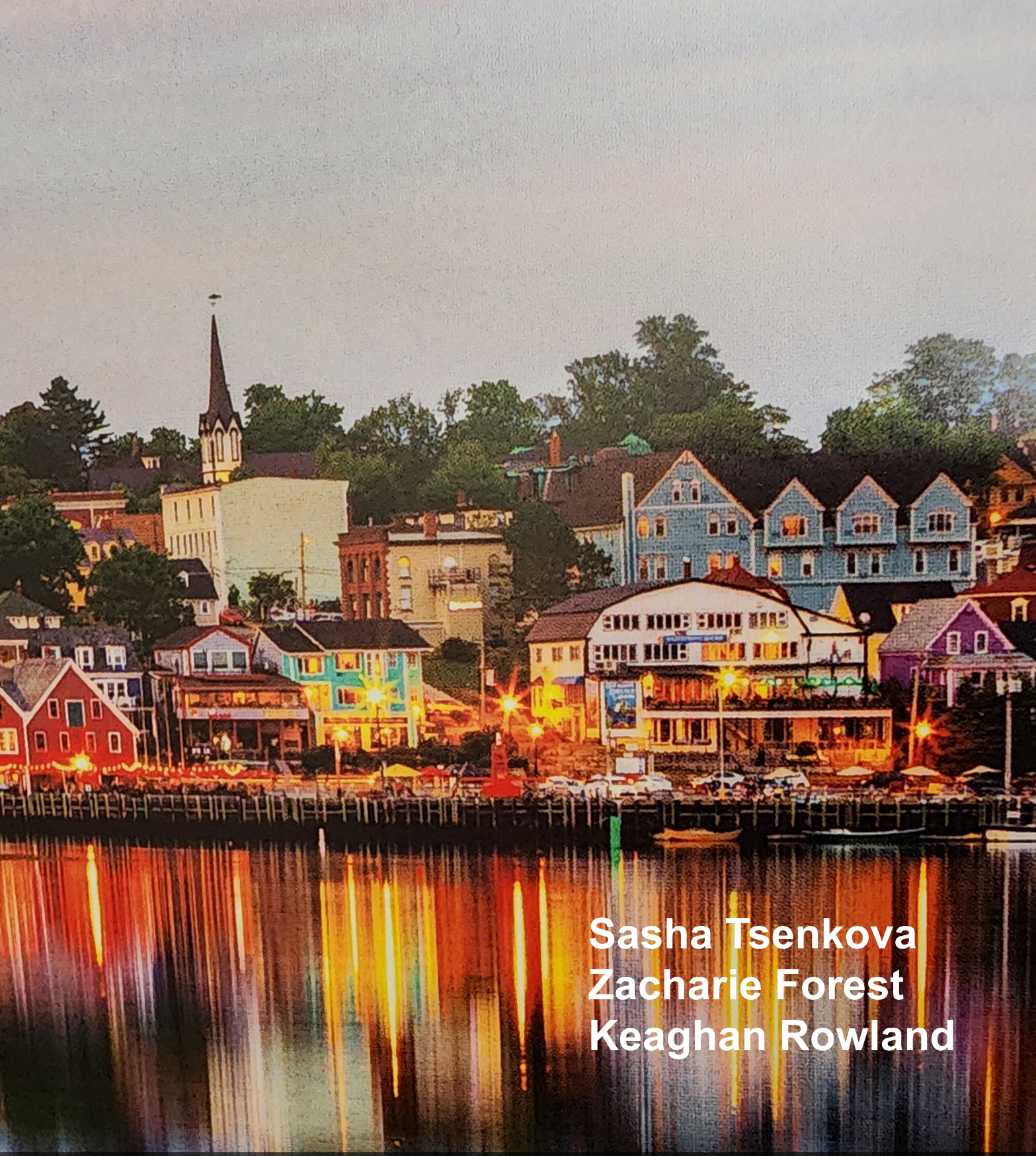

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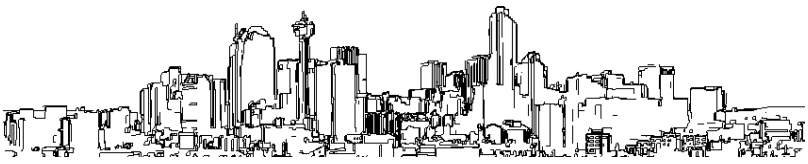

REIMAGINING NEIGHBOURHOODS: IMPLEMENTING MISSING MIDDLE HOUSING

PLANNING AND DESIGN INNOVATION

Sasha Tsenkova, Zacharie Forest and Keaghan Rowland

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1. Introduction & Rationale

Figure 1: Low-rise apartments with a diversity of housing units.

In 2022, CMHC stated that 5.8 million homes would need to be built in Canada by 2030 to restore affordability. A year later, the Canadian government declared a national housing crisis (Canada Mortgage and Housing Corporation, 2022). Since then, the situation in large Canadian cities has worsened significantly due to a rapid rise in inflation and immigration, dwindling government resources, and rising community resistance to new housing projects. The COVID-19 pandemic has illustrated the importance of affordable housing to shelter people from economic and social stress, accommodate hybrid work, care for family members, and maintain public safety. A transdisciplinary approach is needed to develop solutions to address the crisis that interconnects social sciences, business, and engineering—each providing unique perspectives and contributions. At SAPL, we have opened up a transdisciplinary scholarly dialogue to leaders in housing policy, planning, and real estate development in Calgary to advance the discourse, enhance the relevance, and catalyse collaboration. This is supported by UCalgary Vice-President's Transdisciplinary Research Grant, SSHRC, and industry, which has resulted in impactful research and discussions on the future of housing (see https://sapl.ucalgary.ca/labs/cities/housing-futures).

Figure 2: Research purpose & objectives.

The Reimagining Neighbourhoods Project, supported by the Alberta Real Estate Foundation, aims at addressing the housing supply shortage in Calgary through design and planning innovation that encourages diverse options in existing neighbourhoods (see Figure 2). It focuses on the development of a framework for rapid introduction of 'Missing Middle Housing' (MMH) in Calgary's neighbourhoods using a transdisciplinary approach. This research report centres on innovation to boost housing supply through zoning and land use changes, as well as new products that accelerate infill housing through modular and off-site production.

Innovation in housing design, planning, and building/production is central to the solution of the current housing crisis and the massive shortage of affordable housing. Today's challenge is not just about building homes, but it is also about building communities through the intensification of existing neighbourhoods, changes in the modus operandi of the real estate industry, and product diversification. Recent municipal and provincial planning reforms direct much more density and mixed-use developments to the immediate vicinity of LRT stations. Until now, neighbourhoods – some of them lined with shops, strip malls, or older small apartments – have remained relatively untouched by any form of intensification. The vast majority of Calgary's neighbourhoods are zoned for single-family detached housing and can benefit from intensification through neighbourhood-oriented MMH in amenity-rich parts of the city.

Reimagining Neighbourhoods addresses a priority strategy identified by The City of Calgary to respond to the supply shortage through design and planning innovation that encourages diverse housing options in neighbourhoods. We explore prototypes of MMH — housing developments including duplexes, triplexes, townhouses, and live/work units/clusters that can be an integral

element of existing neighbourhoods (Hurley, 2016). While the value of this intensification in nurturing socio-economic diversity and vibrant communities has been widely recognised, the adoption in Calgary has been challenging due to regulatory barriers, lack of industry experience, and residents' opposition (Holleran, 2022).

The focus of the research report is on Calgary, but also on other cities in Alberta experiencing a growing housing crisis. In Calgary, one in five residents requires some form of affordable housing support, and this number is growing (City of Calgary, 2023). Although cities in Alberta have a robust system of housing developers, they are responding to growth predominantly through single-family greenfield developments. Actions to increase supply incrementally in amenity/infrastructure-rich existing neighbourhoods have been met with limited success. Bolder initiatives in other Canadian cities have demonstrated a potential for more significant shifts in supply and pricing.

Our research centres on two interrelated questions: Is housing supply enhanced in a sustainable manner through radical policy/regulatory shifts that cause increases in middle housing? What prototypes can be implemented, and what are the impending risks and opportunities for their adoption?

2. Methodology

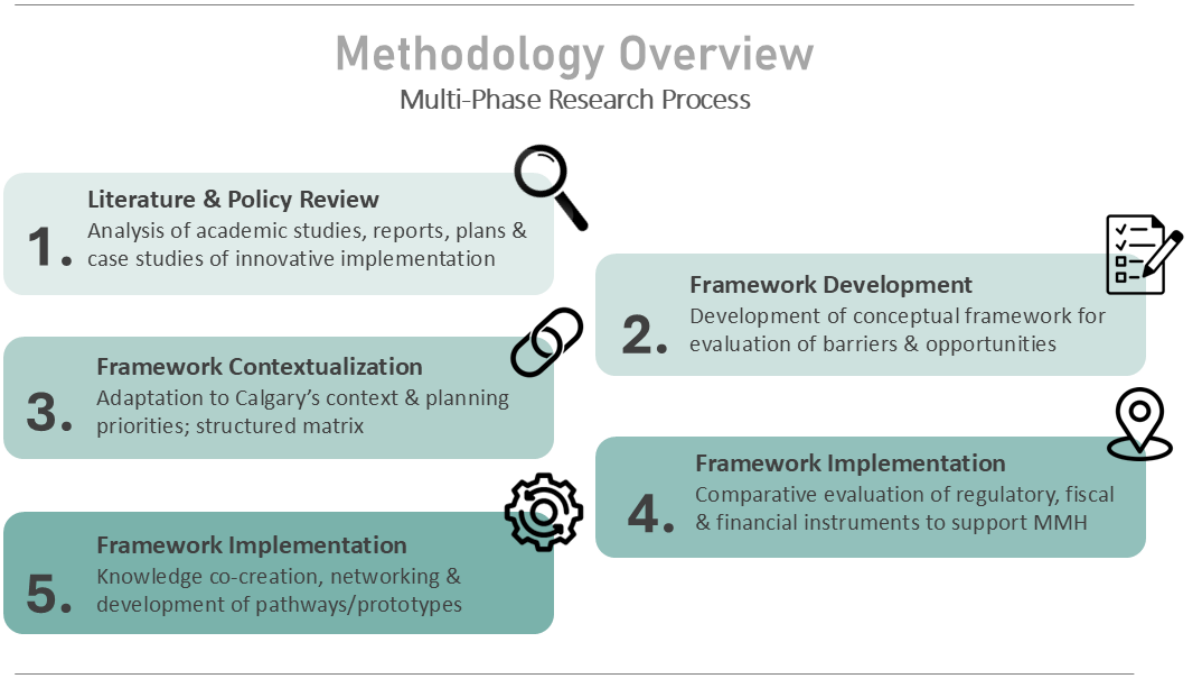

Figure 3: Methodology overview.

We use a multi-phase methodology to address the conceptual complexity of our research. The research project starts with a literature review, the development of a conceptual framework, and the profiling of successful case studies of planning policy and financial instruments that enable the implementation of MMH (see Figure 3). ***The first phase of the research*** explores broader regulatory changes for different forms of neighbourhood intensification, including design and planning metrics for integration, complemented with opportunities for modular housing and accelerated production. The second phase is followed by a systematic identification of different prototypes with a focus on the diversity of housing, tenure, and land uses. This exploration is about innovation in practice at the scale of a site, block, neighbourhood, and city. The final phase includes collaboration/networking through round tables with real estate experts to identify barriers to implementation. Research dissemination of results (prototypes and recommendations to implementation) will feature open access resources and dynamic discussions between leaders across the public, private, and government sectors, with a special focus on the cross-sector collaborations needed to seed and scale innovative approaches to creating more abundant, affordable, and sustainable housing for all Calgarians.

This report is an important milestone of the first phase in the research methodology. Specifically, it explores how MMH can act as an **enabler of sustainability** in existing neighbourhoods. The goal is to understand what strategies for neighbourhood intensification can make these communities more socially inclusive and resilient.

There are three specific objectives:
First, to identify different typologies of MMH that support sustainable neighbourhood intensification. Second, to explore planning, policy, and design instruments that establish the framework for effective implementation. Third, to **adapt this framework to** Calgary's housing landscape, focusing on constraints and opportunities.

At the core of this research is a simple but powerful structure—the **"Why–How–Where" Model** (see Figure 4):

- **Why** are we doing this? To support **sustainability** and build inclusive communities;
- **How** are we approaching it? Through implementation of a diversity of missing middle housing options at different scales; and
- **Where** are we applying this? Within the context of neighbourhood intensification, redevelopment, and change through **missing middle housing**.

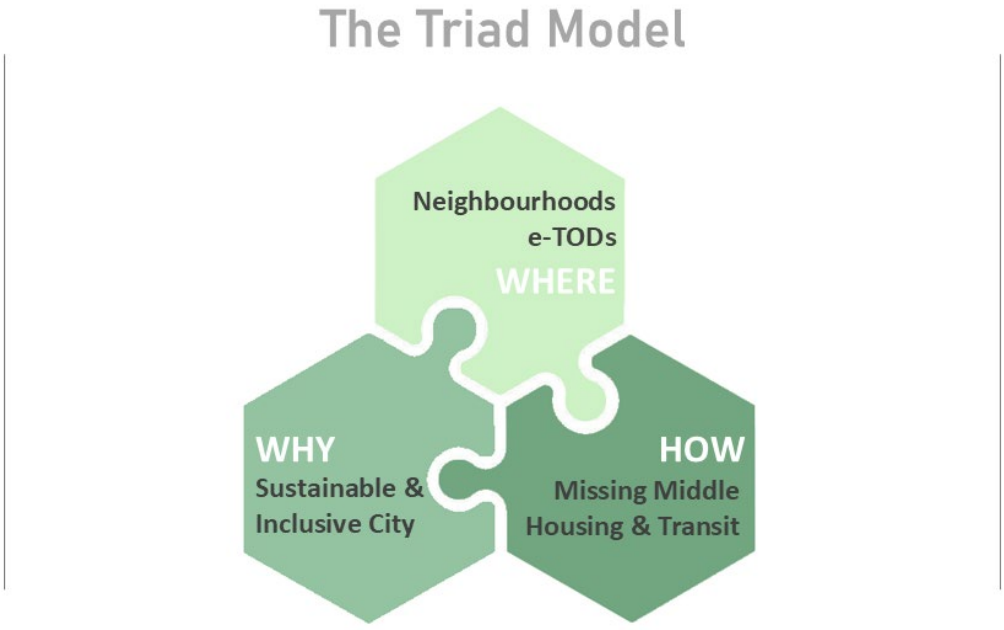

Figure 4: The Triad Model.

These three elements shape both the approach and the **operational logic** of the research project. They help ground the study while keeping it flexible enough to be applied in a real-world planning context.

To meet the research objectives, we followed a **multi-phase methodology** based on the "Why–How–Where" structure. We review academic studies focused on MMH and neighbourhood sustainability, along with reports/policy briefs on housing affordability programs and priorities across all levels of government—especially in Calgary. We develop a core framework identifying a wide range of regulatory, fiscal/financial, and institutional instruments to enable the

introduction of MMH on a larger scale. Next, we provide a systematic evaluation of the implementation of these planning and policy instruments in a variety of case studies. A specific emphasis is placed on modular housing as a way to accelerate the supply and make it more affordable. Finally, we focus on constraints and opportunities to deploy these innovative MMH prototypes in Calgary's housing market.

The second phase of the research will focus on the systematic identification of different prototypes of MMH that are contextually appropriate, retain the character of existing neighbourhoods and respond to the diverse needs of people in Calgary. Using the innovation design/planning lens, we will focus on adaptability, affordability, and efficiency. The aim is to document a variety of design solutions (typologies) for integration of MMH through infill projects in their respective neighbourhood context. The research will articulate options for diverse housing types, mixed-tenure, mixed-use developments, and intensification. Further, we will explore opportunities to accelerate the construction process through modular and off-site production of housing, clearly articulating costs, benefits, and constraints.

The third phase of our research is focused on collaboration/networking, bringing together members of the development industry, urban planners, architects, community leaders, housing providers, government stakeholders, real estate agents, and academics in a series of discussions to map out existing barriers for implementation—legal, regulatory, financial, and technological. This shared knowledge will identify a set of critical actions that need to be addressed by different levels of government, housing and planning policy experts, and leaders of the real estate industry in Calgary to enable transformational change and action. The purpose of this networking approach is to generate dialogue on challenges and opportunities to accelerate implementation (changes in land use bylaws, building codes, industry practices, public engagement), while focusing on the big questions regarding the infrastructure and housing deficits associated with growth.

3. Calgary's Context

Figure 5: Neighbourhood intensification: duplex and walk-up units.

In the Calgary context, MMH is being presented as one of the many tools, techniques, and typologies that is set to increase the supply of housing in the city. Calgary has experienced rapid population growth in recent years. It experienced a historically unprecedented year-over-year growth rate of 6% between 2023 and 2024, or roughly 100,000 people. Calgary is predominantly growing through gains in inter-provincial migration, immigrants, and temporary residents (Lundy, 2025).

The development of the suburbs on the fringes of the city have continued the trend that began in the post-war era. Most new housing is being developed in new communities, where residents are attracted to the lower average cost of housing compared to inner-city and established communities closer to the downtown core. This fact is far removed from the goal of balanced growth and a more compact urban form put forth in the Municipal Development Plan (City of Calgary, 2021, p. 131). The city's horizontal sprawl across the prairies in low-density typologies was fuelled and enforced through exclusionary zoning. As a result, single-family detached homes currently consist approximately 57% of Calgary's overall housing stock. What we consider as MMH typologies only make up 35% of the housing stock as of 2021 (CMHC, 2021).

One reason for the constrained supply is that the land use districts (zones) in place in approximately 60% of Calgary's residential areas in 2023 did not allow for a choice of housing beyond single-detached or semi-detached homes.

Recently, The City of Calgary has made efforts to significantly reverse this trend and enable the development of a greater diversity of housing types. The *Rezoning for Housing* initiative was a

blanket upzoning proposal to make *Residential – Grade-Oriented Infill* (R-CG) the base zone across Calgary. After the longest public hearing in Council's history, the motion was passed in a 9 to 6 vote on May 14, 2024. The proposal received significant community opposition and faced much scrutiny. The Rezoning for Housing puts the City in a better position to achieve their stated goals; goals that align with that of implementing MMH more broadly:

- **Home is Here - Housing Strategy** – which calls for outcomes that streamline planning processes for better service delivery and provide diverse housing supply in developed communities on R-CG parcels.
- **Calgary's Municipal Development Plan (MDP)** – which calls for actions that contribute to increase housing supply, accommodate a mix of dwelling types to meet various housing needs, and enable people from diverse economic and demographic backgrounds to live in the same community.
- **Calgary Plan (proposed)** – which calls for efforts that enhance service delivery while supporting diverse housing options.

The incremental implementation of MMH will be supported by the pilot *Infill Fast Track Program 1.0*. This program will focus on accelerating the review and approval process for Development Permits (DP), Building Permits (BP), and Development Site Servicing Permits (DSSP) for three MMH typologies in the City of Calgary. The three typologies are semi-detached homes with suites (including over the garage), four-unit townhomes with suites, and four-unit corner rowhouses with suites. The DP will remain discretionary; notice posting and advertising still applies and the ability to appeal is retained.

Infill Fast Track 1.0 – Program Goals and Key Outcomes

- **Faster Approval Timelines** for high-quality designs that fit standard R-CG lots in the inner city, catering to the diverse needs of Calgary's communities.
- **Consistent and predictable results** by utilising pre-reviewed designs.
- **Streamlined approval process** by concurrently reviewing pre-reviewed DP and BP and DSSP for the three missing middle housing typologies on R-CG parcels and eliminating the need for review by the Development Approvals Review Team (DART).
- **Reduced DP and BP review time** for reviewed designs to approximately eight weeks, thereby facilitating faster inner-city development.
- **Development of Design Catalogue** of pre-reviewed designs (DP & BP) through a transparent and thorough design selection process.
- **Service levels** by providing more predictable timelines and costs for building applications. (City of Calgary, n.d.)

Home is Here – The City of Calgary's Housing Strategy Annual Progress Update 2025

- A permanent **Chief Housing Officer** position was created to steward The City's corporate-wide action on housing and leverage funding and partnerships to increase supply and support the housing sector.
- Highest **housing starts** in Canada for 2024 (20,165).
- The supply of **purpose-built rental** apartment units has increased significantly.
- In established areas, **townhomes, rowhouses, and similar housing forms** made up 43% of all low-density DP applications, which created 966 new homes, or 70% of all new low-density homes applied for in established areas.

We acknowledge the efforts that The City of Calgary has made to enable the development of MMH and the fundamental shift from the post-war status quo that it represents. However, there remain numerous barriers to its implementation, most notably regulatory, financial, and institutional. The City of Calgary, if it is to achieve its goals of being a more liveable and sustainable city, must do more.

4. Definitions

Figure 6: Mixed-use street landscape in historic neighbourhoods.

If we are to tackle the subject of MMH and its implementation, it is crucial that we define what it is we are talking about. Looking at a variety of different sources, we observe that definitions of MMH vary depending on the local context and the perspective of the author. Emphasis is placed on different elements by municipalities, private groups, designers, non-profits, and researchers. A review of these definitions has gleaned the following major commonalities:

- Includes a range of typologies
- Multi-unit or clustered housing
- Located in walkable neighbourhoods
- Compatible in scale and form with single-family dwellings
- Greater density than single-family dwellings
- Highest density is low-rise, walk-up apartment buildings, no more than 4 storeys
- Ground-oriented at lower densities
- Includes ownership and rental options

A comprehensive definition of MMH for use in the Calgary context would include all of the above elements with some customisation considered for the unique needs and regulatory requirements in the city.

The most cited definition of MMH in the literature is from the architect who first coined the term, Daniel G. Parolek, in the book *Missing Middle Housing: Thinking Big and Building Small to Respond to Today's Housing Crisis*.

> Missing middle housing is a range of multiunit or clustered housing types, compatible in scale with single-family homes, that help meet the growing demand for walkable urban living, respond to shifting household demographics, and meet the need for more housing choices at different price points. (Parolek & Nelson, 2020, pp. 7–8)

Other definitions from a designer, a non-profit organisation, a research group, and a consultant show a diversity of perspectives highlighting the commonalities and slight differences in approaches to MMH.

> Missing Middle: Multi-unit housing including row housing, triplex and fourplex, stacked row housing, courtyard housing and walk up apartments. (Johns, 2024, p. xii)

> Missing Middle Housing consists of multi-unit housing typologies with densities between a single family home and high density / high-rise buildings. (Urbanarium, 2020, p. 9)

> The "Missing Middle" refers to a need for more housing types that range between the scale of a single-detached home and a four-storey building. The types consist of laneway suites, secondary suites, plexes, townhouses, and low-rise apartment buildings. (Bimm et al., 2021, p. 1)

> While many definitions exist, *mddl* considers middle housing as a range of housing types that fall between single-family homes and apartment buildings. These types of housing can include townhouses, duplexes, and triplexes - generally with at-grade entrances and no elevator core. (mddl, n.d.)

A number of Canadian municipalities have included their own definition for MMH in their long-range plans, like the City of Kelowna, City of Vancouver, City of Saskatoon, and City of Ottawa.

> A range of house-scale buildings with multiple units—compatible in scale and form with single-detached dwellings—located in a walkable neighbourhood. Typical examples include house-plexes, bungalow courts, and courtyard apartments. (City of Kelowna, 2024, p. 168)

> Missing Middle refers to housing forms such as townhouses, multiplexes, and low-rise apartments up to 6-storeys. This form of housing increases housing choice, including ownership and rental options. (City of Vancouver, 2022, p. 157)

> Neighbourhood infill is intended to complement the existing character of established neighbourhoods while gradually increasing residential density and providing additional housing options to current and future residents. Residential infill is primarily smaller scale, including secondary suites, garden and garage

> suites, two-unit/semidetached dwellings, and townhouses. (City of Saskatoon, 2020, p. 69)
>
> In Ottawa's context and for the purposes of this Plan, missing middle housing generally refers to low-rise, multiple unit infill residential development of between three and sixteen units, or more in the case of unusually large lots and for the lower-density types is typically ground oriented. (City of Ottawa, 2021, p. 262)

With these definitions as a base, we have outlined the following for use in this report to define MMH for Calgary. It is inclusive of a range of typologies and respectful to the local regulatory and historical context.

Missing middle housing refers to a range of multi-unit or clustered housing types—such as secondary suites, multiplexes, townhouses, courtyard housing, and low-rise apartments—compatible in scale and form with single-detached houses. Typically located in walkable neighbourhoods, these housing forms offer both ownership and rental options, providing diverse, context-sensitive infill that supports housing affordability and responds to changing household needs. They have a greater density than single-detached houses, with lower densities being ground-oriented, and an upper limit of 4-storey low-rise apartments.

5. Typologies

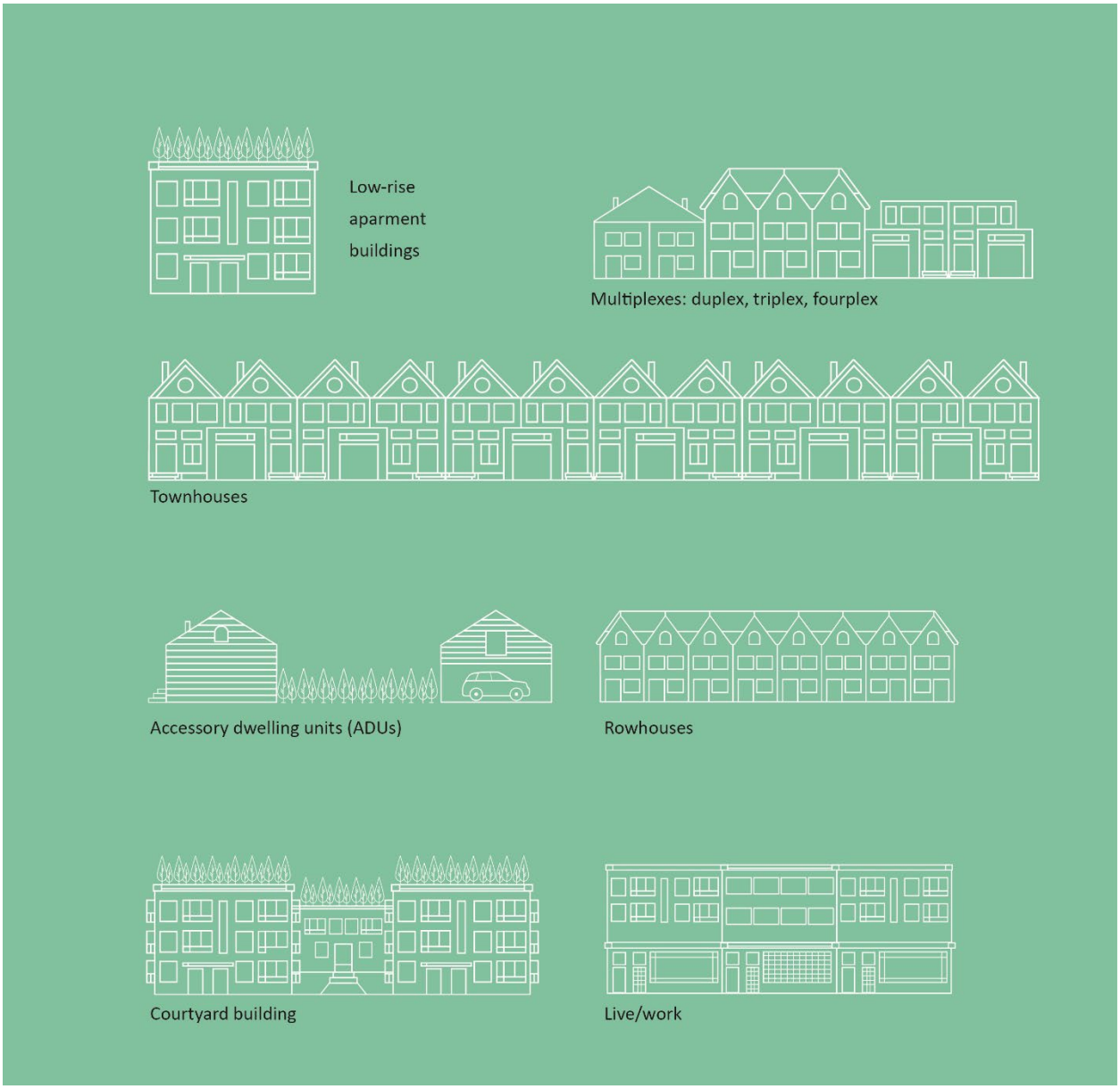

Figure 7: Typologies overview (adapted from Evenson et al., 2023, p. 7)

The range of MMH typologies (see Figure 7) can be roughly broken down into the following categories, with some distinct characteristics. The terminology used to describe them may vary from place to place but generally refer to the same built form and contextual relationships. There will inevitably be more fine-grained breakdowns within the identified typologies, and the diversity of MMH typologies cannot possibly be fully captured here.

Table 1: Missing middle housing typologies

Categories	*Sub-categories*	*Units*	*Storeys*	*Characteristics*
Accessory Dwelling Units (Secondary Suites) 'Missing Little'	Basement	1		Added to single-family dwellings (SFD) Attached, detached, or conversion
	Garage	1		
	Addition	1		
	Backyard/Garden	1		
	Laneway	1		
Multiplexes	Duplex	2	2-3	Side-by-side and/or stacked 1 or 2 units per floor Each unit has a direct entrance
	Triplex	3	2-3	
	Fourplex	4	2-3	
Townhouses (Rowhouses)			2-3	Attached multi-storey dwellings side-by-side, sharing 1 or 2 walls Each unit has a direct entrance and could have a secondary suite
Low-Rise Apartment Buildings			4 or less	Shared vertical circulation, corridors, entrances Typically without an elevator
Other	Cottage Court (Garden Cluster)			Group of detached dwellings arranged around a shared court Unit entrances are from the court
	Courtyard Building		1-3	Multiple side-by-side and/or stacked dwelling units arranged around a courtyard
	Live/Work			Dwelling unit above/behind a flexible grade-oriented commercial space Commercial space has a storefront and separate entrance from the dwelling unit
	SFD Conversion	2 or more	1-3	Conversion of a single-family dwelling into a multiplex
Sources: Bimm et al., 2021; Opticos Design, 2019; Pinkston et al., 2024; Urban Strategies Inc., 2020; Whitzman et al., 2024				

6. Conceptual Approach: Innovation Lens

Figure 8: Missing middle housing with ground level retail creates great neighbourhoods.

6.1. Rationale

There are increasing demands for policy and planning integration, particularly given the complexity of challenges associated with the transition to a green economy, access to affordable housing, and the provision of infrastructure in cities. Calls for greater transparency in decision-making, stronger efficiency and effectiveness of government programs, and more involvement of the private sector, as well as non-profit and community organisations, create a compelling rationale for much-needed policy integration (Cervero, 1998). The idea of synergies, where the whole is greater than the sum of its parts, works well in a context of fiscal austerity and growing pressures to deliver tangible benefits to communities under stress.

6.2. Neighbourhood Intensification & Affordable Housing: The Learning Curve

Given the emphasis on smart growth and neighbourhood intensification using MMH typologies, the goal of the research project is to explore the importance of policy integration to enable implementation using a sustainability and resilience lens. More specifically, it will focus on mechanisms and tools that promote integrated policy in the following domains—municipal land use planning, housing, transport, and community development. A way to make this operational is to bring all of these sector-specific policies under the broad umbrella of smart and sustainable growth management with an emphasis on neighbourhood intensification in the context of urban regeneration (Tsenkova, 2022). Despite the commitment to smart growth and intensification in long-term plans and strategic documents, empirical evidence points to limited success due to a

lack of effective coordination of federal, provincial, and municipal policies (Graham et al., 2019). In fact, over 80% of the growth in Canadian metropolitan areas is in auto-dependent suburbs, mostly on the outskirts of cities (Han et al., 2020). The empirical work highlights important lessons that can inform the design of future policies related to housing, infrastructure, and community building to achieve sustainable results. The provision of affordable housing also points to similar challenges manifested in rising housing costs, homelessness, and a massive supply shortage of 5.8 million homes by 2030 to restore affordability.

6.3. Policy Integration: Opportunities & Challenges

Policy coordination and integration is related to inter-governmental management, collaboration, and coherence. It is a response to growing fragmentation, preventing the achievement of important goals of public programs. Cross-cutting policy-making often addresses complex issues of urban regeneration, sustainable community development, multi-modal transport provision in transit-oriented development (TOD), or large-scale neighbourhood rebuilding (e-TOD), where MMH is an important strategy for transformation. For municipalities, this represents an opportunity for a transit-oriented development (TOD) model in which mixed-use communities are clustered within an average 800-metre walking distance from a transit stop and core commercial area. First-generation TODs are critical components of sustainable urbanism at the regional scale, widely used across many jurisdictions as a strategy to overcome sprawl (Calthorpe, 2011).

e-TOD is a second-generation development model that has established itself as a progressive city-building strategy (see Figure 9). It is more ambitious, focused on urban regeneration, inclusion, and resilience. The model promotes affordability, mixed-land use, diversity of housing and jobs, complete communities, and design excellence (Ewing et al., 2013). e-TOD offers economic benefits to municipalities by recycling urban land in strategic locations and ensuring much-needed return on public investment in high-order transit. Populations experiencing vulnerability benefit from living in e-TODs as it reduces travel costs and enables access to social infrastructures, such as schools or hospitals (Youssef & Tsenkova, 2020). The environmental benefit is high as the evidence suggests that 50-70% of residents of e-TODs commute by transit or walking, reducing emissions. The diversity of housing types in terms of tenure, form, and density is a critical ingredient of success, as is the integration of affordable housing as an important component (Chapple, 2015). MMH often defines the quality and the character of built form in e-TODs.

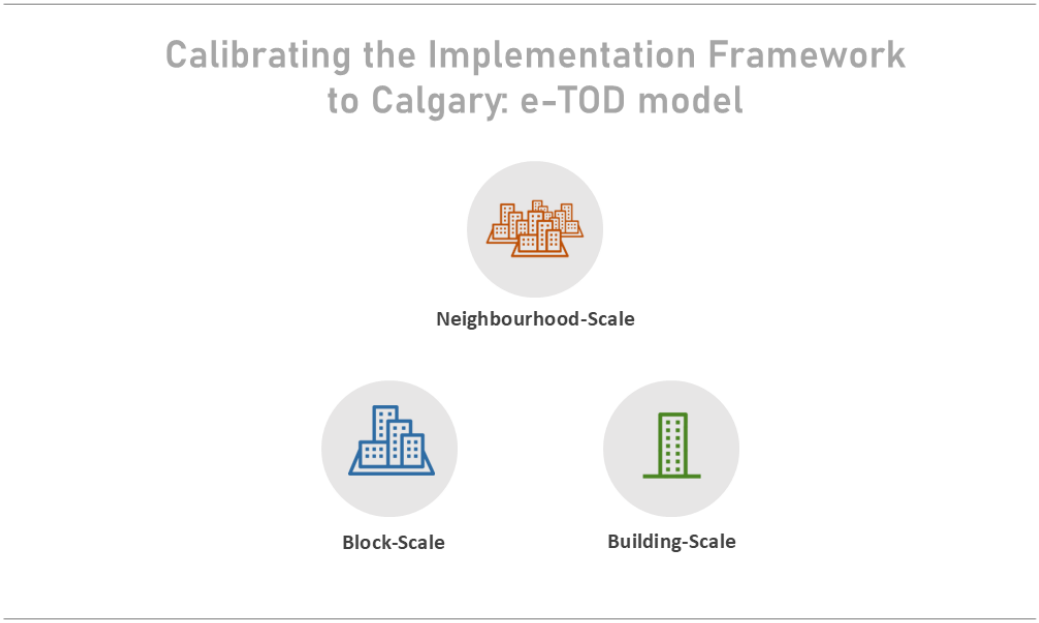

Figure 9: Calibrating the Implementation Framework to Calgary: e-TOD model.

The literature review and case study evaluation of the ***Reimagining Neighbourhoods: Housing Innovation, Density & Affordability*** project identifies enabling or inhibiting factors of policy integration (organisational, political, economic, financial, institutional) as well as maps out categories of policy instruments (fiscal, financial, regulatory) that lead to policy integration to enable MMH in this model (Tsenkova, 2021a).

6.4. Practical Steps to Drive Policy Integration

Finally, the city level offers good opportunities for policy integration and has the potential to achieve better results in economic, social, and environmental terms. It responds well to the current governance structure in Canada, its spatial diversity, and shared responsibilities for management and implementation of sustainable smart growth programs. A value-based approach with specific benchmarks and targets for monitoring and implementation is the international best practice, but its practical implementation is difficult. Strategic management using the e-TOD (equity TOD) development model provides an operational framework to institutionalise the approach and to generate transformative change in a specific context.

The conceptual framework for this transdisciplinary research emphasises the opportunities for integration of regulatory, fiscal, and financial instruments to initiate the implementation of MMH typologies at scale (Tsenkova, 2021b). It starts with small, incremental steps that may ensure success at the scale of a project/building, followed by larger developments at the scale of a city block. As complexity, scale, and risk become more prominent challenges in this process, the approach recognises the importance of more comprehensive integration of regulatory, fiscal, and financial instruments to drive transformation and de-risk investment (Tsenkova, 2021c). While we recognise that many Canadian cities have promoted innovation and design excellence in

MMH, the intent is to capitalise on the innovation and scale it up, so that it becomes ‘standard’ and ‘business-as-usual’, rather than an exception in neighbourhood redevelopment and change.

By design, this transdisciplinary research builds on existing partnerships within the University, while extending collaborations with urban and real estate professionals to enhance community impact through effective collaboration for regulatory business transformation. Potential outcomes of our network-based transdisciplinary approach include: 1) collaboration of scholars, designers, and practitioners on innovative housing solutions to the housing crisis through infill development and product diversification; 2) knowledge mobilisation and dissemination through the development of a repository of open access materials, based on case study research and a series of facilitated discussions as a resource for real estate industry, advocates, and community organisations to build capacity, adopt innovation, and initiate transformative change.

7. Barriers

Figure 10: Multiplexes: Adaptive reuse of heritage homes.

Missing Middle Housing (MMH) has gained considerable attention in recent years as a viable approach to diversifying a city's housing stock, enhancing affordability, and fostering more inclusive neighbourhoods. Despite these benefits, widespread implementation has proven challenging. Research on infill development underscores that small-scale, low- to mid-rise housing projects routinely confront multi-faceted barriers linked to planning regulations, financing structures, and institutional processes (Garcia et al., 2022; Parker et al., 2023). Similar barriers have been documented in case studies of municipal initiatives across North America, including those seeking to address the demand for medium-density housing within established residential areas (Ojah Maharaj, 2020a).

This section synthesises the obstacles to MMH implementation into three overarching categories: 1) Regulatory/Planning, 2), Financial/Fiscal, and 3) Institutional/Organisational. While exclusionary zoning and restrictive bylaws remain persistent roadblocks for MMH, challenges also arise from limited financing options, risk-averse lending practices, and fragmented decision-making processes among multiple actors (Johns, 2024; Ojah Maharaj, 2020b; Parker et al., 2023). These barriers collectively contribute to higher development costs, longer timelines, and heightened uncertainty, ultimately discouraging both private and non-profit actors from pursuing gentle-density housing solutions (Parker et al., 2023). By examining each category in turn, we lay the groundwork for considering potential strategies to overcome these hurdles. This structured approach highlights the complexity of factors impeding MMH and offers a platform to explore innovative solutions that can help unlock its potential for more equitable, sustainable growth in existing neighbourhoods.

7.1. Regulatory & Planning Barriers

Regulatory and planning barriers refer to the rules, processes, and statutes that govern land use, development approvals, and urban form. These frameworks were originally crafted to support single-detached suburbs, tending to restrict or complicate the addition of low- to mid-rise infill housing and severely limit the production of MMH (Parker et al., 2023). Exclusionary single-detached zoning remains a dominant barrier to small-scale multifamily housing, despite policy efforts in recent decades to enable MMH. With the persistence of this regulatory status quo continuing to limit redevelopment opportunities and restrict housing diversity in low-density neighbourhoods (Canadian Urban Institute, 2024; Johns, 2024; Ojah Maharaj, 2020a).

For example, in 2024 the City of Calgary adopted a strong policy of city-wide blanket upzoning to better enable the development of lower-scale MMH types (townhouses, rowhouses), yet many challenges still exist which continue to challenge its development in practice (Canadian Urban Institute, 2024). Where restrictive design requirements, unclear regulation, and complex approvals processes can still create significant barriers for developers looking to develop MMH (Canadian Urban Institute, 2024). Minimum lot sizes, setback requirements, parking requirements, height restrictions, and other standards can still restrict the feasibility of MMH projects (Garcia et al., 2022).

As these restrictions on MMH developments continue to persist, municipalities inadvertently drive up development costs, lengthen project timelines, and increase uncertainty. As a result, small-scale developers or non-profit actors – who often have less capital or experience to endure and navigate lengthy approval processes or finance expensive site modifications – are ultimately systemically discouraged from building MMH in favour of more conventional (and sometimes more profitable) single-detached or high-rise models (Ojah Maharaj, 2020b; Small Housing BC, 2024). In turn, this pattern perpetuates housing gaps, missing out on an array of more naturally affordable, low- to mid-rise infill typologies that could diversify the local housing supply.

In Calgary, for instance, the R-CG zoning designation – intended to streamline multi-unit infill – still faces hurdles, with detailed discretionary reviews on townhouses, rowhouses, duplexes, and certain fourplex configurations remaining commonplace (Interview data, March 2025). While the City has initiated efforts to work on this issue, such as through their pilot *Infill Fast Track Program 1.0* (City of Calgary, n.d.), most developers are still confronted with unpredictable timelines, neighbour appeals, or mandated design revisions, all of which add costs and discourage small-scale developers from investing in MMH. By collectively inflating costs and risks, these regulatory and planning barriers substantially impede MMH creation.

7.2. Financial & Fiscal Barriers

Financial and fiscal barriers refer to the structural and market-based conditions that constrain the economic viability of MMH development. These include land costs, access to capital, lending practices, tax structures, development fees, and broader financial risk that can make-or-break a

project. These constraints shape who can participate in the housing market – not just from the consumer side, but also from the perspective of those building the homes. Leading to larger-scale developers often having less interest in these projects, and small-scale and homeowner developers often facing disproportionately high cost and risk burdens when attempting to deliver MMH (Small Housing BC, 2023).

Land is the most significant cost-driver for creating attainable and affordable housing, which in Edmonton has shown to account for as much as 50 percent of the development costs for infill projects in mature neighbourhoods (Johns, 2024, p. 44). In high-demand areas, land speculation further inflates values, making it difficult for small-scale or non-profit developers to secure viable sites for MMH, especially as these projects can often have very tight margins (Small Housing BC, 2023). Even when zoning reform permits additional units, the cost of land may render redevelopment unfeasible if those added units cannot support the required return.

Most large financial institutions, such as banks, operate with models tailored towards larger-scale or conventional residential development, often citing MMH projects as being too small or risky to justify the investment, due to the lack of scale in most areas (Small Housing BC, 2024). Many lenders have requirements that small-scale or homeowner developers may find unattainable. For instance, Parker et al.'s (2023) article on barriers to MMH in the Region of Waterloo, Ontario, found that developers reported some lenders requiring pre-sales of 60-80 percent of units in order to obtain additional financing, on top of having a minimum projected return on investment of 10-15 percent. Similarly, as cited by Small Housing BC (2024), lenders often require 16-20 percent, with private capital often demanding minimum returns of 20 percent in order to secure financing – exacerbating the financial burden on MMH.

Such stringent profit and pre-sale criteria create disincentives for delivering MMH, particularly for small-scale and homeowner developers. Meanwhile, larger for-profit developers often opt for bigger projects with higher margins, given that it can become less economical to develop MMH projects as the amount of work is often similar for larger scale developments despite lower profit margin rates, (Ojah Maharaj, 2020a; Small Housing BC, 2024). As a result, MMH proposals often struggle to ‘pencil out’ financially, pushing many developers to shift their attention toward larger-scale or conventional projects that are more straightforward to finance (Garcia, 2024; Parker et al., 2023; Small Housing BC, 2024). With larger developers less likely to participate, this ends up creating a vacuum for MMH, which could be best filled by small-scale and homeowner developers (Garcia et al., 2022). Because of this absence of supportive lending practices and fiscal tools for the development of MMH, it has resulted in the disproportionate exclusion of small-scale and homeowner developers who rely on them – actors who could otherwise be playing a critical role in expanding the supply of MMH in the local housing market (Ojah Maharaj, 2020b; Small Housing BC, 2024).

In Tampa Bay, Florida, for instance, Ojah Maharaj (2020b) found that small-scale developers faced a fundamental misalignment between project scale and available capital support, creating a

reliance on other sources such as personal equity – restricting them from developing MMH. A similar dynamic has been observed in the Region of Waterloo, where systemic feedbacks between real estate markets and planning processes have virtually locked in high-density, small-unit high-rise developments, effectively preventing the development of MMH (Parker et al., 2023). Where, despite growing demand for MMH, institutional expectations and approval practices encourage larger, more conventional typologies – effectively sidelining medium-density infills (Parker et al., 2023). As seen in Tampa Bay, the Region of Waterloo, and discussions from Small Housing BC (2023, 2024), these intertwined financial and institutional barriers show how market forces, lending practices, and municipal procedures can converge to marginalise the development of MMH.

Ultimately, these financial constraints are not merely technical – they shape who can participate in reshaping a city's urban form and its housing supply. When financing systems and fiscal policies exclude small-scale actors or make innovative, smaller-scale projects infeasible, MMH development either stalls or shifts upmarket, exacerbating affordability challenges. Without tailored financial instruments and risk reduction strategies, infill proposals may be delayed, abandoned outright, or forced to compete under the same conditions as large-scale developments. In all cases, the outcome is a diminished supply of MMH – precisely the housing types many urban regions desire and sorely need.

7.3. Institutional & Organisational Barriers

Institutional and organisational barriers refer to the governance structures, actor dynamics, and operational capacities that shape housing development outcomes. These factors often originate in municipal processes, interdisciplinary coordination, and the prevailing norms, expectations, and practices among diverse actors – including regulators, planners, lenders, developers, community members, and other parties who impact development (Ojah Maharaj, 2020b; Parker et al., 2023). Further, barriers can arise depending on the interaction environment in which these various actors operate, such as the planning realm, land markets, housing markets, etc. (Parker et al., 2023). For instance, prospective homeowners primarily engage in housing markets, interfacing with brokers and planners, while developers negotiate in land markets and municipal planning realms to secure approvals and financing.

Each actor's role has distinct constraints – such as limited information, risk aversion, or competing priorities – that can reinforce institutional inertia or create friction within the development process (Ojah Maharaj, 2020b; Parker et al., 2023). Unlike more quantifiable zoning restrictions or land costs, these organisational and behavioural factors can prove harder to measure yet can significantly influence whether MMH proposals materialise. When alignment fails between the various actors involved, MMH projects may stall or fail to move past the conceptual stage, underscoring the importance of effective institutional environments for determining housing outcomes (Incremental Development Alliance, n.d.; McConnell Foundation, 2024; Ojah Maharaj, 2020b; Parker et al., 2023).

An often-discussed major institutional barrier arises from local community resistance, frequently referred to as 'NIMBY-ism' (Not in My Back Yard). Residents who perceive medium-density infill as a threat to their neighbourhood's character, property values, or on-street parking often oppose projects at council hearings or community meetings, thereby delaying or derailing approvals (Federation of Canadian Municipalities, 2009). In turn, this opposition can become especially pronounced when community members feel excluded from early consultations, leading them to rally against projects at public hearings or council meetings. While some interested parties may acknowledge the broader benefits of MMH, such as increased supply and opportunities for affordability, they may still oppose projects if they feel these benefits come at the expense of conserving the perceived character of their community or protecting home values (Federation of Canadian Municipalities, 2009; Johns, 2024). In some cases, the continued influence of the entrenched single-family housing model – such as in the form of NIMBY-ism – may discourage some developers from building at the fullest density and form a site could support to avoid community backlash, ultimately limiting choice, variety, flexibility, and affordability through MMH projects (Johns, 2024).

Similar to the influence of community perception, developers themselves may have certain perceptions and skepticism toward MMH, particularly when it comes to medium-sized family units in infill locations (Parker et al., 2023). In the Region of Waterloo, for instance, market research and household surveys found substantial demand for MMH types from high-income couples with children and retirement-aged residents living in single-detached housing (Parker et al., 2023). However, despite having access to similar sources of information, many developers continue to hold deep skepticism regarding the demand for MMH. With some claiming that buyers either cannot wait the typical three-year gap from pre-sales to occupancy due to the immediate needs of new families or will simply opt for suburban properties with comparable pricing. Developers also questioned whether potential buyers would pay sufficient premiums to cover higher land and construction costs in TOD areas. As a result, much of the new supply in places like the Region of Waterloo defaults to conventional high-rise towers or suburban subdivisions, backed by institutional investors with proven returns. Industry observers note that a critical mass of successful mid-sized projects is needed to effectively demonstrate market viability and reshape entrenched perceptions to prove that the demand for family-oriented infill housing is both real and profitable rather than merely theoretical (Parker et al., 2023).

As argued by authors such as Small Housing BC (2024), Ojah Maharaj (2020b), the Incremental Development Alliance (n.d.), and the Canadian Urban Institute (2024), small-scale and homeowner developers may be among the most essential groups for effectively increasing the supply of MMH. However, in despite of this, these groups also face some of the most significant risks and challenges, even beyond the financial barriers previously discussed. For instance, unlike larger developers, these groups typically lack the administrative bandwidth, organisation, legal expertise, training, and strong networks with lenders and planning staff needed to effectively and efficiently navigate lengthy approval processes (Incremental Development

Alliance, n.d.; Ojah Maharaj, 2020b; Small Housing BC, 2024). As a result, many small-scale or homeowner developers remain disproportionately restricted from participating in the development of MMH, further limiting the pool of those contributing towards increasing its supply.

7.4. Barriers to Modular/Prefabricated MMH

Recent interest in modular and prefabricated construction stems from its potential to increase efficiency, accelerate build times, reduce construction costs, lower on-site labour demands, offer precise factory-based quality controls, climate controlled manufacturing, decrease waste, and increase environmental responsibility – advantages that could prove especially helpful for MMH projects (Bowes et al., 2018; Wuni et al., 2020). With modular and prefabricated construction, up to 80-95 percent of a building can be manufactured off-site, producing standardised components or fully assembled modules that can be delivered to a site and quickly assembled (Wuni et al., 2020). However, despite these potential benefits, experience on the ground has shown that current modular/prefabricated approaches can be difficult to implement for smaller-scale developments like MMH projects, often running up against regulatory hurdles, financing constraints, and limited institutional support (Feldmann et al., 2022; Small Housing BC, 2024).

7.4.1. Regulatory & Planning Barriers

One of the most prominent challenges facing modular MMH lies in building codes and regulations, approvals and permitting processes, and design statutes that are geared primarily toward traditional on-site construction methods or are under-developed for modular/prefabricated construction (Feldmann et al., 2022). Which is particularly challenging as these standards vary across provinces and municipalities in Canada. Where even relatively supportive planning regimes may lack explicit standards for modular or prefabricated construction (Feldmann et al., 2022; Government of Canada, 2024). This uncertainty can be especially significant for smaller-scale developers, who may lack the legal or administrative capacity to navigate ambiguous regulations (Ojah Maharaj, 2020b; Small Housing BC, 2024).

7.4.2. Financial & Fiscal Barriers

Most of the major challenges modular/prefabricated construction faces relate to the effective (or ineffective) use of financing structures and the potential for economies of scale. Although some off-site systems can reduce on-site labour and compress construction timelines, they often demand a high volume of consistent production to offset the upfront investments in specialised facilities and processes (Feldmann et al., 2022; Kamali et al., 2019). In particular, typical modular factories currently operate on a made-to-order basis, with scheduling configured around the precise module needs of each individual project (Wuni et al., 2020). In turn, if multiple projects are inconsistent in quantity or design, manufacturing lines must be repeatedly reconfigured or paused, driving up per-unit cost and losing out on the opportunity for economies of scale that comes with standardisation and the repeated use of the same component and

processes (Feldmann et al., 2022; Wuni et al., 2020). This opportunity for economies of scale has been particularly underutilised, especially for the production of multi-family houses, which Feldmann et al. (2022) argue as being the most suited for this method of construction due to its potential for standardisation and repeatability.

A second financial hurdle arises from lender and investor perceptions of prefabricated housing as an unproven or riskier niche, prompting stricter financial terms or a lack of opportunities for financial support (Feldmann et al., 2022; Small Housing BC, 2024; Wuni et al., 2020). With skepticism from financial institutions and investors who perceive prefabricated developments as unsecure, with uncertainty regarding market demand or acceptance (Feldmann et al., 2022; Small Housing BC, 2024). In turn, there is often hesitation to fund these projects, with Small Housing BC (2024) reporting that banks often only fund 50 percent of the projects, and often not providing this until the building is actually delivered on site. Which creates a significant discrepancy, as they report that up to 90 percent of the building cost must typically be paid to the off-site manufacturer prior to transportation from the factory. Meaning that homeowners or the developer can often be forced to fund these projects, and even after receiving institutional financing, they may still be left funding up to 40 percent of the project (Small Housing BC, 2024). Ultimately, these funding discrepancies and the lack of clear financing pathways means many prospective prefabricated MMH developers are severely limited, while reinforcing conventional construction methods.

Ultimately, overcoming the financial barriers to prefabricated construction is a multifaceted challenge. As Feldmann et al. (2022) identified, perhaps the greatest challenge to the financial barrier relates to the interdependence of this barrier with other factors such as industry attitude, supply, demand, and processes. Their analysis shows that finance is one of the most highly 'influenceable' barriers, meaning that improvements in related areas (like a more open or better-resourced modular supply chain) can substantially reduce financing hurdles. For instance, increasing the number of established off-site manufacturing supplies (thereby lowering the supply barrier) may spark investor confidence that prefabricated building is a proven model, mitigating the perceived lending risks. Likewise, addressing negative developer attitudes – for example, through early buyer engagement – can help standardise processes and highlight potential savings, ultimately lowering cost uncertainty. Such a multi-pronged approach demonstrates that while financial obstacles may create significant barriers for prefabricated MMH projects, they can be gradually unlocked through efforts to expand supply, foster market demand, and shift entrenched perceptions within the construction industry (Feldmann et al., 2022).

7.4.3. Institutional & Organisational Barriers

From an institutional perspective, industry attitude and conservative norms toward maintaining the status quo can significantly impede modular uptake, especially among developers who see off-site construction as a departure from tried-and-true on-site methods (Feldmann et al., 2022).

This cautious mindset can be exacerbated by process-related factors some developers may be skeptical of, such as prolonged pre-project planning, tighter logistical coordination, and less flexibility for late-stage design changes (Feldmann et al., 2022; Wuni et al., 2020). While these aspects may ultimately lead to improved efficiency and quality control, they represent upfront hurdles that can discourage smaller or mid-sized developers – key potential contributors to the MMH supply (Canadian Urban Institute, 2024; Small Housing BC, 2024). Additionally, limited familiarity with modular building codes or supply chain dynamics can heighten uncertainty, further fueling the industry's protective stance toward conventional methods (Feldmann et al., 2022; Wuni et al., 2020).

Closely connected to industry culture, organisational gaps also pose challenges for small-scale and homeowner developers. Many of these actors lack the legal expertise, administrative capacity, or established partner networks (e.g., architects, lenders, municipal officials) to manage the precise scheduling and front-loaded planning required for current off-site construction methods (Feldmann et al., 2022; Small Housing BC, 2024). When combined with persistent negative preconceptions that prefabricated construction may be of lower quality or less flexible, many developers have reported having skepticism over whether a strong enough market would exist for this method (Feldmann et al., 2022). However, as Feldmann et al. (2022) note, prefabricated construction can often be held to higher quality standards, with many potential customers not likely being able to notice any significant difference – and that a market for this method has been severely under-tapped. Rather, through their analysis, they identified this barrier has more to do with developer attitude and perceptions towards the method, rather than an actual lack of potential market demand. Making this barrier one of the highest priorities to overcome for the increased development of prefabricated MMH projects.

8. Removing Barriers

Figure 11: Missing middle housing creates diverse identify of historic neighbourhoods.

8.1. Housing Policy Instruments & Tools

Studies using a framework based on regulatory, fiscal, financial, and institutional instruments, planning policies, and tools identify three broader domains—*regulatory*, *fiscal/financial,* and *institutional* (Tsenkova, 2021c, 2022). The alignment of instruments may contribute to the supply of housing in general and increase its affordability. The implementation requires specific targeting to respond to housing and planning policy goals, so it is not necessarily universal.

Table 2: Instruments to Increase the Supply of Missing Middle Housing

Regulatory/Planning Strategies	*Fiscal/Financial*	*Institutional/Organisational*

• Blanket upzoning
• Minimised parking requirements
• Inclusionary zoning (IZ)
• Density Bonusing
• Streamlined planning approvals
  ○ Fast-track permitted and expedited reviews
• Relax Design Requirements
  ○ Easing Minimum Lot Sizes, Parking, and Height Limitations
  ○ Adapting Building Codes and Safety Requirements to Support with MMH
• MMH Pilot or Permanent "Fast-Track" Permit Programs
• Pre-approved Standardised Designs
• Expanding ADU Allowances
• Dedicated approval planning entity
• Protection of existing affordable rental housing near transit areas
• Pre-acquisition of land during transit alignment configurations
• Expropriation of existing affordable rental buildings near transit
	• Tax incentives/exemptions
	  ○ tax increment financing (TIF);
	  ○ low-income housing tax credit programs (LIHTC);
	  ○ tax exemptions for Affordable Housing
	• Capital Funding
	  ○ cash-in-lieu
	  ○ grants one time or fixed term
	  ○ subsidies to tenants or owners
	  ○ Waive planning, building, development fees
	  ○ Dedicated Lending Products & Micro-Loans
	• Long term financing
	  ○ diversity mortgages
	  ○ subsidised borrowing
	  ○ gap financing
	  ○ Reevaluate Banking Requirements for MMH
	  ○ Financial Incentives for Lenders
	  ○ Government Loan Guarantees
	• Land
	  ○ Discounted sale / lease
	  ○ Transfer
	  ○ Swap
	  ○ Land Acquisition Support
	  ○ Density Bonuses & Reduced Fees
		• Institutional capacity building, small housing industry
		• Homeowner collectives
		• Training & Knowledge-Sharing
		  ○ Technical Assistance & Partnerships
		• Partnerships
		  ○ public, private, non-profit, religious institutions, private businesses/ corporation
		  ○ Small Developer Alliances
		  ○ Collaborative Capacity Building Models
		  ○ Co-op and Land Trust Frameworks
		• Joint transit developments (JTD)
		• Trusts - Housing / Land
		• Address Developer Misconceptions
		  ○ Overcome Negative Attitudes and Misconceptions for MMH
		• Demonstration Projects & Pilot Initiatives
		  ○ Proving Viability Through Real-World Examples

Based on: Tsenkova, 2021c; Tsenkova, 2022		

8.2. Regulatory/Planning Strategies

For many MMH typologies, planning regulations are the most critical barrier that stand in the way of successful wide-spread implementation in established neighbourhoods. Planning regulations that allow for the development of multiple units, but remain suited for the single-family detached form, must be eliminated to increase the feasibility and affordability of MMH.

The solutions to regulatory planning barriers can be characterised broadly as:

- End exclusionary zoning, and
- Eliminate site design barriers.

Zoning standards, regulatory processes, and related regulations must all be reviewed and modified to allow a greater variety of MMH. In Alberta, this is the Land Use Bylaw. A comprehensive modification and overhaul of these regulations is required, because removing just one of the barriers identified is insufficient to allow for the construction of more MMH (Pinkston et al., 2024). Planning regulations are interdependent on each other; they act together to enable and restrict the types of development desired by those that adopt them.

Another effective action that municipalities can take is amending their higher-level policy plans, such as Municipal Development Plans (MDP) and Area Redevelopment Plans (ARP). Identification and assessment of policies within these plans should be tailored toward delivering more housing choices. A focus on future land-use categories and a guide on the allowable scale/type of housing desired is needed to achieve the preferred zoning changes (Parolek & Nelson, 2020). It is important that long-range planning documents clearly identify development and density targets in conjunction with built form and design expectations to effectively shape dependent implementation regulations and processes towards the delivery of MMH.

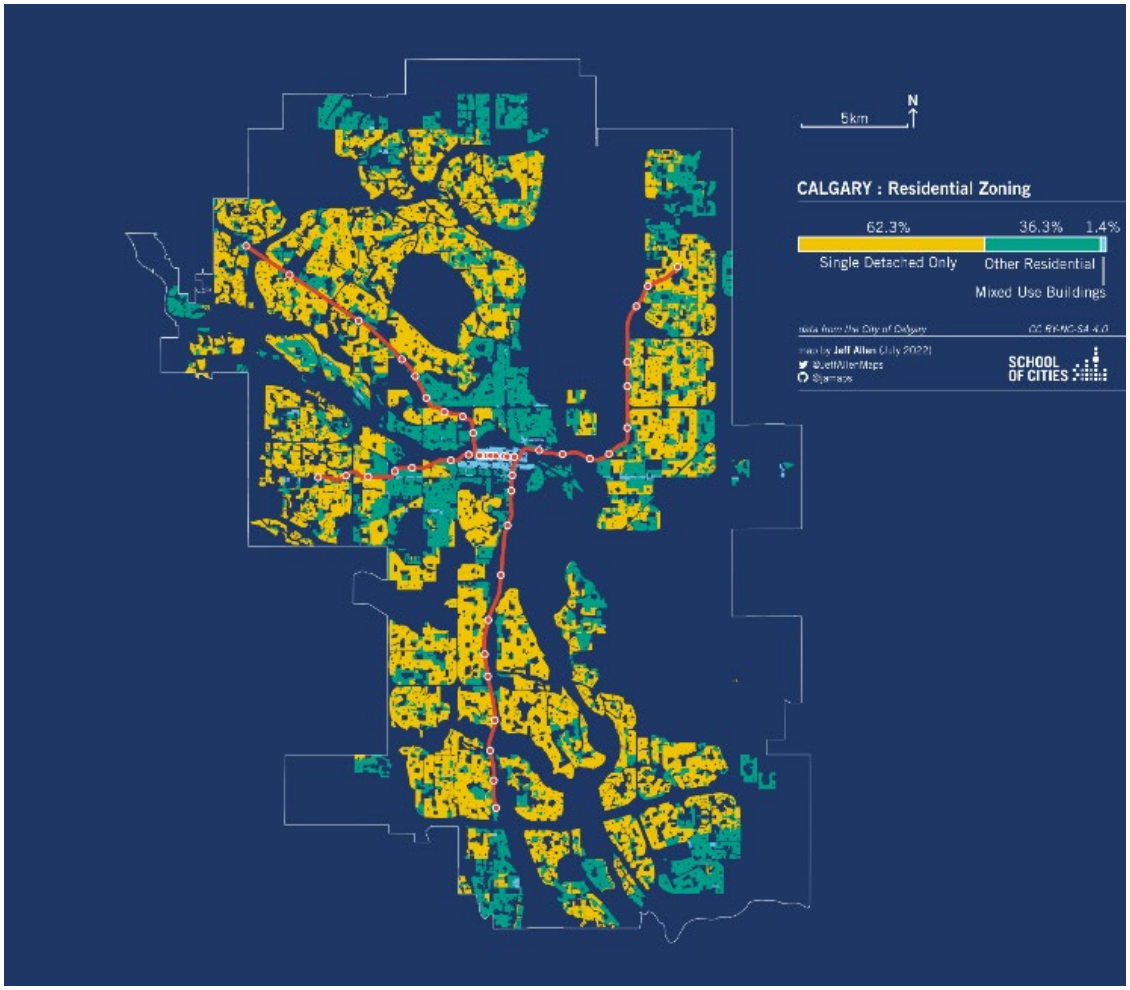

Figure 12: Residential zoning in Calgary (Allen, 2022).

8.2.1. End Exclusionary Zoning

To enable the implementation of MMH, exclusionary zoning must be eliminated (see Figure 12). Zones that only permit single-family detached dwellings must be 'up-zoned' to allow for greater densities and a mixture of uses. Implementing mixed-use zones into areas previously designated as solely residential is crucial for bringing services in close proximity to low-income households who are less likely to own cars (Whitzman et al., 2024).

Zones must also allow for the implementation of the lower end of the MMH spectrum, the 'Missing Little', otherwise known as Accessory Dwelling Units (ADUs) or Secondary Suites. This strategy is an opportunity to insert density into existing single-family neighbourhoods without dramatically changing the scale of the built form. The removal of zoning restrictions for Missing Little typologies must be accompanied by other strategies to ensure effective implementation. This includes reducing the cost of construction, accelerating approval timelines, creating incentive programs, establishing direct administrative support for homeowners, and increasing education on the topic (Canadian Urban Institute, 2024).

Updating the base zoning within lower density neighbourhoods to allow for the construction of MMH is a critical first step, but it is important to note these changes alone are unlikely to facilitate significant new construction (Garcia et al., 2022). These additional interventions include further enabling zoning reforms that allow for more flexible designs and larger built forms.

Temporarily, municipalities can adjust existing zones to allow MMH, but the long-term goal should be to have zones specifically for MMH. A minimum of two zones should be created, one for lower-scale and another for higher-scale typologies (Parolek & Nelson, 2020).

City of Edmonton, Infill Roadmap, 2018

The Infill Roadmap recommended 25 actions for bringing more people and homes into established neighbourhoods. Which included the improvement of medium- and low-scale zones (City of Edmonton, 2018b).

These actions are reflected in the city-wide rezoning adopted through the Zoning Bylaw 20001 (January 2024). In residential zones, eight or more units can now be built on a single lot. More commercial developments are allowed in more zones. More diverse and denser housing has been promoted through the renewal of medium- and low-scale zones in the Zoning Bylaw.

8.2.2. Eliminate Site Design Barriers

The design regulations and architectural controls adopted for single-family detached houses are completely incompatible with the scale of MMH. These site design requirements, which include maximum floor area ratio (FAR); minimum and maximum unit sizes; minimum front, side, and rear setbacks; and height restrictions, if left unchanged from those suited for single-family housing, make it difficult for developers to get affordable and high-quality designs approved. To unlock MMH, rezoning must therefore come with an appropriate assembly of site design standards which allow for built forms that can accommodate MMH on most parcels (Whitzman et al., 2024).

The biggest site design zoning barriers identified by Parolek & Nelson (2020) are: 1) building envelope requirements that are much larger than MMH (height, width, depth), 2) densities that are too low, 3) minimum lot sizes that are too large, and 4) parking requirements that are too high. Parolek & Nelson call for the use of a form-based approach over a density-based approach (see Figure 13), one that would prescriptively define the desired built form or allowable building envelope. This approach ensures the maximum flexibility and creativity for MMH developments. Form-based codes are a proven alternative to conventional zoning approaches that effectively

regulates MMH while removing barriers and incentivising its development in appropriate locations. A range of form-based zones should be created based on existing patterns and desired future built form for different neighbourhoods or communities (Opticos Design, n.d.).

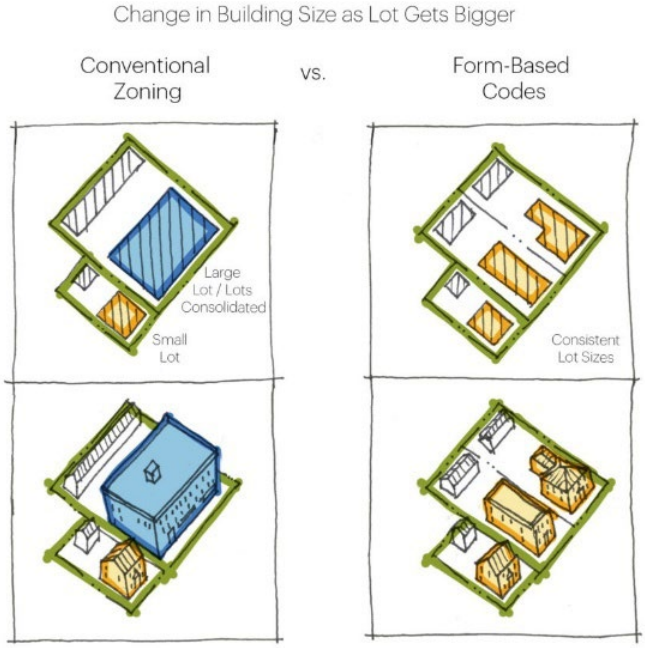

Figure 13: Conventional Zoning vs. Form-Based Codes (Opticos Design, n.d.)

The Casita Coalition (Pinkston et al., 2024) identified specific site design development standards which, when reduced or removed, can increase the number of MMH developments. Standards that encourage and incentivise the development of MMH will have flexibility built into them to allow a wide range of existing development patterns to change and evolve with community needs over time. Having the proper form-based zoning in place enables flexibility through the regulation of a development's size and shape, and not its location or the number of inhabitants.

Table 3: Development standards that either restrict or allow middle housing

Development Standard	*Restricts/Prohibits MMH*	*Allows MMH*
Minimum Lot Sizes	465 square metres (5,000 square feet) per unit	130 square metres (1,400 square feet) per unit
Parking Minimums	Two per unit	Zero to one per unit; zero near transit
Open Space	Standards suited for single-family, subdivisions, and large multi-family	Flexible standards
Density	One home per lot; high minimum densities for large multi-family	Allow 2-12 on single detached lots; form-based codes; density bonuses as incentive
Setbacks	More than 1.2 metres (4 feet) side and rear setbacks	1.2 metres (4 feet) or less side and rear setbacks
Floor Area Ratio	Ratios that preclude ADUs or smaller primary homes	Allowances to encourage a range of sizes; enough for 4 or more units
Height Limits	Limits of less than 7.5 metres (25 feet)	Sufficient for up to 4 storeys
Road, Driveway, and Access Lanes	No flag lots; no shared driveways	Irregular/flag lots allowed; walk access lanes to rear homes
Source: adapted from Pinkston et al., 2024, p. 29		

The University of Toronto School of Cities in their *Enabling the Missing Middle* report (Whitzman et al., 2024) provide a summary of the key actions municipalities should undertake to eliminate site design barriers. First is the flexible use of lots with minimum open space and the elimination of front/rear setbacks. Second is the elimination of parking space minimums. Third is the elimination of lot and unit size minimums, with consideration of unit size maximums for single-family rebuilds. Fourth is a review of prohibitive requirements, such as street-oriented unit entrances and garbage disposal loading bays.

In the same report, the cities of Edmonton, AB, Kelowna, BC, and Kitchener, ON, were examined for promising practices on regulatory changes to enable MMH. Edmonton's new simplified zoning structure has given developers greater design flexibility than previously allowed. Unit configuration of three or more units on a lot is advantageous to MMH forms and there is greater flexibility around setbacks, with reduced setback requirements if ground floor retail is proposed. Kelowna has updated its zoning to cover much of the city by a set of four 'multi-unit zones.' These zones permit greater unit densities per lot in key areas. Kelowna still has to overcome the barriers of minimum parking requirements and their third-floor setback rule (requiring that the third storey of a townhouse, multiplex or apartment to only have 70% of the massing). Kitchener has seen significant increases in the development of MMH. A 2023 report on enabling MMH finds that Kitchener needs to address parking minimums and increase density and height allowances. A common feature among the three cities is that they are moving towards establishing a simplified set of zones that have focused site design standards to incentive MMH, especially near transit (Whitzman et al., 2024).

For more units to be allowed on smaller lots, design requirements must be flexible. Allowing more homes on single-family parcels is insufficient in itself without also increasing the allowable building area commensurate with the increase in units. Otherwise, development of multiple units is difficult within the permitted building envelope. Any combination of guidelines for front, rear, and side setbacks, building heights, roof pitch requirements, floor area ratio (FAR), easements, and parking can greatly limit the effectiveness of base zoning changes in facilitating MMH developments. Municipalities should examine how existing height, setback, parking, FAR, easement, and other standards might impede the building envelope of MMH and assess how those standards impact project feasibility (Garcia et al., 2022).

BC - Small-scale, Multi-unit Housing Initiative (Bill 44), 2023

The BC government passed legislation requiring all municipalities to amend their zoning bylaws to enable the creation of small-scale, multi-unit housing projects.

Amendments to factors such as density/intensity, lot line setbacks, height/storeys, lot coverage, and parking requirements were mandatory (B.C. Government, 2024).

Other changes to the local government land use framework were passed through Bills 16, 46, and 47. Forming part of the province's 'Homes for People' plan.

In conclusion, municipalities need to completely re-evaluate their zoning regulations, zones that were written for the development of sprawling, exclusionary single-family neighbourhoods. These antiquated zones are incompatible with MMH and stand in opposition to the benefits of gentle density in established neighbourhoods. It is only through the ending of exclusionary zoning and the elimination of site design barriers that the development of MMH can be broadly enabled.

8.3. Fiscal/Financial Support

The high cost of developing MMH typologies is mostly a result of unfavourable market conditions, restrictive zoning regulations, high land cost, and a lack of supportive lending practices. These factors make it economically undesirable to develop MMH at scale. Many methodologies and techniques exist, either proposed or implemented, for reducing the cost of construction. They include the use of new building techniques, streamlining environmental assessments and approval processes, having variable development charges, introducing new financial incentive or grant programs, and providing loan guarantees, among others (Evenson et al., 2023). There is a learning curve for new or smaller developers in how to access commercial lending products for higher-scale MMH projects, and having easily accessible training would be beneficial to overcome those barriers (Pinkston et al., 2024).

Incentives and support for smaller developers will make MMH more viable. There is a need to overcome high development cost and financial barriers through innovative construction techniques and financing tools. The high cost of land and of homes is a contributor to the exclusion of average citizens from MMH development, and thus the potential for citizen-development is heavily restricted (Canadian Urban Institute, 2024).

For projects that break from the status quo development model, developer attitude is an influential factor in the financial barriers faced. The industry needs to be willing to participate in changing and adapting to new methods (Feldmann et al., 2022). The misconceptions and conservative attitudes towards adopting new methods which do not align with conventional practice presents a major issue with the development of MMH broadly, but especially with financing methods. Most developers rely primarily on their own past experience in making decisions (Parker et al., 2023). If financial barriers are to be effectively addressed, so to must developer's attitudes towards new and unconventional methods be addressed. Financial institutions will continue to hesitate to implement these changes if there is no one there ready and willing to adopt them.

The fiscal and financial solutions for enabling the development of MMH are multi-faceted and complex. There exist overlaps between them and other regulatory and institutional solutions. For ease of comprehension, the following categories are used to breakdown the principal intent of the solutions presented:

- Tax incentives/exemptions,
- Financial enablers,
- Land, and
- Procedural.

The range of solutions can be implemented by different actors at many geographic and temporal scales. Any steps towards removing financial barriers would aid small to large developers in delivering MMH, but it will only be the jurisdictions that remove the most barriers and introduce the most incentives that will see the greatest increase in the supply of MMH on reasonable time scales. Not every solution presented will be effective or permitted to the same degree in every context, each one should be analysed for their broader short/long term impacts and potential unforeseen consequences.

8.3.1. Tax Incentives/Exemptions

This category addresses property taxes and the various programs/exemptions that further incentivise the development of MMH over other more conventional forms of development. This matters most for small-scale and homeowner developers who may be disincentivized from developing infill lots due to the property tax structure in place.

A model available to municipalities to spur the development of MMH is Tax Increment Financing (TIF). A TIF allows a municipality to invest in infrastructure upgrades and other improvements by borrowing against the future anticipated increase in tax revenues generated by development. A bond is issued by the municipality on the capital markets to borrow against the tax increase that come from successful redevelopment. The ‘tax increment’ is the higher tax revenues collected, exceeding the taxes that would have been collected without the development. The TIF captures the gain to pay the bond holders (Global Platform for Sustainable Cities, 2019). TIF can be applied over a geographically defined area for a period of 20-25 years to finance investments. Successful TIF projects set clear goals, maintain transparency on the use of funds, and document progress. However, TIF is riskier for funding smaller projects or for use in less developed financial markets. TIF requires an increase in assessed property values, which is not always guaranteed (SHS Consulting, 2023).

To lower long-term expenses, property tax exemptions can significantly improve the financial viability of certain MMH projects. This strategy is most suitable for rental properties that do not receive an ongoing government subsidy. By removing the burden of needing to generate enough income to cover operating expenses, a project can charge lower, more affordable rents (Atkey et al., 2022). For not-for-profit or co-op housing providers, a reduction in operating costs is critical to maintaining affordability and enables projects to leverage necessary contributions from other funders for upfront capital costs (SHS Consulting, 2023).

City of Regina, Housing Incentives Program

The City of Regina established a Tax Abatement Program to incentivise the development of more affordable infill development in the City Centre. A five-year, 100% tax exemption is available for qualifying projects.

The Policy's Design and Development Criteria Scorecard and Housing Incentives support developments that offer more infill affordable units. The program has contributed to the construction of more affordable ownership and rental units. It has also dramatically increased the construction of purpose-built rentals.

A similar tool is the property tax abatement, which provides an exemption/reduction of the property taxes owed for sites undergoing infill development in designated areas for a set length of time. This tool makes MMH more financially attractive and affordable by reducing some of the expenses associated with new infill developments. If strategically applied, it will also incentivise development in targeted locations, where transit and other public infrastructure can be more efficiently utilised (City of Edmonton, 2018a).

8.3.2. Financial Enablers

Financial enablers are a funding or financing source that is utilised to cover the upfront capital costs or enable the long-term financing of development projects. There exist a wide variety of different options available to developers in the form of financial enablers. They will either be in the form of capital funding, where an up-front cash injection or a waiving of fees is provided to support an MMH development, or long-term financing, where financial assistance is provided over a larger time-horizon.

These financial enablers are typically provided by banks, governments, and other financial institutions. The stringent requirements and regulations placed on non-conventional MMH projects create unnecessary barriers that limit their financial viability. It is important that banking requirements for MMH projects be re-evaluated. At the moment, requirements for receiving loans and financing from banks are supportive of larger-scale developments with higher profit margins. For MMH to be feasible, financial systems need to be aligned with, and work towards overcoming, the challenges of MMH projects.

Below is a non-exhaustive summary of the financial enablers at the disposal of developers.

Table 4: Financial enablers summary

Capital Funding	*Long-term Financing*
Cash-in-lieu	Diversity Mortgages
Grants one time or fixed term	Subsidised Borrowing
Subsidies to tenants or owners	Gap Financing
Waive planning, building, development fees	Reevaluate Banking Requirements for MMH
Dedicated Lending Products & Micro-Loans	Financial Incentives for Lenders
Incentive/Grant Programs (Community fund)	Government Loan Guarantees

Capital Funding

Cash-in-lieu has been utilised in Calgary for the funding of affordable housing projects in a density bonusing program. In the Beltline, developers may be granted additional density for their project if a cash-in-lieu contribution is made to a community fund. The fund is used for the purchase of land, construction of, or rental of affordable units in the Beltline (City of Calgary, 2007). A similar density bonusing program could be implemented by a municipality for a select area for contributions to a community fund dedicated to providing grants to MMH projects with an affordability component. This would keep the benefits of increased density within a community, ensure a mixture of socio-economic classes, and create a positive feedback loop of development.

Another form of capital funding is planning application and building permit fees exemptions. These soft costs contribute to the overall cost of developing MMH, and if municipal fees are high they could erode the financial viability of a project (SHS Consulting, 2023). By waiving planning application and building permit fees for projects that have met certain criteria for development, it will help reduce the upfront capital cost and encourage developers to build MMH. This could also take the form of a fee refund after construction completion, funded through a dedicated grant program, which would help the municipality cover any funding pitfalls it may have from lost revenues (City of Edmonton, 2018a).

A form of capital funding that has been alluded to above are incentive/grant programs. Municipal governments may offer capital grants or subsidies to developers to aid in the construction of MMH or to encourage the development of affordable units. The funding could potentially improve the viability of developments. If offered as a one-time payment, it allows the municipality to set aside funds at budget time for the program (SHS Consulting, 2023). The incentives would only provide additional funding to projects that qualify

City of Edmonton, Cornerstones Grant Funding Program, 2006-2016

The City's Cornerstone Plan aimed to increase the amount of affordable housing. The program provided funding to assist homeowners in upgrading or constructing a secondary suite, up to $20,000. In exchange, the suite must be available to rent to eligible tenants for five years.

The program resulted in creating or upgrading 553 secondary suites in the City (SHS Consulting, 2023).

for them based on specific development criteria aligned with objectives, such as, density, accessibility, affordability, and environmentally friendly design. Access to capital funding from municipal governments reduces the financial risk of individual developments and formally indicates support for certain forms of developments (City of Edmonton, 2018a).

Long-term Financing

For long-term financing options, the Government of Canada has kickstarted some programs to help homeowners access funding to add density in their communities. The *Canada Secondary Suite Loan Program* will provide low-interest loans to homeowners to add secondary suites, or 'Missing Little' housing, to their homes. Other incentives are being created for homeowners to add density by redeveloping their properties. The federal government intends to accomplish this by making targeted changes to mortgage insurance rules, which includes increasing the applicable insured mortgage limit (Government of Canada, 2024). This is a form of subsidised borrowing, where reduced interest rates are offered to eligible borrowers as an incentive for the development of more desired housing types. This is targeted mostly towards small-scale and homeowner developers who benefit from financing with a lower cost of borrowing.

Banks (lenders) perceive MMH projects to be a riskier form of development to finance through loans due to their small scale and slimmer profit margins, when compared to conventional greenfield or large multi-unit projects. Research conducted by Ojah Maharaj (2020b) found that lenders expressed interest in financing MMH if gap financing were provided as a way to mitigate their risk. Gap financing is a form of financing provided as a grant or loan by the municipality to the developer to cover a project's fundings gaps. This infusion of capital from the government encourages lenders to invest by reducing the risk in financing MMH types. The municipality can partner with other lending or funding sources to provide gap financing (Ojah Maharaj, 2020a).

It is important to consider the source of long-term financing for developers of MMH. Local or niche lenders—like credit unions—should be encouraged to adopt lower pre-sale quotas or flexible ROI thresholds for MMH. These local forms of capital are less risk-averse, are more open to smaller returns, and have a vested interest in seeing these value-add developments built in their communities. Their more nuanced grasp of local market needs will increase their risk tolerance for MMH projects they know can have a positive impact and succeed, as compared to institutional lenders that are removed from the community (Garcia et al., 2022).

8.3.3. Land

The cost of land and of homes presents one of the biggest barriers for small-scale and homeowner developers of MMH. Land costs and availability are a major contributing factor in the overall cost of development. Measures that address this barrier can either reduce the cost of acquiring the land or allow for more to be developed on the land than would otherwise be permitted. Many strategies are at the disposal of governments to support developers alleviate the barrier of high land costs.

Support can be provided by all three levels of government for the acquisition of land by offering publicly owned land at fair market value, a discounted price, or even as a donation to developers. Government land can also be leased to developers for below market value rates. The development of public land will usually come with the requirement of providing affordable rental housing units and will prioritise not-for-profit developers that require more financial support.

Density bonusing is a strategy that a municipality can offer a developer to maximise the developable area of a piece of land in return for a public good, usually in the form of public realm improvements or affordable housing. The increase in density is typically calculated as an increase in the allowable Floor Area Ratio (FAR) but could also take the form of an increase in the number units permitted on a site, a relaxation of height restrictions, or a reduction of the open space requirement. Factors such as the development's location (proximity to transit, capacity of services) and the level or number of affordable units constructed (SHS Consulting, 2023).

City of Vancouver, Density Bonusing

The City has adopted density bonusing policies in their zoning that permits more floor space in exchange for amenities, affordable housing, and infrastructure needed by the community.

Financial contributions are determined by the density bonus rate set out in the zone. Community Plans define an upper density limit for each zone (City of Edmonton, 2018a).

8.3.4. Procedural

Municipal processes have an outsized effect on the viability of MMH projects. The holding cost of land and delays in acquiring necessary approvals increases the costs of all developments, but longer approval processes particularly affect MMH projects which are already operating with smaller profit margins, minimal margin for error, and face higher risks. Measures that accelerate the approval process for MMH projects will reduce the cost of development and make it more attractive for more small-scale and homeowner developers. Municipalities can do a number of things to improve the situation, such as creating a 'fast track' program with pre-approved designs and establishing a dedicated infill housing review team.

A program that expedites the approval process for MMH development applications serves as alternative to conventional timelines. This process is significantly expedited by reducing mandatory review timelines and by simplifying how to navigate the permitting process for applicants. The inclusion of pre-approved designs and typologies can expedite approval timelines even more. Costs incurred through permitting delays are reduced, forms of development that fall within specific criteria are promoted, and certainty of a decision date is provided for developers (City of Edmonton, 2018a).

City of Kelowna, Infill Fast-Track

The Fast-Track process is a specialised development approval process intended to speed up the necessary approvals for infill housing as a way to help increase housing supply and lower the barriers for construction of new housing.

Only pre-approved designs are eligible for the Fast-Track process, allowing 4 to 6 dwelling units per property. Development and Building Permit processes are combined, resulting in both being issued within 10 days of submitting a complete application. A substantially reduced timeline compared to the typical process for infill housing of 2 to 4 months (City of Kelowna, 2025).

To further increase approval timelines for MMH project applications, municipalities can dedicate a team of experienced staff familiar with the process and regulations for infill development. This team would have strong links with other city departments to act as the single point of contact for applicants. Their familiarity and knowledge would ensure applications run through the permitting process efficiently and with minimal delays. They would be properly equipped to manage MMH applications as they occur (City of Edmonton, 2018a).

In conclusion, overcoming the financial and fiscal barriers to MMH requires a multifaceted and coordinated approach. From tax incentives and capital funding to innovative financing tools, access to public land, and streamlined municipal processes, a wide range of mechanisms can be employed to improve the financial viability of MMH projects. However, success will depend not only on the availability of these tools, but also on the willingness of developers, financial institutions, and governments to embrace new models and work collaboratively. Strategic application of these solutions—tailored to specific local contexts—can unlock significant potential for more inclusive, diverse, and affordable housing options in neighbourhoods.

8.4. Institutional/Organisational Support (Capacity Development)

Table 5: Factors influencing developers' decisions

Developers of Missing Middle Housing	
Developer Attributes	*Place-Specific Factors*

• Financial capabilities *(Economic)*
  ○ Profit making
  ○ Revenue flows
  ○ Loan to value ratio
  ○ Loan interest rate
  ○ Other sources of equity/debt
• Risk & Reward *(Economic)*
  ○ Perception
  ○ Preferences
  ○ Market demand
  ○ Consumer target market
• Return on investment Professional expertise *(Developer)*
  ○ Product type – residential low to mid-density, mixed-use
  ○ Established inner city communities
  ○ Markets, finance, construction, planning
• Knowledge & Networking *(Developer)*
  ○ Community opposition/support
  ○ Political opposition/support
  ○ Consultants/Contractors
  ○ Planners/Politicians
  ○ Construction, finance,
  ○ Local market conditions
• Type of Developer *(Developer)*
  ○ Passive, local property owner, narrow outlook, more local focus, less exclusive, possible egalitarian
  ○ Visionary, unique built environments, more assertive, tenacious, self-assured, elitist
  ○ Ideological, promote agendas of civic good
  ○ Practical vision, growth driven
• Size of Developer/Firm *(Developer)*
  ○ Small (family run), medium (private/publicly traded), large (transnational)
  ○ Scope of operations
  ○ Institutional Structure
	• Municipal Attitude *(Regulatory)*
	  ○ Pro-development, regulatory environment – Planners' thinking is supportive/negative
	  ○ Designated regulatory staff to guide development through process - timing
	• Planning Regulation *(Regulatory)*
	  ○ Proper zoning
	  ○ Complexity of regulatory requirements
	  ○ Timely regulatory process, streamlined
	  ○ Community opposition/support
	  ○ Political opposition/support
	• Land/Cost/ownership *(Financial)*
	  ○ Price of land
	  ○ Size of land
	  ○ Land assembled/fragmented
	  ○ Available developable land/location
	  ○ Ability to leverage and finance project
	• Market/Competition *(Financial)*
	  ○ Other developers
	  ○ similar product/market demands in area
	• Location (Structural/Design)
	  ○ Capacity and access to water, sewer, and storm water connections
	  ○ Transportation accessibility
	  ○ Site servicing costs
	  ○ A Sites[1] – urban, downtown, mixed-use, near transit, parks, amenities, major transportation arteries, lower risk
	  ○ B Sites[2] – higher risks due to uncertainty, B can become an A, far from transportation nodes, former industrial sites
	  ○ C Sites – not attractive for development at this point in time
	• Product/Project Type *(Structural/Design)*
	  ○ Residential, mixed-use, rental, owner-occupied
	  ○ Square feet of product/space created
	  ○ Tenure mix - Rent, sell, combination
	  ○ Target population/mix
	  ○ Product
	• Partnerships (Institutional)
	  ○ Cost sharing/ redevelopment opportunities

Sources: Adams et al., 2012; Bross, 2014; Rosen, 2017	

Having already identified the institutional/organisational barriers to MMH, we will now shift towards proposing what needs to be done to address them with actionable interventions. The

[1] An example of A site is the urban waterfront properties in Toronto that were redeveloped (Rosen, 2017); possibly East Village in Calgary.
[2] An example of B site is CityPlace Toronto, Expo 86 World Fair site in Vancouver, ParkPlace North York (Rosen, 2017); possibly Currie Barracks converted from B site to A site in Calgary.

focus of this section is to establish how to build the systems and capabilities that allow for diverse actors to meaningfully participate in MMH delivery – not just through regulatory or financial change, but through organisational support, relationship building, and risk reduction. The section begins with an introduction and overview of key concepts, followed by the multiple approaches to building capacity, which are categorised as building capacity for individual actors and building capacity through collaboration. We will then go into a discussion on how these approaches contribute to reducing risk perception and misconceptions and increases trust and understanding. All of which can lead to a positive shift in attitudes surrounding MMH (as one of the biggest barriers, it directly influences the willingness of developers to get involved in MMH, or to fall back on conventional/familiar forms of development) (Parker et al., 2023).

8.4.1. Coordination & Institutional Trust

At a high-level, there are many concepts that underpin the barriers previously identified and that help explain many of the systemic dysfunctions that MMH faces. Addressing these concepts and the many barriers they represent is the objective, that way we can more effectively formulate actionable solutions to better target the root causes of the issue. These key concepts highlight the need for our proposed solutions, and direct attention towards more multi-faceted solutions.

The first key concept is institutional trust and alignment. MMH delivery requires co-operation across different operational silos, such as: developers, policy, finance, neighbourhood actors, etc. (Ojah Maharaj, 2020b). If there is a lack of trust and if incentives diverge, good policies will fail to have the desired effects. It is not enough to simply allow MMH to be built – there are institutional frameworks that must be properly aligned and they must operate with an appropriate level of trust (Canadian Urban Institute, 2024; Garcia et al., 2022; Parker et al., 2023). The second key concept is cooperative alliances as an enabling environment. Such alliances of actors involved in the delivery of MMH could, with the right intention, be a way to find mutual understanding, eliminate misconceptions, and promote support of each other (Ojah Maharaj, 2020a). The third concept is knowledge gaps and coordination failures. Parker et al. (2023), the Canadian Urban Institute (2024), and Small Housing BC (2024) all note that technical knowledge deficits prevent small-scale and homeowner developers from participating in MMH development. The misalignment of regulations and financial structures have their influence, but at the core of the problem is a lack of institutional/organisational support. There is a need for a formalised knowledge-sharing structure to equalise capacity and demystify MMH.

8.4.2. Capacity Building – Empowering Individual Actors to Participate in MMH

Developing MMH is uniquely complex, especially for individual actors looking to participate, which requires many coordinated interactions between the actors involved. For MMH to be built, those developing it need to have institutional and organisational capacity to enable them to develop MMH in a timely and cost-effective manner. A major solution to building capacity is to enable these various actors to work together and build relationships. For small-scale and homeowner developers in particular, there is a significant benefit to be gained by eliminating

these barriers. The foundation to overcoming these barriers is a stable, predictable, and transparent institutional environment. Having accessible, clear, and transparent municipal policies, supportive governance structures, and predictable permitting processes significantly reduce uncertainty, enhance cooperation, and encourage participation in the development of MMH projects. An example is Edmonton's 2018 Infill Roadmap, which emphasises the value of broad policy shifts paired with targeted efficiency measures to stimulate development. As of 2024, all 25 actions were completed and implemented. The Infill Roadmap was successful in promoting and increasing MMH by removing barriers and enabling institutional/organisational support for developers through an easy to understand process (Canadian Urban Institute, 2024).

mddl

The team at mddl is focused on building capacity for the development of missing middle housing through collaboration with its partners. It supports municipalities, developers, and everyday citizens by providing a variety of structured training programs of differing levels of intensity. Their programs include Accelerator, Masters, School, and Community. Each has a unique focus and target audience. The goal is for experience and expertise to be shared to overcome the barriers middle housing faces (mddl, n.d.).

For capacity building to overcome institutional/organisational barriers and improve the ability to deliver MMH we need to examine how dynamics work across groups. Broadly speaking, some groups will require more targeted support than others and knowing the nuances of a particular group's needs will help pinpoint the types of capacity building needed. This goes beyond what reforms to regulatory and financial barriers could ever provide. Establishing a strong knowledge sharing structure would significantly improve mutual understanding, reduce friction, encourage effective and collaborative decision-making, and empower coordination. This matters because having a proper framework enhances the clarity of communications, learning, and sharing of best practices. It also provides mechanisms for faster conflict resolution, mitigating delays and/or unintended outcomes. Groups can stay well-informed through organised activities like workshops, webinars, and public lectures, and through platforms that give access to comprehensive toolkits, regulatory policies, and other resources. Educational courses and training programs can be tailored for various groups (municipal officials, small-scale developers, homeowners, community members, etc.) to provide the knowledge and skills necessary to navigate the complexities of MMH development (Small Housing BC, 2024).

The above talks about capacity building and knowledge sharing as a broad solution that applies to all actors involved in various and overlapping ways. The following will be a discussion on capacity building and knowledge sharing in the contexts specific to some of the key individual actors.

Homeowner Developers

Homeowner developers are an important actor in MMH development. They have great local insights into their community, they operate at a gentle scale, are personally invested in the project, and can more easily obtain community acceptance. The biggest barriers they face in

terms of institutional/organisational support are unfamiliarity with the process, lack of experience, lack of confidence, high cost/minimal financial resources, etc. Addressing these barriers through solutions for homeowner developers will help contribute to increasing MMH supply because they have the greatest capacity to introduce MMH. (Canadian Urban Institute, 2024; Garcia et al., 2022; Small Housing BC, 2024). Homeowners also have the tremendous potential of increasing MMH through Accessory Dwelling Units (ADUs), or 'Missing Little', developments. They can be built on existing parcels without having to contend with the common issue of land cost (one of the most major financial components of most development) (Johns, 2024). Addressing the organisational/institutional barriers for homeowner developers through capacity building and knowledge sharing can very effectively be accomplished by providing easily accessible resources. The goal being for homeowners to better understand every part of the process. This education can come in the form of toolkits, online guides, planning walkthroughs, etc. (Canadian Urban Institute, 2024; Small Housing BC, 2024).

Joint Ownership Models (CLTs, Co-ops)

Joint Ownership Models are an alternative form of home ownership largely based on the principles of 'housing as commons' and include co-operatives and community land trusts (CLTs). They offer many benefits when compared to the traditional and dominant model of home ownership based on an individual's financial ability (Bowes et al., 2018). Joint Ownership Models are more affordable, provide stability, and enable community governance. Their physical form is typically that of MMH, therefore if these alternative forms are to be enabled, they need a meaningful amount of support. These projects are usually self-built and community-led, with the members of the co-op planning the development and tailoring it to their needs (Bowes et al., 2018). As a result, they are more likely to provide a unique variety of MMH that might not otherwise be available in the housing market (cluster courts, shared living spaces, etc.). Joint ownership also overcomes some issues of freehold titles which divide land, which can dictate how units can be configured (Bowes et al., 2018; Small Housing BC, 2024). CLTs have a specific focus on making land available perpetually for affordable housing, often catering to low- to moderate-income residents, while overcoming risks of speculative land buying or 'upscaling' (of converting affordable units into luxury units) (Bowes et al., 2018). The barriers to joint ownership are generally legal, regulatory (bylaws/building code), and misaligned policy. Solutions should challenge traditional notions of home ownership "by recognising new models of urban living that shifts the value proposition of housing from community investment to the experience of living where dwellings become responsive, customisable, flexible, and desirable to live in" (Bowes et al., 2018, p. 72). Municipalities can adopt policies to ease the acquisition of land by joint ownership groups, and better identify which properties are meant to be sold to those groups (McConnell Foundation, 2024). Support through organisational capacity building includes developing the networks for the dissemination of information and educational resources on how to jump the legislative hurdles and receive operational guidance.

Small-scale Developers (as individuals)

Individual small-scale developers have an important role to play in the development of MMH. Larger developers will often avoid going into the development of infill MMH on smaller lots, in turn it is the small-scale developers that are the primary sources of MMH. The critical role they play stems from their flexibility, connections in local networks, and familiarity with the scale of infill. Our institutional/organisational structures must support them effectively. The barriers they face, capital access, high-risk perception, complexity of approvals, potential lack of experience, can all be addressed through capacity building solutions. In fact, capacity building in itself is the solution. Through cohort-based training programs and peer mentorship, the institutional knowledge gained can be shared for the benefit of all involved.

Incremental Development Alliance [US]

Inc Dev supports aspiring small-scale developers by offering training and mentorship to help them take the first steps in their MMH projects. The non-profit organisation works to teach how to finance, design, and manage projects that are context appropriate. Members of Inc Dev have access to resources and the tools they need to succeed; they are also part of a nation-wide network of like-minded neighbours improving their communities (Incremental Development Alliance, n.d.).

8.4.3. Strengthening Collaborative Capacity

Different actors can only do so much on their own to deliver more MMH. Each benefits from having supportive organisational structures that allow them to work together, share knowledge, reduce risk, and build trust. Ojah Maharaj (2020a) speaks of cooperative alliances that create a platform for collaboration, support, and risk reduction for those involved. A ‘cooperative alliance model’ can be leveraged by members (municipalities, lenders, developers, community groups) to jointly overcome institutional barriers. An alliance of small developers builds off this model to create a locally driven initiative where small developers can collaborate in a shared environment focused on working together for a collective benefit. With the idea being that they will have increased capacities to develop MMH. The capacities of the alliance’s members would be enhanced by reducing the number of instances where a policy, an action, or behaviour negatively delays or impacts the development of an MMH project. Small developer alliances will only foster growth and help the existing and new core of small developers build MMH if appropriate zoning regulations, financing models, and permitting processes are in place for the subject jurisdiction. It is important that these alliances maintain a local focus to better understand the nuances of developing MMH within a specific policy context and market.

It is possible that developers themselves could initiate the formation of such alliances, seeing the benefits they could earn. However, it would be in the interest of municipalities to plant the seed for getting an alliance started and see them through until they are at a self-supportive stage. Municipalities are in a position to play a leading role in easing coordination and cooperation between the developers involved. Through capital infusion, risk mitigation, and administrative support, small developer alliances would be better equipped to increase the supply of MMH

nearer the urban core in alignment with municipal ambitions. This strategy would be translated into action items for policy recommendations jointly developed for the municipality that would align with the needs of the small developers in the alliance (Ojah Maharaj, 2020a).

8.4.4. Reducing Risk Perception & Misconceptions

As was elaborated upon previously, developers tend to be very risk-averse, making them cautious of unfamiliar development methods and tools. This attitude/perspective of maintaining the status quo has prevented many developers from engaging in the development of MMH. Many doubt that there is sufficient market demand and buyer interest, despite there being evidence to the contrary, pointing to a large demand for MMH types (Parker et al., 2023). The lack of interactions between different actors in the housing development sector can lead to issues and misalignment of understanding and perspective, creating knowledge gaps that ultimately influence what housing forms are pursued (Parker et al., 2023). This is why it is so crucial for MMH to be better understood by all actors across sectors, but especially developers, and to shift how MMH is discussed in interactions between actors. For outcomes to change, the perspectives and misconceptions held by many must shift to a place where risk perception is drastically reduced regarding MMH. The focus of this approach should be to increase participation/interest in MMH by building confidence, clarity, and familiarity with the concept – not just correcting misinformation/misconceptions that are held.

There is a clear need for institutional improvements to overcome the perceived (or perception) barriers that MMH faces. Improving developer confidence expands the pool of builders. Developers often avoid MMH not because they lack interest, but because of uncertainty – around demand, financial viability, municipal approvals, etc. Reducing perceived risk through better precedents, education, and peer learning may encourage more small and medium developers to pursue MMH projects. Similarly, clarifying the market interest for MMH would go a long way towards building more confidence for developers to pursue MMH projects. Parker et al. (2023) showed that in the Waterloo Region, real demand for MMH existed, but skepticism among developers constrained supply. Many misconceptions regarding MMH are held by community members that fuels NIMBY opposition, exacerbating the political and procedural risk of delivering MMH. By reframing the narrative to reduce the misconceptions of what MMH is, who it serves, and what it looks like, communities can be better equipped to actively engage in conversation and build community support for gentle density (Canadian Urban Institute, 2024; Small Housing BC, 2024). It is shown that increased clarity builds system-wide capacity. When all participating actors understand MMH – what is involved, what the benefits are, what the steps look like, etc. – they are more likely to support it and work towards easing its development.

There exist several strategies to enable these shifts in perception, many of them have already been mentioned in the context of overcoming other institutional and organisational barriers. First is capacity building, which comes in the form of training and mentorship to give small developers the confidence to try MMH. Second is collaborative alliances, where environments

are created for developers, regulators, and lenders to build mutual trust (Ojah Maharaj, 2020a). And third is knowledge sharing, which is organised in such a way to help align understanding and expectations (Canadian Urban Institute, 2024; Parker et al., 2023). It is important to implement these strategies effectively to resolve the issues that arise from the misalignment, misunderstandings, and lack of communication between all actors involved in developing MMH.

We have established that regulatory and financial reforms are required, but it is just as critical for MMH to be framed as a viable, familiar, and attractive option for developers, lenders, and communities. Building this confidence is much more than just about messaging, it is about building the foundation within the industry to work on MMH by overcoming the status quo development model and the hesitancy of turning to unfamiliar methods.

8.4.5. Demonstration Projects

The purpose of a demonstration project is to show the viability of different previously untested or unproven methodologies. Demonstration (or pilot) projects can be conducted to provide tangible, real-world examples of MMH working in the local context. Successful demonstration projects can directly address organisational and institutional barriers by reducing uncertainty, building trust and understanding, sharing knowledge, and ultimately building up the capacity to provide MMH. Demonstration projects can bridge all the prior sections, they: 1) build small-scale and homeowner developer confidence, 2) strengthen collaborative alliances, and 3) combat misconceptions by providing a proof of concept. The value of demonstration projects does more than simply testing MMH typologies as a built form, they provide developers with more understanding and knowledge about how to effectively navigate through the process. They also create a shared understanding of MMH processes between regulators, lenders, developers, and the public, helping to familiarise all involved with the expected timelines and procedures.

Beaches-East York Missing Middle Pilot Project

This project is managed by CreateTO and is a component of the City of Toronto's *Expanding Housing Options in Neighbourhoods* (EHON) initiative. The intention is to create a MMH demonstration project on City-owned land that will serve as a model for other sites. The site's unique shape allows for multiple building types to be explored, and its larger size enables more units to be built (City of Toronto, n.d.).

There are many benefits of demonstration projects for MMH developments in particular due to the complexity of the barriers that must be overcome. They justify investment or reform by providing a precedent. In the case of failed projects, they can give valuable insight into what could be done to improve it – or what types of projects should be avoided. They reduce actual and perceived risk for actors who were hesitant to engage with MMH. Actors can rely on increased confidence because MMH is made more tangible (less abstract) in the local context. Demonstration projects serve as validation of newly proposed or adopted regulation and processes. For example, they can test how zoning reforms, approvals processes, or financial tools work in practice (while also providing a channel for improvement). They can also be an indicator of where frictions exist in the current system. In addition, demonstration projects support broader

solutions, not just individual alternatives to built form. Validation and refinement can be brought to regulatory reforms, organisational solutions, and educational support. Together, helping to shift perceptions by showcasing real-world examples of success and making the process easy to understand.

The strategic value of demonstration projects is multi-faceted; they help bridge the gap between vision and execution. They have the ability to translate abstract policy goals into practical models that others can follow and are especially impactful when done locally by helping actors learn from context-relevant examples. Demonstration projects function as both proof of concept and learning infrastructure. Which creates an invaluable resource for municipalities to refine their tools, and for developers to replicate these projects/processes with more certainty.

8.4.6. Conclusion

As has been discussed, simply allowing MMH is not enough for it to be developed at scale. There are a significant number of complex and intersecting barriers that collectively limit its implementation. To successfully deliver MMH, it depends on the alignment of regulatory, financial, and institutional systems working together to create an environment that enables meaningful participation and implementation. While many of the barriers explored throughout this section relate to MMH, they are not exclusive to it.

These challenges – particularly those rooted in institutional inertia, fragmented decision-making, and risk-averse development cultures – also apply to other forms of housing innovation. Even when built using conventional construction methods, MMH often faces resistance due to its unfamiliar scale, form, or departure from prevailing development norms. These perceptions and structural challenges make it difficult to implement, despite growing policy support. As we move into a discussion on removing barriers for the development of modular MMH, we face the same regulatory, financial, institutional, and organisational barriers – but often in an intensified form. Where additional layers of regulatory uncertainty, technical unfamiliarity, and fragmented processes compound many of the barriers faced by conventionally constructed MMH. Because of this, to unlock its potential it will require an even more deliberate effort to align policy, reduce risk, and build the institutional confidence necessary to support its innovation.

8.5. Standardisation: Modular Construction

This section focuses specifically on enabling the delivery of modular/prefabricated MMH. We recognise that this process and form offers clear potential benefits – efficiency, speed, and quality – however, it faces additional, often compounding barriers compared to conventional construction methods. Similarly to MMH on a broad scale, modular/prefabricated MMH requires its own set of regulatory, financial, and institutional reforms to unlock its potential of delivering more MMH. Modular/prefabricated construction is not just a design or delivery choice – it is a system-dependent innovation whose viability relies on regulatory alignment, supportive financial

systems, and institutional shifts within the development ecosystem and industry mindset (Feldmann et al., 2022; Small Housing BC, 2024; Wuni et al., 2020).

8.5.1. Regulatory & Planning Solutions

A brief overview of the regulatory and planning barriers previously covered demonstrates that, although modular construction offers a promising alternative for delivering MMH more efficiently, it relies on systems that were not designed to easily accommodate it (Feldmann et al., 2022; Small Housing BC, 2024). Many current planning and regulatory frameworks are structured around traditional site-built methods, offering little clarity or support for modular or prefabricated approaches which present a significant disruption to established practices (Wuni et al., 2020). As a result, modular/prefabricated construction finds itself navigating unsuitable or conflicting codes, inconsistent definitions, and permitting processes that fail to recognise its unique needs (Feldmann et al., 2022; Wuni et al., 2020). Without a regulatory environment that actively enables modular/prefabricated MMH through clear approval processes and appropriate standards, these projects will continue to be burdened with uncertainty, delays, and added costs – barriers felt most acutely by small-scale developers and builders with less experience and resources (Feldmann et al., 2022; Small Housing BC, 2024).

To overcome these regulatory and planning barriers, several solutions can be considered for implementation at different scales. Modular construction specifications should be integrated into building codes and regulatory frameworks to ease the permitting and review process (Feldmann et al., 2022; Government of Canada, 2024). Pre-approved designs and standardised models for modular construction should be promoted at all levels of government. These designs prioritise multiplex and ADU building forms, which are well-suited for modular construction methods (Feldmann et al., 2022). Due to their accessibility and potential for rapid deployment, ADUs present a tremendous opportunity for modular construction for MMH development by homeowner developers in existing neighbourhoods (Garcia et al., 2022; Johns, 2024). Modular constructions innovations should be enabled through accelerated and supportive permitting processes, in kind with a Fast-Track program.

Housing Design Catalogue

The Housing Design Catalogue is an initiative under *Canada's Housing Plan* supported by Budget 2024. Modular and prefabricated housing builders were invited to submit existing designs to inform the 50 standardised home designs, which include townhouses, multiplexes, and detached ADUs. The regionally tailored designs support modular and prefabricated construction methods that comply with local climate zones, codes, regulations and materials (CMHC, n.d.).

8.5.2. Financial/Fiscal Solutions

The current financial/fiscal environment is poorly suited to MMH, but even more so for modular MMH construction. Mismatches between evaluations processes, payment timelines, and lending structures can create major feasibility issues (Parker et al., 2023; Small Housing BC, 2024). Unfamiliarity and perceived risks with modular construction can lead to lender skepticism resulting in stricter lending terms, reduced funding, or complete refusal (Feldmann et al., 2022;

Small Housing BC, 2024). The viability of modular construction could improve significantly if manufacturers design their construction processes with repetition and standardisation in mind, creating opportunities for economies of scale (Feldmann et al., 2022; Wuni et al., 2020).

Due to the numerous financial barriers, it is crucial that governments and financial institutions explore solutions that bridge the gap between lending processes and the needs of modular MMH development through the adoption of broader off-site construction methods (Small Housing BC, 2024). Potential pathways towards solutions include developing funding models and loan products that recognise the front-loaded nature of modular construction's capital needs (Small Housing BC, 2024). This would come with educational resources and engagement for lenders and developers to increase familiarity and overcome skepticism. Lender confidence can be improved through the support of economies of scale by adopting lending practices that enable the production of standardised components for pre-approved building types that reduce per-unit costs (Feldmann et al., 2022).

8.5.3. Institutional & Organisational Solutions

When it comes to developing MMH with modular/prefabricated construction, there are structural disadvantages that smaller-scale actors with less experiences or resources face. These include unfamiliarity with supply chains, limited administrative capacity, and a lack of coordination with regulators and lenders (Feldmann et al., 2022; Small Housing BC, 2024). In particular, the construction and development industries' conservatism and attitudes towards new methodologies are for modular MMH one of the most significant barriers. The dominant culture remains deeply risk-averse and resistant to change, especially when innovations shift the timeline, design process, or control structure of a project (Feldmann et al., 2022; Wuni et al., 2020). The reasons for the aversion towards modular construction stem from its disrupting of established workflows, shifting of key decisions to earlier in the process (reducing later-stage flexibility), limiting the role of improvisation, and requiring advanced planning and coordination. It is important that this barrier is systemically addressed with high priority because of its linkages to all other barriers to modular MMH (Feldmann et al., 2022; Wuni et al., 2020).

Reframing industry perception is an enormous task, but one that must be conducted with patience and determination. It is through a combination of broad and targeted approaches that the industry's locked in risk-averse thinking, conservatism, and protectionism can be resolved. Targeted outreach and early-stage buyer engagement should be conducted to reframe modular construction as high-quality, efficient, low-risk, and scalable – along with several other strengths (Feldmann et al., 2022; Parker et al., 2023). Modular construction has to be understood in terms of real-world performance outcomes: precision, quality control, and sustainability metrics. Design certainty must also be reassured – modular construction may make it difficult to make changes to the design late into the project, this can create value for developers who prioritises predictability and risk reduction (Feldmann et al., 2022).

Another approach is to enhance familiarity though collaboration and training. Feldmann et al. (2022) argue that attitudes can shift through cross-sector collaboration and mutual benefit sharing. This can take the form of structured training that builds a shared understanding of how modular construction works, and what its timelines, logistics, and financing model requires. Also, increased awareness of the roles of other participants through jointly organised seminars, workshops, and platforms for finding partners for potential collaborations or by showcasing successful projects (Feldmann et al., 2022).

Federal Association of German Housing and Real Estate Companies (GdW)

The GdW established a framework agreement in 2019 with several modular housing suppliers, which essentially enabled housing corporations to order their desired buildings from a catalogue. General awareness among developers was created and sufficient demand from a contractor's perspective was also stimulated. Industry participants could see that modular building could be a feasible business model. The collaboration simplified and normalised the process of modular construction for developers and contractors (Feldmann et al., 2022, p. 8).

Introducing demonstration projects of modular/prefabricated MMH projects can create visibility of the method and provide evidence through a proof-of-concept. These pilot developments serve as local and context-specific examples of viability. Demonstration projects also create structured opportunities for new collaborations across industry silos – building the relationships and institutional trust needed to scale modular MMH delivery (Feldmann et al., 2022). Having modular pre-approved options in a government-backed design catalogue could contribute towards improving industry perception, increase lender trust, and give smaller actors more accessibility and capacity to develop MMH (Feldmann et al., 2022; Wuni et al., 2020). Such a catalogue with modular options would work towards reducing misconceptions and uncertainties while increasing understanding and trust in the viability and quality of modular MMH (Feldmann et al., 2022). There is the added security benefit for small-scale developers with approximate price points being provided alongside pre-approved modular designs.

Demonstration projects could also be completed with public, non-profit, or social housing partners who may be more receptive to front-loaded design certainty (Feldmann et al., 2022). According to Feldmann et al. (2022), developers aiming to create social/subsidised affordable housing report that the process of modular building is beneficial, rather than being a hindrance, this is because a final design can be established early on in the process, reducing the risk of time delays or additional incurred costs due to late design changes/reworkings. A consideration that benefits all developers is the reliability of achieving consistent higher quality with modular construction then traditional methods. Thanks in large part to the standardisation of the manufacturing process allowing for better quality control, with climate-controlled production, and the ability to improve repeated designs or processes over time (Feldmann et al., 2022; Wuni et al., 2020). The industry's attitude towards modular/prefabricated MMH can be softened through continued demonstration of its benefits when applied at scale.

8.5.4. Conclusion

Modular construction presents a powerful opportunity to deliver MMH more efficiently, affordably, and accessibly – particularly for small-scale and homeowner developers. However, realising this potential demands a deliberate effort to confront the regulatory, financial, and institutional systems that modular methods inherently challenge. Therefore, for modular MMH to succeed, it requires not only regulatory clarity and financial support, but also a shift in institutional processes and industry mindsets. While conventional development is shaped by incremental site-built methods, modular approaches introduce a different delivery logic – one centred on precision, pre-planning, and replicability. Unlocking this potential will require municipalities to proactively integrate modular pathways into planning and permitting, lenders to adapt financial models to better suit modular workflows, and developers to build familiarity and trust in the approach. If these structural and cultural barriers can be addressed, modular construction could become a key strategy for enabling high-quality, context-sensitive MMH at the scale and pace needed to meet growing demand. As argued in this section, enabling modular MMH is not just about removing barriers, it is about constructing the system that makes it possible.

9. Conclusions

Figure 14: Diversity of housing types allows flexibility and adaptive transformation over time.

Missing Middle Housing (MMH) is a flexible and reasonable solution to the housing problem we face in cities. It strives to bring in more efficiency, equity, and environmental sustainability in existing neighbourhoods. This research highlights the importance of effective implementation through a new model of area-based intensification at a larger scale. It must be done right for it to be effective. More homes need to be constructed in the right places.

Our review of potential tools and strategies for removing barriers has highlighted that to enable MMH at scale requires more than just allowing it in policy—it demands a coordinated transformation of regulatory, financial, and institutional systems through innovation. Outdated zoning laws must be overhauled to allow for a greater diversity of housing types, while financial tools like tax incentives, capital funding, and tailored lending must be strategically applied to improve project viability. Institutional barriers, including risk-averse development cultures and fragmented governance, continue to obstruct progress. Modular construction presents a promising, cost-effective solution, but to realize its potential, governments and industry must proactively adapt their policies, processes, and mindsets. Ultimately, supporting the implementation of MMH means not just removing barriers, but also intentionally designing systems to make MMH feasible and sustainable in our neighbourhoods.

The e-TOD offers a new development model where MMH can provide the required density and diversity of typologies to accommodate a mix of uses, parks and social infrastructure within walking distance. The new development needs to incorporate affordable housing and purpose built rental to counteract gentrification and displacement. No single policy can ensure an adequate supply of affordable housing in e-TODs. Rather, this complex issue requires an

approach which combines tools at every stage of the housing supply system, and co-operation between the various levels of government as well as between governments and housing contributors.

Key barriers that constrain the implementation of the model in inner city locations refer to complexity, scale, and risk. While there is some innovation in practice and creative approaches on a project basis, land, construction costs and rising property values near rapid transit remain the main challenges for housing providers and municipalities. The planning and building of e-TODs at scale is about intensification of neighbourhood blocks and corridors in close proximity to the rapid transit station. This multi-scaler approach provides opportunities for transformation of underperforming retail and industrial sites, parking lots and other areas where higher density would make transit frequent and reliable. Such sites can offer the economies of scale needed for the deployment of modular housing to accelerate the supply.

As the development relies extensively on private sector involvement, de-risking the process is important through elimination of red tape, streamlining the approval process, and establishing a predictable pathway for public engagement and consultation. Providing integrated planning of housing and transit is necessary in response to the affordable housing shortage across Canadian cities. Furthermore, it is not just about planning, but more importantly about the coordination of housing and transit funding. Coordinated funding leverages investment from housing developers so that affordable housing and purpose-built rental can be built at e-TODs.

In the context of uncertainty, trade barriers and rapidly escalating development charges, a one-stop shop approach building on synergies and partnerships can reduce costs and risks. It can leverage targeted funding for affordable housing, such as CMHC's *Rental Construction Financing Initiative and the National Housing Co-Investment Fund*, as well as ensure stronger coordination between government departments responsible for fiscal and financial incentives supporting affordability (density bonusing, property tax rebates, development fee waivers, etc.). The alignment of different planning and policy instruments needs to be purposeful so that innovation in MMH can be supported, particularly in the initial phases of redevelopment. Reducing land acquisition costs by implementing measures, such as land reserves, tax waivers, increasing the availability of public land, and leveraging existing infrastructures is another layer of planning and policy support that increases affordability and social mix.

Finally, design excellence is critical to ensure an attractive built form of the e-TODs that is conducive to community integration. Walkable streets and diversity of homes provides flexibility and responds to community needs over time.

References

Adams, D., Croudace, R., & Tiesdell, S. (2012). Exploring the 'Notional Property Developer' as a Policy Construct. *Urban Studies*, *49*(12), 2577–2596. https://doi.org/10.1177/0042098011431283

Allen, J. (2022, July). *Mapping exclusionary residential zoning in four Canadian cities*. https://schoolofcities.github.io/yellowbelt-canadian-cities-2022/

Atkey, J., Chau, L., Falvo, N., Flynn, A., Gurstein, P., Jones, C., Suttor, G., & Whitzman, C. (2022). *The municipal role in housing*. Institute on Municipal Finance & Governance, Urban Policy Lab, Munk School of Global Affairs & Public Policy, University of Toronto. https://imfg.org/report/the-municipal-role-in-housing/

Bimm, A. J., Fernández Chesquín, A., & Oliveira, K. (2021). *The City-Builder's Guide to Building the Missing Middle*. Smart Density and Kehilla. https://www.dropbox.com/scl/fi/iaewb8v8exsk5yoopgv9d/GuideBook-_Building-the-Missing-Middle.pdf?rlkey=bmuvjd3tdgikzb220x9l1o6nu&e=2&st=dxk5x330&dl=0

Bowes, J., Desai, M., Prabhu, N., Gao, L., Rahman, K., & McCullogh, R. (2018). *Exploring Innovation in Housing Typologies*. OCAD University. https://openresearch.ocadu.ca/id/eprint/2664/

Bross, L. A. (2014). *Transit oriented development and affordable housing: Analyzing the effects of economic, regulatory and advocacy factors on a developer's decision to include affordable housing in TODS in the Denver, Colorado region*. University of Colorado Denver.

Calthorpe, P. (2011). *Urbanism in the age of climate change*. Island Press.

Canada Mortgage and Housing Corporation. (2022). *Canada's Housing Supply Shortage: Restoring affordability by 2030*. https://www.cmhc-schl.gc.ca/blog/2022/canadas-housing-supply-shortage-restoring-affordability-2030

Canadian Urban Institute. (2024). *Making the Case for the Middle: The Potential of Middle Housing Production in Alberta*. Canadian Urban Institute and mddl. https://canurb.org/wp-content/uploads/Making-the-Case-for-the-Middle.pdf

Cervero, R. (1998). *The transit metropolis: A global inquiry*. Island Press.

Chapple, K. (2015). *Planning sustainable cities and regions: Towards more equitable development*. Routledge. https://doi.org/10.4324/9781315764702

City of Calgary. (n.d.). *Infill Fast Track Program 1.0*. Retrieved April 2, 2025, from https://www.calgary.ca/development/programs-funds-incentives/infill-fast-track-program.html

City of Calgary. (2007). *The Calgary Land Use Bylaw 1P2007*. City of Calgary. https://www.calgary.ca/content/dam/www/pda/pd/documents/calgary-land-use-bylaw-1p2007/land-use-bylaw-1p2007-21p2024-amended-2025-01-01.pdf

City of Calgary. (2021). *Municipal Development Plan (MDP)—2020*. City of Calgary. https://publicaccess.calgary.ca/lldm01/livelink.exe?func=ccpa.general&msgID=OTTKcgyTerX&msgAction=Download

City of Calgary. (2023). *Home is here: The City of Calgary's housing strategy 2024–2030*. City of Calgary. https://www.calgary.ca/content/dam/www/csps/cns/documents/affordable-housing/calgary-housing-strategy-full.pdf

City of Edmonton. (2018a). *Evolving Infill: Municipal Tools Review*. City of Edmonton. https://www.edmonton.ca/public-

files/assets/document?path=PDF/Copy_of_Attachment_3_-_CR_5636_-_Municipal_Tools_Review.pdf
City of Edmonton. (2018b). *Infill Roadmap 2018*. City of Edmonton. https://www.edmonton.ca/city_government/documents/meetings/Attachment_1_Infill_Roadmap_2018.pdf
City of Kelowna. (2024). *Kelowna 2040 Official Community Plan*. City of Kelowna. https://apps.kelowna.ca/CityPage/Docs/PDFs/Bylaws/Official%20Community%20Plan%202040%20Bylaw%20No.%2012300/Official%20Community%20Plan%20Bylaw%20No.%2012300%20-%20Kelowna%202040.pdf?v=954CEEBC767137873FEB2CF53C699D48
City of Kelowna. (2025). *Infill Housing*. Infill Housing. https://www.kelowna.ca/homes-building/property-development/infill-housing
City of Ottawa. (2021). *Official Plan*. City of Ottawa. https://engage.ottawa.ca/8204/widgets/36458/documents/70507
City of Saskatoon. (2020). *Official Community Plan*. City of Saskatoon. https://www.saskatoon.ca/sites/default/files/documents/city-clerk/bylaws/9700.pdf
City of Toronto. (n.d.). *Beaches-East York Missing Middle Pilot Project*. https://www.toronto.ca/city-government/planning-development/planning-studies-initiatives/beaches-east-york-missing-middle-pilot-project/
City of Vancouver. (2022). *Vancouver Plan*. City of Vancouver. https://vancouver.ca/files/cov/vancouver-plan.pdf
CMHC. (n.d.). *An innovative tool to support homebuilding*. https://www.housingcatalogue.cmhc-schl.gc.ca/about
CMHC. (2021). *Calgary—Structure Type* [Census]. https://www03.cmhc-schl.gc.ca/hmip-pimh/en/TableMapChart/TableCategory?geographyType=MetropolitanMajorArea&geographyId=0140&categoryLevel1=Population%2C%20Households%20and%20Housing%20Stock&categoryLevel2=Structure%20Type
Evenson, J., Cancelli, A., & Matthews-Hunter, K. (2023). *What is the Missing Middle?: A Toronto housing challenge demystified*. Evergreen and Canadian Urban Institute. https://evergreen.ca/resource-hub/wp-content/uploads/2023/09/what-is-the-missing-middle-evergreen-cui-s2-optimized.pdf
Ewing, R., Bartholomew, K., & Sadik-Khan, J. (with Burden, D., Zimmerman, S., & Brown, L.). (2013). *Pedestrian- and transit-oriented design*. Urban Land Institute.
Federation of Canadian Municipalities. (2009). *Housing In My Backyard: A Municipal Guide For Responding To NIMBY*. Affordability and Choice Today (ACT). https://data.fcm.ca/documents/tools/ACT/Housing_In_My_Backyard_A_Municipal_Guide_For_Responding_To_NIMBY_EN.pdf
Feldmann, F. G., Birkel, H., & Hartmann, E. (2022). Exploring barriers towards modular construction – A developer perspective using fuzzy DEMATEL. *Journal of Cleaner Production*, *367*, 133023. https://doi.org/10.1016/j.jclepro.2022.133023
Garcia, D. (2024). *Making Missing Middle Pencil: The Math Behind Small-Scale Housing Development*. Terner Center for Housing Innovation. https://ternercenter.berkeley.edu/wp-content/uploads/2024/06/Missing-Middle-Development-Math-Final-June-2024.pdf
Garcia, D., Alameldin, M., Metcalf, B., & Fulton, W. (2022). *Unlocking the Potential of Missing Middle Housing*. Terner Center for Housing Innovation.

https://ternercenter.berkeley.edu/wp-content/uploads/2022/12/Missing-Middle-Brief-December-2022.pdf

Global Platform for Sustainable Cities. (2019). *Module 16: Harnessing Land Value Capture. Municipal Public Private Partnership Framework*. World Bank.

Government of Canada. (2024). *Solving the Housing Crisis: Canada's Housing Plan*. Infrastructure Canada. https://housing-infrastructure.canada.ca/alt-format/pdf/housing-logement/housing-plan-logement-en.pdf

Graham, R., Han, A. T., & Tsenkova, S. (2019). An Analysis of the Influence of Smart Growth on Growth Patterns in Mid-Sized Canadian Metropolitan Areas. *Planning Practice & Research*, *34*(5), 498–521. https://doi.org/10.1080/02697459.2019.1601800

Han, A. T., Graham, R., & Tsenkova, S. (2020). The Inside and Outside Game of Growth Management: Tracking Sprawl of Canada's Largest Metropolitan Areas. *Journal of Planning Education and Research*, *43*(3), 666–681. https://doi.org/10.1177/0739456X20937335

Holleran, M. (2022). *Yes to the city: Millennials and the fight for affordable housing*. Princeton University Press.

Hurley, A. K. (2016). *Will U.S. Cities Design Their Way Out of the Affordable Housing Crisis?* Next City. https://nextcity.org/features/cities-affordable-housing-design-solution-missing-middle

Incremental Development Alliance. (n.d.). *Our Work*. Retrieved March 10, 2025, from https://www.incrementaldevelopment.org/work

Johns, B. (2024). *Effective urban densification: A guide for professionals and the housing industry*. Routledge, Taylor & Francis Group.

Kamali, M., Hewage, K., & Sadiq, R. (2019). Conventional versus modular construction methods: A comparative cradle-to-gate LCA for residential buildings. *Energy and Buildings*, *204*, 109479. https://doi.org/10.1016/j.enbuild.2019.109479

Lundy, M. (2025, January 17). Calgary's population growth is in a league of its own. *The Globe and Mail*. https://www.theglobeandmail.com/business/article-calgarys-population-growth-is-in-a-league-of-its-own/

McConnell Foundation. (2024, November). *Housing Spotlight: Canadian Network of Community Land Trusts*. https://www.mcconnellfoundation.ca/news/canadian-network-of-land-trusts/

mddl. (n.d.). *Mddl | Home*. Retrieved March 4, 2025, from https://www.mddl.co/

Ojah Maharaj, S. (2020a). Increasing the Missing Middle Housing Types in Tampa Bay: A cooperative Risk Reduction Strategy. *Muma Business Review*, *4*, 035–048. https://doi.org/10.28945/4545

Ojah Maharaj, S. (2020b). What Factors Can Increase the Supply of Missing Middle Housing Types in Walkable Urban Core Neighborhoods? A Qualitative Study. *Muma Business Review*, *4*, 017–033. https://doi.org/10.28945/4504

Opticos Design. (n.d.). *What's the best way to enable Missing Middle Housing?* Missing Middle Housing. Retrieved May 26, 2025, from https://missingmiddlehousing.com/about/how-to-enable

Opticos Design. (2019, February 22). *Missing Middle Housing*. https://missingmiddlehousing.com/

Parker, D. C., Valaei Sharif, S., & Webber, K. (2023). Why Did the "Missing Middle" Miss the Train? An Actors-In-Systems Exploration of Barriers to Intensified Family Housing in Waterloo Region, Canada. *Land*, *12*(2), 434. https://doi.org/10.3390/land12020434

Parolek, D. G., & Nelson, A. C. (2020). *Missing middle housing: Thinking big and building small to respond to today's housing crisis*. Island Press.

Pinkston, D., Goyer, C., Divounguy, O., & Garcia, M. (2024). *Build the Middle Playbook*. Zillow Group and Casita Coalition. https://www.zillowstatic.com/bedrock/app/uploads/sites/21/2024/09/Build-the-Middle_Playbook-1.pdf

Rosen, G. (2017). Toronto's condo-builders: Development approaches and spatial preferences. *Urban Geography*, *38*(4), 606–625. https://doi.org/10.1080/02723638.2016.1179426

SHS Consulting. (2023). *Strathcona County Affordable Housing Incentive Program Options Report*. Strathcona County. https://pub-strathcona.escribemeetings.com/filestream.ashx?DocumentId=45565

Small Housing BC. (2023). *Gentle Density and Land Economics: Guidance Paper for Local and Provincial Government*. https://smallhousingbc.org/wp-content/uploads/2025/04/Land-Economist-Guidance-Paper-Small-Housing-3.pdf

Small Housing BC. (2024). *Solutions to Unlock the Full Potential of Small-Scale, Multi-Unit Homes: Small Housing Position Paper*. https://smallhousingbc.org/wp-content/uploads/2025/03/Small-Housing-Position-Paper-September-2024.pdf

Tsenkova, S. (2021a). *Cities and Affordable Housing: Planning, Design and Policy Nexus*. Taylor & Francis Group.

Tsenkova, S. (2021b). *Energy Efficient Affordable Housing: Policy Design and Implementation in Canadian Cities*. Springer International Publishing AG.

Tsenkova, S. (2021c). *Transforming social housing: International perspectives*. Routledge.

Tsenkova, S. (2022). Neighbourhood rebuilding and affordable housing in Canadian cities. *Urban Research & Practice*, *15*(5), 773–788. https://doi.org/10.1080/17535069.2022.2082023

Urban Strategies Inc. (2020). *The "Missing Middle": An Answer to Toronto's Housing Shortages?* Toronto Regional Real Estate Board. https://trreb.ca/hlfiles/pdf/2021.01.04-TRREB_Missing_Middle.pdf

Urbanarium. (2020). *The Missing Middle Competition: A Smart Cities Publication*. Vancouver Urbanarium Society. http://drive.google.com/file/d/1o2Hk1clAQMc3U-TQ5SaTKQimwtm0jLCC/view?usp=sharing

Whitzman, C., Ashtari, N., & Perwani, P. (2024). *Enabling the Missing Middle: Definitions, Evidence, Barriers, and Promising Practices*. University of Toronto School of Cities. https://schoolofcities.utoronto.ca/wp-content/uploads/2024/11/Enabling-the-Missing-Middle_November-2024_1.pdf

Wuni, I. Y., Shen, G. Q., & Hwang, B.-G. (2020). Risks of modular integrated construction: A review and future research directions. *Frontiers of Engineering Management*, *7*(1), 63–80. https://doi.org/10.1007/s42524-019-0059-7

Youssef, K., & Tsenkova, S. (2020). Rethinking Neighbourhood Cohesion in the Suburbs: Insights from Communities in Calgary. *Canadian Planning and Policy / Aménagement et Politique Au Canada*, *2020*, 20–45. https://doi.org/10.24908/cpp-apc.v2020i0.13445