets are strategically assembled for redevelopment in NSW, QLD and VIC. The comparative examination across jurisdictions uncovered recurring conditions that could underpin replicable MT alternatives, as well as place-specific constraints and opportunities requiring tailored responses in the respective locations.

A Masters of Architecture design studio involving 17 Monash University students explored how a greater range of medium-density housing typologies might better respond to contemporary resident needs and deliver broader urban, social or environmental benefits that have the potential to address the multiple imperatives of stakeholder groups involved in MT redevelopment. The 'blue-sky' potentials explored in the studio context were paralleled by design research undertaken by the academic team, involving:

- spatial design analysis of relevant case-study projects
- place-specific site analysis
- urban mappings—characteristics and arrangements of amenity, services, sites and built forms
- generating speculative design scenarios at site-cluster and neighbourhood scales.

The speculative designs were grounded by constraints identified through the literature, case studies and interviews, as well as geospatial and feasibility analysis. Reciprocally, the design outcomes informed the identification of inputs and processes needed to translate successful MT outcomes from consolidated developments to neighbourhood-scale strategies. The outcomes of the design research were iteratively fed back into the larger-scale spatial analysis, informing a range of potential locations that could form a pipeline of future MT projects, as well as providing a basis for developing a flexible model for MT neighbourhood renewal.

Together, the spatial analysis, applied design scenarios and feasibility tests point to a significant project pipeline in both renewal and 'development-ready' locations, illustrating that some SHA land assets have more spatial value than others for generating uplift through MT neighbourhood renewal.

Validation workshops and assessment of feasibility

The MT neighbourhood design scenarios were presented for stakeholder feedback at four validation workshops with CHP, industry, state and local government representatives in QLD, NSW and VIC (see Appendix 4). The stakeholder workshops enabled 'real world' processes and constraints to be incorporated into the research, including land assembly, planning processes, partnerships and development delivery. The insights gained led to potential approaches for cross-subsidising and procuring development at different stages of MT neighbourhood renewal.

Financial modelling of a MT neighbourhood development of 91 dwellings on 18 existing SHA lots examines the financial feasibility of such a development approach. Using market revenue and cost data, the analysis evaluates a number of different development scenarios and the extent to which the SHA is able to cross-subsidise the delivery of social housing through the sale or development of the SHA lots.

1.5 Structure of the report

The six sections of this report provide a framework for decision-making by different levels of government at various stages of a MT project. Each section considers the interplay between the social, spatial and economic imperatives involved in MT housing, and urban renewal more broadly. Together, the sections demonstrate how a replicable model for MT neighbourhoods has the potential to complement existing MT development approaches and solicit more effective inputs from a greater range of industry, NFP and community representatives in the short-term, as well as amplify and sustain successful MT outcomes over the long-term. The structure of the report is as follows.

Section 1: Why does Australia need a model for MT neighbourhoods? Introduces the policy context, existing research on MT and related housing issues, and sets out the mixed methods employed in the research.

Section 2: How is success measured for MT developments?
Draws on stakeholder interviews to outline differing measures of success in MT housing. Challenging a continued focus on short-term supply and economic imperatives, the section identifies consensus areas around design quality and longer-term value.

Section 3: Where could MT neighbourhoods be delivered?
Working through a multi-criteria assessment of suitable MT housing locations at metropolitan scale, to a place-based investigation of recurring qualities at neighbourhood scale, this section synthesises geospatial analyses and interview feedback to identify a pipeline of sites for future MT neighbourhood renewal.

Section 4: Design scenarios: What is a viable scale for a MT neighbourhood?
Extracts replicable strategies for MT neighbourhood renewal through the comparative examination of three design scenarios for MT neighbourhood renewal in QLD, NSW and VIC. Feasibility modelling underpins approaches cross-subsidising and procuring social housing through the sale and development of existing public housing lots.

Section 5: How can best practices resolve barriers to successful MT development? Synthesises considerations about the MT neighbourhood scenarios solicited through design workshops in QLD, NSW and VIC, with outcomes from academic literature, local and international case studies, and stakeholder interviews.

Appendices contain further details on local and international case studies, geospatial modelling, design scenarios and stakeholder workshops.

2. How is success measured for MT developments?

- **Measures of 'success' in MT housing vary for different stakeholders, and reflect differing organisational interests as well as some differences by state.**
- **These differences also play out in terms of time frames: given the complexity of the funding environment, success in MT is often measured in terms of enabling the delivery and feasibility of affordable housing.**
- **Success metrics focussed on immediate delivery overlook the importance of longer-term measures (40-year asset cycles) of understanding affordable housing as homes, as parts of local neighbourhoods, and as assets in CHP and SHA portfolios.**
- **All stakeholders measure success in part based on quality: the high quality design and liveability of dwellings, buildings and places.**
- **The value of (re)development options needs to be redefined in terms of social good and long-term strategic thinking, not just immediate economic rationality and constraints.**

Identifying measures of success in MT housing is important in developing options for how developments might be designed and structured against these measures. It is also important in contextualising what is currently driving MT housing in Australia. This section summarises stakeholder perspectives on competing success measures for MT housing and offers a consolidated perspective of local and international MT best practices, which can be used to measure project outcomes and benchmark future MT planning and development (see Appendix 1 for details about local and international case studies of MT housing).

This section discusses the short-term and long-term imperatives of MT development, including:

- different forms of tenure mix
- the impacts of uncertain, limited and complex funding
- urban and neighbourhood design considerations

- the need for a whole-of-life approach to buildings and communities (typically 40 years but at least 20 years).

Challenging the continued focus on short-term supply and economic imperatives, the research identifies areas of stakeholder consensus around importance of design quality and longer-term neighbourhood-scale value.

2.1 Differing perspectives on success measures

Commentators point to several potential benefits of MT housing at different scales and along different time scales. Measures of 'success' vary for different stakeholders and each have corresponding challenges. Some success measures for MT development apply irrespective of tenure—for example, thermal performance. Others, such as reduced stigma, are more specific to mixed housing tenures. Some stakeholders in the affordable housing sector consider MT as a product of cross-subsidisation and financial models; for others, MT is specifically sought as a principle of inclusive housing. Drawing on 26 stakeholder interviews, validation workshops, and upon national and international MT projects and associated literature, key measures of success can be summarised as:

- *feasibility*—building or renewing affordable housing that would otherwise not have been financially or politically possible
- *improved liveability for residents*—design and location of appropriate housing
- *social mobility*—often disputed goals around improved tenant participation and wellbeing
- *place-based metrics*—including tenure blindness, reduced stigma and increased access to amenities and services within a precinct or neighbourhood
- *ongoing management and maintenance*—longer-term success of the housing and environs.

Different stakeholders measure 'success' at different scales—tenants, dwellings, buildings, precincts—and in different contexts: social, asset, portfolio, sector. A dominance of short-term pressures, such as the immediate need for affordable housing stock, reflects both the lack of secure long-term funding, and the complex one-off nature of many MT projects. Uncertainty, combined with the long lead times required by MT development in Australia, leaves many stakeholders focussing on whether or not a project will be delivered. But with the expanding role, particularly of many larger CHPs, and as existing MT projects begin to age, success is also understood in terms of what it means to maintain a high quality of housing over an asset cycle of 40 years or longer, as well as the role MT housing has in a wider neighbourhood. Success metrics focussed on immediate delivery overlook the importance of longer-term (40-year+ asset cycles) measures of understanding affordable housing as homes, as parts of local neighbourhoods, and as assets and parts of CHP and SHA portfolios. As detailed in Section 4 and Section 5, the housing sector has developed insights into the practical considerations of what makes housing easier to maintain at a high quality for residents of MT housing over a longer time frame.

All stakeholders measure success in MT housing in part based on quality: the high quality design and liveability of dwellings, buildings and places. Some of these success measures apply to all affordable housing irrespective of tenure including design, thermal comfort, accessible locations, and ongoing management in terms of resident satisfaction and of reduced conflict and property damage. For example:

> *It is more complicated than just building boxes. (…) Being mindful of its 50 years life and what it's going to look like in 50 years. (CHP6)*

> *While there is negative feedback from the industry around the cost and the difficulties of including energy efficiency and accessibility, the endgame is that we normalise those things and we create good housing for all. (SG3)*

> *First and foremost, it's always about what the home has enabled the resident to improve. (CHP6)*

Other metrics of success are specific to forms of MT / tenure mix: social mobility, place-based metrics around reduced stigma, ideals of diversity and inclusion, and some aspects of ongoing maintenance—including the ability to move across tenures within the same building. Some commentators point to several benefits of MT housing at different scales and along different time scales. Mixing of tenure might enable community connection, diversity, stability and integration of (or contribution to) existing neighbourhoods, as seen in the following examples.

> *It's a cocktail of different inputs and take-outs, and ownership models that create a blended and mixed community. (CHP5)*

> *I am of the opinion that you build for inclusiveness and diversity. (SG1)*

> *We want tenants to sustain their tenancies, and [yet] we want them to be aspirational and move on. (CHP1)*

> *It's also a good outcome for tenants […] because people can stay in situ and move between those [different rental types] based on their circumstances at a point in time. (SG1)*

> *We're working to bridge those demographics but also building community wellbeing and knowing that the healthiest way is to always have that mix of demographics, and have them interact with each other. (LG3)*

A lack of secure long-term funding is a contributor to asset sell-off and reinvestment in MT, which is reducing public landholdings for future redevelopment. The retention of land assets is therefore an additional (long-term) success factor for government, with some government stakeholders pushing to retain public land in new housing projects. However, from the point of view of the expanding CHP sector, access to finance is often contingent on assets and, as such, a shift toward ground-lease models is not as unambiguously 'successful'. This manifests in some tensions between a state government portfolio focus vs. valuing of public land retention vs. CHP interests in asset and debt financing. For example:

> *Our capital program budget is being exhausted because costs are far higher […] than when the capital program was first granted. We've still got the same target. They never relaxed on the target. We're on track for the targets but our budget is on break. (SG4)*

> *For that kind of a redevelopment, I don't think that there should be any private component because it's public land, and public land is in very short supply and we should be using this land and keeping it for future uses. (LG5)*

Lack of secure long-term funding also closely shapes CHPs' interests and activities around MT. For some CHPs, MT is a product of cross-subsidisation and financial models. For others, MT is sought for broader goals of diversity and of flexibility for residents—although existing funding models make certain kinds of tenure mixing difficult to plan. Hence a key theme, given uncertain and complex funding environments, is financial viability: getting MT housing built and adding to housing stock is a key metric of success. MT models cross-subsidise the delivery and management of social housing and as such have become tools through which projects can be realised.

> *There is a level of cross-subsidisation in our operational models that comes from having mixed tenures. (CHP5)*

> *Demand is not an issue, it's clearly just supply. (CHP6)*

This complexity of factors and pressures was evident from interviewees who, as we would expect, viewed success in relation to their sector and organisational interest. Benchmarking for success in MT should consider a multitude of the factors (presented in Table 6). Some of these may be resolved through adjustment to funding models and frameworks to, for example, better reflect asset cycles. Others are perhaps inevitable tensions between local and state governments, and between the viewpoints of CHPs, governments and private developers. Others warrant larger-scale policy redefinition in terms of social good and long-term strategic thinking, moving beyond immediate economic rationality.

Table 6: Success measures for MT housing in Australia: interviewee perspectives

Success area	Examples of definitions of success
Supply, quantity, feasibility	Supply/quantity: increasing new social or affordable housing, especially with reference to local housing pressures or waiting list pressures
	Feasibility: achieving new social or affordable housing (in a constrained political and funding context)
	Expanding the supply of secure affordable housing to high needs or 'missing middle' groups
Social measures	Quality of housing and tenant experiences of housing: liveability, security of tenure
	Opportunities for tenants: for employment, education, community involvement
	Inclusion at varying scales: buildings, neighbourhoods, cities
	Minimising disruption to community ties, or forced relocation
	Fostering and creating communities
Neighbourhood	Contributing to the quality and infrastructure of local places and amenities
	Neighbourhood diversity and mix
	Local pride in housing and neighbourhoods, reduced stigma, normalising social housing
	Offsetting high-cost market housing and either retaining or providing diversity in high-amenity areas
Design quality and housing diversity	Building high quality low-maintenance housing: durable, well designed, and sustained over a long period of time (typically 40 years)
	Quality of design: either exceeding market housing, or being indistinguishable from it
	Thermal comfort: ventilation, insulation, avoidance of needs for mechanical heating or cooling
Assets and management	Portfolio management: removing problematic housing and avoiding maintenance of older housing stock
	Asset management: building and maintaining quality affordable housing efficiently and over a longer time period (typically 40 years)
	Avoiding conflicts or complaints from neighbours, and property damage
Land	Retaining public land out of political principle, or to retain consolidated land that might have future use
	Reducing public expenditure, and using 'lazy' land for social benefit
Sustaining long-term change	Community housing and affordable housing sector: financial solvency and security, including predictable income, access to finance, and secure assets for debt financing to enable further housing
	Replicability, certainty, ability to scale up, plan over a longer time frame
	Neighbourhood and place-based measures: continual improvement, adaptability to change

Source: Weighted analysis of stakeholder interviews summarised by the authors into common themes.

2.2 Differing perspectives on tenure and mix types

Success metrics also reflect different tenure types and mixes. The variance in success metrics was found to be linked not only to the interviewee's organisation and role but also to the rationale behind the MT project—as the context of the project often set the type of difficulty to overcome. Some of these rationales are listed in Tables 6 and 7.

For example, in projects related to higher-needs clients, a common rationale for MT housing is the acute need to support vulnerable people and transition the highest-needs groups into stable housing and opportunities. However, the challenges of stratification and ongoing management ultimately also determine the scope for success for MT housing with higher-needs tenants. Housing-sector stakeholders involved with high-needs tenants tend to find that these tenants necessitate higher levels of onsite support. This can be successful with the right funding but can mean—in a restricted funding environment and with the pressures brought by mixing market-rate or owner-occupied tenures—that MT housing ultimately may not be successful for higher-needs tenants. In areas of redevelopment of social housing, a key rationale is improving aging stock—but the key challenge is decanting and protecting existing community ties. For public housing, stakeholders saw an enormous waiting list of unmet demand for housing, which could be met through MT housing, but for which subsidies are unpredictable.

For other kinds of affordable rental—such as key worker housing—these kinds of tenures are considered the easiest and most 'marketable' subsidised housing to mix with market housing. However, this is driven by the interests of private developers being enticed into MT housing projects. For SHAs and CHPs these tenures are uncertain and relatively untested. The role of owner-occupied housing in MT is to cross-subsidise affordable housing projects as well as, in theory, contribute to neighbourhood stability and reduced stigma. However, affordable housing providers report difficulty in working with some Australian private housing developers, as they often build to a lower quality with little focus on long-term comfort or durability, and with managing strata issues with private owners. Table 7 lists different rationales for tenure types within MT housing. Each has a rationale for inclusion in mixed projects, from individual need, waiting list size, ease of mixing, capital subsidies and ongoing rental subsidies. Each also has challenges for MT housing that affordable housing stakeholders are actively trying to balance within individual projects over the short and longer term.

> *Regarding strata and private owners: It wouldn't be fair if we owned say 30 per cent of apartments in a building and went to every meeting and dominated and asked strata to not raise the rents every six months. (SG2).*
>
> *Regarding private developers: We're more interested in doing our own things and setting up projects on the right terms [rather than dealing with developers that just come to them because they need to include social housing to get approval]. (CHP5)*
>
> *Regarding complex needs tenants: If you want to have more of a mixed tenure community, you have to really limit the number of [residents with complex needs]. (CHP2)*
>
> *Regarding MT in BtR: It doesn't appear to meet the needs of social housing for developers to stay as the landlord if they're going to build rental stock, they still need to engage a housing agency to be that interface, because otherwise essentially you're losing the kinds of management techniques that are required for successful social housing. (LG3)*

Housing stakeholders in Australia navigate these kinds of short and long differences in interests in tenure via a complex 'alchemy' of mixing and funding. Regardless, existing literature suggests that a 'successful' MT development requires a high level of integration between different tenures, social services, tenure blindness, and ongoing management built into the fabric of the precinct from project onset (Chisholm, Pierse et al. 2021). There is some evidence that owner-occupiers help maintain the built environment and tend to increase social capital; while community groups and a clear management structure can offer focal points for interaction, long-term stability and perpetual programming (Brown and Yates 2012). Neighbourhood effects can flow from well-integrated MT projects into the surrounding area, uplifting parts of the suburb with services and programs. Conversely, these can accelerate gentrification and segregation if no safeguards are put in place.

Some research indicates social mobility is rarely affected by tenure mix, instead finding that people still interact on grounds of similar interests and backgrounds, bridging socio-economic divides only for specific contexts and for a limited amount of time (Blanc 2010; Nast and Blokland 2014). Schools, childcare centres, and institutions such as libraries, training, and educational facilities positively influence social mobility, as do ongoing social work and programming. Any development and its surrounding neighbourhood will benefit from these social offerings.

Dwelling design, tenure mix, and tenure blindness play a minor role in uplifting disadvantaged residents but will improve the stigma, reduce the discrimination and increase the security of the precinct (Schwartz 2012). Mixed tenure should not, in principle, impact good quality affordable housing design, yet often does by compromising the quality of affordable dwellings while building private market units to a higher standard (Capp, Porter et al. 2021).

Table 7: Forms of tenure in MT housing in Australia: interviewee perspectives on mixing, rationales and challenges

Tenure/tenant	Rationale for MT	Challenges
Priority / high-need tenants	Highest need and potential impact from secure housing Usually benefit from onsite support models	Hardest to mix: both perceived and reported Management issues and conflict with neighbours
Existing public housing tenants	Relocation from older housing in poorer condition Renewal of older housing and estates: improved housing and amenities, reduced stigma	Established tenants have ties to community and home Decanting: can be disruptive, time-consuming, involuntary
Public housing waiting list	Huge unmet demand for social housing Expanding role of CHPs	Waiting list outstrips supply Capital and ongoing subsidy always needed, influenced by state government priorities
Affordable rental, e.g. key worker, NRAS, other subsidies	Easiest to mix with market housing New models, e.g. key worker, BtR Cross-subsidy for CHPs	Uncertain and changing funding models Not the highest need group
Market rental	Income offset for CHPs Market housing considered positive for reducing stigma	High turnover Privately owned rental housing: strata issues with owners, poor maintenance Institutional BtR housing: differing attitudes to risk
Shared equity / co-housing	High housing needs groups not eligible for social housing	Complexity of funding / eligibility
Owner-occupied	Build to sell (BtS) market-rate sales cross-subsidise social housing construction and assets Role of owner-occupiers in neighbourhoods considered positive for reducing stigma Inclusionary zoning: CHPs can benefit	Strata issues BtS developers: risk, lower build quality, can become private rental Salt-and-pepper sales: reduces lot holdings and reduces development potential longer term

Source: Authors' thematic clustering of interview analysis.

2.3 Social success measures

Stakeholders measure success in terms of resident experience of dwellings, buildings and neighbourhoods, as well as the opportunities afforded by MT housing. Some housing stakeholders seek to build and promote social connection, including across different income and tenure types. A goal of social connection and inclusion is sometimes linked to MT. However, stakeholders were also sceptical as to whether the claimed benefits of social mix, such as mobility and community, are 'smoke and mirrors' (CHP2). Examples of social success metrics in practice were more often cited in terms of better housing design, active management and maintenance, and the retention and support of existing neighbourhood connections, including through non-housing formats. For example:

Some of the others are more interested in 'best and highest use', so making the most money out of it, unfortunately. I think, as a government, the criteria should be what's best value for the community. (LG5)

Residents are not stuck in their apartments, they participate, as all residents do, within the community. (OH7)

People going to work and seeing other people going to work. (OH2)

The value of community is reflected in the literature, which shows that social connections tend to form around common interests and backgrounds. Schools, childcare, and institutions such as libraries, training, and educational facilities influence social mobility, as do ongoing social work and programming. While social mixing can influence cultural and social cohesion, broader changes at neighbourhood and societal levels have a much stronger impact on social mobility (Galster, Andersson et al. 2008).

Social objectives interlinked with physical and economic objectives result in a range of short-term and long-term imperatives for MT projects, which reflect the differing success factors for various stakeholders (Stubbs 2018). As such, there is no singular approach for measuring project success. Rather, project success is assessed against place-specific and multi-scalar determinants described through a range of social, economic and design qualities across buildings, developments and neighbourhoods (van Bortel, Gruis et al. 2019). The assembly of stakeholders involved in MT development shapes the approach to finance and procurement, as well as the provision and quality of built outcomes. Most MT projects have a 20–30 per cent social housing share, with a trend towards lower shares in private–public redevelopment partnerships, and a higher share in public estate conversions or newly built projects where the land is leased rather than sold and the development is spearheaded by local authorities (Suttor 2016).

Existing literature suggests that resident involvement reduces risks like vandalism, high maintenance and turnover costs. Where tenants are part of the planning, delivery and ongoing improvement of services and programming, strong bonds develop and a sense of ownership and care-taking positively influences even those who don't participate in such communal activities (van Bortel, Gruis et al. 2019). Others question the commitment of engaged residents, and argue that they usually consist of middle-income cohorts without much mixing during the community efforts, and even see the urban liveability created by socio-economic diversity as a myth (Rose, Germain et al. 2013).

2.4 Short-term imperatives: supply and economic feasibility

Politically, highly visible MT projects are a great showcase for inclusiveness, urban renewal and affordable housing delivery. However, the reduction of social housing through replacement, the carbon and monetary cost of demolition and rebuilding, and the limited number of people it benefits is rarely mentioned (Brown and Yates 2012).

MT developments are complex, often involving a variety of organisations with different financial objectives. Projects involving private sector developers need to deliver appropriate returns to attract that developer in the first place. CHPs need to ensure sufficient income streams to cover interest and principal payments on debt funding. They also seek capital funding from government to minimise their exposure to debt and ensure a positive net cash flow on a project. Meanwhile, a government typically seeks to leverage its land assets, in many cases, to deliver as much affordable housing as possible while minimising capital expenditure.

From a SHA perspective, the delivery of public housing is expensive, and its ongoing maintenance comes at significant cost. Government is left with ageing housing assets (especially stock from the 1950s–1970s) that require significant maintenance, yet often sit on land of significant value. The question for government becomes one of replacing these assets with new public housing stock, often at a higher density, or selling the asset and using the revenue to generate additional social housing elsewhere, maybe through a CHP. Transferring ageing public housing assets to CHPs offloads the maintenance liability—but the SHA loses the land asset and the revenue that could be generated from that asset.

In the absence of a consistent, large-scale injection of funds—at least until the recent (2019—2023) large-scale social housing build announcements across many states—SHAs have been forced to think strategically about how they use their assets. Some states have sold off high-value public housing and used resultant funds to deliver additional public housing in cheaper locations—for example, NSW and WA. Others have redeveloped public housing lots to deliver MT outcomes, which will be highlighted by our case studies in Section 3 (see also Table 3 showing the spread of typical tenure mixes). SHAs are required to deliver market value for their land, so selling in high-value areas is often the most effective way to self-fund an increase in net dwellings. However, it displaces tenants at a large scale and for extended, albeit temporary, periods and changes the geography of the public housing supply. Therefore, cross-subsidising public housing supply through the selling and redeveloping of public housing assets is becoming more common in the absence of direct funding and a growing maintenance liability.

During this project, many stakeholders have described the complex arrangements of land and funding models as 'financial alchemy', or as a 'cocktail' of inputs blended for each project in a high-pressure and variable funding environment:

> *It's almost like our funding structure drives us toward mixed tenure. (SG2¬)*

> *The need is so significant, we need to do what we can to not let any opportunity go past. (LG4)*

> *There is a level of cross-subsidisation in our operational models that comes from having mixed tenures. (CHP6)*

Developing MT projects takes a long time and is risky for small builders and community housing organisations. The waves of available funding, combined with shifting policy objectives, will often drive MT project types, partnerships and outcomes. Projects are often one-offs and wider urban renewal benefits are often overlooked. There is no long-term thinking because there is no long-term funding. Place-specific and multi-scalar thinking that considers the social, economic and built quality factors across buildings, developments and neighbourhoods is needed.

2.5 Sustaining long-term change

MT developments can provide vibrant precincts, improved neighbourhoods, better upkeep and high liveability with an opportunity for residents to engage with their local community. Sections 2.1—2.3 showed that while there are some competing interests, housing stakeholders have some consistency in how success is understood—including the quality of housing design, long-term stability and neighbourhood amenities. Existing literature suggests that to achieve these goals, a comprehensive management plan needs to be agreed upon in the early planning stages, which ensures affordability and sound maintenance structures through a whole-of-life approach, and includes elements of resident participation, volunteer groups, and part-time staff in charge of upkeep, social programming and event organisation (Graves 2010).

Tenancy co-production and combined services such as board membership, resident groups and scrutiny panels can be utilised to achieve sustainable resident participation from the bottom up within a professionalised top-down asset, finance, network, stakeholder and housing management. The stronger the links between these complementary management approaches, the more effective information will flow both vertically and horizontally, boosting performance (van Bortel, Gruis et al. 2019). Keeping technical systems simple and cost-effective, making sure functional resilience is built-in, and using robust, durable materials reduces maintenance costs and ensures durability. Integrating local housing and support services management with offsite providers increases efficiency in smaller developments, while larger precincts benefit from part-time community managers and maintenance crews (Kraatz, Reid et al. 2022). Integrated services are fundamental to resident wellbeing, and to economic and social participation, yet are often overlooked when it comes to MT housing with a large percentage of low-income households (Milligan, Phillips et al. 2011).

The redevelopment of large social housing estates has shown that social capital is lost by dispersing and relocating grown communities and the mutual support networks they offer. Often criticised as state-sponsored gentrification, the MT developments built in their place lack the urban village features of concentrated high-rise communities where residents share similar outlooks and challenges (Capp, Porter et al. 2021). Public housing renewal should be designed to improve living conditions for social housing tenants, but critics suggest it is too often about uplifting the neighbourhood with an influx of affluent people. The subsidised units are sometimes fewer and usually smaller compared to the old stock, which displaces a large number of bigger families and destroys much of the social fabric built over generations. '[Revitalisation] has not served to improve the lives of social housing residents; rather, it has made them more vulnerable by stripping away crucial ties that they rely upon on an ongoing basis. This has made daily life more (not less) difficult, increasing the risk of downward (as opposed to upward) mobility' (Bucerius, Thompson et al. 2017: 500). This type of redevelopment has become a hallmark of too many MT projects that are replacing large social housing estates with many more private apartments than subsidised units, with negative outcomes for the original residents outweighing the benefits for the neighbourhood.

Refurbishing and expanding on existing social housing estates avoids tearing up the social fabric yet adds a socio-economic diverse mix to the neighbourhood if it follows the MT approach. For example, Novakovic and Wilson (2021: Azure) argue for such an approach by:

> *maintaining the homes, social spaces and greenery of a mature community, it envisions a cluster of towers strategically placed on the neighbourhood's shoulders, increasing overall density while nurturing street-level ambiance. The notional plan accomplishes many of the same goals of densification and revitalisation, but with an emphasis on avoiding displacement and disruption. […] The overall approach celebrated the neighbourhood's social and physical character and avoided the enormous carbon costs of demolition and new construction.*

Preserving the close-knit community through renovation rather than redevelopment by utilising an integrated design process with semi-public common spaces, social cohesion, and a socially and environmentally sustainable renovate-and-revive model has been successful overseas, to the point that it is now recognised as best practice even in countries with a similar legacy of urban development as Australia (Pearl and Wentz 2015).

High environmental standards, liveability and affordability will open up more venues for funding and partnerships, as do higher proportions of social housing and community services on offer. Designing projects in a modular way with room for expansion and added features over time, such as environmental sustainability measures, social hubs, and schools, ensures long-term attractiveness and prolongs the life cycle of the development (Pearl and Wentz 2015). Therefore, it is no surprise that MT doesn't adversely affect house prices (Bailey and Manzi 2008). Rather, safeguards need to be put in place to keep units affordable over time.

2.6 Design quality and housing diversity

All stakeholders measure success in part based on quality: the high quality design and liveability of dwellings, buildings and places. To some extent, design and liveability of affordable and MT housing, such as thermal comfort and the durability of materials, are in excess of privately built housing in Australia. This presents opportunities and challenges regarding MT imperatives to either blend in, or to improve overall design quality. Conversely, a history of providing smaller scale housing stock for affordable housing tenants is now considered problematic, with stakeholders advocating for housing suited to spending more time at home and with greater flexibility of design. Design for disability and inclusion is critical, and is a shared goal across the sector interviews.

New communities should be designed for social interaction, regardless of their mix, as well as offering privacy with design guidelines that make people run into each other at shared entrances, seating, shelter, paths, recreation, communal, open and parking spaces, but also allow for clearly private spaces (Chisholm, Pierse et al. 2021). Creating a sense of place through good design rather than social mix determines resident satisfaction (Silverman, Lupton et al. 2005) and requires neighbourhood facilities, good layout and landscaping, along with local services that are connected by active transport pathways (Allen, Camina et al. 2005).

Good design for MT housing is very similar to best practices in any residential development. It is about creating desirable, human-centred places through clear and simple design features that emphasise convenience, walkability, accessibility, privacy and safety. A diversity of homes for different needs, shared spaces, and ground floor businesses offer an inclusive environment that should be accompanied by green spaces, planting and gardening options, balconies, plazas and community spaces. Wherever possible, the local microclimate and building orientation should be considered to increase natural lighting, ventilation and shading, with climate resilience through passive and active solar design, water sensitivity and biodiverse landscaping a central concern (Caldera, Desha et al. 2019).

The overall quality of dwelling designs impacts heavily on resident wellbeing, whereas access to amenity and services, such as transport options, workplaces, shops, and educational institutions, has a correlation with resident satisfaction. Involving owner-occupiers early on in the design process can lead to better quality design and supply based on their actual needs (Easthope, Warnken et al. 2014). Involving residents early on and throughout the life of the development has become known as co-design. Human-centred design processes create social value and minimise social issues through a sense of prolonged ownership by empowering the local community to take part in the design of their environments. This inclusive approach requires designers and decision makers to re-evaluate their own assumptions, and improves the overall outcome (Alexander, McCoy et al. 2020).

Table 8: Urban and neighbourhood design considerations

Context	Physical qualities	Community impact
MT neighbourhood model	Densifying through aged stock renewal	Increased land value and neighbourhood break-up minimised
	Underutilised public land in emerging neighbourhoods	Diversifies housing opportunities with supply increase
	New town centres and priority development areas	Equitable access to key services
Amenity and services	Leveraging locality of existing institutional facilities and services	Maximises housing delivery
	Implementing new place-specific services within MT	May help to mitigate tenure segregation with publicly accessible services
Shared open space	New urban streets (block cutting)	Integration with walk and cycle infrastructure and ecological networks
	Primary street frontage activation	Borrowing of shared open space for communal benefit
Consolidation and tenure	Multi-lot consolidation to one with integrated 'salt-and-pepper'	Minimises the visibility of tenure differentiation within MT (tenure blindness).
	Deliberate clustering of lots with 'pepper-potting / building by building'	Enhances tenant security and can encourage small-street scale neighbourliness.
	Dispersed small infill lots	Engages smaller scale builders to create housing impact

Source: Authors' analysis of case studies and literature

2.7 Summary and implications: defining success and redefining value

This section examined stakeholder perspectives on success measures for MT housing in Australia in terms of supply, quantity and feasibility; social measures; neighbourhood; design quality and housing diversity; assets and management; land; and sustaining long-term change. In doing so, it outlined rationales and implications for different forms of tenure mixing, including specific priorities for and risks around:

- high needs tenants
- existing public housing tenancies
- other forms of subsidised / affordable housing
- market rental
- shared equity
- owner-occupied housing.

For example, strata issues are associated with owner-occupied housing in 'salt-and-pepper' distribution of dwellings. 'Key worker' and similar categories are considered low risk and a source of cross-subsidies, but have uncertain funding models. Onsite maintenance and amenities are valued highly by stakeholders—particularly for priority tenants—but are not typically supported by MT funding models.

The section also examined interviewee perspectives on urban and neighbourhood design considerations:

- physical qualities and community impact

- neighbourhood scales
- amenities and services
- shared open spaces
- urban consolidation
- tenure mix models.

MT housing can leverage existing services and amenity, or can alternatively be used to implement new local provisions. The physical qualities of larger MT developments can have community impacts including through street activation or provision of shared open space, while redevelopment of dispersed lots may engage smaller scale builders.

Ultimately, different stakeholders measure 'success' at different scales—tenants, dwellings, buildings, precincts—and in different contexts: social, asset, portfolio, sector. The complexity, uncertainty and long lead times of most MT projects in Australia means a shorter-term understanding of success can predominate: focussing on whether the project is actually delivered. These drivers continually reshape the physical features and neighbourhood effects of new MT housing projects.

Success for private sector developers is straightforward. They seek to generate an acceptable level of return while minimising development risk. Within a MT development, this involves ensuring the private sector dwellings will sell for an acceptable price (or rent, in the case of BtR) within an acceptable time frame. Minimising any negative stigma attached to social housing dwellings, possible if the products are indistinguishable, is an important aspect of achieving the required return.

The better the neighbourhood quality, the more likely the developer will achieve the required sales prices because quality is creating value. For most developers, disposing of the development and moving on to the next one is a driving strategy. Long-term maintenance and neighbourhood qualities are therefore not an issue. CHPs, SHAs and residents—particularly social housing tenants and owner-occupiers—have a much longer interest in MT housing and neighbourhoods.

For government, there are a number of competing issues that could define success, depending upon the level of government and the department. These could include objectives to:

- maximise the value of government land, i.e. the proceeds from sale
- maximise the number of social housing units delivered on government land
- minimise ongoing maintenance and management liabilities
- renew existing social housing stock
- enhance tenant outcomes, e.g. tenure security, socio-economic opportunities
- minimise disruption for existing tenants.

From a CHP perspective, tenant outcomes, management and maintenance issues and financial viability are key measures. Many of these are linked to building design and quality. These success measures are financial, operational and tenant-focussed (see Table 6 'Success measures' and Table 7 'Forms of tenure').

From a community perspective, success is around the broad benefits for community through renewal, which in turn supports tenant outcomes. There is also the issue of value uplift through quality development, which benefits all stakeholders. Increasing housing diversity through renewal also improves housing choice in the location.

With the expanding role of CHPs, and as existing MT projects begin to age, success is increasingly understood as maintaining a high quality of housing over an asset cycle of 40 years or longer, as well as the role MT housing has in a wider neighbourhood. Quality development increases demand for an area, feeding through into increased land values. This makes further development more desirable for stakeholders who are able to benefit from the uplift—both financially and through general improvements to amenities and potentially social outcomes. These improvements then stimulate further development as the area becomes more attractive to private sector developers. In turn, this underscores the importance of clear affordable housing targets and tenure mixing.

In summary, the success of MT developments is a combination of financial benefits to the developer, the government and, potentially, the community, and also improved tenant outcomes through higher quality dwellings, better local amenity and generally higher levels of tenant satisfaction. Benefits also come from greater retention of land, which will assist with long-term supply. The value of (re)development options therefore needs to be redefined in terms of social good and long-term strategic thinking, not just immediate supply and economic rationality. This study has identified overlapping success measures and consensus areas that emphasise design quality and longer-term value. Adopting a whole-of-life approach to buildings and communities is necessary for effective MT neighbourhood retention and renewal. This understanding of 'success' can inform how new projects are located, designed and staged.

3. Where could mixed tenure neighbourhoods be delivered?

Appropriate land assembly is the primary driver of MT neighbourhood opportunities. Our spatial examination of Brisbane, Sydney and Melbourne shows that:

- **an estimated 43,361 existing social properties are single houses and located in established suburbs**
- **12,378 properties form suitable clusters for neighbourhood redevelopment**
- **8,056 properties are in medium-density and high-density zones, and have immediate capacity to deliver a diversity of MT housing outcomes**
- **6,093 properties are in areas where the market has accepted higher-density housing change**
- **11,070 properties can contribute to the renewal of low-rise residential neighbourhoods, generating uplift for a pipeline of MT developments over time**
- **social housing clusters are found in recurring urban conditions, which can form the basis for replicable MT neighbourhood models.**

This section focusses on the locational opportunities for replicating successful MT developments at a neighbourhood scale. The section combines geospatial analysis at a metropolitan level, with place-based examination of prospective neighbourhoods for renewal, and interview feedback on location and built form considerations in MT housing, to identify a prospective pipeline of suitable locations and sites for MT neighbourhood renewal.

Looking first at spatial attributes of existing MT projects at metropolitan scale, the geospatial analysis benchmarks viable development and discusses the drivers and limitations of the BAU approach. The distribution of existing social housing stock is then overlaid with a composite mapping of amenity and services accessibility, socio-economic indicators, land-use zones and locations undergoing higher-density urban change to produce a model of potential locations, on a capital-city basis, for future MT neighbourhood renewal. Locations for diversifying and upscaling MT housing supply in the short-term are identified, as are areas that could contribute to broader urban renewal initiatives in the long-term.

Drawing on the metropolitan-scaled modelling, a finer-grained analysis of the qualities of selected public housing clusters is undertaken at a smaller neighbourhood scale. The examination identifies recurring conditions, such as typical street and block arrangements, the amalgamation and distribution of lot assemblies, underutilised land and localised amenity and services networks, that could underpin a model for MT neighbourhood renewal. Stakeholder interview feedback on location and design considerations for MT housing outline differences in approaches to and opinions on zoning and 'fast-tracking' of MT housing; ground-lease models; and the relationship of MT housing to urban renewal. Interview findings more generally support:

- new approaches to car parking
- the use of neighbourhood / baseline amenity measures
- minimising disruption
- expansion and diversification of MT in lower-value and lower-density areas.

The place-based examination of built form conditions and stakeholder considerations is re-incorporated into the metropolitan analysis to identify a pipeline of sites and locations suitable for MT neighbourhood renewal, and underpin the design scenarios explored in Section 4.

The analysis shows that 12,378 properties over three capital cities form suitable clusters for neighbourhood redevelopment (with similar conditions in regional areas also noted). Of these, some have immediate capacity to deliver diverse MT housing of different densities, supported by existing services and amenity. Others could contribute to longer-term sustainable renewal of low-rise suburbs by providing a vehicle for incremental improvements to neighbourhood quality, local services and amenities that can support future housing change.

3.1 Spatial attributes of existing MT developments

Determining the spatial attributes of viable MT developments involved a high-level survey of 120 MT projects in NSW, QLD, VIC and WA, geolocated and mapped against a series of socio-demographic and built environment parameters to establish the typical contexts in which they were delivered. The distribution of metropolitan projects for each jurisdiction is presented in Figure 3–Figure 6. The study prioritised project locations that engaged with established settlement patterns as a means of learning lessons for neighbourhood renewal. This definition includes renewal of established regional towns. Although not depicted for legibility, regional MT models were also included in the analysis.

The literature and stakeholder interviews highlighted that access to services is a critical component of MT success. To analyse access, we developed a composite 'amenity index', which is a measure and ranking of the accessible services and destination points within an area. These include:

- commercial services—shops, cafes
- social infrastructure—schools, health facilities
- recreation areas—parks, sports areas
- transit points—train stations, bus ports
- a range of other destinations included in state-government-created *Features of Interest data layers*.

The amenity index enables areas with greater or lesser accessible services to be ranked per city, which enables the research to test both if MT projects are in higher amenity areas and to show where future MT projects should be located if they were to follow best practice policy.

To add socio-economic and built form metrics to our assessment, the amenity index has been used in combination with more traditional variables, such as:

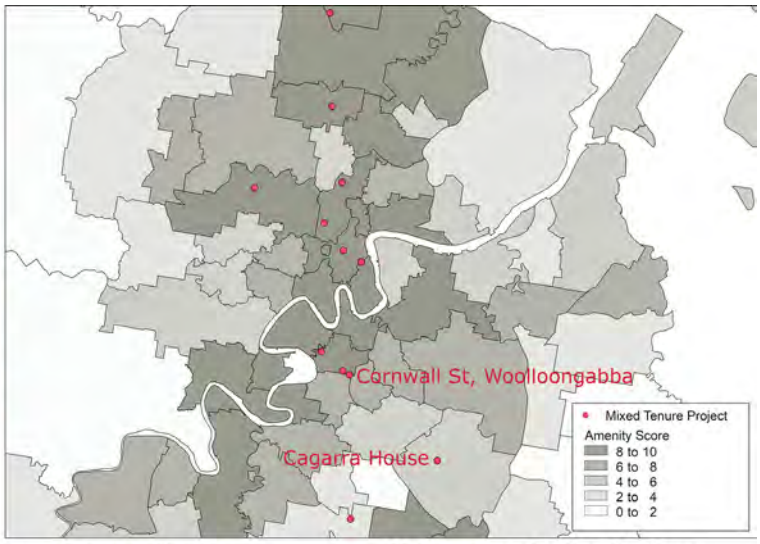
- social mix—Socio Economic Indicator for Areas (SEIFA)
- viability of higher-density apartment—as indicated by land value deciles
- distance variables to other socio-demographic and built environment factors, such as schools, shops, health services, community services and transport (see Appendix 2 for detail).

A key point is that the data layers for each state vary, and thus the methodologies must also vary. Furthermore, urban contexts vary, including the locations of social housing estates as well as different types of and rationales for MT housing. The legacies of planning and urban development patterns in the respective jurisdictions have created vastly different population densities. Thus relative distributions of services and access to public transport also vary, meaning that a 'high' amenity score in one city will not be the same in another. The differences in data layers and urban contexts required each city to be assessed separately. By creating separate normalisation and decimalisation of the amenity index, a comparative '1–10' scale was used as a tool for macro-scale analysis across each city—an extension of the workflow developed in Glackin and Moglia (2022) and Glackin, Moglia and Newton (2022).

Figure 3 through Figure 6 map the distribution of MT case studies against the amenity index for each city. Figure 7 provides a boxplot comparison of the spread of MT projects with low to-high accessibility to amenity per city. Perth has the highest distribution of projects across amenity levels and has a similar median to Sydney, both of which are lower than Melbourne and Brisbane. Brisbane has overall 'better' located MT projects, where a higher proportion of existing developments fall into the top decile of accessibility. The comparative mapping reflects the pattern of viability for 'business as usual' MT housing and points to jurisdictional differences in the:

- drivers and types of MT—dilution, dispersal, renewal
- location and age of social housing dwelling stock—a determinant of some MT housing models
- potential influences of land assembly and broader urban strategies (see Section 1).

Figure 3: Amenity index for MT case studies, QLD



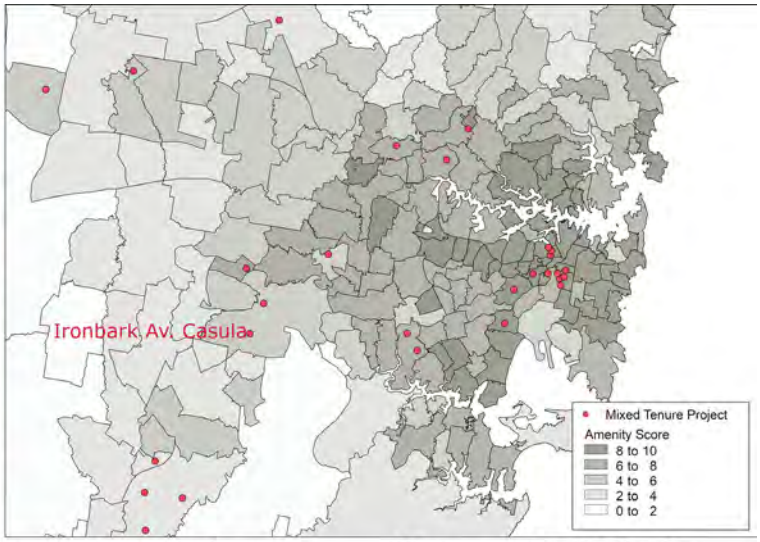
Top: Cornwell, Wooloongabba
BHC and Ko&Co Architecture. Former 2-storey motel site. 32 apartments for youth, key workers. 100% social and affordable. $12.1m

Bottom: Cagarra House
BHC; Arkhfield. Former public grade carpark. 57 apartments for seniors relocating in place (100% social). Frees up $25M in small-scale infill properties.

MT case study distribution
The majority of projects fall within high amenity areas.

Source: BHC and author's mapping

Figure 4: Amenity index for MT case studies, NSW



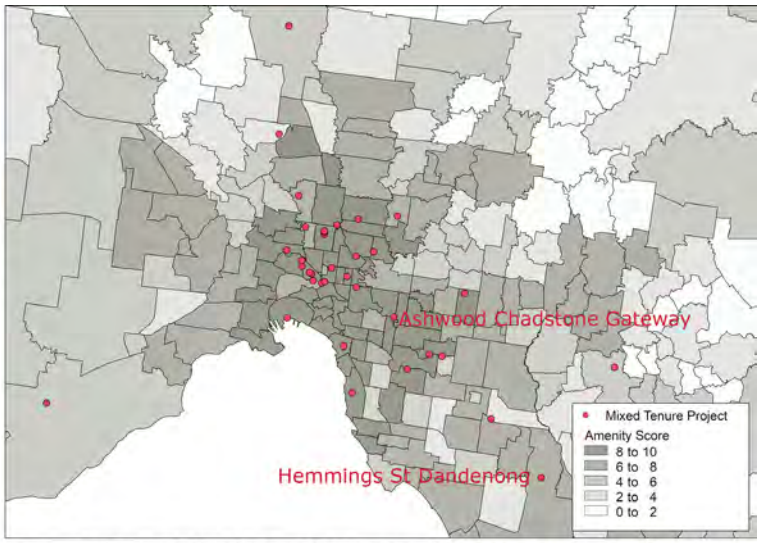
Top: Ironbark Avenue, Casula.
SGCH, DKO Architects, PBS Building, NHFIC. 5 adjoining single house allotments. 63 new dwellings (100% affordable).

Bottom: Northsea Woolongong.
NSW LAHC; Housing Trust; Jackson Teece, ADM Architects; Traders In Purple. Former public housing site (22 units). 65 new dwellings (28% social, 14% affordable).

MT case-study distribution
Even distribution of projects in high, medium and low amenity areas.

Source: DKO Architects, Jackson Teece, and author's mapping

Figure 5: Amenity index for MT case studies, VIC



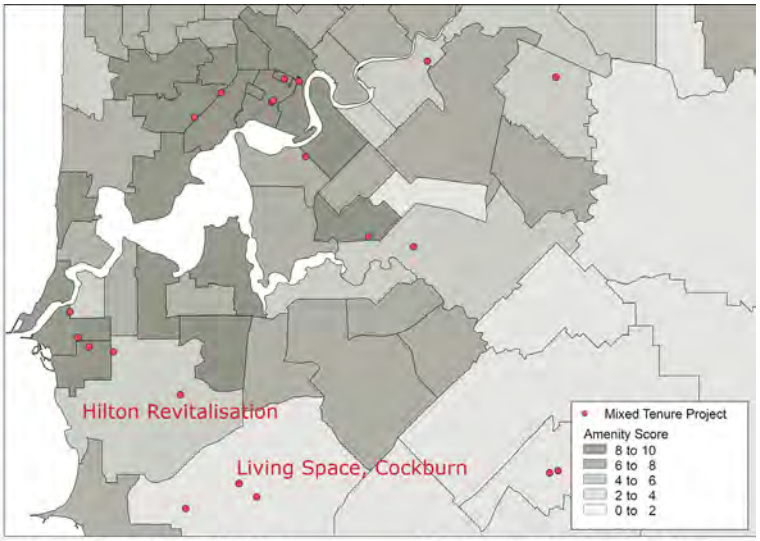
Top: Hemmings Street Dandenong
HCA, Kennedy Nolan Architects, Manresa Constructions. Former public housing (7 flats) + part of public carpark. 19 dwellings (100% social).

Bottom: Ashwood Chadstone Gateway
HousingFirst; FMSA Architecture. 282 dwellings (74% social). Apartments and townhouses delivered across 5 former public housing sites (55 dwellings).

MT case study distribution
The majority of projects fall within high amenity areas.

Source: Housing Choices Australia and author's mappings

Figure 6: Amenity index for MT case studies, WA



Top: Living Space, Cockburn Central
DHC, Moull Murray Architects, Probuild. Former vacant land asset. 136 dwellings (79% social, incl. 25 shared equity; 52 key worker).

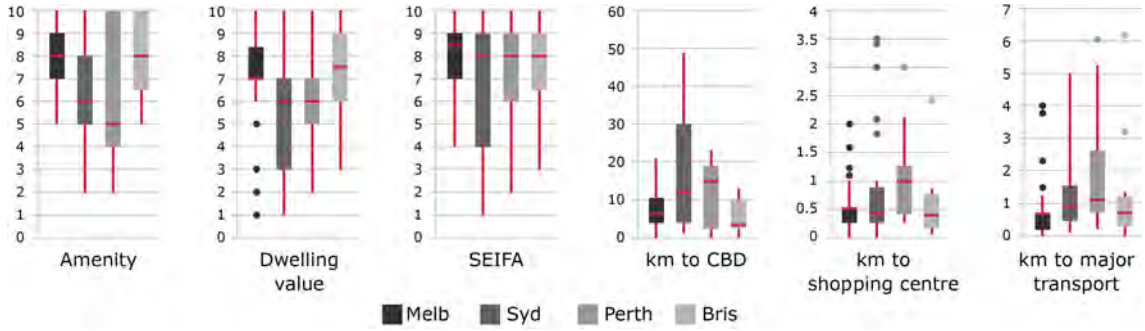
Bottom: Hilton Revitalisation
DHC, Bernard Seeber Architects. 50 SHA assets in heritage precinct subdivided & sold. 16 lots retained for 32 timber-framed social dwellings (design competition).

MT case study distribution
Several MT projects fall within low amenity areas, indicating strategic use for new centres or regeneration in established areas.

Source: Moull Murray Architects, Western Australian Government Department of Communities and author's mappings

While an amenity index allows for macro-scale assessment, at a finer scale we need to determine access to specific services. As such, we have also used the 120 MT projects to determine the range of distances (in a straight line) to a significant public transport node, shops and the CBD (Figure 7).

Figure 7: Spatial attributes of MT development in Australia



Note: Fifty per cent (mid 2 quartiles) of the data in the box, the fourth and first quartile in the whisker. Mean is marked with a red line in the box. Outliers are marked as points outside the whisker.

Source: Authors

Amenity attributes

Focussing on the amenity box in Figure 7, we can see that MT projects in Melbourne and Brisbane are very well placed in terms of access, while Sydney is slightly less well placed, and Perth has a significant spread. This would indicate that Melbourne and Brisbane are more closely following urban policies and best practice MT models for increasing densities in areas with high service access. Sydney and Perth appear to have other drivers, which the mapping suggests is strategic investment in developing or regenerating areas. It is important to note that such observations have emerged through mapping geospatial data, not from a review of policy. It highlights the significance of a geospatial review that documents where MT housing is delivered in reality, rather than the locational aspirations of MT policy.

Development viability (dwelling value)

Stakeholder interviews, workshop responses and existing literature reinforce that prevailing dwelling prices and land values are key determinants of the viability of higher-density development. With the assumption that many MT projects will need to have a viable apartment market, we compared the variance of dwelling values for the MT case studies in each city. Melbourne and Brisbane projects fell into higher value deciles, however we can also see the outliers in Melbourne, which suggests that MT projects are still viable in comparatively lower-value areas, and which might be considered for non–BAU MT cases.

Social mix (SEIFA)

The mapping points to a contemporary theme of MT project delivery in more advantaged areas (those in the higher SEIFA deciles). Melbourne, Brisbane and Perth average roughly 8, with Sydney showing the most variance. Again, outliers in Melbourne show that, while the trend is for higher SEIFA areas, MT projects are viable (under observed BAU conditions) in lower SEIFA areas.

Distance calculations

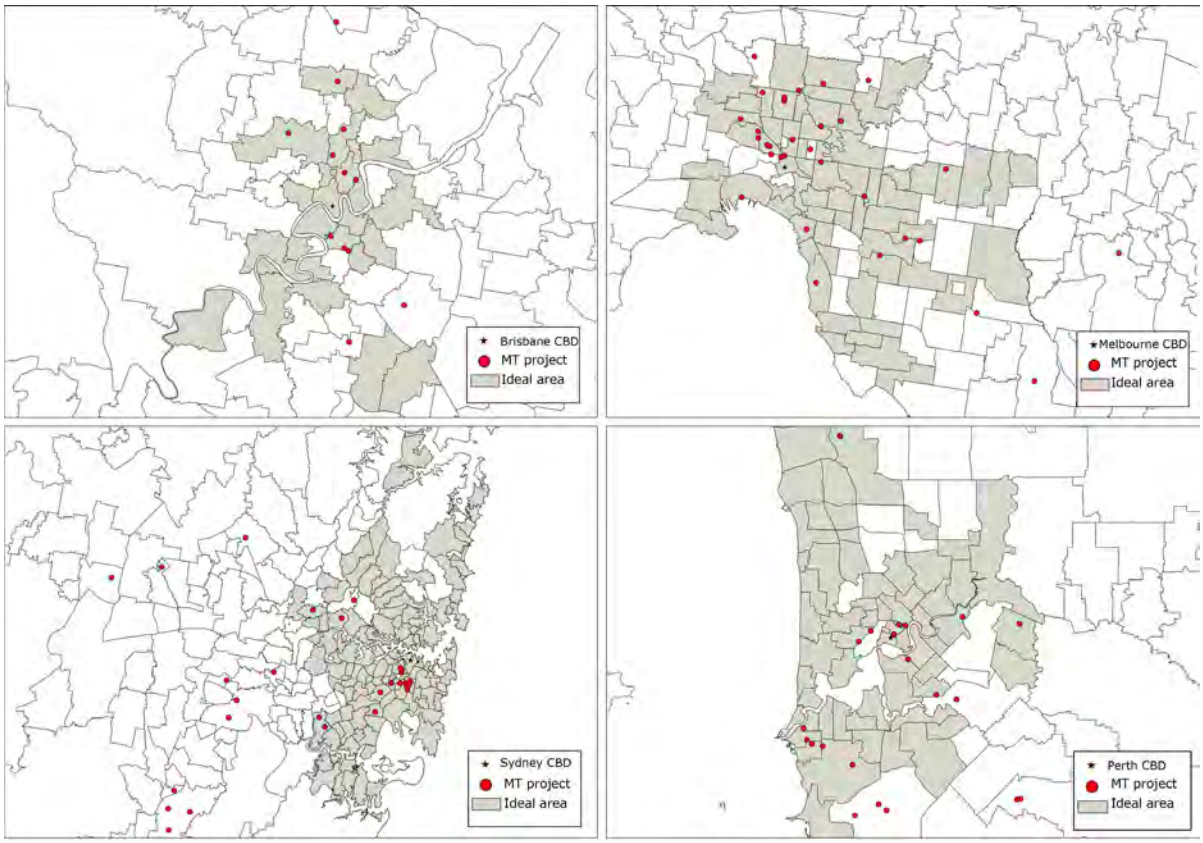
Nygaard, Pinnegar et al. (2021) found that distance to the CBD was one of the most correlated variables for urban regeneration projects. We include it here to illustrate the range of outcomes, and as an argument against having an absolute focus on distance to CBD as a threshold for MT viability. While there is a general CBD magnet, particularly in Melbourne and Brisbane, viable development contexts are far more effectively captured by an integrative assessment of amenity, property value deciles, SEIFA deciles and, later, the percentage of apartments and access to services (discussed in Section 3.2 below). Distance to CBD is therefore not used in the spatial examination going forward.

As with the interview data—and also due to greater geographic distribution—proximity to a significant shopping centre is of broadly greater importance than proximity to significant transport infrastructure. However, a distinction in MT projects is again observed when reviewing the cities separately. Melbourne and Brisbane have smaller distances to both significant transport and shopping centres, reinforcing the amenity index results. As with other variables, the outliers show that there are still exceptions to the rule, suggesting that MT development does not always have to be close to services and could potentially have a strategic role in catalysing neighbourhood improvements. The geospatial analysis supports the differing drivers and feedback on the location of MT development captured through the stakeholder interviews. Some respondents emphasised the importance of access to major amenity and services (metropolitan nodes) to maximise MT uplift. Other CHPs measured accessibility in terms of neighbourhood-level access to transport and services—improvements to which might be catalysed by housing development over the longer term.

3.2 Extracting lessons from MT development for MT neighbourhoods

To determine suitable locations for MT projects, we initially extracted areas that fell within the middle quartiles of all three macro variables (amenity, land value, SEIFA decile). This provided the most likely (typical) locations for successful MT projects, and reflected the combination of social, built and viability imperatives emerging from best practice literature, case studies and stakeholder interviews. However, excluding the highest amenity, land value and SEIFA scores eliminated many areas that contained existing MT projects and some of the best locations in the cities. With the assumption that MT projects should not cap tenants' access to amenity, property values or social-economic advantage, we removed the upper limits for each macro score. Similarly, the closer MT projects are to significant services, more sustainable outcomes can be achieved. As such, the lower limit for distance to services (shops and public transport) was also removed. The resultant spatial attributes used to identify suitable locations for MT projects are depicted in Figure 8.

Figure 8: Suitable locations for MT development



Note: Grey shading labelled as 'ideal areas' identifies locations that meet the combination of criteria for amenity access, land value, SEIFA score and distance to significant services. Areas include the typical locations of existing MT case studies (middle quartiles of the respective measures), with upper limits removed for amenity access, value and SEIFA score, and lower limits removed for distance to significant services.

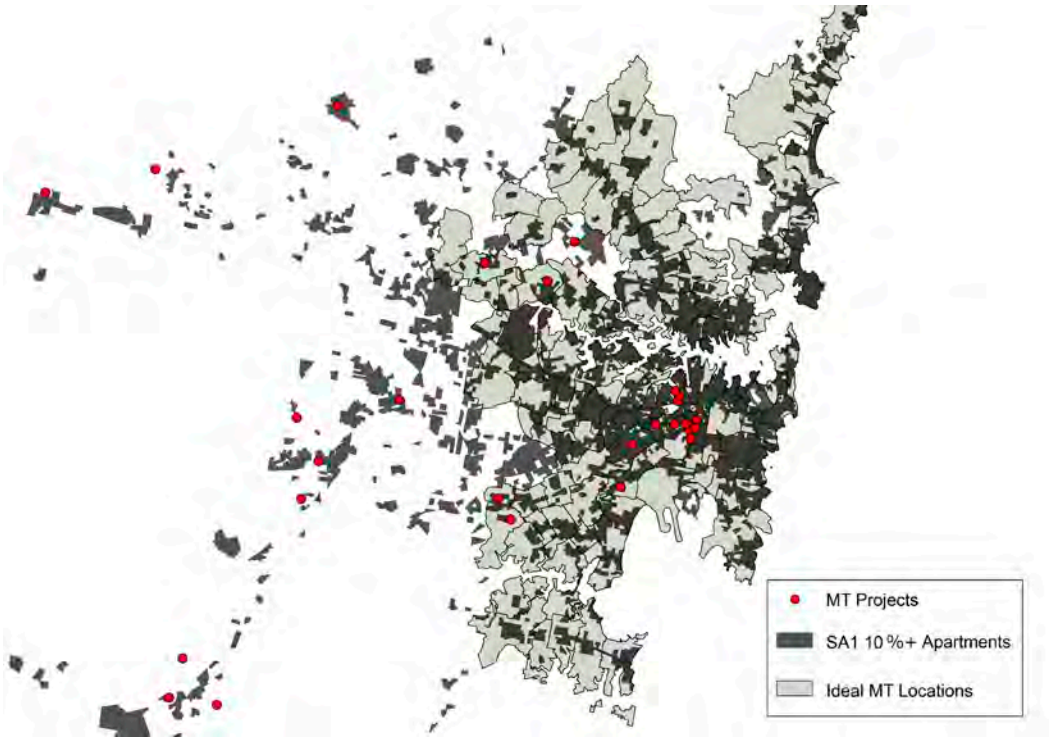
Source: Authors.

The 'ideal areas' identified in Figure 8 generally concur with the literature and policies for locating projects in higher amenity areas, particularly in Melbourne and Brisbane. However, a number of existing MT projects fall outside the nominated areas. This suggests that state policy and the availability of development funding will have an impact on location—but also that other factors potentially have more influence on MT locations, such as distribution of existing social housing stock or other available land.

Development-ready locations: land value model

The prevalence of existing apartments indicates some form of market acceptance for higher-density development. Here we use ABS dwelling data, at the Statistical Area 1 scale (SA1, roughly 200 dwellings) and calculate where 10 per cent or more of the dwellings are classified as apartments as an indicator of market acceptance. When overlaid with the 'ideal areas' for MT projects, we can see in Figure 9 that the intersection of both layers accounts for almost all existing MT projects in Sydney. Projects outside the 'ideal' region but within, or proximate to, areas with existing apartment supply suggest localised amenity and infrastructure may exist to support higher population densities.

Figure 9: Relationship between apartment acceptance and MT projects, Sydney



Source: Authors.

This occurs in each of the capital cities, despite Perth and Brisbane having far fewer medium-density and high-density buildings. Importantly, it also maps to projects occurring in regional areas, including projects in Ballarat, Wollongong, Gladstone and Kalgoorlie (Appendix 2). So, while state policy on MT provides levers for BAU MT models, market and community acceptance of apartments have a greater sway on their execution (Nygaard, Pinnegar et al. 2021).

The spatial analysis also suggests that state policy can leverage MT projects to catalyse local area regeneration. The regenerative potential of MT development is indicated by the existing project locations in Sydney and Perth in particular. Such outcomes have potential to lead the market and foster community acceptance for urban change. For example, the Living Place project in Cockburn Central (WA) was part of a larger regional place-making transit-oriented initiative (see Appendix 1).

Locations for neighbourhood renewal

The proposed model for MT neighbourhoods prioritises the availability of small-scale SHA landholdings, which are dispersed across established residential neighbourhoods, and in need of renewal (London, Bertram et al. 2016; Murray, Bertram et al. 2015). Without real social housing data, this study has simulated the distribution of allotments available for redevelopment based on ABS data of areas (SA1) with more than 10 per cent social housing and where this housing was mostly detached single dwellings (as opposed to apartments). Such clusters of single dwelling allotments under single ownership have the unique potential to be assembled for redevelopment as an integrative neighbourhood that can support the delivery of medium-density infill alternatives (Newton, Murray et al. 2011; Murray, Bertram et al. 2015). By contrast, SHA properties with existing flats or apartments are typically either:

- found on public housing estates—which would be subject to a different redevelopment model

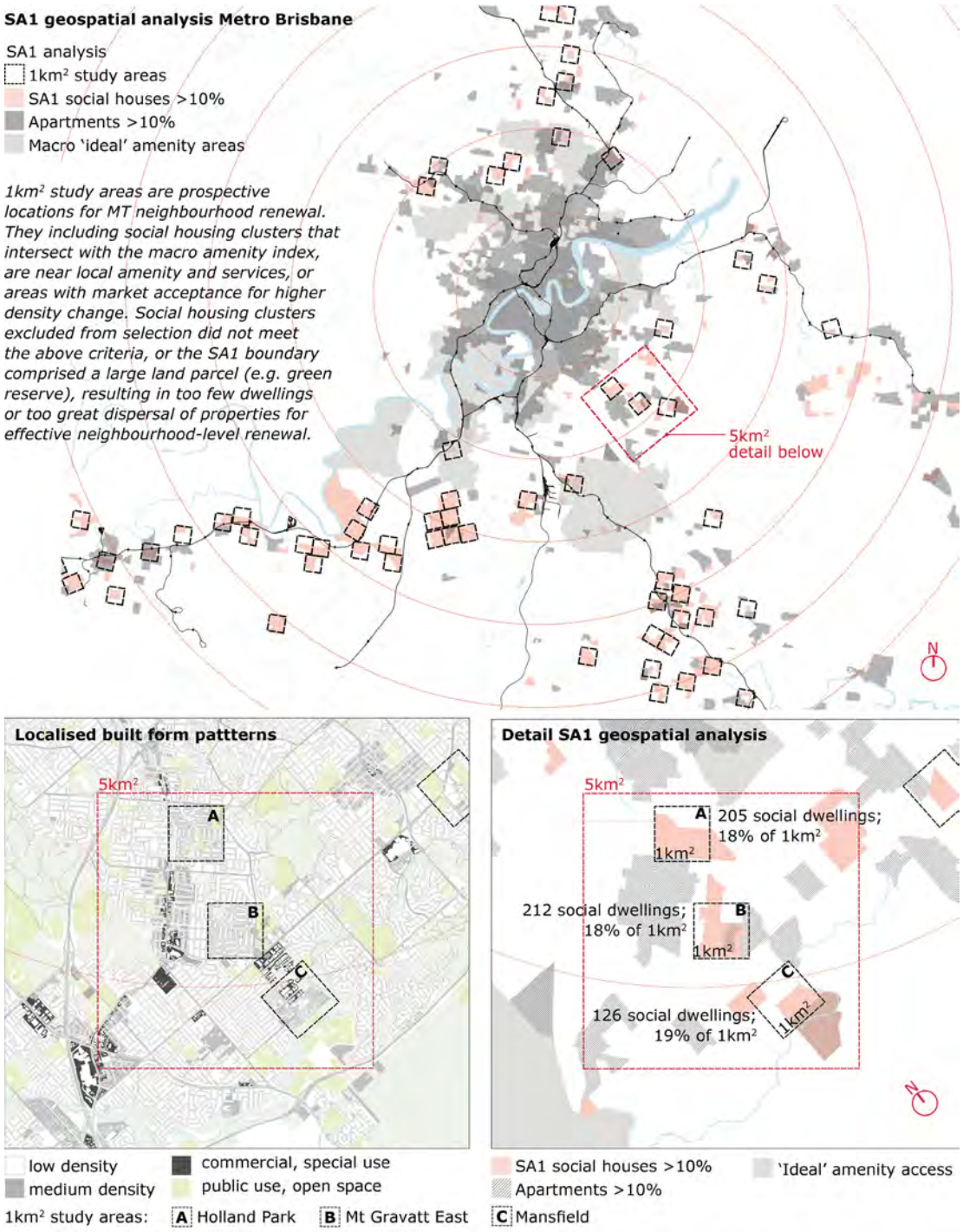
- reflective of infill redevelopment having already occurred—which would limit the development potential of those sites in future.

Figure 10 maps the distribution of social dwelling clusters in Metro Brisbane (SA1, less than 10 per cent social dwellings) relative to the macro amenity index and areas indicating market acceptance for urban change (less than 10 per cent apartments), and selects a 5km^2 area to examine local attributes and patterns in more detail.

The example of Metro Brisbane shows a high proportion of small-scale social housing assets were clustered outside macro amenity areas. However, closer place-based inspection of localised patterns showed many clusters were located near local strip shops, suburban commercial/industrial centres, public uses (e.g. schools) and open spaces. Strategically building on localised amenity and service networks offers opportunities for neighbourhood renewal, to support the upscaling of diversification of MT housing in longer term. The 5km^2 detail blow-up SA1 geospatial analysis shows three social housing clusters in a) Holland Park; b) Mt Gravatt East; and c) Mansfield. The 1km^2 study areas contain approximately 20 per cent social dwelling stock, totalling 503 prospective properties—205 dwellings, 212 dwellings and 126 dwellings, respectively—that can be strategically assembled for neighbourhood-scale renewal or sold off to cross-subsidise development. Design scenarios testing the potential and constraints of MT neighbourhood renewal are explored in Section 4 (also see Appendix 3).

Comparative analysis of different clusters found that social housing accounts for about 15–20 per cent of residential properties in a 1km^2 area (Figure 10). If we accept current planning orthodoxy, which premises a 70:30 mix of private and social tenants, increasing social housing provisions in MT neighbourhoods would be appropriate. This means that future residential developments might target, say, a 50:50 mix (pending yield/densities achieved) to reach a 70:30 mix at neighbourhood level. In Metro Brisbane, sixty 1km^2 areas have suitable social housing clusters for a replicable model for MT neighbourhood renewal. Section 3.6 further examines the potential pipeline of available sites across QLD, NSW and VIC.

Figure 10: Identifying potential locations for MT neighbourhoods, Brisbane



Source: Authors.

Zoning for future housing change in prospective MT neighbourhoods

Social housing clusters are typically found in low-rise residential areas. However, tiered residential zones implemented in NSW, QLD and VIC allow for a range of low-density, medium-density and high-density outcomes that inform the types of MT development models pursued (see Section 1.3).

Our examination shows that the majority of social housing clusters fall into residential zones that allow for low-rise, medium-density intensification (e.g. General Residential and Growth Zones in VIC). Such clusters have immediate capacity to diversify current housing choices to support successful MT outcomes. Coordinating the design and delivery of housing, infrastructure and amenity across strategically selected allotments in a social cluster presents scalar advantages that are unavailable to lot-by-lot infill developments typically delivered by the market in these contexts (Newton, Newman et al. 2022). A design-led model for MT neighbourhoods would enable scalar advantages to be replicated across low-rise, medium-density residential contexts, while addressing the place-based variations in social housing clusters and built form patterns. Corresponding neighbourhood-scaled planning levers would maximise the efficacy, sustainability and replicability of development outcomes in the long-term (Dühr, Berry et al. 2023).

Several social housing clusters also fall within, or abut, lower-level activity and transit precincts where higher-density housing outcomes are encouraged (Figure 10). Mid-rise and high-rise apartment types are more complex to design and construct than low-rise dwelling typologies (such as townhouses), typically take longer to deliver, and currently cater for limited household make-ups (Infrastructure Victoria 2023). Having social housing clusters adjacent to activity and transit precincts presents different advantages for the design of MT neighbourhoods, as they:

- augment apartment supply with a diversity of low-rise living options
- deliver two speeds of development
- consider neighbourhood-wide solutions for parking and amenity.

The variation across locations and jurisdictions points to the need for place-based flexibility in the development of a replicable MT neighbourhood model. Planning mechanisms that enable a design-led approach to MT neighbourhoods would allow for site-specific responses that can maximise the efficacy of development opportunities emerging from a combination of:

- strategic planning
- market acceptability (discussed earlier in this section)
- access to amenity and services
- spatial attributes of social housing clusters
- long-term asset-management strategies.

Operating at the scale of a neighbourhood rather than considering individual sites in isolation provides flexibility for how the mix and distribution of dwelling types and densities is achieved (see Section 4.2 and Section 5.6). Compared to market-led outcomes that seek to maximise development for short-term gains, and the building uniformity ensuing from prescribed planning controls—which can limit housing diversity and result in the under-development of well-situated allotments—a design-led approach to MT neighbourhood renewal enables dwelling density, diversity, amenity and service provisions to be tailored to existing contexts and stakeholder needs (Dühr, Berry et al. 2023; London, Bertram et al. 2016).

For example, multi-parking areas or structures can be contained to certain areas within a neighbourhood, rather than duplicating allocations and vehicle circulation on individual dwelling sites. Flexibility around the rates, consolidation or sharing of car parking is particularly relevant for neighbourhoods adjoining public transport hubs, or where social housing allocations vary from standard planning practice. The space gained might be used to achieve a mix of dwelling types, more generous open-space provisions or accommodate community services. In this way, a design-led approach to MT neighbourhood renewal can place greater emphasis on the quality, performance and appropriateness of housing outcomes, while promoting ongoing urban transformations that are responsive to changing social and technological needs through development staging or incremental upgrades over time (Murray, Bertram et al. 2015).

Variable levels of housing change were also observed from place to place. For instance, Mt Gravatt in QLD (Figure 13) shows modest single dwellings set in generous gardens being redeveloped as very large, detached dwellings or subdivided into two long, thin duplex units with more limited green open space. Such outcomes are a result of planning controls, physical attributes (e.g. lot sizes and terrain change) as well as market acceptance of housing alternatives. Increasing housing diversity via market-led redevelopment of individually owned sites will be challenging without shifts in planning controls (see Section 3.5 for further discussion).

Sites located behind a retail strip leading to St Marys train station in NSW are being intensified at higher densities than that achieved in comparable outer urban locations in QLD and VIC. Stakeholder workshops suggest that such outcomes have resulted from CHPs actively working with local and state governments, respectively, to increase social housing supply. However, development partnerships have not formed between levels of government. Envelope controls set the transition from high-rise and mid-rise development to the adjoining low-rise residential fabric. Otherwise, very few integrative design benefits or public realm upgrades are being pursued at a neighbourhood scale. The site suggests a MT neighbourhood model could facilitate appropriate partnering with local government, and have an important role for brokering inputs from local businesses and organisations.

3.3 Recurring conditions of small-scale landholdings

This section of the report undertakes a finer-grain examination of the spatial distribution and attributes of social housing clusters identified in Section 3.2. The place-based investigation of built qualities identifies 'real world' potentials and constraints for developing a replicable MT neighbourhood model. The outcomes of the site analysis underpin the design scenarios and feasibility modelling in Section 4 (and Appendix 3).

The methods used to translate the macro-level spatial data (number of social houses at SA1 level) into a place-based understanding of built qualities illustrate that some SHA land assets are more useful than others for generating uplift through MT neighbourhood design. SHA assets that do not contribute to ongoing neighbourhood improvement can potentially be sold to subsidise the delivery of additional social housing.

The physical make-up of selected 1km^2 study areas was determined through a desktop review of aerial photographs, topographic data, listings of local businesses and community facilities, and other locational material in the public domain. Subsequent site visits revealed further insights about the:

- neighbourhood qualities
- condition of existing housing stock
- walkability and bike-ability of an area—footpaths, bicycle paths, street shading
- street activation and safety—setbacks, treatment of frontages, street lighting.

The study identifies recurring conditions that present both opportunities and constraints for MT neighbourhood design.

Cluster patterns, neighbourhood extents and tenure mix

Section 3.1 showed that social housing clusters form discrete pockets of established suburbs, reflecting past policies for the dilution and dispersal of former public housing estates (Khor, Ramirez-Lovering et al. 2012). Figure 11 maps the breakdown of SA1 social housing data onto residential blocks in Mt Gravatt East, QLD. From the SA1 data, combined with previous research into public housing distributions (Murray, Bertram et al. 2013; 2015), fieldwork observations and a desktop review of existing dwellings and recent change available in the public domain, we extrapolated the spatial distribution of social housing properties in selected 1km^2 study areas.

Figure 12 shows the simulated pattern and extent of the social housing cluster in Mt Gravatt East, QLD. Social properties are sprinkled across adjoining residential blocks but rarely exceed an extent of 1–2km², indicating a replicable scale for MT neighbourhood renewal. The clusters comprise small-lot assemblies making up runs of two, three and four allotments on one side of a block; L-shaped assemblies that run from one side of a block to the other; and consolidations of four or more allotments.

Increasing dwelling density on a single property can be challenging to achieve while still meeting prescribed building setbacks and parking requirements. Lot widths are a particular constraint. Lot consolidations provide the necessary area to accommodate a greater range of medium-density housing types in low-rise residential contexts. Corners and block ends have fewer neighbouring impacts to consider, with additional flexibility provided by multiple frontages for separated access—for example, vehicles and pedestrians; private, shared or public uses; tenancy mixes; flexible household make-ups.

Figure 11: SA1 social housing cluster, Mt Gravatt East, QLD, localised conditions

Note: Breakdown of social housing properties derived from the SA1 geospatial analysis in Section 3.2. The social housing clusters are sprinkled across adjoining residential blocks, but rarely exceed a 1–2km² boundary. In the Mt Gravatt East study area, there are 200 SHA assets, 181 of which are single dwellings, representing 18% of all dwellings in the 1km².

Source: Authors

Figure 12: Simulation of social housing properties derived from SA1 geospatial data

Note: The simulated distribution of social housing assets shows recurring small-lot assemblies of 2–5 allotments in runs, consolidated blocks, L-shape and block ends that could accommodate medium-density dwelling types. Other spatial attributes mean some lots have greater design potential than others, such as the possibility to work with vertical level changes at compression points in the contoured landscape, or amplifying community benefits and uplift by building on existing amenity, incorporating non-residential uses that foster social interactions. In Mt Gravatt East, this includes local shops and bus routes, Chester Park Reserve, TAFE, aged-care, church, and nearby commercial / retail zones.

Source: Authors

Length and arrangement of lots, blocks and streets

Closer inspection of the social housing clusters revealed that allotments were typically 15–18m wide. However, lot depths varied from place to place, as did the size and arrangements of blocks within the 1km² areas reviewed. Clusters comprised both gridded blocks and cul-de-sacs, reflecting changing trends in residential development over time. Where long, uninterrupted blocks or multiple cul-de-sacs were repeated within a 1km² area, the connectivity and walkability of the neighbourhood tended to be compromised. Here, the redevelopment of L-shaped and back-to-back allotments provide dual frontages, increasing opportunities for pedestrian throughways and the potential to generate foot-traffic for shared and community uses.

While recurring lot-configurations can be observed, other attributes mean some lots have greater design potential than others. For example, allotments that fall on compression points in the contoured landscape might utilise vertical level changes to increase privacy or accommodate basement parking, promoting pedestrianised sites and direct access to ground floor gardens. Lot clusters located near local shops and community facilities might build on the mix of uses, incorporating complementary non-residential activities and public realm upgrades that foster a range of social interactions and increased connectivity across the neighbourhood.

Irregular block shapes, block orientations and variable street patterns were often the result of negotiating larger-scale urban systems, such as terrain changes, road and rail infrastructure, blue-green infrastructure, and large land-use parcels—for example, education or health campuses. The selected study areas in VIC and NSW (Appendix 3) illustrate how road and rail infrastructure can dissect the residential fabric, impacting on the formation of residents' social, service and amenity networks (also see success measures in Section 2). Infrastructure, open space and surrounding land uses can ring-fence residential neighbourhoods. Figure 12 shows that the 1km² study area is 'bounded' by a TAFE, emerging and gated communities on the eastern edge. These large sites offer green amenity, which might be 'borrowed' by the MT neighbourhood, but they also discontinue the local street networks, thus limiting opportunities for broader connectivity. Along this boundary, two L-shaped blocks create corners at the intersection with other connector roads: south-east corner shops; opposite TAFE along the bus route. This physically creates a 'natural edge' to the neighbourhood, and results in irregular allotment shapes that would require site-specific responses, rather than standardised design responses.

In other study areas reviewed, the surrounding context provided a neighbourhood with an identifiable boundary or a mix of uses that could facilitate opportunities for productive renewal. In others again, the ring-fencing generated residential islands disconnected from broader services and amenity. Reciprocally, residential neighbourhoods can create undesirable breaks in larger-scale urban systems. Reconnecting urban networks through the design of MT neighbourhoods has the potential to contribute to broader urban objectives, such as the performance of ecological corridors.

Localised services, connectivity and interaction

Most social housing clusters were located near suburban retail, commercial, industrial and education precincts, but often beyond a walkable distance. Non-residential uses were rarely co-located and public transport access was typically limited to local buses. The lack of transit options combined with the dispersal of single-use zones works against the concept of 'living locally', impeding the possibility for multi-purpose trips without the use of a car. This recurring condition impacts on future development opportunities in two ways:

1. Increasing connectivity should be a priority for MT neighbourhood renewal.
2. Poor connectivity often correlates to lower land values, constraining the viability of higher-density housing delivery.

Distributing finer-grain work spaces, community facilities and shops in between larger, but separated, non-residential nodes would enable existing and future residents to meet daily needs within walkable catchments. Improving local amenity and services also facilitates opportunities for social interaction, community participation, employment and training (see Sections 2.3 and 2.6). Public realm improvements that come with amenity and service provisions further contribute to neighbourhood uplift, which in turn creates more conducive conditions for higher-density development in subsequent stages of neighbourhood renewal.

Recurring conditions for housing diversity

All three study areas were undergoing some form of infill redevelopment. Figure 13 demonstrates the changes in Mt Gravatt, QLD. Here, higher-density apartments were contained within zones that fell outside, but nearby, the selected study area. The existing fabric comprised modest but ageing single dwellings, which were starting to be replaced with much larger homes, or long and narrow terrace typologies allowed under current planning controls. An existing aged-care facility and select redevelopment sites were the few examples of medium-density dwelling forms in the area.

Figure 13: Built form change, Mt Gravatt East, QLD

Notes: Modest and ageing single dwellings replaced with much larger homes, or long and narrow terrace typologies allowed under current planning controls. Few examples of low-rise medium-density housing choices, with higher-density apartments contained within zones that fell outside, but nearby, the selected study area.

Source: Authors

Within the 1km^2 study areas, three key recurring conditions offer opportunities for delivering higher-density housing outcomes, while respecting the existing low-rise character of residential neighbourhoods:

- open-space interfaces
- intensification of local shops
- working with level changes.

Established suburbs often include a range of open spaces, including road median strips, pocket parks, recreation fields and larger open space reserves. The edge of open spaces and interfaces to broad streets are appropriate locations for higher-density redevelopment, where fewer adjoining properties limit neighbouring impacts, street proportions can be improved with more intensive building types and ground-level activation of 'pedestrianised avenues' is encouraged through reduced setbacks. Local parks and reserves are often unprogrammed space and, in some instances, 'blind' edge conditions can feel unsafe for users. Appropriate design of higher-density redevelopment can increase access, activation and safety through passive surveillance.

Figure 14: Edge condition of local recreation reserve, Jacana, VIC

Source: Authors

Lazy land assets

Shops and community facilities are usually coupled with asphalt grade parking, which is considered an underutilisation of well-located land. In established urban areas, local shops are frequently run-down. Like the housing that surrounds it, local nodes of amenity and services require upgrading. Opportunities exist to integrate these 'lazy land assets' into a model for MT neighbourhood renewal to leverage the benefits of higher-density building forms that would be possible on such sites. For example, Cagarra House by BHC in QLD offers a successful example for ageing in place. Elderly social tenants formerly residing in single dwellings around the project area were relocated to a purpose-built facility behind a local shopping strip. This process freed up $25M of underutilised housing, for which a MT neighbourhood renewal model could have been employed to generate further value. Local actors who own 'lazy land', such as business owners and LGAs, have a vested interest in maintaining and enhancing the quality of their neighbourhoods and could become proactive stakeholders in MT renewal initiatives.

Figure 15: Run-down local amenity nodes are coupled with grade parking

Source: Authors.

Note: Small local strip shops and service centres are typically present in established neighbourhoods, but the quality and use of the strips varies (and they are frequently closed).

Considerations for the development of a replicable MT neighbourhood model

The level of contiguity between social housing properties within the 1km^2 study areas is a key determinant of the housing types and yields that can be delivered. The orientation and distribution of allotments within a residential block, along with changes in topography, impacts on the accessibility, passive design and mediation of building volumes. Street patterns and connections to the surrounding network of local amenity and services can support, or impede, walkability, street activation, safety and social interaction. These, and other qualities (or lack thereof) give clues about the site-specific design responses that might be used to strategically generate the necessary uplift to support increases in MT housing density and diversity over time, which is further explored in Section 4.

3.4 Planning and land considerations: interview findings

Sections 3.1–3.3 mapped existing MT locations and opportunities for upscaling MT housing via a neighbourhood-scaled renewal model, drawing on geospatial analysis. This section considers views on planning and land assembly from 26 MT housing stakeholders. Factors considered important in practice to the location, delivery and management of MT development included:

- differing planning pathways
- approaches to car parking
- a preference for avoiding shared strata models
- valuing of onsite amenities and services where possible.

In some respects, interviewees of different backgrounds had competing views based on their success metrics and their scope of interest in housing—notably between an emphasis on yield that tends to discourage non-residential uses, and an emphasis on longer-term community and maintenance that tends to value them. Another competing interest was public land retention, offering different short-term and long-term advantages for governments and CHPs (see also Section 2). These and other stakeholder considerations relevant to planning and land assembly of a MT neighbourhood model are summarised in Table 9 and Table 10.

Table 9: Planning and land assembly considerations for MT neighbourhoods: interviews

Issue	Challenges	Lessons
Planning pathways matter	Zoning barriers to density, uncertain public consultation processes, pathways for affordable housing ('fast-tracking', self-assessment), density bonuses for inclusionary zoning. Complexity, uncertainty and risk seem more common in VIC, necessitating the use of (sometimes polarising) fast-track powers that can reduce the role of local government and communities. Building height ratio trade-offs can be effective but also undermine amenity. Strict zoning limits opportunities to increase supply via townhouses, or higher-density housing outside of priority development areas.	Each state and territory has its own approach to third party objection and appeal rights and code-assessable development. It would be beneficial to compare the benefits and disadvantages for MT housing more systematically.
Minimum car parking provisions and decoupling	Minimum car parking requirements applied in most areas are too high: • Impacts costs, feasibility and design of MT housing; • Reductions in planning requirements are common, but happen in ad hoc ways. Importance of having some car parking available to residents who need it.	Evidence that lower parking rates than typically required are possible and desirable for MT housing, while still meeting tenant and visitor demand. Decoupling parking from dwellings, and lower rates of parking (working allocation 0.3–0.8 per dwelling) allow MT housing providers to increase dwellings and amenities, minimise crossovers and local impacts. Lower rates, and different ways of allocating and managing parking, improve outcomes in practice but have to be negotiated with authorities
'Lazy land' opportunities (particularly local govts)	Legal questions (even of ownership, but also regarding the end-point of the lease) are often protracted.	Local governments usually strongly motivated to be involved in affordable housing provision, e.g. via car parks and other assets.
Decoupling land from housing: ground-lease models	Experiences with uncertain and protracted negotiations, and legal uncertainties in approaches to ground leases of public land. Ground leases less attractive to CHPs. They do not add to lending capacity. Access to land is important—particularly in the context of increased construction costs and uncertainties—but is only one component of the feasible delivery of MT housing.	Ground-lease models are welcomed by some as an opportunity for accessing land in high-amenity areas and avoiding sale of public assets, e.g. Victoria.

Issue	Challenges	Lessons
Location and amenity benchmarks	Amenity as measured by fast-tracked planning approvals focusses on high-level infrastructure and CBDs. Within the sector, access is to daily needs: local shops, transport (bus stops), health services, schools, open space, community space.	All stakeholders work with benchmarks of local accessibility and amenities being important for MT housing, usually within walking distance of shops, public transport (the quality and frequency expectations vary), schools, health facilities, work opportunities. Accessibility to amenities can be provided within a development or upgraded nearby. It can also be achieved in regional areas. (Similar to geospatial analysis: a baseline of access is important, but MT does not need to be in high-amenity/high-cost areas.)
MT as redevelopment and renewal of existing public housing stock	Where MT is a redevelopment of housing stock, it is obviously influenced by the existing pattern of public land assets and public housing stock, e.g. Sydney has larger suburban estates and older stock. Forty, 50 and 60+ year housing is particularly problematic. Housing and resident time lines are misaligned, particularly for older residents where connections to home and neighbourhood are more established.	'Decanting' of existing residents and breaking up of communities is problematic for stakeholders, to differing degrees. Some alternatives to decanting propose opt-in, voluntary moves to new MT housing; or retaining vacant properties for development. Incremental, neighbourhood-scale development as an alternative.
Land value	Land value differentials drive feasibility and yield short-term. The direct subsidy required for MT development increases with lower-value land sites. However, there is already a capital shortfall, and it is increasing alongside construction costs and lending conditions.	To CHPs and longer-term housing stakeholders, a relatively low increase in land value resulting from improved amenity and services is sustainable and runs over a longer time period (20+ years). Regional areas are a particular pressure and challenge for MT and affordable housing. New suburban growth areas are also highlighted as locations were ongoing public / affordable housing opportunities will be important but are not typically being pursued.

Source: Weighted analysis of stakeholder interviews summarised by the authors into common themes.

The interviews indicate challenges and competing views around the following issues.

- Planning pathways and state differences—particularly in 'fast-tracking', treatment of density, and treatment of subsidised housing of different types.
- Navigating ground-leases in ways that balance CHP, government and broader interests in public land vs. assets and debt financing.
- Balancing strata arrangements in different mix models.
- Balancing the role of public housing in leveraging land value uplift vs. catalysing it.

The interview findings more consistently support the following.

- Decoupled car parking at a lower rate than normally required by planning schemes.
- Greater attention to council landholdings, including car parks.
- Meeting minimum location requirements of amenity—walking distance to neighbourhood shops, public transport, schools and some community facilities.
- Minimising disruption to community ties and to existing tenants.
- Finding ways to diversify and expand affordable housing in lower-density, lower-land-value areas to which MT models currently do not fit.

Site arrangements and dwelling types: interview findings

The 26 stakeholder interviews identified several key considerations, with a range of views—as well as some consistencies. An emphasis on quality construction, thermal comfort, accessible standards and durable materials is standard across all housing-sector stakeholders, and there are comparable high design standards used across most SHAs and CHPs. One of the challenges is that design quality is often higher for affordable housing than for private housing in Australia, leading to different assessment and feasibility models, and some difficulty with mixing with private developments. There are also tensions around whether affordable housing should be designed to blend in, or to raise housing standards of private stock.

Conversely, in terms of dwelling sizes, over time some affordable housing stakeholders have moved away from small (studio and 1-bedroom) housing models, and plan instead for people who spend more time at home, and with some flexibility of layout. Many housing stakeholders emphasise the ongoing importance and value of onsite non-residential amenities, and of onsite maintenance—sometimes including a 'valet' style caretaker. However, this can be hard to fit with funding models and is influenced by the definition of a site and neighbourhood—it may also be important to contribute to broader neighbourhood facilities and spaces. For some CHPs, distribution within existing areas and in proximity to existing facilities is more feasible than onsite provision—the scale and type of mixing being considerations. For example, stakeholders spoke about community spaces and site arrangements:

> *It's a cost aspect, but we believe that the benefits of providing those services to connect people is greater than the inherent cost of providing that space or the loss of unit. (CHP6)*

> *We don't see [community spaces] as an added expense; we see that as all part of sustaining our tenancies and making sure that the buildings work together. (OH2)*

> *We always try and have some kind of community space [...] we try to create community within those buildings so that the people we're moving in there have got a strong support network. (CHP8)*

> *Often our projects are the best-looking building on the street. (CHP1)*

> *A lot of the concepts that we hold dear, the nature of the space they [the private operator] seem to generally take on board, probably even more so sometimes than our state government colleagues. (LG1)*

Table 10: Considerations in MT housing: stakeholder interviews

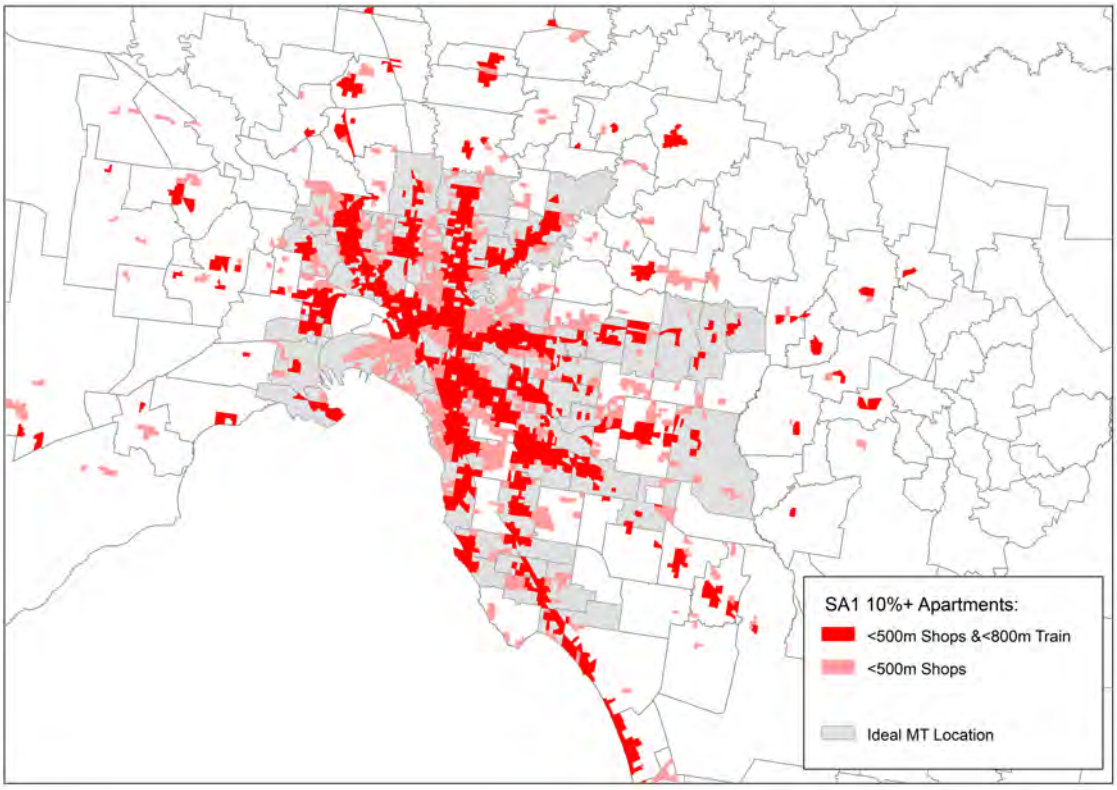
Considerations	Challenges	Recommended responses
Quality: construction, ventilation, light, thermal comfort, accessibility standards, natural light, single-loaded corridors, durable materials.	Comfort and design are often higher for community and social housing stock, meaning higher upfront costs but lower ongoing costs.	There are comparable high standards of design guidelines used across SHAs and CHPs. Design quality and ongoing maintenance are more durable than is any set ratio of tenure mix.
Successful MT housing plans for people who spend more time at home.	A move away, in most cases, from studio or boarding house accommodation.	High thermal and design standards. One bedroom plus 'multi-purpose space' layouts are common.
For stakeholders involved in ongoing management or local planning: onsite amenities and non-residential uses are important.	Non-residential/community spaces are not always recognised in funding programs, which prioritise yield and use of local amenities.	Community spaces, place-making, connected spaces, rentable spaces, and sometimes onsite services are integral in the longer-term popularity of building an area.
In apartment buildings, onsite services and maintenance are valuable.	Funding models do not always support onsite presence. View that onsite maintenance is only suited to high-needs tenants.	Sometimes a caretaker or 'valet' style (similar to BtR) management is used, especially in apartment buildings.
Design outcomes where CHP/affordable housing is included in private-sector- led or required MT housing.	Private development quality is not always high enough for social housing.	The developer and their attitude matters and contributes greatly to what works.
Differing views and tensions around design.	Unclear whether goal is to blend in to destigmatise social housing or to promote anonymity.	Balancing of internal vs. external design features. Design standards and competitions to raise local standards of poor-quality BtS housing.
Development scale and dwelling types.	Some MT models work only for apartment buildings and at scale, e.g. 60+ apartments. Yield and zoning drive delivery. Focus on yield and waiting list sees an emphasis on one- and two-bedroom apartments, but some stakeholders see larger family housing as important.	There are opportunities and examples at lower densities and scales, e.g. townhouses, apartments in detached house footprints, and up to four-storey apartments. Diversity and flexibility. Replacement housing measured by bedrooms not dwellings.

Source: Weighted analysis of stakeholder interviews, summarised by the authors into common themes.

3.5 Identifying a pipeline of MT neighbourhoods

A traditional BAU approach to MT would see projects occur in areas that have acceptance of apartments, are close to significant shops and transport and are, for the most part—particularly in Melbourne and Brisbane—in the areas that combine accessibility to amenity with suitable land values and SEIFA levels. An example of this is presented for Melbourne in Figure 16. (See 3.1 and Appendix 2 for the full method and the BAU areas for all cities.)

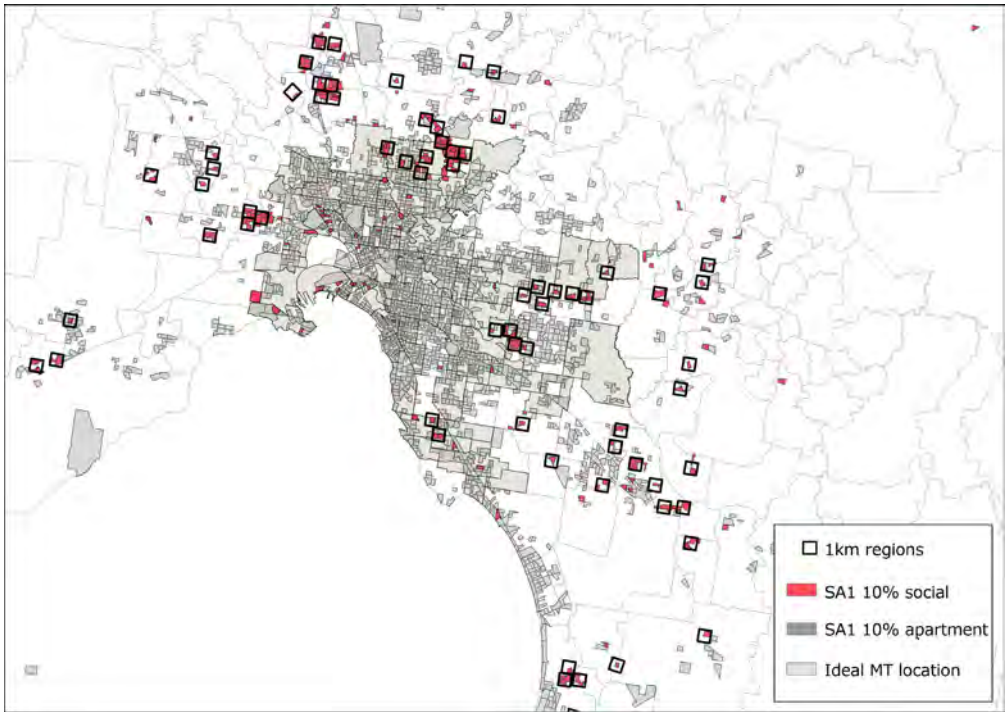
Figure 16: BAU areas for typical MT projects, Melbourne



Source: Authors

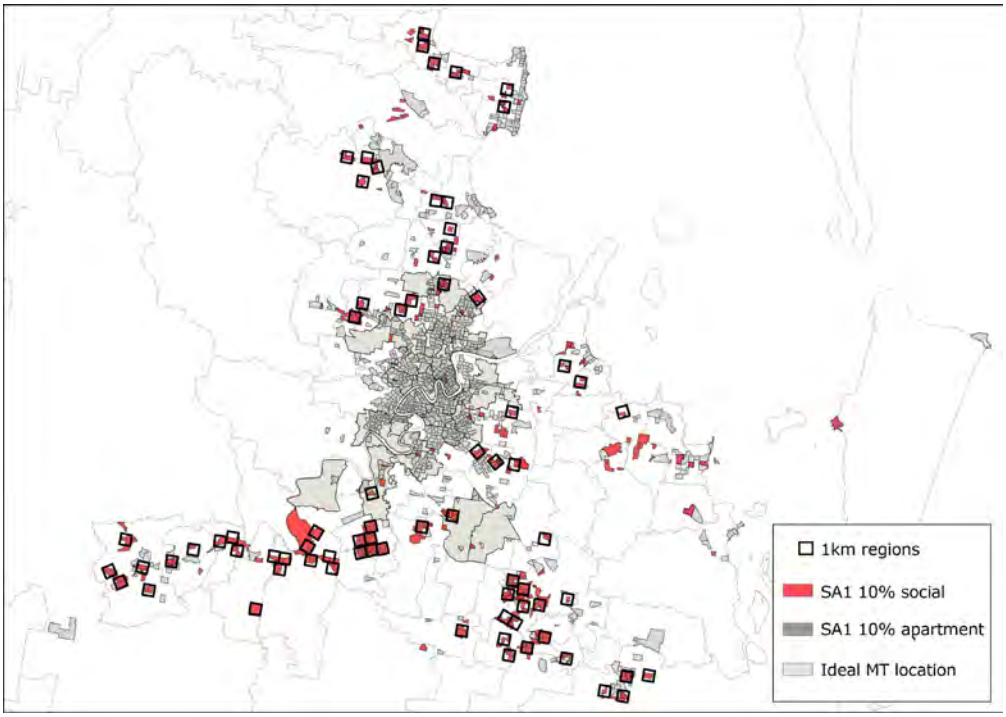
However, with the emphasis on neighbourhood-scale MT projects, the method is slightly different, as we also need to consider social housing assets and their clustering as a catalyst for neighbourhood transformation. As such the method was slightly different, but largely as covered in Section 3.2 on identifying potential intervention areas: using ABS SA1 estimations of detached social housing at greater than 10 per cent, combined with indicators of higher-density units, for which we have used SA1s that are more than 10 per cent apartments. Each city's data was analysed for potential social housing clustering and to see if there were some form of non-residential zoning that could be activated for additional amenity within a one-kilometre square. Once identified, these 1km^2 became part of the neighbourhood pipeline and are represented in Figure 17 through Figure 19.

Figure 17: Potential neighbourhood pipeline areas, Melbourne



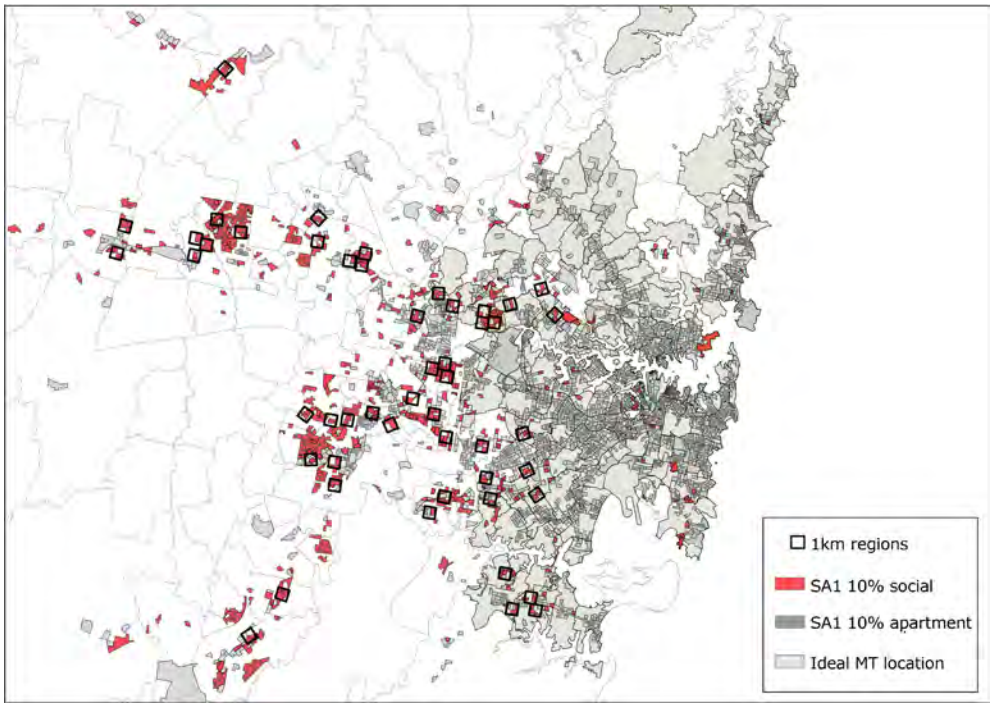
Notes: Seventy-seven 1km² contain social housing clusters suitable for a MT neighbourhood redevelopment model.
Source: Authors

Figure 18: Potential neighbourhood pipeline areas, Brisbane



Notes: Seventy-five 1km² contain social housing clusters suitable for a MT neighbourhood redevelopment model.
Source: Authors

Figure 19: Potential neighbourhood pipeline areas, Sydney



Notes: Fifty 1km² contain social housing clusters suitable for a MT neighbourhood redevelopment model.

Source: Authors

The 1km squares were overlaid with SA1 data and the proportion of overlap calculated, allowing the volume of social and private houses to be calculated. Each square was then analysed according to zoning type, if it was in a higher amenity (ideal) area, and if there was some incidence of apartment acceptance. Due to the variance in state land-use coding, the zoning analysis has been coded as high-density, medium-density and low-density. The proportion of housing to social housing, as well as the context of potential housing redevelopment in relation to zoning, amenity and apartment acceptance is presented in Table 11 and Table 12.

Table 11: Land availability for MT neighbourhoods: zoning (parcels)

	High-density	Medium-density	Low-density	Total
Melbourne				
Houses	943	42,715	12,347	56,006
Social houses	23	3,146	598	3767
% social houses	2.5%	7.4%	4.8%	6.7%
Distribution	0.6%	83.5%	15.9%	100.0%
Sydney				
Houses	6278	5098	25773	37150
Social houses	599	420	2301	3321
% social houses	9.5%	8.2%	8.9%	8.9%
Distribution	18.1%	12.6%	69.3%	100.0%
Brisbane				
Houses	988	32419	12414	45822
Social houses	47	3822	1430	5299
% social houses	4.8%	11.8%	11.5%	11.6%
Distribution	0.9%	72.1%	27.0%	100.0%

Source: Authors' calculations

Table 12: Land availability for MT neighbourhoods: amenity access and acceptability

	Access to amenity			Acceptability		
Melbourne	Low	High	Total	Low	High	Total
Houses	45,941	10,064	56,006	32,041	23,964	56,006
Social houses	3,313	454	3,767	2,132	1,635	3,767
% social houses	7.2%	4.5%		6.7%	6.8%	
Distribution %	88%	12%	100%	56.6%	43.4%	100%
Sydney						
Houses	24,700	12,449	37,150	6,234	30,916	37,150
Social houses	2,644	677	3,321	571	2,749	3,321
% social houses	10.7%	5.4%		9.2%	8.9%	
Distribution	79.6%	20.4%	100%	17.2%	82.8%	100%
Brisbane						
Houses	43,560	2,262	45,822	24,839	20,982	45,822
social houses	5,112	186	5,299	2,748	2,551	5,299
% social houses	11.7%	8.2%		11.1%	12.2%	
Distribution	96.5%	3.5%	100%	51.9%	48.1%	100%

Source: Authors' calculations

From the data in Table 11, we can see that Brisbane (72%) and Melbourne (85%) have the majority of land parcels in medium-density zones or, more appropriately, residential zones that allow for some form of modest density increase through infill. The majority (69%) of Sydney parcels are in low-density residential zones; however, Sydney also has a significant volume (18%) in high-density zones, which could be 'planning ready' for redevelopment.

This indicates a few points. The first is that the vast majority of social stock is in low-density areas, highlighting the norm of suburban, typically detached, dwelling types in all jurisdictions. This could point to an enduring need, or demand, for this form of dwelling stock. However, it could also simply point to path dependency and the history of suburban land acquisition and development. Nevertheless, the quantum of single dwellings now under single ownership offers a pipeline of potential sites for strategic redevelopment. It is important to note that what can be achieved in terms of built form from the redevelopment of multiple housing allotments is not possible when infill projects are executed on a lot-by-lot basis (Murray, Bertram et al. 2015). Maximising the potential for social and economic uplift in low-density residential neighbourhoods would require a coordinated approach to MT housing renewal. To enable the strategic staging of MT housing and neighbourhood renewal across multiple sites in low-density single-housing contexts, a whole-of-government approach to public asset management will be needed. As well, existing planning bottlenecks for delivering higher-density outcomes in low-rise housing contexts would need to be overcome (see Section 3.4). For example, this might include localised zoning tools that enable a finer-grain distribution of different housing types and densities across a neighbourhood, or the capacity to decouple car-parking requirements from individual dwellings or housing sites.

The majority of land parcels in each city are in low-amenity areas (Table 12), with Brisbane being poorest performing at 96 per cent (Melbourne 88%, Sydney 79%), indicating that there is significant opportunity for planning-led amenity increases in these areas. As noted earlier, this could indicate a number of points. The first being that the concentration of social housing has led to negative neighbourhood effects, which is one of the social policy rationales behind the push for MT redevelopment (see Section 1.4). However, it also illustrates the potential for social housing renewal to become a catalyst for local area improvement. Where there are proportionally high volumes of housing under singular ownership, opportunities exist to affect broad-reaching and positive built form change through government investment in MT housing intensification and local place-making, which we discuss below. However, there will need to be some investment in appropriate policy formation to unlock the development potential of these sites because of planning bottlenecks. The interview findings highlight differences—both strengths and weaknesses—in how the planning systems in different states approach the density increases and affordable housing supply.

Roughly half of all areas in Melbourne and Brisbane showed market/community acceptance of apartments (Table 12), while Sydney's acceptance was significantly higher (82%), showing again that Sydney has some advantage in terms of implementation-readiness, despite the high volumes of stock in lower-density zones.

Significantly, this analysis shows that 12,378, properties over three capital cities form suitable clusters for neighbourhood redevelopment. Out of these, 8,056 properties are in zones allowing for high to modest increases in density; 6,093 properties are in apartment-ready locations; and 11,070 properties are outside of high-amenity areas and can therefore contribute to the renewal of ageing neighbourhoods, generating uplift for a pipeline of future MT developments.

While the geospatial research has focussed on four capital cities (Appendix 2), the use of ABS data, combined with statewide zoning layers, did allow for some regional analysis focussing on existing apartments that have access to large-format shops and significant public transport infrastructure. Although site visits and local knowledge would be required to validate the form of development, Figure 20 illustrates that many SA1s in rural environments have a good proportion of apartments, have access to shops, public transport and, as they are the local economic centre, most probably walkable access to a range of other services and activities.

Figure 20: Regional examples of SA1s with >10 per cent apartments and walkable access to significant public transport

Source: Authors

While this section has shown potential land availability, and some methods for evaluating its potential for MT redevelopment, it has only touched on the issue of planning approvals and the bottlenecks to housing supply it can create—which was a consistent theme in interviews and workshops, regardless of jurisdiction. Though pertinent to the discussion, a full review of how the planning systems in each state vary in terms of how density and affordable housing are located and assessed was outside the scope of this project. However, local land-use controls, and varied localised powers to avoid planning reviews will obviously have an impact, and will be an important area for future research.

By way of example, Brisbane is bifurcated into areas with higher density—for example, where Brisbane Housing Company (BHC) operates—and suburban areas with limited densities and fewer MT housing projects. Most of Brisbane precludes medium-density or higher-density housing, whereas neighbouring municipalities do allow it. By comparison, planning provisions for medium-density and high-density housing are broader in Victoria, with more discretionary powers and performance-based assessment. Outside of Neighbourhood Residential Zones, most residential and mixed zones allow for some form of housing intensification but are usually subject to a planning permit. Third party appeal processes are broad and most projects pursued by CHPs will involve public notification and negotiation. Significant delays and uncertainties are associated with planning approvals and objections, which are partly motivated by a fear of social housing and partly by a general opposition to housing development (Cook, Taylor et al. 2012).

In Queensland, 'fast-tracked' (self-approval) options to build at higher densities are available to the state housing authority, although they prefer not to use this option as it puts local councils and communities offside. Furthermore, in Queensland this mechanism for self-assessment only applies strictly to social / public housing and does not include other forms of affordable housing, including CHP housing and MT housing. (In Victoria, 'fast-tracked' approvals include CHP and MT housing.) The planning process in Queensland provides for 'code assess' and 'impact assessment' models; impact assessment involves local notification and consultation, and generally CHPs try to avoid these areas. While Victorian 'fast-tracking' allows developments with affordable housing to bypass local approval and objection processes, and instead be approved by state ministers, or under the provisions of, for example, Victoria's Big Build (Victorian Department of Transport and Planning 2023). The provisions for bypassing local notification or local assessment are broader in Victoria than in Queensland, and include any social or community housing, or being designated as an affordable housing project. To local government participants, local approval is sometimes seen as a way of negotiating for built form and neighbourhood outcomes.

New South Wales and other jurisdictions vary again in terms of planning controls, development concessions and site approvals, all of which make the definition of a universal pipeline a largely macro activity that needs to be tempered by the local planning context. It also points to the value of cross-jurisdictional comparisons of how zoning, prescriptive vs. discretionary, fast-tracking, code or impact-assessable, and other variations in planning approaches to MT housing play out with reference to how success is understood.

3.6 Summary and implications: replicable opportunities

This section analysed the 'real world' opportunities and constraints for developing a feasible and replicable MT neighbourhood model. The outcomes of the investigation point to a potential pipeline of more than 12,000 sites that have the capacity to deliver a greater diversity of MT housing outcomes in a broader range of locations compared to conventional MT development models. Some are 'development-ready' and could immediately accommodate a diversity of MT housing outcomes. Other have the capacity to contribute to longer-term renewal of low-rise suburban neighbourhoods. In all cases, a neighbourhood-based approach to MT offers potential for renewing non-residential services and amenities.

The multi-criteria spatial analyses at different scales, combined with interview findings, offer a number of lessons and opportunities for upscaling and diversifying MT housing through neighbourhood renewal, including:

- strategic asset management and approaches to public land retention
- development of localised area planning tools—for example, finer-grain density distributions and required rates of parking
- investment in amenity, services and non-residential uses to support long-term and sustainable housing change
- design quality standards.

The findings provide place-based considerations for strategic decision-making about potential MT project arrangements, which are discussed in following sections of the report. The geospatial modelling, site analysis and interviews all highlight jurisdictional differences, as well as tensions between the drivers of MT housing as a 'business as usual' case and as a longer-term investment in resilient neighbourhoods and communities. Strong government leadership will initially be needed to cohere appropriate partnerships and processes. Precedent projects outlined in Section 1.3 offer clues for how the design and delivery of a MT neighbourhood model in low-rise residential contexts might be led by government, procuring several small builders to execute strategic small-lot assemblies in a broader neighbourhood scheme (e.g. public housing renewal in Hilton WA); or led by a CHP with the development capacity to deliver a diversity of dwelling types and urban outcomes (e.g. Chadstone-Ashwood Gateway). Section 4 builds on these findings to test design and feasibility scenarios for neighbourhood-scaled renewal.

4. Design scenarios: What is a viable scale for MT neighbourhood renewal?

- **Case studies in NSW, QLD and VIC provide an overview of MT neighbourhood renewal and scale.**
- **The 'real world' scale of a MT neighbourhood adjusts to actual SHA property distributions, detailed design developments and the capacities that MT stakeholders bring to a project.**
- **A range of design scenarios demonstrate what is possible at the neighbourhood scale under different models of MT provision.**
- **Prevailing dwelling prices and land values are a key determinant of what is achievable from a MT neighbourhood. Low land value areas deliver less opportunity to leverage existing government assets to deliver affordable housing outcomes.**
- **Development feasibility modelling shows it is possible to deliver a MT neighbourhood by cross-subsidising social housing through the sale and development of existing public housing lots.**

This section envisages the potential scale and qualities of a MT neighbourhood through design scenarios executed on 'real world' SHA property distributions in QLD, NSW and VIC. The design scenarios provide a vehicle for synthesising best practices observed from:

- case study and literature reviews (Section 1)
- differing success measures identified through stakeholder interviews (Section 2)
- macro-spatial attributes emerging from geospatial analysis of existing MT schemes and place-based investigations of recurring neighbourhood conditions (Section 3).

The comparative examination of three locations illustrates the influence of different planning and market contexts, as well as recurring opportunities for:

- leveraging and connecting the location of local shops
- the location of open space and pedestrian street networks

- the decoupling of parking from dwellings.

The design research identified practical strategies for realising a viable and replicable model for MT neighbourhood renewal, which were presented for stakeholder feedback at the research validation workshops. The provided insights informed the feasibility modelling of neighbourhood-scaled MT renewal and shaped the recommended policy development options, which are discussed in Section 6. The feasibility assessment of the proposed model outlines possible approaches for cross-subsidising and procuring development, pointing to the potential for value creation that supports ongoing phases of neighbourhood renewal that offer scalar benefits for residents, MT stakeholders, local communities and broader urban actors.

The three locations selected for further testing through a design-led examination are shown in Figure 21:

1. St Marys, NSW—a model for diversifying housing provisions in strategic development precincts. Shopping and transit strip earmarked for higher-density redevelopment. The rear of the strip interfaces with adjacent residential neighbourhood, where a social housing cluster offered potential to diversify housing supply through mid-rise and low-rise typologies.
2. Mt Gravatt East, QLD—neighbourhood renewal in a low-density residential zone.
   This scenario tests how modest multi-residential dwelling types can deliver gentle increases in density while also respecting the existing qualities of pavilion housing. Moments of intensity are delivered on appropriate sites and utilising ground-level changes to ameliorate parking impacts, enhance pedestrian circulation and neighbourhood activation through the provision of fine-grain amenity services with new housing outcomes.
3. Jacana / Broadmeadows, VIC—neighbourhood renewal in a low-rise, medium-density zone. The immediate capacity to deliver a diversity of MT housing outcomes is used as a catalyst for ongoing renewal of local shops and open-space amenity.

Figure 21: Selected areas for development of MT neighbourhood design scenarios

Source: Authors

4.1 Comparative examination of MT neighbourhood scenarios

Each study area is defined as a 1km square. These are walkable extents and provide an operational scale for the development of a MT neighbourhood model. The arbitrary frames are used as an initial device for shifting between macro-spatial analysis and place-specific design studies based on simulated SHA housing clusters. The preliminary design scenarios demonstrate how infill redevelopment can be more effectively coordinated across a series of small-lot assemblies to deliver a diversity of housing outcomes, as well as offering collective benefits for the broader neighbourhood.

Identifying design potentials within the social housing clusters required an understanding of how and where social allotments came together in an overall block, and how those blocks related to the street network, open spaces and non-residential land-use patterns within the 1km^2 frame. The process identified place-based renewal opportunities, which in turn informed decisions about what types of housing and siting arrangements would be appropriate in each location. Determining neighbourhood-scaled opportunities as a starting point for housing delivery embeds a diversity of context-responsive dwelling outcomes in the proposed scenario. By comparison, the determinants of lot-by-lot infill housing are driven by building standards, and rarely extend beyond the immediate site. Different infill projects tend to result in similar outcomes. The aggregate impact of those projects is not considered in upstream planning or development decisions.

Conversely, planning controls in low-rise residential zones are typically applied at a larger urban scale. They are currently too blunt an instrument to facilitate more context-responsiveness, as proposed by a MT neighbourhood model. For instance, properties that abut large open-space reserves are subject to the same constraints as properties surrounded by neighbours on all sides. Fine-grain local area planning would be required to achieve the diversity proposed by the MT neighbourhood model.

The 1km^2 boundaries are a device for developing and comparing MT neighbourhood scenarios—they are not proposed as a hard physical boundary. The 'real world' scale of a MT neighbourhood would adjust in relation to actual SHA property distributions, detailed design developments and the capacities that MT stakeholders bring to a project. The scale may increase to amplify the advantages of working with larger urban networks or development sites further afield. Conversely, a small part of the 1km^2 might be procured by a specific MT stakeholder-group utilising medium-sized builders. As such, the design scenarios are not proposed as fixed masterplans for a neighbourhood. Rather, they are strategic assemblies of smaller scale design responses to recurring conditions within the low-rise residential fabric. The three scenarios illustrate the scalar benefits of aggregating a suite of design models at neighbourhood-scale. The following design models can be mixed-and-matched in response to different locational attributes found elsewhere or used to adapt to the changing contexts of a neighbourhood and its community needs over time.

4.2 A suite of replicable design models for MT neighbourhood renewal

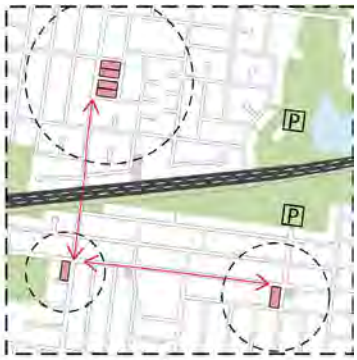
Four recurring opportunities for effective neighbourhood renewal provided the basis for the MT design scenarios locations (Figure 22–Figure 25):

1. Intensification of local shops.
2. Enhancing connectivity and increased amenity.
3. Creating a hierarchy of open spaces and pedestrianised street networks.
4. Decoupling parking.

Figure 22: Replicable design models: intensification of local shops

High Street: Grade parking along rear lane terminates at rail station. Intensification of rear interface with residential neighbourhoods. Reciprocal benefits for MT neighbourhoods. Smaller scale and more rapid delivery of MT housing offers a 2nd speed of development to high-density models.

Single node, mid block: Local shops, constrained edges. Limited direct benefits from development. Higher acceptance of mixed uses around neighbourhood centre. Fine-grain amenity + services delivered with MT housing for living locally, e.g. WFH. Gentle densification generates tertiary pedestrian networks and activation.



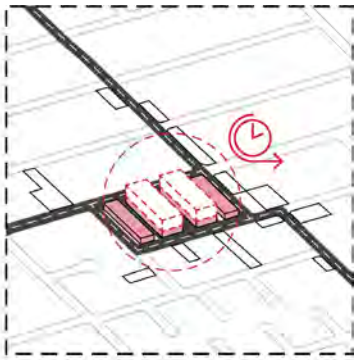
Network, end blocks: Strategic network of MT neighbourhood renewal around local shops and underutilised carparks. New hierarchy of pedestrianised tertiary streets. Local connectivity overcomes road infrastructure barriers (freeway) and poor quality open space reserves.

Source: Authors

Figure 23: Replicable design models: connectivity and increased amenity

Intermediate transit and activity node that lies between, but connected to, higher-order urban centres. MT neighbourhood model complements strategic development with a diversity of low- and mid-rise housing and works with city-scaled networks (transit, green space and industrial zones).

Car-dependent, homogenous residential island bounded by road infrastructure, large land uses and terrain changes. Low-rise MT neighbourhood responds to scale and qualities of existing pavilion housing and gardens, while increasing dwelling diversity and density.

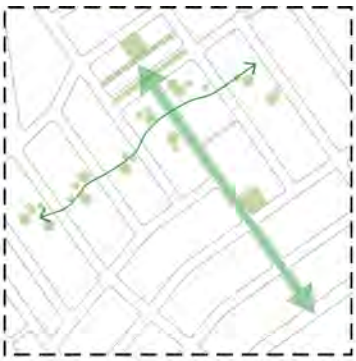


Car-dependent fabric, run-down local amenity and services. Current lot-by-lot infill restricts future renewal. Strategic infill alternatives act as catalysts for intensification of shop tops and underutilised grade parking. Diversity, public realm upgrades and uplift delivered over time.

Source: Authors

Figure 24: Replicable design models: open space and pedestrian street networks

MT neighbourhood connects and continues ecological corridors through 'green' public realm upgrades. Diversity of open spaces and amenity creates value for existing residents, the strategic development zone and MT neighbourhood alike.

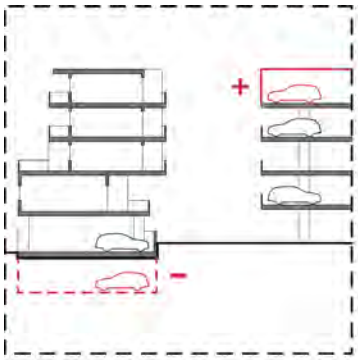


Central green spine introduces a primary 'green avenue' into existing street hierarchy. Siting and dwelling design creates a lateral network of pedestrian lanes and shared green amenity.

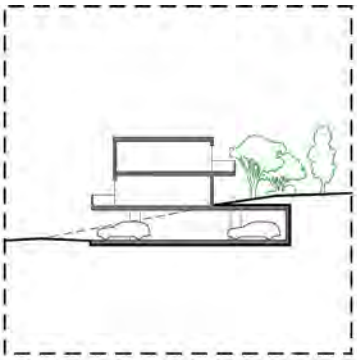
MT housing designed to enhance public realm. Front garden setbacks 'given back' to generate green streetscapes. Diversity of shared courtyards, common and public spaces connect up with existing pocket parks to create new amenity networks.

Source: Authors

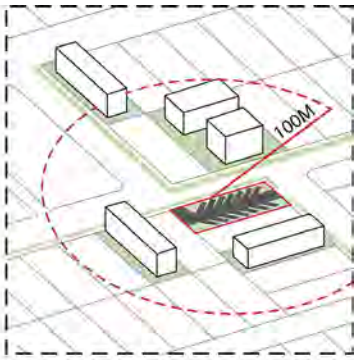
Figure 25: Replicable design models: decoupling parking



Multi-level parking planned on 'lazy' land (servicing train station). MT neighbourhood 'borrows' parking provisions enabling design flexibility, increased density and minimises need for costly basement solutions. Parking reductions allow for enhancements to common, shared and public open spaces, which is 'shared' back with strategic development zone.



Steep terrain changes conducive for 1/2 basement parking servicing broader neighbourhood. Decoupled parking frees up land on more constrained infill sites, minimising impact of vehicle circulation and prioritising pedestrian movement on ground floor plane. Compression in contours informs the distribution of dwellings in the MT neighbourhood.



Small-scale lot given over as a shared landscape with the dual purpose of parking for nearby residents. Conserves corner sites for future redevelopment for subsequent stages of renewal when neighbourhood uplift generates more favourable development conditions.

Source: Authors

Site assemblies

The design scenarios demonstrate that some sites are more valuable than others for achieving high quality built form changes. The design advantages that different site assemblies offer should be assessed relative to place-specific attributes of each neighbourhood. Generalised spatial principles include the following.

- **Corners and block ends:** the ability to access two sides of an allotment provides considerable flexibility for siting, vehicle and pedestrian circulation. Shops often bookend residential blocks, where appropriate forms of intensification at street intersections provide points of attraction and help to activate the overall neighbourhood. Rear service lanes provide the possibility for two frontages.
- **Through blocks:** back-to-back allotments provide opportunities to create shared pedestrian connections through blocks. This is particularly useful for increasing the walkability of neighbourhoods that are made up of long, uninterrupted blocks. Adding a tertiary street level to residential neighbourhoods enables the delivery of fine-grain amenity and services with housing development, which is accessible to the broader community via new 'laneways'.
- **Adjacent open space:** Local parks and reserves are often unprogrammed space and, in some instances, 'blind' edge conditions can feel unsafe for users. Appropriate design of higher-density redevelopment can increase access, activation and safety through passive surveillance.
- **Consolidated runs:** to maximise the capacity for medium-density redevelopment in typical low-rise residential neighbourhoods. In particular, the width of allotments is a key determinant of built form possibilities. For example, maximising the use of car isles for two rows of basement parking requires a width of 17.5m, whereas many residential allotments are around 15m wide.

Importantly, it is the dimensions of sites—not just area calculations—that are integral to built form operations. Reduction in frontages by as little as 500mm can make a significant difference to the arrangement of dwellings, parking, garden and circulation spaces within boundary setbacks (see 5.6 'Decoupling'). Similarly, the depth of sites can limit the use of standardised dwelling designs, requiring bespoke solutions to optimise site yields and quality (Khor, Pasman et al. 2020).

Aggregate impacts of small-scale redevelopment and staging renewal over time

Table 13 compares the development outcomes for small assemblies of social housing assets in the 1km^2 study areas in QLD, NSW and VIC respectively (also see Appendix 3). Each scenario delivers a diversity of dwelling outcomes—however, the differing yields and densities illustrate the impact of constraints imposed in each location. For example, the gentle density delivered in the QLD low-density context is 53 dwellings per hectare, compared to 77 dwellings per hectare where low-rise medium-density is possible in VIC. Nevertheless, both locations achieve similar rates of dwelling replacement. For every existing dwelling, four new dwellings were delivered in QLD (1:4), compared to 1:4.5 in VIC, which indicates that the scenario in VIC operated on smaller allotments. When the higher-intensity outcomes of NSW are considered, the average density achieved across all three areas is 77 dwellings per hectare, with a parking rate of one car per dwelling maintained.

Table 13: Development data for three design scenario

			QLD 2 apt blds 6 mansions 10 terraces		NSW 9 apt blds 4 terraces		VIC 4 apt blds 37 terraces
SHA lots		10	7,720m²	15	10,513m²	18	11,475m²
Dwelling mix	Studio			6	4%		
	1.5 BR	10	24%	44	31%	20	22%
	2 BR	18	44%	64	45%	57	63%
	3 BR	13	32%	28	20%	14	15%
	Total	41	100%	142	100%	81	100%
			53 dw/ha		135 dw/ha		77 dw/ha
Car parks	Grade	37	90%	39	27%	73	90%
	Basement	4	10%	103	73%	19	10%
	Total	41	100%	142	100%	81	100%
			1:1 cars/dw		1:1 cars/dw		1:1 cars/dw

Source: Authors' calculations.

Each scenario delivers broader benefits through neighbourhood renewal, improving the built form quality and amenity of established urban areas. The quality and desirability of MT development outcomes will have a significant impact on market acceptance for built form change. Considered design responses that ameliorate the adverse impacts of higher-density outcomes are needed. Garnering resident support for housing alternatives can be assisted by demonstrating how redevelopment gives back to the public realm, increases amenity and services, and generates uplift for the whole neighbourhood.

Figure 26 shows how the suite of replicable design models could come together in Jacana / Broadmeadows (VIC) to become more than the sum of parts. In this scenario, the network of intensification around local shops is combined with the renewal of open-space interfaces, and both are connected by a strategic selection of small-lot assemblies along 'green' pedestrian avenues. Together, the discrete 'pockets' of renewal collectively generate a new network of secondary streets that can be used to activate the primary pedestrian spines, while creating lateral connections between the residential fabric, shops and open-space reserves. The aggregation of replicable design models also introduces an economy of scale that may support other innovations, such as the use of offsite construction or the implementation of district-wide technology and resources—for example, renewable energy.

The scenario also indicates the potential to stage development. The sequence of development can be strategically leveraged to support dwelling feasibility, as well as other MT imperatives—such as the ability for residents to relocate in place when decanting is required. The potential for value creation through a strategic MT neighbourhood model fosters future possibility for private 'buy in', which could lead to more intensified use of 'lazy' land assets, more advantageous lot amalgamations, or soliciting potential partnerships with local merchants and service providers who have a vested interest in maintaining the quality of neighbourhood outcomes or could cooperatively deliver ongoing tenant and housing services.

Staging development over time presents several advantages, including the ability to expand or contract the scale of development to best leverage the capacity of different development stakeholders, or contribute to capacity building and new partnerships. Importantly, a model for MT neighbourhood renewal that is delivered over time opens up opportunities for value creation, which SHAs can capture through subsequent stages of redevelopment. Equally, the design scenario in VIC reveals which properties are less useful for delivering neighbourhood improvements, and which could potentially be divested to cross-subsidise capital works. In this sense, a design-led approach to MT neighbourhood renewal can be used to inform strategic asset management, the funding and procurement pathways for which are explored further in Section 4.3.

Figure 26: MT neighbourhood scenario: Jacana / Broadmeadows, VIC

1.5 km MT neighbourhood	m²	#lots	%
SHA lots initial stages	25,506	39	2
SHA lots future stages	250,805	342	15
SHA lots potential divestment	56,065	90	4
Potential private 'buy-in'	48,317	55	2.5
Private residential lots	984,727	1,718	76.5
Total			100

Replicable renewal models
(A) Community centre + car park
(B) Strip shops + petrol stations
(C) Strip shops / arcade
(D) Community centre + car park
(E) Strip shops

Source: Authors

4.3 Exploring the feasibility of MT neighbourhoods

Where the design scenarios demonstrate the scalar benefits that could potentially be achieved through MT neighbourhood renewal, the stakeholder interviews and validation workshops underscored the reality that realising those potentials is wholly dependent on the financial feasibility of development delivery.

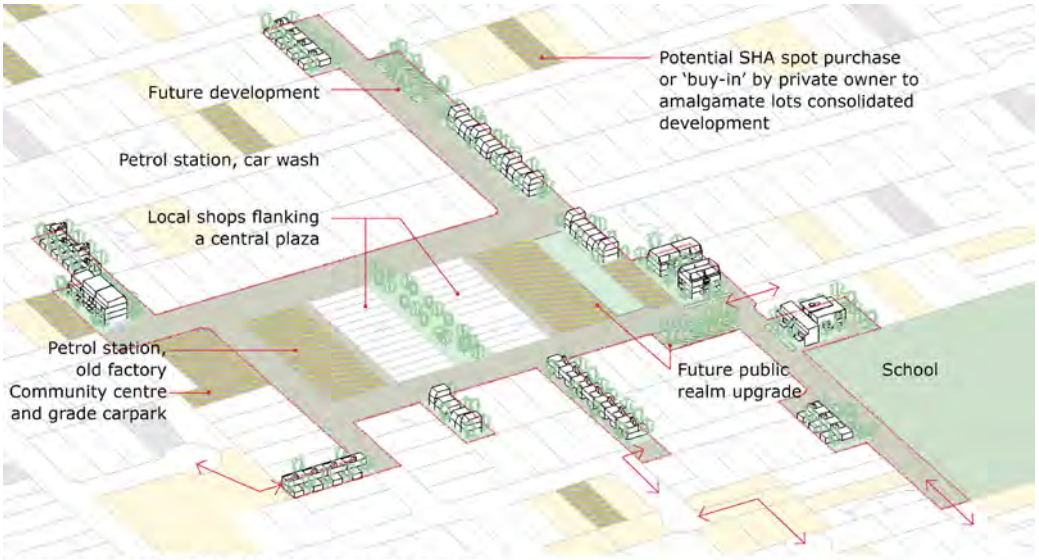
> *The problem is that success is only judged by if you deliver the built product on budget and on time (OH1)*

To examine the financial feasibility of neighbourhood-level MT development, a scenario was developed based on the design for the suburb of Broadmeadows in the City of Hume, Victoria. Using prevailing dwelling prices and industry-standard cost assumptions (see Rowley, Leishman et al. 2022), a feasibility model (Argus EstateMaster DF) was used to generate revenues and costs for a number of development scenarios based on the design shown in Figure 27.

The development site consists of 18 existing public housing lots totalling 11,476m^2. The design for the site generated a total of 91 dwellings across the 18 lots, delivering a mix of two- and three-bedroom terraced houses, and an apartment of 54 units made up of 1.5- and two-bedroom dwellings. Parking was incorporated for the houses, delivered on two consolidated lots, and for the apartments, in a basement of 1,063m^2. Open space of 4,276m^2 is incorporated across the lots and costed appropriately.

The social housing (defined as public housing and community housing units) component of the neighbourhood-based design consists of 25 of the 37 terraced houses. This delivers a net increase of seven dwellings on the existing site of 18 public housing lots; 27 per cent of the 91-unit development. The private market component comprises 12 terraced houses and the whole of the apartment development (54 dwellings).

Figure 27: Design scenario: Broadmeadows, VIC



Replicable model – local shops + small-scale infill

	#	Area (m^2)	Av. lot (m^2)
SHA allotments	18	11,475	652
Dwelling mix	#	%	
1.5BR	20	22	
2BR	57	63	
3BR	14	15	
Total	81	100	77 dw/ha
Carparks	#	%	
at grade on site	44	48	
at grade decoupled	29	32	
basement on site	19	21	
Total	81	100	1:1 carparks / dw

SHA lots future stages | SHA lots divestment | Private 'buy-in'

Building types		Gross (m^2)
Apartments	3 and 4 storeys lifted 4 buildings across 3 site consolidations (6 lots)	3,333
Terraces	2 and 3 storeys 37 dwellings across 7 allotments	3,188
Parking + driveways		
At grade	79 parking spaces on 2 dedicated lots + onsite	1,840
Basement	19 spaces w/ apartment	1,063
Landscape	41% of total site area	4,276

Source: Authors.

The prices adopted for the medium-value and high-value scenarios are shown in Table 14. There is no low-value scenario because any type of apartment development would not be financially feasible in such a market. Note: these are medium- and high-value scenarios in an outer greater city context.

Table 14: Adopted prices for feasibility analysis

	Medium value	High value
Revenue per lot	$550,000	$800,000
1.5-bed apartment	$400,000	$520,000
2-bed apartment	$420,000	$575,000
2-bed terrace	$450,000	$650,000
3-bed terrace	$500,000	$750,000

Source: Authors, using prevailing asking prices from realestate.com.au.

We model six different scenarios where the state housing authority (SHA), which owns the 18 public housing lots, adopts a different disposal or development strategy. In all cases, there is a net addition of social housing units (direct provision of public housing and provision of units by a CHP). The scenarios are:

- SHA sells lots to the private market and to a CHP at a 20 per cent discount.
- SHA sells lots to the private market and develops 25 new public housing dwellings.
- SHA sells lots to the private market, develops 17 new public housing dwellings and transfers 8 units at cost of construction to a CHP.
- SHA develops the lots, sells a proportion to the market, and keeps 25 units as public housing.
- SHA develops all the lots, sells a proportion to the private market, retains 17 units as public housing and transfers eight units to a CHP at cost of construction.
- SHA develops all the lots, sells a proportion to the private market, and transfers 25 units to a CHP at cost of construction.

The scenarios and outcomes can be seen in Table 15 and Table 16. Table 15 sets out scenarios where the SHA sells half the lots to the private market. Table 16 sees the SHA acting as the developer for the 18 lots. Under each scenario, 25 units of social housing are delivered. This may be 25 public housing units, 25 CHP dwellings, or a mix of public housing and CHP units. *In every case there are seven additional units of social housing delivered* (a 40 per cent increase) in the 18-lot development, making a total of 25 social dwellings.

The assumptions behind the model are kept simple to illustrate the potential financial outcomes of neighbourhood-scale development. These assumptions include full capital funding by state government, avoiding the need for debt finance, and full ownership of all 18 lots by the SHA. We also assume dwellings can be sold into the private market on completion, or purchased by a CHP at cost of construction (noting that numerous other potential arrangements exist). The table produces a medium-value scenario, based on prevailing values within the Broadmeadows suburb, and a high-value comparison where the same development scenarios occur but in a suburb where prevailing values are around 30 per cent higher.

In the first scenario, the SHA sells nine lots to the private market and nine lots to a CHP at a 20 per cent discount on the market value. The SHA generates revenue from the land sales, loses revenue from the land subsidy to the CHP, receiving a $7m surplus from the land sales. The discount on land delivers a subsidy to the CHP of $39,600 per dwelling and leaves just under $7m for the SHA to invest in the delivery of social housing elsewhere—potentially delivering 20 dwellings on SHA land at a cost of $360k per dwelling. This scenario potentially delivers a large net increase in social housing but relies on the CHP having funding available to deliver the units on the nine lots.

In the second scenario, the SHA again sells nine lots to the private market, but this time develops and retains 25 public housing units. The revenue from the lots sales is used to subsidise the public housing, reducing the cost per lot by $176,000, around 50 per cent. In the high-value scenario, the cross-subsidy leaves just $108,000 to deliver each unit. The cross-subsidy is therefore very effective in reducing the cost of social housing delivery, while still delivering a net increase in social housing.

Table 15: Feasibility outcomes: SHA sells nine lots to the private market

Sell nine lots to market and nine lots to CHP at 20% discount. 25 CHP dwellings delivered	Medium value	High value
Net revenue	$8,281,800	$12,046,255
Total costs (preparing site for sale)	$277,036	$277,036
Revenue lost through land subsidy	$990,000	$1,440,000
Surplus available from sales	$7,014,764	$10,329,219
Subsidy per social housing dwelling	$39,600	$57,600

Sell nine lots to market. 25 public housing units delivered by SHA	Medium value	High value
Net revenue	$4,401,000	$6,401,455
Total costs	$9,116,098	$9,116,098
Surplus/shortfall	$4,715,098	$2,714,643
Revenue available to deliver each public housing dwelling	$176,040	$256,058
Funding required per public housing dwelling	$188,604	$108,586

Sell nine lots to market. SHA develops 17 public housing units and sells eight units to a CHP at cost of construction	Medium value	High value
Net revenue	$7,145,000	$9,145,455
Total costs	$9,058,043	$9,058,043
Surplus/shortfall	-$1,913,043	$87,412
Revenue lost through land subsidy	$1,100,000	$1,600,000
Revenue available to deliver each public housing dwelling	$243,056	$448,992
Surplus per public housing dwelling	-$121,588	$84,348
Subsidy available per social housing dwelling	$15,912	$284,348

Source: Authors' calculations.

The third scenario once again sees nine units sold to the private market, with the SHA developing 25 social housing units, retaining 17 and selling eight units at the cost of construction to a CHP. In this case the SHA loses revenue, in the form of land sale proceeds, by transferring ownership of the dwellings to the CHP. The $7.1m revenue from the sale of lots and the sale of the CHP dwellings at cost, less the land subsidy, provides $243k to deliver each public dwelling, a shortfall of $121k, which would have to be funded from an alternative source. The high-value scenario provides a surplus that could be passed on to the CHP which, added to the land subsidy, provides a total potential subsidy of $284k.

Table 16: Feasibility outcomes: SHA acts as a developer

SHA develops all 91 units, sells 66 units to the market and retains 25 units as public housing	Medium value	High value
Net revenue	$24,209,945	$26,628,273
Total costs	$28,438,321	$28,438,321
Surplus/shortfall	-$4,228,376	-$1,810,048
Funding required for each public housing dwelling	$533,779	$437,046
Saving per public housing dwelling	-$169,135	-$72,402

SHA develops all 91 units, sells 66 units to the market, retains 17 units as public housing and sells eight units to CHP at cost of construction.	Medium value	High value
Net revenue	$22,552,945	$29,372,273
Total costs	$28,433,230	$28,433,230
Surplus/shortfall	-$5,880,285	$939,043
Revenue lost through land subsidy	$1,100,000	$1,600,000
Funding required for each public housing dwelling	$710,543	$309,406
Saving per public housing dwelling	-$345,899	$55,238
Subsidy available per social housing dwelling	$137,500	$200,000

SHA develops all 91 units, sells 66 units to the market and sells 25 units to CHP at cost of construction.	Medium value	High value
Net revenue	$27,550,945	$34,370,273
Total costs	$28,423,958	$28,423,958
Surplus/shortfall	-$873,013	$5,946,315
Revenue lost through land subsidy	$4,400,000	$6,400,000
Subsidy available per social housing dwelling	$141,079	$493,853

Source: Authors' calculations.

The second set of scenarios (Table 16) sees the SHA act as the developer, taking on the development of all 18 lots, selling some units to the private market and retaining others for social housing. For the medium-value location this strategy is a lot less successful than lot sales, given the balance between costs and revenues.

The first scenario sees the SHA selling all the apartments to the private market and retaining 25 of the terraced houses for public housing. For the medium-value scenario, the revenue for the SHA is over $4m below cost, requiring additional funding for delivery of the public housing units. The same is true of the high-value scenario, although the additional funding required is less.

The second scenario generates more revenue for the SHA through the sale of eight units to a CHP at cost. Although the CHP receives a subsidy through free land, the revenue for the SHA is not enough to cover delivery of the public housing units. However, the high-value scenario just about provides enough revenue to deliver a $55k saving on the delivery of each retained public housing unit.

In the third scenario, the SHA disposes of all units, 66 to the private market and 25 to a CHP, where units are sold at the cost of construction. In the medium-value scenario, the land subsidy less the shortfall between revenue and costs delivers a subsidy per CHP dwelling of $141k. The figure is much higher in the high-value scenario due to the increased sales revenues and delivers a very significant subsidy for the CHP, almost enough to cover the full cost of the unit (land plus construction).

4.4 Summary and implications: design and feasibility

This section extracted a suite of replicable design strategies for MT neighbourhood renewal from three speculative scenarios developed for St Marys (NSW), Mt Gravatt East (QLD), and Jacana / Broadmeadows (VIC) (included in Appendix 3). The comparative examination across contexts and jurisdictions illustrates the influence of different planning and market contexts, as well as recurring opportunities for leveraging and connecting the location of local shops; the location of open space and pedestrian street networks; and the decoupling of parking from dwellings. Feasibility modelling of different approaches to procuring and cross-subsidising development offers insights for:

- strategic asset management, potential MT partnership and project arrangements—including the roles of CHPs and private developers
- initial impact of land values on viability and potential for value creation from uplift over time
- scalar benefits for residents, MT stakeholders, local communities and broader urban actors.

Neighbourhood-scale development provides SHAs with opportunities to cross-subsidise social housing development, and potentially deliver other, less subsidy-intensive affordable housing products on an even greater scale. Selling lots to the private market and using the revenue to deliver higher density on neighbouring lots can help fund social housing delivery, and also deliver better quality design outcomes. Better quality outcomes will increase land values over time, enabling greater revenue generation from subsequent lot sales and greater provision of social housing.

The scenarios described in this section highlight that it is more effective, and much simpler, for the SHA to sell off lots and use the proceeds to subsidise the delivery of social housing either directly, or indirectly through CHPs. Acting as a developer adds risks and complications to the SHA and does not deliver the same level of cross-subsidy in low-value and medium-value locations. While the scenarios respond to stakeholder interviews and other sources to propose a viable model for MT-led neighbourhood-scale renewal—including investment in local amenities—more detailed developments would be needed to address other tensions and differences in how success in MT housing is understood—particularly in terms of differing views on the sale of public land.

5. How can best practices resolve barriers to successful MT development?

- **A stated ratio is a useful mechanism for all stakeholders in achieving mix.**
- **A ratio of 70:30 private to social is commonly accepted as best practice, but is often varied and increasingly including affordable private housing.**
- **CHPs are less concerned by mix, and more interested in tenants' access to services and amenity.**
- **Existing social housing represents about 20 per cent of the study areas.**

The geospatial analysis and design scenarios outlined in Section 4 were presented for stakeholder feedback during four workshops (Appendix 4):

- two in NSW, with state and local government representatives (six in total)
- one in QLD, with a range of representatives from state government agencies, CHPs and industry
- one in VIC, with state, local and CHP representatives.

The workshops were used to validate preliminary findings emerging from the multi-scalar spatial analysis and place-specific tests of the proposed MT neighbourhood model. The facilitated discussion raised key issues and processes for upscaling the diversity, frequency and quality of MT developments in each jurisdiction. This chapter considers how the 'real world' issues and processes raised during the cross-sector workshop align with the interview responses, best practice literature, case studies and policies reviewed by this research. The mixed-methods research suggests that the proposed MT neighbourhood model is both desirable and feasible, however strong leadership would be required to assemble appropriate stakeholders and shift BAU expectations about land assembly, financing, infrastructure, housing design and delivery processes. The outcomes point to a substantial pipeline of potential projects that have the capacity to deliver a greater diversity of MT housing outcomes in a broader range of locations when compared to conventional MT development models. The findings offer place-based considerations for strategic decision-making about potential MT project arrangements, discussed in later sections of this report.

5.1 Reconsidering the 70:30 ratio

Outcomes from the workshops suggest that the 70:30 split for MT is a commonly considered standard, but no supporting evidence could be identified. Sydney respondents stated that the divide concerns the distinction between social housing and 'everything else', where 'everything else' could be affordable or other types of housing the funding body was not concerned with. Brisbane respondents stated that ratios were more determined by the needs basis of the clients, and Melbourne respondents indicated that at least one recent development had a 50:50 split and was considered successful by the industry.

Darcy and Rogers (2019) trace the 70:30 ratio back to the Bonnyrigg suburban expansion in NSW (early 2000s) and similarly found that social-mixing outcomes was not a determinant of decision-making. Today, the renewal of broadacre public housing estates commit to no net loss of social housing, with an allocation of around 5–10 per cent supply. Meeting these targets does not preclude social tenants being accommodated elsewhere. At the other end of the spectrum, small-scale projects delivered by CHPs are frequently 100 per cent social. When there is an ability to manage tenant allocations, outcomes are still considered successful.

Increasingly, affordable housing units constitute a third bracket in MT projects. The representatives we interviewed operate in a wide range, from 10 per cent market, 45 per cent affordable, and 45 per cent social housing (CHP3), to 20:40:40 (CHP3) and 30/50/20 (OH6). Where MT development is pursued to subsidise public housing, the range is between 20 and 50 per cent (CHP5) with 30 per cent (SG2) to 40 per cent (CHP4) social housing emerging as the common ratio.

Our spatial examination (see Section 3.5) revealed that social housing clusters commonly form around 20 per cent of a 1km^2 area. The model for MT neighbourhood has flexibility to adopt a variable ratio, responding to the development scale, stakeholders involved and procurement processes pursued. Renewal of the low-rise residential fabric has build capacity in the CHP sector, and may include 100 per cent social buildings with the necessary support armatures considered at neighbourhood scale. Or an average rate might be applied across the neighbourhood extent, and distributed in response to place-based concerns. Reflecting on earlier stakeholder interviews, design quality and 'tenure blindness' allowing movement (of dwellings and of residents) between different affordable and market tenures may be longer lasting than a defined mix—although this presumes large-scale ownership and management by CHPs or SHAs.

5.2 Dwelling diversity and tenant mix

Social mixing done well can influence cultural and social cohesion by opening up communities—via dilution, dispersion or dispersal—however, broader changes at the neighbourhood and societal level are thought to have a much stronger impact on social mobility (Galster, Andersson et al. 2008).

Studies of the redevelopment of large social housing estates (dilution) have shown that social capital is lost by dispersing and relocating established communities and the mutual support networks they offer. Often criticised as state-sponsored gentrification, the MT developments built in their place can lack the urban village features of concentrated communities where residents share similar outlooks and challenges (Capp, Porter et al. 2021). Refurbishing and expanding on existing social housing estates avoids this sudden break to social fabric yet adds a socio-economically diverse mix to the neighbourhood if it follows the MT approach. Furthermore, interviewees for this project concurred that MT development is increasingly becoming a vehicle to transfer tenant and asset management to CHPs.

There was general agreement from workshop attendees that housing diversity was a critical focus for future developments—particularly for client housing through the life cycle and for age-in-place solutions. Tenant mix was, again, deemed to be related to the level of client needs (high or low) more than an outright volume.

5.3 Community and neighbourhood-scale considerations

Better housing conditions and a sense of safety have been found to significantly improve community attachment, participation rates and social involvement, regardless of the housing being public, social or private (Chang, Chen et al. 2020). Mixed housing with a diverse population in higher-density designs makes it more likely that services can be supported within active transport distance. Safe, well-connected movement networks—in other words, streets, roads and paths—that integrate with public transport and local destinations offer opportunities for physical activity (National Heart Foundation of Australia 2020). However, the higher the income, the less likely residents are to engage with their local community, possibly because they have more choices and are spatially more mobile with their social contacts. Central squares and plazas, small open spaces, playgrounds and well-connected buildings increase social interaction, and resident wellbeing can be increased by green spaces, community facilities, libraries, pools and gyms. Even online communities, the placement of roads and pathways within the precinct, and the provision of ground-level parking rather than underground garages have been found to increase social relations (Gu 2020).

Workshop discussion on community considerations covered three aspects:

- the community of client residents
- the existing community of public and private residents as a voice for or against development
- community as users of future neighbourhood infrastructure.

In terms of the community of clients, while it was understood by all attendees that decanting clients was one of the most critical issues in terms of redevelopment, and that redevelopment can lead to the dissolution of existing communities, some workshop attendees stated that an overt focus on decanting hampered much needed redevelopment projects, while others stated that it was critical to consider rehousing within the existing community catchment if feasible, which neighbourhood regeneration could assist with.

Regarding the current community as both existing and future residents, the workshops were unified in their calls for community consultation on change and potentially the need for community co-design for large, neighbourhood-scale redevelopment projects and the necessity of neighbourhood plans and master plans. Furthermore, in jurisdictions where development concessions are allowed through relaxing planning controls (NSW), the additional massing can lead to poor design quality, reducing amenity and fuelling community-led resistance. As to the feasibility of built form co-benefit—that is, additional site-adjacent amenity—there were comments that with additional social dwellings comes the possibility of reduced local amenity, as non-housing elements may be a greater financial burden due to reduced income—effectively a ‘loss leader’ for urban regeneration now, that will only show benefit in the future.

5.4 Partnerships

Partnerships in MT projects happen on different scales and between multiple actors. When looking at the neighbourhood level, developers, governments and housing providers are engaged in a dialogue rather than service delivery. An existing neighbourhood with its established services and CHPs offers a framework for developers to build upon, while developers can enrich the neighbourhood through public spaces, access to new facilities, and work with housing providers to offer additional community services. Parking often serves as a catalyst to start collaboration, as it is usually a ‘hot-button’ topic and is discussed early on in the planning stages.

CHPs can open their services and spaces to the neighbourhood and work together for a more effective service delivery (CHP5, CHP 8, OH1). This practice could be formalised when setting up projects as a council planning requirement to improve the whole neighbourhood. A collective development approach is harder to set up, but more effective in the long run. Overseas examples prove that partnerships between developers, builders and community organisations are most successful when set up early, formalised, and steered by a diverse oversight body (Franz and Gruber 2018; Texier-Ast 2018). Participating future tenants, neighbourhood groups, and owners (directly or through representatives) can impact the quality of the development, embed it into existing social structures, and improve the whole area (more than housing 2017; Palm and Whitzman 2018). In Europe, recent large-scale residential development projects are designed to fit into existing neighbourhoods or to create a whole neighbourhood complete with a town centre, amenities and infrastructure from scratch (Weder di Mauro 2018).

The scale of a development impacts the type and nature of partnerships. Smaller projects can be delivered independently by CHPs, mid-sized developments usually require a partnership with industry or public housing bodies, and larger estates mostly rely on all three parties working together. In particular, the redevelopment of large housing projects is commonly realised with private developers building under council guidelines that were negotiated with CHPs, and focus on uplifting the whole neighbourhood—in some cases (SG2, SG3) re-imagining the area to overcome the bad reputation and upgrade the surrounding infrastructure to make it attractive for investors, buyers and affluent tenants. A valuable lesson from Canada (OH6; Pearl and Wentz 2015) shows that demolishing the existing structures isn't necessarily the best way forward, as refurbishing with infill and additional storeys is seen as more cost-effective, less disruptive and more sustainable.

In our interviews, one academic (OH1) said that state governments are keen on maximising financial benefits from their assets, rather than thinking about what's best for the community, and that the re-use of social housing sites and public land might be more of a driver for governments to use MT models than a social agenda. Local government participants had similar concerns:

> *It's a formula in which developers can still make a lot of money out of it but at no cost to government, and I think that's what is driving the percentages of public and private housing. (LG5)*

> *The actual decision-making is a mystery wrapped in a paradox but you can deduce that the uplift [in land value] is matching the private money of the financial investment. (LG1)*

Affordable, social and environmental housing options are highly sought after, with corporate social responsibility being a key demand from investors (van Bortel, Gruis et al. 2019). Industry willingness to partner with government, community housing organisations and mixed ownership associations is at an all-time high, opening doors to new partnerships that can build capacity and deliver what the market demands. Community and NFP housing providers are increasingly cross-subsidising their efforts with commercial practices, while private and social enterprises are looking to offer affordable housing (Blessing 2012; Mullins, Milligan et al. 2018). Working in tandem with private housing corporations triggers a knowledge transfer across the sector, elevates environmental, social and design standards, and creates training and employment options. The 'needs assessments' of housing advocates have been proven to be a good basis for policy development (Palm and Whitzman 2019). There is an opportunity for local, state and federal governments to shape these emerging collaborations through:

- strong regulation and policy frameworks
- firm commitment to social housing subsidies
- long-term strategies that lay out goals, requirements and delivery mechanisms.

The current distribution of bespoke and complex MT projects, while innovative in many respects, is a product of a shorter-term and less predictable framework.

Building this hybrid housing system on the basis of land leases rather than the selling of public land, along with strict tender processes and longitudinal oversight, can minimise the financial and reputational risks for the government. However, the situation for Australian CHPs means that ground leases can be less appealing or less viable, as they do not contribute to lending capacity or long-term growth of the CHPs. Funding social housing through availability payments, ongoing subsidies and set targets would create a market for long-term investment—much like the government's approach to infrastructure projects (see Section 5.5 below).

Outcomes from the workshops supported these statements and the broad need for the social housing industry to work with the market to a greater degree and, significantly, to have supporting policy, tools and legislation to lead this. While large consortia can deliver alternative and complex funding arrangements, these are bespoke solutions to specific sites, taking time and political will to deliver partnerships that are often beyond the capacity of smaller developments and absolutely not within the realm of more typical, mundane, developments (as discussed in earlier sections).

MT development usually requires multi-partnerships models. Neighbourhood-scale redevelopment would—through the diverse land ownership and responsibility across the neighbourhood—require a special partnership model, which would need vertical alignment across governments and a horizontal alignment across government, market and community sectors. As local governments are key players in planning and approvals, and often seen as a delivery bottleneck (from planning and coal-face political functions), this could be an ideal partnership to deliver housing and local infrastructure—particularly if state and local councils could work together to create greater levels of stakeholder trust (which is seen as lacking between state and local planning in NSW and VIC), or work across council regions to deliver state priorities. Discussions at the different workshops reflected variations by state in terms of the degrees of certainty or flexibility in planning processes for affordable housing or higher-density housing. In Queensland, zoning that restricts higher-density housing and that only 'fast tracks' public housing frames discussion. In Victoria, zoning is more flexible and fast-tracking can apply to community and MT housing, but uncertainty and local opposition are concerns.

5.5 Financing and delivery considerations

Flexible financing strategies and supporting policies with strong government involvement are key to developing, facilitating and renewing MT housing (Pinnegar, Wiesel et al. 2011). A MT neighbourhood model offers potential to build a hybrid housing system with a flexible range of financing, asset management and partnership arrangements (Section 5.4). The strong appetite across the industry to work together, along with the money available from the investment sector—including superannuation funds and private investors willing to accept lower returns in order to contribute to affordable housing—can be tapped by providing a consistent system with reliable long-term models rather than shifting programs and policies. The finance sector in particular is looking to make a contribution within a strategic asset allocation, but requires confidence, outcomes and security to engage in risk allocation and develop a capital market. Robust operators are needed to take financial responsibility. Future investment relies on private industry rather than the community sector, although both groups working in tandem to achieve scale and capacity would alleviate more risks and promise more resilient solutions (Benedict, Gurran et al. 2022).

The Brisbane and Melbourne workshops were particularly vocal about the need for greater guidance in the financing arena—particularly for small-scale and medium-scale development, and spoke to the need for policy, legislation and tools that could support their engagement with the market. Workshop attendees were broadly frustrated with:

- existing policy that failed to effectively link them to funding sources or was restrictive or opaque about implementation processes
- lack of policy and legislation in areas that were needed to drive better co-funding models.

As such, there is a need for replicable models that engage medium-scale developers more effectively. More direct statements on financing suggested that:

- the funder sets the agenda and the types of dwelling achieved more often than not
- liquidity is an issue for most small-scale and medium-scale builders
- the medium-scale sector needs developing to provide more effective infill solutions.

5.6 Decoupling

Decoupling car parking from dwellings

From the interviews and grey literature, all MT providers seek to lower the upfront cost of parking by 'decoupling' car parking from individual housing units. Larger CHPs manage car parking separately from dwellings in terms of physical design, legal titling and ongoing management. Tenants either apply for car parking or are allocated a parking space based on their needs. In some cases, affordable housing tenants are charged a small additional rental for the parking space ($10–$20 per month). In other cases, the car park is included in rental. Basement parking adds around $100,000 per space to construction costs and is rarely made feasible by the small rental for parking typically paid by tenants.

Stakeholder interviews indicated that the rate of onsite car parking typically required by zoning and associated planning approval processes is higher than car ownership / demand in MT dwellings, and involves significant costs and design impacts. Rather than allocating site-by-site car parking specifically for individual dwellings, consolidating car parks (either in basements, podiums, or at-grade) is accepted in MT apartment developments for market-rate, affordable and social tenants. However, CHPs also decouple parking in smaller townhouse or other low-rise developments, with a preference for parking to be designed as usable open space, or adaptable spaces that allow for alternative future uses (CHP7, OH4, OH5). Reducing the amount of car parking—for example, from two spaces per dwelling to 0.5 per dwelling—and locating the spaces centrally, can reduce street crossovers and increase open space and housing space. The findings add to existing literature arguing that minimum car parking requirements are too high, including for MT housing. In MT developments, lower rates still meet observed resident use patterns, and can facilitate better housing and urban design outcomes.

Most participants agreed that MT developments work, and are often only feasible with lower car parking rates than those specified in state and local planning schemes. CHP parking allowances are about 0.75 of the rate typically required, representing averages of between 0.3 to one space per dwelling and varying with location (CHP3, CHP6). Sites next to transport hubs or in the CBD might not get any parking, or are allocated a maximum 0.3 space per dwelling. As accessibility decreases, higher rates of parking are provided, up to one space per dwelling for regional sites (CHP3).

By contrast, planning schemes in Victoria specify a minimum of one to two spaces per dwelling, plus visitor parking. In Queensland, two spaces per dwelling are required. In some states, parking reductions for affordable and MT housing are accepted in planning practice through discretionary guidelines—although this is not based on clear evidence of rates of use. Meeting minimum requirements is rarely feasible or desirable for MT developments, and negotiating lower parking provision is a challenge (CHP5). Several participants reported engaging in extensive negotiations or relying on dispensations for social housing projects via ministerial approvals. CHP parking ratios are based on experience and ongoing surveys of occupancy and tenant preferences, which are used to support dispensation requests (CHP4).

SHAs routinely provide parking at a lower rate than planning requirements, but emphasise the importance of visitor parking when this occurs (SG2). Aging residents in particular need parking for visitors (SG2), and for servicing (SG3). CHP, state and local government interviewees all thought that lower parking rates seemed to be meeting tenant demand. However, relatively few interviewees supported MT buildings without any onsite car parking. Even if well serviced, MT buildings with no parking limits tenant suitability to those without cars, and can be difficult to lease (CHP2, CHP7, CHP8). Several CHP interviewees reinforced the importance of cars, and access to car parking spaces, to affordable housing tenants who work in areas with poor public transport access, as well as for reasons of perceived security.

> *There is a common misconception that social housing tenants don't need cars or want cars. We learned fairly early on from one of the more experienced housing officers here that actually tenant's cars are often their fallback housing solution […], their safe place to sleep. (CHP6)*

Higher rates of parking and dwellings designed with integrated parking were only considered important for sales to private market, which is a challenge when cross-subsidy through sale is required. However, an increasing use of on-demand transport and car-share services in co-housing is consistent with recent research into housing preferences, recommending lowered parking requirements to support housing affordability and better design outcomes for medium-density housing (Infrastructure Victoria 2023). In co-operative and other deliberative design projects, decoupling cars and housing is considered a major component in enabling better quality design in each development (OH7).

The advantages of providing fewer and consolidated parking spaces include:

- reduced construction cost
- more space for housing and other uses—critical to feasibility and design
- closer match to tenant needs.

In design terms, consolidated parking allows more careful landscaping of the other parts of a site. The capacity to reduce crossovers (driveways) is also valued. It frees up some on-street car parking through reduced crossovers, and creates more open space with shady trees, stormwater capture and re-use for the community to invite informal congregation (SG3). Local governments also sometimes prefer lower and consolidated car parking in order to increase green spaces; this is done on a site-by-site basis (LG3, LG4).

The findings of established practices by affordable housing providers support this need for lower ratios of parking provision—but also underscore the importance of consolidating, decoupling and design emphasis on parking provision to enable parking to work at the building and neighbourhood scale. The findings also reflect research that the rate of car ownership and parking use in Australia is lower than required by planning schemes, even for market-rate housing, and could be managed at lower rates, especially if decoupling approaches are used (De Gruyter, Hooper et al. 2023).

Decoupling buildings from land

Models of separating dwellings or buildings from land are emerging, but participants reported conflicting viewpoints on whether and how these might work for MT housing. Land is about 15 per cent of total project cost, although this is lowering now as construction prices have increased by 40 per cent (CHP1), making other kinds of upfront capital funding more important (CHP5). Access to land can be crucial to making projects viable, and participants pointed to a range of approaches to avoiding or lowering the upfront cost of land.

Having land free does open up the feasibility of many models. However, a trade-off is that many CHPs and co-ops often need land as an asset to borrow against to finance housing construction and operation. Another trade-off is that as these models are emerging, there have so far been lengthy and uncertain processes.

In one case, the legal diligence on the use of a site—which was land above a council car park—was uncertain, problematic and lengthy. The project proved costly and uncertain due in part to due diligence issues (ground contamination) (CHP8), making the argument that co-operative MT models would benefit from 'de-risked' land. There were also requirements to demolish the housing at the end of 40 years, and tight restrictions on the use of car parking by tenants. Ultimately the length and uncertainty of negotiations offset the advantages of the land itself (CHP8), and while council gifts of land are useful (OH2), buying land privately speeds up the development process (OH2).

> *Ownership is always more beneficial because it provides that ongoing security and the ability to leverage the value of that land to do more. (CHP6)*

To retain the land and buildings for future options, long-term lease models are increasingly preferred by state governments (SG1). There is also a political emphasis on avoiding the sale of public land. As a result, 'ground-lease' practices are emerging in Victoria—but are largely untested in other states. An interviewee provided the example of a CHP granting a 49-year lease for private BtR developers on their land if they also built social and affordable housing there that they keep after the lease expires (SG2). However, as with gifted land, although ground leases are a way towards more affordable housing, there will be a struggle with financing as owners will not have the security of owning the land, making it harder to get loans. Government could be a broker that underwrites those loans (SG3). Regardless, some participants pointed to the value of home ownership without a land parcel attached:

> *I'd like to see someone go down the path of trying to have home ownership on leasehold property. I think it will create a new price point and a new class of housing. (SG1)*

In the face of constant suburban change, where timely and affordable reconfigurable housing is required, some interviews also pointed to decoupling building from delivery, calling for modern construction projects to streamline and normalise offsite and other new methods, 'with the key aim of trying to decouple the delivery of product from the delivery of land' (SG3).

5.7 Considerations for neighbourhood-scaled tenure mix

Findings from case studies and qualitative work suggest there is no optimal dwelling and tenure mix for MT development. The mix is dependent on a range of factors related to funding, land, existing tenants, management and maintenance costs and prevailing dwelling prices, with an emphasis on financial and supply imperatives. A 70:30 mix where 70 per cent of housing is sold at market rate, and 30 per cent sold at a discount to CHPs is broadly accepted as best practice (Bailey and Manzi 2008; Darcy and Rogers 2019; Read and Sanderford 2017). However, there is little evidence that clearly links the benchmark to how success is understood or practically achieved within a development.

The literature and case studies, as well as our findings from interviews and workshops, show how different developments have delivered a variety of successful outcomes, regardless of mix (Schwartz 2012). While the nomination of affordable and social housing ratios is a useful tool for aligning stakeholder expectations, some scholars consider the benefits of tenure mix to be short-lived, compared to the longer-lasting issues of maintenance, community amenity and basic design quality (Stubbs, Storer et al. 2017).

Table 17 highlights the relationship of tenure mix to other key considerations for stakeholders involved in MT development delivery (refer also to Tables 8—10). Stakeholder objectives, such as maximising social housing units, should be considered in parallel to opportunities for tenant transitions within the neighbourhood or broader tenant-driven outcomes.

Table 17: Considerations in MT housing

Factor	Consideration
Tenure mix: mix of private sector and affordable housing dwellings	• Available funding for affordable housing • Prevailing prices and land values in the local area • Private sector returns from development (sale, rental) • Local housing need • Existing social housing in the area • Pepper-potted or consolidated tenures • Revenue generated from affordable housing dwellings • Tenure-blind options to allow tenant transition between local products
Maintenance: for new social housing dwellings and community infrastructure	• Ongoing funding required for the maintenance of dwellings • Ongoing funding required for the maintenance of community infrastructure such as shared spaces and open space • Revenue generated from affordable housing dwellings
Management: cost of managing social housing units	• Ongoing funding required for social housing management • Provision of onsite tenant support services • Pepper-potted or consolidated tenures • Revenue generated from affordable housing dwellings
Community retention: existing social housing tenants	• Decanting social housing tenants during redevelopment: opt-in, and extent of rehousing options available • Matching new social housing dwelling types with existing tenant need • Provision of community facilities to enhance social outcomes
Building design: dwelling structure and quality	• Private sector dwellings meeting SHA/CHP design standards • Private and affordable housing indistinguishable to avoid stigma • Housing diversity: range of dwelling products to meet need • Dwelling yield objectives: maximise units or other objective • Available funding for affordable housing • Pepper-potted or consolidated tenures
Parking	• Parking requirements suitable for dwelling mix / location / car ownership and use • Parking linked to dwellings or decoupled, with provision in dedicated areas and separately rented or sold • Reduced parking provision (relative to zoning requirements) to accommodate higher dwelling yield or landscaping
Alternative tenure models: provision of dwellings outside traditional tenures	• Options for alternative tenure products within MT neighbourhoods, including shared equity, co-operative housing, etc.
Funding: for social housing and other affordable housing dwellings	• Availability of capital funding for CHPs • Sources of funding • Ability to cross-subsidise provision through sale of SHA assets • Mix of affordable housing products and depth of subsidy required • Prevailing prices and land values in the local area • Revenue generated from affordable housing dwellings

Factor	Consideration
Land: ownership and planning	• Land ownership within neighbourhood: public vs. private • Local zoning determining dwelling yield • Prevailing prices and land values in the local area • Mix of private and public ownership • Government policy on asset retention • Ground leases vs. land sale • Ability to cross-subsidise provision through sale of SHA assets
Amenities: suitability of local area for MT	• Walkability of neighbourhood • Access to open space • Access to local services and amenities, at a metropolitan scale, or baseline level • Access to employment opportunities

Source: Weighted analysis of stakeholder interviews summarised by the authors into common themes.

6. Policy development options

This study examined expanded opportunities for, and benefits of, MT development in Australia. For the purposes of this research, MT development is defined as housing projects that leverage existing public land assets, although interviews and document analyses also refer comparatively to other models of MT such as inclusionary zoning in developments on private land that include an element of affordable housing. The investigation was guided by two overarching research questions:

1. What are the measures of success in MT developments?
2. What opportunities exist to replicate successful MT developments at a neighbourhood scale?

6.1 Common national challenges and place-specific opportunities

Increasing the diversity and volume of successful MT outcomes in established urban areas is a common national challenge. In the current funding context, a replicable and distributed model for MT neighbourhoods is timely. Before moving on to our key findings, in the paragraphs below we provide a brief summary addressing each of the questions posed by the five main chapters in the report.

Why does Australia need a model for MT neighbourhoods?

Rationales for MT projects vary, typically along economic or sociological lines. As such, an exploration of the drivers of MT development is required, as well as an understanding of how these drivers map to real world Australian examples. The volume of small public landholdings in established suburbs, and the need for increased suburban amenity, makes the utilisation of these assets critical for long-term outcomes. However, small- to medium-scale redevelopment at the neighbourhood level is complex, requiring a new form of regenerative planning. This necessitates a scalable, replicable and cross-jurisdictional model that effectively leverages government land assets and delivers a variety of dwelling tenures, establishing a local area housing continuum.

How is success measured for MT developments?

MT success is measured in different ways by different stakeholders across factors such as service delivery, community acceptance, profitability, net housing gain, tenant outcomes and long-term strategic objectives. The report outlines the plurality of scales of success and delivers a consolidated perspective of local and international MT project success that can be used for measuring project outcomes and benchmarking future MT planning and development.

Where can MT neighbourhoods be delivered?

MT projects are typically capital-city centred, making use of established market acceptance of higher-density living and the associated greater access to the services that urban living provides. However, evidence is emerging of MT developments occurring at considerable distance to the CBD, led by land availability, transit-oriented developments, regeneration policies and other phenomena. This, and the research focus on neighbourhood regeneration, requires an understanding of what factors drive financial feasibility for private sector stakeholders and maximise the potential for leveraging government-owned land. Existing areas of high social housing density and 'lazy' government land, with the potential to grow or establish local areas of amenity, offer prime locations for neighbourhood-scale projects. Additionally, local planning frameworks that allow for a mix of medium-density and high-density housing provide the potential for the neighbourhood to deliver housing diversity and cater for a range of housing needs.

What is a viable scale for MT neighbourhood renewal?

Case studies in NSW, QLD and VIC provide an overview of MT neighbourhood renewal and scale. The 'real world' scale of a MT neighbourhood adjusts to actual SHA property distributions, detailed design developments and the capacities that MT stakeholders bring to a project. A range of design scenarios demonstrate what is possible at the neighbourhood scale under different models of MT provision. Maximising local amenities and delivering initial projects that catalyse future developments are key.

Prevailing dwelling prices and land values are a key determinant of what is achievable from a MT neighbourhood. Low land value areas deliver less opportunity to leverage existing government assets to deliver affordable housing outcomes. Development-feasibility modelling shows it is possible to deliver a MT neighbourhood by cross-subsidising social housing through the sale and development of existing public housing lots. The range of scenarios presented show the most effective way for government to maximise the affordable housing element in areas of medium to high value is to sell a proportion of the local assets to the private sector and use the revenue to fund CHPs in the delivery of social housing. Such a model increases the net number of affordable housing dwellings within the MT neighbourhood.

How can best practices resolve barriers to successful MT development?

An industry standard of 70:30 split (private/public) housing exists for MT developments. Extensive research failed to uncover any rationale for this standard which is, on the whole, consistent with real world developments. Significant variation occurs depending on an array of contexts, including partnership arrangement, social mix, funding organisation, land development models and, critically, the stakeholder outcomes required from the development. The optimal mix is therefore dependent on the objectives of the various stakeholders in the MT neighbourhood and a variety of other factors, such as available capital funding, prevailing prices and land values, tenant profiles and the local planning context.

6.2 Key findings

The mixed-methods investigation undertaken in this project brought together academic research with practice-based knowledge to envision and test 'real world' scenarios for MT neighbourhood renewal. The integration of traditional and practice-based research underscores the importance of this policy issue, highlighting both the need and complexity of diversifying and upscaling MT housing delivery in Australia. The study identified a number of key findings that should be considered by those undertaking future MT development:

- Adopting a whole-of-life approach to buildings and communities is necessary within a MT neighbourhood development—typically 40 years, but at least 20 years. Maintenance and management costs are therefore a key consideration in the type, design and location of affordable dwellings.

- The developer, their objectives and attitude to MT projects contributes greatly to what works in a MT neighbourhood development. Factors to consider include the dwelling type, finance requirements—for example, presales—extent of infrastructure provision including open space, the timing of the development, mix of private and affordable units.
- Development quality in private dwellings is not always high enough for social housing standards. This can result in an outcome where the social housing dwellings are distinct from those delivered by the private sector and can lead to a value impact.
- Current funding models necessitate 'bespoke' and complex funding processes, often through philanthropic sources combined with land value cross-subsidy models and any other source of capital funding available, e.g. National Housing Finance and Investment Corporation (NHFIC). The availability of capital funding will determine the dwelling and tenure mix the development can sustain.
- Community spaces, place-making, connected networks (buildings, sites and centres), rentable spaces, and sometimes onsite services are integral in the longer-term success of a MT neighbourhood. For stakeholders involved in ongoing management of units within MT neighbourhoods, onsite amenities and non-residential uses are important, as they can improve tenant outcomes.
- The 70:30 private to affordable housing ratio is not always appropriate. The appropriate tenure mix is dependent upon funding, tenant types and the role of the private sector. Each tenure and mix type has different benefits and cross-subsidy implications. The mix of housing should be determined after careful consideration of the factors listed in this section.
- Pepper-potting of affordable housing through separately owned and managed whole floors or buildings is often preferred by CHPs in MT neighbourhoods. Considerations include the dwelling type, management costs and tenant mix.
- There are opportunities to deliver MT at lower densities and scales—for example, townhouses, apartments in detached house footprints, and low-rise apartments. Increasing dwelling diversity benefits both the private and public elements of the development. A shortage of one- and two-bedroom social-housing dwellings across the country means that apartment developments as part of MT could help address some of this need.
- Neighbourhood-scale development provides SHAs with opportunities to cross-subsidise social housing development, and potentially deliver other, less subsidy-intensive affordable housing products on a greater scale. Social housing is not always appropriate in MT developments and other affordable housing products, such as below-market-rental; shared-equity products could deliver affordable housing supply where social housing will not work or there is a lack of capital funding.
- Car parking requirements impact costs, feasibility and design of MT housing. Careful consideration of parking requirements is a major element of MT design and can deliver higher quality design outcomes.
- Access to land is an important factor but, particularly in the context of increased construction costs and uncertainties, is only one component of the feasible delivery of MT housing.
- The direct subsidy required for MT development increases with lower-value land sites and more subsidy-intensive affordable housing products. There is almost always a capital shortfall and a source of capital funding required for MT development, unless sufficient revenue can be generated from the sale of existing high-value SHA assets within the development.
- The lack of a consistent national definition of affordable housing inhibited an 'apples for apples' examination of comparative MT case studies, finance arrangements and success measures. NHFIC should adopt a single definition that can then be adopted by government, the private sector and NFP sectors.

6.3 Policy development options

The findings from the cross-sector study recognise the place-based nature of MT housing in Australia, and the complex range of inputs needed to increase its quality, diversity and distribution. Reflecting the complexity and responsiveness to project-specific considerations, this investigation offers a multi-criteria assessment of the benefits and constraints associated with MT neighbourhood renewal on small-scale public landholdings for a variety stakeholders. The interrelated set of inputs and processes are summarised in Table 18. The three key success factors are:

- establishing appropriating dwelling and tenure mixes
- delivering appropriate built form outcomes through context-responsive design
- facilitating effective and replicable MT development through planning, land assembly and funding.

Table 18: Considerations for policy development

Consideration	Policy options
Dwelling / tenure mix	• Australia should adopt a consistent definition of 'affordable housing'. • Social housing is not the only type of affordable housing product that works within a MT development. Government should look to integrate different affordable housing products to deliver tenure diversity and address needs across the lower end of the housing continuum. • MT developments should consider tenure-blind, mixed-income developments where tenants can shift between different subsidised or market housing forms. This allows tenants to transition out of social housing while remaining in their community. • Increasing the social housing stock will provide more options for decanting existing tenants while areas are redeveloped for MT housing. Existing tenants should not be a barrier to MT development and strategies should be put in place as early as possible to enable transitions. • Stakeholders should reconsider the 70:30 ratio as a benchmark. The 70:30 ratio is based on a particular role for private developers but is less relevant for other forms of MT. The mix should be determined by the scheme itself, including available funding, the land-value extraction available from existing SHA assets, local area needs and ongoing management and maintenance costs.
Built form and design	• Private housing in MT neighbourhoods should conform to SHA/CHP design standards. This will help make tenures indistinguishable from each other. In many respects the challenge is improving the design and liveability of privately built housing, particularly at higher densities. • For stakeholders involved in ongoing management of units within MT neighbourhoods, onsite amenities and non-residential uses are important. These are also important from a planning perspective and should be an integral part of MT neighbourhoods. • Funding models should always consider onsite maintenance and other support services, given the 20–40 year operational span of such developments. • Parking is a housing diversity issue. Standard parking requirements are higher than MT use patterns, presenting a cost impost and impacting on yield, sustainability (e.g. permeable surfaces) and street quality. Literature and stakeholder feedback indicate lower rates of parking, along with siting and management alternatives, can better meet resident needs. • Planning processes should be put in place to normalise and enable (legally and physically) decoupled car parking at lower rates than normally prescribed in planning schemes, acknowledging the effective use of this approach within MT and affordable housing already. Providing 0.3–0.8 spaces per dwelling, in physically separated locations, minimising crossovers and maximising open and shared space. Decoupling parking from dwellings and reducing parking requirements allows MT developments to include more housing and shared amenities, minimises crossovers and local impacts, while still meeting the needs of residents and visitors.

Consideration	Policy options
Planning, land and funding	• Each state and territory has its own policy settings and approval processes. Even local governments within states adopt different approaches to development approval. This makes a one-size-fits-all MT model impossible. Greater consistency across jurisdictions would aid the development of appropriate funding models and approaches to MT development. • Local and state governments should review landholdings and identify sites with potential for MT neighbourhood development. These sites should consider local accessibility and amenities, as both are critical components of MT Neighbourhoods. Key factors include walking distance to shops, public transport (the quality and frequency expectations vary), schools, health facilities and work opportunities. • Greater and more consistent capital funding is required, especially in light of increased construction and finance costs. CHPs involved in MT (especially in Victoria and NSW) have developed MT models but struggle mainly with upfront funding certainty. Greater funding certainty would increase the number of MT developments. • Public land assets can be used to cross-subsidise social housing development and generate a net increase in social housing. Selling off land to the private sector and using the proceeds to subsidise the development of social housing, ideally through a CHP, is an effective model of MT provision. In many cases it is more effective, and simpler, for SHAs to sell off lots and use the proceeds to subsidise the delivery of social housing either directly, or indirectly through CHPs. CHPs may be better placed to act as developers. Such an approach needs to be balanced against political questions around land sales, and retaining or expanding social housing stock. • Finance (through NHFIC and alternative pathways) that recognises and standardises models for MT across dispersed neighbourhood sites will increase the potential for MT delivery. • Clarifying and streamlining ground-lease (or similar, e.g. community land titles) models for MT housing with local, state and other (e.g. church) landholdings provides another potential mechanism by which to deliver MT developments. While the ground-lease has advantages and disadvantages for CHPs, it can be a viable mechanism if the lease is of a suitable duration. • New titling and finance options supporting emerging types of ownership (co-operative, shared equity, rent to buy) and community governance (co-housing, BtR, etc.) where it is compatible with social and affordable housing would help facilitate MT development. This would address what is otherwise a cocktail or 'alchemy' of approaches to MT projects. • Government should explore options to employ MT models in regional areas where 'lazy' land exists, and invest in longer-term affordable housing plans where need is greatest.

Source: Authors.

The research does not claim to have developed a best practice 'solution'. Rather, the contribution of this research is the synthesis of a range of best practices (literature and case-study reviews), with a real world understanding of the drivers and constraints for multiple MT stakeholders, the availability of suitable public land assets, replicable spatial possibilities uncovered through the place-based design scenarios, and feasibility testing of the proposed MT neighbourhood model. Together, the various policy development options outline a framework for:

- diversifying and upscaling MT housing delivery in Australia
- initiating, implementing and replicating projects for MT neighbourhood renewal
- tailoring the model to the needs and opportunities presented by specific sites and stakeholder groups.

The research outcomes suggest how a neighbourhood-level approach can better leverage short-term development activities for broader urban benefits and longer-term MT outcomes. In this regard, the validation workshops endorsed the quality, scalability and uplift offered by the model—however, several challenges would need to be overcome. Further research is required to determine the extent and efficacy of strategically staging MT neighbourhood renewal for, say, capturing value from neighbourhood quality improvements, streamlining housing and tenancy management (e.g. decanting and mobility of social residents), or fostering support for urban change from existing communities.

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7. Appendices

Appendix 1: Case studies

Australian case studies

VIC Chadstone-Ashwood Gateway		
Typology	Four apartment buildings Nine townhouses (dispersed sites)	
Developer	Housing First (competitive tender process)	
Builder	-	
Architect	FMSA Architects	
Tenancy management	Housing First	
Target group	Singles, couples, families and older persons (55+)	
No. of lots assembled	Six Apartments: 6, 4 and 8 Power Ave; 2 Elliot St Community townhouses: 43 Jingella Ave Private townhouses: 45, 49 Winbirra Pde, 10 Euroka St	
Previous use	Apartments: predominantly vacant land, one commercial premise Community townhouses: vacant land Private townhouses: vacant land	
Area m^2	Site of apartments: 9,421 m^2 Site of community townhouses: 1,959 m^2 Site of private townhouses: 8,136 m^2	
Previous no. of dwellings	-	
Current no. of dwellings	Apartments 1BR x 148 2BR x 52 3BR x 1 Total = 201 social Total inc. sold private = 282	Townhouses 3BR x 7 4BR x 2 Total = 9 social Total inc. sold private = 36
Dwellings/hectare	163 dw/ha	

VIC Chadstone-Ashwood Gateway	
No. of car parks	-
Other programs	Commercial (cafe) at ground floor of one apartment building, common room, onsite housing management, new pedestrian links to reserve and station, soft landscaping and street lighting improvements
Tenure mix	74% social, 26% private
Total cost	$140m

VIC Dandenong	
Typology	Linear apartment block
Developer	Housing Choices Australia
Builder	Manresa Constructions
Architect	Kennedy Nolan
Tenancy management	Housing Choices Australia
Target group	Singles, couples and families
No. of lots assembled	1 6 Hemmings Street, Dandenong
Previous use	Linear 2-storey walk-ups (previous HCA asset, redevelopment)
Area m^2	Site: 837 m^2 (No communal building space)
Previous no. of dwellings	7
Current no. of dwellings	1BR x 4 2BR x 14 3BR x 1 Total = 19
Dwellings/hectare	227 dw/ha
No. of car parks	17 (at-grade), 0.9:1 cars/dw
Other programs	-
Tenure mix	100% social
Total cost	unknown

QLD Cagarra House	
Typology	Linear apartment block (detached courtyard arrangement)
Developer	Brisbane Housing Company (BHC)
Builder	Grindley Construction
Architect	Arkhefield
Tenancy management	Brisbane Housing Company (BHC)
Target group	Older persons (55+)
No. of lots assembled	3 11 Bothwell Street, Mount Gravatt East
Previous use	Public grade car park
Area m^2	Site: 2,451 m^2 Apartments + balconies: 3,523 m^2
Previous no. of dwellings	0
Current no. of dwellings	1BR x 57 Total = 57
Dwellings/hectare	233 dw/ha
No. of car parks	Reduce car parking provision, compensation with mobility scooter charging stations
Other programs	Onsite tenancy management, communal open space (ground floor)
Tenure mix	100% affordable
Total cost	$15m (freed up $25m land assets from decanting)

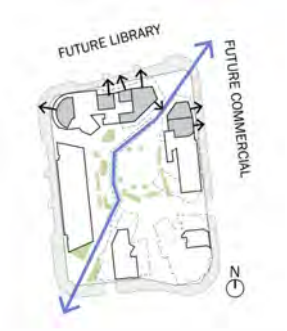
QLD Woolloongabba	
Typology	Linear Apartment Tower (corner site)
Developer	Brisbane Housing Company (BHC)
Builder	Stokes Wheeler
Architect	KO & Co Architecture
Tenancy management	Brisbane Housing Company (BHC)
Target group	Youth, key workers and young families
No. of lots assembled	1 126 Cornwall Street, Wooloongabba
Previous use	2-storey motel
Area m^2	Site: 898 m^2 Communal open space: 148 m^2 Building footprint: 520 m^2
Previous no. of dwellings	-
Current no. of dwellings	Studio x 6 1BR x 25 2BR x 1 Total = 32
Dwellings/hectare	356 dw/ha
No. of Car parks	18 (basement, 13 residential, 5 visitor spaces), 0.6:1 cars/dw
Other programs	Common room, communal open space (ground floor and rooftop)
Tenure mix	100% social
Total cost	$12.1m

NSW Wollongong	
Typology	Apartment podium + tower
Developer	NSW Land and Housing Corporation (LAHC)
Builder	Traders in Purple
Architect	ADM Architects, Jackson Teece Architecture
Tenancy management	Housing Trust
Target group	Singles, couples, families, older persons or persons in need of home care
No. of lots assembled	1 15–19 Crown Street, Wollongong
Previous use	3 x 3-storey walk-up apartments (previous LAHC asset, redevelopment of 1960s stock post-residential fire)
Area m^2	Site: 1,998 m^2 Commercial: 243 m^2 Apartments + balconies: 5,415 m^2 Communal open space: 871 m^2 Building footprint: 1,740 m^2
Previous no. of dwellings	22 units
Current no. of dwellings	1BR x 1 1BR + studio (dual access) x 11 2BR x 22 3BR x 20 Total = 54/65
Dwellings/hectare	325 dw/ha
No. of car parks	62 (ground floor + basement)
Other programs	Childcare at ground floor, 3 x levels of communal open space
Tenure mix	18% social, 11% affordable, 71% private = 54 total 28% social, 14% affordable, 58% private = 62 total* * 8 social housing units are dual-key, which means the number of apartments can increase from 10 to 18 when needed.
Total cost	$22m

NSW Casula	
Typology	Residential apartments
Developer	St George Community Housing
Builder	PBS Building
Architect	DKO Architecture
Tenancy management	St George Community Housing
Target group	Singles, couples, families, and persons with mobility aids
No. of lots assembled	5 34 Ironbark Avenue, Casula
Previous use	Detached family homes
Area m^2	Site: 2,782 m^2
Previous no. of dwellings	5
Current no. of dwellings	1BR x 15 2BR x 48 Total = 63 (7 adaptable)
Dwellings/hectare	226 dw/ha
No. of car parks	30 (ground floor), 0.5:1 cars/dw
Other programs	Onsite tenancy management, communal open space (ground floor and rooftop)
Tenure mix	100% affordable
Total cost	-

WA Hilton Revitalisation Project	
Typology	Infill small home
Developer	Department of Housing WA (government leader)
Builder	Multiple (staged)
Architect	Bernard Seeber (competition winner, designer of 14 homes)
Tenancy management	-
Target group	Singles, couples and families
No. of lots assembled	52 Competition site: 15 Harwood St Known development sites: 57 Paget St, 14 Joslin St, 93 Snook Cres, 28 Hardwood St, 26 Grigg Pl, 16 Nicholas Cres
Previous use	Single dwelling character home or vacant land
Area m^2	80 m^2 per dwelling
Previous no. of dwellings	52
Current no. of dwellings	Total = 32 (over 16 lots subdivided, remaining 36 lots sold at affordable price to private market)
Dwellings/hectare	
No. of car parks	-
Other programs	-
Tenure mix	100% social
Total cost	$2.94m for 14/32 homes

WA Cockburn Central	
Typology	5 apartments (detached courtyard arrangement)
Developer	Department of Housing WA
Builder	Probuild WA
Architect	Moull Murray Architects
Tenancy management	Care Property
Target group	Singles, couples and families
No. of lots assembled	1 (single block site) 2 Points Way, Cockburn Central
Previous use	Vacant land
Area m^2	Vacant land Site: 6,710 m^2 Commercial: 516 m^2 Apartments + balconies: 7,668 m^2 + 1,788 m^2 Public open space: 3,768 m^2
Previous no. of dwellings	-
Current no. of dwellings	1BR x 67 2BR x 56 3BR x 7 Total = 130 Total inc. commercial: 136
Dwellings/hectare	87 dw/ha
No. of car parks	170 (at-grade + basement), 1.3:1 cars/dw
Other programs	6 commercial tenancies at ground floor (cafe inc.), public open space plaza
Tenure mix	23% social, 41% affordable, 36% private
Total cost	$41m



International case studies

Europe

The guiding principle for affordable housing in Europe has shifted from the modern city with high rises and garden city elements to a renaissance of the European city. It still adheres to the traditional high-density but with more green spaces, walkability, and enough residents to attract the multitude of services, businesses and jobs that are a hallmark of Europe's old towns and belle epoque precincts. A growing willingness on part of policy makers at all levels of government to support non-market housing schemes such as co-operatives, Baugruppen, Co-Housing, rental syndicates, community land trusts and a right of first refusal for local councils, has led to a variety of exemplary projects with a high proportion of affordable and MT dwellings. Many cities have recently increased their requirement for affordable and social housing from 20–30 per cent to 40–50 per cent in new developments, with an emphasis on building whole new precincts that are integrated and well connected with the surrounding neighbourhoods.

Sonnwendviertel, Vienna, 2004–2021

Recently completed, the Sonnwendviertel in Vienna has created 5,500 dwellings for 13,000 residents; it includes 2,000 social housing units and offers 20,000 jobs, a school campus, and educational services on 34ha right next to the central train station on an abandoned freight precinct. Ground floors feature a variety of businesses such as health, hospitality and everyday supply providers, with subsidised low-rent opportunities for start-ups, small businesses and the creative scene. The mixed housing buildings are scattered throughout the neighbourhood and some of the best locations were offered to building groups or 'Baugruppen'. Baugruppen is an increasingly popular route towards affordable housing, where owner-occupiers pool their resources to build apartments without a developer, bypassing market pressures, while building community from the earliest stages. They usually attract people that care about civic engagement and constitute an essential building block for culturally vibrant neighbourhoods as they organise events and engage in the ongoing social development of their surrounding area.

This new district has been growing since 2010 with apartments, a modern educational campus, bars, hotels, shops and a seven-hectare park as a green centre. For the established residents this means an appreciation of their living environment and thus an increase in the quality of living. Old and new residents meet each other in the Sonnwendviertel. To ensure that this coexistence works well, the City of Vienna deployed the proven instrument of social mix. A sponsored co-operative created tailor-made affordable apartments for young families, older people, singles, and people with special needs. Many subsidised new construction projects in the Sonnwendviertel also offer the opportunity to actively participate, not just in your own apartment, but also in communally usable rooms. This offer to participate in the planning and organisation has been taken up by many people. A strong identification with the living environment promotes residents' satisfaction and liveability. The high quality design of the open spaces takes the diversity of its residents into account. Playgrounds, meeting zones and quiet zones, garden laboratory and varied planting supports the development of a lively district. Assistance of bicycle and pedestrian connections, passages and transitions ensure the new district is connected to the neighbouring districts (Franz and Gruber 2018).

Ackermannbogen, Munich, 2002–2016

Located on a former inner-city army site, Ackermannbogen ('Ackermann Arch') offers 2,250 dwellings with a 45 per cent social housing split and 550 jobs for 5200 people on 40ha. The 1050 social housing units are interspersed throughout the development, and are subsidised by all three levels of government, federal, state, and communal (local) in a mix of income-oriented funding (600 homes), socially just use of land (150 apartments), and the Munich model (300 apartments). An additional 230 out of the 1,150 privately owned apartments are joint building ventures ('Baugruppen') in 11 lively building communities. The development is loose, with a wide meadow, older trees, a district centre, a supermarket and restaurants conveying the atmosphere of a grown part of the city. Almost a quarter of the 40-hectare area is green space, which divides the quarter into four segments in the form of a broad axis cross. Overall, the neighbourhood atmosphere is characterised by the relatively large number of families with children: 1,230 of the 5,200 residents are under the age of 15, and the proportion of foreigners corresponds to that of Munich, at 23 per cent (Eberle 2022).

A first study of the social mixture impact showed that only certain groups benefit from new social networks—severely isolated individuals, kindergarten kids and schoolkids, as well as stigmatised populations: 'Mixing alone does not work: an accompanying organisational structure is required here that aims to promote, moderate and channel the resulting cross-milieu contacts' (Texier-Ast 2018). The Ackermann Arch is already considered a successful model, where the different forms of funding and ownership and the mix of property developers have contributed to a social composition that is as complex as the city itself is. A co-operative property developer and the private building groups were advised by an architect financed by the city. Partly because of the good experience gained, the city passed a law at the beginning of 2012 that grants co-operatives a right of first refusal. According to the City of Munich, this is the most effective means of achieving a community-friendly resident structure.

The distinct characteristics of the new district are its many community initiatives: neighbourhood exchanges, community rooms with cultural events, a common garden with seating and vegetable patches, playgrounds, festivals, regular meetings for further developments, and its own newspaper. The city finances a neighbourhood exchange, and the private residents benefit from all these mostly voluntary community efforts. The socially mixed resident structure is obviously attractive: apartment prices in the privately financed area have almost doubled since sales began 2015.

Hunziker Areal, Zurich, 2007–2017

The non-profit meta co-operative 'More than housing' has built 340 affordable apartments in 13 buildings in an inner-city suburb for 1200 residents on 4ha, with 120 jobs in restaurants, shops and studios for people with very different housing requirements and backgrounds. The development provides stable long-term perspectives for its residents, offering a mixture of traditional and new types of housing, additional rooms or workspaces to let, large-scale flat-sharing communities, satellite homes, a wide variety of common rooms and recreational facilities. The residents helped develop the area by working together in teams, participating in workshops and ballots and actively engaging in political processes. 'More than housing' was formed by Zurich's regional housing co-operatives association and founded by more than 30 Zurich-based co-operatives. It is supported by more than 50 institutional members: associations and co-operatives, foundations, the City of Zurich and other companies. The idea was to raise pressing questions about future urban development with one voice, find solutions and generate knowledge for the entire housing sector. With the Hunziker Areal, the meta co-operative has not only created a new residential estate but rather a new city quarter in a developing area (more than housing 2017). Lessons learned include the following.

- In order to solve contemporary urban development and societal challenges, the partners must think on macro level, and not in terms of estates, buildings or apartments.
- Building estates on this scale always has an influence on the urban environment and the district itself, so it is worthwhile evaluating the wider requirements of the district.

- Projects that are to be clearly positioned as innovation hubs must have wide financial and non-material support.
- To get similar projects going, you do not need a large number of partners but a firm conviction, a clear vision and, above all, strength and perseverance.

Ambitious projects are part of a long tradition of experimental urban planning and must stand the test of everyday city life. It is important to define areas where research and innovation will be possible at an early stage. Other areas, such as financing and organisation, can be based on established strategies.

United Kingdom

England's local authorities own 1.6 million homes that are being let on fixed-term leases, and classified as social housing, although they don't come with an indefinite rental period. The English government provides targets for the proportion of new affordable houses, which can be leased at up to 80 per cent of market rates. While most of these are occupied by low-income households, a recent trend has seen some authorities create their own companies that build market-priced housing (Scanlon 2021). This is an outgrowth of the tight fiscal autonomy that the centralised system grants local authorities, with revenues collected by the Treasury and redistributed to the local level according to complex algorithms. Adding to the pressures on local authorities is the continuously slashed federal funding, which has propelled community housing associations to cross-subsidise and merge into larger non-profit developers (Manzi and Morrison 2018).

Greenwich Millennium Village, London, 1997–2024

There are 3,563 registered social housing properties in Greenwich Millennium Village (GMV), one of the most well-known examples of large-scale urban regeneration in the UK. The goal was to stick to 30 per cent affordable housing when the project started, but that had gone down to 20 per cent when the last phase was approved in 2021.

The project was the first Millennium Community to be identified by English Partnerships and is being developed by Greenwich Millennium Village Limited, a joint venture between Countryside Properties and Taylor Wimpey. Each of the seven communities was to incorporate high-density housing, green spaces, good transportation links and easy access to shops and recreation facilities, producing quality places where people want to live.

In order to ensure that sustainability goals are met, the Millennium Communities Program has set standards for energy efficiency, water consumption, transportation, building materials, recycling and health and safety onsite. In line with these goals, the housing at GMV is of modern, environmentally friendly design, and the development aims to cut primary energy use by 80 per cent, compared to traditional developments of similar size, using low-energy building techniques and renewable energy technologies. The project aims to reduce car dependency through giving priority to bicyclists and pedestrians, providing good access to public transportation, and restricting and pricing car parking. The natural environment is also a focus, and GMV includes an ecology park, bicycle paths and recreational areas. GMV is marketed as an experiment in sustainable development. New residents are given a packet of information on sustainable living when they move in. Various studies have shown that residents support the concept and ethos of the village, that they appreciate the sustainable design features and enjoy being part of the special community, demonstrating the project's success not only as a sustainable development, but also as a liveable community (Foletta and Henderson 2016).

Success factors include upfront funding of social infrastructure, allocation agreements, neighbourhood management, quality estate management, and traffic taming (TEN Report 2009). Moat Housing Association manages rental units for low-income residents or key workers, such as teachers and police officers. Other units are described as 'shared ownership', where tenants can buy a 40 per cent stake and rent the rest. Affordable units are intermingled with, and indistinguishable from, flats produced by the developer to meet market demand from professionals. To encourage resident interaction, GMV has a website with a resident forum and community development officer, who initiates programs and activities. For a project at this stage of completion, the developer says residents are interacting more than usual (ULI Case Studies 2006). The developer considers the key strategic successes thus far to be the mixed-use component and the knowledge gained from such an innovative project:

> *The level of personalisation of streets is higher than anywhere else in the city. It is through design that users feel able to do this, and it helps encourage interaction between neighbours, allowing a community to form. Personalisation was higher in the areas of the development to be constructed first, which supports the idea that time has given the community a chance to build strength. The design of GMV successfully considers social sustainability and the creation of a strong community. There are a number of aspects however, that I don't think are designed with social interaction in mind:*
>
> - *The squares and courtyards throughout the development should be 'hubs' of social interaction that are above the communal residential streets in the hierarchy of interaction*
> - *They should be livelier than the streets and offer opportunities for staying, such as shelter and enclosure, seating or informal rest spots, play equipment etc*
> - *Permeability between the shops and businesses and the square needs to be introduced, as does shelter from the busy road*
> - *More opportunities for rest which encourage staying also need to be provided*
> - *The inaccessibility of the semi-private courtyards within blocks to anyone but residents is a controversial point for discussion. They allow for the creation of sub-communities but the gates add an element of exclusivity which contradicts the communal ethos of the development*
> - *Connections between people and the river for recreational use are an obvious facilitator for the formation of connections between the people themselves. At the moment these connections are virtually non-existent. (Landscape Institute 2019, Designing for community: an analysis of Greenwich Millennium Village)*

Canada

The use of mixed-income housing in Canada has been, until recently, much less in comparison to other countries. As August and Tolfo (2018) note, the Canadian government supported the concept of mixed-income housing through the National Housing Act in the late 1970s because of the model's ability to address both financial and social sustainability. However, this support was withdrawn by the early 1980s due to concerns about the costs involved in developing mixed-income housing, and the policy and legislation moved towards providing social housing for those in core housing need (August and Tolfo 2018). Social housing is generally recognised as 'subsidised public or non-profit/co-op rental housing for people with low and moderate incomes' (Suttor 2016: 3). One of its defining features is that it is rent geared-to-income, meaning that most social housing tenants pay 30 per cent of their gross income towards their rent. The majority of the social housing stock was built in the 1960s and 1970s when there was considerable investment in social housing. In many instances, social housing was built alongside private rental developments in new neighbourhoods (Suttor 2016), thus creating a more integrated community, and less likely to be in the urban core. Much of this housing stock is nearing the end of its life cycle, providing opportunities to revitalise and redevelop existing sites (Severson and De Vos 2021).

Regent Park, Toronto, 2002–2024

Social housing redevelopment gone wrong, with 2,083 replacement rent-geared-to-income units, 399 new affordable rental units, and 5,400 new market condominium units on 69 acres in a working-class middle suburb 'Cabbagetown', with education, sports, and retail facilities.

This is Canada's first revitalisation project and its largest to date. Just looking at the numbers makes it clear that it wasn't designed to improve living conditions for social housing tenants—but rather about uplifting the neighbourhood with an influx of affluent people. The subsidised units are much fewer and smaller compared to the old stock, and this reduction displaced a large number of bigger families and destroyed much of the social fabric built over generations. 'At this point in the revitalization, it has not served to improve the lives of social housing residents; rather, it has made them more vulnerable by stripping away crucial ties that they rely upon on an ongoing basis. This has made daily life more (not less) difficult, increasing the risk of downward (as opposed to upward) mobility' (Bucerius, Thompson et al. 2017: 500). Unfortunately, this type of redevelopment has become a hallmark of too many MT projects that are replacing large social housing estates with many more private apartments than subsidised units, with negative outcomes for the original residents outweighing the benefits for the neighbourhood. Often referred to as 'state-sponsored gentrification', this is also reflected in similar Canadian projects like Don Mount Court and Alexandra Park.

> *Maintaining the homes, social spaces and greenery of a mature community, it envisions a cluster of towers strategically placed on the neighbourhood's shoulders, increasing overall density while nurturing street-level ambiance. The notional plan accomplishes many of the same goals of densification and revitalization, but with an emphasis on avoiding displacement and disruption. […] To renovate and revive well is to practise design at the highest level […] The overall approach celebrated the neighbourhood's social and physical character and avoided the enormous carbon costs of demolition and new construction. (Novakovic and Wilson 2021:Azure)*

> *While tenants face negative impacts related to relocation, displacement and gentrification, there has been a void of organised opposition to the project. (August 2016: 1)*

> *Policy makers and housing managers would be wise to pay heed to evidence suggesting that social mix does not work as a standalone initiative. Without accompanying support and services for original residents, it may actually give rise to a host of negative and unintended consequences. (Bucerius, Thompson et al. 2017: 502)*

Benny Farm, Montréal, 1999–2010 and Rosemont, Montréal, 1998–2019

At Benny Farm, the Canadian government created additional housing and a more diverse mix in 797 housing units at a redeveloped garden city, of which 237 units are for previous residents, 228 are non-profit and co-operative social housing units, and 332 are private condos for moderate-income and first-time buyers, some with financial assistance from municipal or provincial programs.

This social housing estate was built in a garden city style in the late 1940s, and plans to demolish it in the 1990s were met with fierce resistance from the community, along with some architects and designers who wanted to preserve the close-knit community through renovation rather than redevelopment. Even though the acquisition of the site by community housing groups failed, the Canadian government adopted a lot of their ideas, and renovated 40 per cent of the old housing stock. The newly formed co-operatives got to realise their plans for a socially and environmentally sustainable social housing renovation project across the road at the smaller Rosemont block of mid-rise ageing buildings, in an integrated design process that led to semi-public common spaces, social cohesion, and a less car-oriented structure. They created one of the most visited housing developments in the country. In the process, they learned:

- to build-in functional resilience

- to keep technical systems simple
- to advance in small steps
- to design projects to grow in complexity over time
- that every player in the project is critical
- that government must adapt to fulfil its role (Pearl and Wentz 2015).

Cité l'Acadie, Montréal, 2006–2011

The Cité l'Acadie project enabled the construction of a neighbourhood from scratch following the demolition of 21 residential buildings that were unfit for habitation. Located in an outer suburban area, the project delivered 468 affordable apartments in 12 and 16-storey high rises, 223 community housing units, some private homes, and a childcare centre (SHDM n.d; City of Montréal 2022).

> *Elected in November 2017, the Montréal administration has committed to develop 12,000 social, affordable and family housing units in the 2018–2021 period. The plan is intended to meet a wide array of needs, including those from families, seniors, students, individuals experiencing homelessness or at risk of homelessness, indigenous and Inuit communities and many others. This ambitious initiative calls upon the entire range of the City's housing programs and tools, including social and community housing development programmes, the purchase and transfer of municipal land, funding for infrastructure costs, renovation assistance programmes (to preserve older social housing stock and affordable segments of private rental stock) and home ownership programmes, as well as the contributions of para-municipal housing corporations to strategic projects.(LaFerrière 2022: 25)*

Singapore

Public housing in Singapore is immensely important and is a major part of the fabric of a Singaporean citizen's life. The Singapore government introduced the subsidised home ownership scheme in 1964 in order to provide affordable apartments at affordable prices (Phang 2008). About 80 per cent of residential households in Singapore live in housing provided by the Housing Development Board of Singapore (Mclaren, Yeo et al. 2016). Each new development is built within new towns, with half of the land dedicated to amenities, services and infrastructure to serve as independent communities, and divided into neighbourhoods and precincts. Created as an appeasement policy to tackle race riots between the three main ethnic groups, Singapore's unique model of providing affordable housing has served the city state well in both mixing populations and securing housing for everyone.

A key feature of Singapore's successful social-mixing strategy is the practice of spreading a diversity of apartment types for all income groups and needs throughout these new towns, thus counteracting segregation and building a coherent social fabric (Yuen 2019). Their 'No neighbourhood left behind' policy, the mixing of apartment sizes in the same building, attractive public and private spaces not only on the ground but on every level of the buildings, as well as the continued investment and modernisation of its existing housing stock are features that can be adapted elsewhere (Weder di Mauro 2018).

The Pinnacle@Duxton, Singapore, 2005–2009

The Pinnacle is a showcase project for the Singapore Housing and Development Board, with a design that exceeds standards by such a degree that it caused concern among private developers. The Board had to reassure them that it was a one-off effort to demonstrate what is possible. Buyers can choose layouts, and the internal lightweight concrete walls can be removed and reconfigured. 'Although the Pinnacle@Duxton is classified as public housing, the location of this attractive development in a central district of Singapore made this new development most desirable for the upwardly mobile young workers in the city. The Pinnacle@Duxton also plays host to young expatriates who work in the Central Business District who need less expensive rental accommodation. Older residents of the former Cantonment Road housing estate have been displaced by these upwardly mobile young people who prefer city dwellings. While half a century ago, the original residents had to get used to living in Chap Lau Chus, they have now been pushed towards the outer fringe of city living' (Kuah 2018). The development encompasses 1,848 units, mostly public housing in spacious three-bedroom apartments in seven towers, connected by a furnished roof deck with gyms, running tracks and playgrounds.

Skyville and SkyTerrace@Dawson, Singapore, 2008–2015

The SkyVille is a redevelopment of a mid-rise public housing estate into multi-generational and sustainable 'Housing-in-a-park', with ground, rooftop, and sky gardens, active transport priority, rainwater harvesting, and selective pairing of reconfigurable apartments. There are a total 3,700 two-to-five-room apartments as well as commercial facilities including 30 shops, four eateries, a supermarket, and a food court.

Large public spaces that surround the cluster of towers are the central innovation. For every 80 homes there is a sheltered community garden terrace, designed to promote daily interaction, which is visible and accessible on the way to the apartments. Common community areas include a plaza located along a linear park with a supermarket, cafe, retail and childcare. Community 'living rooms' at ground level provide seating areas overlooking the park, with pavilions for events, play and fitness areas, courts and lawns, bordered by a 150-metre long bioswale. The skypark on the roof is open to the public 24 hours, offers a 400-metre jogging track, and features shady pavilions with photovoltaic arrays. The whole project uses robust passive designs, such as naturally lit and ventilated apartments, staircases, and access corridors, and is precast and prefabricated to reduce waste and allow for easy replacements (ArchDaily 2016).

The Dawson estate in Queenstown offers a park-like environment, linking the seven Dawson housing projects together through natural spaces and pathways in a green corridor neighbourhood, including a pedestrian street with pockets of seating and shady trees, blending in with the nearby Forest Hill nature catchment area (Sen 2018). Two of those projects, Skyville@Dawson and SkyTerrace@Dawson, were completed in 2015. The remaining five projects were to add a further 5,000 households to the estate, three of which were completed in 2020—21 (SkyPark, SkyOasis and SkyResidence). 'The seven developments […] look different as each has its own project consultant, but they [all] emphasise biodiversity and enhance the neighbourhood's identity, environmental sustainability and connectivity in accordance [with] the master plan.' (Sen 2018, HDB unveils landscape masterplan to spruce up Dawson estate).

Appendix 2: Geospatial modelling

The literature on MT projects, supported by interview data, states a preference for areas that are well-located in relation to service and transport access, as well as placing an emphasis on social mix. While social mix can be inferred from ABS SEIFA metrics and wage distributions within areas, the specifics of 'well located' varies. Some sources state that shops override transport, others that transport overrides shops, others state that access to social services is paramount, while others state that it is access to social infrastructure such as schools. Ideally, a weighted multi-criteria analysis would be used to determine the best locations, as this would allow for differentiation between client groups and city contexts.

However, and for the sake of both expediency and to determine a metro scale solution, an index of 'amenity' was created. This index captures access to all social infrastructure, shops and commercial services, health and social services, transport access, as well as general walkability within a locale, counting and normalising the amount of services per area and scoring these areas into amenity deciles. This was applied at the postcode scale and developed separately for each greater city area due to the differences in local context and variance in data.

The data layers for each state vary and thus the methodologies must also vary. For example, the state features of interest (FOI) for Brisbane ('built features') is poorly coded and does not provide detail into local amenity. Similarly, the Open Street Maps (OSM) points of interest (POI) is too partial to guarantee a rigorous coding of services.

However, the zoning for greater Brisbane is very well coded and explicit regarding intended land use so, used in combination with OSM data as a validation tool, they function together as a mechanism for generating a 'destination' layer similar to the FOI/POI layer for other states. Furthermore, urban contexts vary. The legacies of planning regimes and urban development patterns have created population densities that are vastly different between Perth/Brisbane and Sydney/Melbourne, as is distribution of services and access to public transport.

This means that high (middle or low) amenity in one city will not be the same as high (middle or low) amenity in another. Taking these two issues together—the difference in data and the difference in urban context—means that each city needs to be assessed separately, which calls for separate normalisation and decimalisation, which is what we have done. The maps showing amenity are therefore relative amenity scores, ranked in the context of the city where the data was gathered. This scale should be treated as a tool for macro-scale analysis only, applying a similar methodology universally in an attempt to capture access to services and destination points.

Table 19: Amenity index datasets

Data	Purpose	Source
Land zoning maps	To obtain data on access to commercial and parkland destinations	VIC: planning scheme zones NSW: Environment Planning Instrument–Zones QLD: Brisbane City Plan WA: Region Scheme Zones Reserves
Road intersections, walkability and cycleability	To capture 4-way intersections as a measure of walkability. Bike lanes included where available	VIC: road network segments, DELWP NSW: road network, Transport for NSW QLD: Brisbane Road Network, BCC WA: road network, Landgate
Features/points of interest	To provide a spatial overview of destinations and amenities locally, including: places of recreation, health services, community services, cultural spaces, education, religious activity, sports facilities, administration sites	VIC: features of interest, DELWP NSW: points of interest, NSW Spatial Services WA: points of interest, Landgate QLD: Open Street Maps Points of Interest (POI) 2022
Hospitality and food services licences	Indicator of place activation	VIC: Commission for Gaming and Liquor Regulation NSW: Liquor and Gaming NSW Open Street Maps POI 2022.
Population data	Density is a significant corollary of access to services and amenity	ABS: Place of Usual Residence by Postcode 2021 POUR_POA_2021
Public transport access	Measure of access to public transport	Variously OSM POI transport, NSW, QLD: state transport layers VIC: Principal Public Transport Network WA: Open Street Maps POI 2022.

Source: Authors

In addition to the ABS SEIFA score and the created amenity score, we also used a greater city house-price value decile to determine which areas would financially allow for value uplift—in other words, where the market would accept medium-density to high-density infill. These three values determined the 'ideal' location for business as usual MT projects.

Where MT neighbourhoods would benefit from apartment provisions, their feasibility and acceptance—according to planning regulations, the market and local residents—can most easily be found through identifying areas that already have apartments present. To identify 'development-ready' locations, the percentage of apartments per SA1 was set at 10 per cent, which seemed a reasonable level. Further local level analysis will necessarily adjust this as required.

Rather than exclusively using the composite amenity index, we instead focussed on the key locational attributes from the interviews—shops and public transport. An analysis of state-based features of interest (FOI) geospatial layers showed that they did not completely capture all major shopping centres, so the major shopping centres from the FOI layer were amended to also include commercially zoned areas (locally coded to indicate shopping centres and supermarkets) greater than 5000m^2, which would notionally include an average-sized supermarket (≈3000m^2) with some speciality shops. These were buffered to a linear 500m (to allow for 600–800m pedestrian-shed as a walkable distance) and all SA1s with 10 per cent or more apartments intersecting these buffers were included as areas with existing apartments and with good walkability to shops.

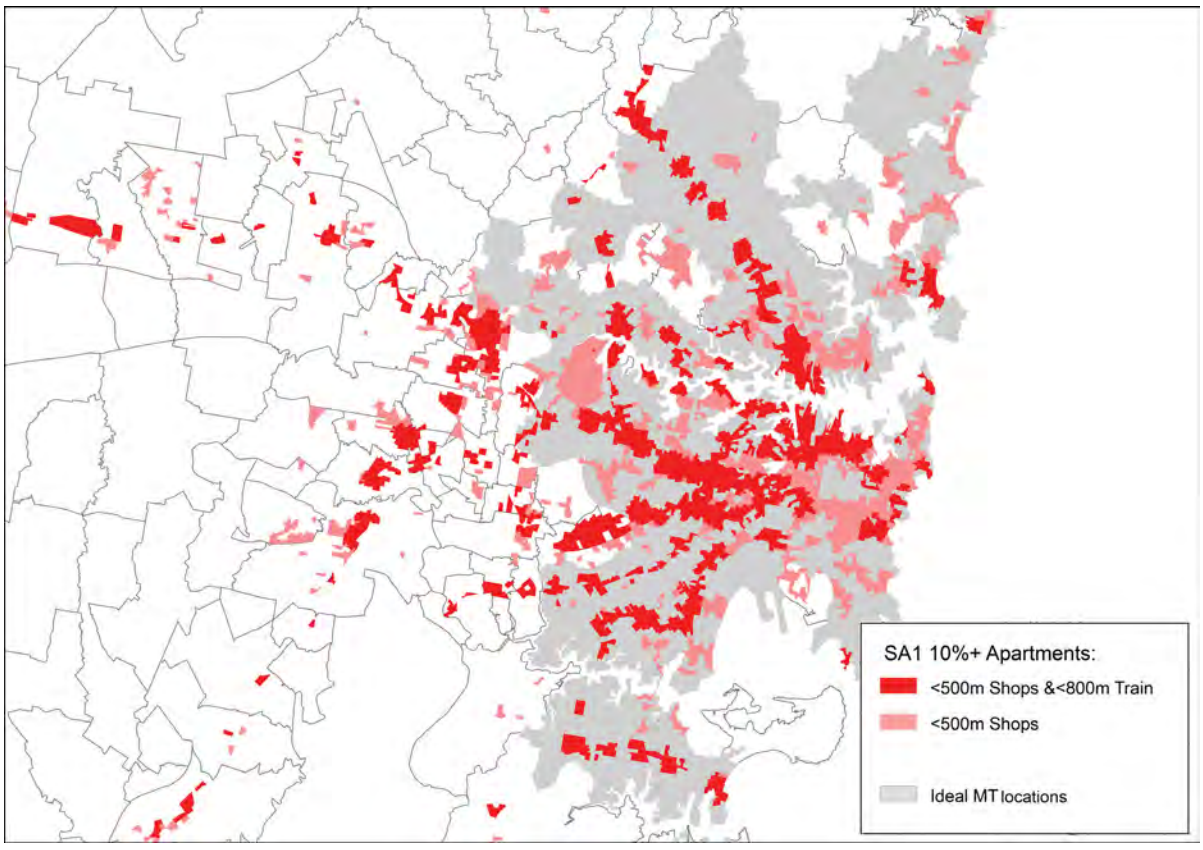
An additional buffering was done on these SA1s to exclude any areas that were greater than 800m to significant public transport infrastructure; bus stations were included, but not bus stops. High-level access to all other services was assumed through the composite index. Figure 28 through Figure 43 show the two-tiered SA1s for each capital cities included in the research:

- close to shops: pink
- close to shops and public transport: red.

Ideal locations, in terms of broad service access, are in grey.

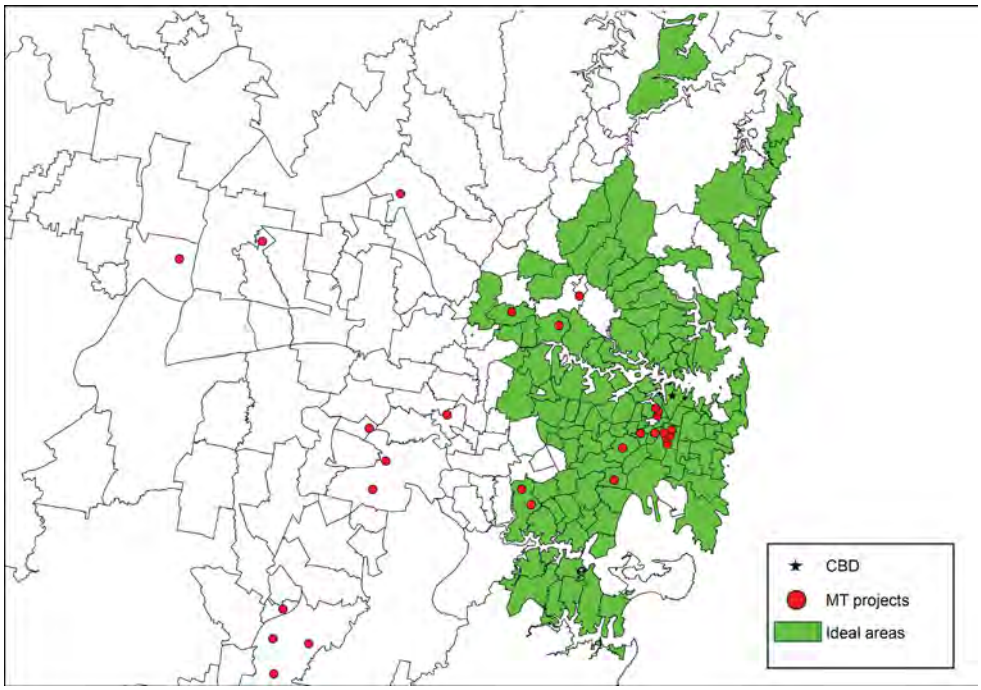
Maps for Sydney

Figure 28: Business as usual locations for MT projects, Sydney



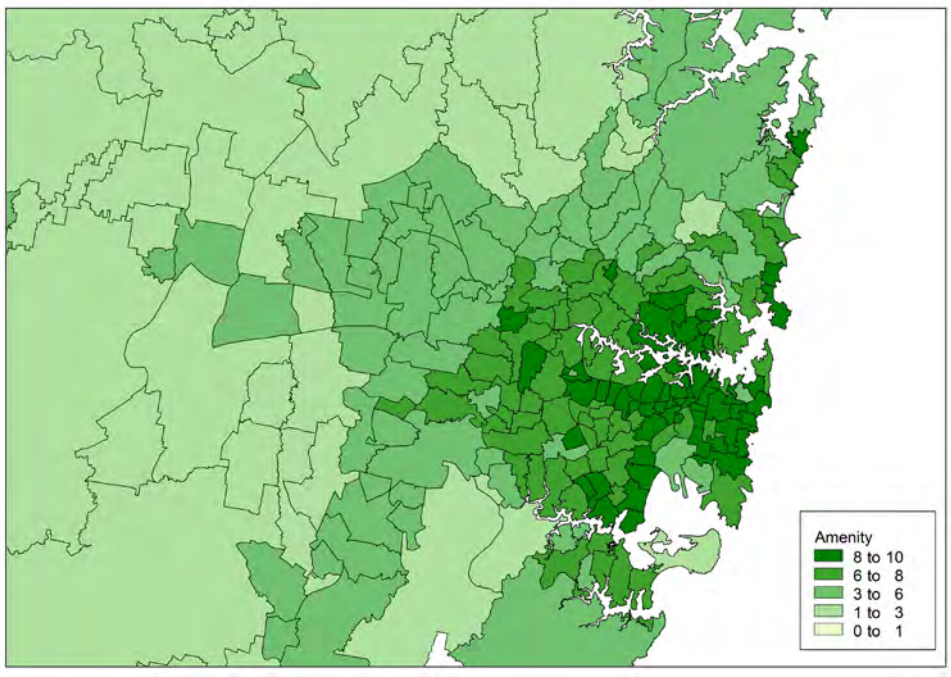
Source: Authors

Figure 29: Ideal level of amenity, property value and SEIFA index, plus MT exemplar projects, Sydney



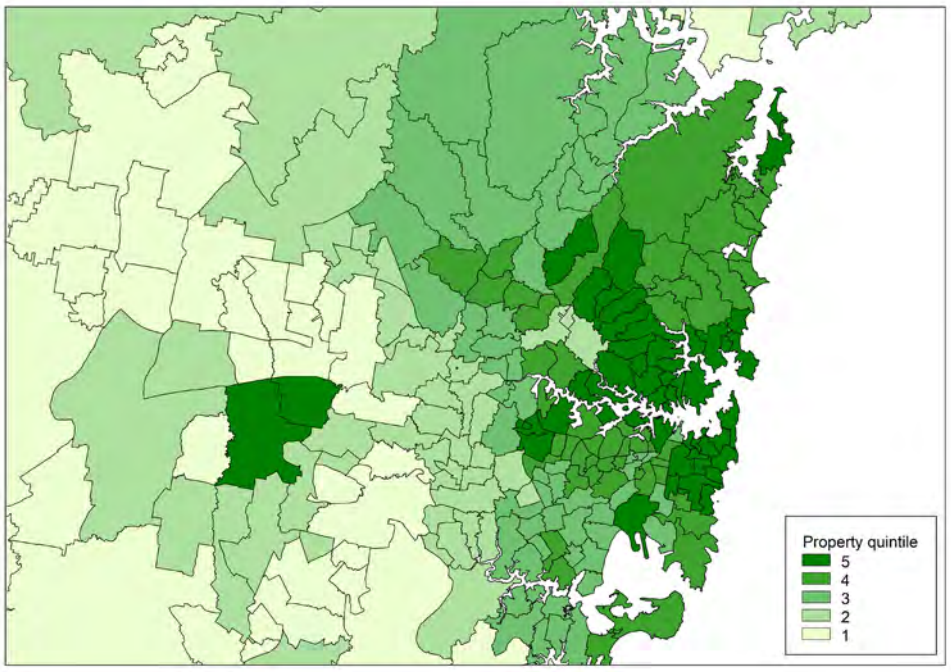
Source: Authors

Figure 30: Amenity index distribution, Sydney



Source: Authors

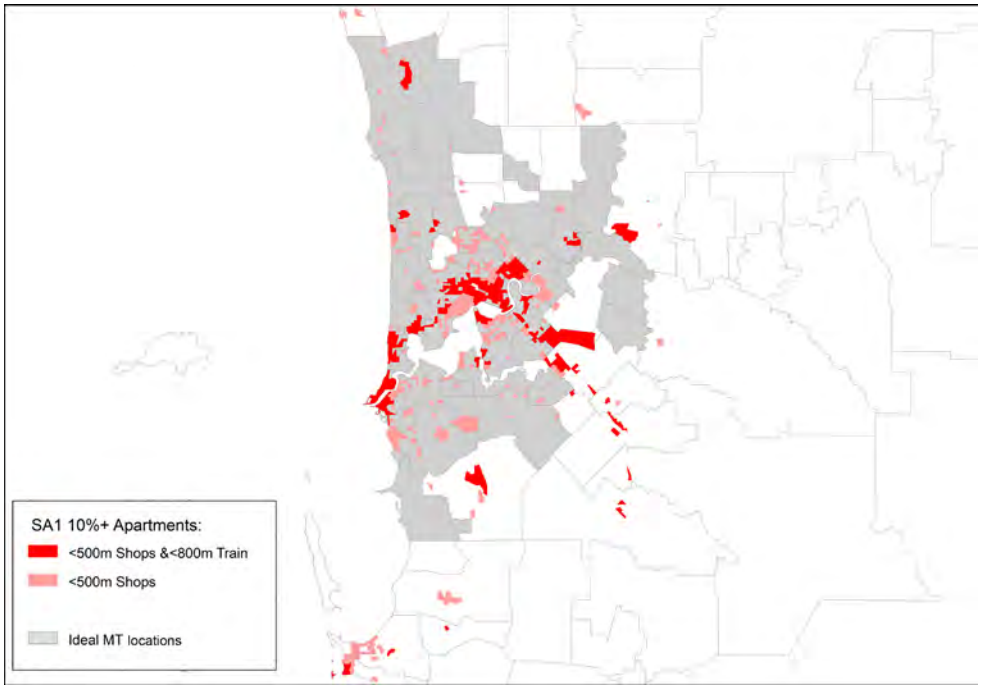
Figure 31: Property value quintile distribution, Sydney



Source: Authors

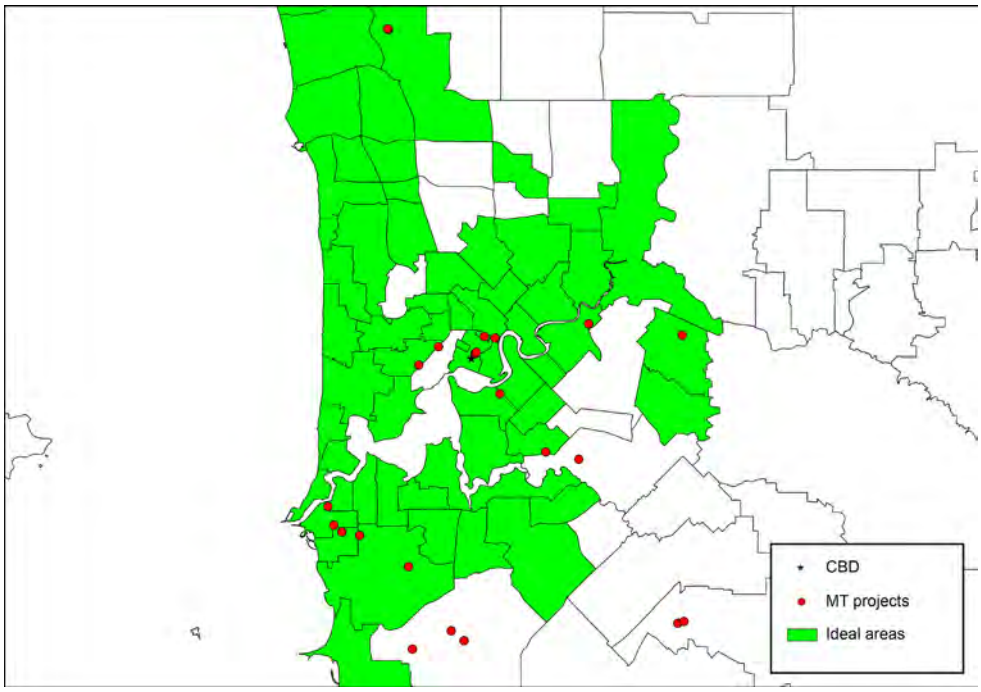
Maps for Perth

Figure 32: Business as usual locations for MT project pipeline, Perth



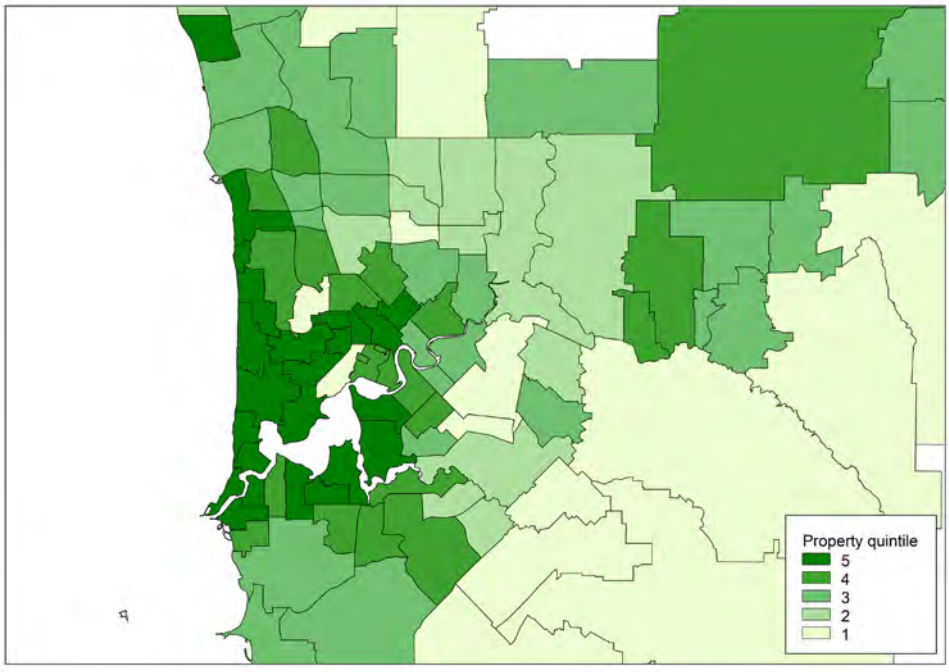
Source: Authors

Figure 33: Ideal level of amenity, property value and SEIFA index, plus MT exemplar projects, Perth



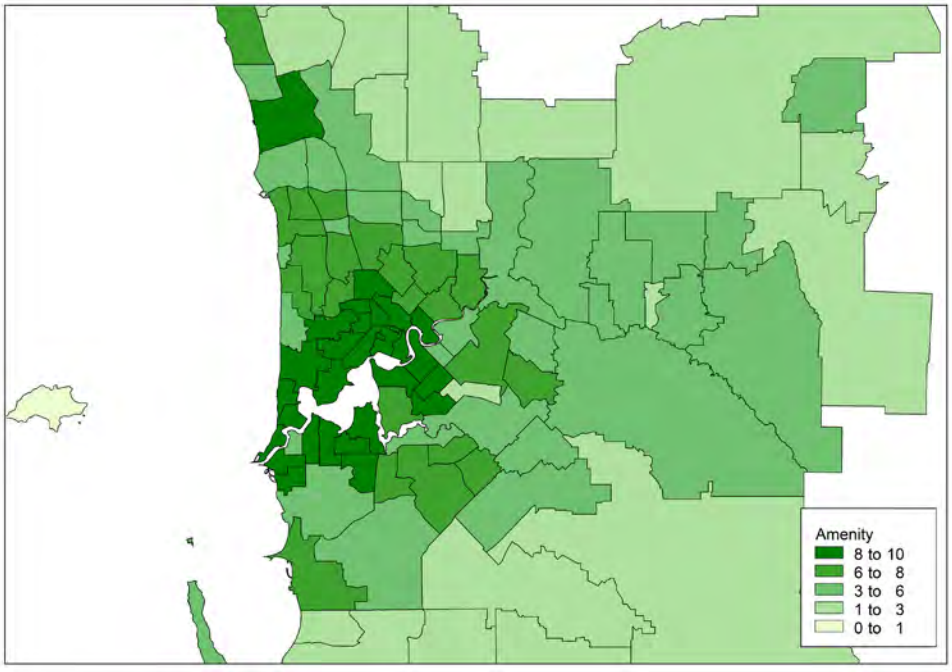
Source: Authors

Figure 34: Amenity index distribution, Perth



Source: Authors

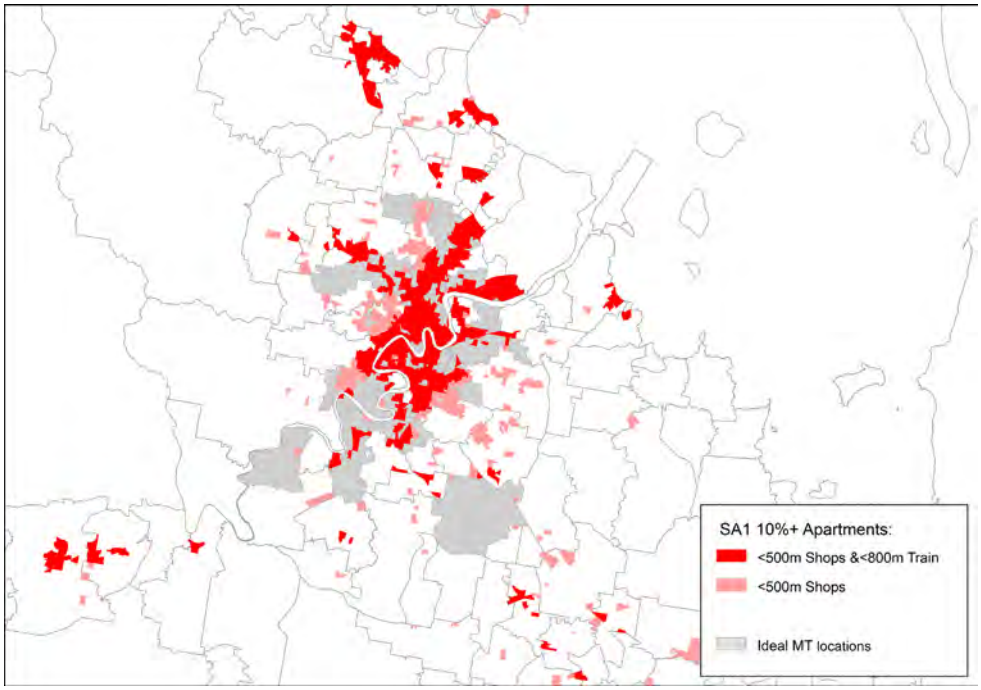
Figure 35: Property value quintile distribution, Perth



Source: Authors

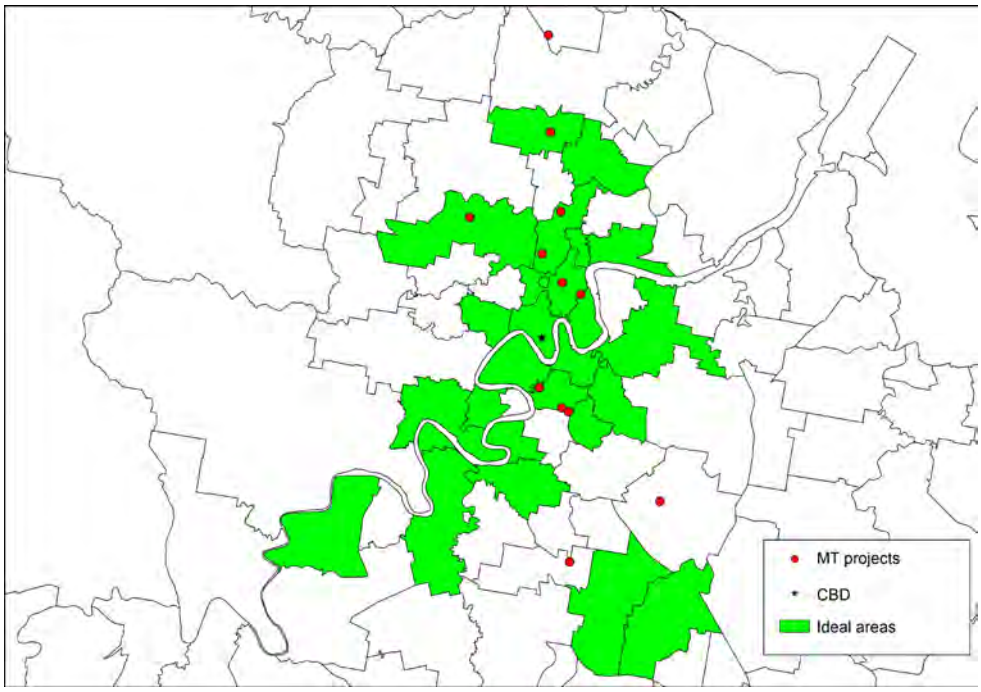
Maps for Brisbane

Figure 36: Business as usual locations for MT projects pipeline, Brisbane



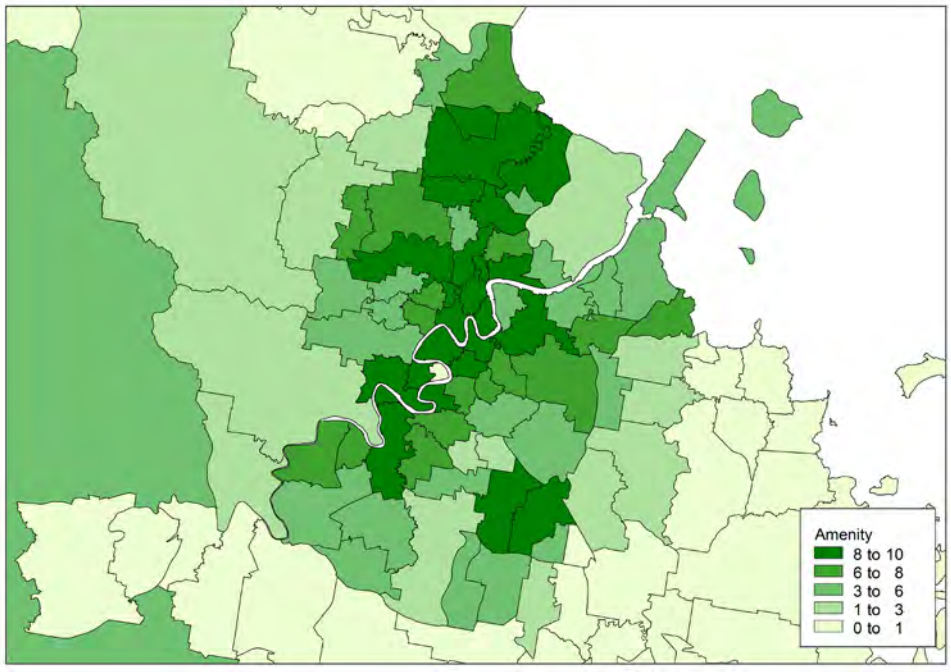
Source: Authors

Figure 37: Ideal level of amenity, property value and SEIFA index, plus MT exemplar projects, Brisbane



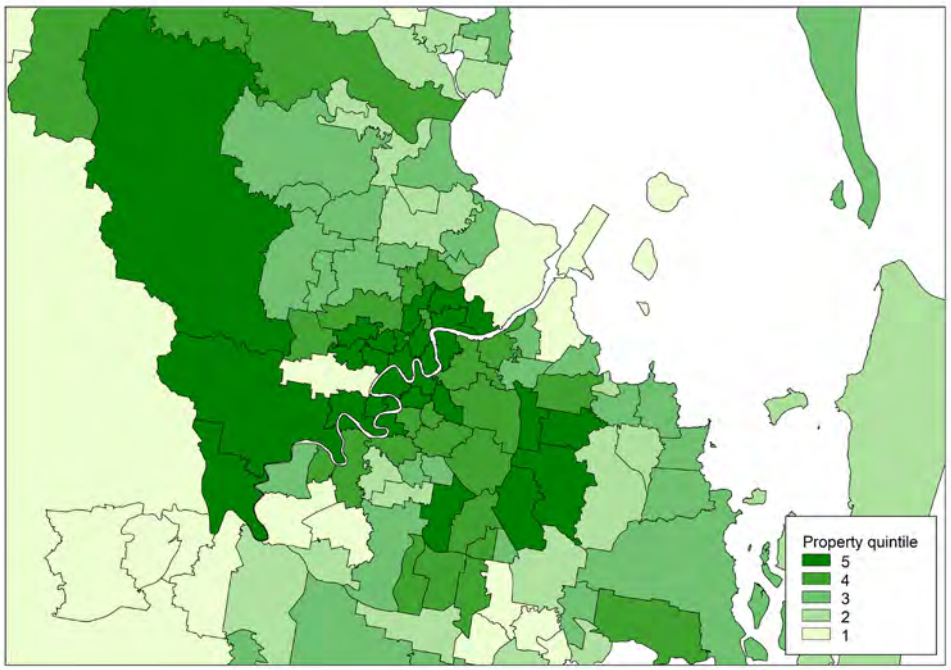
Source: Authors

Figure 38: Amenity index distribution, Brisbane



Source: Authors

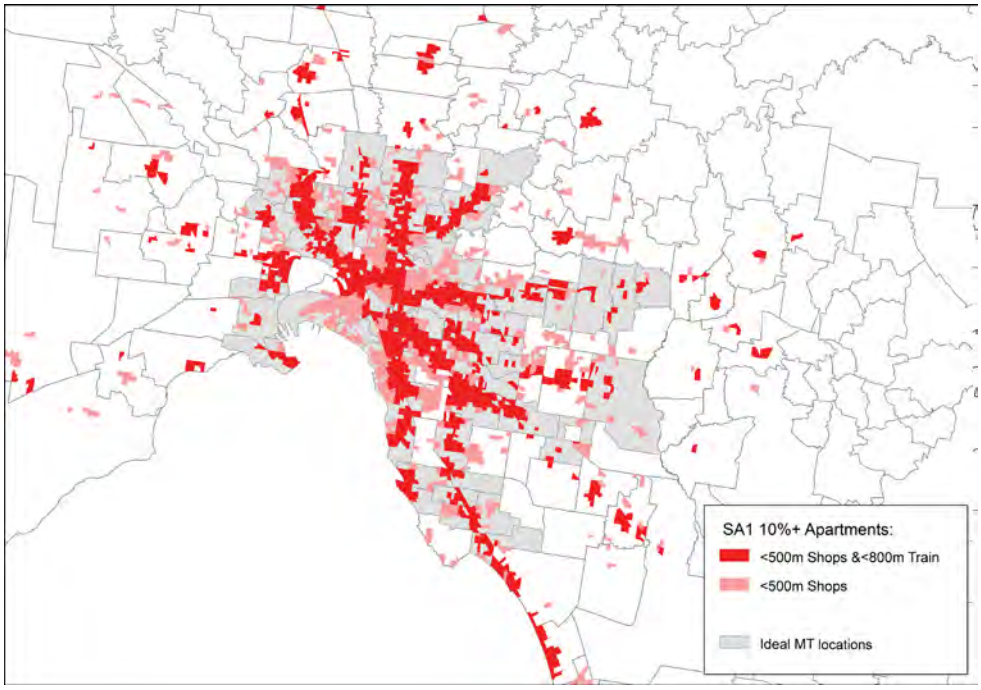
Figure 39: Property value quintile distribution, Brisbane



Source: Authors

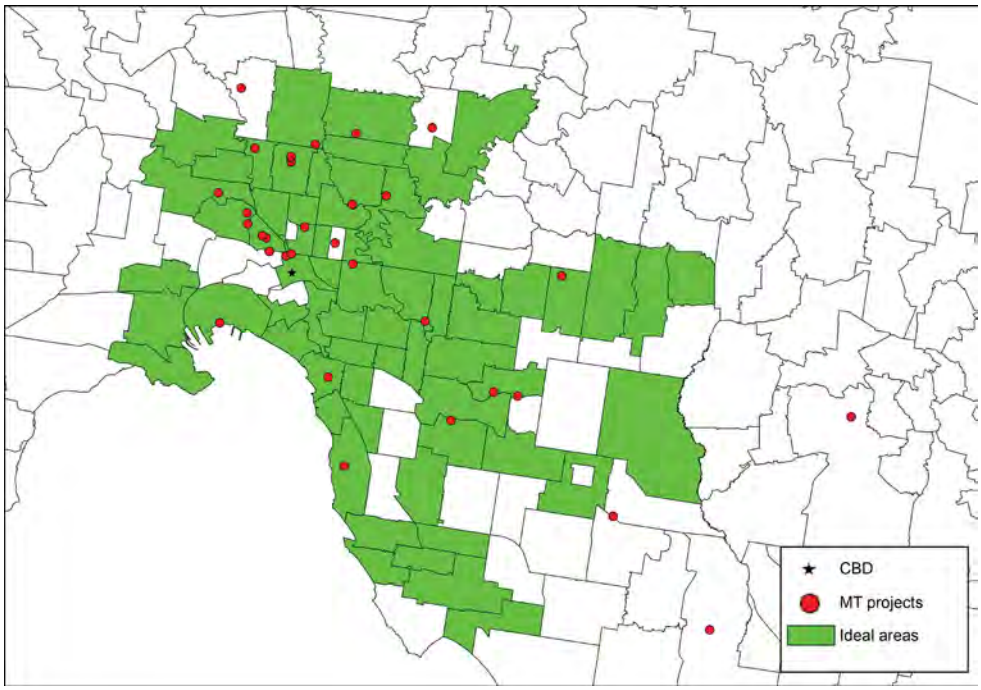
Maps for Melbourne

Figure 40: Business as usual locations for MT project pipeline, Melbourne



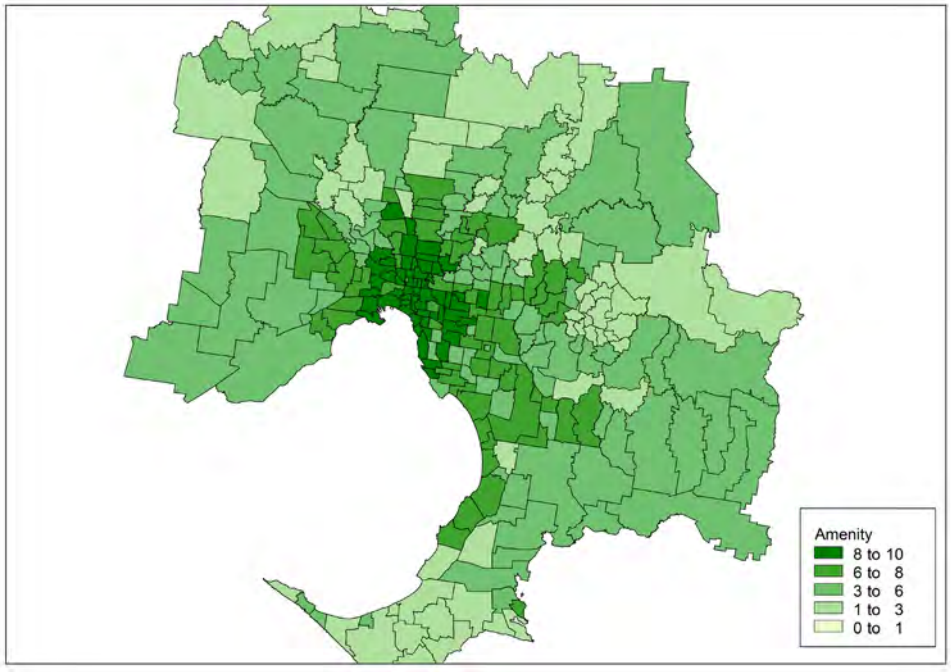
Source: Authors

Figure 41: Ideal level of amenity, property value and SEIFA score, plus MT exemplar projects, Melbourne



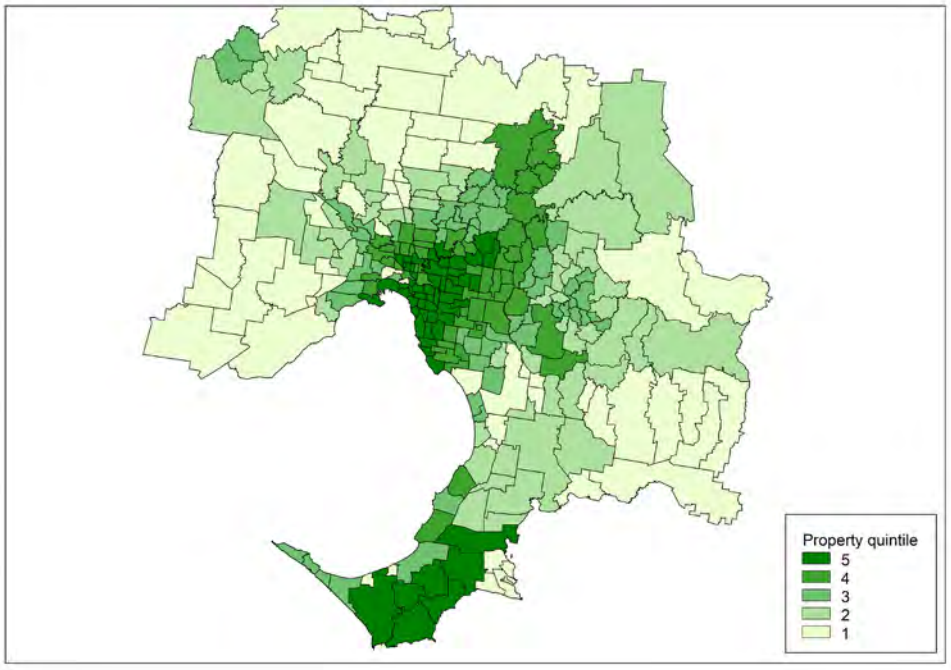
Source: Authors

Figure 42: Amenity index distribution, Melbourne



Source: Authors

Figure 43: Property value quintile distribution, Melbourne



Source: Authors

Appendix 3: Design scenarios

St Marys, NSW: a model for diversifying housing provisions in strategic development precincts

Shopping and transit strip earmarked for higher-density redevelopment. The rear of the strip interfaces with adjacent residential neighbourhood, where a social housing cluster offered potential to diversify housing supply through mid-rise and low-rise typologies.

The existing council-owned grade car park creates a hard barrier between commercial and residential sides of St Marys. Multi-level car park consolidation will free up opportunities for social and affordable housing to operate as a link between these two zones, while increasing walkability to shops and arcades with public pathways through developments. Mid-rise buildings with onsite public amenity and services will activate the underutilised cul-de-sac reserve for the benefit of providing public realm connectivity laterally through the cluster, extending between the shop edge and low-rise existing neighbourhood.

Figure 44: St Marys, NSW: 1km plan diagram showing SHA allotments

1 km MT neighbourhood	m²	#lots	%	Replicable renewal models
SHA lots – initial stages	13,210	18	4	Ⓐ Council carparking
SHA lots – future stages	26,106	41	9	Ⓑ Shops / cut-through arcades
SHA lots – potential divestment	18,496	27	6	Ⓒ Reserves
Private 'buy-in'	8275	12	3	Ⓓ Long-term land vacancies
Private residential lots	315,310	380	79	
Total			100	

Source: Authors

Figure 45: St Marys, NSW: MT neighbourhood scenario

Replicable model – Diversifying Precincts

	#	Area (m²)	Av. lot (m²)
SHA allotments	15	10,513	707

Dwelling mix	#	%	
Studio	6	4	
1BR	44	31	
2BR	64	45	
3BR	28	20	
Total	142	100	135 dw/ha

Carparks	#	%	
at grade on site	39	27	
basement on site	103	73	
Total	142	100	1:1 carparks / dw

Building types		Gross (m²)
Apartments	3 to 8 storeys 9 buildings across 5 site consolidations (15 lots)	15,099
Terraces	3 storeys 4 dwellings	576
Commercial	4 tenancies across 2 buildings	261
Parking		
Grade + drive	39 parking spaces onsite across 3 consolidated sites	1,406
Basement	106 spaces w/ apartment	4,005
Soft landscape	52% of total site area	5,425

Source: Authors

Mt Gravatt East, QLD: neighbourhood renewal in a low-density residential zone

This scenario tests how modest multi-residential dwelling types can deliver gentle increases in density while also respecting the existing qualities of pavilion housing. Moments of intensity are delivered on appropriate sites and utilising ground-level changes to ameliorate parking impacts, enhance pedestrian circulation and neighbourhood activation through the provision of fine-grain amenity services with new housing outcomes.

Figure 46: Mt Gravatt East, QLD: 1km plan diagram showing SHA allotments

1 km MT neighbourhood	m²	#lots	%	Replicable renewal models
SHA lots – initial stages	43,641	63	6	Ⓐ Pocket park
SHA lots – future stages	63,903	93	9	Ⓑ Strip shops + carpark
SHA lots – potential divestment	8,758	15	1	Ⓒ Shops + petrol station
Private 'buy-in'	9,095	14	1	
Private residential lots	502,237	843	82	
Total			100	

Source: Authors

Figure 47: Mt Gravatt East, QLD: MT neighbourhood scenario

Replicable model – Neighbourhood Renewal

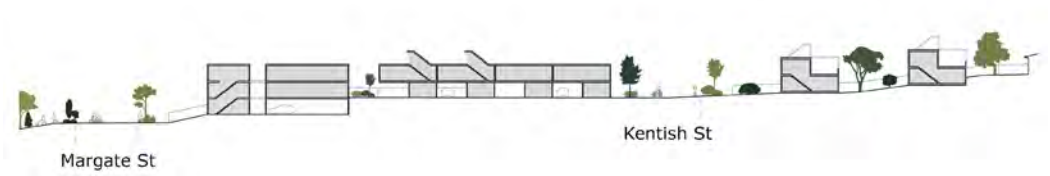
	#	Area (m²)	Av. lot (m²)
SHA allotments	10	7,720	772

Dwelling mix	#	%	
1.5BR	10	24	
2BR	18	44	
3BR	13	32	
Total	41	100	53 dw/ha

Carparks	#	%	
at grade on site	37	90	
basement on site	4	10	
Total	41	100	1:1 carparks / dw

Building types

		Gross (m²)
Apartments	2 to 3 storeys 8 buildings across 3 site consolidations (7 lots)	3,629
Terraces	2 storeys 10 dwellings across 4 allotments	1,710
Parking		
Grade + drive	37 parking spaces onsite	1,668
Basement	4 spaces w/ apartment	133
Soft landscape	53% of total site area	4,093



Source: Authors

Jacana / Broadmeadows, VIC: medium-density neighbourhood renewal

This scenario tests how modest multi-residential dwelling types can deliver gentle increases in density while also respecting the existing qualities of pavilion housing. Moments of intensity are delivered on appropriate sites and utilising ground-level changes to ameliorate parking impacts, enhance pedestrian circulation and neighbourhood activation through the provision of fine-grain amenity services with new housing outcomes.

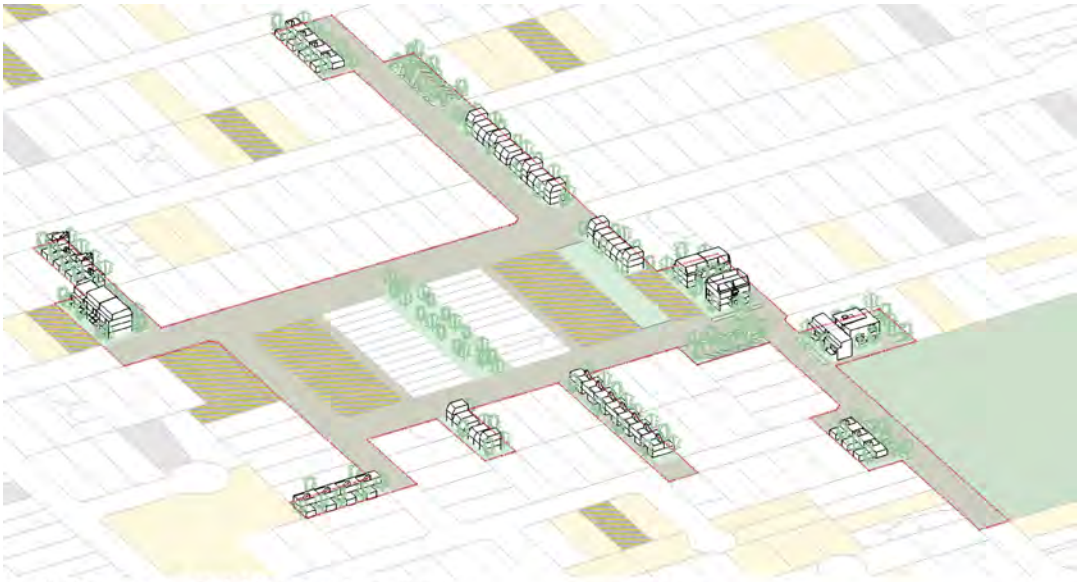
Figure 48: Jacana / Broadmeadows, VIC: 1km plan diagram showing SHA allotments

1.5 km MT neighbourhood	m²	#lots	%
SHA lots initial stages	25,506	39	2
SHA lots future stages	250,805	342	15
SHA lots potential divestment	56,065	90	4
Potential private 'buy-in'	48,317	55	2.5
Private residential lots	984,727	1,718	76.5
Total			100

Replicable renewal models
(A) Community centre + carpark
(B) Strip shops / arcade
(C) Strip shops + petrol stations
(D) Community centre + carpark
(E) Strip shops

Source: Authors

Figure 49: Jacana / Broadmeadows, VIC: MT Neighbourhood scenario



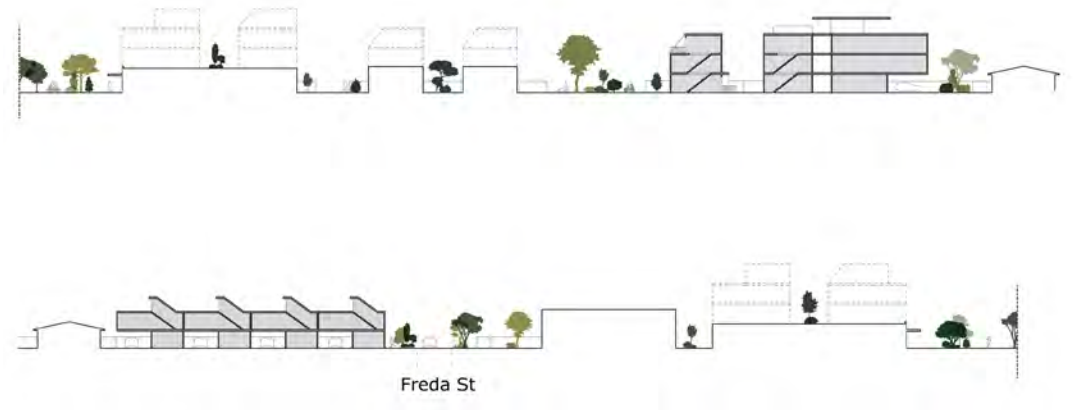
Replicable model – Neighbourhood Renewal

	#	Area (m²)	Av. lot (m²)
SHA allotments	18	11,475	652

Dwelling mix	#	%	
1.5BR	20	22	
2BR	57	63	
3BR	14	15	
Total	81	100	77 dw/ha

Carparks	#	%	
at grade on site	44	48	
at grade decoupled	29	32	
basement on site	19	21	
Total	81	100	1:1 carparks / dw

Building types		Gross (m²)
Apartments	3 and 4 storeys lifted 4 buildings across 3 site consolidations (6 lots)	3,333
Terraces	2 and 3 storeys 37 dwellings across 7 allotments	3,188
Parking		
Grade + drive	79 parking spaces on 2 dedicated lots + onsite	1,840
Basement	19 spaces w/ apartment	1,063
Soft landscape	41% of total site area	4,276



Source: Authors

Appendix 4: Stakeholder workshops

Four stakeholder workshops provided a vehicle for research validation. The same agenda was followed for each event. Dates and attendees listed in Table 20.

Table 20: Stakeholder workshops

Time	Agenda
20 mins	Research overview and agenda
	Brief introductions
10 mins	Presentation of the design model: mixed tenure neighbourhoods
20 mins	Discussion: What are the advantages of neighbourhood-scaled thinking?
5 mins	Presentation: scale, staging, procurement and partnerships
25 mins	Discussion: What is an appropriate scale for mixed tenure neighbourhoods?
5 mins	Presentation: Pipeline and policy implications
25 mins	Discussion: What are the necessary policy levers for achieving an effective project pipeline?
10 mins	Summary, next steps
	Close

Queensland 7 March 2023, 3pm 1 William Street, Brisbane (and online)	
Leah Lang, Office of QLD Gov't Architect	Peter Nelson, Office of QLD Gov't Architect
Richard Bender, QLD Dept of State Dev't., Infrastructure, Local Govt. and Planning	Michael Bucknell, QLD Dept of State Dev't., Infrastructure, Local Gov't and Planning
Mark Wall, QLD Dept of Communities, Housing and Digital Economy	Kate Cornwell, QLD Dept of State Dev't., Infrastructure, Local Gov't and Planning
Neil Willmett, Aboriginal and Torres Strait Islander Housing QLD (Housing QLD)	Martin Reason, QLD Dept of State Dev't., Infrastructure, Local Govt. and Planning
Thea Platz, QLD Dept of Communities, Housing and Digital Economy	Kerry Riethmuller, QLD Dept of State Dev't., Infrastructure, Local Gov't and Planning
Amy Degenhart, DegenhartSHEDD	Alex Cohn, Gold Coast City Council
Anthony Matheson, QLD Dept Env. & Science	Marcus Brown, Bull & Bear Economics
Annemaree Callander, CHIA QLD	Matt Collins, Planning Institute of Aust
Jeremy Hill, QLD Dept of Communities, Housing and Digital Economy	Sam Betros, QLD Dept of State Dev't, Infrastructure, Local Gov't and Planning
Crystal Baker, Local Gov't Association of QLD	Nicole Bennetts, Arup
Eloise Atkinson, Deicke Richards, BHC	Sarah Chalkley, Sunshine Coast Council
Evelyn Murphy, Sunshine Coast Council	Shannon Batch, PSA Consulting
Fiona Caniglia, Qshelter	Shy Tay, Arup
Garry McLean, McLean Advisory	Simon White, DVLPdesign
Jade Bebbington, Toowoomba Regional Council	Seamus Parker, QLD Treasury Corporation
John Bilad, QLD Treasury Corporation	Christine Ip, QLD Treasury Corporation
Justin Blumfield, Ingenia Communities	Liza Neil, Moreton Bay Regional Council
Jemima Rosevear, City of Gold Coast	Julie Brook, Meridian Urban
Julie Saunders, Urbis	

New South Wales 8 March 2023, 11.00am 231 Elizabeth Street, Sydney	
Paulo Macchia, NSW Office of the Government Architect	Robert Stark, NSW Land and Housing Corp.

New South Wales 21 March 2023, 11.30am Online	
Natalie Stanowski, Penrith City Council	Kathryn Sprang, Penrith City Council

Victoria 9 March 2023, 3pm Level 7, 30 Collins St, Melbourne	
Prof. Shane Murray, Monash University	Hannah Ben-M'Rad, Homes Victoria
Mike Collins, Merri-bek Council	Michael Everett, Homes Victoria
Kerry O'Neil, Merri-bek Affordable Housing,	
Victoria University	Targol Khorram, Homes Victoria
James Henry, Housing Choices Australia	Margie McKay, Homes Victoria
Sarah Jaggard, Homes Victoria	Adelise Pearson, Homes Victoria
Greg Ford, Homes Victoria	Kira Lee, Homes Victoria

Summary from all cities

- Decanting is one of the most important considerations when looking at asset consolidation. Residents should be allowed to live in their existing communities, and have some say over their living location, but overly considering this over the future needs of social housing is seen as short-term thinking that can stall the pipeline for new housing.
- Amenity and access to services, sometimes referring to support services, is generally a greater consideration than design. However, all states note that tenure blindness and the need for housing diversity is still significant.
- Planning regulations, combined with overly politicised/localised municipal decision-making, are one of the major delivery hurdles facing all states. All workshops noted that masterplans are needed for neighbourhood regeneration. However, finding budget and political will for master-planning may not be feasible outside of priority (re)development areas.
- Funding is the key component for development, followed by land availability, and then supportive policy and legislation. All of these variously guide development outcomes. The form of funding speaks to the expectations of the funder; land area and location speak to scale and product; while policy and legislation speak to the supportive framework (or lack thereof) within the governance regime.
- There is a need for more novelty in partnership arrangements, primarily for funding, but also across government layers and jurisdictions. This will need to be more complex than typical for neighbourhood-scale redevelopment.
- Net gain on redevelopment, or asset consolidation, was a critical aspect of redevelopment in each state.

Brisbane workshop: notes and key themes

Clients:

- Decanting is the most important issue for social housing redevelopment.
- Clients live in existing communities and should be allowed to continue to, though in homes more appropriate to their place in the life cycle and their ability.

Planning

- Planning is locking up redevelopment opportunities.
- Master-planning is critical for neighbourhoods and their creation.
- Brisbane City Council has neighbourhood plans that work. These could be used more universally.

- There is a disconnect between federal, state, municipal and CHP needs. For example, the varied significance of financing (attracting federal funding), planning (for 200,000 new dwellings), political issues (fear of self-assessment, community resistance), policy (lacking for smaller CHPs), and financial assistance (a lack of funding models for smaller organisations).

Governance

- The absolute need for a net housing gain.
- Small and moderate scaled CHPs need a lot more help with funding models and getting into the smaller scale market.
- Councils/CHPs are too busy with business as usual to innovate.

Policy

- Policy needs to help CHPs achieve funding.

Community

- Need more engagement on design and placement of social housing.
- Existing community (public and private) is resistant to change.

Funding

- Funding is the principal concern. The product should relate to the funding model. As such there is a need to establish the model necessary for neighbourhood change.
- Establishing neighbourhoods will initially be at a loss due to planning costs and new infrastructure, but pay off in the end in terms of amenity and density.
- CHPs need help attracting funding. Consortia work well but are too specialised and not generic enough to work more broadly.
- CHPs and social housing delivery broadly, and need to work with the market and developers to a greater degree.
- Liquidity and insurance for larger projects prevents them from occurring more frequently.

Neighbourhood

- MT needs to be positioned with good access to services.
- Neighbourhood creation will have considerable cost and is outside of typical funding models, but necessary for increasing density, attracting people and improving areas.

Sydney workshop: notes and key themes

Governance

- There is significant distrust between state and local government.
- State representatives think that councils do not communicate effectively.
- Councils fear concentrations of social housing and top-down planning.
- If CHPs have land, then there is no role for the state government. Land is considered the critical aspect, and all other aspects of the project will flow from this.
- CHPs can self-assess their proposals, but this usually only occurs at the small scale due to political risk.
- Floorspace ratio bonuses exist for social housing, but this often negatively affects the design.

- The NSW Land and Housing Corporation (LAHC) is social housing only, which limits the opportunity for MT and neighbourhood change.

Procurement

- Land procurement is difficult and neighbourhood-scale development would be very hard.
- Many councils are considering council-owned parking for redevelopment.

Planning

- Both strategic and statutory planning are to blame for a lot of the pipeline issues. For example, while manor-housing is an option, very little land (if any) exists for them to be developed on.
- Master-planning is critical for larger projects and would be required for the neighbourhood scale.
- There are many opportunities around new transit lines and centres.

Product

- Products need to be flexible, as they may be on-sold into the future and will need to comply with market housing regulations.
- 'Design' comes second to amenity and practicality. While tenure blindness should be aimed for, parks and other non-housing elements are problematic, costly and often considered frivolous.
- There is a need to consider housing and client submarkets, such as seniors downsizing, etc.

Clients

- Decanting is problematic for redevelopment. However, it is currently being considered in too short-term a fashion, leading to a stalling in redevelopment.

Partnerships

- To achieve neighbourhood-level change there would need to be significant lead-time in the creation of market and government partnerships.

Melbourne workshop: notes and key themes

Planning and policy

- Council planners say that unless neighbourhood MT is in priority areas it will not be politically feasible. Neighbourhood effect will happen regardless. However there is general interest in it as a concept.
- While land availability is critical, there are many other considerations, such as policy, design/funding guidelines, and planning.
- Unlike in NSW, in Victoria there are no development concessions (additional Floor Space Ratio).
- Planning provisions and policies should be significantly altered to assist with the pipeline of new social housing.
- Neighbourhoods would need master-planning, and need to also consider non-residential areas/zones.

Tools

- Authorities need assistance in knowing where to relocate people to. They would generally prefer higher amenity/infrastructure areas. They need to know what land is available within 10km of the CBD, and a tool that can explore the opportunities.
- The social mix needs to be established, as does how the neighbourhood change would work in reality, as relates to house prices, access, etc.

- Authorities would need metrics and guides on what area revitalisation really means, the most significant interventions and their impact.

Scale

- There is always a need for uplift on site. A larger volume of development is typically more flexible and financially feasible. However, larger volumes can fracture community; in terms of decanting (for the client) and in terms of alienating built form (for all residents). Therefore, towers that are exclusively social are generally not considered to be the best outcome.
- Staging of projects is critical for neighbourhood planning, as the feasibility will change depending on how the project is developed and sold.

Partnerships

- Council bottlenecks—particularly local planning—are a consistent problem, as land-use planning is often too rigid. There are also council political issues with social housing. This suggests that councils should be key potential partners going forward, as they have the power to address issues locally.
- There is a need for partnerships at all tiers of government, and with developers. The value proposition for all parties needs to be established upfront, requiring feasibilities across finance, planning, politics and social outcomes.

Product

- Tenure blindness is incredibly important.
- Service catchments are not as relevant as many suggest. However, onsite maintenance is relevant, and service providers, where they exist onsite, need to be more accountable.

Clients

- Decanting is the most significant aspect of redevelopment, as the system is already overloaded.
- You cannot force people to live (or not live) in certain places and maintain equitable outcomes.

Leadership

- There is a need for passionate and interested parties to lead and make decisions. These are typically multifaceted individuals who can lead all aspects of the project.

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