# What Canada can learn from global housing supply strategies



Canada
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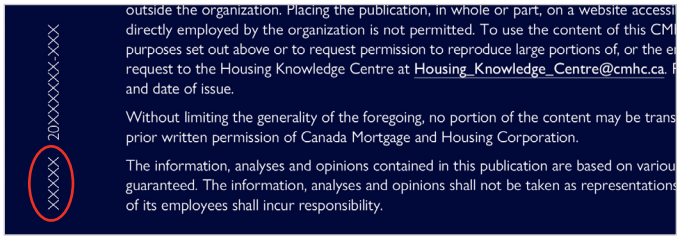
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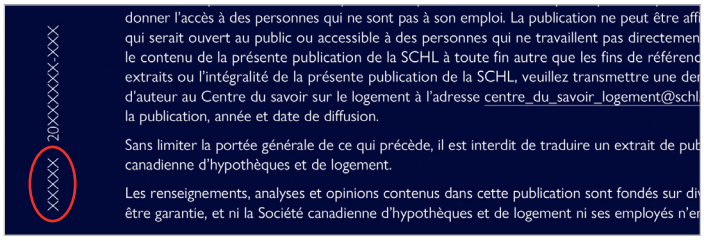
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# Executive Summary

## Introduction

Canada is experiencing a severe housing shortage and affordability crisis, caused by historically restrictive zoning, high development costs, rapid population growth, ongoing labour shortages, stagnant productivity and other economic pressures. Housing affordability challenges were most severe in major urban centres where demand greatly exceeds supply but have proliferated across Canada since 2020. The federal government, provincial authorities, and municipal entities have introduced a range of strategies to address this issue, including many measures designed to enhance housing supply. As Canada explores new solutions, it is important to understand how our experience compares with those of other countries. Looking outward helps us see if Canada's trajectory is typical and whether international experiences can guide us in improving affordability at home. Although the specific causes vary by local context, numerous housing systems around the world have faced similar pressures: growing populations, fluctuating interest rates, global demand shocks, and supply constraints. Yet outcomes vary widely.

In the United States, regional supply gaps and restrictive zoning in high-growth areas have led to major land-use reforms, particularly in California. Across Europe, the United Kingdom, Germany, Austria, Ireland, Sweden, and Switzerland face urban housing shortages, high construction costs, and complex or slow planning processes. In Asia, Japan deals with an aging population and disaster resilience needs, driving innovations in prefabrication, mass customization, and sustainable design. In Oceania, both Australia and New Zealand experience severe affordability pressures as housing construction lags strong immigration and concentrated urban demand. In Australia, the impact of climate change leads to declining house value and increasing insurance costs. Countries like Austria and Japan which consistently build housing on a large scale and keep increasing supply over time, usually enjoy better housing affordability. Their systems help moderate price pressures not only during temporary market changes but also across decades. Given the shared international housing challenges, it's valuable to examine how other countries have responded, both with successful strategies and significant obstacles, to learn lessons that can inform Canada's approach.

## Research Objectives

This study provides a comprehensive review of international policies aimed to increase overall housing supply, with a focus on their relevance to Canada's current housing issues. It investigates housing supply policies from countries including Australia, Austria, Germany, Ireland, Japan, New Zealand, Sweden, Switzerland, the United Kingdom, and the United States. The analysis encompasses policies at the federal, regional, and municipal levels, with a particular focus on the rental and ownership markets, as well as the key factors influencing housing supply. Although the housing system is integrated, whenever possible we also distinguish the policies related to expanding market housing across a wide range versus the policies targeting social and affordable or other non-market housing segments.

This report is structured into two main parts. It begins by identifying and analyzing broad, cross-cutting themes in housing supply-enhancing policies, such as financial incentives, land use regulation reforms, modern construction methods. These themes are distilled from a comparative study of the ten countries selected for their socioeconomic similarities to Canada, effectiveness of policies and innovation as well as potential applicability to Canada.

Following this thematic overview, the report provides detailed country chapters for these ten countries. Each chapter documents temporal trends in housing construction, highlights core policies and strategies, and examines the unique institutional and regulatory contexts shaping housing supply outcomes in each jurisdiction.

# Key Insights

Across countries, the evidence is clear: expanding housing supply requires a coordinated, system-wide approach rather than isolated policy fixes. Our study provides the following key insights for improving housing supply at scale and overtime:

1. Financial and tax incentives can help, but only in specific situations where markets fall short. They are most effective when they are simple, predictable, well targeted, and used to support rather than replace land-use, regulatory, and institutional reforms.
2. Land-use and planning reforms are essential, but not enough by themselves. Faster approvals, clearer rules, and zoning for more housing work best when supported by infrastructure investment, administrative capacity, and coordination across governments.
3. Modern construction methods can improve productivity over time. International experience shows they contribute most when supported by scale, skills, regulatory certainty, and long-term commitment, rather than being treated as quick fixes.
4. Public land can play a major role in boosting supply and affordability. When governments make land available and capture some of the land value, they can lower development costs especially when combined with financing tools and zoning reforms.
5. Collaboration matters. Housing systems deliver more homes, and more affordable homes, when governments, private developers, and non-profit providers work together with clear roles and stable funding.
6. Housing supply and climate goals can be aligned, but this requires coordination. Integrated approaches using incentives, phased standards, and planning tend to work better than rigid requirements alone.
7. Building more homes is not enough if markets remain unstable. International and Canadian experience shows that affordability lasts longer when supply measures are combined with tools that help reduce extreme housing price swings.

Together, these insights point to the value of an integrated approach and an opportunity for Canada to improve scale, durability and adaptability in housing supply outcomes over time. Coordinated action can increase the effectiveness of individual interventions and reduce the risk of unintended tradeoffs.

# Cross-Cutting Themes in Housing Supply Policies

In examining housing supply policies and practices across ten countries, several cross-cutting themes emerge. Before jumping to detailed housing supply profiles and policies country by country, we use this section to highlight these major themes and lessons that span multiple jurisdictions. We focus on seven key themes including financial and tax incentives for builders and developers, land-use regulation reforms, modern construction methods, leveraging public land, public and private partnership to support diverse housing providers, balancing affordability with sustainability and ensuring market stability through housing cycles. For each theme, we summarize the typical policy approaches, explain with examples how these strategies differ or align across different countries and explore the challenges linked with policy implementation. Finally, we draw out the success drivers and key insights from international practice, identifying which elements can be adapted to address Canada's housing supply challenges and inform strategies going forward.

# 1. Financial Instruments and Tax Incentives to Spur Development

Builder and investor incentives help lower development costs and encourage greater housing production, especially for affordable or innovative projects. The incentives consist of tax breaks, credits, subsidies, low-interest loans, grants, and dedicated funding designed to reduce risk. These measures help make new projects financially feasible by addressing funding gaps or increasing returns on investment. Access to affordable and reliable capital is fundamental to sustaining housing supply. Government-backed guarantees, seed funding, and credit enhancement programs can also improve developers' creditworthiness and attract private financing. These initiatives could speed up the construction of both market and non-market housing by reducing perceived risks and using public funding to attract private investors.

## Policy Approaches

Property Tax Abatements: Temporary property tax cuts or exemptions, often used to promote new housing with affordable units. In the United States, many city and state governments reduce or waive property taxes for developments that include affordable housing. For example, Portland's *MULTE* program grants a 10-year property tax exemption on new multi-unit projects that meet affordability criteria. These abatements reduce developers' initial operating costs, bridging financial gaps and enabling projects that might not otherwise be viable. By giving up some tax revenue now, the city gains affordable housing and, over time, benefits from a larger population, more economic activity, and a wider tax base. Tax incentive programs have driven affordable housing growth, at times accounting for up to 40 percent of new housing in certain cities. Research indicates that municipal tax incentive programs in various cities produce both tangible and intangible gains, generating returns ranging from $1.83 to $39.82 for every US dollar spent. (Hewlett et al., 2025)

Low-Interest Loans and Guarantees for Targeted Sectors: Some countries offer below-market interest loans or guarantees to support specific housing projects within targeted sectors.

- *Low-interest loans for LPHAs (Austria):* Austria makes affordable housing possible by using special banks and a mix of government and private money. The country's Länders (provinces) provide low-interest loans and grants, while housing associations add their own funds along with private financing (BMKÖS, 2023). Austria's Wohnbaubanken (housing construction banks) fund developers, mainly nonprofits by issuing tax-advantaged bonds, providing lower interest rates and reducing building costs. Tax incentives also attract private investors. (Koessl, 2022) Combined financial support enables ongoing affordable housing production, shows lower default rates, and can be scaled to boost overall output.(Mundt, 2018)
- *Public guarantees for co-operatives (Switzerland):* After ending direct housing subsidies in 2003, Switzerland introduced financial tools to guarantee loans for non-profit and cooperative housing providers. A federal foundation offers loan guarantees and bridge financing to housing cooperatives and other not-for-profit developers to help them secure private financing. This arrangement reduces lender risk and helps non-profits to get better loan deals and can fulfill funding gaps left by lost subsidies. (Balmer & Gerber, 2018) In major urban cities in Switzerland such as Zurich, around 20% to 25% of the total housing stock is owned by non-profit developers.
- *Tailored loans for SME Builders and Developers facing financial constraints(UK & Ireland):* In the UK, Home Building Fund offers loans to developers, especially small and medium-sized enterprises for building on previously underused sites and promoting faster construction in growth areas (Cotton et al., 2024; Mulcahy, 2024) Home Building Finance Ireland (HBFI) finances residential housing projects that lack access to traditional bank credit, especially those by smaller developers and affordable housing providers. HBFI fills market gaps with supplementary funding for a variety range of markets (i.e. social and affordable or

sustainable housing) and has supported the construction of nearly 3,000 homes from 2019 to December 2023.

Direct Grants and Subsidies: These provide cash or tax credits to developers or homeowners to encourage building.

- *Homebuilder Grant (Australia):* Australia has used grants to stimulate building. The federal government launched the Homebuilder Grant during the COVID-19 pandemic, providing financial support to home owner-occupiers aiming to build new homes or undertake major renovations to help protect the market construction industry from restrictions imposed. The amount of grant was between $15,000-$25,000. This program injected demand and supported builders at a critical time to generate a pipeline of construction projects which have continued to stimulate the residential building market after the program ends. (Australian Bureau of Statistics, 2024)
- *NRAS (Australia):* Another Australian initiative was the National Rental Affordability Scheme (NRAS), started in 2008, which provided annual subsidies (via tax credits or payments) to landlords who agreed to rent units at least 20% below market rates for 10 years. NRAS successfully delivered 27,603 new affordable rental dwellings. A notable aspect of its success is the diversity of housing types it fostered, including apartments, detached houses, studios, and townhouses. (Rowley et al., 2016) However, it was eventually discontinued by 2014 due to implementation challenges and concerns that it was complex and not clearly adding beyond what the market would build anyway.(Amar & Armitage, 2025)
- *Construction subsidies (Germany):* Germany demonstrated a long history of subsidies including Objektförderung (construction subsidies) and the broader Soziale Wohnraumförderung framework which provide direct financial support to private and non-profit developers in exchange for regulated rents for a fixed period (15-30 years). These subsidies can be used for mixed-income and market housing developments. They are central to providing social and affordable housing in Germany.(Santana Caraballo et al., 2024) However, in more recent years, Germany has experienced the shrinking of social and affordable housing as expiring affordability restrictions outpace new subsidized construction.

Dedicated Housing Funds : A newer approach to secure dedicated housing funding is to establish large-scale funds for housing. Australia's 2023 Housing Australia Future Fund (HAFF) is a $10 billion investment fund from the government intended to generate returns used to finance social and affordable housing (with a goal of 30,000 homes in five years). The fund's principle is invested, and the earnings (up to $500 million per year) are spent on social and affordable housing initiatives. (Future Fund, 2026). This model, while not immediately boosting supply, provides a sustained funding stream insulated from annual budget politics.

## Differences and Challenges

Policy designs and results vary by country. Overall, there are several challenges and differences noted when comparing how these jurisdictions implement policy approaches.

- Small incentives & bureaucratic processes: In the U.S., tax abatements are typically local and narrowly targeted (often only for projects with affordable housing). They are effective if large enough to close financing gaps, but when too small or difficult to implement, developers may not engage actively. Australia's experience contrasts a complex program with a simple initiative: the National Affordability Rental Schemes (NRAS) delivered thousands of affordable units but was criticized for red tape and was

discontinued early. In contrast, the one-time Homebuilder grant was very easy to use and quickly boosted building during Covid but came with a high fiscal cost.

- Ensuring incentives address gaps: A common challenge is ensuring these incentives lead to additional housing, not just subsidizing projects that would have happened anyway. The experiences by several countries show that the incentives can devolve into expensive giveaways for business-as-usual development if they are not carefully targeted to address market gaps. For example, research shows that Low-Income Housing Tax Credit (LIHTC)'s additionality varies by market conditions in the U.S. In softer markets, the developments incentivized by LIHTC could "crowd out" or replace unsubsidized construction. Similarly, a major drawback of the NRAS in Australia was it failed to show clear net supply gains. Some developers who already planned to build market-rate housing simply took the NRAS subsidy and agreed to the affordable rent conditions, implying that the program in those cases subsidized units that the private market was on track to deliver despite the incentives.
- Sizes and duration of incentives: We also see a trade-off between how generous an incentive is and its budget impact. More generous programs like grants or tax breaks can create bigger responses but cost more public funds. Furthermore, the incentives which are more predictable and are longer in duration can be contrasted with short-term grants. For example, Austria's low-interest loan system supports its robust non-profit housing sector. By providing cheap financing to trusted housing developers, Austria manages to keep building costs and rents lower without direct subsidies. This model is quite different from the short-term or project-specific grants seen elsewhere and represents a structural and long-term approach. However, this method depends on robust institutions such as dedicated banks and regulations governing fund usage, but it has consistently produced a substantial supply of affordable housing.

## Key Insights from International Practice for Canada

Canadian Context[1]: Canada has relied on a range of financial incentives under the National Housing Strategy, launched in 2017, to support housing supply across different segments of the market. Major federal programs including the Affordable Housing Fund, the Rapid Housing Initiative, and the Apartment Construction Loan Program provide low-cost loans and, in some cases, combine financing with contribution grants to support rental and affordable housing projects.

On tax side, the federal government introduced a 100 percent Goods and Services Tax (GST) rebate for new purpose-built rental housing in 2023, which also applies to conversions of non-residential properties to residential use. Additional measures include planned GST relief for first-time homebuyers purchasing new homes starting in 2025. At the municipal and provincial levels, some jurisdictions have implemented property tax waivers, reduced development charges, or differentiated fee structures to support affordable or rental housing development.

Against this backdrop, international experience offers useful comparative evidence on how similar financial instruments and tax incentives have operated under different institutional and market conditions. The global review highlights several recurring practices relevant to incentive design, targeting, and coordination, while also underscoring the limits of transferability.

- Keep it simple and predictable: Across the countries reviewed, incentive programs with simpler structures and clearly defined eligibility criteria were often taken up more quickly than highly complex or administratively burdensome schemes. For example, Australia's Homebuilder program demonstrated rapid

[1] All the discussion in Canadian context contain only information as of time of writing (Feb 2026).

uptake during a downturn, while more complex programs such as the National Rental Affordability Scheme faced implementation challenges despite delivering a substantial number of units. However, the evidence does not establish a consistent link between program simplicity and sustained housing supply growth. Short-term stimulus effects were more common than durable impacts, and several programs raised concerns about fiscal cost, inflationary pressures, or limited additionality. These findings suggest that simplicity may improve participation, but it does not guarantee long-term supply outcomes.

- Target the Gaps and Monitor: International experience emphasizes the importance of aligning incentives with clearly identified market gaps. Most reviewed countries provided incentives aimed at where market financing falls short. In the United States, Australia, the United Kingdom and Ireland, several incentive programs were effective in enabling projects that faced financing constraints, particularly in affordable or rental housing segments or targeting SME builders. At the same time, evaluations of programs such as LIHTC (U.S.) and NRAS (Australia) revealed challenges in demonstrating that all supported projects would not have proceeded without public assistance. Evidence from Germany and Austria indicates that combining incentives with enforceable affordability commitments can help preserve affordable housing over time. Nevertheless, these systems also face pressures when affordability restrictions expire faster than new subsidized supply is created. This underscores the importance of rigorous monitoring and outcome-based conditions, including tracking units delivered, affordability duration, and occupancy by target groups.

- Consider Long-Term Trade-offs: Tax-based incentives, such as property tax abatements, are best understood as foregone public revenue rather than direct public investment. U.S. case studies suggest that, in some contexts, these incentives have generated longer-term economic and fiscal benefits, including expanded tax bases and local economic activity. However, returns vary widely by location, market strength, and program design, and positive outcomes are not guaranteed. For Canada, this highlights the need for careful assessment of fiscal trade-offs, particularly for municipalities with limited revenue flexibility. Stable intergovernmental funding arrangements may be necessary where local tax relief is used to support housing objectives.

- Combine incentives with other tools: International experience consistently shows that financial incentives are most effective when combined with complementary policies, such as land-use reforms, streamlined permitting, public land strategies, or negotiated affordability requirements. In the United Kingdom and Germany, incentives have been used to offset the costs of affordability mandates within negotiated development frameworks, particularly in stronger markets. In weaker markets, similar mandates without sufficient support have at times reduced development activity. These findings suggest that incentives alone are unlikely to generate substantial additional supply. Coordinated policy packages that reduce development risk and address multiple constraints simultaneously are more likely to support housing delivery, particularly in high-cost or highly regulated environments.

Financial and tax incentives can play a supportive role in increasing housing supply, particularly where financing gaps limit project feasibility. Global evidence indicates that their effectiveness depends on simplicity, predictability, careful targeting, fiscal sustainability, and coordination with broader housing policies. For Canada, these lessons point toward cautious, evidence-informed use of incentives designed to complement regulatory, land, and institutional reforms rather than relying on financial tools as stand-alone solutions.

# 2. Land Use, Planning, and Zoning Reforms

Land-use planning and zoning frameworks, typically under municipal or regional jurisdiction, play a decisive role in determining what can be built and where. Most countries reviewed have undertaken reforming zoning and planning to enable more housing supply. Common approaches include upzoning low-density areas to allow more homes, streamlining approval processes to speed up construction, implementing or revising inclusionary zoning policies, and coordinating development with infrastructure through broad planning strategies. These reforms aim to overcome NIMBY ("not in my backyard") resistance, unlock underutilized land from outdated zoning and accelerate approvals from bureaucratic delays.

## Policy Approaches

Upzoning and Densification: A common trend observed in several countries is permitting higher densities in traditionally single-family zones. Several countries promoted gentle density to provide more housing options in traditionally single-family neighbourhoods, in the form of additional dwelling units or suites, multi-plexus (2-8 units), row housing, and low-rise apartments. The reason behind this push is that gentle density bridges the gap between single-family detached dwellings and larger high-rise developments by allowing more 'missing middle' types of development to contribute to diversity of housing choices. Another benefit noted is that small-scale densification can empower smaller builders which help diversify who can contribute to housing supply. Other reasons for supporting gentle density and upzoning are to better use existing infrastructure and create a financially sustainable way to maintain municipal systems, since urban sprawl often leads to higher infrastructure costs per home.

- *Medium-Density Residential Standards (New Zealand):* New Zealand pursues densification to enable more housing supply. The Medium-Density Residential Standards legislation from 2021 is the central government initiative that allows homeowners or developers to construct up to three homes of up to three stories on a single lot without needing special land-use consent in many urban areas. The legislation aims to improve housing supply by facilitating higher-density construction, standardizing the zoning approval process, and reducing planning-related barriers. The legislative increase in density is projected to result in 75,000 additional dwellings across major urban centres in New Zealand over a 5- to 8-year period. (Greenaway-McGrevy & Phillips, 2023)
- *SB 9 Law (California, U.S):* A state-level initiative in California, Senate Bill (SB) 9, also known as the Home Act, mandates that local governments simplify development and approval procedures to facilitate the conversion of single-family homes into duplexes or permit the addition of Auxiliary Dwelling Units (ADUs). (Association of Bay Area Governments, 2025) This enables a parcel to be subdivided into two, either as two separate residential structures or by adding an ADU.

Addressing NIMBYism through Coordination of Policies: Sometimes residents or councils may resist density increases. In several countries, we have seen higher levels of government such as state or national governments have stepped in to set or influence minimum zoning standards to mitigate NIMBY-driven local restrictions.

- *Oregon HB 2001 (U.S):* The state of Oregon in 2019 eliminated single-family-only zoning statewide in cities with over 10,000 people. The law mandated that any residential lot that previously allowed only one detached house must now allow at least a duplex. For larger cities, they must allow duplexes, triplexes,

fourplexes, townhouses and other multi-family housing types by-right to promote densification. The permit issuance for duplexes, triplexes, and fourplexes rose 12% in Oregon's large cities, compared to 5% nationwide. (Treskon et al., 2023) Some preliminary results indicate a modest increase in duplex permits in small cities, but no major impact yet in larger cities. Overall, there has been proportional growth in multifamily housing statewide in Oregon since the introduction of the legislative change.

- *Special Zones for Structural Reform Act (Japan):* In Japan, although the context differs, permissive zoning in cities like Tokyo does not exclude multi-family housing in most areas and has long empowered a high rate of construction. Unlike Canada, where zoning is heavily localized and fragmented, Japan's zoning is based on the City Planning Act of 1968, which provides a national standard of 12 land-use zones. Since 1968, Japan avoided strict single-family zoning and thus didn't constrain density as much as other Western countries. In urbanization promotion areas (UPA), flexibility exists to promote mixed-use arrangements and enable higher-density development without the need for excessive approval. More recently since 2000, Japan implemented the Special Zones for Structural Reform Act, which allowed different municipalities to relax zoning and building regulations within pilot areas by recognizing that uniform nationwide regulations might not fit every regional context. The objective was to promote innovative housing and redevelopment initiatives. Prior to these reforms, uniform national building standards to some extent also required time-consuming and standardized approvals. The special zones allowed cities to relax certain requirements for prefabricated housing recognizing that modern off-site construction methods could achieve safety through different and more flexible methods. This initiative accelerated the construction of prefabricated and modular homes by allowing local and tailored approval processes and introduced design flexibility in housing construction.

Streamlining and Fast-Tracking Approvals: Lengthy permitting and rezoning processes can delay projects and increase costs. Studies have shown that time is money in construction and reducing approval time can make more projects feasible with faster completion. Streamline approvals can include setting faster timelines, "by-right" approvals for certain projects, one-stop permitting between different steps, and the use of digital/e-permitting systems. In Australia for example, the New South Wales government introduced the Early Adopter Grant Program aimed to accelerate planning processes by leveraging big data and improving productivity. The grants support local councils in training and implementing AI solutions to make the planning system more efficient and speed up housing delivery. One interesting innovation is that a local council created "DAISY" AI assistant to help with development applications and expedite approval processes. (Wingecarribee Shire Council, 2025)

Inclusionary Zoning (IZ) and Affordable Housing Requirements: Some jurisdictions require that a share of new development be affordable to lower-income or working-class households. Inclusionary zoning tools aim to harness private development for public good. The United Kingdom has a long-standing practice (under Section 106 agreements in England) where local councils negotiate with developers for a portion of units to be affordable in each project. This has had some success in delivering affordable units as part of market developments, but it works best when the market is strong enough to absorb the cost or when government provides incentives to offset the burden on developers. (Cheshire, 2024a) Many German cities capture land value uplifts with developers by requiring a certain percentage of new housing developments to be affordable. Some cities such as Munich developed policies that combine incentives with obligations under urban development contracts, and these led to expansion in the supply of subsidized and price-controlled housing. (Granath Hansson, 2019b)

Comprehensive Planning & Coordination: Several countries have adopted a broad planning approach, aligning housing growth areas with infrastructure and national goals of housing. Planning housing on a regional or national scale can be important to align with local actions.

- *National Planning Framework (Ireland)*: Ireland sets a vision to direct new housing into urban centers with adequate public transport and services. (Department of Public Expenditure and Reform, 2021). The goal is to prevent urban sprawl by focusing on new housing developments in areas with a high and expanding population, and where existing infrastructure can accommodate growth. This kind of integrated framework encouraged local governments to zone and approve housing in line with a national growth strategy, rather than in an ad-hoc way.
- *Integrated infrastructure and housing planning (Sweden):* Sweden also requires municipalities to zone land for housing and even release their own land for development to meet national housing targets. It has adopted a long-term planning approach to align infrastructure development with the need to expand housing supply, particularly in rapidly growing urban regions. National investments in infrastructure, particularly in transport systems, play a crucial enabling role in new residential construction. Substantial investments planned in Sweden aim to enhance regional connectivity and promote densification around public transit hubs. (European Construction Sector Observatory, 2021).

## Differences and Challenges

- Effectiveness of Upzoning: Upzoning reforms create the capacity for more housing but don't guarantee development. For example, upzoning a property makes more units possible, but if building those units is still too costly or risky, developers might not build more housing. In some cases, we saw unintended consequences of short-term land value increase from upzoning which can negatively impact development viability. (Liu et al., 2025) For instance, in Auckland we saw a modest increase in duplex/triplex permits right after upzoning, but the full impact depends on market demand and builder capacity. A different study shows that land use reforms are more effective when implemented broadly across a city rather than in smaller, fragmented areas. Major zoning changes can shift the long-term housing supply trend, even if there is a delay before construction activity increases (Greenaway-McGrevy, 2025). Examples from several jurisdictions indicate upzoning is a strong enabling reform, but other factors such as infrastructure upgrades, reasonable land prices, builder workforce, and financing must keep pace to see the potential realized capacity.
- Local Opposition and Conditions: Even when higher governments force zoning changes, local implementation can be slow or resisted in subtle ways. California's SB 9, for instance, had conditions that limited its impact initially such as property owners having to hold a property for a few years before splitting, and certain splits were restricted if the owner owned adjacent parcels. These rules were meant to prevent abuse such as big investors immediately lot-splitting entire neighborhoods. But further restrictions also led to a very modest uptake in the first years of implementation.
- Fast-Track Limitations: Some countries focused on fast-tracking only a portion of development permits; this type of solution might only help in the short term. Special fast-track zones in New Zealand expired after a few years; they accelerated some projects but did not transform the overall system. This experience highlighted that permanent process improvements are needed. One common barrier is resources: local planning departments often say they are understaffed, causing delays. There are also a learning curve and cultural shift: planning departments traditionally focused on regulating now need to adapt to facilitating growth, which takes time and training.
- Inclusionary Zoning Trade-offs: Inclusionary zoning remains debated. New Zealand attempted this under its Special Housing Areas (SHAs) program, which encouraged new subdivisions but asked developers to include affordable units. The outcome was ineffective: fewer than 100 affordable homes were delivered under that scheme. Several studies found that the implementation of SHAs was associated with an average price increase. (Ortiz-Villavicencio et al, 2025) Some of the factors that weakened the results of SHAs were

limited financial or regulatory incentives and a lack of monitoring for the volume of affordable housing generated. (Murphy, 2016). This near failure with the SHA affordability requirements suggests that without strong enforcement or incentives, developers might avoid such rules by moving development elsewhere. The UK's more enforced approach worked better but still only in strong markets. In slower markets, mandatory affordable requirements can result in no development at all.

- Coordinating Multiple Jurisdictions: In regions with many municipalities, one city's restrictive policies can spill over and cause regional shortages. The UK discovered that relying solely on local councils led to inconsistent outcomes and hence more national guidance was needed. The challenge here is balancing local autonomy with regional needs: local governments may resist perceived overreach, and different areas have different capacities for growth. Furthermore, tying housing plans to infrastructure requires strong inter-agency coordination (e.g., aligning transit expansion with upzoning around stations), which can be complex in practice.

## Key Insights from International Practice for Canada

Canadian context: Canada has adopted a range of recent land-use and planning reforms that reflect approaches observed across several countries in the global review, although their impacts on housing supply have not yet been fully assessed. In Ontario, for example Bills 109 and 23 (enacted in 2022) introduced measures to accelerate municipal approvals and reduce or defer development charges. Subsequent reforms including Bills 60 and 17 made further changes to planning and construction laws, strengthening provincial oversight of land-use planning and infrastructure, streamlining permitting processes, and increasing flexibility and transparency around the timing and structure of development charges. In British Columbia, Bill 44 (passed in 2023) expanded as-of-right density permissions in low-density zones and established minimum density thresholds near major transit hubs.

At the municipal level, the Housing Accelerator Fund (HAF), has supported reforms related to gentle densification, permitting efficiency, and transit-oriented development. By mid-2025, many municipalities had committed to allowing four units as-of-right, with some cities enabling higher unit counts in selected areas. These reforms primarily expand development capacity rather than guaranteeing housing delivery. HAF has also enabled many municipalities to adopt e-permitting platforms and web-based application systems. Some cities are also experimenting with advanced technologies, including artificial intelligence and digital-twin tools, to improve planning and review processes. Because the costs of technological upgrades and process redesign can be significant particularly for smaller municipalities, there may be opportunities to pool resources at the provincial level. For example, British Columbia's "common housing operating system," delivered through the DASH (Digitally Accelerated Standardized Housing) platform, provides free, standardized tools and designs to accelerate housing delivery and reduce costs.

While Canada's recent planning reforms reflect approaches also observed internationally, experience from other countries illustrates how zoning changes interact with market conditions, infrastructure capacity, and governance structures to influence housing outcomes. The global review identifies recurring patterns in jurisdictions that pursued broad upzoning, higher-level leadership, and streamlined approvals, while also documenting uneven results. These international insights help frame what zoning reforms can realistically deliver in Canada and where complementary measures may be required.

- Support Broad Upzoning and review regularly: International evidence indicates that broad, permanent upzoning reforms can significantly expand housing development capacity compared to incremental or project specific zoning changes. New Zealand's large-scale rezoning under the Auckland Unitary Plan and Medium Density Residential Standards is associated with measurable increases in housing supply, while more incremental reforms in Oregon and California have produced more modest early results. The evidence also highlights the importance of monitoring permitting and construction outcomes following zoning changes. Regulatory reform alone does not automatically translate into increased housing

production. Outcomes depend on market demand, construction capacity, infrastructure readiness, and institutional alignment. Continuous monitoring of permitting and construction outcomes such as in Japan and England has been used to assess whether zoning capacity is translating into delivered housing. Therefore, regular review of permit uptake and construction activity is therefore essential to determine whether further regulatory refinements are needed to meet housing targets.

- Involve Higher-Level Leadership: International experience shows that leadership at the state, provincial, or national level can potentially help overcome local gridlock in land-use planning. Experience from the United States suggests that state-level leadership can reduce local barriers to housing development by setting minimum zoning standards. Reforms in Oregon and California demonstrate that broader public concern about housing affordability can, in some cases, outweigh local resistance to increased density. However, higher-level intervention does not always eliminate implementation challenges, including administrative capacity constraints and limited early uptake. While community resistance can be difficult to overcome, governments have mitigated opposition by emphasizing high-quality design, introducing gentle density in low-rise neighbourhoods, and concentrating mid- and high-rise development along corridors and near transit. The focus has been shifted to providing diverse housing choices. Successfully achieving diverse density levels requires collaboration with communities and cities to identify approaches that best suit local contexts and needs. In the Canadian context, the opportunities may be in better coordination between municipalities with measurable success and sharing lessons with those yet to engage in land use and planning reforms. This can help spread the benefits of upzoning more broadly throughout Canada.

- Improve Local Capacity and Approval timelines: Streamlining approvals is not solely about imposing strict timelines; it also requires improving processes, certainty, and administrative capacity. The global review consistently identifies administrative capacity at the local level as a limiting factor in housing delivery. Jurisdictions that paired regulatory reforms with investments in permitting systems, staffing, and process redesign were better able to handle increased application volumes. Digital permitting systems and emerging tools, such as those piloted in Australia and British Columbia, are increasingly used to modernize approvals. However, evidence on their independent effects on housing output remains limited, suggesting they should be viewed as enabling infrastructure rather than stand-alone solutions.

- Integrate Infrastructure and Planning: International experience suggests that zoning reforms are more likely to result in development when supported by timely infrastructure investment. Upzoning appears most effective when accompanied by investments in transit, utilities, and public amenities ensuring that new development is adequately serviced. Ireland and Sweden illustrate approaches that link housing targets with infrastructure funding and planning frameworks. At the same time, these cases show that coordination alone does not eliminate delays when institutional capacity or sequencing is weak. Many countries have sought to align housing growth with transit investments by permitting higher densities in transit-rich and employment-accessible areas. In Canada, similar approaches are emerging, particularly in Ontario and British Columbia, where provincial policies increasingly encourage higher density around major transit stations to support more integrated housing and transportation outcomes.

- Balance Requirements with Incentives: Many Canadian cities such as Vancouver, Montreal, Toronto and Edmonton have implemented various forms of inclusionary zoning. Global evidence shows that inclusionary zoning has produced mixed results. In strong markets, mandatory affordable housing requirements combined with subsidies, density bonuses, or public land have delivered affordable units. In weaker

markets or voluntary schemes, such requirements have reduced development activity, as seen in New Zealand's Special Housing Areas. Outcomes depend heavily on local market conditions, policy design, and the extent to which inclusionary requirements are combined with complementary tools such as density allowances, expedited approvals, public land, or direct investment. For Canada, an important takeaway is that inclusionary zoning works best when it is calibrated to local market conditions and paired with complementary supports, with ongoing monitoring and adjustment of requirements where development slows.

Land-use reforms are a necessary enabling condition for increasing housing supply as they shape what can be built and how quickly, but they are not sufficient on their own. International experience highlights the importance of combining land use regulation reform with infrastructure investment, administrative capacity, financial tools, and institutional coordination. Canada can draw on global examples that establish predictable, clear rules to reduce uncertainty and encourage development. Across the country, provinces and municipalities are already advancing missing-middle housing, as-of-right zoning, and faster approvals. To maximize the impact of these reforms, Canada can support with coordinated infrastructure investment, stronger alignment across levels of government, and a careful balance between regulatory requirements and incentives. The key lesson from international experience is not to replicate any single model, but to adapt these approaches cautiously, recognizing that outcomes are context-dependent and require sustained monitoring and adjustment over time.

# 3. Modern Methods of Construction and Technology

Another striking cross-cutting theme is the pursuit of higher productivity in construction through modern methods such as prefabrication, modular construction, digital processes, and new materials. As labor shortages and high construction costs plague many countries, several have turned to innovation in how housing is built to increase supply faster and cheaply. Improving productivity in residential construction is essential to delivering housing on a large scale. In addition to the adoption of prefabricated or modular building methods, several countries have also implemented policies that support workforce retraining and research and development (R&D) in construction technology and incentives to encourage builders to modernize production processes and enhance efficiency across the construction value chain.

## Policy Approaches

Prefabrication and Modular Construction: Two notable countries with wide use of prefabrication and modular construction are Japan and Sweden, which have made advanced construction techniques mainstream.

- *Prefabrication housing with mass customization (Japan):* Japan is a world leader in prefab housing. Major Japanese companies (Sekisui House, Daiwa, etc.) fabricate components of homes in factories and then assemble them on-site. In mid 2010s, nearly 15% of new houses in Japan were prefabricated and Japan consistently uses modular techniques for a large share of construction. This includes components such as factory-manufactured housing elements (e.g., walls and roof trusses) as well as complete modules or panelized systems. (Matsumura et al., 2004). Japan's motivation came partly from labor constraints and the need for speed after WWII and through the boom decades (1950-1970s). They built millions of homes quickly. Over time, Japanese firms honed the ability to mass-produce homes with customization for diverse preferences. The industrial approach shifts a great percentage of work off-site mitigating weather delays and labour shortages, cutting construction timelines by up to 50%. The prefabricated units are designed to

meet environmental standards and carry advanced features which render them a faster and higher quality housing option. (Kobayashi, 2016)

- *Modular homes with mass timber & Million Homes Program (Sweden):* Sweden is another country pushing modular building for several decades. It has several companies with integrated supply chains, and they are dedicated to off-site construction of apartments and houses. BoKlok, a joint venture by Ikea and Skanska, produces modular homes that are affordable, delivering about 1,200 units per year in Sweden and nearby European markets. Sweden also extensively uses mass timber in construction and their forthcoming "Stockholm Wood City" project will create an entire neighborhood from timber modules, showcasing sustainable prefab building at scale. The driving forces in Sweden are the need to lower costs, meet sustainability goals, and address labor shortages. The beginnings of Prefab and modular construction can be traced back to the Million Homes program (1965-1974), during which the country experienced significant innovation in building components to provide rapid construction with 20% of all products using highly prefabricated methods. (Steinhardt & Manley, 2016) The scale of the program favoured large and vertically integrated construction firms which invested in factories, logistics, and quality control.

Embracing digitalization and automation: Modern construction also embraces digital tools and automation. Japan's large integrated companies has invested in robotics for construction partly due to an aging workforce. Practices integrate robotics, factory automation and digital-co-design platforms. Germany and Australia increasing use BIM and early contractor involvement to reduce redesign, errors and delays. Australia's use of Early Contractor Involvement (ECI) in projects allows construction experts to input into design early, often using BIM (Building Information Modeling) to optimize designs for easier construction. Ireland and Sweden support digital tools through applied research centres and living labs/innovation programs that link construction firms, researchers and public clients for more efficient housing solutions.

Workforce Skills and Training for MMC: Japan and Germany rely on strong vocational education systems, including apprenticeships and technical colleges that teach off-site construction, digital fabrication, and industrial production methods. Ireland has invested in industry-academic partnerships with national MMC innovation centres focused on upskilling workers and managers in digital construction and prefabrication. Australia has established Future Housing Construction Centre of Excellence to address skill shortages and support workforce transition from site-based trades to factory-based production.

Standardization and Industrialization: The overarching trend is treating housing construction more like manufacturing such as moving work from building sites to factories where possible, using standardized components that can be produced in volume. Countries with higher MMC uptake have used standardized modules and pre-approved designs which reduce regulatory uncertainty and support factory investments. Japan's success was in part because large industrial firms got involved in homebuilding. They brought capital and know-how to create factories that produce housing components. In places where homebuilding is dominated by many small firms such as Canada and Australia, it might be harder to make that leap without concerted efforts. Sweden's construction industry composed of many small players also has a few large ones that champion innovation (Skanska, NCC, etc.). These bigger actors can invest in modular housing lines or in R&D for new methods. Both Japan and Sweden rely on national performance-based building codes which allow factory-built components to be approved consistently across regions.

## Differences and Results

- Housing Output and Speed: Japan's use of industrialized methods contributed to it achieving extremely high housing output. It routinely built close to or over 1 million housing units per year in the 1970s-2010s.

Because of industrialized construction, homes can be built more quickly to respond to demand, preventing the kind of chronic shortage seen in other countries. Japan also innovated in quality for example, making homes highly earthquake-resilient with modern engineering and materials so innovation addressed not just quantity but also safety and quality.

- Upfront costs and Volume Requirements: Prefab construction typically requires significant upfront investment in factories, which only pays off if high volumes are produced. Countries with sustained high housing demand and repetitive building programs (Japan in post-war decades, Sweden's ongoing housing programs) helped to support those investments. In places where housing output is lower, firms may be reluctant to risk capital on a factory. It is worth noting that the short-term offsite construction might not necessarily reduce costs as these require significant scaling up of production volumes. Furthermore, there are still transportation and logistical costs, and not all projects are suitable for modular construction.
- Overcoming Industry Fragmentation: A challenge is that in many countries such as Canada and the U.S, the construction industry for housing is highly fragmented with lots of small builders and craftspeople. This fragmentation makes it hard to invest in large-scale modernization or undertake expensive innovation or standardization. Japan overcame this issue by having several large companies dominating prefabricated homebuilding and they have capital to invest in factories and R&D. This suggests that encouraging consolidation or collaboration might be needed to replicate the scaling benefits seen in Japan or Sweden.
- Cultural Acceptance and Demand: Consumer attitudes also matter in the acceptance of prefabricated and modular housing. In Japan, homes are often not seen as 100-year assets; many homes are rebuilt or significantly renovated after 30-40 years. This means Japanese consumers are more open to prefab or "non-traditional" construction since a home is not necessarily a multi-generation purchase. In Sweden, the public has broad acceptance of modern designs and materials, and a strong ethos of sustainability which modular timber construction fits into. In some other markets such as Canada, buyers might be skeptical of prefab as "cheap" or lower quality. Overcoming this perception through demonstration of quality and performance is crucial.

## Key Insights from International Practice for Canada

Canadian context: Canada has begun to explore modern methods of construction (MMC), including modular and prefabricated housing, as part of broader efforts to accelerate housing delivery. International experience reviewed in this report suggests that, while these efforts represent an important step, Canada's use of MMC remains at an earlier stage compared to jurisdictions such as Japan, Sweden, and Germany, where industrialized construction has been embedded in housing systems over multiple decades. The global review highlights several cross-cutting lessons from countries with more mature MMC ecosystems that may be relevant for Canada's housing supply context.

- Scale to achieve production stability: Across leading jurisdictions, MMC adoption has been most successful where production volumes are sufficiently large and sustained over time to justify upfront investments in factories, supply chains, and process innovation. In Japan and Sweden, continuous housing demand and predictable development pipelines supported the scaling of prefabrication and modular construction, contributing to productivity gains and cost efficiencies. By contrast, countries with fragmented or episodic demand have faced challenges in achieving similar outcomes. This suggests that the effectiveness of MMC is closely linked to the presence of stable, long-term market or institutional conditions rather than one-off initiatives. Japan's model consists of large integrated companies. Another approach observed is forming

consortia of smaller builders to jointly invest in a factory where developers, manufacturers, and investors pool demand for modular units.

- Address upfront capital needs: International experience reviewed indicates that modern methods of construction are more capital intensive upfront than traditional building methods, requiring early investment in factories, equipment, and process innovation. In countries where MMC has scaled up successfully such as Japan and Sweden, this capital intensity was mitigated through institutional arrangements that provided long term demand stability and access to lower cost, patient financing and reduced financing risk over extended investment time horizons. These conditions enabled manufacturers and developers to amortize upfront investments over sustained production volumes rather than relying on short term project-based returns.
- Support Innovation and institutional learning: Countries with stronger MMC outcomes have invested in workforce development, applied research, and industry-academia collaboration. Examples include Sweden's housing innovation labs, Austria and Germany's vocational training systems with grants for prefab technology, and Japan's firm-level R&D expenditures in industrialized housing production. These cases indicate that MMC productivity gains tend to emerge over time through accumulated expertise, iterative learning, and integration of digital tools, rather than through rapid adoption alone. Specifically, training initiatives like technical college programs for off-site construction techniques can produce a workforce ready to implement new construction methods. These measures address the initial hurdles of skilled workers unfamiliar with new methods of construction and technology and promote labor upskilling.
- Provide regulatory certainty and standardization: Permissive and predictable land-use regulation plays an important enabling role in the adoption of modern methods of construction. In countries such as Japan and Sweden, standardized zoning frameworks and long-term planning certainty supported sustained housing output at scale, creating conditions under which firms could invest in capital-intensive, industrialized construction methods. These findings suggest that land-use reform can contribute indirectly to MMC adoption by enabling larger, more continuous development pipelines, thereby reducing risk and supporting the scale required for productivity-enhancing construction technologies. Leading countries also adjusted regulations to accommodate offsite construction. Jurisdictions such as Japan and Sweden rely on nationally standardized or performance-based building codes that allow factory-built components to be approved consistently across regions. For example, Japan established a certification system for factory-built homes decades ago. Sweden adopted national performance-based building codes which enables innovative and cost-effective housing solutions such as modular and sustainable design. Similarly, New Zealand's separate consenting pathway for prefabricated components illustrates how regulatory differentiation can reduce approval timelines and uncertainty. These experiences suggest that fragmented or highly localized approval processes can act as barriers to MMC, while harmonization and standardization are associated with faster uptake and lower compliance costs.
- Improve construction productivity: The labour shortages were a significant driver of MMC adoption in several countries, particularly Japan and Sweden. Factory-based construction and standardization reduced reliance on scarce on-site trades and improved labour productivity by shifting work into controlled manufacturing environments. While MMC does not eliminate labour requirements, international experience suggests it can alleviate labour constraints by changing how and where construction labour is deployed, especially in contexts facing aging workforces and persistent skills shortages.

Modernizing construction aims to increase efficiency by reducing time, labor, and waste. International experience shows that modern methods of construction (MMC) are most effective when supported by scale, clear regulations, skills development, and alignment with broader housing and sustainability goals. Rather than functioning as a standalone solution, MMC operates as part of an integrated housing delivery system influenced by institutional,

market, and regulatory conditions. Examples from Japan and Sweden demonstrate that this approach requires sustained effort over decades. For Canada, these lessons highlight key factors to consider when assessing the potential role of modern construction methods in addressing long-term housing supply challenges.

# 4. Leveraging public land for housing

Land scarcity is a major contributor to high housing costs in many urban centres. Public-sector entities, municipal, provincial, or federal, often own substantial parcels of developable land that can be leveraged to expand housing supply. Making such land available at below-market rates or through long-term leases has been deployed in countries reviewed to promote affordable ownership and rental housing. Governments have also repurposed underutilized properties, such as surplus institutional buildings or parking lots, to enable new residential development and make land available to builders on favourable terms. Other practices such as land value capture mechanisms have shown to discourage the practice of holding idle land in anticipation of future land price increases. Lastly, pre-emption rights can give cities opportunities to acquire land at reasonable prices and secure them for future housing.

## Policy Approaches

Using public land for housing: Governments can incentivize housing supply by providing land. The idea is that by using public land, projects can avoid the high cost of land acquisition and therefore make it easier to provide affordable housing. Rather than outright sales, several countries and cities lease public land to private developers or not-for-profit housing associations. This practice is common in Vienna and other European cities and therefore the government retains ownership of land but grants long-term leases (e.g., 60-99 years) to housing providers. The arrangement ensures the land value remains in public hands long-term and can be used to influence the project outcomes.

- *Land development Agency (Ireland):* In Ireland, the government created the Land Development Agency (LDA) with a mandate to use state-owned lands (like old rail yards, government sites, etc.) to build housing, particularly affordable and social housing. The LDA also aims to master-plan large sites and partner with private or non-profit developers to build mixed-income communities. (James et al., 2024) The LDA committed €2 billion to deliver 5,000 homes by 2028 through partnerships and staged financing structures. (Land Development Agency, n.d.) The LDA shows how land assembly, value capture, and public-private partnerships can stabilize land costs and accelerate affordable housing delivery.
- *Land allocation systems (Sweden)*: Sweden expects municipalities to identify surplus land they own and make it available for housing development (including at below-market prices for affordable housing projects). This has pushed local governments to actively contribute land as part of the solution and foster close public and private partnerships for development. (Caesar, 2016) However, the contribution to increasing housing density and supply is highly contingent on municipal capacity, institutional alignment, and political will at the local level. (Granath & Hansson, 2017)
- *Wohnbauinitiative, WBI (Vienna, Austria)*: The city of Vienna provides land at discounted rates or leases for affordable housing as part of initiatives like the Vienna Housing Construction Initiative which provides a public-private partnership where the city offers below-market land and financing to encourage developers to build middle-income rental housing. (Mundt & Amann, 2018)

Government land banking and pre-emptive rights: Some municipalities acquire and hold land in advance of need. In Germany, city governments like Munich or Hamburg have long practiced purchasing parcels of land when available to secure it for future housing or community development. By holding a land reserve, they can control development

timing and ensure that when housing is built, it aligns with public goals such as affordability and compact city design. (Shahab et al., 2021) Government land banking can also help smooth land price volatility in the market. Land readjustment is another German tool. Cities merge fragmented plots, add infrastructure, and redistribute them to enable planned development without requiring complete public ownership. (Albrecht et al., 2018) Another tool used, notably in Germany and some Swiss cantons, is giving governments the first right of purchase on land that comes up for sale. This pre-emptive right means if an owner is selling a piece of undeveloped or strategic land, the city can step in and buy it before it goes to the market's bidding. This enables city authorities to secure land for public use, such as housing, and limits speculative activity.

Land value capture mechanisms: Urban growth or rezoning can greatly increase land values benefiting landowners but often overlooking public gain. Land value capture aims to reclaim part of that unearned increase to invest back into public needs like affordable housing or infrastructure.

- *LVC tools (Switzerland)*: Switzerland has been a leader in formalizing this mechanism. Under Article 5 of Switzerland's Spatial Planning Act, if land is upzoned thereby significantly increasing its value, the law requires landowners to pay a portion (commonly 20–30%) of the land value gain to the government. (Debrunner, 2024) The funds collected are then used to fund infrastructure or create affordable housing. This ensures the community benefits from the value it helped create, for example, through planning decisions or public investment.
- *LVC specific programs (Munich & Stuttgart, Germany):* Germany employs similar concepts in specific programs rolled out in different cities. Munich's SoBoN policy mandates that developers set aside 30–60% of new housing as affordable and cover infrastructure costs when land is developed or rezoned, ensuring public benefits through value capture.(City of Munich, 2022) Stuttgart's Inner Development Model likewise takes a portion of new floor space for affordable units or charges fees for it. These are negotiated case by case but guided by policy communicated by the city. (Granath Hansson, 2019b) Both cities achieved their set housing completion targets.

## Differences and Challenges

- Location limitations: Not all public lands are well-located for housing. A city might own land that's a former industrial site needing major cleanup or far from jobs and transit. While this land can still be used, they may require additional investment such as remediation and new infrastructure to make them viable for housing. Prime urban public lands, such as downtown federal sites, often face competing interests: some support selling them for revenue, while others prefer parks and greenspace.
- Coordination Across Agencies: Many different levels and branches of government (e.g., transportation agencies, defense departments) can hold public land. Coordinating their transfer or joint development is complex. Ireland's approach was to create a single agency (LDA) with the mandate to work across departments. Without such coordination, it can be difficult to assemble land or get approval. In Canada, for instance, a city might want a surplus federal post office site for housing, and the situation requires negotiation between municipal, federal, and sometimes provincial entities. The complexity can slow down projects.
- Public Perception and Transparency: Using public land for private development can spark criticism if not handled transparently. Citizens might perceive it as "giving away" public assets to developers, especially if land is provided below market price. The best practice is to be very clear about the public benefits and identify efficient and fair ways to release public land. Competitive tendering or other selection processes can choose development proposals. Protecting public interest via lease or agreement terms is essential to

support this method. Vienna's success with public land leasing is partly due to conditions that keep the housing permanently affordable and high quality.

- Land Value Capture Calibration: Setting value capture rates too high could disincentivize development, while too low could mean not enough public benefits are captured from land value uplifts. Switzerland chose 20-33% as a balance that still leaves landowners profit and motivation to develop. In places without formal laws, negotiating each case via community benefit agreements can lead to inconsistent outcomes and possible uncertainty for developers. Canada's municipalities in Ontario historically negotiated benefits via ad hoc agreements using the Section 37 of Ontario Planning Act, but a new system of Community Benefits Charges aim to standardize this. Charges should be clear and reasonable to encourage investment. Another challenge is market sensitivity as in booming markets; one can capture more value without deterring projects than in slow markets. Thus, an inflexible one-size charge can be problematic across different cities or housing cycles.

## Key Insights from International Practice for Canada

Canadian context: Canada has recently expanded its use of public land as part of broader efforts to increase housing supply. At the federal level, the Canada Public Land Bank was launched in 2024 under the *Public Lands for Homes Plan* to make surplus federal lands available for housing development. The online portal allows builders and the public to find these opportunities. At provincial and municipal levels, public land is managed through a variety of departments and agencies, with differing degrees of transparency and coordination. Access to comprehensive public land data varies significantly across provinces, with British Columbia representing a notable exception due to more open geospatial data practices (Connolly et al., 2025). In parallel, a growing number of municipalities are using Housing Accelerator Fund (HAF) resources to support public land initiatives, particularly for non-market and affordable housing. Numerous HAF municipalities opted to allocate a substantial amount of their funding to encourage affordable housing by acquiring land and creating local programs. Our global review of policies highlights several lessons relevant to the use of public land by highlighting how different countries have structured public land strategies and what constraints may affect their transferability to Canada.

- Dedicated Public Land Development Agencies: Some international jurisdictions reviewed have established specialized public entities to manage public land for housing development. These entities typically operate with a portfolio-based approach, coordinating land acquisition, holding, and disposition across multiple sites rather than on a case-by-case basis. Ireland's Land Development Agency (LDA) provides an example of a centralized body tasked with assembling and developing public land for housing, with the objective of improving coordination across government landholdings. In Vienna, Wohnfonds Wien (Vienna Housing and Urban Renewal Fund) oversees municipal land management, urban renewal, and housing subsidy programs. The city holds a substantial portfolio of municipal land, and Wohnfonds Wien allocates sites through developer competitions guided by a multi-criteria framework emphasizing housing quality, sustainability, social integration and affordability, and economic efficiency. Theses dedicated entities can support coordinated decision-making by aligning land use, affordability objectives, and delivery models within a single institutional framework. In Vienna's case, the ability to retain public influence over land allocation while partnering with private and non-profit developers has been associated with long-term housing and urban development goals. These examples highlight that institutional arrangements for public land management can influence how effectively land is mobilized for housing, particularly in contexts where coordination across departments and policy objectives is critical.
- Systematic identification and coordination of public land: Across countries with stronger housing supply outcomes, public land has been most effective when governments maintained a clear understanding of their landholdings and used coordinated approaches to bring suitable sites forward for development. Jurisdictions such as Sweden and Germany demonstrate that the strategic value of public land lies not only

in ownership, but in the ability to align land release with housing objectives, infrastructure investment, and long-term planning. In contrast, fragmented or ad hoc land transfers were associated with slower delivery and missed opportunities for scale. Where public land inventories are accessible and development conditions are clearly defined in advance, developers and non-profit housing organizations can better mobilize financing and coordinate delivery. International experience shows that data availability and institutional coordination are important enablers of effective public land use, particularly in complex, multi-level governance systems.

- Proactive Land Acquisition: Cities such as Munich maintain greater control over housing by regularly buying land, even if it is not developed right away. This approach lets cities decide future land use on their own terms. Over time, this strategy paid off by enabling Munich to approve many affordable housing projects on land it banked years earlier. The experiences from cities like Munich and Vienna suggest that long-term public control over land can provide flexibility to respond to housing needs over time, particularly in high-growth urban areas. However, outcomes depended on sustained political commitment and alignment with broader planning and financing systems.

- Land value capture and public investment alignment: International experience indicates that land value capture tools can support affordable housing and infrastructure funding when they are carefully designed and calibrated to local market conditions. Poorly designed or overly burdensome value capture mechanisms, however, risk discouraging development or increasing housing costs, underscoring the importance of context-specific design and ongoing evaluation. Switzerland's simple law efficiently generates funds for housing and infrastructure. Munich's SoBoN policy provided developers with predictable requirements, making costs clear for business operations and yielded tens of thousands of affordable units over decades. One key insight is to formalize value capture through legislation or policy ensuring consistency rather than ad hoc negotiation each time. Land value capture of this kind can minimize uncertainty for developers and promote equity among landowners. Various LVC mechanisms exist. Some, such as development charges or community amenity contributions, are criticized for raising home-building costs since they are charged upfront during construction. Whenever possible, it is important to evaluate different LVC options and consider the ones which are designed to capture value without increasing active development costs.
- Link between public land and affordability and partnership models: In many countries reviewed, public land is used as a lever to support affordability objectives and collaborative delivery models. Municipal land allocation practices in Sweden and negotiated development agreements in Germany illustrate how public land can be combined with affordability requirements and partnerships with non-profit or private developers. These approaches allow governments to retain influence over long-term housing outcomes while leveraging private and non-profit capacity to deliver homes at scale. Many places that make good use of public land transfer it to non-profit or limited-profit housing organizations. For example, in Vienna, this is done by granting land to non-profits under specific conditions. One effective practice seen in several countries is for governments to encourage collaborations between non-profits and private developers on public land. For example, a private builder constructs a mixed-income project on city land, then transfers the affordable portion to a non-profit to own/manage. This approach leverages private sector expertise and non-profit social missions.

Taken together leveraging land is a powerful lever to influence housing supply. By actively providing land and smartly capturing value, the public sector can reduce one of the biggest costs of development and direct resources

to affordability. For Canada, using these tools can help ensure that rapid housing construction doesn't simply drive land prices up, but instead that the public effectively benefit lower land costs and reclaims a portion of land value for public benefit. Combining land strategies with financial incentives and regulatory reforms can amplify their impact. For example, international experience shows that offering public land plus low-interest loans with upzoned capacity could make otherwise unfeasible affordable housing projects attractive to develop. Rather than acting as a standalone intervention, public land strategies function as part of an integrated housing delivery framework shaped by institutional capacity, governance coordination, and market conditions.

# 5. Supporting diverse housing providers & promoting partnership

Past research shows that the developers' market might have an initial tendency toward concentration. The housing development market structure influences housing supply. While large housing developers dominate some housing markets, small- and medium-sized builders, including non-profit and co-operative housing providers, play a vital complementary role. To enhance competition and diversify supply, countries have introduced programs offering low-interest loans, loan guarantees, or targeted tax benefits to smaller or not-profit housing providers who might otherwise face higher financing constraints. Such measures help broaden participation in housing delivery, particularly in the non-market segment. Furthermore, we noted in multiple countries the important role played by partnerships both with private developers and with non-profit housing organizations in delivering housing supply, especially affordable housing. No single sector or actor can solve housing supply shortages alone. Governments in the studied jurisdictions have recognized collaborating with private developers, non-profits, and community organizations to leverage the strengths of each.

## Policy Approaches

Empowering Non-Profit Housing Organizations: Several countries rely on non-profit housing providers to build and manage a substantial share of affordable housing. These organizations (co-operatives, housing associations, municipal housing companies) often benefit from government support such as cheap loans, tax exemptions, grants and in return deliver housing at lower rents with longer-term affordability.

- *Limited-Profit Housing Associations (Austria):* Austria provides a standout example of empowering a large non-profit housing sector. Austria's Limited-Profit Housing Associations (LPHAs) are organizations (co-ops, companies, foundations) that operate under regulated rules: they get tax exemptions and low-interest financing but must reinvest all profits into housing and cap their returns. These LPHAs have become major players, producing and managing housing at below-market rents. They currently manage about 650,000 rental units (about 40% of Austria's rental housing) and have built over 1 million dwellings since their inception. Because they reinvest, they act as an engine continuously reinvesting subsidies into new supply. (Deutsch & Lawson, 2013) The government supports them with favorable financing and tax breaks instead of direct operating subsidies, which has proven financially sustainable.
- *Cooperative movements (Switzerland)*: Switzerland also has a strong cooperative housing movement. The Swiss government's shift to providing loan guarantees from direct subsidies was specifically to bolster these non-profit providers to be financially sustainable. (Balmer & Gerber, 2018) The cooperatives in Switzerland aim to expand the share of housing that is de-commodified and remains affordable for long-term.

Innovative Blended Financing Partnerships: Governments sometimes set up joint funds or financing programs that invite private capital to invest in housing with some guarantees or incentives realizing that government alone cannot finance the volume of housing required. For example, some countries have housing finance agencies that issue bonds which pension funds buy, effectively channeling institutional investment into housing with government backstop. Certain partnerships involve creative financing mixes including public seed money to attract private equity into affordable housing development or regeneration projects. The key is sharing risk and reward: the public might take a subordinate position or provide insurance, making it appealing for large investors to finance projects that have social as well as financial returns.

For example, public-private funds (like Australia's HAFF) often rely on private capital or management for investing in housing, effectively blending public seed money with private market investment returns to fund projects. Pension funds and institutional investors are being courted in countries like Sweden to invest in rental housing, often through partnerships or new vehicles.

## Differences and Challenges

- Non-Profit Sector Scale: Countries vary widely in their reliance on non-profit housing. Austria and Switzerland have very large, mature non-profit housing sectors. Nearly half of Austria's rentals are owned by limited-profit associations. The US and UK have significant housing association sectors as well. As a result, certain countries can quickly engage non-profits in new initiatives, while others face challenges in doing so. For example, if a government offers land or funds for housing, in Austria there are many capable non-profits ready to build. Developing the non-profit housing sector presents both a strategic challenge and an essential requirement within partnership initiatives.
- Balancing Profit Motives and Public Goals: Public-private partnerships must align a private developer's need for profit with public affordability goals. This method works when incentives like land, loans, or higher density help developers meet public needs and remain profitable. Striking that balance requires negotiation and expertise, and sometimes negotiations can break down or result in fewer affordable units than hoped. The UK's experience shows that having skilled staff and clear policies is crucial. In some instances, councils without strong negotiating know-how got less affordable housing in deals.
- Non-Profit Funding and Professionalization: Although non-profits are driven by social missions, they usually rely on public support for their projects because they lack significant equity or profit sources. Scaling non-profits often means they must professionalize and adopt practices like developers. Some may lack the resources for large projects, so partnering with for-profit firms for construction while non-profits handle operations can be effective, though it requires effective coordination. Some countries, like Austria, have laws and funding that support early development of LPHAs.

## Key Insights from International Practice for Canada

Canadian context: Historically, Canada has relied primarily on private developers for market housing, while governments at various levels supported social and affordable housing through direct programs. Large-scale federal-provincial investment peaked in the 1970s and 1980s and declined sharply in the early 1990s, resulting in a prolonged slowdown in the growth of non-profit and co-operative housing capacity. More recent initiatives under the National Housing Strategy, along with the creation of Build Canada Homes, signal renewed public involvement through land, financing, and portfolio-based delivery.

International experience underscores the role of diverse housing providers including non-profits, cooperatives, and public developers in delivering housing at scale alongside the private sector. Below we discuss how institutional frameworks, financing access, and partnership models used by other countries shape the capacity of these actors to

contribute meaningfully to supply. These insights provide a basis for considering how Canada might strengthen partnerships and provider diversity within its housing system.

- Strengthen Non-Profit Housing Providers: International evidence most clearly from Austria, and to a lesser extent from Germany and Switzerland suggests that non-profit or limited-profit housing providers can play a sustained role in housing delivery when supported by predictable financing, access to land, and clear regulatory frameworks. Sweden's experience, which relies heavily on municipally owned housing companies operating under business-like principles, illustrates a different institutional model rather than direct expansion of non-profit sector. The global review indicates that steady housing output in these countries reflects long-term institutional design rather than short-term programmatic expansion. A robust non-profit sector can help maintain affordable housing supply despite market fluctuations. For Canada, the practices used in other countries show that expanding the role of non-profit and co-operative housing providers would likely require not only additional capital and land access, but also stable, long-term policy frameworks that allow these organizations to plan and deliver projects over multiple cycles. Examples from other countries do not prescribe specific organizational structures or consolidation strategies but highlights the importance of institutional capacity and financial continuity.

- Improve Public-Private-Nonprofit Partnerships: Across several countries, hybrid delivery models where public authorities, private developers, and non-profit providers collaborate are commonly used to deliver mixed-income housing. The most successful partnerships find the intersection of public benefit and private interest. For example, Vienna's model allows private developers to compete for projects on city land with reduced financing costs. The city reduces developers' land and loan expenses and sets clear rent targets, making the model effective. In the UK, many developers came to accept that affordable housing contributions are part of doing business and factor it in. Partnerships are most effective when the public sector is consistent and trustworthy, and the private sector is involved early in policy planning to ensure practical implementation. Examples from Vienna, German cities, and the UK show that such partnerships can help align private development capacity with public affordability objectives, particularly when affordability requirements are balanced with incentives such as land, financing, or expedited approvals.

- Mobilize Private Capital with safeguards: In this study we have seen the use of credit guarantees, co-investment, and risk-sharing mechanisms in countries such as Switzerland and Sweden to support affordable or cost-controlled housing. These tools can lower financing barriers and attract private capital in certain contexts, but their effectiveness varies depending on regulatory conditions and market structures. International experience underscores the importance of attaching clear affordability conditions and tenant protections to ensure that public risk-sharing translates into lasting public benefit.
- Build Public Sector Expertise: In several countries, municipal or regional housing agencies play an active role in land assembly, project coordination, and, in some cases, direct development. Evidence suggests that such capacity is particularly valuable for delivering housing that the private market underprovides, such as deeply affordable or specialized housing. Skilled government teams can lead to better partnership results. However, the global review does not demonstrate a uniform increase in total housing supply solely from expanding public development arms; outcomes depend on institutional capability and coordination with other supply levers. Well-prepared public entities can negotiate fair deals, such as setting up suitable levels of affordable housing with incentives. The UK for example has viability assessment guidelines to help councils review developer claims and address information gaps. Building effective partnerships requires skill and investment. However, collective international experience does not demonstrate a uniform

increase in total housing supply solely from expanding public development arms; outcomes depend on institutional capability and coordination with other supply levers.

The international evidence indicates that collaboration among public authorities, private developers, and non-profit or mission-driven housing providers is a common feature of systems that deliver sustained housing supply. The public sector sets the stage and provides support; private sector brings investment and efficiency, and non-profits can ensure ongoing affordability and social purpose. The international evidence is clear that housing supply accelerates most when these sectors work together. Canada's National Housing Strategy already encourages such collaboration. By considering good international practices such as stable funding for non-profits, effective public and private partnerships, and innovative financing arrangements with private capital, Canada can encourage additional housing supply, especially in segments the market alone doesn't adequately serve.

# 6 Balancing Housing Supply Goals with Sustainability

A subtle cross-cutting theme is the intersection of housing supply policy with environmental sustainability. As countries strive to increase housing supply, they also face climate constraints and look to make housing more energy-efficient and sustainable. Sometimes these goals can conflict since strict environmental standards may raise building costs and slow down supply. However, they can also complement each other with effective policy design. For example, incentivizing green buildings can create jobs and allow new forms of construction and lower operational costs of building maintenance. The reviewed jurisdictions offer insight into how to balance these priorities.

## Policy Approaches

Sustainability consideration and Incentives: Different jurisdictions implement energy efficiency requirements or encourage low-carbon construction in new housing. Some countries provide generous incentives like grants/tax credits, public land allocation, or low-interest loans for sustainability features.

- *KfW loans (Germany):* Germany's KfW offer long-term and fixed-rate loans for ultra-efficient homes, and these programs include "Energy-efficient refurbishment" and "Energy-efficient construction". They help increase housing supply and ensure new homes are energy efficient, lowering residents' operating costs over time. (Santana Caraballo et al., 2024)
- *Public land allocation with sustainability criteria (Sweden):* Much land in Sweden is owned by the state or municipalities, which use public land for housing through a system of land allocations based on criteria which often include environmental sustainability. For instance, a Stockholm project with 100 rental units was awarded for meeting environmental standards, using timber construction, and integrating with the urban setting. (Grannath Hansson, 2020)
- *Mandatory Climate Declarations for Buildings (Sweden):* Sustainability goals such as climate mitigation, energy efficiency, circular use of materials, and eco-friendly mobility are playing an increasingly important role in Sweden's planning and construction policies. The country adopted a mandatory Climate Declaration (Klimatdeklaration) for new buildings since 2022, requiring calculation and reporting of embodied greenhouse gas (GHG) emissions. Nevertheless, certain sustainability goals may conflict with the efficiency of permitting processes. As highlighted by both OECD (2025) and Granath Hansson (2017), adding environmental, social, and design requirements to already complex approval systems can increase lead times and stifle innovation. (Granath Hansson, 2017)

Transit-Oriented and Compact Development: Aligning housing growth with sustainable land use can create win-win solutions. Many countries emphasize density and new construction in transit-rich locations to reduce car

dependence and curb urban sprawl. Ireland's planning framework ties future housing to transit and walkable communities. This approach uses housing policy to cut emissions, as increased urban density leads to shorter commutes and greater transit use. In the United States, quite a few states emphasize leveraging infill development to use existing infrastructure efficiently and reduce costs. The United States Department of Transportation offers grants to encourage bundling public land, integration of transportation and land use planning for development. A successful example is Denver's light rail expansion, where collaborations among the city, the Denver Housing Authority and the Regional Transportation District created significant transit-oriented development along the rail corridors. (Denver Housing Authority, 2021)

Resilient Construction Facilitated by MMC: Updating building codes and standards to account for climate risks (like extreme heat, flooding, wildfires) can ensure new housing remains resilient. For example, building codes in countries like Japan ensure earthquake resilience. While this can be perceived as a safety issue, it is part of sustainability in the sense of long-term durability of buildings. MLIT's Long-Life Quality Housing (LLQH) framework in Japan establishes national standards for durable, maintainable, and sustainable homes, encouraging builders to create houses that last over 100 years. Prefabricated housing manufacturers that meet these standards receive faster approvals, tax breaks, and preferred financing. By linking R&D investment with policy goals, MLIT ensures advances in factory-built housing to promote low-carbon, disaster-resistant, and flexible homes. (Zhang, 2017)

## Differences and Challenges

- Potential Conflict Between Speed and Sustainability: A core challenge is that greener buildings may cost more upfront, potentially slowing down housing construction or making units more expensive. The UK's attempt at zero-carbon homes was dropped before implementation after developers argued the added costs, such as solar panels and special materials, were counterproductive during a housing shortage. In contrast, Japan balanced this by offering subsidies for meeting higher standards, softening the cost impact. The key is balancing strict environmental standards with support to reduce the impact on housing delivery.
- Aligning Multiple Objectives: Some countries initially treated housing supply and environmental goals separately, leading to potential clashes. Now there's more recognition that these goals need to be aligned with. Policies like transit-oriented development show it is possible to add housing and reduce emissions, but this requires integrated planning. The challenge is getting housing, transport, and environmental policymakers to coordinate and work together.
- Cost of Retrofitting vs. Building New: From a sustainability perspective, using and upgrading existing buildings can be better than demolition and rebuilding. However, retrofitting doesn't increase supply Policymakers face decision trade-offs of choosing to allocate money toward retrofit or toward new construction. The EU tends to heavily fund retrofits for climate objectives, whereas fast-growing countries like Canada seem to focus spending more on new supply. Ideally, both need to happen, but there's often a challenge in prioritization and sequencing.

## Key Insights from International Practice for Canada

Canadian context: Canada has committed to achieving net-zero emissions by 2050 while also pursuing ambitious housing supply targets. Recent federal and provincial initiatives increasingly acknowledge the need to address housing affordability, supply, and climate objectives together. Canada has implemented a range of programs aimed at decarbonizing and improving the resilience of the building sector, including initiatives focused on retrofitting existing homes, supporting new affordable housing, and promoting low-carbon construction materials and methods.

Based on the current context, international experience provides useful perspective on how housing supply and climate objectives have been aligned in practice under different institutional and market conditions. We observed some recurring principles such as integrating sustainability into core housing programs, aligning land-use and

infrastructure planning, and phasing requirements to avoid constraining supply. The following insights draw on international experiences to inform how Canada might align housing and climate goals without constraining supply.

- Integrating sustainability into housing programs: International experience suggests that linking public funding and incentives to sustainability objectives can support low-carbon housing delivery when designed carefully. Countries such as Germany and Sweden have used low-interest loans, guarantees, and targeted subsidies to offset the additional capital costs associated with higher energy-efficiency standards. The common principle we observed is to avoid conflict between environmental protection and housing is to make eco-friendly construction financially attractive. This way, developers don't have to choose between profit and green features as a slightly lower profit margin is offset by the incentives. Our review also cautions that certain sustainability requirements can slow down approval or increase costs if introduced without corresponding financial support or regulatory flexibility. For Canada, this implies that sustainability criteria in housing programs are most effective when paired with incentives that maintain project viability, particularly for affordable and non-profit housing providers.

- Embracing Transit-oriented development: Many jurisdictions have realized that where we build is as important as how we build for sustainability. Building more housing in established urban areas and near transit can be win-win practice. It addresses supply and curbs of sprawl's environmental damage. International evidence highlights that climate and land-use benefits of concentrating housing growth in transit-served areas, as seen in countries such as Sweden and Ireland. Prioritizing higher-density housing near transit can reduce emissions and support more efficient infrastructure use. However, some experience also shows that the impact of TOD on approval timelines and housing delivery varies by governance capacity and local planning systems. For Canada, aligning transit investments with zoning and housing strategies may improve coordination, but outcomes will depend on local implementation and market conditions.
- Managing trade-offs and sequencing: A consistent lesson from the international evidence is the importance of sequencing and calibration. While sustainability objectives are increasingly embedded in housing policy, layering additional environmental, design, or reporting requirements onto already complex planning systems can inadvertently constrain housing supply. Countries that have been more successful in balancing these goals tend to introduce standards gradually, provide transitional incentives, and align environmental ambition with housing delivery capacity. For instance, policymakers may set incremental energy efficiency improvements every few years instead of jumping to a zero-carbon requirement in one leap. This allows builders to adapt, and manufacturers to develop cost-effective solutions. In many countries in Europe, the goal of achieving zero-energy buildings by a certain year came with lead time and active support. Announcing code changes ahead of time and introducing them voluntary with incentives before making them compulsory can help keep projects on track while raising standards.
- Aligning Affordability with Sustainability: Energy-efficient housing often incurs lower operational costs. Some countries consider housing sustainability under affordability, as reduced utility bills lead to lower overall housing costs for tenants. Highlighting this connection may foster wider support for sustainable housing initiatives. For instance, when affordable housing is well-insulated, tenants benefit from lower heating costs, helping maintain affordability. Several countries have pursued modern methods of construction, prefabrication, and industrialized building as ways to improve productivity while reducing environmental impacts. The global review finds that these approaches can reduce material waste and construction time in some contexts, but cost reductions are not guaranteed in the short term and typically depend on scale, standardization, and stable demand. Sweden's experience with mass timber illustrates

how low-carbon materials can be integrated into industrialized construction systems, though the benefits arise from the broader production model rather than from material choice alone.

International experience indicates that housing supply and environmental sustainability are not inherently in conflict, but neither are they automatically aligned. Integrated approaches work best when climate objectives are embedded into housing programs through incentives, phased standards, and coordinated planning, rather than through rigid requirements alone. For Canada, pursuing this balance will require ongoing coordination between housing and climate policy communities, careful program design, and explicit recognition of some trade-offs in high-cost and supply-constrained markets.

# 7 Managing Housing Market Cycles

While the focus of our study is largely on supply-side policies, a final cross-cutting theme observed is the importance of managing housing market cycles so that efforts to increase supply are steady for the long term and translate into better affordability. Over the last several decades, quite a few countries have experienced boom-bust cycles or rapid price inflation that outpaced their housing supply. When prices skyrocket, even strong supply efforts can struggle to keep up. When the market crashes as seen in the United States and Ireland for example in 2008-2009, construction activity halted setting back housing supply for years and creating a new affordability crunch by the mid-2010s even as the population growth resumed. These experiences led to policy actions addressing both demand and supply sides, aiming to stabilize economic cycles and limit speculative bubbles. Therefore, this theme involves both cooling overheated markets to prevent unsustainable booms and sustaining housing development during downturns to avoid prolonged slumps in construction. The primary aim is to ensure a steady and sustainable pace of housing development that aligns with long-term housing goals. Although macroprudential credit controls relate to this topic, they will not be discussed in the following section since they were beyond the scope of our global review.

## Policy Approaches

**Tax and regulatory measures to curb speculative investment:** Some countries keep an eye on and address certain types of housing demand that they consider "excessive" or not related to occupancy. They recognize that boosting housing supply should go together with carefully managing different kinds of housing demand during market peaks. Most of these policies are designed to encourage steadier housing price growth during rapid booms, giving supply time to catch up over time.

- *Taxes on second homes (the U.K)*: The UK and some of its devolved governments have implemented taxes on second homes and empty homes to discourage property from being used largely as an investment or vacation asset during a severe housing shortage. For example, Wales and Scotland eliminated tax discounts for second homes, and England allowed local councils to charge up to a 100% Council Tax premium on second homes. There's also a Stamp Duty surcharge (an extra 3% tax) on buying additional property in the UK. Public consultations and evidence-based planning backed up these measures. These taxes on second and/or empty homes make owning multiple houses or leaving properties vacant less attractive financially, thereby free up housing for permanent residents and easing upward pressure on prices. (Sandford, 2024) Several outcomes include drop in "buy-to-leave" second homes practices, improved access for residents and more demand for community-driven development.
- *Interest deductibility changes (New Zealand):* New Zealand in 2021 eliminated the ability of property investors to deduct mortgage interest from their rental income for tax purposes. This effectively raised the cost of owning investment property, intending to dampen investor's appetite and slow price growth. However, exemptions were made for new-built homes and social housing as the nuanced approach tried to shift investor demand away from existing homes toward funding new construction. In 2024, after a change

in government, the country decided to reverse the interest deductibility ban citing concerns that this might deter rental supply too much. (Nicol & McKnight, 2024) The back-and-forth nature of the policy changes underscores how tricky it is to calibrate demand-side interventions. It is critical to monitor outcomes and being willing to adjust policies.

- *Foreign purchase surcharges and annual vacancy taxes (Australia):* In Australia, additional stamp duty surcharges apply to foreign purchasers. The state of Victoria expanded the annual vacant taxes on all homes left empty to temper those segments of investor demand. The Australian Government also introduced a temporary two-year ban (from April 2025 to March 2027) on foreign purchases of established residential properties and is also taking action to reduce land banking. (Australian Taxation Office, 2025)

Counter-cyclical support for maintaining construction: When the housing market slows down or collapses, governments have stepped in to support building activity and preserve both capacity and momentum. A severe downturn can drive away private developers and result in years of insufficient supply, as seen in Ireland and parts of the United States. To prevent a total halt in construction, some nations chose to intervene.

- *Homebuilder program during Covid (Australia):* In 2020, Australia launched the Homebuilder program, providing grants to those building new homes or making major renovations. This initiative encouraged housing demand during the recession and market downturn caused by the COVID-19 pandemic. Australia experienced a significant increase in new home project approvals and construction during late 2020 and 2021, resulting in a robust pipeline of work that provided ongoing employment for builders and tradespeople. (Australian Bureau of Statistics, 2024) The country's housing supply continued to grow, which should help future affordability. While the Homebuilder program likely avoided a sharper construction slump, governments also needed to watch for inflation risks.
- *Wohnbauinitiative (WBI) (Vienna, Austria):* In response to the global financial crisis, Vienna introduced a special housing initiative (WBI) in 2011. The aim was to encourage the construction of affordable homes at a time when private companies and traditional non-profits faced difficulties. Vienna's WBI responded to tighter lending after 2008 by providing low-interest loans and affordable land to developers for mid-priced rentals. This helped limited-profit housing associations access credit, and the city increased its annual housing targets from 5,000 to as many as 13,000 units by the mid-2010s. (Mundt & Amann, 2018)This counter-cyclical initiative, using public-private partnerships, enabled ongoing development and helped Vienna avoid major housing declines seen in similar comparable countries. Furthermore, Austria's limited-profit housing model also inherently has a stabilizing effect. Because these non-profit developers focus on cost-recovery and use revolving funds, they keep constructing rental housing even when for-profit projects decline. For example, Austria's LPHAs consistently provide housing regardless of economic changes, supplying as much as 40% of new multi-family homes even during downturns.
- *Prefabricated housing sector's production flexibility (Japan):* The mainly private development sector is structured to withstand market cycles. Leading homebuilders often build houses to order for owner-occupiers with land. Prefab factories enable quick, cost-effective expansion and adaptable production to meet changing housing demands. Housing investment continues even in market slowdowns due to large, diversified companies and government financing through agencies like JHF.

# Differences and Challenges

- Global forces influencing housing cycles: Ultra-low interest rates from 2010–2022 were a worldwide phenomenon that pushed up housing demand in many countries. No single government can fully offset external pressure with domestic policies. Several countries implemented more tightened macroprudential rules combined with tax measures to curb speculative investment. However, policies might not prevent

strong price pressures and behavioral trends if money is cheap and flowing while prices escalate to raise expectations of further increases.

- Data availability and policy timing: Access to reliable data for analysing both short-term and long-term housing market cycles remains a significant challenge. Effective management of these cycles demands comprehensive datasets and nuanced analysis. Delayed policy intervention may reduce effectiveness, while premature or overly aggressive actions can also produce adverse outcomes, as evidenced by certain international experiences. Continuous refinement of policies is necessary. For instance, New Zealand's decision to reverse a major demand-side measure in 2024 underscores the importance of regular evaluation and adjustment by policymakers.
- Shaping market perceptions: When investors or developers expect consistent government intervention to save the market, they may take excessive risks with the expectation of a bailout. Therefore, any support during downturns must be carefully planned, such as encouraging home construction rather than inflating speculative prices. For instance, Australia's Homebuilder program funded construction or renovation not speculative buying which is a distinction that matters.

## Key Insights from International Practice for Canada

Canadian context: Between 2011 and 2023, Canada experienced among the highest rates of housing price growth and population growth across OECD countries. During the most recent housing cycle, prices rose sharply from 2020 to early 2022, declined in 2023 as interest rates increased, and have since begun rising again in many regions. While housing construction growth in Canada has been relatively strong compared with other G7 countries over the past 15 years, it has not kept pace with population growth.

Throughout this period, Canada made more limited use of demand-side tax and regulatory tools than some peer countries during housing booms. Investor activity increased notably during the 2015–2021 expansion, particularly in major metropolitan condominium markets. Governments began to respond more actively in recent years, including through vacant-home taxes in several provinces and cities and the federal Prohibition on the Purchase of Residential Property by Non-Canadians Act. At the same time, Canada expanded supply-side interventions under the National Housing Strategy, including programs such as the Apartment Construction Loan Program, the Affordable Housing Fund, and the Federal Lands Initiative. During the COVID-19 pandemic, as construction costs rose and risks of a slowdown increased, governments accelerated funding and launched targeted initiatives such as the Rapid Housing Initiative and the Co-operative Housing Development Programs.

International experience shows that housing supply policies operate within broader market cycles that can amplify or undermine their effectiveness. The following lessons offer perspective on how Canada might strengthen the resilience of its housing delivery system over time.

- Refine approaches to managing housing cycles: The international evidence reviewed shows that housing affordability depends not only on increasing supply but also on managing demand pressures and maintaining construction activity through market cycles. Countries such as New Zealand, Australia, and the United Kingdom have used demand-side tax and regulatory tools to dampen speculative pressures during booms, with mixed results and frequent policy adjustments. These experiences underscore the importance of careful calibration and ongoing monitoring. Excessive or prolonged demand-side measures may suppress legitimate demand and deter developers. At the same time, the global review highlights the risks of broad demand stimulants such as buyer incentives or credit expansion when supply is constrained, as these measures can amplify price pressures. For Canada, this suggests the value of targeted, data-informed demand-side tools alongside continued caution with measures that may raise purchasing power without expanding supply. Monitoring indicators such as price-to-income ratios, credit growth, and investor

purchases can help spot housing market risks early. Regional calibration of policies is also crucial since national policies may overlook local differences if only some cities are booming.

- Support counter-cyclical supply: A consistent lesson from Austria and some German cities is the stabilizing role played by non-profit, co-operative, and municipal housing providers that continue building during downturns when private development slows. These systems rely on access to low-cost financing, revolving funds, and public land to sustain output across cycles. The evidence suggests that such institutional capacity can moderate the impact of construction downturns, though it does not eliminate broader market volatility. For Canada, this points to the potential value of strengthening mechanisms that support continuous housing delivery, including long-term financing for non-profit and rental housing and maintaining a pipeline of development-ready projects. International experience indicates that having pre-approved projects particularly for affordable or non-market housing can enable faster counter-cyclical investment when private activity declines.

- Keeping a long-term perspective: Housing market cycles often extend beyond political terms, yet policy incentives can favour short-term results. International evidence suggests that sustained housing outcomes are more likely when key programs such as ongoing affordable housing construction, stable financing frameworks, or macroprudential tools are insulated from frequent policy shifts. Austria's institutionalized housing system, including limited-profit housing associations and revolving funds, illustrates how durable structures can support consistent output despite economic shocks or political change. Establishing broad political consensus around housing supply objectives and market-stabilization mechanisms can improve policy continuity. In some cases, this may involve embedding guiding principles or mandates in legislation and clarifying institutional responsibilities for responding to market fluctuations.

One key lesson for Canada is that housing affordability depends not only on building more homes at a given time but also on maintaining stability in the housing market. Preventing extreme price swings will protect affordability gains achieved through supply-side investments. Canada's experience from the late-1980s expansion and 1990s contraction to the volatility of the 2020s, underscores the importance of combining supply initiatives with well-calibrated demand-side tools and institutional stabilizers. Together, these measures can help ensure that progress on housing supply is stable and long-term, not undermined during future market booms or downturns.

# Summary of the cross-cutting themes

The review of cross-cutting housing supply policies confirms that no single policy instrument is sufficient to address housing supply challenges on its own. Across the ten countries examined, housing outcomes were shaped by the interaction of financial incentives, land-use regulation, construction productivity, land strategies, institutional capacity, and the role of diverse housing providers. While several jurisdictions pursued reforms across multiple areas simultaneously, results varied widely depending on market conditions, governance structures, and implementation capacity.

International experience suggests that addressing multiple constraints concurrently is often a necessary condition for expanding housing supply, but it is not sufficient to guarantee sustained delivery. In some cases, comprehensive policy packages increased development capacity without immediately translating into higher construction levels, underscoring the importance of complementary measures and ongoing monitoring.

For Canada, one consistent lesson from international practice is the value of aligning funding mechanisms, land-use frameworks, and regulatory systems, while engaging both public and private actors in housing delivery. The global review also highlights the importance of adaptability: countries that monitored outcomes and adjusted policies over

time were better positioned to respond to market shifts and implementation challenges. Overall, international evidence points to the need for a flexible, system-wide approach that recognizes tradeoffs and context-specific constraints. Applying these lessons in Canada will require careful tailoring to local conditions, clear institutional roles, and realistic expectations about the pace and scale of housing supply responses.

# Australia

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in Australia. Australia's housing affordability crisis has become so significant that it has taken centre stage in the 2025 election campaign. In 2000, house prices were roughly four times the median income, but they have since increased to nearly eight times the median income, and almost ten times in Sydney (Coates, 2025). Several factors have contributed to this trend, including lower interest rates, strong migration, and a shortage of new social housing. According to the OECD, housing construction activity has increased on average across OECD and EU countries since 2011, except in Australia (OECD, 2024). However, the main issue is that Australia has not built enough homes to keep pace with population growth, particularly in key areas (i.e., suburbs near jobs, public transport, or schools) where demand is highest (Coates, 2025). Policies that address the supply gap while promoting strategic development locations and reforming existing planning practices are essential to unlocking more housing across Australia.

## Financial Levers and Market Incentives

A fundamental weakness in the Australian housing market lies in a real estate tax system that is skewed against affordable housing finance and fiscal mechanisms (Rowley et al., 2016). Capital gains exclusions and allowing investors to deduct losses on rental properties from their taxable income collectively undermine the development of financing strategies needed to support affordable housing initiatives. These tax rules come at a significant cost to the federal budget, reducing the public funds available to support affordable housing initiatives. At the same time, local governments lack access to real estate tax revenue growth, leaving them without the financial tools needed to address the housing affordability crisis effectively. As a result, the Australian Government has implemented a range of financially driven policies to boost housing supply, including tax incentives, grants, and subsidies aimed at stimulating construction across the rental, social, and homeownership sectors.

Although still relatively small in Australia, the Build-to-Rent (BTR) sector holds significant potential for growth in the years to come. Like international models, BTR involves developers constructing multi-unit residential buildings that are retained and rented to tenant households, rather than sold. As defined by AHURI (2023), BTR projects may offer units at market rates or, in the case of affordable or social housing, at a discounted rate. Recognizing its potential to contribute to long-term rental supply, the Australian Government introduced targeted incentives in the 2023 Federal Budget to encourage investment in the BTR model. These included a reduction in withholding tax for foreign investors who use Managed Investment Trusts (MITs) to fund eligible residential developments, making Australia a more attractive destination for institutional capital (Australian Government, 2023a).

As of January 1st, 2025, the tax incentive measures proposed in the Commonwealth Budget have officially become law (Australian Government, 2025a). A key component of this reform is the reduction of the withholding tax rate for Managed Investment Trusts (MITs) investing in BTR developments from 30 percent to 15 percent. The intent behind this policy is to offer more competitive after-tax returns to investors, particularly institutional and foreign investors, thereby encouraging greater investment in the BTR sector (Australian Government, 2025a). By introducing these incentives, the Government aims to stimulate a significant increase in housing supply. The lower tax rate is expected to enhance the attractiveness of the Australian BTR market by aligning its returns with those available in comparable international markets. This, in turn, would enable the development of large-scale rental projects that individual investors are typically unable to fund, helping to address housing shortages through sustained, institutional investment (Australian Government, 2025a).

The BTR tax incentive also increases the capital works deduction rate from the existing 2.5 percent to 4 percent per year, allowing developers to claim larger annual tax deductions. This effectively shortens the depreciation period for eligible construction costs from 40 years to 25 years, improving cash flow and reducing overall tax liabilities for developers (Australian Government, 2025a). By reducing tax payments and accelerating depreciation write-offs, the

policy could unlock private capital and expedite housing delivery, directly increasing supply in the rental market (see, e.g., Tiwari et al., 2025). To maximize the opportunity to build new BTR, several states, including Victoria, New South Wales, and Queensland, have offered land tax discounts and other incentives for BTR developments[2]. These incentives at the state level lower the development cost, making projects more feasible (BuildingLink, 2024; Tiwari et al., 2025). However, capitalizing on these initiatives can be challenging due to varying eligibility requirements across jurisdictions. Inconsistencies between state governments create complexity, making it more challenging for developers and investors to access and benefit from these programs effectively. Tiwari et al. (2025), in their qualitative review of BTR incentives, highlights that a lack of coordination across different levels of Government hinders efforts to address core housing issues comprehensively. One respondent in their study observed, "*Every council and state government and federal government has a different definition of affordable housing, a different cohort they are targeting, and a different method of how they want to apply it*." The respondent's comment reveals a key structural challenge in Australia's housing policy landscape. The respondents' insight highlights the need for better government coordination at all levels to address the affordability crisis, particularly in the BTR sector. Aligning definitions, eligibility criteria, and implementation strategies would reduce barriers for BTR investment and improve the delivery of affordable housing where it is most needed. This policy, under the right conditions, can generate a total of 150,000 BTR homes over the next decade (McSweeney et al. 2023).

The National Rental Affordability Scheme (NRAS), introduced by the Australian Federal Government in 2008, aimed to tackle the growing issue of housing affordability by increasing the supply of affordable rental housing. The scheme offered financial incentives to private investors and not-for-profit housing providers who agreed to rent dwellings to eligible low- and moderate-income tenants at a rate at least 20 percent below the market rate (Australian Government, 2025b). To encourage long-term participation, the NRAS offered an annual financial incentive for up to 10 years per approved dwelling, delivered as a refundable tax offset to housing providers or as a direct payment to non-profit organizations. These incentive payments were indexed annually to the rental component of the CPI to maintain their value over time (Australian Government, 2025b).

The National Rental Affordability Scheme (NRAS) was eventually discontinued in 2014, though not before making a significant contribution to the supply of affordable rental housing. According to Rowley et al. (2016), a total of 27,603 dwellings had been delivered under the scheme, with approximately 10,000 additional units still in the pipeline as of June 2015. One positive outcome was the even distribution of dwelling types, offering greater diversity in housing options. The report also identified several strengths of the scheme, including its ability to leverage subsidies from multiple sources, the strong engagement from the community housing sector and private investors, and the range of dwelling types and sizes delivered (Rowley et al., 2016).

Several studies have used the NRAS as a case study to assess the effectiveness of market-based housing solutions. Research has highlighted that the NRAS lacked clear implementation mechanisms and had relatively loose eligibility requirements (from the prospective tenants' perspective), both of which contributed to concerns about the scheme's long-term viability (e.g., Rowley et al., 2016; Coates et al., 2019; Amar & Armitage, 2025). The program suffered from administrative complexity, with bureaucratic challenges across federal, state, and local governments resulting in approval delays, limited coordination, and uncertainty regarding implementation (Rowley et al., 2016). Taken together, these structural and operational issues significantly undermined the scheme's overall effectiveness (May, 2015; Amar & Armitage, 2025).

An example of successful initiatives in Australia is the incentives offered to homebuilders to increase the size, scale, frequency, and pace of new housing construction. The Homebuilder Grant program was intended to stimulate housing construction that was affected by the restrictions imposed because of the COVID-19 pandemic. The initiative not only supported the construction of new homes but also provided incentives and grants for substantial renovations of eligible owner-occupiers. (Australian Bureau of Statistics, 2024) Like other jurisdictions, incentives

[2] In New South Wales, BTR properties may be eligible for a 50% reduction in land tax until 2040. Victoria also offers a 50% land tax reduction, while Queensland provides the same reduction for up to 20 years. It is important to note that each state has different eligibility requirements to qualify for these tax incentives (Gouveia, 2023).

provided to homebuilders in the form of grants or tax abatements are costly due to the foregone tax revenue; however, they are effective in creating a pipeline of new housing for years to come.

From the funding perspective, the Housing Australia Future Fund (HAFF) was established in 2023 under the Housing Australia Future Fund Act 2023 as a dedicated investment vehicle to support social, affordable, and other acute housing needs (Australian Government, 2023b). The $10 billion initiative aims to facilitate the construction of 30,000 social and affordable homes over the next five years (Ministers for the Department of Social Services, 2023; Coates, 2023). Rather than drawing on the principal, the fund invests the capital in diversified assets, with the expectation that the investment returns will be used to subsidize state governments and housing providers, helping bridge the financial gap between construction costs and the provision of below-market-rate housing.

Although the HAFF is not expected to resolve the housing affordability crisis in its entirety, it constitutes a significant initial step toward expanding Australia's social housing stock (Coates, 2023). The HAFF allows for a total of $500 million to be distributed per year (from investment performance). As the funding is tied to grants and subsidies, the fund's sustainability relies on its investment performance, not repayment from recipients. The Housing Australia Future Fund Investment Mandate Direction 2023 was issued in November 2023, requiring the Future Fund board to adopt a benchmark return of 2 to 3% + CPI per year, net of investment fees (Australian Government, 2023c). In setting this targeted rate, the Future Fund Board must determine an adequate risk level for the fund, allowing for adjustments to the asset allocation during periods of market volatility.

As of March 31, 2025, portfolio update, HAFF held a diversified portfolio totaling $10.8 billion, spread across a range of asset classes to balance growth and stability. The largest allocation was to cash at $3.2 billion (29.6%), reflecting both the fund's liquidity management and its staged investment profile. This was followed by credit investments at $2.0 billion (18.3%) and alternatives at $1.5 billion (14.3%), providing diversification and potential for uncorrelated returns. Global equities comprised a significant share, with developed markets at $1.46 billion (13.5%) and emerging markets at $344 million (3.2%), alongside Australian equities at $595 million (5.5%). The fund also invested in private equity ($557 million, 5.2%), infrastructure ($661 million, 6.1%), and property ($461 million, 4.3%), giving exposure to long-term growth sectors and real assets (Future Fund, 2026).

The Australian Government has increasingly focused on streamlining construction processes to reduce costs and improve efficiency. One approach supporting this goal is the Early Contractor Involvement (ECI) method. ECI enables builders to participate in a project during the early design phase, providing practical insights before the design is finalized. This early involvement helps keep projects on schedule and within budget. The ECI process also facilitates ongoing collaboration between builders and designers, ensuring continuous feedback on major design and construction decisions (Property and Building Assessments, 2023). As a result, projects that utilize ECI are more likely to undergo fewer changes during the construction phase, allowing for greater control over project costs for building projects compared to other procurement strategies (e.g. Ishtiaque et al., 2024).

# Land Supply and Regulatory Environment

Australia has implemented a range of urban planning reforms aimed at increasing housing density and accelerating the development process. A key focus for local governments has been promoting housing diversity, offering a wider range of housing options to accommodate various household types, income levels, and lifestyle preferences. This aligns with international planning approaches such as Oregon's House Bill 2001 in the United States, which permits duplexes and fourplexes in traditionally single-family zones, and New Zealand's MDRS policy, which enables up to three dwellings per site without the need for resource consent in most urban areas.

In a similar effort to expand housing choices and improve affordability, the New South Wales (NSW) Government introduced the Low and Mid-Rise Housing Policy. This policy aims to bridge the gap between detached housing and high-rise apartment buildings by encouraging the development of duplexes, triplexes, and small apartment blocks. It forms part of the broader State Environmental Planning Policy (Housing) 2021 and aims to facilitate gentle density increases in well-located urban areas (NSW Government, 2021). Under the policy, low and mid-rise developments are permitted within 800 metres of designated town centres and transport hubs, areas where infrastructure

capacity and access to services already exist (NSW Government, 2024a). This strategic rezoning approach not only helps reduce pressure on outer suburban growth areas but also supports the state's long-term housing supply targets by enabling infill development in established neighbourhoods. With a target of delivering 112,000 new homes over the next five years, the policy is being implemented in two stages (NSW Government, 2024a). The first stage, which started in July 2024, permits dual occupancies and semi-detached dwellings in low-density residential zones across the region. The second stage, launched in February 2025, introduces new planning controls designed to encourage the development of a broader range of housing types (e.g., dual occupancies, terraces, townhouses, apartments, and shop-top housing). These controls apply specifically to designated low and mid-rise housing areas within Greater Sydney, the Central Coast, the Lower Hunter and Newcastle region, and the Illawarra–Shoalhaven[3].

A similar initiative is underway in the Australian Capital Territory (ACT), where zoning and land-use regulations are being reviewed to facilitate the construction of a broader range of housing in Canberra's suburbs. These proposed changes aim to increase the supply of well-designed, sustainable homes and help meet housing targets. Although still in the planning stage, key updates include allowing townhouses and low-rise buildings up to two storeys in areas that were previously limited to single homes (RZ1), removing minimum block size requirements for additional dwellings, lifting the 120m² size limit on secondary dwellings, and permitting block subdivisions. Overall, the goal is to encourage more flexible, medium-density housing options in established suburbs (e.g., Property Council Australia, 2025).

A distinctive feature of the Low- and Mid-Rise Housing Policy is the identification of nominated areas where such developments can occur. A total of 171 site locations were selected based on a set of key criteria developed through public consultation (NSW Government, 2024b). These criteria ensured that new housing would be well-integrated with existing infrastructure and community needs. Factors considered included access to essential goods and services, such as supermarkets and a variety of retail and service outlets to meet daily living requirements. The frequency and availability of public transport, including trains, light rail, metro, and bus services, were also evaluated, along with travel times to major centres via public transport. Additionally, the selection process evaluated the capacity of critical infrastructure, including water supply systems, sewerage systems, road networks, and transit facilities. Areas with significant hazards or environmental constraints (flood risks, bushfire zones, and emergency evacuation concerns) were excluded to ensure safety and resilience in future development.

Complementary to the Low and Mid-Rise Housing Policy, the NSW Government implemented the Transit-Oriented Development State Environmental Planning Policy (TOD SEPP), with a commencement date of May 2024. This policy promotes the construction of mid-rise apartments, up to six storeys high, within 400 metres of key train stations, thereby enabling greater housing density in well-connected areas. (NSW Government, 2025). This policy has an affordable unit requirement that the low and mid-rise housing policy does not. The policy stipulates that any development with a gross floor area of at least 2,000 m² must provide a 2% affordable housing contribution. This housing must be delivered onsite, retained permanently, and managed by a registered community housing provider (NSW Government, 2025).

To address development bottlenecks, jurisdictions across Australia have introduced reforms aimed at accelerating planning approvals. At the federal level, the National Planning Reform Blueprint promotes more streamlined assessment pathways and enhanced coordination between state, territory, and local governments. In August 2023, all states, territories, and the Commonwealth (through National Cabinet) agreed to implement ten measures under the Blueprint. These measures focus on improving planning, zoning, and land release systems to fast-track housing supply and enhance affordability (Australian Government, 2024). These reforms are designed to reduce delays and expedite the delivery of new housing. Urbis (2023), a consulting and advisory firm, provided a summary of planning reforms across all states under the National Planning Reform Blueprint. Key themes emerging from these initiatives include unlocking government land, supporting and encouraging build-to-rent and mixed-use developments, increasing housing density in suitable locations, and enabling the delivery of social and affordable housing.

[3] Land identified as a local or state heritage item (excluding Heritage Conservation Areas) and land located within an activated Transit-Oriented Development area are excluded from the policy.

The Blueprint marks a significant shift in the federal government's role, granting it greater capacity to oversee and coordinate housing strategies alongside subnational governments (Housing Industry Association, 2024). The ten measures aim to unlock underutilized government land, support the construction of rental housing, facilitate greater housing density in strategic locations, and expand housing options to meet diverse needs (e.g., see Table 1). The Blueprint establishes a planning framework for national coordination of planning and promotes the sharing of best practices between states and provinces. A key emphasis is placed on promoting medium and high-density development near public transport hubs, essential services, and employment hubs, ensuring that new housing is both accessible and well-integrated into existing urban infrastructure. Local municipalities have shown a strong interest in streamlining permit approval processes, as outlined in the National Blueprint. In support of this initiative, the NSW Government introduced the Early Adopter Grant Program, which enables local councils to incorporate AI into their planning systems (NSW Government, 2024c). The aim of the program is to accelerate planning processes by leveraging big data, enhancing productivity, and reducing the administrative burden on planners (NSW Government, n.d.). As a direct outcome of the grant, Wingecarribee Shire Council launched DAISY (Development Application Information System), an AI-driven assistant designed to assist residents with residential planning enquiries (Wingecarribee Shire Council, 2025). The platform is intended to digitize and simplify planning systems, ultimately expediting development application processes.

Fitzgerald's (2022) report found that developer land banking has worsened Australia's housing crisis. Reviewing 26,000 sales across nine communities over ten years in the nation's largest markets, the study showed that developers deliberately released land slowly to maximize profits. During this period, rising land prices added an average of $194,010 to the cost of a home. As such, governments have begun introducing measures to discourage land or housing units from remaining dormant, including penalties for vacant land and homes, key elements aimed at curbing land banking. Additionally, the Australian Government has introduced a temporary two-year ban (from April 2025 to March 2027) on foreign purchases of established residential properties and is also taking action to reduce land banking (Australian Taxation Office, 2025). This ban applies to foreign individuals, temporary residents, and foreign-owned companies, who will generally be prohibited from buying existing homes in Australia unless specific exemptions apply. However, since only about 2 percent of homes in Australia are foreign owned (Daley et al., 2018), the impact of this ban on overall housing supply is likely to be minimal. At the local level, Frankston City Council is proposing a differential rate to encourage development of vacant land near the city centre. The council identified more than 50 parcels of land around the Frankston Metropolitan Activity Centre along the Nepean Highway, where rates would rise to 300% of the general rate for 2025-2029, up from 125% in 2021-2025, all to reduce parcels of undeveloped land (Frankston City Council, 2025).

Table 1: National Planning Blueprint Reform

| | Measure Descriptions | Status Update (March 2024) |
|---|---|---|
| 1 | Planning ministers will collaborate on a national vision for urban and regional planning, including shared policy approaches, definitions, and agreements on housing and planning data sharing. | *In progress* |
| 2 | Planning Ministers will report to the National Cabinet on state, regional, and local strategic plans before March 2024, which reflect their jurisdiction's share of housing supply targets agreed upon by the National Cabinet and linkages with infrastructure pipelines. | *Partially delivered, but more is required.* |

| | | |
|---|---|---|
| 3 | Planning Ministers will undertake planning, zoning, land release, and other reforms, such as increasing density, to meet their jurisdiction's share of housing supply targets agreed upon by the National Cabinet. | |
| 4 | Planning Ministers will identify well-located 'development-ready' land before 1 March 2024, having appropriate regard to the protection of land with key attributes, e.g. environmental or economic. | |
| 5 | Planning Ministers will streamline approval pathways and prioritize planning control amendments to support diverse housing across a range of areas, including promoting medium- and high-density housing in well-located areas close to existing public transport infrastructure, amenities, and employment opportunities. | |
| 6 | Planning Ministers will create accelerated development pathways and streamline approval processes for eligible development types, particularly in well-located areas, to support the rapid delivery of social and affordable housing. | |
| 7 | All levels of government will identify and rectify gaps in housing design guidance and building certification processes to ensure the quality of new builds, particularly apartments. | *In progress* |
| 8 | All levels of government will ensure the adequate resourcing of built environment professionals, including planners, in local government required for housing delivery, particularly in rural and regional Australia. | |
| 9 | Where public consultation is required on a development approval pathway, all levels of government will work towards community consultation processes which are clear, transparent and predictable for all parties. | *Delivered* |
| 10 | Use government land more efficiently: identify surplus parcels suitable for housing and share best practice redevelopment examples.-practice redevelopment examples. | |

# Construction Productivity and Technology

Australia has been actively exploring and implementing a range of policies and initiatives to accelerate housing construction through modern methods of construction (MMC), particularly prefabricated and modular building. These innovative approaches are vital to addressing the nation's housing crisis, particularly in high-demand urban areas. Australia has revisited modular and prefabricated construction methods multiple times over the years. However, the broader adoption of these approaches continues to face significant challenges due to inconsistent regulations, skills shortages, and outdated policies, which remain key barriers to widespread implementation (Hung, 2025; Built Offsite 2025a).

With the National Cabinet projecting a need for 1.2 million new homes over the next five years, policies that support innovative methods to increase housing supply are becoming increasingly important. Traditional construction methods have struggled to keep pace with this demand, highlighting the need for viable alternatives. As shown in

Figure 1, the average construction time for different housing options has increased over the past decade. In response, MMC have seen a rise in Australia in recent years. MMC encompasses a wide range of approaches, from improvements in design and project implementation to the use of off-site manufacturing and modular techniques. MMC offers an opportunity to be energy-efficient, reduce waste, and enhance construction efficiency (Built Offsite, 2025a). To support this transition, the central government implemented the National Productivity Fund (Commonwealth of Australia, 2025), a $900 million initiative aimed at encouraging states to implement productivity-enhancing reforms. The fund would reward states and territories that streamline regulations and foster innovation in construction processes, thereby preventing the uptake of MMC and allowing for more modular and prefabricated housing (Australian Government, 2025c)[4]. In addition, the fund will help establish a National Voluntary Certification Scheme for MMC manufacturers, which will include new guidance/compliance handbooks to smooth approval pathways. The goal of this Scheme is to provide more certainty and make it easier for manufacturers to comply with the national construction code requirements, thereby speeding up the regulatory process (Australian Building Codes Board, 2025).One example of innovation in the sector is SHAPE Australia, which utilizes factory-based manufacturing to streamline construction processes and minimize environmental impact. By producing building components in a controlled, off-site environment, SHAPE significantly reduces material waste, enhances resource efficiency, and accelerates project timelines. Operating across sectors such as education, healthcare, and government infrastructure, the company's modular construction approach allows for buildings to be completed with 30 to 50 percent less onsite construction time (SHAPE Australia, 2025; Built Offsite, 2025b).

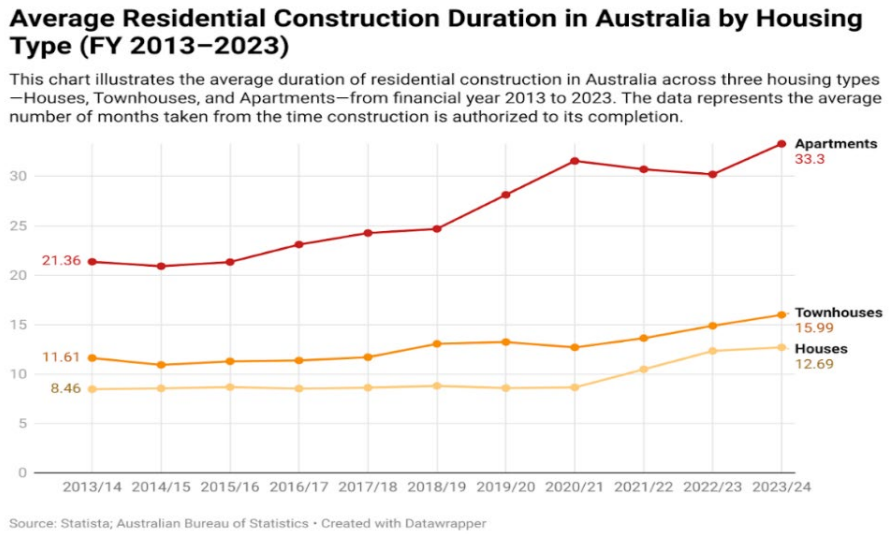



Figure 1: Residential Construction Duration

The Woree development in Cairns, managed by Tetris Capital, will feature 245 social, 223 affordable, and 22 specialist disability apartments, with a modular construction approach. The project, funded by the Queensland Government's Housing Investment Fund, is part of a broader initiative to deliver 5,600 social and affordable units by June 2027 (Queensland Government, 2024a). The Woree development is set to become the largest modular-based project in Australia, with the 490-home community expected to be completed by the end of 2026. By utilizing factory-built modules, modular construction significantly reduces construction time and minimizes on-site disruptions, enabling faster and more efficient housing delivery to the community (Built Offsite, 2025a; Queensland

4 Australia's National Productivity Fund is a state-level reform incentive with dedicated funding for MMC, including certification schemes, regulatory guidance, and red-tape reduction. Canada's Housing Accelerator Fund and Canada Housing Infrastructure Fund target municipal reforms and infrastructure, where MMC is encouraged as an option but not treated as a separate funding stream.

Government, 2024b). The development is a collaborative effort, with materials and labour sourced from two leading modular construction companies, funding provided by national and regional governments, and the involvement of Indigenous representatives to ensure an engagement strategy throughout the project's development, as the land is owned by the Gimuy Walubara Yidinji people (Built Offsite, 2025a)

Australia's construction labour force has faced significant challenges since the pandemic, contributing to ongoing difficulties in meeting housing demand (Cusa et al., 2022). A reduced and strained workforce limits the sector's ability to deliver homes at the required scale and pace. In response to this issue, the Federal Government, in partnership with the Victorian Government, announced a $50 million investment to establish the Future of Housing Construction Centre of Excellence. This initiative, part of the broader National Skills Agreement, aims to address workforce shortages by advancing skills development and innovation in the construction sector. The institute is located at the Heidelberg Campus of Melbourne Polytechnic, where the focus will be on MMC, skills development, workforce transformation, and research. The program will educate students on advanced construction methods, innovative practices, and the application of smart technologies in the construction field (Melbourne Polytechnic, n.d).

While Australia has made some strides toward adopting modular and prefabricated construction, the overall impact remains limited. MMC hold significant potential to transform the housing sector by offering faster, more sustainable, and cost-effective building solutions. However, several persistent barriers continue to slow the adoption of innovative strategies. Addressing these challenges requires a multifaceted approach. Greater investment in research and development (i.e., particularly in digital fabrication technologies) can drive innovation and scalability. Clearer and more consistent planning regulations, along with streamlined statutory processes, are essential to reduce delays and uncertainty. New funding models and incentives could help de-risk projects and attract private sector participation. A critical element is the positioning of prefabricated construction, which is necessary to overcome outdated perceptions, as it is crucial to gaining public trust and market acceptance. With coordinated efforts across these areas, Australia can unlock the full potential of MMC and deliver housing to address the housing supply needs.

Another approach adopted by the Queensland Government is the Digital Enablement for Queensland Infrastructure policy (Queensland Government, 2018). This policy is designed to make Building Information Modelling (BIM) a standard practice across Queensland's infrastructure projects (including housing). Under the policy, all state-level government projects valued at over $50 million are required to use BIM during the early planning phase. The policy is structured around four key pillars that guide its implementation. The Open pillar promotes transparency and facilitates easy data exchange between systems. The Managed pillar ensures that information remains secure and consistent throughout the project lifecycle. The Effective pillar aligns project practices with national standards to promote consistency and effectiveness. Ultimately, the supported pillar emphasizes the importance of developing and maintaining BIM capabilities to ensure long-term project success (Nathan, 2019).

# Enabling Infrastructure

A mismatch between infrastructure, employment location, and adequate, affordable housing has consequences for the broader economy (Gurran et al., 2015). Properties located near public transportation can provide access to more jobs within a 60-minute public transport ride (Burke & Stone, 2014). A lack of proper infrastructure significantly impacts productivity, emphasizing the need for integrated planning across housing, transportation, and employment sectors when developing infrastructure. Australia has faced issues in recent years with overambitious infrastructure project volumes, often lacking the necessary resources to manage them effectively. Additionally, the misalignment between the three levels of government in prioritizing certain projects led to delays in delivering key infrastructure projects (e.g., Campbell, 2023).

The relationship between infrastructure and housing supply is well-established in urban planning literature, with numerous studies highlighting that the timely provision of essential infrastructure is a key enabler of residential development. Infrastructure investment reduces development costs, increases land accessibility, and accelerates the delivery of new housing, particularly in growth corridors (e.g., Sarkar et al., 2021). Integrated planning that aligns

infrastructure delivery with housing strategies is therefore critical for addressing affordability and accommodating urban population growth (AHURI, 2022).

In 2025, the Victorian Government released an updated 30-year infrastructure strategy, providing a framework for policies, reforms, and projects designed to address both current and future infrastructure needs. The plan is structured around six key objectives, with the primary goal being to ensure that Victorians have reliable access to housing, jobs, services, and opportunities (Infrastructure Victoria, 2025). As part of this objective, the strategy proposes rezoning areas near existing infrastructure to support more diverse housing options, mandating the inclusion of affordable housing in well-serviced locations, developing new rapid bus transit systems and extending existing routes, and expanding metropolitan train lines (Infrastructure Victoria, 2025).

The Urban Development Institute of Australia (UDIA) released a report identifying the essential enabling infrastructure needed to unlock land for housing in key growth areas across the Perth Metropolitan Region. According to the report, an initial investment of $421 million over four years is required to activate three major growth corridors, which could support the delivery of up to 90,000 new homes (Urban Development Institute of Australia, 2024). The report highlights five key areas where housing supply is constrained, primarily due to the lack of infrastructure, including wastewater pump stations and trunk mains, power substations and feeder networks, as well as necessary road and intersection upgrades.

The integration of climate, transportation, housing, and the natural environment within Victoria's 30-year infrastructure strategy presents a unified framework that can be applied in many international contexts. For example, while inclusionary zoning exists in parts of Canada, more proactive provincial leadership and stronger integration with transit development could help increase the supply of housing near job-rich, well-serviced areas. Additionally, incorporating social equity and climate resilience more explicitly into infrastructure policies would help ensure that investments benefit underserved communities and promote long-term sustainability.

# Conclusions

One of Australia's most notable strengths is its creation of a unified national housing blueprint. Through the National Housing Accord, Australia established a coordinated framework that brings together federal, state, and local governments, as well as private and community sectors, to deliver one million new homes over five years. The coordination between all levels of government is crucial for Canada to adopt if it wants to see measurable improvements in the housing supply. Adopting a housing investment fund model (like the HAFF) offers a viable pathway to address Canada's affordable housing challenges. By bridging the subsidy gap and supporting long-term affordability, such an approach could enhance the effectiveness of the National Housing Strategy. With strategic design and alignment to impact investment principles, this model presents an opportunity to unlock new sources of capital, improve housing outcomes, and ensure long-term social and financial sustainability. Australia's infrastructure review shows the importance of aligning ambition with strategic planning and coordination. As Canada advances its infrastructure agenda, enhanced collaboration across all levels of government, integration of innovative practices, and clear alignment with economic, social, and environmental priorities will be essential. Proactive action today can help ensure infrastructure investments deliver long-term value and support more resilient, inclusive, and sustainable communities.

# Austria

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in Austria. Austria's housing system stands out in Europe for its robust rental sector, where approximately 45% of households rent their homes and over 20% reside in social housing, a figure substantially above the EU average (Mikołajczyk, 2023). Anchored by a cost-rent model and supported by limited-profit housing associations (LPHAs), Austria's approach prioritizes long-term affordability, institutional stability, and social integration. However, since 2023, a slowdown in residential construction has contributed to a tightening of the supply, particularly in urban centers like Vienna. The same pattern is apparent for all of Austria, with the number of permits approved for residential construction decreasing from 2019 (as shown in Figure 2). Rising land and material costs, increasing demand pressures, and administrative barriers have begun to challenge the system's capacity to deliver affordable housing. Despite generous eligibility criteria, access issues persist for marginalized groups such as migrants and low-income households, indicating tension between Austria's universalist housing vision and evolving social dynamics. This chapter examines the policies and instruments deployed across various levels of government in Austria that have played a significant role in increasing the housing supply.cc

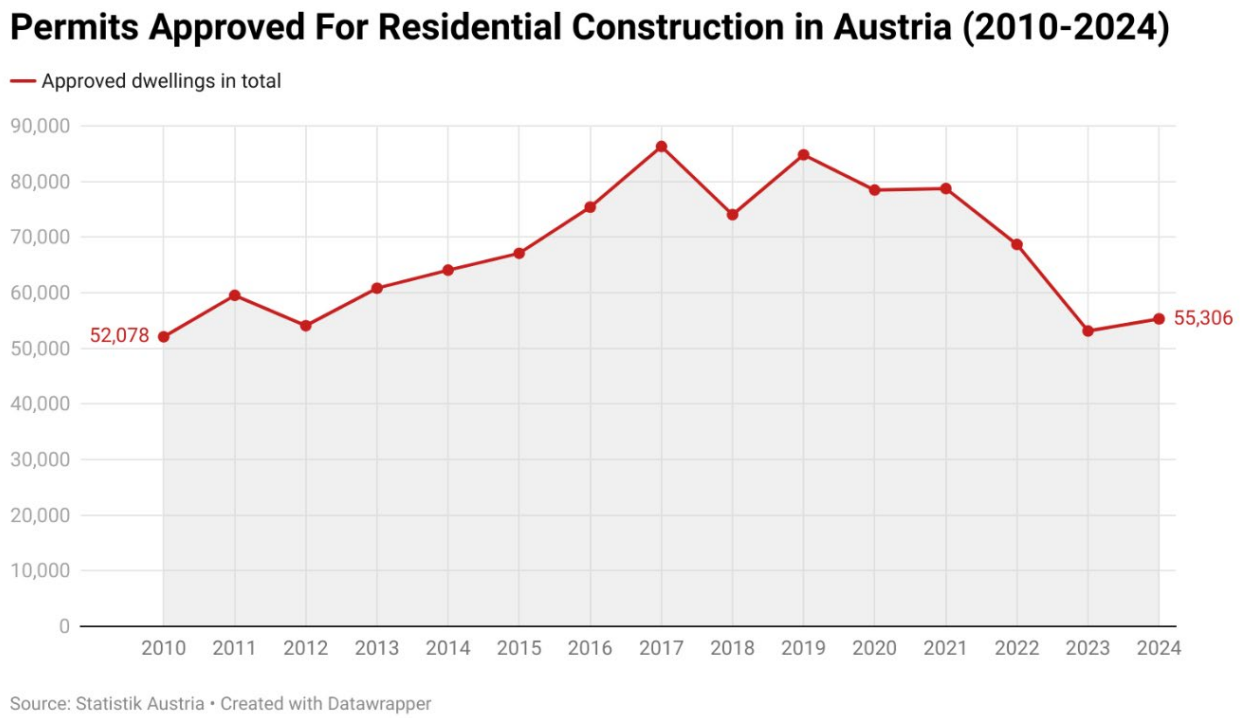



Figure 2: Permits Approved for Residential Construction in Austria

# Financial Levers and Market Incentives

Austria is heavily decentralized, with the competencies divided between the federal state and the nine federal provinces *(Länder).* In the context of housing, the federal government is responsible for legislation requirements, such as rent and condominium laws, as well as the Limited-Profit Housing Act. In contrast, the Länder oversee housing subsidy programs, the supervision of LPHAs, social welfare, regional planning, and building regulations. Due to this distribution of authority, housing policies vary somewhat across provinces (Amann & Jurasszovich, 2016).

Austria's housing finance follows a stable and supply-oriented model that relies on a combination of public subsidies and private financing to support long-term affordable housing. A funding structure involving equity from LPHAs, soft loans from the Länder, and commercial bank financing, often facilitated through instruments such as housing construction convertible bonds (Mundt & Springler, 2016). The Länder play a central role, allocating housing subsidies primarily to new construction and renovation, with two-thirds of funds directed toward supply-side measures (BMKÖS, 2023). This financing model enables cost-rent pricing, limits speculative pressures, and ensures affordability across income groups (Amann et al, 2024). Table 2 provides a breakdown of the different subsidies.

**Table 2: Subsidies Applied by the Länder**

| Type | Description | Given to: | Conditions |
|---|---|---|---|
| Soft Loans | Low-interest loans (0.5%–2%) with extended repayment periods (up to 35 years), typically issued by Länder. | LPHAs, private developers meeting public criteria | Affordability criteria, energy standards, and rent controls |
| Annuity Grants | Ongoing financial support to reduce repayment burdens on housing loans. | Primarily LPHA projects | Used alongside soft loans, affordability rules apply |
| One-time Grants | Direct grants for energy-efficient construction, family housing, or affordability objectives. | Private developers, LPHA, owner-occupiers (depending on the province) | Project eligibility based on social/ecological criteria |

*Special Purpose Banks*

*Regional Mortgage Banks (Landes-Hypobanken):* Publicly owned or regionally controlled financial institutions that historically played a key role in financing subsidized rental housing, especially for limited-profit housing associations (LPHAs). These banks offer long-term fixed-rate loans tailored to the specific requirements of provincial housing subsidy programs. Their regional mandate aligns closely with the decentralized housing governance structure, allowing them to cooperate effectively with provincial governments in administering subsidized financing (Koessl, 2022)

*Contract Savings Banks*: Manage *Bauspar* contracts, a traditional form of housing finance in Austria that combines state-subsidized savings with access to low-interest loans for home construction, purchase, or renovation. Individuals commit to saving regularly over a fixed term (typically six years), earning a government premium and

preferential loan rights after the saving phase. This system primarily supports private homeownership and promotes long-term financial planning, particularly among middle-class individuals. While popular, their importance has declined due to low interest rates and greater access to market credit (Mundt & Springler, 2016; Amann et al., 2024).

*Housing Construction Banks*: Housing construction banks (Wohnbaubanken) are licensed private banks established in the 1990s to channel private capital into the social housing sector through the issuance of Housing Construction Convertible Bonds (HCCBs). The proceeds from these bonds are used to provide low-interest loans to LPHAs, complementing provincial subsidies and expanding the financial base for cost-rent housing (Koessl, 2022)Limited-Profit Housing Associations (LPHAs) have played a foundational role in Austria's housing market since the end of World War II, both in terms of new construction and their share of the overall housing stock. They focus on providing a long-term housing stock at below-market rent rates for most of the population. The fundamentals are based on the Limited-Profit Housing Act, which defines LPHAs as private entities dedicated to providing affordable housing as a public good. Though independently operated within the Third Sector, their assets and operations are strictly regulated, regularly monitored, and must serve the common interest. Both cooperatives and companies can qualify as LPHAs, with revocation of their status serving as the most severe penalty for violations, carrying significant economic repercussions (Amann et al, 2024).

Key features and principles of Limited Profit Housing Associations include:

***Cost-Rent Principle***: Rents are strictly based on actual costs of construction, financing, and management, excluding speculative profit (Koessl, 2022; Ludl, 2016).

***Reinvesting Obligations (Revolving Funds):*** LPHAs must reinvest surpluses directly into housing projects or renovation, creating a self-sustaining financial cycle that supports a continuous supply (Koessl, 2022; Ludl, 2016).

***Public Subsidies and Loans:*** Long-term, soft loans and grants to finance construction and renovation (BMKÖS, 2023; Mundt & Springler, 2016).

***Housing Construction Convertible Bonds:*** LPHAs utilize convertible bonds as financial instruments from dedicated Housing Construction Banks (Wohnbaubanken) to attract private capital under favourable tax conditions, while remaining non-profit (Mundt & Springler, 2016).

***Equity Contributions***: Initial tenant contributions provide additional equity, reducing reliance on external debt and reinforcing financial stability (Ludl, 2016; Koessl, 2022).

***Limited Profit Distribution***: Profits are strictly capped and cannot be distributed as dividends. This prevents the extraction of resources and keeps rents affordable (Koessl, 2022; Lawson, 2010).

***Public Oversight and Regulation:*** LPHA finances are rigorously supervised by provincial governments, ensuring transparency, efficiency, and adherence to public goals (Amann et al., 2024; Reinprecht, 2014).

***Long-Term Stability:*** LPHA's stable institutional setup allows significant construction output, accounting for 40–60% of new multi-story dwellings in Austria, even during economic downturns (Kössl, 2022).

Austria's success with LPHAs is based on political and cultural tradition that values social solidarity and state responsibility for housing. Public support for cost-based rents and non-profit housing reflects a cultural preference for stability over speculation and equitable access over market competition, particularly in Vienna, where a significant portion of housing is social (Lawson, 2010). Municipalities often approach LPHAs when they experience a lack of affordable housing, and together they design and develop projects and apply for subsidies (Mundt & Springler, 2016). Additionally, LPHAs are granted exemptions from corporate tax, further incentivizing reinvestment in housing.

Under the Limited Profit Housing Act, LPHAs are permitted to engage in business activities, albeit under strict conditions. While the primary mandate under the Act is to prioritize cost-based and affordable housing, LPHAs may

also carry out secondary business activities, such as developing and managing non-subsidized or market-rate housing, constructing homes for third parties, developing commercial spaces, and engaging in urban renewal projects (Austrian Federal Government, 1979; Ludl, 2007). Revenues generated from these activities must remain within the LPHA and be reinvested into housing provision. Furthermore, these secondary business activities are continuously supervised by authorities to ensure financial and legal compliance (Austrian Federal Government, 1979).Nearly 200 LPHAs exist in Austria, managing approximately one million homes in total, which represents 24% of the country's total housing stock and nearly 40% of all apartments (Amann et al., 2024). Their significance in Austria's housing landscape is supported by access to soft loans, public land, and revolving funds, allowing them to build through economic downturns while offering long-term affordability and social integration (Mundt, 2018). LPHAs also contribute to socially inclusive urban development by prioritizing mixed-income housing and partnering with municipalities through developer competitions. However, they face growing challenges, including rising land costs in urban centers, regulatory complexity, and uneven governance across provinces (BMKÖS, 2023; Kössl, 2022).

Beyond the WBI and outside the municipality of Vienna, other notable practices have emerged to address the rising costs of land. In the state of Tyrol, located in Austria's mountainous west, the provincial government operates the Tyrolean Land Fund. Established in 1994, the fund acquires, reserves, and sells land to support municipalities in securing sites for public purposes such as housing, commercial development, and infrastructure, particularly in areas where topographic and market constraints limit land availability. Operating as a state-owned, non-profit commercial entity, it purchases banks' land, often prior to zoning, and makes it available to municipalities at cost. Importantly, the fund benefits from an exemption under the Tyrolean Land Transfer Act, allowing it to acquire agricultural and forested land without prior approval. This significantly reduces barriers to land access for housing development. The fund provides a practical solution for smaller or tourism-driven municipalities that lack the resources to compete in the open land market, enabling them to secure land for long-term, affordability-focused planning (Schindelegger & Seher, 2025).

# Land Supply and Regulatory Environment

Land regulation policy in Austria operates similarly to housing policy, within a federal framework, with the Länder holding responsibility for spatial planning laws. Municipalities are tasked with responsibilities of control over zoning, land designation, and development approvals (Schindelegger & Seher, 2025). Compared to its neighbours, Switzerland and Germany, Austria does not rely on national-level land value capture (LVC) tools. Instead, value is captured indirectly through public landownership, planning regulations, and housing subsidy conditions (OECD, Lincoln Institute of Land Policy, & PKU-Lincoln Institute Center, 2022).

In Vienna, all matters related to public land management, urban renewal, and housing subsidies are overseen by the Wohnfonds Wien (Vienna Housing and Urban Renewal Fund). Wohnfonds Wien plays a key role in the urban renewal process, coordinating funding and planning for the refurbishment of older housing stock and supporting neighbourhood upgrading initiatives (Kazepov & Verwiebe, 2021). Vienna holds a large portfolio of municipal land, and the Wohnfonds Wien organizes developer competitions to allocate land based not on price, but on the city's Four-Pillar model[5]. The Four-Pillar Model is Vienna's framework for evaluating subsidized housing projects, assessing proposals based on architectural quality, ecological sustainability, social integration, and economic efficiency to ensure high standards and public value in land and subsidy allocation (Mundt & Amann, 2018). Developers who win these competitions must adhere to cost-rental principles and meet detailed planning obligations, enabling the city

[5] Not all projects on public land are subject to a competitive procedure. Exceptions apply in certain circumstances, such as smaller infill developments, non-complex renovations, or when land is provided under existing contractual obligations or as part of a long-term municipal partnership. In these cases, land may be allocated directly to a Limited-Profit Housing Association (LPHA) or a selected developer without a formal competition. Although such exceptions exist, the City of Vienna continues to prioritise competitions, especially for large-scale or newly developed areas, to maintain high standards in affordability, design, and environmental performance.

to recapture land value and ensure high-quality, inclusive housing without relying on formal taxation mechanisms (Kössl, 2022; Mundt & Amann, 2018).

Developer competitions began operating in the 1990s but gained institutionalization in 2009, initiated by Wohnfonds Wien in response to increasing land costs and pressure on the housing system. These apply to large development projects (more than 500 units since 2016) on City-owned land and/or projects that receive housing subsidies (Friesenecker & Litschauer, 2021). The competitions involve multiple stakeholders, with Wohnfonds Wien managing the land and organizing the calls. Limited-profit housing associations (LPHAs) and their private-sector partners submit proposals, which are then evaluated by panels of experts, including architects, urban planners, and municipal officials. This process reflects Vienna's tradition of cooperative governance and mutual trust between public authorities and the non-profit sector (Lang & Stoeger, 2018).

Competitions have evolved to address pressing urban challenges, including climate change adaptation, demographic aging, and the integration of migrants. One notable example is the SMART housing program (Stadt Wien wohnfonds_wien, 2023). Launched in 2012, it is a key component of the city's subsidized housing strategy, designed to deliver affordable, compact, and flexible living spaces. The program targets a wide range of groups, including young people, single parents, low-income households, and seniors, by offering smaller-than-average units with capped costs and functional layouts. Apartments typically range from 40 to 100 square meters, with an average size of 65 m², and emphasize affordability through strict limits: an equity contribution of € 60 per square meter and rents set 25% below Vienna's regulated limits. According to the city of Vienna, SMART housing is not only economical but also socially and ecologically innovative. Every development includes communal spaces, such as rooftop terraces, reading lounges, laundry rooms, and even specialized areas like bike workshops or children's playrooms, all of which encourage resident interaction and shared living. SMART apartments are now mandatory in all developer competitions and account for approximately 50% of Vienna's new subsidized housing production (Stadt Wien Wohnfonds Wien, 2023). Two notable examples of SMART housing projects include the following:

Sonnwendviertel II: Located in a prominent urban development zone near Vienna's new Central Station, this project comprises 116 SMART apartments. It emphasizes functional and efficient floor plans and includes extended arcades that promote communication between neighbours. The project was also designed to encourage intergenerational living and offers a variety of unit types to accommodate different household sizes and needs.

In der Wiesen Süd: This project includes 105 SMART apartments and was designed with a strong emphasis on community infrastructure, offering shared facilities such as children's playrooms, reading lounges, laundry rooms, and stroller storage areas.

Despite their strengths, Vienna's developer competitions face several limitations. The process is time- and resource-intensive, requiring detailed submissions, multiple evaluation rounds, and coordination across agencies, which can slow down the delivery of housing. Smaller developers or newer collaborative housing models may struggle to compete against larger, more established limited-profit associations, potentially limiting innovation and diversity in project types (Lang & Stoeger, 2018). Additionally, relying on subjective criteria for evaluating social and ecological aspects can lead to inconsistencies or a perceived lack of transparency. Finally, while highly effective in Vienna due to strong public institutions and land control, the model's transferability is limited in cities without similar governance capacity or public land reserves (OECD, Lincoln Institute of Land Policy, & PKU-Lincoln Institute Center, 2022)

The Wohnbauinitiative (WBI) is a subsidy scheme established in 2011 by the City of Vienna (see Table 3). The initiative was designed to stimulate the construction of affordable housing in the aftermath of the 2008 financial crisis, when housing output from limited-profit housing associations (LPHAs) declined due to tightened lending by banks. Additionally, Vienna was experiencing significant growth due to both internal and external immigration. It aims at targeting middle-income households who are often underserved by social housing. Once the program was launched, the quantitative aim was set at 7,500 new units each year, a noticeable increase from former targets, and was subsequently raised to 13,000 new units per year in 2016 (Mundt & Amann, 2018).

*Key Actors involved in the WBI:*

- Region and Municipality of Vienna
- Consortia of developers and financial investors
- Limited-Profit Housing Associations
- Commercial Developers (Some daughter companies of LPHAs)
- Housing construction Banks (Wohnbaukanken)
- WBI Advisory Board

Table 3: Specific Terms Outlined by the City of Vienna Tender [Mundt & Amann (2018)].

| City of Vienna Offered | In Exchange, Consortia Must |
|---|---|
| Municipal land at below market rates (at ~€235/m²) | Ensure their equity is at least 350 €/m² of usable floor space. Financial partners must invest at least €75,000 per completed dwelling. |
| 10-year, fixed-rate loans of €800/m² (3.9% in 2011; 2.5% in 2015) structured to lower financing costs by making it easier to secure additional commercial loans. | Hold cap rents and tenant capital contributions during the 10-year loan term under one of two variants: |
| | €6.10/m² net rent + max €150/m² capital contribution (refundable minus 1% per year) |
| | - €4.75/m² net rent + max €500/m² capital contribution (refundable minus 1% per year) |
| | Allocate 50% of the dwellings, with the rest allocated by the city based on social needs. |
| | After 10 years, commercial developers may charge market rent or sell units; however, LPHAs must maintain cost rents. |

The WBI encourages new residential construction in the mid-price segment by offering financial incentives to developers in return for time-limited social obligations, including rent ceilings and regulated tenant access criteria. What makes the WBI particularly innovative is its hybrid subsidy model, which combines public instruments, such as municipal land, medium-term low-interest loans, and allocation rights, with private capital, including funds from institutional investors. The initiative is open to both limited-profit housing associations (LPHAs) and commercial developers, encouraging a broader pool of participants while maintaining social housing objectives. Rent controls in WBI projects are limited in duration, reflecting a balance between long-term affordability and financial viability (Mundt & Amann, 2018). The WBI played a significant role in the development of Seedtat Aspern, one of Europe's largest urban development projects, which transformed a former airfield into a vibrant mixed-use district. It spans approximately 240 hectares, aiming to accommodate around 20,000 residents and create 20,000 jobs upon completion. The project integrates affordable housing, workplaces, public spaces, sustainable transport infrastructure, and innovative energy solutions (Wien 3420 Aspern Development AG, 2017). Developer competitions were a key feature of Seestadt Aspern. These competitions were run by the City of Vienna through Wien 3420 Aspern Development AG, to ensure the four-pillar model. The WBI played a crucial role in facilitating affordable housing within Seestadt Aspern, contributing approximately 6,250 housing units during its first implementation phase, from 2011 to 2015 (Mundt & Amann, 2018).

City-owned land can be sold or leased to developers; however, the conditions differ depending on the type of housing provider. For subsidized housing projects, LPHAs typically receive land through sales at a reduced, cost-based price determined by Wohnfonds Wien and is contingent on meeting specific affordability, quality, and social mix criteria of the Four Pillar model, which is also defined through the developer competition process, for private or commercial developers participating in mixed-financed projects, such as those under the WBI, who are eligible to public land, but under different terms. While they may be allowed to purchase or lease land, they must agree to temporary affordability commitments, such as capped rents for a fixed duration (e.g., 10 years) and partial allocation of units through the city (Mundt & Amann, 2018). Unlike LPHA land deals, which are permanently tied to the cost-rent principle and reinvestment obligations, private developers operate under time-limited obligations that expire after the subsidy period has ended. Vienna in particular favours non-profit housing providers in terms of pricing and long-term affordability requirements, while allowing commercial actors to participate under stricter, time-bound conditions.

While the WBI scheme presents several advantages for contributing to affordable housing, it also faces limitations and criticisms. One of the primary criticisms is the short duration of affordability obligations, only ten years, after which rent controls and allocation conditions expire, raising concerns about long-term housing affordability and tenant security (Mundt & Amann, 2018). The absence of income ceilings means that lower-income households may be underrepresented in WBI-funded housing. Critics have also noted the risk of marketization, as the WBI relies heavily on private actors rather than Vienna's well-established non-profit housing framework (Van Bortel & Gruis, 2019). Furthermore, while developer competitions helped ensure project quality and efficiency, they also introduced administrative complexity and transaction costs, potentially limiting the model's replicability. According to Mundt & Amann (2018), the transferability of the WBI model to other countries is mixed. Successful replication depends heavily on the presence of robust public land policies, long-term planning frameworks, and strong non-profit developer sectors, all of which are particularly well-developed in Vienna but less common elsewhere. In jurisdictions lacking municipal land banks, stable governance, or experienced limited-profit developers, adapting the WBI model would require significant institutional investment (Van Bortel & Gruis, 2019; Mundt & Amann, 2018)

# Construction Productivity and Technology

Austria's housing construction sector has experienced pressure over the past decade due to a combination of strong population growth, urban densification needs, and rising construction costs. The country has one of the highest rates of residential construction per capita in Europe, particularly in Vienna (OECD, 2024). However, labour productivity in the construction sector has come under strain, partly due to a tight labour market and growing regional skills shortages (European Construction Sector Observatory, 2021).

Austria has emphasized vocational education and training (VET) programs to address skill shortages in the construction sector. These programs specifically address deficits in skilled trades, such as carpentry, plumbing, electrical work, and installation. Austria's dual apprenticeship system, which combines theoretical education with practical industry experience, significantly boosts productivity by reducing skills gaps and training workers in advanced building methods, such as sustainable construction and energy-efficient technologies. For instance, in 2019, the Austrian Public Employment Service launched the New Digital Skills initiative in collaboration with prominent companies across five economic sectors: production, trade, tourism, construction, and IT. The initiative aims to modernize and align VET programs with current industry needs. The PORR Group, a major Austrian construction firm, provides training programs for university graduates to gain practical experience in the construction industry (European Construction Sector Observatory, 2021). Regarding digitalization in the residential sector, BIM has been mandatory for budget control in the construction of public buildings since 2018. Following a recommendation by the European Commission, BIM has been mandatory in Austria for tenders and public works contracts since 2020 (European Construction Sector Observatory, 2021).

Austria does not rely heavily on prefabricated construction methods across its entire housing sector, but prefabrication plays a strategic role, particularly in Vienna's social housing initiatives. The use of prefabricated timber modules has been notably effective in urban densification projects, such as the Attic Adapt 2050 pilot, which retrofitted post-war municipal buildings with additional prefabricated attic floors in as little as five weeks (Jaksch et

al., 2016). These methods are especially suitable for Vienna's standardized housing typologies from the 1950s to the 1970s, allowing for faster, less disruptive, and more sustainable construction.

Additionally, Prefabrication is further promoted through developer competitions and the WBI, which incentivize cost-efficient and innovative delivery methods (Mundt & Amann, 2018; Friesenecker & Litschauer, 2021). At the national level, the Austrian Federal Guidelines for Building Culture support prefab to improve construction quality, reduce emissions, and strengthen local timber industries (Federal Chancellery of the Republic of Austria, 2017). Despite these advancements, most housing in Austria is still built using conventional methods. Thus, while not yet mainstream, Austria's targeted use of prefabrication, especially in Vienna, demonstrates its growing importance as a tool for accelerating the delivery of sustainable and affordable housing.

# Enabling Infrastructure

In Austria, the responsibility for physical infrastructure lies primarily with municipal governments, like zoning and spatial planning (Schindelegger & Seher, 2025). Vienna exemplifies this approach through tools like developer competitions and land-use contracts, where infrastructure requirements are embedded into housing tenders from the outset. In Vienna, the zoning of new land for residential use is often conditional on infrastructure readiness, meaning plots are not released until water, sewage, and transit systems can accommodate new demand (Gerber et al., 2018).

Seestadt Aspern remains a prime example of this approach, as much of the infrastructure was completed before construction, ensuring that the housing supply could scale rapidly and efficiently (Patrick, 2023; Lang & Stoeger, 2018). Public transport was also prioritized early, with the U2 metro line, part of the U-Bahn system network, being extended to Aspern in 2013, years before most housing was built. The U2 line connects Seestadt to Vienna's city center, employment hubs, and educational institutions, making the area viable and attractive for new residents. The U2 extension is part of a larger strategic upgrade known as U2xU5, which will eventually add 300 million passenger trips annually (Wiener Linien, n.d.). Additional amenities include schools, public parks and green spaces, medical facilities, community centers, and senior housing.

# Conclusion

This chapter has examined Austria's multi-scalar housing strategy, highlighting how institutionalized mechanisms, particularly in Vienna, have enabled sustained market supply through state-supported financial models, cooperative land management, and socialized construction oversight. Key pillars include the operations of LPHAs under the Limited-Profit Housing Act, the city's structured developer competitions (Bauträgerwettbewerbe) guided by the Four-Pillar Model, and hybrid financing mechanisms such as the Wohnbauinitiative (WBI) (Amann et al., 2024; Mundt & Amann, 2018). Complemented by long-term infrastructure coordination and innovative approaches to urban densification, such as prefabricated timber modules and BIM adoption, Austria's model balances affordability with high-quality design and environmental performance. Elements of this model offer valuable insights for Canada, particularly in cities such as Toronto and Vancouver, where affordability pressures and land constraints are acute. Canada's 2024 National Housing Plan and municipal programs increasingly reflect Austrian principles, including modular construction, public land utilization, and subsidized financing (Government of Canada, 2024). However, the absence of a nationwide institutional equivalent to Austria's LPHA network, coupled with fragmented infrastructure delivery and time-limited affordability mandates, limits scalability. Moreover, developer competition and long-term affordability obligations remain underutilized in the Canadian context, where municipal land reserves are weaker and public oversight is less centralized (City of Toronto, 2024). Adapting Austrian models would require reforms in land policy, expanded revolving funds, and the creation of mission-driven development institutions capable of sustaining affordability across economic cycles. While not all components are transferable, Austria's integrated and durable housing strategy provides a strong reference point for Canadian policymakers seeking to scale market supply without sacrificing equity or quality.

# Germany

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in Germany. Germany faces a housing market under growing strain, marked by rising demand, affordability pressures, and regional supply shortfalls, particularly in metropolitan areas such as Berlin, Hamburg, and Munich. As one of Europe's largest rental markets with a long tradition of state intervention, Germany presents a unique case of multi-level governance where federal, state, and municipal actors share overlapping responsibilities in shaping housing supply and affordability outcomes (Santana Caraballo et al., 2024). Amid a prolonged period of underbuilding and rapid urbanization, municipalities have increasingly turned to negotiated planning tools, public land policy, and subsidy programs to stimulate construction and embed affordability commitments. However, despite these efforts, construction productivity has stagnated, and the stock of social housing continues to shrink as temporary affordability covenants expire (Kofner, 2017). This chapter examines the evolving structure of housing policy in Germany with a focus on policies and instruments that influence housing supply. By analyzing how these mechanisms function in practice, particularly in rapidly growing cities, this chapter aims to identify lessons applicable to other jurisdictions facing similar challenges.

## Financial Levers and Market Incentives

Germany's approach to housing finance is based on a mix of object-based subsidies, preferential public loans, and multi-level cost-sharing arrangements that aim to stimulate both construction and affordability. Core instruments such as Objektförderung (construction subsidies) and the broader Soziale Wohnraumförderung framework provide direct financial support to private and non-profit developers in exchange for regulated rents and long-term occupancy commitments (Santana Caraballo et al., 2024). These are complemented by below-market KfW loans for energy-efficient new builds and retrofits, which have supported the construction of millions of units while advancing climate goals (Reynolds, 2018). While historic programs like the Eigenheimzulage and Baukindergeld targeted homeownership, contemporary policy emphasizes subsidized rental supply in urban areas, reflecting a shift toward targeted public investment in rental housing amid rising construction costs and affordability pressures (Kofner, 2017).

*Objektförderung (Construction Subsidies)*

These subsidies refer to public financial assistance provided to private and non-profit developers in exchange for building affordable housing, accompanied by rent regulation and tenant eligibility conditions that include binding affordability clauses. These subsidies have historically been the cornerstone of supplying social housing in Germany, dating back to the First Housing Act (1950) and the Second Housing Act (1956). Under these acts, the legal foundation for large-scale subsidized rental housing through construction incentives is incorporated into federal housing policy (Santana Caraballo et al., 2024). Under the current system, Objektförderung subsidies now fall within the framework of the Social Housing funding scheme (soziale Wohnraumförderung).

These funds include low-interest loans, investment grants, and operational subsidies. Although the duration of affordability varies by state, rental units produced through Objektförderung subsidies must also ensure 15-30 years of affordable rent, depending on the intensity of the subsidy. Overall, Objektförderung subsidies intend to directly stimulate housing in constrained areas and preserve affordability for lower and moderate-income tenant households in the face of market pressures. Despite its central role, Objektförderung is increasingly constrained by the shrinking of social housing, as expiring affordability restrictions outpace new subsidized construction (Santana Caraballo et al., 2024). Nonetheless, these subsidies remain among the most direct and durable instruments for expanding affordable rental housing within Germany's multi-level governance framework.

*Soziale Wohnraumförderung (Social Housing Promotion Funds)*

This financing mechanism is described as a "three-way cost-sharing model" with contributions from the federal, state, and municipal levels to promote the construction and modernization of social housing. Funds are primarily used to support the construction of new social housing, the purchase of affordable dwellings by non-profit organizations, and the modernization and energy retrofitting of older units. In response to rising housing pressures, federal allocations under this program increased from €518.2 million in 2015 to €1.5 billion annually in 2016 and 2017 (Reynolds, 2018).

*KfW Low-Interest Loans and Energy Efficiency Grants*

KfW loans function as below-market financing tools provided by Germany's federally owned development bank under the supervision of the Federal Ministry for Economic Affairs and Energy. These loans play a significant role in supporting the housing supply, particularly for energy-efficient construction, deep retrofits, and social housing projects. Notable KfW programs include "Energy-efficient Refurbishment" (*Energieeffizient Sanieren*) and "Energy-efficient Construction" (*Energieeffizient Bauen*), which offer long-term, fixed-rate loans, often up to €120,000 per unit. The loans are accessed through partner banks, which evaluate credit risk and submit applications to KfW. Private households, non-profit developers, municipal housing companies, and cooperatives can all access these loans. For housing cooperatives, KfW loans are essential as they help reduce capital costs, support share acquisition, and enable long-term affordability. KfW programs have contributed significantly between 2006 and 2017, resulting in over 5.4 million housing units and €342 billion in investment, while also leading to substantial energy savings and reductions in emissions (Reynolds, 2018; Santana Caraballo et al., 2024).

Eigenheimzulage was a federally administered object-based subsidy aimed at encouraging homeownership through direct subsidies. As described by Bischoff and Maennig (2012), it constituted one of the largest housing subsidies in post-reunification Germany. Introduced under the Income Tax Act, it provided annual tax-based grants to households who were building or purchasing owner-occupied homes, with enhanced benefits for families with children. Funded from federal tax revenues, it was designed to stimulate both homeownership and residential construction. Under an econometric analysis, Bischoff and Maennig (2012) found that the *Eigenheimzulage* significantly increased housing completions when applied to new construction, especially in suburban and rural counties. However, they also noticed that the subsidy had a negative impact when used for purchasing existing housing stock. In 2006, the program was discontinued due to its high fiscal cost, efficiency concerns, and its limited contribution to long-term affordability or housing supply in the heavily urbanized centers where housing pressure was most significant.

Introduced as a successor to the *Eigenheimzulage, Baukindergeld* provides direct grants to families with children to help purchase or build a first home. Administered by Germany's financing bank *Kreditanstalt für Wiederaufbau* (*KfW)* and the Federal Ministry for Housing, Urban Development and Building. Though not legislated under a dedicated act, the program was embedded within Germany's homeownership support policy (*Wohneigentumsförderung).* Eligible households received €1,200 per child annually for up to 10 years following the purchase or new construction of owner-occupied housing, provided they met income limits (€90,000 for one child, plus €15,000 per additional child) (KfW, 2025). According to Santana Caraballo et al. (2024), the *Baukindergeld* was effective in creating supply, particularly in lower-density regions where land was available and planning constraints were minimal. In 2021, the *Baukindergeld* program supported families in acquiring homeownership, with a total funding commitment of €1.8 billion (KfW, 2025). However, due to its relatively limited scope in high-demand urban areas and concerns over fiscal sustainability and spatial targeting, the program was discontinued after 2021.

# Land Supply and Regulatory Environment

Land policy (*Bodenpolitik*) in Germany is not a distinct or autonomous policy domain. At the national level, it operates at the intersection of building regulation, spatial planning, environmental protection, and fiscal governance. At the municipal level, local governments are responsible for implementing land-use planning, drawing on instruments that are grounded in private law and structured around existing property rights. The literature identifies several key instruments commonly employed within this framework, including land banking, land readjustment, urban development contracts, inclusionary zoning, and housing alliances.

*Land Banking*

Considered one of the most effective instruments that German municipalities use to facilitate the supply of housing. Its strategic purpose is to ensure the long-term provision of developable land for housing. Cities such as Dortmund exemplify land banking and have developed substantial land reserves over the past decades through proactive public acquisition strategies to steer housing development and allocate parcels of land specifically for affordable housing. (Shahab et al., 2021). Hartmann et al. (2025) emphasize that land banking functions effectively when municipalities act early and independently, supported by institutional arrangements that insulate these assets from annual budgets.

*Land Readjustment*

Embedded under §§45–84 of the Federal Building Code (BauGB), land readjustment is a legal and planning instrument that enables municipalities to reassemble property boundaries to make them more appropriate for future developments, and Germany is considered one of the pioneers of this tool. Municipalities manage the process with support from cadastral and valuation authorities, reallocating land to owners based on value rather than size and reserving some land for public infrastructure. While its use has declined in dense urban settings, it remains active in municipalities such as Marl due to its limited public land, and reconfiguring existing ownership is necessary to facilitate new housing development (Albrecht et al., 2018; Shahab et al., 2021).

*Urban Development Contracts*

Urban development contracts are widely used in German municipalities to coordinate land development with housing developers, especially where public land ownership is limited. Rooted in §11 of the Federal Building Code (BauGB), these legally binding agreements enable municipalities to negotiate contributions from developers, such as affordable housing quotas or infrastructure provisions, in exchange for planning permissions. Cities like Essen and Dortmund use urban development contracts to secure up to 30% social housing in new developments. According to Shahab et al. (2021), they have become a "standard procedure" in many municipalities, and Hartmann et al. (2025) describe their expansion as a "*triumphant advance for around 25 years*".

*Inclusionary Housing as a Tool*

Several German cities apply land policy strategies, such as land value increase, in which IH plays a role. One notable example is Stuttgart's IH policy, called the Stuttgart Inner Development Programme (SIM), which was introduced in 2011. Under Stuttgart's housing strategy, *Wohnen in Stuttgart,* the objective of SIM is to expand the supply of subsidized housing for low and middle-income households (Granath Hansson, 2019b). According to the City of Stuttgart (2017), SIM mandates that at least 20 percent of the new residential floor area be allocated to subsidized housing, with the potential to increase to 30 percent for off-site provision and up to 50 percent on municipal land. Developers hold one-third of the land value uplift as an investment incentive, while the city uses the remaining two-thirds for public infrastructure. Financial and building regulations for developers include a variety of capped rents, price ceilings, minimum unit sizes, and long-term occupancy commitments.

In a review of SIM by Granath Hansson (2019b), Stuttgart aimed to achieve 1,800 new apartments per year under its Wohnen in Stuttgart housing strategy. It surpassed this target with 2,125 units in 2016 alone, of which a substantial share was delivered under SIM conditions. Under a 2024 annual report from the municipal housing company SWSG, Stuttgart continues to implement the SIM policy as a central instrument. SWSG provided 271 rental apartments in 2024, comprising 192 in social rental housing, 2 for middle-income earners, and 77 privately financed. As of December 31, 2024, SWSG managed 8,023 publicly subsidized apartments, representing a 216-unit increase from the previous year (SWSG, 2024).

*Housing Alliances*

German cities have developed policies that combine incentives with obligations under urban development contracts. One primary tool is inclusionary zoning. Granath Hansson (2019a) reviews the Hamburg Housing Alliance

and the Alliance of Housing Construction in Berlin as key examples of municipal policies that lead to increased housing supply. Both initiatives set annual construction targets and require a designated share of subsidized rental housing for low and medium-income households. A series of strategies, such as streamlining planning, increasing municipal efficiency, and offering financial incentives like subsidies and interest-free loans. A key similarity between the two approaches is the use of housing coordination centers to accelerate timelines and ensure strong partnerships with both private and public developers. Hamburg focused more on concept competitions for land allocation, while Berlin prioritized its limited public land for municipal housing companies and cooperatives first. A comparison of the two alliances is outlined in Table 4.

By 2013, Hamburg had achieved its annual target of constructing 6,000 new housing units, prompting an increase in the goal to 10,000 units with the renewal of the agreement in 2016, and again in 2020 to more than 11,000 units annually (Santana Caraballo et al., 2024; Granath Hansson, 2019). A key factor in this success was the city's use of cooperation agreements with developers, alongside the establishment of a housing construction coordination center, the introduction of concept-based competitions, and land allocation procedures that prioritized social, ecological, and design criteria.

Germany's Cooperative Urban Land Development (CULD) (Modelle Kooperativer Baulandentwicklung) model is a policy instrument designed to enhance land development through negotiated and multilateral planning processes. Many German municipalities have adopted this model as a means of promoting inclusionary housing. Koetter et al. (2021) argue that CULD models are practical tools for managing land that supports fair land use and facilitates the transfer of land in ways that benefit cities and their long-term growth.

### Table 4: Comparison of Berlin and Hamburg Housing Alliances [Grannath Hansson (2019a)]

| Category | Hamburg Housing Alliance (2011) | Alliance for Housing Construction in Berlin (2014) |
|---|---|---|
| Official Name | *Bündnis für das Wohnen in Hamburg* | *Bündnis für Wohnungsneubau in Berlin* |
| Parties Involved | City of Hamburg, private landlords, municipal housing companies, and non-profits | Berlin Senate, public utility landlords (municipal and non-profit), and private landlords |
| Annual Housing Construction Goal | 6,000 units/year (increased to 10,000 in 2016) | 10,000 units/year until 2025 |
| Subsidized Housing Requirement | 30% of units in all projects must be subsidized rental dwellings for low and medium-income households | 10-33% of public utility dwellings and 10-20% of private homes must have rents below market rates. |
| Municipal Land Policy | Municipal land is made available via concept competitions only; the city buys land when necessary. | Municipal land is reserved first for municipal housing companies, then for cooperatives, and finally for private developers on a competitive basis. |
| Financial Support | Subsidies are provided for 2,000 subsidized rental units annually via Hamburg Investment Bank (IFB) | Interest-free loans for 1,000 low-rent units annually |
| Monitoring and Accountability | Built-in monitoring system to track goals.<br><br>Developers must report the project pipeline and outcomes | Developers must report statistics for tracking and follow-up mechanisms embedded |

| | | |
|---|---|---|
| Public Engagement & Area Improvement | Developers are encouraged to improve public spaces and less attractive areas, and to engage in large-scale development projects. | Developers must participate in public communications and consultations and improve public spaces. |
| Results (as of 2015) | Reached 6,000 units/year by 2013; target raised to 10,000 | Increased housing output: municipal companies prioritized but limited by low land supply and budget |

Urban development contracts between municipal authorities and private landowners or developers are key instruments under the CULD model, which establish the conditions for land-use change. Additionally, municipalities ensure a cooperative planning process in which infrastructure costs, affordable housing contributions, and public space requirements are agreed upon and must be in place before zoning and land-use approvals can be granted.

A leading example of a CULD model is Munich's Soziale Bodennutzung (SoBoN) program, first launched in 1994. Under SoBoN, developers must contribute a share (often 30%-40%) of new residential floor space to price or rent-controlled housing. This model has been applied to both large greenfield sites and densely developed areas. According to a SoBoN summary report by the city (2022), between 1994 and 2021, SoBoN facilitated the construction of 59,130 apartments, including 16,060 subsidized units, as well as 18,702 childcare and school places. Additionally, benefiting landowners contributed more than €785 million toward public infrastructure, green space, social facilities, and planning costs, providing substantial fiscal relief that made sustainable urban development possible (City of Munich, 2022).

Furthermore, Koetter et al. (2021) note that SoBoN "represents an institutionalized, predictable form of urban land policy" that allows both the municipality and private actors to manage land conversion with transparency and efficiency. Because it is embedded in regular planning workflows, it has become a non-negotiable prerequisite for development in Munich.

# Construction Productivity and Technology

Over the past decade, construction labour productivity in Germany has experienced stagnation, particularly in the residential sector. While total output has increased from approximately 245,000 units in 2014 to a peak of 306,000 in 2020, productivity gains have not kept pace (Statista, 2024). Since 2020, completions have plateaued or slightly declined, with 294,000 dwellings finished in 2023 and a projected decrease to 252,000 in 2024, signalling constraints in labour and material efficiency. For instance, in 2021 and 2022, annual household formation consistently outpaced net additions to the housing stock by nearly 100,000 units per year (Statista, 2025).

According to the European Construction Sector Observatory (ECSO) of the European Commission, several factors include the predominance of small and medium-sized construction companies with limited capacity for technological investment, continued reliance on traditional site-built methods, and a fragmented supply chain characterized by low levels of coordination across trades and subcontractors. Moreover, the sector faces acute demographic challenges, including an aging workforce and a persistent shortage of skilled labour (European Construction Sector Observatory, 2022). While demand for housing has remained high, the sector's capacity to respond efficiently is constrained by these systemic inefficiencies, reinforcing the urgency for industrial modernization and labour market reforms. In 2015, the German Federal Ministry of Transport and Digital Infrastructure initiated the "The Road Map for Digital Design and Construction" as a national plan to adopt digital technologies across the construction sector, with emphasis on Building Information Modelling (BIM) (European Construction Sector Observatory, 2022). Table 5 details the three phases: *Convergence*, *Digital Expertise*, *and Digital Transformation*.

Table 5: The Road Map for Digital Design and Construction

| Phase | Timeline | Key Focus Areas |
|---|---|---|
| Convergence | Until 2020 | Establish BIM foundations |
| | | Create common data environments (CDEs) |
| Digital Expertise | 2020-2025 | Integrate BIM into planning and construction workflows |
| | | Expand training programs and stakeholder engagements |
| | | Improve regulatory coordination and digital approvals |
| Digital Transformation | 2025 onward | Full lifecycle use of BIM (planning, operation, maintenance |
| | | Enable digital twins and predictive analysis |
| | | Standardize BIM as a default across public and infrastructure projects |

According to the European Construction Sector Observatory (2022) and Deutsche Bahn (2022), the roadmap has proven effective in infrastructure projects, with phase 1 achieved by 2020. While BIM has streamlined approval processes through better data sharing with regulators, such as the Federal Railway Authority, its full sectoral impact remains limited by slow adoption among smaller construction companies, fragmented supply chains, and the need for further standardization and cultural change across the industry (Deutsche Bahn AG, 2022).

The prefabricated industry in Germany is experiencing growth, but its utilization is uneven across various sectors and regions. In Feldmann et al.'s (2022) research article, which explores barriers to modular construction, it is noted that prefabrication accounted for approximately 12.7 percent of new dwellings in 2021 (Feldmann et al., 2022). The industry is technologically mature, particularly in reinforced concrete system construction, with large firms such as Goldbeck GmbH and Max Bögl Modul AG leading the way using BIM to ensure rapid urban housing delivery (Kirschke & Sietko, 2021).

To address the labour shortage and improve productivity within the construction sector, Germany has launched the National Skills Strategy (2019) and the Skilled Labour Immigration Act (2020). The National Skills Strategy (2019) (*Nationale Weiterbildungsstrategie*) focuses on vocational education reform and digital upskilling, with emphasis on supporting workers in adapting to BIM and prefabrication technologies (European Construction Sector Observatory, 2022). Complementary to this, the Skilled Labour Immigration Act (2020) (Fachkräfteeinwanderungsgesetz) aims to create legal pathways for qualified non-EU nationals to work in Germany, thereby attracting more skilled workers. In the context of residential construction, this act is especially important for filling gaps in essential roles that are critical for modular and prefabricated housing systems, such as formwork carpenters, HVAC installers, and structural engineers (European Construction Sector Observatory, 2022).

# Enabling infrastructure

Drawing on the *Global Compendium of Land Value Capture Policies* (OECD & Lincoln Institute, 2022) and Altrock's (2022) detailed case-based analysis, the provision and coordination of essential infrastructure in Germany is inseparable from land-use planning and housing development strategies, particularly in metropolitan regions facing intensified housing pressures. German municipalities are legally empowered to integrate infrastructure delivery through instruments previously discussed, such as land readjustment, land banking, and urban development contracts (OECD & Lincoln Institute, 2022). As previously discussed, these instruments not only allocate

infrastructure costs to developers but also enable municipalities to coordinate zoning, development phasing, and land acquisitions, particularly in areas where speculative landholding might otherwise hinder project implementation.

The effectiveness of these instruments is most visible in large greenfield developments undertaken by core cities to address housing shortages. Altrock (2022) documents how projects such as Blankenburger Süden in Berlin, Oberbillwerder in Hamburg, Freiham in Munich, and Frankfurt Nordwest each involve thousands of new housing units and are planned with an emphasis on compact, mixed-use, and transit-oriented urban forms. Infrastructure is not only a technical requirement but a central planning principle, with integrated public transport, decentralized energy systems, and multifunctional green space forming part of the development model. However, these efforts are often delayed or reshaped by fragmented governance arrangements, environmental opposition, and the complexities of stakeholder negotiation. As such, infrastructure investment in Germany plays a dual role: it serves as both a driver of housing supply and a site of political contestation, particularly in rapidly growing metropolitan areas where land is scarce and public pressure is high (Altrock, 2022; OECD & Lincoln Institute of Land Policy, 2022).

# Conclusions

Germany's approach to housing supply reflects a deeply institutionalized, multi-scalar framework that integrates financial levers, land governance, technological modernization, and infrastructure coordination. The deployment of object-based subsidies such as *Objektförderung* and programs under the *Soziale Wohnraumförderung* scheme has historically enabled direct public investment in affordable rental housing through conditional support for non-profit and private developers (Santana Caraballo et al., 2024; Reynolds, 2018). Simultaneously, including land banking, land readjustment, and urban development contracts, have empowered municipalities to shape urban growth while extracting social value through inclusionary mechanisms like Stuttgart's *SIM* program and cooperative models such as Munich's *SoBoN* Despite high demand, construction productivity has remained constrained by SME dominance, demographic pressures, and reliance on traditional site-built methods, prompting federal strategies like the "Road Map for Digital Design and Construction" and prefabrication expansion. These planning and productivity tools are complemented by embedded infrastructure coordination, with instruments such as land readjustment and development contracts enabling integrated delivery in large-scale projects like *Blankenburger Süden* and *Oberbillwerder*.

Urban development contracts allow German municipalities to negotiate infrastructure cost-sharing, social housing obligations, and design specifications with private developers as a condition of planning approval (Altrock, 2022; Granath Hansson, 2019a). This contrasts with Canada's fragmented approach, where municipalities rely heavily on development charges or density bonusing, often leading to unpredictable outcomes and legal appeals. Vancouver's adoption of a citywide Official Development Plan with inclusionary zoning provisions demonstrates alignment with the German model. However, the absence of a standardized, enforceable negotiation framework may limit its consistency (City of Vancouver, 2024). However, German urban contracts can be procedurally complex and vulnerable to legal challenge, especially when municipalities overstep cost-recovery limits or impose excessive obligations (Koetter et al., 2021), underscoring the need for careful legislative calibration in any Canadian adaptation.

Germany's use of public land policy tools, particularly municipal land banks and conditional long-term leases with affordability measures, mirrors the objectives of Canada's recent *Public Lands for Homes* and *Canada Builds* programs (Infrastructure Canada, 2024). Munich and Hamburg leverage these instruments to steer development toward cooperative and non-profit housing, often with resale restrictions or embedded energy-efficiency requirements (Feldmann et al., 2022). This approach provides a counterpoint to Canada's historic reliance on one-time land sales, which often undermine long-term affordability. Yet, replicating Germany's public land strategy would require major institutional reforms in Canada, including enhanced land acquisition capacity, improved intergovernmental coordination, and sustained funding streams for municipal land strategies.

Germany's emphasis on negotiated planning and legally binding affordability agreements contrasts with Canada's piecemeal and often voluntary approach to affordability delivery. Programs like Stuttgart's *SIM* and Munich's *SoBoN*

operationalize social mix targets and housing quotas through pre-negotiated land use frameworks (Granath Hansson, 2019b). In comparison, Toronto's inclusionary zoning policy is geographically constrained and lacks clear guarantees of affordability depth and duration. Still, the German experience also reveals implementation risks: lengthy approval processes, stakeholder fragmentation, and resistance from landowners or developers can delay supply even when incentives are present.

Canada's Housing Plan similarly emphasizes digitized permitting, prefabrication, and standard typologies (e.g., Housing Design Catalogue), but faces comparable capacity constraints and labour shortages (Government of Canada, 2024). Without demand aggregation or guaranteed pipelines for modular firms, both countries struggle to achieve the scale economies necessary for the industrialized delivery of housing. Germany's integrated housing regime, anchored in municipal autonomy, negotiated affordability, and fiscal partnership, can offer promising precedents for Canadian jurisdictions.

# Ireland

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in Ireland. Ireland's housing market faces a problem like many other countries, in that there are not enough houses to meet the growing demand. This shortage leads to higher prices and makes it more challenging for many people to afford a home (Egan & Bergin, 2023). The housing shortage was evident after the 2008 financial crisis for two reasons: low housing construction output and increased population growth (Conefrey & Staunton, 2019; The Housing Commission, 2024). This is also evident in Figure 3, where residential construction permits slowed sharply after the financial crisis and remained at low levels until recently. In recent years, the economy has experienced growth due to easier access to credit, resulting in increased housing prices (Kelly, 2010; Van Aarle et al., 2014). This chapter examines key housing supply policies in Ireland, focusing on objectives, implementation strategies, outcomes, and challenges, while drawing lessons applicable to Canada's housing context.

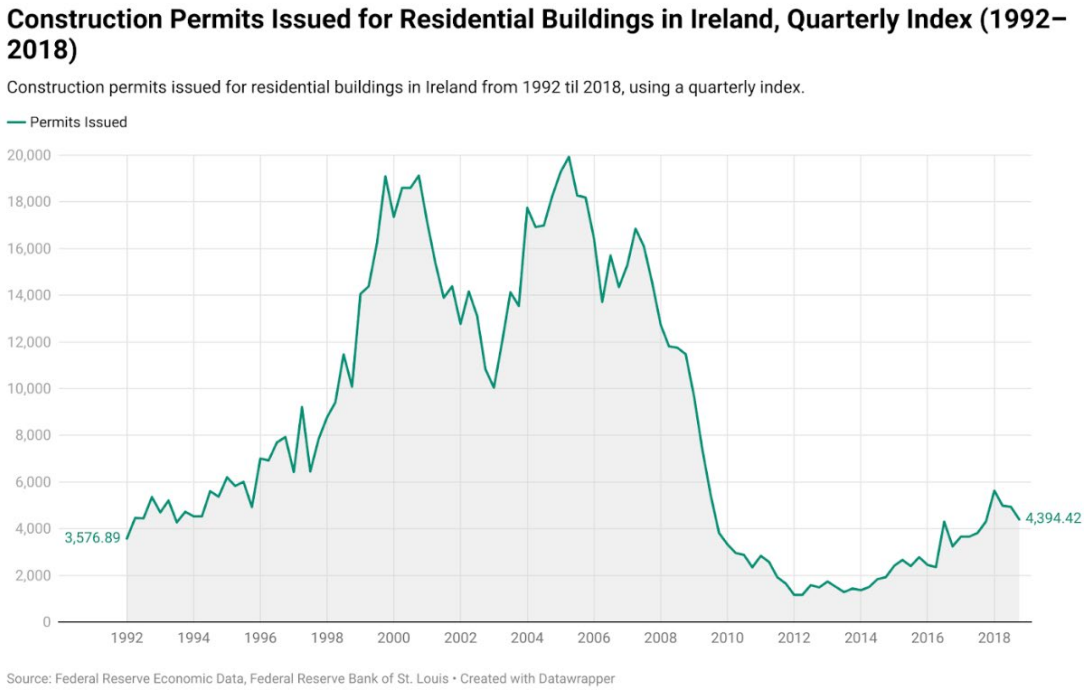



Figure 3: Construction Permits Issued for Residential Buildings in Ireland

## Financial Levers and Market Incentives

This section examines the financial tools and market incentives employed in Ireland to stimulate housing supply, with a focus on how government policies and private investments collaborate to overcome supply constraints. Ireland's mortgage market became more cautious after the crisis, with increased debt levels but more regulation to reduce risky loans (Doyle, 2009; Hallissey & Durante, 2023). Speculative lending in Ireland took the form of banks extending large volumes of credit to property developers and homebuyers with limited repayment capacity, often based on the expectation that housing prices would continue to rise. This practice, driven by a focus on short-term

profits rather than sustainable lending, amplified household debt and increased housing market vulnerabilities, ultimately contributing to the housing problems that emerged after the crisis (O'Rian, 2012; Lima et al., 2023).

The Vacant Property Refurbishment Grant, announced in 2018 and launched nationally in 2022, was designed to address the problem of widespread vacant and underused housing in many Irish towns and rural areas. By providing financial support for the renovation of these empty properties, the policy aimed to bring unused housing back into circulation and increase supply in regions facing shortages (Crowe, 2019; Eledan, 2018). To be eligible for the grant, a prospective resident must demonstrate that the property they are purchasing has been vacant for at least two years and was built before 2007 (Government of Ireland, 2022a). The grant is not geographically bound, as it applies to various vacant properties in cities, towns, villages and rural parts of the country. The total value of the grant an applicant is eligible for is up to €50,000, with additional funding of €20,000 on an as-needed basis for properties that are derelict (structurally dangerous) (Government of Ireland, 2022a). As of April 2025, a total of €112 million has been paid out to grant applicants, which equates to more than 2,000 homes being brought back into residential use nationwide since the program began in July 2022 (Government of Ireland, 2025a).

The most obvious benefit of such a scheme is the increase in housing stock. However, there are also unintended benefits. It supports the revitalization of communities that might otherwise be neglected and helps preserve their character, rather than allowing the land to be purchased by others for non-residential purposes. While using empty homes temporarily can help ease housing pressures, it does not fully resolve the underlying funding problems (Agheyisi, 2023).

Home Building Finance Ireland (HBFI) is a private company, owned by the Minister for Finance, established in January 2019 to fund the construction of new homes in Ireland. HBFI plays a key role in providing funding to residential developers who are commercially viable but often face difficulties securing finance from traditional banks or alternative lenders, particularly smaller developers and those engaged in affordable housing projects. Its business model is structured to act as a supplementary source of credit by targeting market gaps, ensuring that it supports rather than competes with existing residential development lenders (Home Building Finance Ireland, 2023; James et al., 2024). Between 2019 and December 2023, a total of 2,837 HBFI-funded homes were built and sold to residents (Home Building Finance Ireland, 2023).

The funding model used to finance projects is based on size and type. For smaller projects comprising fewer than 10 units, funding commences at €1 million and encompasses both site acquisition and development costs, with a loan-to-value (LTV) ratio of up to 80%. These loans carry an interest margin between 5% and 8% over the 3-month Euribor, along with a 1% entry and exit fee. For larger developments of 10 units or more, similar terms apply, but the maximum funding available typically reaches €100 million. A separate funding option is available for apartment developments, which may include site purchase as part of the financing package. This facility also allows up to 80% LTV and can support developments involving pre-sales, private sales, or a combination of both. The maximum funding is typically €100 million, and the margin and fees are adjusted based on the specific risk profile of each project (Home Building Finance Ireland, 2023).

HBFI has product-based funding options available for social and affordable housing projects that are primarily pre-contracted for sale to a Local Authority, an Approved Housing Body (AHB), or the Land Development Agency (LDA). Social and Affordable projects can access an LTV of 85%, including site purchase and development, with a margin of between 5% and 7% over the 3-month Euribor. A 1% entry fee applies, but there is no exit fee. Ideally, sites should already have planning permission or be in the process of securing it, and contracts with the relevant authority must be in place prior to the first funding drawdown project (Home Building Finance Ireland, 2023).

Additionally, HBFI offers Green Funding to support sustainable housing across all its products. To qualify, projects must be certified under the Home Performance Index (HPI) or an equivalent standard. Eligible projects can receive a margin discount of up to 0.5%, though some products may have minimum margin requirements (Home Building Finance Ireland, 2023). Another funding option, the Accelerate scheme, is aimed at experienced developers with a proven track record of delivering developments of 100 homes or more. This funding can be provided either independently or in partnership with other lenders, with no upper limit on project size.

The uniqueness of the funding model developed by HBFI lies in its ability to serve a range of housing markets. By creating similar loan programs aimed at builders facing credit barriers, other agencies can help overcome financing constraints and contribute to improving housing supply.

The Land Development Agency (LDA), established in 2018, works as a land assembly and housing delivery agent across the region (James et al., 2024; Yang et al., 2024). The LDA has two primary roles. First, it manages and repurposes suitable state-owned lands for redevelopment. Second, the LDA leads strategic land acquisition efforts by working with public bodies and private landowners to assemble sites for housing. Its role is to acquire and manage land in a way that reduces speculative pressures, thereby helping to stabilize land prices and support the delivery of affordable housing. In doing so, the LDA operates as a land value capture mechanism in the Irish context, ensuring that publicly assembled land can be used for long-term housing supply rather than short-term profit-taking (Land Development Agency, n.d.). The LDA is authorized to borrow up to €1.25 billion on the financial markets under the LDA Act, including bonds, debentures, or other securities; however, this is subject to approval by the Ministry (Irish Statute Book, 2021). The LDA can also finance its commercial activity through €2.5 billion of equity capital, distributed from the Ireland Strategic Investment Fund (ISIF) (Oireachtas, 2024).

The agency has the financial capacity to support housing growth across all regions while maintaining affordability. As part of this effort, the LDA has launched an initiative committing €2 billion to partner with selected developers, chosen through competitive processes, to deliver 5,000 new homes by 2028 (Loonam, 2024). These arrangements involve the LDA providing financial support and access to assembled land, ensuring that housing can be delivered at more affordable levels while limiting speculative costs (Loonam, 2024).

# Land Supply and Regulatory Environment

The Housing for All plan, introduced in 2021, is Ireland's comprehensive strategy to tackle the housing shortage by increasing new builds and renovating vacant homes (Government of Ireland, 2021; Egan & Bergin, 2023). Its goals include promoting affordable housing, reducing homelessness, and supporting sustainable development across regions. The plan promotes collaboration among government bodies, developers, and communities to ensure housing growth meets local needs. The Housing for All plan examines all aspects of housing construction. The plan addresses not only the final price of homes but also the underlying input costs, such as labour and construction efficiency. Key actions include increasing the residential construction workforce, enhancing productivity, streamlining procurement and planning processes, and revitalizing vacant or derelict homes (Government of Ireland, 2021).

Egan & Bergin (2023) argue that there is a significant shortage of housing relative to demand, which has led to house prices and rents rising faster than incomes, creating both economic and social challenges. Their findings suggest that targeted spending on housing, such as the Housing for All plan, is more effective at increasing housing supply and keeping prices in check than broader, non-targeted economic stimulus. In short, targeted investment in housing is better suited to meeting affordability and supply goals. Project Tosaigh is an LDA initiative, a key element of the Housing for All strategy, designed to accelerate housing supply by addressing early-stage issues such as land availability and slow planning processes. It focuses on unlocking public lands and improving coordination between public agencies and private developers. This helps to reduce delays in starting housing projects and aims to increase construction rates across different regions. The policy aims to strike a balance between growth in urban and rural areas while managing affordability pressures.

Planning and permitting processes have been an issue in Ireland. Since the 1980s, the planning system in Ireland has undergone a shift towards a market-driven, deregulated, and privatized approach, characterized by reduced democratic accountability and a diminished focus on housing as a public good (e.g., Lennon & Waldron, 2019; Yang et al., 2024). As a result, local and national authorities have begun to introduce policies that positively influence planning systems and impact housing supply.

Recently, the Irish Parliament approved revisions to the National Planning Framework (NPF) (Government of Ireland, 2025b). The revised NPF will serve as the foundation for updating regional spatial strategies and local authority

development plans. These updates will incorporate revised housing targets, projected employment growth, and allocations for renewable energy capacity. A key aspect of this process will be the zoning of land for residential, employment, and other strategic uses to support sustainable development (Government of Ireland, 2025b). Given the need to increase the national mandate of housing supply to meet targets, it is a priority to ensure that current local authority development plans are updated promptly. To facilitate this, the Government intends to issue further policy guidance to local authorities, instructing them to incorporate updated data into their local planning decisions, ensuring alignment between the National Planning Framework, regional strategies, and local development plans. Additionally, in October 2024, Ireland introduced the Planning and Development Act to improve and streamline procedures (Oireachtas, 2024). The act also introduces mandatory timelines for planning decisions and appeals, incorporates new procedures for public participation, governance restructuring, and modernizes the judicial review processes (Lavelle Partners LLP, 2025).

# Construction Productivity and Technology

Ireland is facing a challenge in innovation and productivity in the construction sector (KPMG Ireland, 2020). Despite being the lowest in productivity among other countries, maintaining standards and innovating using new ideas and technologies is crucial for boosting productivity and achieving better results (Government of Ireland, 2022b). Within the industry, reports have suggested that there is limited knowledge and experience with working on innovative construction methods (modern methods of construction), and there continue to be calls for innovation within the industry (McCrum & Wang, 2024).

McCrum & Wang (2024) conduct an in-depth examination of the broader acceptance of the Modern Methods of Construction (MMC) industry in Ireland. They identify common barriers to implementing MMC in everyday practice, including a lack of industry knowledge, difficulties in transitioning from traditional construction, and a lack of a pipeline for MMC.

As part of the Housing for All plan, a partnership has been established with various agencies to support domestic residential construction through the lens of innovation and productivity. One such avenue under this plan is Construct Innovate (Construct Innovate, n.d.). Construct Innovate is a technology centre hosted by the University of Galway in partnership with other universities and industry collaborators. It is staffed by highly qualified researchers specializing in digital adoption, modern construction methods, sustainability, and related fields. The centre's work is structured around five key pillars: productivity, affordability and cost, quality and safety, sustainability, skills and training, and collaboration (Government of Ireland, 2022b). Its primary objective is to foster a collaborative environment between academia and the construction industry, with a focus on driving innovation in housing initially. With over 300 researchers, the institute has collaborated with many industry partners on innovative projects worth over €300 million from 2017 to 2022 (Construct Innovate, n.d.).

The Department of Enterprise, Trade and Employment, in collaboration with the Department of Housing, Local Government and Heritage, has developed a roadmap to promote the adoption of MMC in public housing delivery (Government of Ireland, 2022b). Key initiatives outlined in the roadmap include: expanding the use of a design-and-build procurement approach as a first step toward wider MMC adoption in social and affordable housing; accelerating the standardization of residential construction design; launching a pilot project to deliver affordable housing using MMC; and increasing engagement with Enterprise Ireland's Built to Innovate programme across the MMC construction sector (Government of Ireland, 2023). A key measure from this will be to deliver over 1,500 new social homes, with construction expected to start during 2023 and 2024, utilizing various MMC building systems.

In addition to the roadmap to promote MMC, the Department of Further and Higher Education, Research, Innovation and Science has outlined an MMC action plan that includes 58 actions to accelerate skills development, drive innovation, and support the transition to more efficient and sustainable construction (Ernst & Young, 2025). The recommendations outlined in the action plan can be categorized into eight distinct themes: Senior Management Training, Information Sharing, New Roles & Labour Retention, Use of Digital Tools, Certification, Early Learning Engagement, Policy Levers, and Training Provisions (Ernst & Young, 2025). The plan aims to accelerate housing construction through off-site manufacturing, digital innovation, and sustainable design. The plan also promotes

volumetric modules, panelized systems, pods, and 3D printing. These recommendations present an opportunity to support a collaborative and innovative learning environment that encourages new entrants into the sector while also supporting the upskilling and retraining of the existing workforce.

Although there are fewer than 15 Category 1 manufacturers, those specializing in pre-manufactured 3D primary structural systems (volumetric), operating in Ireland (McCrum & Wang, 2024), significant progress has been made in bridging the gap between traditional and innovative construction methods since the early 2020s.

A recent achievement was the completion of Ireland's first residential housing development using 3D construction technology in 2024 by Louth County Council in Dundalk (Louth County Council, 2025). The project, which employed Additive Construction Technology in partnership with the city council and six other firms, reduced construction timelines by over 35 percent. Through the automation of concrete laying using advanced COBOD International 3D printers and Roadstone Ready-Mix Concrete, the project achieved a timeline reduction of approximately 60 percent. O'Connor (2025) points out that MMC can reduce construction timelines by 20 to 60 percent and decrease costs by up to 14%, particularly when combined with other techniques.

This efficiency provides evidence in favour of the potential of 3D concrete printing as a viable solution for affordable housing, where rapid construction is crucial to meet the growing demand in Ireland (Louth County Council, 2025). Adopting MMC will effectively position Ireland to meet its Housing for All targets, delivering high-quality, sustainable, and innovative housing solutions.

# Enabling Infrastructure

The Government of Ireland emphasizes the importance of investing in infrastructure alongside housing development to optimize existing buildings and support new construction. In Ireland, water infrastructure is a key enabling factor for housing delivery and the revitalization of town centres (e.g., Bucklet et al., 2025). A lack of sufficient water and wastewater treatment infrastructure poses one of the most significant barriers to increasing the new supply of housing (Fitzpatrick, 2021).

Policies such as the National Development Plan (NDP) have allocated targeted funding for transport, utilities, and community services to be coordinated with housing projects, ensuring balanced and sustainable growth (Department of Public Expenditure and Reform, 2021). NDP prioritizes investment in areas where housing growth is expected, ensuring that key infrastructure is delivered to unlock land for development. The plan will allocate €165 billion over the period 2021-2030 to support economic, social, environmental, and cultural development across all parts of the country under Project Ireland 2040[6], of which €20 billion will be spent on critical infrastructure (Department of Public Expenditure and Reform, 2021).

Another initiative, the Urban Regeneration and Development Fund (URDF), is a key element of Project Ireland 2040, designed to promote more compact and sustainable development in Ireland's five cities and key regional towns (Government of Ireland, 2020). With an initial €2 billion allocation (extended to 2030 under the revised NDP), the fund supports approximately 132 projects and nearly 400 sub-projects across the country, focusing on regeneration and mixed-use development within existing urban areas. The URDF has been implemented through multiple funding rounds. Round 1, launched in 2018, was competitive and led by the public sector. Round 2, introduced in 2020, focused on supporting compact growth and was also based on competitive bidding. Round 3, which is currently ongoing, prioritizes tackling long-term vacancy and dereliction (Government of Ireland, 2020).

The Water Services Strategic Plan (WSSP) outlines a long-term strategy for delivering water services over a 25-year horizon (Irish Water, 2025). It addresses both current and emerging challenges in the provision of water and wastewater services, identifying priorities for investment and reform. The plan is aligned with key urban planning

[6] Project Ireland 2040 is the integration of the National Development Plan (NDP) and the National Planning Framework (NPF). These two initiatives work together: the NPF sets out the long-term vision and spatial strategy for Ireland's development to 2040, while the NDP provides the investment needed to implement that strategy.

and regional strategies, including the National Spatial Strategy and River Basin Management Plans, ensuring integrated and sustainable infrastructure planning. The WSSP sets the context for more detailed implementation plans, which guide actions in areas such as water resource management and wastewater compliance treatment. The WSSP will employ a risk-based approach to prioritize infrastructure upgrades, focusing on assets that may soon limit growth, particularly in housing. This strategy also reflects national policy priorities, such as the Minister's directive to address infrastructure constraints that hinder housing delivery in urban areas (Irish Water, 2025).

# Conclusion

Ireland's experience highlights that increasing housing supply requires a careful balance between financial investment, modern construction methods, infrastructure development, and regulatory frameworks (Egan & Bergin, 2023). Ireland's policy focus on retrofitting and reusing existing buildings demonstrates the potential of sustainable approaches to increase housing supply. The involvement of the LDA is important as it plays a key role in addressing Ireland's housing supply challenges by unlocking publicly owned land for residential development. By coordinating large-scale, affordable, and sustainable housing projects, the LDA supports long-term supply solutions and helps streamline delivery across local and national levels. MMC innovations are on the rise in Ireland, with significant partnerships with academic and industry institutions. The Construct Innovate Technology Centre and the MMC Action Plan will be crucial in driving residential productivity improvements and creating housing through innovative channels. These experiences offer valuable lessons for countries such as Canada, which face similar challenges. Canada does not have a direct equivalent to the LDA; instead, it has federal and provincial bodies that perform similar functions, including unlocking land, enabling housing supply, and coordinating public-sector assets for development. A unified body with a specific mandate for coordinating public land and promoting affordable housing, as the LDA does, is something that can benefit all stakeholders involved.

# Japan

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in Japan. Japan's housing sector has faced longstanding structural challenges, including durability, personalization, rapid urbanization, and labour shortages. The postwar housing boom led to the rapid construction of uniform homes, but these units often lacked longevity and flexibility (Barlow & Ozaki, 2005). In response to changing societal needs, two innovative policy directions have emerged: mass-customized housing, which allows consumer-led design within industrial frameworks, and prefabricated housing, which utilizes off-site factory production to increase efficiency and reduce time-to-market (Matsumura et al., 2004; Buntrock, 2017). These dual strategies reflect Japan's adaptation to demographic realities, including an aging population, a shrinking labour force, and the growth of smaller households (Westbrook & Williamson, 1993).

Mass customization demonstrates how digital co-design platforms and flexible architecture can empower residents and enhance long-term livability. Prefabrication, meanwhile, shows how industrial methods and public-private coordination can deliver scalable, disaster-resilient, and affordable housing (Matsumura et al., 2004; Steinhardt & Manley, 2016)[7]. Japan's shift toward mass customized and prefabricated housing was influenced not only by demographic changes but also by rising environmental concerns and national targets for zero-emission buildings, which promoted technological innovation in design and production (Ministry of Land, Infrastructure, Transport and Tourism (MLIT), 2021; Wuyts et al., 2019). These policy shifts were accelerated by Japan's vulnerability to natural disasters, particularly earthquakes, which spurred investment in high-performance construction systems. Prefabricated housing firms were among the first to adopt lifecycle-oriented housing policies, such as the "200-year house" initiative, which aligns construction with long-term sustainability (Matsumura et al., 2004; Minami, 2016).

## Financial Levers and Market Incentives

Japan's mass customized housing policy incentivizes innovation and consumer choice largely through private-sector leadership. Builders such as Sekisui House and Misawa Homes have developed vertically integrated production systems and modular toolkits that allow homeowners to co-design their residences while maintaining efficiency through system-built modules (Barlow & Ozaki, 2005). Although there is limited direct public funding for mass customization, indirect support is provided through national programs such as the Housing Performance Labelling System and the Long-Life Quality Housing (LLQH) initiative, which emphasize durability and sustainability. These frameworks promote housing longevity and energy efficiency, aligning with broader environmental goals while creating demand among middle-class families (Zhang, 2017).

Public institutions, such as the Japan Housing Finance Agency (JHF), support both mass-customized and prefabricated homes by linking finance to performance standards rather than construction method. Under Flat 35 (full-term fixed-rate) and Flat 35S (a temporary rate-reduction add-on), homes that meet criteria such as LLQH durability/maintenance planning, energy efficiency (including ZEH), and seismic resilience receive preferential fixed rates for a defined initial period; the exact reduction and duration are set by scheme and by year (Japan Housing Finance Agency, 2025). Due to the adverse impact of interest rate increases on the housing market, the JHF has implemented programs to ensure that potential borrowers can find loans and financing options in any fiscal environment (Japan Housing Finance Agency, 2024). For example, under its Flat 35 and Flat 50 loan systems, the Japan Housing Finance Agency supports the acquisition of quality homes by providing long-term, fixed-rate loans that enable borrowers to anticipate future payments over periods of 35 or 50 years (Japan Housing Finance Agency,

[7] While both housing types can incorporate prefabrication, the degree of customization directly influences infrastructure requirements: the more variation from standard module configurations, the greater the need for site-specific utility adjustments.

2024). The Flat 35 program offers interest rate reductions of 1% based on the number of children in the borrower's family, a recent change in their financial policy aimed at addressing Japan's declining birthrate issue (Japan Housing Finance Agency, 2024). Additionally, under the Flat 35 and 35 S programs, borrowers are eligible to receive lower financing rates for a portion of the loan amount when purchasing housing that is ZEH (Net Zero Energy House).

Prefabricated housing in Japan enjoys more comprehensive financial backing from public institutions and is closely aligned with national economic and environmental goals (Nozawa & Komiyama, 2021). Since the 1960s, the Japanese government has supported prefabricated housing through policies such as the Basic Housing Plan and the Housing Construction Industry Promotion Act, offering subsidies for long-life, energy-efficient homes built using industrial methods (Eastin & Rahikainen, 1997; Matsumura et al., 2004). Builders such as Daiwa House and Sekisui Heim benefit from low-interest loans provided by the Japan Housing Finance Agency, which helps them scale up factory production and reduce per-unit costs (Gann et al., 1998). These financing packages often fall under the Flat 35 and Flat 50 schemes, offering fixed interest rates below prevailing commercial mortgage rates and repayment periods aligned with the extended service life of certified Long-Life Quality Housing units. By reducing annual debt-servicing burdens and ensuring predictable financing costs, these loans enable manufacturers to invest in expanding and modernizing factory lines, integrating advanced robotics, precision cutting systems, and energy-efficient production technologies. The prefabricated model has also been widely deployed in post-disaster reconstruction, where speed and cost efficiency are paramount. Prefabricated units often qualify for programs that reward sustainable development with energy-efficient appliances and solar integration (Yoshino & Helble, 2016). These homes reduce waste, improve material efficiency, and lower construction timelines by up to 50% compared to traditional builds (Matsumura et al., 2004).

Japan's financial approach to both housing types highlights the importance of aligning economic incentives with housing performance objectives. While mass customization benefits from design-driven satisfaction and longer occupancy cycles, prefabrication excels in cost control, standardization, and speed.

# Land Supply and Regulatory Environment

Japan's relevant land development planning regime is its national City Planning Act of 1968. The City Planning Act was passed in 1968, which governs regional and local development, transportation infrastructure, and both municipal and national projects (Ministry of Justice Japan, 2008). The core elements of Japan's City Planning Law define how urban and rural areas are managed and developed. Within the Urbanization Promotion Area (UPA), development is actively encouraged, public facilities are given priority, and a city planning tax is levied to fund projects. In contrast, the Urbanization Control Area (UCA) restricts most development, focuses on agricultural use, and does not impose a city planning tax. Land use zoning within the UPA is divided into twelve district types, from low-rise residential to industrial, and is relatively flexible compared to other countries, allowing some mixed-use arrangements. Public facilities planning encompasses essential infrastructure such as roads, parks, and sewerage systems. Large-scale, publicly led urban development projects, including land readjustment and redevelopment, are supported by legal powers of expropriation and replotting to ensure coordinated growth. Finally, the Land Development Permission System requires official approval for lot developments, with permissions granted more readily in the UPA and rarely in the UCA (Srinivas, n.d).

The flexibility in zoning regulations enables higher-density development without the need for excessive approvals or other bureaucratic hurdles. The primary requirement is adherence to the maximum floor area ratio specified for the area, ensuring that proposed plans align with established guidelines. This combination of flexibility and transparency encourages innovative approaches to space utilization, whether through mass-customized housing, prefabricated construction, or traditional building methods.

Developers have worked around regulatory hurdles by implementing pattern-based mass customization, which utilizes pre-approved modular designs that strike a balance between individuality and regulatory compliance. Misawa Homes and similar firms have collaborated with municipalities to introduce zone-compliant customization schemes, allowing residents limited design choices within an approved framework (Barlow & Ozaki, 2003). These

hybrid models create regulatory certainty while offering personal expression but still lack the full potential of freeform customization.

Japan's mass customized housing sector faces significant regulatory friction due to rigid zoning laws, fragmented land ownership, and conservative planning norms. Local authorities often resist non-standard housing styles, preferring visual uniformity, which limits opportunities for bespoke architectural solutions (Barlow & Ozaki, 2005; Buntrock, 2017). Custom homebuilders often face challenges in obtaining permits when proposing site-specific designs that deviate from conventional setbacks or façade patterns, particularly in older neighbourhoods where preservationist concerns prevail. This restricts mass customization to developer-led subdivisions and peri-urban zones, where zoning pre-approvals and lot standardization allow some design flexibility (Groves, 2016).

Prefabricated housing benefits from greater regulatory alignment with Japan's national building framework. The Building Standards Act (Ministry of Justice Japan, 2020) and the regulatory code updates following the Kobe Earthquake of 1995 helped standardize compliance for factory-built homes, reducing bureaucratic barriers (Eastin & Rahikainen, 1997). Prefabricated units are manufactured to meet national codes for fire safety, structural integrity, and thermal insulation, allowing faster permitting and inspection processes.

Prefabricated homes are often deployed more easily in suburban infill sites or designated redevelopment zones, where land parcels are larger, zoning rules are less prescriptive, and municipal authorities are more open to modular construction as part of local growth or revitalization strategies. In contrast, dense urban cores in Japan present greater challenges due to a combination of high land prices, extreme parcel fragmentation, and stringent zoning codes that prioritize commercial or mixed-use high-rise development over low- to mid-rise residential formats typical of prefabricated housing (Börsch-Supan, Heiss, & Seko, 2001). Height restrictions, floor-area ratio (FAR) requirements, and heritage preservation rules can limit the feasibility of modular assembly, while narrow road access and limited staging areas complicate the logistics of transporting and craning large prefab components into place. These constraints not only raise project costs but also lengthen approval timelines, reducing the economic viability of deploying prefabricated housing in such areas. Similar challenges could be anticipated in Canadian metropolitan centres, particularly in downtown cores of cities like Toronto or Vancouver, where high-value land is zoned for dense, mixed-use towers, heritage overlays restrict redevelopment, and construction staging space is scarce. Without targeted zoning overlays, land assembly incentives, or logistical accommodations, prefabricated housing in both contexts is more likely to flourish in peri-urban areas, suburban redevelopment sites, or post-disaster reconstruction zones where regulatory and spatial constraints are less prohibitive.

Additionally, land access for prefab deployment remains constrained by Japan's land market structure, where high fragmentation and speculative pricing hinder large-scale modular development in city centers (Börsch-Supan, Heiss, & Seko, 2001). Most prefabricated housing is therefore concentrated in peri-urban or post-disaster contexts, where land costs are lower and municipal governments are more flexible (Yoshino & Helble, 2016). Special economic zones and disaster recovery areas have proven crucial for enabling experimental or rapid housing solutions that bypass conventional planning bottlenecks (Matsumura et al., 2004).

Akiya Utilization Promotion Areas are a key element of Japan's revised Akiya Law, which aims to revitalize vacant and abandoned homes, particularly in rural or shrinking communities (Lane, 2025). These zones allow local governments to ease specific zoning and building regulations, such as road access and mixed-use restrictions, to facilitate the renovation and reuse of akiya properties that would otherwise remain idle. Designation is typically based on factors like high vacancies and population decline. By lowering legal and bureaucratic barriers, these zones make it more feasible for individuals, businesses, or nonprofit organizations to invest in underused housing stock (e.g., Eaves Japan Magazine, 2023). The policy prioritizes efficient reuse of existing structures over new development, helping to address issues of excess housing supply. However, implementation is often complicated by fragmented property ownership and inadequate infrastructure. To address this, the government supports infrastructure improvements to make these areas more viable for habitation and investment. Overall, the initiative aims to break the cycle of vacancies and decline, promote regional equity in housing opportunities, and offer a flexible, locally driven model for land-use reform.

Mass customization enables greater personal expression in housing design; however, its scalability is limited by existing zoning and building codes. In contrast, prefabricated housing benefits from compliance with national standards, enabling quicker and wider market adoption. Japan's experience highlights the importance of flexible zoning, streamlined approval processes, and adaptive land-use planning in supporting innovative housing solutions. For Canada, introducing zoning overlays that support prefabrication or digitizing design review processes for mass-customized homes could help strike a balance between regulatory control and design flexibility.

# Construction Productivity and Technology

Japan's mass-customized housing sector has seen gains in productivity using digital tools, such as Building Information Modelling (BIM), parametric design, and constraint-based customization platforms (Barlow & Ozaki, 2005; Buntrock, 2017). Companies like Sekisui House and Misawa Homes have developed online co-design systems that guide homeowners through structured choice architectures. These platforms allow customers to select from thousands of pre-approved modules, finishes, and layouts, each engineered to comply with Japan's stringent seismic, energy-efficiency, and durability standards. By embedding rule-based design constraints within digital configurators, firms ensure that all chosen elements can be produced using standardized system-built components, enabling a high degree of personalization without sacrificing production efficiency. This model is reinforced by vertically integrated supply chains, where design, manufacturing, and logistics are coordinated under a single corporate framework.

While mass customization uses digital integration for design efficiency, its reliance on field construction limits scalability and speed (Bianconi et al., 2019). The traditional "super-subcontractor" system in Japan helps manage construction quality, but it requires high coordination and trust among builders, subcontractors, and suppliers, thereby increasing transaction complexity. The learning curve for BIM among contractors and residents, as well as the limited penetration of innovative construction tools at the job site, also hinders the full realization of productivity potential.

By contrast, prefabricated housing in Japan leverages industrialized, factory-based production systems to achieve significantly higher productivity. Major players, such as Daiwa House, Sekisui Heim, and Toyota Home, utilize robotic assembly lines, CNC machining, and just-in-time manufacturing to produce volumetric modules or large panels with exceptional speed and precision (Eastin & Rahikainen, 1997). Most units move from design approval to on-site installation within 60 to 90 days (Matsumura et al., 2004). The industrial approach shifts up to 80-90% of the work off-site, mitigating weather delays, labour shortages, and logistical inefficiencies. Standardized modules pre-fitted with electrical, plumbing, insulation, and finishing arrive ready for rapid on-site assembly, cutting total construction timelines by as much as 50% compared to traditional builds.

Prefabricated units are also engineered to meet or exceed regulatory and environmental standards, which are especially important in Japan's earthquake-prone environment. Prefabricated manufacturers incorporate advanced features, such as energy-efficient insulation, steel-reinforced frames, and smart home components, during the factory stage, thereby minimizing the need for on-site customization. These advances make prefabrication not only a faster option, but also a higher-performance one (Kobayashi, 2016).

The prefabrication model supports continuous technological innovation and adaptability. Japan's private firms have developed flexible, upgradable systems that allow homes to evolve with technological progress. For example, Sekisui Heim's "smart-ready" homes integrate solar panels, energy storage, and IoT appliances from the outset (Matsumura et al., 2004; Tateyama, 2017). These features contribute not only to construction efficiency but also to post-occupancy energy savings and resilience.

MLIT's Long-Life Quality Housing (LLQH) framework sets national performance benchmarks for durability, maintainability, and environmental sustainability, incentivizing builders to design homes with lifespans exceeding 100 years. Prefabricated housing manufacturers that meet these standards gain access to expedited approvals, tax incentives, and preferential financing programs through the Japan Housing Finance Agency. By coupling R&D investment with performance-based policy targets, MLIT creates a feedback loop where technological advances in

factory-built housing directly support national objectives for low-carbon, disaster-resilient, and adaptable housing stock. This integrated approach ensures that innovations developed in research programs are not confined to laboratories but are actively embedded in market-ready housing products across Japan.

Prefabrication leverages off-site automation to deliver consistent, rapid, and high-quality results. Japan's leadership in this area highlights the importance of coordinated industrial processes, standardized modules, and robust partnerships between builders and governments.

# Enabling Infrastructure

In mass customized housing, infrastructure provisioning presents notable challenges due to the individualized nature of each unit. Since customized homes vary in floor plans, layout orientation, and footprint, connecting to utilities such as electricity, water, and sewage often requires dynamic designs and coordination. Developers must frequently engage with local authorities to adjust infrastructure plans, particularly in greenfield or peri-urban areas, where modular infrastructure is not the norm. This complexity increases construction timelines and costs compared to more standardized developments. In suburban subdivisions, however, some builders mitigate these issues by designing pre-approved customizable home types that align with uniform infrastructure grids (Groves, 2016).

Infrastructure challenges in mass customization also stem from mismatches between consumer preferences and municipal utility planning, particularly when modular off-grid features (e.g., private solar-battery units) are proposed but lack standardized interconnection protocols. Developers have resolved this by pre-certifying homes with utility companies before delivery, ensuring seamless integration upon installation.

Japan's land fragmentation and conservative planning culture also complicate the delivery of infrastructure for mass-customized housing. The decentralized land ownership system makes it challenging to coordinate infrastructure investment across multiple properties, particularly when aesthetic codes or utility alignments deviate from standardized expectations (Barlow & Ozaki, 2005). Mass customization often faces opposition from neighbourhood associations due to perceived disruptions in streetscape uniformity or increased traffic loads (Stevens & Noguchi, 2019). These factors constrain the rollout of consumer-driven housing unless municipalities adopt planning tools to support design variation and flexible infrastructure configurations.

By contrast, prefabricated housing excels in enabling infrastructure integration due to its standardized and modular nature. Prefab units are built with pre-installed mechanical, electrical, and plumbing systems in factory settings, allowing for a "plug-and-play" connection upon arrival at the site (Matsumura et al., 2004). This drastically reduces the need for on-site labour and minimizes the risk of delays caused by utility misalignment. Moreover, prefab homes often comply with universal infrastructure specifications, making them easier to deploy quickly in both urban infill and post-disaster scenarios. Japan's use of prefabricated units in the aftermath of the 2011 Great East Japan Earthquake demonstrated how fast deployment could be achieved without sacrificing livability or energy efficiency (Yoshino & Helble, 2016; Matsumura et al., 2019).

Japan's prefabricated housing industry also aligns closely with smart infrastructure goals, thanks to integrated energy and environmental systems. Prefab units are increasingly equipped with renewable energy systems, such as solar panels and battery storage, as well as digital management platforms that monitor energy usage, HVAC performance, and security. These technologies reduce the long-term strain on public infrastructure and align with national sustainability targets. Builders like Sekisui Heim offer homes with zero-energy configurations and remote monitoring, enabling municipalities to plan more resilient neighbourhoods that reduce grid dependency. In remote areas or regions with limited infrastructure, prefab housing enables semi-autonomous operation, which is especially valuable in Canada's Indigenous or off-grid communities.

Prefab builders address this by pre-certifying mechanical and utility systems with local providers before units are delivered, ensuring plug-and-play compatibility. Increasingly, these homes are integrated with smart district-level infrastructure, enabling shared solar microgrids, load balancing, and energy monitoring platforms (Technological Developments of Japanese Prefab Housing, 2023).

# Conclusion

Mass customized housing emphasizes consumer participation and long-term adaptability, enabling homeowners to design living spaces that align with their evolving life needs (Barlow & Ozaki, 2005; Buntrock, 2017). While this model promotes satisfaction and efficient land use, it faces cost and regulatory constraints that limit scalability. The lack of standardized infrastructure and zoning flexibility remains a barrier, despite growing demand for housing that reflects diverse family structures and aging populations. Prefabricated housing focuses on productivity, speed, and resilience. Its success stems from Japan's coordinated efforts between the private sector, government institutions, and financing agencies such as the Japan Housing Finance Agency (Matsumura et al., 2004). Prefabricated units reduce construction time and cost while maintaining high performance standards in terms of energy efficiency and environmental resilience (Eastin & Rahikainen, 1997). Their plug-and-play infrastructure integration and factory-based assembly are particularly effective in post-disaster response and rural deployments, providing an agile model for emergency and climate-resilient housing (Yoshino & Helble, 2016).

The lessons for Canada are both structural and strategic. From mass customization, Canada can draw on the value of co-design platforms and demand-responsive housing production, particularly in urban regions with high household diversity. However, without municipal planning reforms and targeted affordability measures, mass customization may remain a premium solution (Barlow & Ozaki, 2003). Regulatory adjustments to support modular zoning codes, pre-approved design templates, and integrated infrastructure planning could help realize the full potential of customized homes in suburban and infill developments (Groves, 2016). Japan's combination of consumer-centric customization and industrial-scale prefab provides a dual pathway for reform. The coordinated use of financial instruments, planning tools, and factory-enabled building science offers a roadmap for balancing affordability, sustainability, and demographic alignment (Yoshino & Helble, 2016).

# New Zealand

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in New Zealand. Housing affordability has long been a challenge for both central and local governments in New Zealand (Murphy, 2016). Over the past two decades, the country has experienced one of the fastest increases in housing prices among OECD nations (New Zealand Infrastructure Commission, 2022). In response, various policies aimed at boosting housing supply have been introduced, with a growing emphasis on aligning infrastructure provision with urban planning.

## Financial Levers and Market Incentives

New Zealand has faced significant housing supply shortages, particularly in major urban areas such as Auckland, resulting in high housing costs. To encourage private investors and builders to increase the market housing supply (both rental and ownership), the government has implemented successful financing measures to ensure the growth of new housing. A review of the literature reveals that New Zealand has housing-related tax incentives, grants, and policy frameworks that encourage private investment in the market housing sector.

Barker (2019) notes that to support housing growth in New Zealand, innovative financing mechanisms are needed to ensure funding is accessible and aligned with local development needs. The Ministry of Housing and Urban Development introduced the Infrastructure Funding and Financing Act in 2020 with the goal of funding and financing infrastructure projects that support housing and urban development (Government of New Zealand, 2020).

The role of councils in New Zealand is to deliver essential infrastructure, including water and roads. However, they have a maximum level of debt that they are allowed to take on, which impacts borrowing constraints and postpones investments needed for viable projects (Te Tūāpapa Kura Kāinga, 2025). The primary mechanism in this act is the application of a Special Purpose Vehicle (SPV). The SPV is created for each project to raise *private* capital to fund the infrastructure and collect a long-term levy (up to a maximum of 50 years) from those who benefit from the infrastructure. The SPV keeps the project's debt off the council's balance sheet, so councils are not financially liable if the project fails.

The levy is transferred to new property owners if the property is sold and remains in effect until the project is paid off. Its amount and distribution are determined by the government based on factors such as land value, size, and usage, ensuring beneficiaries are aware of their approximate contribution in advance (National Infrastructure, 2024; Te Tūāpapa Kura Kāinga, 2025). The capital raised is paid back over time through levies, such as mortgage payments.

The SPV mechanism used in New Zealand offers a model that can be adopted in other parts of the world. It enables alternative financing arrangements for urban development, helping to unlock growth potential without placing the full financial risk on governments (Figure 4). By shifting some of the risk to the SPV and funding projects through levies on property owners, governments can still attract capital for long-term infrastructure projects that benefit the broader community.

Another significant land use policy introduced around the same time was the National Policy Statement on Urban Development (NPS-UD), first implemented in 2020 and later amended in 2022 (Ministry for the Environment, 2022). The policy is administered by the Ministry for the Environment, with support from the Ministry of Housing and Urban Development. Its primary objective is to remove restrictive zoning rules and better plan for future urban growth. Key provisions of the NPS-UD include requiring councils to allow greater building heights and densities in areas with high housing demand, eliminating minimum parking requirements, and incorporating considerations of climate change and housing affordability. An important provision of the policy is the requirement for regular monitoring of city councils and their progress. Every three years, councils must prepare a Housing and Business Development Capacity Assessment, which provides data on housing supply and demand to inform future urban

development decisions. Additionally, every six years, local authorities are required to produce a Future Development Strategy, which is a strategic document outlining long-term planning objectives and the approaches to achieve them. This strategy encompasses housing, business development, infrastructure planning, and resource management decision-making (Ministry for the Environment, 2022; Environment Foundation, 2025).

Additionally, in 2021, the Labour government introduced an Interest Deductibility Policy aimed at reducing property speculation and improving housing affordability. The policy eliminated mortgage interest deductibility for property investors, effectively increasing their taxable profits and reducing after-tax returns (Moneyhub, 2024). This was intended to make property investment less attractive, thereby decreasing investor demand for existing homes and giving first-time buyers a better opportunity to enter the market. However, exemptions were made for new buildings and social housing to encourage continued investment in new housing supply.

The National-led government reversed the interest deductibility policy in 2024, allowing property investors to deduct mortgage interest from their taxable income once again. (New Zealand Treasury, 2024). The policy reversal is seen as a move to restore investor confidence by enhancing the profitability of property investments, lowering tax burdens, and potentially stimulating housing market activity (Nicol & McKnight, 2024; MoneyHub, 2024). The policy change, a more supply-friendly policy, was designed to incentivize new housing supply rather than reduce investment attractiveness.

Despite the two sets of policy changes aimed at addressing the New Zealand housing crisis, important lessons can be drawn. Effectively addressing housing affordability requires not only managing demand but also actively promoting the supply of housing. The 2021 policy interest deductibility aims to make property investment less profitable, thereby dampening speculative demand. However, this had minimal impact on boosting the housing stock (e.g., MoneyHub, 2024).

In contrast, the 2024 policy restored interest deductibility changes, improving investor cash flow and re-engaging private capital with the housing market. While this benefits landlords broadly, it also encourages the development of new rental housing by investing in supply-side solutions that are more financially viable. The narrative should, therefore, shift from solely suppressing demand to fostering conditions that support long-term, sustainable increases in housing supply.

The path to homeownership in New Zealand has long been supported by various government initiatives aimed at assisting first-time buyers and lower-income families. Over the years, innovative financing models have enabled many families to realize the opportunity of purchasing their own homes. One such initiative is the Tenant Home Ownership Programme, which allowed Kāinga Ora tenants (those living in public or social housing) to purchase the homes they were renting. However, this opportunity was generally limited to properties located outside high-demand urban centers such as Auckland, Wellington City, Hamilton, Christchurch, and Tauranga. Under this scheme, eligible tenants could receive a grant of up to 10 percent of the home's purchase price, with a maximum of $20,000 (Kāinga Ora, 2024). Despite the program's relatively narrow geographic scope and modest uptake, a total of 408 grants had been approved since 2012 (Kāinga Ora, 2025). This suggests that while impactful for some, the program's influence has remained limited.

Additionally, the New Zealand government provided further support through the First Home Loans program, previously known as the Welcome Home Loans scheme. This initiative aimed to reduce the barriers to entry for first-time buyers by lowering down payment requirements. Unlike traditional lenders that typically required a 10 to 20 percent down payment, the First Home Loans program allowed eligible applicants to purchase a home with as little as a 5 percent deposit (Kāinga Ora, 2025). These loans were made available through selected banks and credit unions, with Kāinga Ora underwriting the risk on behalf of the lender. This model provided a practical pathway for many who might otherwise struggle to meet conventional lending criteria. In 2024 alone, more than 5,500 First Home Loan applications were approved (Kāinga Ora, 2025). However, despite its success in facilitating homeownership, the First Home Loans program was discontinued in the latter half of 2024. The termination was attributed to a combination of factors, including funding constraints, shifts in housing policy priorities, and changing market dynamics (Canterbury Legal, 2024).

One important lens through which to examine housing supply policy changes in New Zealand is the impact of construction costs. These costs are not only driven by materials and labour but are also significantly influenced by the time it takes to complete a building. According to construction data from Stats NZ (2024), it takes an average of 569 days to complete a residential dwelling in New Zealand. Extended construction timelines can significantly increase overall building costs. Delays often stem from a combination of factors, including workforce shortages, lengthy consent and compliance processes, supply chain disruptions, and complex planning regulations.

In response to these challenges, the Coalition Government announced in 2024 a series of reforms to the 2004 Building Act aimed at reducing construction costs and streamlining the regulatory environment. These changes include the removal of barriers to using international building materials, the exemption of small building projects under $65,000 (including GST) from paying the building levy, the introduction of mandated timeframes for permit approvals, and a review of legislation related to natural disaster resilience (Penk, 2024a; 2024b). The intention behind these reforms is to lower building costs and simplify the building consent process, particularly for smaller-scale projects such as home renovations and additions. These measures also aim to encourage quicker project delivery and more cost-effective building practices. However, as these reforms have only recently been announced, their long-term impact on New Zealand's housing market remains to be seen.

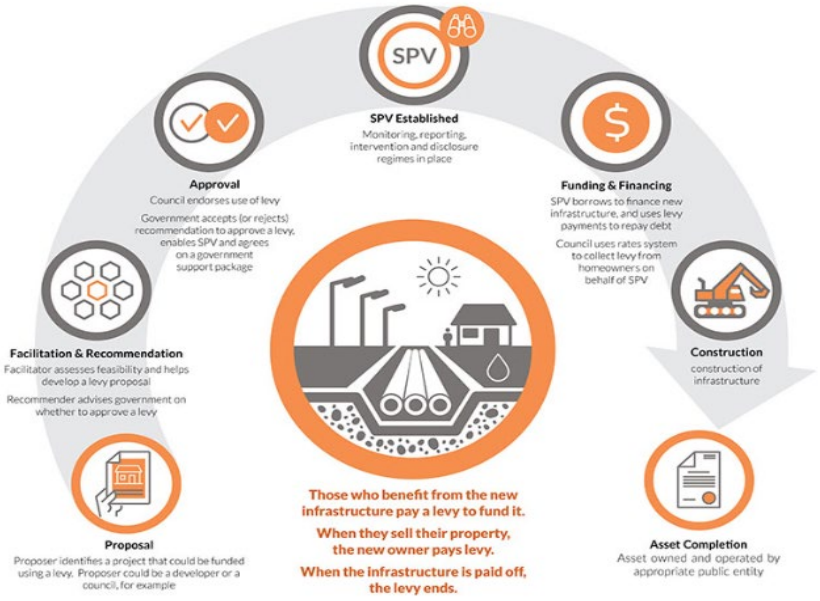



Figure 4: Special Purpose Vehicle (SPV) Steps: Figure retrieved from National Infrastructure (2024).

# Land Supply and Regulatory Environment

Over the past decade, New Zealand has introduced a range of policy initiatives aimed at increasing the supply of new housing. These measures have included efforts to reduce construction costs, promote higher-density development, and reform financing policies that previously limited access to homeownership. However, gaining approval for new housing developments has become increasingly difficult due to the growing complexity of zoning regulations. The New Zealand Infrastructure Commission (2022) conducted a historical analysis of zoning changes from 1960 to 1990 and found that the number of zoning categories increased significantly, making it harder for

homebuilders to construct similar types of homes across different areas. Figure 5 displays the complexity[8] of zoning schemes over time for the Auckland City Council.

In response to restrictive planning rules that historically constrained urban growth, policymakers introduced medium-density and inclusionary-like zoning policies designed to enable the construction of more affordable housing options within urban areas. These zoning changes were intended to facilitate the development of townhouses, apartments, and other multi-unit dwellings, especially in areas close to transport and employment hubs.

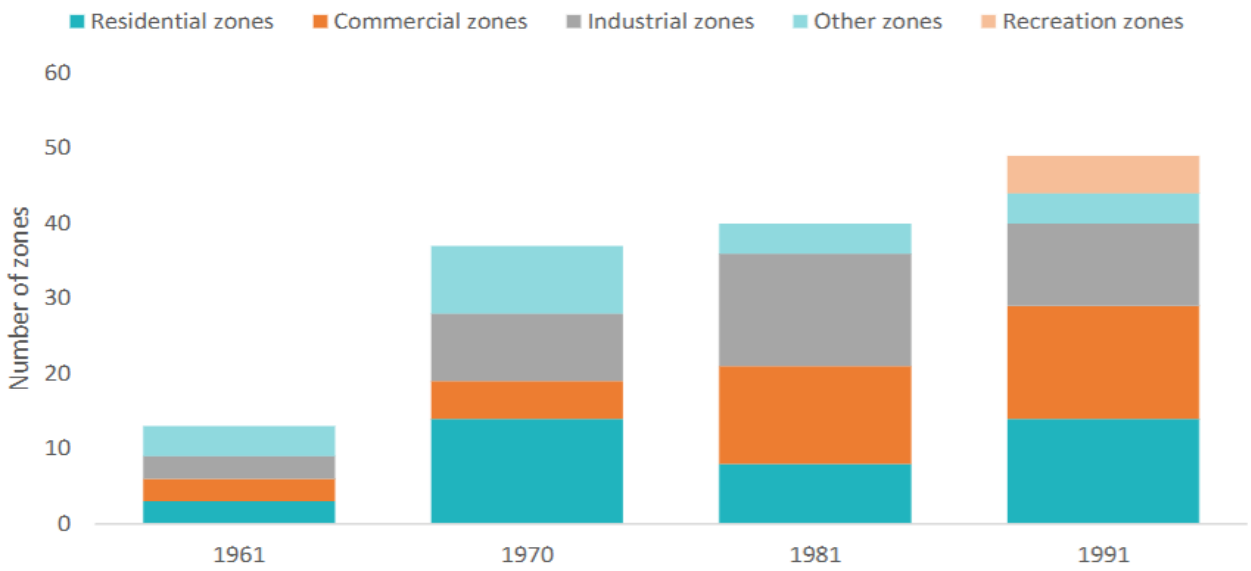



Figure 5: Changing complexity of Auckland City Council's zoning schemes over time [Source: The New Zealand Infrastructure Commission (2022)]

In 2013, the Special Housing Areas (SHA) Voluntary Inclusionary Programme was introduced in Auckland, requiring that any development with more than 14 dwellings allocate at least 10 percent of the housing stock to affordable housing (Government of New Zealand, 2013; Ortiz-Villavicencio et al., 2025). To designate an area as an SHA, developers would apply to the Auckland Council, which would then assess the proposal before referring it to central government for final approval. McArthur (2017) noted that this collaborative initiative was much needed between local and central government to stimulate housing supply in New Zealand. Within a year of the program's launch, a total of 80 development sites were announced in Auckland, expected to create 43,000 dwellings, with a portion of the units designated as affordable (Murphy, 2016).

Although the policy was designed to increase the number of affordable housing units, many studies have found that these SHAs, in fact, exacerbated the housing affordability issue in large cities in New Zealand. In a difference-in-differences analysis, Fernandez et al. (2021) utilized a comprehensive dataset of over 170,000 sales transactions from 2011 to 2016. They found that the implementation of SHAs was associated with an average price increase of 5.6%. In a similar study, Ortiz-Villavicencio et al. (2025) found similar results, where the program increased prices but reduced the price per square metre.

Following the dismantling of the policy in 2016, Fernandez et al. (2021) examined the factors that may have contributed to these unintended outcomes. They argue that the SHA policy in New Zealand was significantly weakened by a combination of weak incentives, regulatory uncertainty, and the voluntary nature of its affordable housing provisions. Developers were offered limited financial or regulatory benefits for allocating a portion of their

[8] Complexity of plans are calculated based on the length of plans and the number of zones included in the plan.

developments to affordable housing, which often failed to offset the higher returns from market-rate sales. As a result, there was little motivation for developers to commit to delivering affordable units. Reviews of the progress of work found that little attention was given to the volume of affordable housing generated in SHAs, primarily due to a lack of monitoring (Murphy, 2016). Furthermore, because the inclusionary zoning provisions under SHAs were voluntary rather than mandatory, many developers either opted out entirely or negotiated reduced obligations. Although SHAs may have supported an increase in overall housing supply, they ultimately fell short in achieving their primary goal of expanding access to affordable housing.

A lack of monitoring and enforcement mechanisms is a critical lesson from the SHA policy that should inform similar housing initiatives worldwide. Without apparent oversight and ongoing accountability, developer participation weakens, and the delivery of affordable housing becomes increasingly inconsistent over time. Another key takeaway is that inclusionary housing provisions must be mandatory to ensure affordable homes are delivered, as voluntary measures are ineffective in practice.

New Zealand has implemented upzoning policies aimed at increasing the supply of housing in densely populated urban areas. Greenaway-McGrevy (2022) highlights that in 2015, approximately two out of every three housing permits were issued in inner suburbs. By 2020, this figure had increased to six out of every seven permits, indicating a significant shift toward higher-density housing construction in central urban areas. This trend reflects the effectiveness of upzoning policies, such as the Medium Density Residential Standard (MDRS) and the Auckland Unitary Plan (AUP)[9], in encouraging more compact and efficient development closer to existing infrastructure and amenities.

The Medium Density Residential Standards (MDRS) were implemented to reduce barriers to housing supply and improve affordability (PwC, 2022). The policy is similar in intent to Oregon's HB 2001, which also encourages the development of medium-density housing in urban areas. In 2021, the central government passed the Resource Management Amendment Act, which requires major urban environments (Auckland, Hamilton, Tauranga, Wellington, Christchurch, and the Rotorua Lakes District) to upzone residential areas by applying the MDRS. The MDRS allows for three-storey buildings and three units, enabling more flexible building heights, reduced outdoor and outlook space requirements, and development closer to boundaries, as well as faster consenting by allowing more projects to proceed without neighbour approvals (Government of New Zealand, 2021a). The core idea is that by enabling greater density and reducing planning barriers, the policy will lower development costs and increase the number of homes built, to improve affordability through market dynamics.

The MDRS scheme also streamlines the permit approval process, enabling faster completion times for medium-density projects, a problem that has caused issues for councils in New Zealand. The policy encourages a shift away from expensive detached housing to more compact, attached dwellings. These types of homes are more space-efficient, use less land per unit, and are often more affordable for first-time buyers and smaller households.

Upzoning policies have been a primary catalyst for increasing housing supply in New Zealand, particularly in Auckland. Greenaway-McGrevy & Phillips (2023) provide strong empirical evidence that the introduction of large-scale upzoning under the Auckland Unitary Plan resulted in a 5.13% increase in the housing stock, equivalent to 27,183 additional dwellings over a five-year period. This growth was driven largely by the construction of different housing types (apartments and townhomes) in the city's inner suburbs. They also concluded that six years after the policy was fully implemented, rents for three-bedroom dwellings in Auckland were between 26% and 33% lower than their comparable counterparts (Greenaway-McGrevy & Phillips, 2023; Greenaway-McGrevy & So, 2024).

Other studies have shown that upzoning has had limited or no impact on housing supply in cities such as Brisbane and Chicago (e.g., Freemark, 2019; Limb & Murray, 2022). In contrast, Auckland has seen more promising results,

[9] In 2016, Auckland upzoned nearly three-quarters of its residential land under the Auckland Unitary Plan (AUP) to address the city's housing undersupply. The AUP has contributed to a construction boom, with new housing permits increasing each year since its implementation, particularly in the upzoned areas (Greenaway-McGrevy, 2022).

largely because it implemented large-scale upzoning (approximately three-quarters of its residential land) rather than limiting reforms to selected areas or corridors.

This lesson in upzoning is particularly relevant for cities in Canada, where persistent housing supply shortages continue to drive up prices in major urban centers. Implementing large-scale upzoning in inner suburban areas (like the AUP) could serve as an effective policy mechanism to promote medium-density housing, such as townhouses and low-rise apartments. These housing types offer a middle ground between single-detached homes and high-rise developments, making them more feasible and better suited to existing neighbourhood character.

# Construction Productivity and Technology

According to construction data from Statistics New Zealand (2024), the time required for residential construction completion continues to increase. To speed up the building process, the central and local governments explored innovative practices and methods to provide housing to the market.

In 2021, the building (Building Products and Methods, Modular Components, and Other Matters) Amendment Act (New Zealand Government, 2021b) was implemented to remove barriers to prefabricated consenting and regulating building products. Under the new legislation, prefabricated housing will follow a separate consenting pathway. A newly appointed authority, the Modular Component Manufacturer Certification Body (MCMCB), will be responsible for consenting to housing constructed in factories. Prefabricated buildings that are entirely manufactured as single components by a certified manufacturer will benefit from a shortened 10-day consenting period compared to the current 20-day timeframe. In these cases, local councils will only need to approve site-specific works such as foundations and service connections since the prefab will already carry its consent certificate. Prefabs that do not meet these criteria will still be subject to the standard 20-day consenting period (Haniel, 2022). Additionally, manufacturers will be required to provide a certificate confirming that the work has been completed and complies with the building code. This new policy would relieve local governments of the responsibility to approve the structure and instead allow them to focus solely on on-site construction, helping to streamline the overall consenting process.

The policy has also paved the way for New Zealand's construction industry to adopt technology in the development of prefabricated and modular housing. These innovative construction methods offer several benefits, including reduced material waste, faster build times, lower carbon emissions, and decreased costs (Brown et al., 2020; Builder Connect, 2025). However, despite these advantages, widespread adoption remains limited, with one major barrier being a lack of consumer awareness.

New Zealand's construction sector continues to face labour shortages. The increasing demand for housing from both local and central governments presents a significant challenge, as there are not enough skilled workers to meet this growing need. Programs like the Building and Construction Industry Training Organization (BCITO) have seen an increase in enrollments in construction apprenticeship programs.[10] In 2021, the BCITO reported that 20,000 apprentices were in training within the construction sector (Ministry of Business, Innovation & Employment, 2022). Despite this promising talent pipeline, a key challenge identified by the industry is retaining these skilled workers over the long term (Builder Connect, 2025). In fact, most construction businesses reported experiencing moderate to severe difficulty in recruiting tradespeople (Ministry of Business, Innovation & Employment, 2022).

To improve the labour force shortages, New Zealand introduced the Accredited Employer Work Visa (AEWV) in 2022 to streamline the recruitment of skilled migrants (Immigration New Zealand, 2025a). The AEWV allows migrant workers to obtain a temporary work visa for up to five years, provided an accredited employer sponsors them. Since its launch, the program has significantly contributed to expanding the construction labour force. Of the 150,414 visa applications approved between July 1, 2022, and June 3, 2025, the construction sector accounted for the highest

[10] Figure 6 illustrates the increase in construction employees over time, driven by policies and initiatives aimed at expanding the construction labor force.

share, at 32 percent, highlighting the policy's effectiveness in addressing workforce gaps in the construction sector (Immigration New Zealand, 2025b).

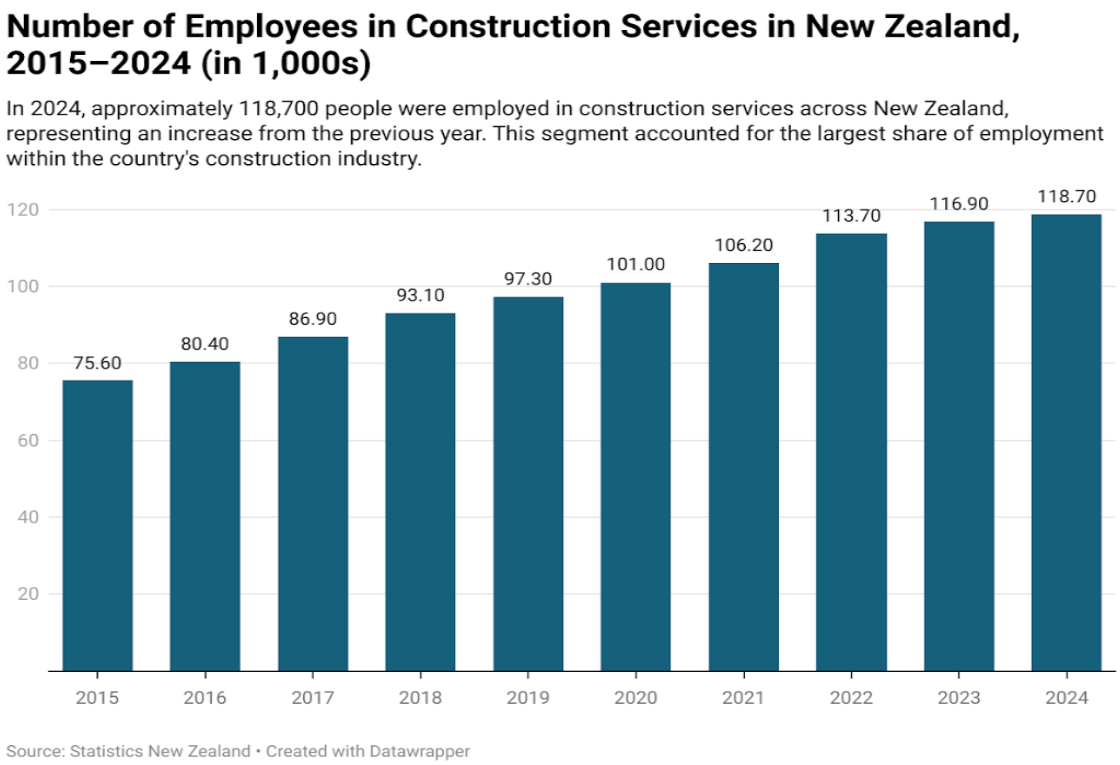



Figure 6: Number of Employees in Construction Services in New Zealand

Increasing productivity and efficiency in the construction industry depends on the adoption of emerging technologies such as Building Information Modelling (BIM), artificial intelligence, construction robotics, and augmented reality. In New Zealand, BIM is a technology-enabled process that supports the sharing of structured information across the entire lifecycle of a building or infrastructure asset, enhancing coordination at every stage (BIMinNZ, 2016). Notably, the adoption of BIM in New Zealand has grown significantly, rising from 34 percent in 2014 to 70 percent in 2021 (EBOSS, 2021). In New Zealand, the government and private institutions (e.g., BIMinNZ) are collaborating to develop digital roadmaps that encourage the adoption of technology within the construction industry. These efforts aim to enhance efficiency and promote sustainable practices across both traditional homebuilding and modular or prefabricated construction methods (Ministry of Business, Innovation and Employment, 2024).

# Enabling Infrastructure

New Zealand's housing strategy increasingly recognizes the importance of aligning land use with infrastructure capacity. As discussed above, New Zealand implemented the Infrastructure Funding and Financing Act in 2020 with the goal of funding and financing infrastructure projects that support housing and urban development (Government of New Zealand, 2020). The key feature of the Act is that it enables SPVs to finance and deliver infrastructure using private capital, helping to unlock housing development. This approach reduces the financial burden on local councils. The beneficiaries then repay the costs, typically through taxes and levies, to future homeowners.

The National Policy Statement on Urban Development (NPS-UD), implemented in 2020 and amended in 2022, outlines eleven objectives and policies designed to enhance housing affordability through improved planning, infrastructure coordination, and resource management. As part of the government's broader Urban Growth

Agenda, the NPS-UD directs local councils to remove restrictive planning rules and proactively plan for future growth. Councils are required to assess infrastructure readiness through their Future Development Strategies (FDS) and to integrate land use and infrastructure planning better. These strategies enable councils to work with developers to identify infrastructure-ready areas and prioritize growth in those zones, reducing delays and accelerating land development. When capacity is insufficient, councils must adjust their plans or policies to ensure they can meet projected future demand. However, the success of these policies often hinges on councils' ability to deliver infrastructure in a timely and coordinated manner. Without this alignment, housing supply struggles to keep pace with population growth, limiting the effectiveness of planning reforms in addressing affordability challenges.

# Conclusion

Successful housing policies in New Zealand include upzoning initiatives, particularly the AUP and the MDRS. By upzoning large areas of land, these policies have enabled a greater variety of housing types to be built on different parcels, thereby increasing the housing supply in high-demand, constrained regions. Medium-density housing can typically be delivered faster and more affordably than large apartment complexes, enabling a quicker response to meet demand. Attaching it to streamlined approval processes can be extremely useful for regions with low housing supply responsiveness. Canadian cities, such as Toronto and Vancouver, already face significant land use constraints and exclusionary zoning. Shifting toward broader upzoning could improve housing diversity and stimulate infill development in areas with existing infrastructure and transit access.

# Sweden

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in Sweden. Sweden's housing system has long been viewed as a model of social inclusivity, environmental sustainability, and economic stability. However, in recent years, the country has faced mounting pressures from rapid population growth, labour shortages, rising construction costs, and a limited supply of affordable homes, particularly in major urban centres such as Stockholm, Gothenburg, and Malmö (OECD, 2025). These challenges have exposed key structural constraints within Sweden's housing delivery system, including strict rent controls, slow spatial planning, and a highly cyclical construction sector. Despite these issues, Sweden continues to innovate through a range of policy instruments aimed at increasing residential construction and accelerating the time to market, including investment subsidies, public land allocations, and industrialized building methods such as prefabrication (Olovsson, 2018). This chapter examines how Sweden has attempted to boost housing supply through four interconnected policy areas

## Financial Levers & Market Incentives

Sweden's housing governance is highly decentralized, with the primary responsibilities at the municipal level and regional authorities having a more limited and direct role. The national government establishes the overall legislative and financial framework for housing, as outlined in the Planning and Building Act (SFS 2010:900) (Sveriges Riksdag, 2010). National agencies, such as the National Board of Housing, Building, and Planning (Boverket), monitor the housing market and assess policies.

Sweden's housing system operates as a unitary housing regime, where both public and private rental housing providers compete within an integrated market, offering housing on equal terms to all households. In other words, Sweden's housing regime is "universally oriented" (Bengtsson & Jensen, 2013), with the core institutional actors being the MHCs. According to the Municipality Housing Supply Act (Lag om kommunernas bostadsförsörjningsansvar) (SFS 2000:1383), each municipality is responsible for ensuring adequate housing within its area. This responsibility is fulfilled by regularly developing guidelines that outline specific targets for new housing construction and the strategies to achieve them. Municipal Housing Companies (MHCs) are legally required to operate under "business-like principles" (*affärsmässiga villkor*) in compliance with EU competition rules, meaning they must cover costs and cannot receive state aid that distorts competition with private landlords (Lind et al., 2014; Grander, 2024).

Rents are negotiated collectively through a corporatist framework involving the Swedish Union of Tenants, with rates based on a "use-value" system which compares rents for dwellings of similar standard rather than allowing market pricing (Bengtsson & Jensen, 2020; Danell & Olausson, 2016). Though this system has historically supported affordability and stability, it has been criticized for constraining profitability and reducing incentives for new rental construction, particularly in high-demand areas (Grander, 2024).

Historically, Sweden's housing system was supported by state subsidies, including low-interest loans, investment grants, and direct loans, particularly during the *Million Homes Programme* (1965-1974), which expanded the housing stock by over one million units (Hall & Vidén, 2005). These subsidies were removed in the 1990s as part of a broader shift toward fiscal consolidation and market-oriented reforms following a severe economic crisis.

In 2016, however, Sweden introduced the *investment support for rental and student housing* (*investeringsstöd*) (SFS 2016:881), an investment support scheme designed to incentivize the construction of affordable and energy-efficient rental housing in response to a growing housing shortage, particularly in metropolitan areas. Specifically, the investment was aimed at developing rental units in areas suffering from a housing shortage, student accommodations in or near universities, colleges, or other post-secondary institutions, or in cases where a specific housing type is required (Government of Sweden, 2024; Boverket, 2024).

To be eligible for this type of subsidy, MHCs, private developers, and cooperative housing associations had to adhere to the following conditions:

Support was only available for newly built units, extensions to existing buildings, or the reconstruction of non-residential properties that had not been used for housing purposes after eight years.

At least 12.5 percent of the supported units had to be offered to municipalities for social contracts or rented to individuals under the age of 31.

Additionally, the subsidy amount was tiered based on the unit's size. For instance, units up to 35 m² received the full amount, those between 35 and 70 m² received 50%, and units over 70 m² were ineligible. Rent ceilings were also imposed, with maximum allowable rents ranging from 1,300 to 1,450 SEK per square meter, depending on the region. Similarly, the maximum support per square metre varied by location, from 4,800 SEK/m² in smaller municipalities to 7,100 SEK/m² in the Stockholm region (Government of Sweden, 2024).

According to the Swedish Union of Tenants, the program contributed to the construction of approximately 51,000 rental housing units and estimated that 30,000 of these would not have been built without the subsidy. The program was administered by Boverket, Sweden's national housing agency, and applied rent ceilings and design conditions (Grander, 2024; Boverket, 2024). Units built with support had rents averaging 2,100 SEK lower per month compared to unsubsidized units (Gåhlin & Hultgren, 2025). However, the program had a limited social impact, as residents' incomes and age profiles were like those in unsubsidized units. Due to concerns that the program was not effectively reaching the most vulnerable groups and could potentially distort the housing market, the Swedish government decided to discontinue the investment support in December 2021 (Gåhlin & Hultgren, 2025).

To support housing construction, Boverket provides credit guarantees for housing loans. Under this program, a lender, such as a bank financing a new rental project or major renovation, can obtain a state guarantee covering up to 90 percent of the loan's value (Boverket, n.d.). In practice, this functions like insurance, where if the borrower defaults and the sale of the property does not fully cover the bank's loan, the state will compensate the bank for the guaranteed portion. This lowers the financial risk for banks, which often translates to slightly lower interest rates and/or higher loan-to-value ratios offered. For developers, this means less equity is required upfront and more affordable credit, as well as powerful incentives in a capital-intensive industry (*Boverket*, n.d.). To qualify, projects must meet criteria related to cost-efficiency, design, and financial viability, which Boverket assesses. Essentially, the state is leveraging its creditworthiness to promote housing investment, like Austria's housing banks or Switzerland's guarantee cooperatives, but applied to all kinds of developers.

# Land Supply and Regulatory Environment

Housing provision is the responsibility of Sweden's 290 municipalities, and therefore, they control land use within their jurisdiction. Municipalities hold a planning monopoly (Planmonopol), granting them exclusive authority over land-use planning (Sveriges Riksdag, 2010). Large portions of land are publicly owned, either by the state or the municipalities. State-owned land is primarily intended to protect existing land uses from development, whereas municipal land is often intended for future development, particularly housing (Caesar, 2016).

The most significant policy tool that municipalities operationalize for the purpose of housing is through their land allocation system (*markanvisningssystem*), whereby public land is reserved and transferred to developers through negotiated agreements. These agreements are typically formed before the formal planning process begins and allow developers exclusive negotiation rights under specified conditions.

Allocation to developers is primarily through:

Direct Allocation (*direktanvisning*): Municipalities will select a developer without a public competition, primarily based on reputation and past collaboration. This is the most common method and tends to favour larger and more established developers (Caesar, 2016).

Tender-based Allocation (anbudsförfarande): Developers submit proposals, which municipalities review and ultimately decide based on criteria such as price, quality, sustainability, or social objectives (Caesar, 2016).

Competitive Allocation: Municipalities invite multiple developers to submit project concepts or design proposals, often emphasizing urban quality, innovation, or social value in addition to price. (Granath Hansson, 2020).

This system fosters a partnership between the municipality and the developer, enabling them to collaborate on defining a project that can be approved through a detailed development plan (*detaljplan*) (Caesar, 2016). Under development plans, specifics include location, height, use, and number of units, as well as public access and infrastructure layouts. This planning model is mostly used in larger cities such as Stockholm, Gothenburg, and Uppsala. When used in conjunction with municipal landownership and coordinated planning, development plans can serve as effective levers for high-density urban development. The RiverCity project in Gothenburg's Frihamn district is a particularly notable example discussed by Danell and Olausson (2016), where the municipality used detailed plans to coordinate multiple land allocations, set sustainability and affordability goals, and promote a dense, mixed-use urban environment (Danell & Olausson, 2016).

Grannath Hansson (2020) provides empirical insight into how Swedish municipalities operationalize land allocation tools to promote affordability within the constraints of the planning and housing systems. The paper examines three pilot projects in Gothenburg, Örebro, and Stockholm that test the use of land leases, conditional allocations, and implementation agreements to incentivize private developers to deliver rental housing at lower rent levels.

*Gothenburg*: Under a high-profile pilot project to redevelop the waterfront area of Älvstranden, also known as the River City (Danell & Olausson, 2016). The municipality of Gothenburg launched a competitive land allocation in 2011 that required developers to construct 1,100 rental and 500 tenant-ownership units, with 50 percent of the rental housing priced below market rates for 15 years. In return, developers were offered incentives including the right to build more profitable tenant-ownership units, preferential treatment in urban planning processes, and future development opportunities. However, the project faced political and institutional resistance. The Swedish Union of Tenants opposed targeting lower-income households outside the central queue, and the project was eventually put on hold due to technical and political challenges (Granath Hansson, 2020).

*Örebro:* The municipality collaborated with the private developer BoTrygg to implement a smaller-scale pilot aimed at delivering affordable rental housing through land leasing mechanisms. The project consisted of 100 rental and 30 tenant-owned apartments, with 20 percent of the rental units offered at reduced rent. Instead of selling land to private developers, the municipality of Örebro has opted to lease land under long-term ground leases. Unlike Gothenburg, Örebro allowed the allocation of affordable units through a new housing queue restricted to households with incomes below a certain threshold, signalling a shift toward targeted access. Incentives for Botrygg included having permission to build both tenant-owned and rental apartments, along with a larger-than-usual piece of municipal land. The project was approved in 2019, with completion in 2020 (Granath Hansson, 2020).

*Stockholm*: In Stockholm, the municipality pursued a different approach by integrating rent-based competition into the land allocation process. In 2019, it issued a tender for 100 rental apartments in a large development area in the south of the city, with the primary selection criterion being the lowest proposed rent. The winning bid committed to a rent of 1440 SEK/m²/year, significantly below prevailing market levels. Affordability was to be enforced via a land lease contract, and units were to be distributed through the municipal housing queue, without income testing. Unlike Gothenburg and Örebro, Stockholm did not propose any direct allocation to vulnerable groups. The project was notable for its emphasis on environmental standards, timber construction, and urban integration, as the location aimed to connect a socially disadvantaged district with more established areas (Grannath Hansson, 2020).

While this system introduces flexibility, it also reflects uneven capacity and procedural variation across municipalities. Granath Hansson (2017) discusses these challenges and emphasizes that Sweden's municipalities lack

the legal and institutional tools to implement development plans efficiently. The contribution to increasing housing density and supply is highly contingent on municipal capacity, institutional alignment, and political will (Granath & Hansson, 2017).

Additionally, as Andersén et al. (2023) explain, the formal authority of the development plans system is often separated from broader goals for housing development. Many municipalities have housing provision strategies that express aims such as population growth, a mix of housing types, or better affordability. However, these strategies are not legally binding and do not automatically shape the content or spatial structure of *development* plans. This gap makes it difficult for the planning system to support coordinated and dense housing development.

# Construction Productivity and Technology

Sweden's residential construction sector has faced rising costs and growing challenges in recent years. Housing construction costs increased sharply in 2022, with a peak of 15 percent year-over-year growth, before slowing to 3 percent in early 2025. Higher prices for materials, such as concrete and ceramic fixtures, contributed to these cost increases. At the same time, construction companies have reported weaker market conditions. In May 2025, 57 percent of firms reported that low demand was limiting their activity, and 12 percent cited financial difficulties (Statista, 2024). Sweden's construction sector employs a substantial share of the national workforce, yet it continues to face a skills shortage, particularly among site managers, civil engineers, and technicians, a challenge that has been intensified by pressures in the housing market (European Construction Sector Observatory, 2022)

Policy measures to support construction labour activity include one approach: investing in workforce training and retention during downturns. Sweden's education system offers vocational tracks in construction and engineering, although challenges are present, with some considering it less popular. Higher vocational institutions offer courses in construction technology and management that are closely linked to industry needs.

Furthermore, residential building permits in Sweden have declined significantly over the past few years. In Q3 2024, only 999 permits were issued for new residential buildings, compared to a peak of 2,993 permits in Q2 2022. In 2023, most of the permitted building area for housing was allocated to multi-dwelling buildings, followed by single-family homes. Stockholm issued the highest number of residential permits in 2023, although overall permitting activity was higher in areas outside the major metropolitan regions (Statista, 2024).

In many developed countries, off-site manufacturing (OSM), such as prefab technology, is rising as a key instrument for increasing the supply of homes at a more efficient rate. Additionally, OSM has the potential to address housing shortages at a lower cost compared to traditional methods. In Sweden, approximately 85 percent of all new housing is built using OSM (Oti-Sarpong et al., 2022). The highest form of prefabrication is structural, panelized, and volumetric construction, as described by Gibb and Isack (2003). Peab, Lindab, and Boklok are regarded as the largest prefabricated firms in the country.

Sweden is internationally recognized as a leader in prefabricated housing, with an adoption rate of over 20% (Steinhardt et al., 2020). Its beginnings can be traced back to the Million Homes program (1965-1974), during which innovation in building components was necessary for rapid construction, with 20% of all production utilizing highly prefabricated concrete methods (Högberg et al., 2009; Steinhardt & Manley, 2016). With the ambitious goal of achieving a national target of building 100,000 homes annually, this was met by streamlining approvals and leveraging factory production of housing components, with the help of favourable financing from the federal government (Hedman, 2008). Financial support was provided through long-term, low-interest construction loans, often covering up to 100% of the total construction costs for MHCs and housing cooperatives. To further reduce the effective borrowing rate, these loans were paired with direct interest subsidies. In 1967, the establishment of a Loan Fund for Municipal Land Acquisition enabled municipalities to secure sites for state-financed projects, including modular estates. Financing arrangements also covered infrastructure and site preparation, reducing upfront capital requirements and accelerating project delivery. Eligibility for loans required compliance with the national cost ceiling and building specifications, which in turn encouraged the adoption of industrialized methods such as factory-based prefabrication (Söderholm & Wihlborg, 2016).

Large slab-concrete apartment blocks constructed using prefabricated panels were built across cities in Sweden. Although some design aspects later drew criticism, many apartments have since been renovated due to not meeting sustainability standards. For single-family homes, these were “catalogue homes”, with timber being the most used material for facades and framing. These homes were primarily built in smaller municipalities. Sweden continues to promote construction with more nuanced policies. National building regulations are performance-based, enabling the innovation of materials (such as multi-storey wood construction) that align better with modular techniques.

Manley & Widén (2019) conducted a study comparing prefabricated housing firms in Japan and Sweden, focusing on the strategies these firms have developed to ensure value for customers, along with an analysis of their operational practices. Key findings in their study noted that Swedish firms are adamant about providing affordable homes and heavily rely on well-trained and highly skilled craft workers, with a low reliance on automation and digitalization. Sweden has a notable presence of vertically integrated firms, especially those that both manufacture and install timber-framed panels, primarily for detached housing. These firms control multiple stages of the supply chains, from off-site production to on-site assembly, allowing for efficient coordination, reduced reliance on external contractors, and faster construction timelines (Steinhardt et al., 2020). Sweden’s success with vertically integrated firms is largely due to the gradual consolidation of expertise, technology, and market control. The large-scale standardization during the Million Homes Programme accelerated the shift from small builders to large contractors capable of managing both production and assembly. Over time, firms developed “operative platforms” that combined manufacturing technology, process management, supplier coordination, and skilled labour, enabling control of the entire value chain from prefabricated component production to turnkey delivery. Drawing on principles from industries such as automotive manufacturing, these firms adopted lean production and platform strategies to reduce inefficiencies, support product variation, and maintain high quality, while aligning offsite production with efficient onsite assembly (Lidelöw, 2017).

Strong collaboration and networking relationships within the industry are a key quality of Sweden’s leadership in prefabrication. No such prefabricated housing association exists in Sweden; therefore, the Swedish Wood Association and the Swedish Concrete Association act as the industry leaders, as both materials (concrete and wood) are the primary materials for prefabricated construction. The respected relationship between the two associations has enhanced opportunities for collaboration and innovation in the product system. For instance, both associations engage considerably with universities, organize information days at industry fairs, work on new regulatory standards, and participate in research projects. (Steinhardt et al., 2020).

In terms of housing provision, historically, prefabricated techniques have demonstrated strong reliability, as evidenced by the Million Homes program. However, Sweden’s contemporary market has presented challenges. The Swedish market has limited ability to achieve economies of scale, as even the largest manufacturers produce only about 500 dwellings per year. The relatively small size of the domestic market restricts the development of multiple factory sites and supply chains. However, Sweden’s geographic location in Europe offers potential for future expansion beyond its national borders. (Manley & Widén, 2019).

Sweden’s national building standards, codified under the Boverket’s Building Regulations (BBR), establish technical requirements for safety, energy efficiency, accessibility, and environmental performance in all new construction. All newly constructed residential buildings are required to meet performance-based standards in areas such as fire, safety, health, structural stability, and environmental protection. For example, fire safety regulations require that a building be designed and constructed to minimize the risk of fire and facilitate safe evacuation, without mandating specific materials or layouts. Similarly, accessibility rules outline functional goals such as limits on ramp gradients or minimum door widths, without specifying how these must be achieved. This approach allows for flexibility in design and construction, enabling innovations such as multi-storey wood buildings and factory-based prefabrication, while still ensuring safety, efficiency, and accessibility (Boverket, 2019). These requirements are generally considered robust and well-aligned with sustainability objectives, but they are not the primary constraint on housing delivery. Instead, the broader regulatory environment, especially non-zoning rules and institutional procedures, exerts a more substantial influence on housing development outcomes.

One key non-zoning regulation is the rent-setting system (*bruksvärdessystemet*), which limits the price mechanism in rental housing and discourages private investment in affordable segments. As emphasized by the OECD (2025), the inability of landlords to freely price new construction reduces the predictability of returns. It makes it harder to finance projects without subsidies or discounted public land. Even where cost-based rents are initially allowed, the eventual reversion to utility-value rent levels creates long-term disincentives for production.

Sustainability objectives, including climate mitigation, energy efficiency, circular material use, and green mobility, increasingly guide Sweden's planning and construction policy. These goals are reflected in both national policy and municipal planning frameworks. For example, Gothenburg's RiverCity project embeds environmental targets into *detaljplaner* and land allocation contracts, including low-emission construction, high energy standards, and extensive green infrastructure (Danell & Olausson, 2016; Hartmann et al., 2025). However, these sustainability ambitions often come into tension with permitting efficiency. As both OECD (2025) and Granath Hansson (2017) discuss the layering of environmental, social, and design criteria onto already complex approval systems, risks prolonging lead times and discouraging innovation. Hermansson & Song (2024) show that weak coordination between planning law and environmental permitting in Sweden leads to long delays, uncertainty, and project failure. Their analysis implies that environmental objectives need to be more systematically integrated into planning and permitting frameworks rather than addressed through fragmented, sequential approval processes. Furthermore, the authors note that Sweden's current BIM initiatives are strongly oriented toward public-sector use, and that additional resources are needed to ensure BIM standards and guidance are workable for private actors as well, alongside broader efforts to address skills shortages in the construction sector. A summary of all the current measures implemented by Sweden, as well as the measures recommended by the literature, is outlined in table 6.

## Table 6: Summary of Current Measures

| Challenge Area | Current Measure | Literature Recommendations | Sources |
|---|---|---|---|
| *Skills Shortage* | - Arbetsmarknadsutbildning (Labour Market Training) via Arbetsförmedlingen<br>- Nystartsjobb (New Start Jobs) for older/unemployed<br>- Expansion of vocational education and engineering programs<br>- Adult education funding in construction-related sectors | - Expand lifelong learning and on-the-job upskilling, especially for supervisors and planners<br>- Use low-activity periods for targeted training<br>- Improve national coordination of technical education and workforce forecasting | European Construction Sector Observatory (2021); OECD (2025); Hermansson & Song (2024) |
| *Permitting & Planning* | - Local efforts to digitalize permitting (e.g., Stockholm and Gothenburg pilots)<br>- Planning and Building Act (PBL) reform discussions<br>- Fragmented local process reform in some municipalities | - Streamline and align PBL, environmental, and infrastructure codes<br>- Introduce regional planning coordination for major urban development<br>- Improve procedural transparency and reduce discretion | OECD (2025); Hermansson & Song (2024) |

| | | | |
|---|---|---|---|
| *Construction Technology* | - Initial BIM standards and digitalization strategy developed by Boverket<br>- Prefabrication encouraged through land allocations (e.g., Skärholmen rent-bid tender in Stockholm)<br>- Support for innovation via Vinnova (limited scale) | - Adopt a national BIM strategy and digital design standards<br>- Expand state venture capital and public innovation procurement for off-site methods<br>- Develop standardized design frameworks to support modular methods | European Construction Sector Observatory (2021); Hermansson & Song (2024), Caesar (2016) |

# Enabling Infrastructure

According to the OECD and Lincoln Institute of Land Policy (2022), developer obligations are commonly used on municipally owned land, where the municipality can negotiate contributions in return for development rights. While they do not impose mandatory density thresholds, the agreements help create the preconditions for intensive development by coordinating land-use planning with infrastructure provision. Sweden has adopted a long-term planning approach to align infrastructure development with the need to expand housing supply, particularly in rapidly growing urban regions. National investments in infrastructure, particularly in transport systems, play a crucial enabling role in new residential construction. The National Transport Plan 2014-2025 allocated SEK 522 billion to enhance the country's transport network, and a subsequent plan for 2022–2033 proposed SEK 876 billion in further investments, including SEK 165 billion specifically for railway maintenance and operation (European Construction Sector Observatory, 2021). These investments aim to enhance regional connectivity and promote densification around public transit hubs.

At the municipal level, the case of Järfälla municipality, discussed in Falck et al. (2025), illustrates how infrastructure provision directly influences the geography of housing development. Järfälla, located in the Stockholm region, has received major infrastructure investments, including new subway stations and a regional train hub in Barkarbystaden, as well as proximity to the Stockholm bypass highway. These infrastructure projects have increased land values and spurred new housing construction in strategically located urban cores (Falck et al., 2025). According to the Vision for Sweden 2025, municipalities and regions are encouraged to pursue a "multi-core regional structure," in which housing, services, and workplaces are concentrated in nodal areas linked by rail and supported by feeder bus systems and bicycle networks (Boverket, 2014). This integrated planning approach enhances accessibility, reduces car dependency, and promotes sustainable growth.

Infrastructure and housing planning are coordinated through regional housing programs, which aim to balance housing supply with existing and planned infrastructure capacity (Boverket, 2014). However, the realization of this coordination is uneven. A key barrier is that municipalities often lack the fiscal capacity to fund infrastructure upfront, leading to delays in project implementation. Furthermore, development costs, including infrastructure contributions, are frequently passed on to private developers and ultimately to homebuyers, which can undermine affordability (Granath Hansson, 2020). As a result, while infrastructure investments have been crucial for enabling urban expansion and residential development, institutional and financial constraints limit the full potential of these policies to deliver equitable housing outcomes. These challenges mirror conditions in Canada, as noted by Atkey et al. (2022), fiscal constraints often force municipalities to rely on development charges or cost-sharing with higher levels of government, which can lead to higher housing prices. Canada's Housing Plan (Government of Canada, 2024) acknowledges this by proposing the $6 billion Canada Housing Infrastructure Fund to help municipalities and provinces finance critical water, wastewater, and transit projects tied to housing growth, with conditions to limit development charge increases and accelerate approvals. Both the Swedish and Canadian experiences highlight the importance of intergovernmental coordination and government funding in avoiding the shifting of infrastructure costs to developers and, ultimately, to homebuyers.

# Conclusion

Sweden's housing supply framework is shaped by a long-standing commitment to a unitary rental system, where a combination of business-like conditions, public land ownership, and coordinated infrastructure provision enabled relatively stable and predictable delivery outcomes. Financial levers such as the now-discontinued investment support scheme and ongoing state credit guarantees have played a supplementary role, with public actors prioritizing risk-sharing mechanisms over broad-based subsidies. Municipalities govern land-use planning and have complete control over spatial development and the allocation of land under conditional terms. This has enabled cities to align their supply decisions with local social and environmental objectives (Andersén et al., 2023; Granath & Hansson, 2017).

At the construction level, Sweden's leadership in prefabrication is underpinned by integrated supply chains, experienced labour, and regulatory support, although output remains modest by historical standards (Oti-Sarpong et al., 2022; Steinhardt et al., 2020). Enabling infrastructure, especially transit-oriented investment, further supports spatial concentration of new supply, though challenges persist in harmonizing national sustainability goals with municipal planning processes (OECD & Lincoln Institute of Land Policy, 2022; Hermansson & Song, 2024)

Several aspects of Sweden's housing system offer relevant policy insights for Canadian metropolitan areas, particularly Toronto and Vancouver, where entrenched affordability issues persist despite recent reform efforts. The Swedish model of conditional land allocation which ties development rights to affordability, tenure, and sustainability objectives, may inform Canada's evolving use of public land, especially under federal initiatives like Canada Builds and municipal land-use strategies in Toronto and Vancouver (City of Toronto, 2024; Government of Canada, 2024; City of Vancouver, 2024). Similarly, Sweden's experience with prefabrication methods offers a useful benchmark as Canada begins scaling modular and prefabricated housing, supported by new federal financing tools and the development of standardized housing design catalogues (Government of Canada, 2024) Both Sweden and Canada recognize off-site manufacturing (OSM) as a strategic tool to increase housing supply and improve construction productivity. In Sweden, however, industrialized building is embedded through vertically integrated firms, stable demand, and standardized housing types, supported by long-term public investment and cooperative planning processes (Oti-Sarpong et al., 2022).

# Switzerland

## Introduction

Switzerland has a population of 8.69 million, with three-quarters in urban areas. In cities like Geneva and Zurich, a constrained housing market has grown steadily (Glaser, 2017). The Swiss housing market is predominantly rental and has the lowest homeownership rate in Europe (Barenstein et al., 2022). Inefficiencies limited residential construction, complex approval procedures, and debates on densification have fueled a housing shortage. The Federal Office for Housing (BWO) emphasizes that solving this crisis requires collaboration among cantons, municipalities, and the real estate and construction sectors. Increasing supply alone is insufficient—housing must also be high-quality, affordable, socially inclusive, environmentally sustainable, and needs-based (Federal Office for Housing, 2025).

Population growth, driven mainly by immigration, and declining construction activity are key factors. Immigration accounts for about 80% of annual population growth, shaping demographics and housing demand (Marini et al., 2019). The shortage is most acute in the mid-price segment. High rents and interest rates have pushed housing prices upward, affecting a broad segment of the population (Federal Council of Switzerland, 2025).

## Financial Levers and Market Incentives

Swiss government bodies play a key role in developing rental properties, aiming to build below-market housing through loans and subsidies. In 2003, the Federal Housing Support Act (FHSA) was enacted under Article 108 to meet housing needs by supporting construction and renovation of affordable housing in partnership with non-profit organizations (Federal Act on the Promotion of Affordable Housing, 2003; Koch, 2021). Key practices include:

- Direct support to non-profit housing organizations (gemeinnützige) through loans with reduced or zero-interest rates.
- Direct assistance for owner-occupied housing through low or zero-interest loans.
- Indirect support for non-profit organizations by:
- Federal revolving fund
- Guaranteeing bonds issued by the umbrella organization of all non-housing organizations (Emissionszentrale für gemeinnützige Wohnbauträger) and,
- Supporting mortgage bond cooperatives
- Financing of research and promotion of best-practice housing projects.
- Non-profit housing organizations—cooperatives, foundations, and associations—must provide affordable housing, restrict dividends, and prohibit royalties. Compliance is monitored by the Federal Office for Housing. To receive federal aid, organizations must join umbrella groups like Wohnbaugenossenschaften Schweiz or Wohnen Schweiz. Assistance is distributed through small loans and private funds. The revolving fund, introduced in 1974 and reaffirmed in 2003, offers loans under 20 years at low interest for renovations, construction, or property acquisition (Federal Office for Housing, 2025). Conditions include:
- Loans from the Federal Revolving Fund can only be used for housing projects that comply with the Housing Promotion Act.
- The maximum loan amount is generally CHF 6,000,000 per application, and CHF 60,000 per apartment.

- Funding is generally granted only if applications are submitted before construction or renovation has started, the property is not yet registered, or prior written approval has been obtained.
- Rent must be affordable and calculated according to the cost-based rent principle.
- At least 10% of equity financing of the total project, of which 5% must be "true equity" (cooperative share capital, not subordinated debt)
- Interest rates are 2% below the Swiss tenancy law reference rate, but no lower than 1%.

In addition to managing the Federal Revolving Fund (Fonds de Roulement) on behalf of the federal government, non-profit organizations under umbrella organizations are eligible for mortgage financing and bond issue finance options. Firstly, since 1956, the social housing sector, along with Swiss banks, has operated a Mortgage Guarantee Fund for non-profit housing. It offers loan guarantees for mortgage financing, enabling approved cooperatives and non-speculative developers to secure high loan-to-value (LTV) mortgages, typically up to 90% of project costs, at favourable terms. Secondly, the Swiss Bond Issuing Cooperative (EGW) is a financial institution established in 1990 to assist non-profit housing developers in accessing affordable loans. It raises money by issuing government-backed bonds, which are considered low-risk investments. The funds collected are loaned to housing cooperatives and other non-profit builders at fixed interest rates and terms, typically ranging from 8 to 15 years. Funds raised are distributed to member organizations in the form of fixed-rate loans, thereby improving financial predictability and reducing borrowing costs. The cooperative structure enables smaller non-profit developers to pool resources and benefit from favourable lending terms that would otherwise be inaccessible (Balmer & Gerber, 2018; Koch, 2021).

Another form of assistance discussed in the literature is the provision of land, with many authors, such as Balmer, Gerber, and Koch, claiming to be key contributors to the creation of non-profit housing. At the municipal or cantonal level, land is sold or leased to non-profit organizations at below-market prices. However, with the rising population over the past few decades and a push towards densification, the availability of land has become increasingly scarce, resulting in a decline in the sector's growth.

Non-profit housing associations in Switzerland are primarily cooperatives and have historically had a significant influence on the Swiss housing landscape. However, at times, they have been overshadowed by the dominance of the private rental sector. Over the decades, political awareness and financial support for non-profit housing have fluctuated. However, they continue to hold a foothold in the Swiss housing market, particularly in densely urban areas such as Zurich and Geneva (Balmer & Gerber, 2018; Sanchez-Bajo, 2024).

Housing cooperatives in Switzerland offer a range of social benefits. Residents become members (co-owners) by purchasing a share certificate, rather than a security deposit, which grants them both housing security and participatory rights. In Ambühl et al. (2024), *Cooperatives in an Uncertain World,* six advantages are described:

- Cooperatives charge cost-based rents, meaning rents are set to cover actual operating and financing costs, rather than being determined by market demand.
- Properties are not subject to removing them from real estate speculation and ensuring long-term affordability.
- Members benefit from high tenure security, as evictions are rare.
- Members hold democratic rights within the cooperative, including the right to vote in general assemblies and participate in key decisions.
- Cooperatives foster strong community cohesion.
- Requires low initial capital to join, making cooperative housing accessible and socially inclusive.

# Land Supply and Regulatory Environment

Switzerland continuously faces topography challenges, coinciding with a growing demographic profile. Currently, Switzerland has a population of 8.69 million people, with three-quarters situated in urban areas. Along with its limited space and uneven terrain, this contributed to the country's housing supply constraints. Over 70% of Switzerland consists of mountainous regions, making development an increasingly challenging task for a growing population (Liman et al., 2025).

In 2013, under the revised Federal Spatial Planning Act (SPA), a legally binding densification policy was introduced (Swiss Confederation, 1979; Debrunner & Hartmann, 2020). The Swiss voters approved this revision to mitigate the negative impacts of urban sprawl on natural and agricultural land by promoting densification within heavily urbanized areas. Under the newly revised legislation, cantons and municipalities are required to arrange "settlements to the needs of their inhabitants and their expansion must be limited" (Swiss Confederation, 1979). However, the majority of Swiss cities do not have free inner-city plots to work with. Therefore, the process focuses on the redevelopment of existing housing stocks, including demolitions and replacement construction, heavy renovations, or the compaction of existing structures (Debrunner et al., 2024). With a housing shortage, particularly for low- and middle-income households, Swiss municipalities face the pressure of social exclusion of tenants following modernization and densification projects.

Although non-profit housing associations are prevalent in many cities in Switzerland, housing provision has traditionally been dominated by the private rental sector, resulting in tenants being heavily reliant on the decisions and interests of private property owners (Debrunner & Hartmann, 2020). Numerous redevelopment projects have led to the internal reconstruction of existing buildings to create a greater number of smaller units or have resulted in demolition and redevelopment. As a result, in cities like Zurich, some tenants living in rental housing have been victims of eviction and displacement on short notice, as they can no longer afford rent. Most of the time, lower-income residents will migrate to cheaper suburban areas outside the city. One notable example of a densification project is Zurich's Brünau Park, owned by Credit Suisse, which holds 63% of the total housing properties in Swiss cities (Debrunner et al., 2024).

Under the pressures of densification, Swiss municipalities hold a range of strategic land use policy instruments to promote affordable housing. Debrunner & Hartmann's (2020) research study on the different uses of municipal land policy instruments for affordable housing summarizes the private and public instruments below (Figure 7).

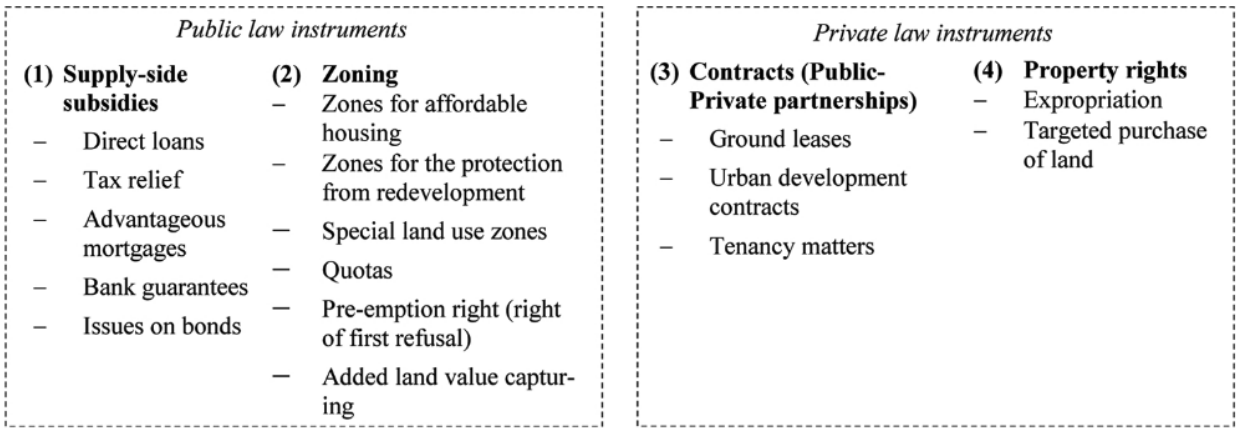



Figure 7: Municipal Land Policy Instruments - Affordable Housing in Swiss Municipalities [Debrunner & Hartmann, 2020]

Zoning measures in municipalities have enabled municipal authorities to intervene in private development plans, as zoning regulations are binding on landowners. Municipalities designate special zones for affordable housing and can compel private landowners to provide a minimum share of affordable housing.

A key instrument that many Swiss municipalities have implemented is quotas for affordable housing. Quotas serve as an important tool for municipalities, helping to maintain a balance between the availability of low-cost housing and the demand for it. For example, in 2011, the city of Zurich announced a minimum quota of 33.3% of non-profit housing and cooperative properties in the local constitution. This quota aims to ensure that a fixed minimum share of 33.3% of Zurich's total housing stock will be social housing by 2050 (Balmer & Gerber, 2018; Debrunner et al., 2024).

Added land value capturing (LVC) is another essential instrument for municipalities. The main value capture instrument is a tax on added land value created by zoning. Under the first adoption of the Spatial Planning Act in 1974, land value capturing only optional, however under the revision in 2014 municipalities are obligated to capture a minimum taxation of 20% of the added value for newly built homes on undeveloped land, although they are given the option also to capture added land values that occur through densification measures on already existing developed land (up-zoning). The money raised can be used to shift or limit development rights in ways that serve the public, such as requiring developers to include affordable housing (Debrunner et al., 2024).

For example, Basel has been using LVC for decades. In 1977, a 50% tax was applied to the added land value resulting from zoning changes, including both new building zones and up-zoning. The tax is only collected when landowners or developers actively use the new development rights, so revenue depends on actual construction activity. The funds are used to improve nearby green spaces, providing indirect benefits for both residents and developers (Gerber et al., 2018). Under Swiss private law, as outlined in the Swiss Civil Code and the Federal Code of Obligations, a contract is defined as a legally binding agreement between two or more parties, in which each party commits to fulfilling a specific obligation that is enforceable by law (Swiss Confederation, 1907).

Historically, Zurich has been active in providing suitable suites for non-profits; however, scarcity due to growing urban areas and densification mandates under the spatial planning act has made this more difficult. Remaining parcels of land still owned by municipalities are granted through long-term ground leases, referred to as Baurechts. Baurecht is considered the primary mechanism for ensuring the integration of affordable housing quotas with the allocation of land to non-profit housing associations. Baurechts can be granted for a period of 60 to 100 years in exchange for annual rent payments. In 2018, 220 lease contracts were granted to non-profit housing associations in Zurich. The selection of lease recipients by municipalities is based on preference, particularly for larger associations with valuable experience, proven track records, and financial stability (Debrunner & Hartmann, 2020; Debrunner et al., 2024).

Additionally, developers are contractually obligated to require that all housing built on the leased land be operated on a cost-rent basis to remain affordable in the long term and promote social mixing and adhere to occupancy rate rules. There are instances where large housing providers, such as Familienheim Genossenschaft Zurich (FGZ), have been able to purchase land privately, but this is rare (Lawson, 2009).

Among privately owned land, a strategy for municipalities to ensure that private developers build affordable housing can be achieved through renegotiation under urban development contracts. Specifically, if a private landowner aims to improve the use of their land but is limited by certain zoning requirements, a renegotiation of the terms and conditions with the local municipal planning authority can be explored under urban development contracts. Such renegotiations may include adding more units or increasing building height. Planners with the municipality planning will often agree with the private landowner if a portion of the land is for affordable housing. Unfortunately, this instrument has not been utilized effectively recently; however, it is expected to become more relevant in the future, as planners increasingly engage in negotiating the terms of private development projects within municipal boundaries (Debrunner & Hartmann, 2020).

# Construction Productivity and Technology

Since 2018, annual residential construction activity has declined by 20% due to rising building material prices, a shortage of skilled labour, and a scarcity of land. The lack of available building land and spatial planning is frequently viewed as an obstacle to construction activity and the creation of housing. With densification, construction activity is

hindered by changing regulations, project sizes, legal risks, and other factors (Muller, 2022). The Federal Office for Spatial Development (ARE) notes that greenfield sites are more conducive to faster construction compared to brownfield sites; however, the Spatial Planning Act has shifted activity towards brownfield and inner-city sites (Federal Office for Spatial Development, 2021).

Delays in permits are increasingly cited as a major reason for the decline in residential construction. Since the mid-2010s, the number of building permits has decreased, and the gap between submitted applications and approved permits has widened, reaching an average processing time of 200 days by 2023, up from 150 days in 2015 (Federal Office for Housing, 2024a). These delays are attributed to stricter regulations, incomplete applications, and project revisions. The Housing Shortage Plan (2024) proposes the digitalization of building permit processes, including the use of online portals and two-phase approval systems, which help reduce bureaucratic delays and improve coordination between stakeholders (Federal Office for Housing, 2024b).

The skilled labour shortage in the construction sector is due to multiple factors. Demographic changes, such as an aging population and lower youth participation in trades, have reduced the domestic supply of qualified workers. Outlined in the Housing Shortage Action Plan (2024) and in the Annual Report 2024 of the Federal Office for Housing, the Swiss government and industry stakeholders have implemented several measures, including targeted recruitment efforts, enhanced vocational training programs, and the promotion of digital and prefabricated construction technologies to boost productivity (Federal Office for Housing, 2024a; 2024b). Standardized construction methods (e.g., Germany's Typ-E) are being explored to ease technical complexity and support faster, more cost-efficient development.

Additionally, objections and referendums are often seen as contributing to Switzerland's housing shortage, though limited data prevents firm conclusions. In late 2024, the ARE and BWO commissioned a study on the impact of legal remedies on construction projects. Preliminary findings suggest that objections and appeals reduce legal and planning certainty for development projects, thereby increasing the risk of investment. The final results are expected to be released in the summer of 2025.

Switzerland promotes sustainable housing through the widespread adoption of Minergie standards, which establish rigorous benchmarks for energy efficiency, insulation, and the integration of renewable energy in new and renovated buildings (Kempf, 2023). By 2008, over 15% of all new buildings were Minergie-certified, with uptake especially high in wealthier, German-speaking municipalities (Salvi & Syz, 2011). These voluntary certifications support national goals under the Energy Strategy 2050 to reduce emissions in the building sector. In parallel, the Sustainable Development Strategy 2030 emphasizes compact, resource-efficient urban development by encouraging inward densification, minimizing land consumption, and better integrating housing with public transport and infrastructure to strengthen climate resilience (Federal Office for Spatial Development, 2021).

To improve the efficiency of indirect housing support, the Federal Office for Housing (BWO) has revised the loan terms under the Fonds de roulement, effective January 1, 2025, as part of the national housing shortage action plan (Federal Office for Housing, 2024b). These updated conditions provide more favourable financing options for non-profit housing developers. The revised guidelines now recognize newer sustainability certifications, such as Minergie and SNBS, by linking them to higher loan amounts. Additionally, new incentives promote the renewal of existing buildings in conjunction with inward densification, encouraging more efficient land use and alignment with national sustainability goals.

In line with these sustainability objectives, recent research by Liman, Laprise, and Rey (2025) challenges traditional approaches to estimating housing demand by incorporating ecological limits, population trends, and access to public transport. Their framework prioritizes the more efficient use of the existing housing stock, rather than relying on large-scale new construction. They propose sufficiency targets, such as 35 square metres per person, and occupancy guidelines that better reflect environmental goals. According to their analysis, much of Switzerland's expected population growth by 2050 could be met by adapting and reusing existing dwellings, particularly in areas well-served by public transportation. This shift from expanding supply to managing and retrofitting current stock aligns with climate goals and helps reduce land consumption and carbon emissions (Liman et al., 2025).

# Enabling Infrastructure

While spatial planning policy has shifted decisively toward densification since the 2014 revision of the Federal Spatial Planning Act (SPA), many municipalities report that physical infrastructure, such as water, is already operating at or near capacity (Federal Office for Housing, 2024b). This mismatch between spatial growth goals and infrastructure readiness can delay and block residential development projects, especially in dense urban cores. The issue is particularly pronounced in fast-growing municipalities that have seen increased redevelopment activity but lack corresponding investments in social and technical infrastructure. As Debrunner and Hartmann (2020) note, inner-city redevelopment is often pursued in the absence of proactive infrastructure planning, leading to bottlenecks that undermine the feasibility of densification strategies. These frictions are exacerbated by Switzerland's decentralized governance model, where infrastructure planning is fragmented across municipal and cantonal levels, complicating coordination with national housing and spatial policy.

Historically, infrastructure has shaped spatial development patterns in Switzerland. As Tschopp and Axhausen (2008) show, improvements in transport accessibility, especially via road and rail, have long been a catalyst for suburban growth. Municipalities that benefited from major infrastructure investments attracted population and economic activity, with growth waves moving progressively outward from central cities.

The Housing Shortage Action Plan (2024) advocates for the improved integration of infrastructure and housing planning, including the digitalization of building permit processes and more coordinated infrastructure assessments (Federal Office for Housing, 2024b). In parallel, Liman, Laprise, and Rey (2025) advocate for a sufficiency-oriented housing strategy that emphasizes the reuse and adaptation of existing housing stock, particularly in areas with rich infrastructure. Their analysis shows that most of Switzerland's projected population growth could be absorbed by increasing occupancy within existing dwellings in well-served areas, thereby reducing both infrastructure pressure and construction-related emissions.

Despite zoning reforms aimed at promoting compact urban growth, infrastructure deficits continue to be a binding constraint on the ground. Without concurrent investments in water, sewage, transport, and public services, even well-intentioned densification plans risk being stalled. Strengthening intergovernmental cooperation, aligning infrastructure funding with densification goals, and prioritizing brownfield redevelopment in well-connected urban cores will be essential to enabling housing growth within environmental and social limits.

# Conclusion

This chapter has examined Switzerland's housing system, focusing on policy instruments that shape supply, affordability, and long-term tenure stability. It explored how Swiss municipalities, especially Zurich and Basel, use tools such as long-term land leases (Baurecht), land value capture, cooperative financing, zoning quotas, and permitting reforms to address housing pressures. The chapter also analyzed how federal, cantonal, and municipal governments coordinate their roles within Switzerland's decentralized structure. Key themes included land governance, non-profit housing delivery, construction productivity, and sustainability. Based on this analysis, several Swiss practices offer valuable lessons for Canadian cities facing similar housing challenges.

Swiss municipalities commonly employ long-term public land leases (Baurecht) to retain public ownership while granting development rights to non-profit and cooperative developers, ensuring affordability through cost-rent models without recurring subsidies (Balmer & Gerber, 2018). This model could complement Canada's recent federal shift away from one-time land sales under the *Public Lands for Homes Plan* (Government of Canada, 2024). However, Switzerland's Baurecht system tends to prioritize larger, well-capitalized cooperatives, potentially excluding newer or more innovative actors with limited track records (Lawson, 2009). This suggests that Canada would need to carefully design lease allocation mechanisms to ensure openness and innovation in the non-profit sector. Switzerland's mandatory land value capture (LVC) also provides a strong policy precedent. Cities like Basel capture up to 50% of the land value increase from upzoning, redirecting these gains to support public infrastructure and housing (Gerber et al., 2018).

In contrast, Canadian cities largely depend on development charges that are not calibrated to address land speculation. Implementing a structured LVC model tied to transit-oriented development (TOD) zones, as proposed in Vancouver's *Official Development Plan*, could enhance infrastructure financing capacity (City of Vancouver, 2024). However, Swiss LVC systems can delay development where landowners contest valuations or resist upzoning agreements, highlighting the need for procedural clarity and legal certainty (Debrunner & Hartmann, 2020).

A third key lesson is the role of non-profit housing quotas, such as Zurich's constitutional commitment to ensure that 33.3% of its housing stock is non-profit by 2050 (Debrunner et al., 2024). While Toronto and Vancouver rely on geographically limited inclusionary zoning, a broader and legally enforceable quota system could increase predictability and scale in non-market delivery (City of Toronto, 2024). However, Zurich's experience shows that achieving such quotas is a long-term process dependent on sustained political will, land access, and cooperative sector capacity, factors not uniformly present in Canadian jurisdictions.

The 2024 Housing Shortage Action Plan emphasizes digitized permitting, standard building typologies (e.g., Typ-E), and sufficiency-based renovation strategies to reduce emissions and optimize land use (Federal Office for Housing, 2024b). These align with recent Canadian efforts, including Vancouver's Permitting Improvement Program and CMHC's Housing Accelerator Fund. However, Swiss construction productivity remains constrained by fragmented permitting at the municipal level and by strong legal protections for public opposition and appeals, which frequently delay infill and densification projects (Debrunner et al., 2024). Canada faces similar challenges, but unlike Switzerland, it lacks a consistent legal framework to balance local opposition with regional or national housing targets.

In sum, while Switzerland's housing strategies offer promising tools for enhancing affordability, resilience, and supply, particularly through land tenure reform, value capture, and cooperative finance, they are not without trade-offs. Their effectiveness depends on a strong municipal capacity, integrated infrastructure planning, and a political culture that supports long-term affordability goals.

# United Kingdom

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in the United Kingdom (UK). The UK is facing a severe housing shortage, driven by rising demand, limited supply, and increasing costs. High prices and a scarcity of affordable homes make it challenging for many people, particularly in urban areas with robust job markets, to purchase or rent suitable housing. This shortage affects community growth, leads to overcrowding, and extends waiting times for social housing. Construction has failed to keep pace with population growth and changing needs. Strict regulations, limited land availability, and rising costs frequently delay new housing projects, resulting in fewer homes being built than required each year. To address this crisis, the UK has introduced measures to improve planning efficiency, streamline construction processes, and invest in infrastructure. These efforts aim to accelerate housing development and reform support systems to enhance access to safe and affordable homes.

The UK government has introduced several targeted policies to address these housing supply issues. These include taxes on second homes such as the Council Tax Premium, Stamp Duty Surcharge, and Empty Homes Premium. Public-Private Partnerships (PPPs) have been utilized since the 1990s to integrate public planning and private investment. The Levelling Up Fund, launched in 2020, provides funding for infrastructure and housing in areas that are less developed. Other policies include the Home Building Fund that supports smaller builders, and planning reforms aimed at making it easier and faster to approve new housing projects. Together, these policy approaches demonstrate how the UK is addressing its housing challenges through financial tools, private sector collaboration, and public investment. While each policy presents its challenges, they represent important steps toward increasing housing supply, improving affordability, and promoting fair and sustainable community growth.

## Financial Levers and Market Incentives

The UK government utilizes financial tools such as taxes, fees, grants, and loans to address the housing supply shortage issue. These tools aim to encourage investment in new home construction and improve housing affordability issues. By providing financial assistance and incentives, the government aims to decrease the risk faced by developers and encourage the faster construction of new houses. These financial measures play a crucial role in shaping the housing market and improving supply. The UK is dependent on financial policies to help increase housing supply and affordability. These include taxes, subsidies and funding programs developed to encourage builders and investors to invest in developing more houses. By reducing financial barriers and offering support, the government aims to increase housing construction and improve accessibility for individuals.

Taxation policies targeting second homes are a crucial tool used in the UK to address housing affordability and market pressure in regions with rising second-home ownership. Tax base measures included council tax premiums, stamp duty surcharges, and empty homes premiums, which were developed to discourage excessive second-home ownership and increase revenue to address local housing needs (Sandford, 2024; Masala, 2025). Starting in April 2025, local authorities in England will be granted the power to impose increased council tax on second homes, following similar measures already implemented in Wales and Scotland (Sandford, 2024)[11]. The aim of this premium is to reduce the financial appeal of second homeownership, particularly in rural or high-demand areas where second homes drive up property prices and reduce housing availability for residents. For example, in Wales, second homes are subject to the full council tax rate without any discount, while in England, the standard discount is currently limited to 10 percent (Sandford, 2024).

[11] Measures such as council tax premiums and stamp duty surcharges on second homes are intended to curb speculative investment and raise revenue to support housing affordability.

Local areas such as Cornwall have introduced planning restrictions that limit the construction or conversion of properties into second homes or holiday lets. These measures aim to prioritize housing for permanent residents, manage tourism-related housing pressures, and maintain year-round community cohesion (Hilber & Schoeni, 2016). Research suggests that tax-based measures can influence the housing market by making second homeownership financially less attractive, thereby easing pressure on housing prices and improving affordability for residents (Gallent et al., 2005; Powel et al., 2021). The effectiveness of such policies depends on their design and local implementation. For instance, the Empty Homes Premium encourages owners to occupy or sell long-vacant properties, thereby increasing the supply of homes available for permanent residents (Sandford, 2024). Additionally, revenue generated from these taxes can be reinvested into affordable housing initiatives and broader community development (Powel et al., 2021).

PPPs are another important financial tool the UK uses to improve housing supply. These are agreements between the government and private companies that share money, skills, and risks to deliver public projects, such as housing, roads, and schools (Deakin, 2002; Hood et al., 2006). Since the 1990s, the UK has used the Private Finance Initiative (PFI) to build and manage public infrastructure under contracts lasting 20 to 35 years (Hood et al., 2006; Siemiatycki, 2011). PPPs bring in private investment when public funds are not enough, helping speed up construction and increasing housing supply.

Public-private projects have faced ongoing concerns related to transparency, accountability, and value for money. Hood et al. (2006) highlights that limited public disclosure of risk allocation and financial returns often benefits the private sector disproportionately. The lack of transparency around private firms' profit motives and risk exposure raises questions about whether these projects deliver fair financial value to taxpayers. Additionally, the complexity of public-private contracts, combined with their lengthy timeframes, can present challenges for public sector oversight and political accountability. However, stable networks and repeated collaboration between public and private partners can help reduce transaction costs and promote knowledge sharing, which in turn can enhance efficiency and foster innovation in project delivery (Siemiatycki, 2011). They also utilize a combination of funding sources, including government grants, private loans, and equity, with repayment terms based on performance (Deakin, 2002). These financial methods help attract private investment, stimulate economic activity, and support affordable housing in areas where government funding alone is insufficient (Hood et al., 2006).

Beyond financial incentives, the political and social context significantly influences the success of public-private policies. Public acceptance often depends on whether the benefits are clearly communicated, whether transparent consultation processes are in place, and whether there is solid evidence of long-term value for money (Deakin, 2002). When aligned with broader policy goals, such as urban regeneration, sustainability, and social inclusion, public-private initiatives can make a meaningful contribution to balanced community development (Tunstall, 2003). Mixed-tenure housing developed through public-private projects is a key example of how financial mechanisms can support policy objectives by fostering socially and economically diverse communities (Tunstall, 2003). Financial value is particularly important for public investors, as it can be used to fund urban development and regeneration efforts, often through short-term decision-making strategies that aim for long-term impact (Barnfield, 2023).

A successful example of a public-private partnership in the UK is the Havering and Wates Joint Venture Partnership, launched in 2018 between the London Borough of Havering and Wates Residential. This £1 billion regeneration project aims to deliver over 3,000 new homes across 12 estates through a 50:50 Joint Venture Company (JVC). The initiative demonstrates how a clear policy and regulatory framework can support effective collaboration, with the partnership aligned with Havering's Local Plan and the Greater London Authority's housing goals. This policy clarity, combined with robust legal agreements, created a stable environment for investment and long-term planning.

Risk allocation was carefully structured: the council retained land ownership and planning risk, while Wates assumed construction, design, and sales risks. Profits and losses were shared equally, encouraging both parties to manage risks in a collaborative manner. The project also preserves public benefits, committing to at least 50% affordable housing, including social rent and shared ownership. It guarantees existing tenants the right to return and reinvests revenues into local infrastructure. By leveraging the joint venture model, this partnership balances financial value

with long-term social outcomes, offering a strong example of how PPPs can advance affordability, regeneration, and inclusive growth.

In addition to the above policies, the Levelling Up Fund, introduced in 2020, is another key policy that uses financial tools to support housing and infrastructure in key areas. The fund provides £4.8 billion to support local economies and housing growth, particularly in areas where services and jobs are scarce (Martin et al., 2022). However, the policy faces some problems. It is complicated, not well communicated, and complex to manage at the local level (Connolly, 2021; Fransham et al., 2023). Many areas also lack the necessary staff and resources to deliver projects effectively.

Political and economic uncertainty, particularly following Brexit, has made things more challenging, delaying regeneration in some areas and raising questions about who is in charge (Liddle et al., 2023; Gray & Broadhurst, 2023). Still, the fund offers tax benefits and grants to attract private investment, especially from small and medium-sized developers. These builders often struggle with rising costs and strict rules. Programs like the Home Building Fund offer loans to help developers, particularly small and medium-sized enterprises (SMEs), unlock and build on previously underutilized sites such as old industrial lands (brownfields), encouraging faster construction in areas targeted for growth (Giordano, 2020; Fraser et al., 2021; Martin et al., 2021; Barnfield, 2023; Cotton et al., 2024; Mulcahy, 2024).

These policies have contributed to improving housing supply but have not fully resolved the underlying issues. Taxes on second homes have curbed demand in some areas, yet they fail to address deeper challenges such as limited land availability and slow construction rates. Public-private partnerships bring essential investment but often lack transparency and fair risk-sharing. While the Levelling Up Fund supports infrastructure, its impact is hindered by limited local capacity and coordination issues.

# Land Supply and Regulatory Environment

The lack of new housing supply construction remains a major issue in many UK cities. This is primarily driven by restricted land availability, stringent planning regulations, and local opposition to new development (Gallent & Tewdwr Jones, 2001; Powel et al., 2021). Planning regulations further slow the pace of development. Zoning laws and land use policies often prioritize environmental conservation over new construction (Gallent & Tewdwr Jones, 2001). While these policies aim to protect the local landscape and character, they can also restrict the potential for expanding the housing supply to meet community needs. Moreover, local authorities often have limited capacity to enforce or revise these planning frameworks. Measures such as council tax premiums and stamp duty surcharges on second homes are intended to curb speculative investment and raise revenue to support housing affordability. However, these financial tools do not address underlying issues related to land supply and planning constraints (Sandford, 2024; Masala, 2025). Public opposition to new housing, often driven by concerns over changes in community character, increased traffic, or environmental impacts, further delays efforts to expand the supply (Gallent & Tewdwr Jones, 2001; Powel et al., 2021).

The UK's planning system is complex and slow in terms of approving new developments. Planning delays and strict building regulations add up to construction costs and decrease incentives for developers to build new affordable homes (Gallent & Tewdwr Jones, 2001). Approval processes are lengthy, and fewer homes are built, resulting in a worsening supply-demand imbalance (Powel et al., 2021). These regulations are designed to safeguard local heritage and the environment but often slow down development approvals and limit the scope of new housing projects, including those led by public-private partnerships (Hodge & Greve, 2016). As a result, project costs increase and delivery timelines are extended, which can reduce the financial viability of developments and discourage private sector investment in such partnerships (Siemiatycki, 2011). Efforts are being made to restructure land-use policies. Local authorities have developed measures to encourage the utilization of empty or underused homes, which include increasing the council tax premium on long-term empty properties and second homes (Sandford, 2024).

The UK government has attempted to reform the planning system, but the response has been limited and largely ineffective. One proposal involves allowing development on certain parts of the Green Belt, which are safeguarded areas referred to as “grey belt” land. However, strict regulations, such as those requiring affordable housing to be delivered through complex mechanisms like Section 106 agreements, make implementation challenging (Cheshire, 2024a). These rules increase risk and cause delays, particularly for smaller developers, ultimately reducing the overall supply of new housing.

The Levelling Up Fund, introduced in 2020, is another tool to enhance the use of land. It provides funding to local councils for projects that support economic growth, improved transportation, and housing development. The fund focuses on areas with weak infrastructure or fewer job opportunities (Levelling Up Fund Prospectus, 2021). However, while the fund encourages faster approvals and zoning changes, many local governments lack the necessary staff and technical capacity to manage complex planning processes, which slows project delivery (Fransham et al., 2023; McCann et al., 2023; Jones, 2025). The Levelling Up Fund does not currently include a strong technical assistance or capacity-building component, which leaves resource-constrained councils at a disadvantage. To improve outcomes, targeted support, clearer planning frameworks, and long-term investment in local planning teams are needed (Mulcahy, 2024; O’Shea, 2025).

The Levelling Up Fund is structured to prioritize high-value projects that support economic recovery and improve connectivity (Levelling Up Fund Prospectus, 2021). Although Levelling Up promotes zoning reforms and faster approvals, limited local capacity and fragmented governance impede swift implementation. Striking a balance between community interests and environmental concerns is critical for success (Gibb & O’Sullivan, 2010; Laffin, 2015; Fransham et al., 2023; McCann et al., 2023; Mulcahy, 2024; O’Shea, 2025; Jones, 2025).

Still, private firms often benefit more from land development projects than the public, especially when rules and profits are not transparent (Deakin, 2002; Hood et al., 2006). For this reason, better procurement and contract design are needed to ensure that public-private partnerships offer fair value to taxpayers. The design of strong contracts and regular reviews helps ensure that risks are shared and that developers deliver the promised results.

# Construction Productivity and Technology

The construction sector faces significant productivity challenges, with output growth lagging behind other industries. This low productivity constrains the rate of new housing development needed to meet local demand, especially in rural and high-demand areas where secondary homes are concentrated (Gallent & Tewdwr Jones, 2001). The UK has adopted construction methods such as modular and prefabricated housing, which have the potential to accelerate building rates and reduce costs (Powel et al., 2021). However, these technologies remain underutilized due to regulatory barriers and the conservative nature of traditional construction practices (Gallent & Tewdwr Jones, 2001).

To increase the number of houses being built, the UK is using modern construction methods and digital technologies. These methods are primarily used in PPPs, where the government works with private companies. A popular approach is modular or prefabricated construction, where parts of homes are built in factories and then assembled on-site. This saves time, lowers costs, and reduces weather delays (Hodge & Greve, 2016; Siemiatycki, 2011). It is also less disruptive in busy cities and helps projects get finished faster, which is important for both builders and residents.

Another useful tool is BIM. This digital technology uses 3D models to help builders and planners avoid mistakes and manage construction more smoothly. BIM is becoming a requirement in many government contracts because it enhances communication, reduces risks, and keeps projects on track (Hodge & Greve, 2016; Public-Private Partnerships, 2006). Labour shortages are a big problem in the UK’s construction sector. That is why the government supports workforce development programs, such as apprenticeships and training, to ensure there are enough skilled workers for modern construction (Hodge & Greve, 2016; Cheshire, 2024b). Policies such as the Apprenticeship Levy and the Construction Sector Deal have aimed to expand training opportunities and align skills with new technologies. These efforts, along with a growing focus on digital tools such as BIM and off-site

construction, have contributed to improved labour productivity in the UK's construction sector since 2017, placing it ahead of some other G7 countries in relative terms (Cheshire, 2024b).

The UK Levelling Up Fund, launched in 2020, supports these efforts by providing £4.8 billion in funding for infrastructure and construction projects in underserved areas (Barnfield, 2023). It also supports small and medium-sized builders, particularly through the Home Building Fund, which provides loans to those utilizing innovative building techniques (Martin et al., 2022). The goal is to expedite housing delivery, stimulate local economies, and promote the adoption of new technology.

Public-private partnerships play a central role in delivering these types of projects. These partnerships often utilize complex contracts and stringent performance standards, which encourage private builders to adopt more effective tools and construction methods (Siemiatycki, 2011).

# Enabling Infrastructure

The availability of adequate infrastructure is essential for effective housing development. Infrastructure includes critical services such as sewage, roads, water supply, and public transport, all of which enhance the attractiveness and functionality of housing developments (Gallent & Tewdwr Jones, 2001; Powel et al., 2021). Investing in infrastructure can unlock land that would otherwise be unsuitable for development due to a lack of service connections. In rural and high-amenity areas with a large proportion of second homes, improving utilities and transport links can support more permanent housing, offering viable alternatives to second home ownership (Sandford, 2024). However, infrastructure alone is not enough to address housing challenges. It must be accompanied by responsive land use and planning policies that actively encourage new housing development (Gallent & Tewdwr Jones, 2001). Local authorities can reinvest revenue generated from council tax premiums on second homes into infrastructure projects. This reinvestment can improve roads, utilities, and public transportation, making areas more livable and encouraging permanent residency over occasional or seasonal use (Sandford, 2024).

PPPs have an important role in developing this infrastructure. The availability of adequate infrastructure is essential for effective housing development. Infrastructure includes critical services such as sewage, roads, water supply, and public transport, all of which enhance the attractiveness and functionality of housing developments (Gallent & Tewdwr Jones, 2001; Powel et al., 2021). Investing in infrastructure can unlock land that would otherwise be unsuitable for development due to a lack of service connections. In rural and high-amenity areas with a large proportion of second homes, improving utilities and transport links can support more permanent housing, offering viable alternatives to second home ownership (Sandford, 2024).

Regions facing high pressure from second homes, such as North Wales and Cornwall, underscore the urgent need for improved infrastructure to support balanced housing growth (Powel et al., 2021). Enhanced local transport connections are particularly important, as they link rural areas to nearby towns and employment centers. Improved mobility can reduce isolation and attract full-time residents, helping to mitigate the "ghost town" effect caused by seasonal vacancies. Additionally, modern infrastructure development in the UK supports broader sustainability objectives. Energy-efficient utilities and integrated public transport networks are vital for building livable, resilient communities that can accommodate population growth without placing excessive strain on natural resources (Gallent & Tewdwr Jones, 2001). This aligns with the UK government's objectives for green housing development and achieving net-zero carbon targets.

One of the key policies supporting this is the UK Levelling Up Fund, launched in 2020. The fund provides £4.8 billion to improve local infrastructure and support regional development, particularly in areas with limited job opportunities and inadequate transport systems (Barnfield, 2023). A major focus of the fund is to support the use of modern building methods, such as modular homes, and encourage faster project delivery (Jones, 2025). It also supports infrastructure upgrades, such as roads and digital networks, which are essential to connect housing with jobs and services (Connolly et al., 2021). However, some regions struggle with limited staff and poor coordination, which slows down the delivery of projects (Fransham et al., 2023).

The Home Building Fund provides loans to smaller builders, enabling them to utilize new technologies and construct homes on previously unused land, such as brownfield sites (Martin et al., 2022). This encourages innovation and helps small and medium size enterprise (SME)s, who often cannot compete with large developers. These policies support faster construction and increase housing supply, especially in hard-to-reach areas (Giordano, 2020; Fraser et al., 2021).

# Conclusion

The UK's policies offer valuable insights into how to address housing supply issues. Financial levers, such as loans, grants, and tax incentives, are essential for motivating private investors, particularly small and medium-sized builders. High construction costs and complicated rules restrict investment potential (Barnfield, 2023; Sandford, 2024; Masala, 2025). Public-private partnerships facilitate the raising of funds and expedite delivery; however, transparency and balance in risk allocation between private and public companies are necessary for effectiveness (Deakin, 2002; Hood et al., 2006).

The UK's use of targeted financial incentives, such as taxing second homes and supporting SME builders, can be adapted in Canada to discourage speculative demand and empower smaller developers, especially in high-demand urban regions. The UK's strategic use of joint ventures and public-private partnerships demonstrates how risk-sharing models can accelerate housing supply while preserving affordability, a model that Canadian cities could replicate in projects involving federal or provincial land. Canada can also draw from the UK's investment in digital construction tools and workforce development programs to address its productivity gaps, especially in provinces facing labour shortages. A coordinated federal-provincial approach, inspired by UK integration strategies, could better align infrastructure, planning, and housing delivery across Canada's diverse regions.

# United States

## Introduction

This chapter reviews policies and initiatives aimed at providing new housing in the United States (US). Given its size and diversity in demographics, topography, and local regulatory regimes, the US interventions and policies focused on increasing the supply of housing are more varied and diverse than those in other jurisdictions. Government policies in the US play a crucial role in shaping the housing market. Since the early 1930s, shifts in housing policy have addressed key issues, including affordability, accessibility, and inequality, which are core principles established in the housing framework (Ares, 2025). These policies are quite complex and span a range of concerns, including, but not limited to, urban planning, tax-based incentives, and multidimensional housing initiatives.

Local governments play a critical role in shaping housing supply by determining what can be built and where. A well-established body of literature has shown that government regulation influences both housing prices and supply (e.g., Glaeser, Gyourko, & Saks, 2005; Molloy, 2020; Eicher, 2024). In recent years, zoning and land-use planning policies have undergone significant changes in many jurisdictions, largely in response to a persistent shortage of new housing. For instance, since 2017, the state of California has enacted more than 100 housing-related laws to address this issue (Fulton et al., 2023). In response, a range of zoning reforms have emerged, including but not limited to policies supporting ADUs, modular and prefabricated homes, and increased housing density.

The evolution of the U.S. housing finance system in the early 20th century was significantly shaped by the federal government's interventions during the New Deal, including the introduction of government-backed mortgage insurance, the creation of a secondary mortgage market, and the promotion of long-term, fixed-rate mortgages (Schwartz, 2021). Over time, this framework expanded to include tax-based incentive programs, shifting greater attention to the role of federal tax policy in shaping housing outcomes.

## Financial Levers and Market Incentives

Tax-based incentives are integral components of affordable housing provision, substantially impacting housing tenure, production, and affordability requirements (Holmans *et al*., 2002; Kim, 2022; Paccoud *et al*., 2022). Such incentives have been implemented in cities across the United States to encourage builders to construct more homes. According to Hewlett et al. (2025), housing-related tax-based programs encompass various forms, including direct property tax abatements and tax exemptions provided through public facility corporations for new housing developments. Some operate independently, while others are combined with federal or state incentives to make projects that aim to make greater affordability more financially feasible. Tax abatements can be defined as "*temporary reductions in property tax liability granted to specific properties, typically aimed at supporting broader goals like economic development or redevelopment, and not just providing tax relief*" (Mikesell et al., 2002).

Robert Charles Lesser & Co. (RCLCO), in a study commissioned by the National Multifamily Housing Council (NMHC, 2025), examined diverse tax-based incentive programs across major U.S. cities. The study examined four distinct tax-incentive schemes: Tax Abatement, Exemptions, Tax Credit Programs, and Payment in Lieu of Taxes (PILOT). Tax abatements can be broadly defined as "*temporary reductions in property tax liability granted to specific properties, typically aimed at supporting broader goals like economic development or redevelopment, and not just providing tax relief*" (Mikesell et al., 2002). However, in this context, they are defined more narrowly as a direct reduction in taxes. Tax Exemptions refer to programs that exclude certain properties from taxation, thereby lowering their overall assessed value. Tax Credit Programs function similarly to the Low-Income Housing Tax Credit Program but are implemented at the municipal level. In these programs, municipalities allocate a lumpsum amount to a project, which can then be applied toward its real estate tax bill over a set period (typically 10 years).

Lastly, PILOT programs involve payments that start slightly above the property's pre-development assessed value and can increase annually. This structure enables municipalities to recoup some of the revenue lost through

abatements over time. The report finds that, although the overall contribution to a city's housing inventory has been modest, in some years these programs have accounted for up to 40 percent of new housing deliveries. The complete set of results is summarized in Figure 8. Tax-based incentive programs have played a vital role in encouraging the development of affordable housing. Without such incentives, constructing affordable units would have proven even more challenging. Taking Minneapolis and San Antonio as examples, tax-driven policies resulted in 68 percent and 81 percent more affordable units, respectively. Cities with lower mandated thresholds for affordable dwellings were also able to increase the supply of affordable housing.

| *Geography* | Minneapolis | Portland | St. Louis | Buffalo[8] | Seattle | Los Angeles | Manhattan[9] | San Antonio |
|---|---|---|---|---|---|---|---|---|
| *Program Type* | Abatement | Exemption | Abatement | PILOT | Exemption | Partial Exemption | Abatement with cap | PFC Exemption |
| *Avg. % of Annual Deliveries Utilizing Program*[10] | 1.9% | 19.0% | 34.8% | 39.2% | 44.5% | N/A | 37.6% | 16.9% |
| *% of 2023 Inventory Utilizing Program*[11] | 2.5% | 4.8% | 4.6% | 17.4% | 18.9% | 1.0% | 4.6% | 3.8% |
| *Avg. Year Built of Buildings Utilizing Program* | 1949 | 2015 | 1973 | 1985 | 2016 | 1933 | 2008 | 2017 |
| *Avg. Number of Units in Buildings Utilizing Program* | 17 | 118 | 115 | 96 | 114 | 49 | 149 | 251 |
| *Avg. % Affordable in Buildings Utilizing Program* | 68.1% | 33.8% | 23.3% | Minimum 60%[12] | 20.8% | N/A | Minimum 25%[13] | 80.7% |

Figure 8: Case Study Results [Sourced: NHMC Report]

Similarly, Wijburg (2024) note that the role of tax-incentivized housing subsidies is to facilitate private investment and promote affordable housing production. In these tax-incentive schemes, property tax-based mechanisms are leveraged to promote economic development. Bartik (1994) argues that the central rationale behind tax abatement programs is that incentives can shift jobs from areas with low unemployment to those with high unemployment, thereby increasing overall regional utility. While municipalities may initially forgo some tax revenue, these programs can generate long-term benefits that outweigh the short-term costs. The direct benefit is the stimulation of new housing development, which attracts investment and increases the housing supply. Additionally, over time, the presence of new residents contributes to the local economy through increased consumer spending and income tax revenues, which can further enhance municipal revenue potential (Hewlett et al., 2025).

Tax incentives can significantly enhance the financial viability of development projects that might not otherwise proceed, a point that has been previously raised. Most real estate developments rely on a combination of equity and debt financing; however, affordable housing projects often face unique challenges in securing adequate funding. For instance, lenders have become accustomed to the higher returns typically associated with condominium developments (Canadian Centre for Economic Analysis, 2019). As a result, projects such as purpose-built rental buildings may struggle to compete for financing. In many cases, developers face funding gaps due to factors such as lenders mandating low loan-to-value ratios or insufficient equity investment. These gaps can delay or prevent a project's completion altogether. In such cases, tax abatements or exemptions can play a critical role in bridging the financing gap, making otherwise unviable projects financially feasible. Tax incentives also provide ongoing benefits to properties after they are constructed. By reducing the property tax burden, they help building owners and developers offset revenue losses associated with offering affordable rents. This creates a stronger incentive for private sector participation in affordable housing programs (Hewlett et al., 2025).

The NMHC report (Hewlett et al., 2025), referenced earlier, evaluates the return on investment of various tax incentive programs from the perspective of local governments, finding that these incentives yield both tangible and intangible benefits. Across the policies analyzed in the report, each municipality experienced tax benefits in return for every dollar spent on tax incentives (see Table 7 for further details). Regardless of the location, a positive return was still achieved, with case studies showing an indirect tax benefit of between $1.83 and $39.82 for every dollar invested in a tax incentive program.

Table 7: Annual Tax Benefit for Every Dollar Spent on a Tax Incentive [Sourced from the NMHC report]

| City | Tax Program | Tax Benefit |
|---|---|---|
| Minneapolis | Abatement | $13.71 |
| Portland | Exemption | $2.25 |
| St. Louis | Abatement | $2.87 |
| Buffalo | PILOT | $26.45 |
| Seattle | Exemption | $39.82 |
| Los Angeles | Partial Exemption | $37.36 |
| Manhattan | Abatement with Cap | $1.83 |
| San Antonio | PFC Exemption | $2.24 |

Additionally, Oates and Schwab (1997) examined the tax regime in Pittsburgh, which adopted a split-rate tax system in 1913. This system allowed for different tax rates on land and buildings, with the specific goal of encouraging development by reducing the tax burden on property improvements. In 2001, following broader changes in assessment practices nationwide, Pittsburgh reverted to a traditional single-rate property tax. Despite challenges in isolating the direct effects of the land tax due to other influencing factors, Oates and Schwab found that the split-rate system played a significant role in promoting commercial investment. Their analysis showed that construction activity in Pittsburgh significantly outpaced that of comparable cities with similar economic conditions. Specifically, between 1960 and 1979 and 1980 and 1989, the average annual value of building permits in Pittsburgh increased by 70 percent, while the comparison group of cities experienced an average decline of 14 percent.

# Land Supply and Regulatory Environment

Supply constraints in housing markets are typically defined as barriers to the construction of new developments (Lynn et al., 2010). A review of academic literature reveals that housing supply challenges have persisted for decades. While some critics emphasize demand-side factors in explaining the housing affordability crisis, a growing body of research highlights the limitations on housing supply driven by geographical, political, and regulatory constraints, which have worsened the affordability crisis. Several empirical studies have provided evidence that excessive regulatory burdens increase dwelling prices, reduce housing construction, and lower the elasticity of the housing supply (e.g., Gyourko and Molloy, 2015; Molloy, 2020). Building on this, Florida (2016) argues that restrictive land-use policies and building codes in urban areas further limit housing development, increase construction costs, and exacerbate the affordability problem.

As mentioned earlier, a substantial body of literature supports the view that land use and zoning regulations contribute to the erosion of housing affordability. However, there are also opportunities to expand the housing supply by examining existing zoning policies and reforming current land use regulations. Hanley (2023) examines

land-use policies and identifies six potential solutions at the state and local levels to increase housing supply. These recommendations are summarized in Table 8.

Table 8: Six Reform Policies based on Hanley (2023)

| *Zoning Reforms* | *Brief Description* |
|---|---|
| Eliminate Single-Family Zoning | Removing single-family zoning allows for a greater variety of housing types (i.e., duplexes, triplexes, and apartments) on residential lots, helping to increase housing supply and affordability. |
| Bundle Zoning Reforms | Combining reforms like reducing minimum lot sizes, adjusting height and setback limits, and eliminating floor-area minimums enables more flexible, higher-density development and encourages diverse housing options. |
| Increase Density near Transit | Allowing greater housing density near transit hubs supports transit-oriented development, reduces car dependence, and improves access to jobs, services, and affordable housing. |
| Eliminate Off-site Parking Requirements | Removing mandatory parking minimums reduces development costs, promotes more efficient land use, and fosters more sustainable, walkable communities. |
| Allow Accessory Dwelling Units and Single Room Occupancy | Legalizing ADUs and SROs expands affordable housing options within existing neighbourhoods by allowing small, secondary units and low-cost individual accommodations. |
| Incentivize Zoning Reform | Federal grants and state legislation can encourage local governments to adopt zoning reforms by connecting funding to pro-housing policies and removing regulatory barriers to development. |

In a literature review of all empirical research on housing-related land use regulatory change, Freemark (2023) analyzed the effects of upzoning and downzoning on residential construction and housing costs. Reviewing twenty-six studies, the findings suggest that upzoning yields mixed outcomes in terms of housing production, affordability, and social integration in affected neighbourhoods. These outcomes are highly context-dependent, varying according to factors such as market demand, local conditions, housing typologies, and the timing of regulatory changes. In the short term, neighbourhood-level studies report increases in housing construction, particularly for Accessory Dwelling Units (ADUs), while others observe no significant impact. Over the long term, the evidence generally supports the conclusion that upzoning facilitates increased residential development, whereas downzoning is associated with reduced housing production and lower density.

California Senate Bill (S.B.) 9 exemplifies this approach, aiming to boost housing supply by streamlining development in single-family zones. The bill modifies existing density restrictions, allowing property owners to subdivide lots and

build ADUs (Association of Bay Area Governments, 2025). The changes can be implemented without requiring discretionary approval from local governments. Garcia and Alameldin (2023) write that the bill has the potential to address California's housing shortage by increasing density in single-family neighbourhoods and expanding homeownership opportunities, but its success depends on effective implementation. The impact thus far has been marginal due to factors related to planning department constraints, high interest rates, inflation, and construction challenges.

Freemark (2023) suggests that maintaining existing land use regulations or implementing downzoning can exacerbate housing affordability challenges and reinforce inequalities by limiting development in high-demand areas. The study emphasizes the importance of land-use reform, particularly upzoning, as a mechanism to enable higher-density residential construction. In addition, Freemark highlights bundling strategies, such as leveraging public land, integrating transportation and land-use planning, and pursuing coordinated large-scale development in targeted growth areas, as critical components for expanding the housing supply and improving affordability.

Additionally, the current regulatory environment for housing development presents several critical challenges that directly impact housing supply. These regulations have been known to increase the time it takes for permit approvals and sometimes impact on the final purchase price of the house (e.g., Quigley & Rosenthal, 2005; Eicher, 2024). Strict building codes and regulations raise construction costs while creating complex compliance barriers that disproportionately affect smaller developers with limited resources. Building codes can discourage cost and time-saving housing designs and innovations in construction by strictly prescribing certain methods or making it difficult for designers and builders to demonstrate that new approaches meet performance standards (e.g., Blackley & Shepard, 1996).

Oregon House Bill 2001 (HB 2001), enacted in 2019, was the direct result of stringent single-family zoning rules in major metropolitan cities within Oregon. The bill was designed to help alleviate the current zoning rules in favour of increasing density and allowing for more housing choice for residents, i.e., a diverse housing stock. HB 2001 mandated that small cities allow the development of duplexes and that larger cities allow up to fourplexes, while still building single-family homes. The new bill would allow cities with over 10,000 residents to build duplexes on all residential lots. In Cities with over 25,000 residents and those in the Portland metro area, permits were granted to construct triplexes, fourplexes, cottage clusters, and townhouses in areas previously zoned for single-family homes (Oregon Department of Land Conservation and Development, 2019). In a study conducted by Treskon et al. (2023), it was found that the number of permits issued for duplexes, triplexes, and fourplexes in Oregon's large cities increased by 12%. Despite this, they concluded that its full impact will still be several years away. A total of $3.5 million in funding would be provided to the Department of Land Conservation and Development to support local governments in two key areas: (1) developing regulations to allow duplexes and other types of middle housing, as outlined in the bill, and (2) creating plans to improve water, sewer, storm drainage, and transportation infrastructure in areas where such housing is currently infeasible due to service limitations (Oregon Department of Land Conservation and Development, 2019).

In a 2021 review of regulatory costs by the National Association of Home Builders, Emrath (2021) found that government regulations collectively contribute 24 percent to the final price of a new single-family home. When broken down by project phase, 11 percent of total costs are incurred during land development due to permitting requirements, impact fees, and zoning compliance. Additionally, an additional 13 percent stems from construction-related regulations, including building codes, inspection mandates, and labour standards. In the survey, nearly 90 percent of the builders reported that, at some point in the construction process, regulations caused delays.

The rising costs associated with regulatory compliance have spurred technological innovation as a potential solution. A prime example is the use of online permitting tools, such as Cloudpermit. Cloudpermit is a cloud-based system that manages building permits, development applications, and inspections. The implementation of a digital permitting platform has significantly improved municipal operations by streamlining review processes, providing real-time status updates, and enhancing communication between applicants and city officials. For example, the Town of Searsport, Maine, reduced its average permit turnaround time from two weeks to less than four hours after adopting Cloudpermit's online platform in 2023. (Cloudpermit, 2024).

# Construction Productivity and Technology

Construction in the United States has become a significant issue in the context of housing affordability, and economists have identified it as a key factor behind the long-term slowdown in national economic growth. According to Foerster et al. (2022), it explains more than 25 percent of the postwar decline in GDP growth trends (0.75/2.8 point drop). Other works have argued against claims that the lack of growth in construction productivity is not due to problems with the statistics or methods used to measure it. Goolsbee and Syverson (2023) demonstrate that the output per construction worker decreased by 40 percent from 1970 to 2020, providing evidence that this decline is genuine and not due to measurement issues. D'Amico et al. (2024) argue that land-use regulations have significantly affected the productivity of residential construction firms. Their findings indicate that areas with stricter land-use rules tend to have smaller, less efficient construction companies. Over time, both firm and project sizes have declined in conjunction with increased regulation, while innovation within the sector has also stagnated. A back-of-the-envelope calculation suggests that if even half of the observed productivity gap related to firm size were addressed (*by shifting the size distribution to resemble that of the manufacturing sector*), residential construction productivity could increase by approximately 60 percent.

There have been programs designed to improve construction productivity in the United States. For example, Build California is a program of the AGC Construction Education Foundation (CEF). This comprehensive workforce development program was created to inspire, engage, and activate the next generation of California's construction workforce (Build California, 2025). At the national level, the State Apprenticeship Expansion, Equity, and Innovation (SAEEI) Grant Program provides funding for governor-led state initiatives focused on expanding, diversifying, and modernizing registered apprenticeship programs. These grants provide states with the flexibility to address specific industry needs and workforce demands (U.S. Department of Labor, 2021), including advanced manufacturing, healthcare, hospitality, and other in-demand occupations identified by Regional Economic Development Councils (REDCs).

In addition to government-led training programs and grants, the U.S. has seen growth in innovative factory-built housing, which helps address labour shortages and combat the housing shortage and rising construction costs. Companies like Boxabl are modernizing prefabricated home construction using automated production lines, 3D modelling, strict quality control, and just-in-time inventory systems, thereby improving efficiency and minimizing waste (Kamali & Hewage, 2016; Buchanan, 2025). In 2025, Boxabl received approval under Nevada's Residential Building Code, enabling wider deployment within the state (Mandt, 2025). State rezoning policies, such as Oregon's HB 2001, encourage higher-density housing in areas previously zoned for single-family use, making prefabricated homes more viable.

Recently, many states have seen the practical implications of modular housing and have amended their housing policy (during the 2024 legislative session) to expand housing choices and access for manufactured housing. Maine and Maryland enacted laws requiring that manufactured homes be permitted in the same locations as single-family dwellings. Rhode Island passed a similar bill in the House, now under Senate review. In New Hampshire, new legislation prohibits municipalities from entirely restricting the placement of manufactured housing. A detailed review of the changes is listed in Table 9.

Table 9: Changes to State Policies

| State | Title | Primary Sponsor(s) | Synopsis | Status |
|---|---|---|---|---|
| Maine | L.D. 337 – An Act to Amend the Regulations of Manufactured Housing | Rep. Cheryl Golek | Requires municipalities to permit manufactured housing in areas where single-family dwellings are permitted, subject to the same design standards. | March 19, 2024 – Signed by Governor. |
| Maryland | H.B. 0538 – Housing Expansion and Affordability Act of 2024 | Speaker Adrienne Jones (on behalf of Gov. Moore's administration) | Prohibits local governments from banning manufactured or modular homes in zoning districts that allow single-family residential use under certain conditions. | April 25, 2024 – Signed by Governor. |
| New Hampshire | H.B. 1361 – Municipal Land Use Regulation for Manufactured Housing | Rep. Joe Alexander | Requires municipalities to provide realistic opportunities for placing manufactured homes in residential districts and for expanding existing manufactured housing parks. | May 20, 2024 – Signed by Governor. |
| Rhode Island | H.B. 7980 – Relating to Mobile and Manufactured Homes | Speaker Shekarchi and Reps. Blazejewski, Cruz, Morales, Speakman, Spears, Craven, Azzinaro, Casimiro, Solomon | Adds a definition for manufactured homes and allows certain ones to be classified as single-family homes if located on designated lots. | April 16, 2024 – Passed by House, referred to Senate. |

A growing number of construction firms worldwide are adopting advanced technologies to reduce costs and enhance productivity across both project execution and management functions. Technological integration has become a central focus for improving operational efficiency within the sector. In a systematic review of modern construction methods, Sánchez-Garrido et al. (2023) identify Construction 4.0 as the dominant paradigm shaping industry practices. Key components include Building Information Modelling (BIM), process automation, big data analytics, cloud computing, and the Internet of Things (IoT), each contributing to greater speed, precision, and coordination throughout the construction lifecycle, beginning with the design phase.

Mayer (2024) emphasizes that project management software plays a central role in enhancing the efficiency of construction project organization. These tools optimize the allocation of resources (such as materials, labour, and equipment), thereby minimizing waste and controlling costs. Integrated features like BIM further strengthen project planning by enabling detailed digital representations of a building's physical and functional characteristics prior to construction. Through accurate visualizations and simulations, BIM supports more precise budgeting and scheduling, ultimately improving overall project outcomes. In addition to BIM, Mayer notes that the application of drones and 3D scanning enables faster and more accurate site surveys, thereby improving quality control and reducing the time and cost associated with traditional surveying methods (e.g., Choi et al., 2023). A notable example of technological integration in modular construction is Katerra, a design-built firm that adopted a technology-driven, full-service approach to large-scale prefabrication. Katerra utilizes advanced software to design every component of a building, from cladding and window placement to interior layout and then manufactures these components in a factory setting before transporting them to the construction site. This streamlined process exemplifies how digital tools and industrialized construction methods can significantly enhance productivity and cost efficiency.

The application of technology to improve efficiency represents a critical step toward enhancing construction productivity in the United States. These innovations have been particularly impactful in modular construction and during the pre-planning phase, where they streamline processes and reduce project timelines. Beyond technological advancements, addressing labour shortages remains essential. National-level initiatives, including grants and subsidies, play a key role in supporting workforce development in the skilled trades, ensuring that labour capacity can meet the growing demand for housing and infrastructure.

# Enabling Infrastructure

Access to adequate infrastructure funding is essential for successful housing development. Subdivisions cannot function effectively without fundamental services such as water, sewage, and transportation access. States play a pivotal role in facilitating this development by investing in infrastructure in advance of residential expansion. Strategic initiatives, such as constructing road networks, expanding water and sewer systems, and streamlining the creation of municipal utility districts, are critical for enabling timely and cost-effective housing growth (e.g., Clark, 2025).

Infrastructure investment supports housing supply by improving access to undeveloped or underutilized land, making new residential development more feasible and attractive. However, without responsive land use policies, infrastructure alone may not translate into increased housing supply, especially in areas with regulatory or geographic constraints (e.g., Yan et al., 2024)

Thus, calls for infrastructure investment led the United States Senate to pass the $1.2 trillion Infrastructure Investment and Jobs Act in 2021, with the sole purpose of investing in and expanding transportation, water, and digital infrastructure (Global X Research Team, 2021). Of the total amount, roughly $350 billion would be invested in transportation, transit, and water infrastructure. Despite the bill focusing on maintenance and repairs, it still provides critical funding for transportation infrastructure that can help connect city centers to new and existing housing developments. Nagpal et al. (2024) explain that the new act will have a profound impact on the marginalized community, with significant improvements to water and transportation infrastructure.

Additionally, the United States Department of Transportation offers the Better Utilizing Investments to Leverage Development (BUILD) grant program, which provides funding for surface transportation infrastructure projects with a significant local or regional impact (U.S. Department of Transportation, 2025). As outlined in the grant's scope, the Department evaluates whether and how a project will improve the quality of life. This includes increasing access to affordable transportation options; reducing transportation and housing costs through the integration of mixed-use development and diverse housing types, including affordable housing, with multimodal transportation infrastructure; and coordinating land use, housing, and transportation planning to create more livable communities (U.S. Department of Transportation, 2025). The program also aims to reduce vehicle dependence, enhance access to essential destinations such as jobs, healthcare, grocery stores, schools, places of worship, recreation areas, and parks, and mitigate urban heat islands to protect vulnerable populations such as at-risk residents and outdoor workers (U.S. Department of Transportation, 2025).

There is precedent for infrastructure-led policies successfully increasing housing stock. One notable example is the Denver Metropolitan Region's approval of the FasTracks ballot initiative in 2004, which allocated sales tax revenues to expand the city's light rail transit system (Denver Housing Authority, 2021). The ongoing project has enhanced suburb-to-suburb connectivity and added 122 miles of new light and commuter rail lines.

As part of this effort, the Denver Housing Authority (DHA) has partnered with the Regional Transportation District, the City of Denver, local agencies, and neighbourhood organizations to create transit-oriented developments along light rail corridors. These developments are adjacent to DHA-owned properties, including South Lincoln Park Homes, Sun Valley Homes, and Westridge Homes. Notable developments include the Villages at Curtis Park, which added 232 rental and 257 homeownership units, and Benedict Park Place, which introduced 688 new housing units (Denver Housing Authority, 2021). DHA has also integrated energy conservation and clean energy initiatives into its

developments to reduce the environmental footprint of its properties. Clean energy initiatives have resulted in the retrofitting of 3,800 public housing units based on LEED guidelines (Denver Housing Authority, 2021).

# Conclusion

The implementation of tax-based incentive programs in select cities has been shown to increase the housing stock across various markets. These incentives enhance the financial feasibility of development projects that might not otherwise move forward, making them an effective strategy for expanding the housing supply. In the review of case studies presented here, these incentives offer municipalities monetary benefits in addition to improving the supply and demand dynamics.

Denver's FasTracks initiative demonstrates how major transit investments can serve as a catalyst for housing growth, particularly when combined with deliberate, supportive housing policies. Municipalities in Canada could adopt a similar model by aligning federal or provincial transit funding with incentives for municipalities to build dense, mixed-income housing near transit hubs. The success of Denver's transit-oriented developments (TODs) stems from collaboration between housing authorities, transit agencies, local governments, and community groups. Canadian cities can benefit from building stronger cross-sector partnerships to plan and deliver integrated housing and transportation solutions. Modular housing in the United States has made innovative advancements, including the integration of technologies like drones for site surveys, a practice that can be applied globally. However, the broader lesson lies in the importance of shifting public perception around modular and prefabricated housing.

# Concluding Remarks

The international review of housing strategies highlights a set of common lessons for Canada. Across ten jurisdictions including Australia, Austria, Germany, Ireland, Japan, New Zealand, Sweden, Switzerland, the United Kingdom, and the United States, several recurring themes emerge in efforts to increase housing supply, improve affordability, and align development with broader social, economic, and environmental goals.

In Australia, the National Housing Accord demonstrates the power of a unified blueprint: by aligning federal, state, and local governments with private and community sectors, Australia committed to building over one million homes in five years. The Housing Australia Future Fund (HAFF) serves as an investment vehicle to support the development of new affordable housing supply through returns gained on the investment, which helps bridge the gap between construction costs and the provision of below-market-rate housing for local governments and developers. Similarly, the Home Building Finance Ireland (HBFI) program plays a key role in providing funding to borrowers who may have difficulty securing finance from banks or other alternative lenders for commercially viable residential developments. The financing mechanism varies based on project type and size and serves as a financial tool to fund affordable projects. Adopting a housing investment fund model (like the HAFF) offers a viable pathway to address Canada's affordable housing challenges. By bridging the subsidy gap and supporting long-term affordability, such an approach could enhance the effectiveness of the National Housing Strategy for Canada.

Austria's experience in Vienna demonstrates how a legislated network of limited-profit housing associations, supported by revolving public land funds and structured developer competitions, can sustain a high-quality, permanently affordable supply. Germany pairs conditional subsidies for non-profit and private rental developers with land-banking, land-readjustment, and urban development contracts that require infrastructure contributions and social-housing quotas in exchange for planning approval. Ireland's Land Development Agency (LDA) and Austria's Limited-Profit Housing Associations (LPHAs) play crucial roles in increasing the stock of new housing, through land coordination in the case of the LDA, and through the provision of affordable, cost-rent housing in the case of LPHAs. Establishing a mission-driven public entity such as Build Home Canada with revolving capital to acquire, develop, and lease publicly owned land could create a stable pipeline of mixed-income, modular-built housing projects.

Rezoning policies, such as the Low and Mid-Rise Housing policy and the Medium Density Residential Standards (MDRS), as well as Oregon House Bill 2001, Akiya Utilization Zone, allow for changes in zoning in neighbourhoods to increase housing density in well-located areas that are supported by existing infrastructure and aligned with community needs. In cities where development is challenging due to an already established built environment, such as Vancouver or Toronto, the mechanisms in these policies offer valuable insights for other markets. Encouraging density in areas with access to amenities is crucial, as it helps reduce land underutilization and better meet growing housing demand in high-need communities. For example, taking the Denver FasTrack Initiative as a case study, introducinga Transit-OrientedDevelopment (TOD) framework, whereby a share of federal and provincial transit grants is contingent on delivering affordable housing within designated station precincts.

Many countries are turning to Modern Methods of Construction (MMC) to overcome labour shortages, building material inflation, and productivity constraints. Austria's prefabricated timber modules, Germany's "Road Map for Digital Design and Construction", New Zealand's "Modular Component Manufacturer Certification Body (MCMCB)", Japan's innovation with modular renovation and skeleton reforms, and Sweden's vertically integrated off-site manufacturing demonstrate that standardization and digital workflows can lower both capital and time requirements. Canada's recent prefabrication incentives and the Housing Accelerator Fund are positive steps. However, without guaranteed pipelines, such as minimum quotas for MMC in publicly funded projects, the domestic modular sector might struggle to scale. A federal-provincial consortium could establish standardized design catalogues, factory certification protocols, and aggregated demand commitments, enabling manufacturers to invest in expanded capacity and innovation. The broader lesson lies in the importance of shifting public perception around modular and prefabricated housing. Despite their potential to reduce costs and construction time, these housing

types often face skepticism regarding quality and permanence. Overcoming these perceptions is essential to gaining public and policy acceptance, which is crucial for scaling modular housing as a viable solution to housing shortages.

Canada might consider the benefit of having a land value capture framework. For example, revenue generated from land value increases could be directly tied to funding transit infrastructure and building affordable housing. In addition, embedding affordability and sustainability requirements into long-term public land leases, like Switzerland's Baurecht model, would help ensure that public land delivers lasting social benefits rather than serving only short-term budget needs. Municipalities could deploy land assembly tools to consolidate parcels, de-risking large projects and ensuring that new supply serves a range of income levels.

Implementing this comprehensive strategy will require sustained investments, strong institutional capacity, and active collaboration between different levels of governments and with private and non-profit actors. Transparent progress reporting, public engagement, and a straightforward narrative about the social and economic dividends of housing reforms will be essential to maintain momentum across electoral cycles. Above all, by learning from Australia's orchestrated targets, Austria's revolving funds, Germany and Switzerland's land-value capture and urban contracts, Ireland's land-agency model, New Zealand's upzoning reforms, Japan's innovation to construction, the United Kingdoms' public-private partnerships,  the United States' tax laws and planning development improvements, and Sweden's industrialized production, Canada can craft a housing ecosystem that not only alleviates today's affordability crisis but builds resilient, inclusive, and environmentally sustainable communities for generations to come.

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