



EXECUTIVE SUMMARY

EVOLVING INFILL

DRAFT



Executive Summaries of Technical Reports

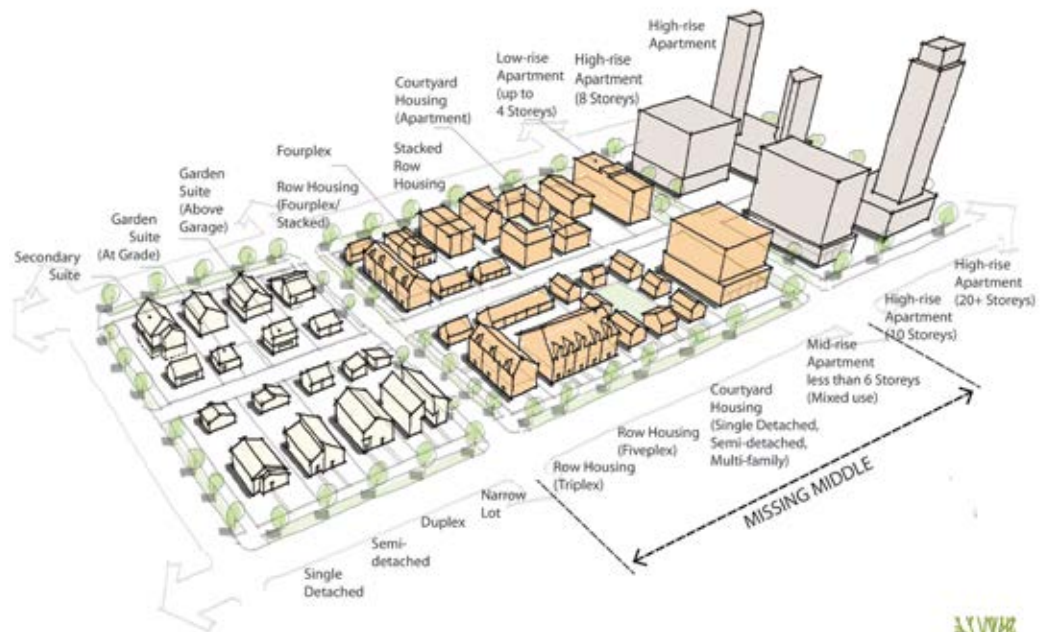
What follows are summaries of the Evolving Infill Technical Reports to provide readers with a high-level view of the findings of the four technical reports that were completed as a part of Phase 2 of the Evolving Infill project.

The reports summarized here are:

- Evolving Infill: What We Heard—Phase 2 Stakeholder Engagement Results
- Evolving Infill: Municipal Tools Review
- Evolving Infill: Edmonton's Urban Planning, Neighbourhood and Housing Evolution
- Evolving Infill: Market Housing and Affordability Study

The entire versions of each of the documents is available from <https://www.cityofedmontoninfill.ca/about/evolving-infill>

These four complementary reports cover a variety of topics related to infill and form the knowledge base for the creation of Edmonton's new infill roadmap. Particularly, this project focused on how to address Edmonton's "Missing Middle" housing forms which are shown in the figure below.



EDMONTON'S MISSING MIDDLE



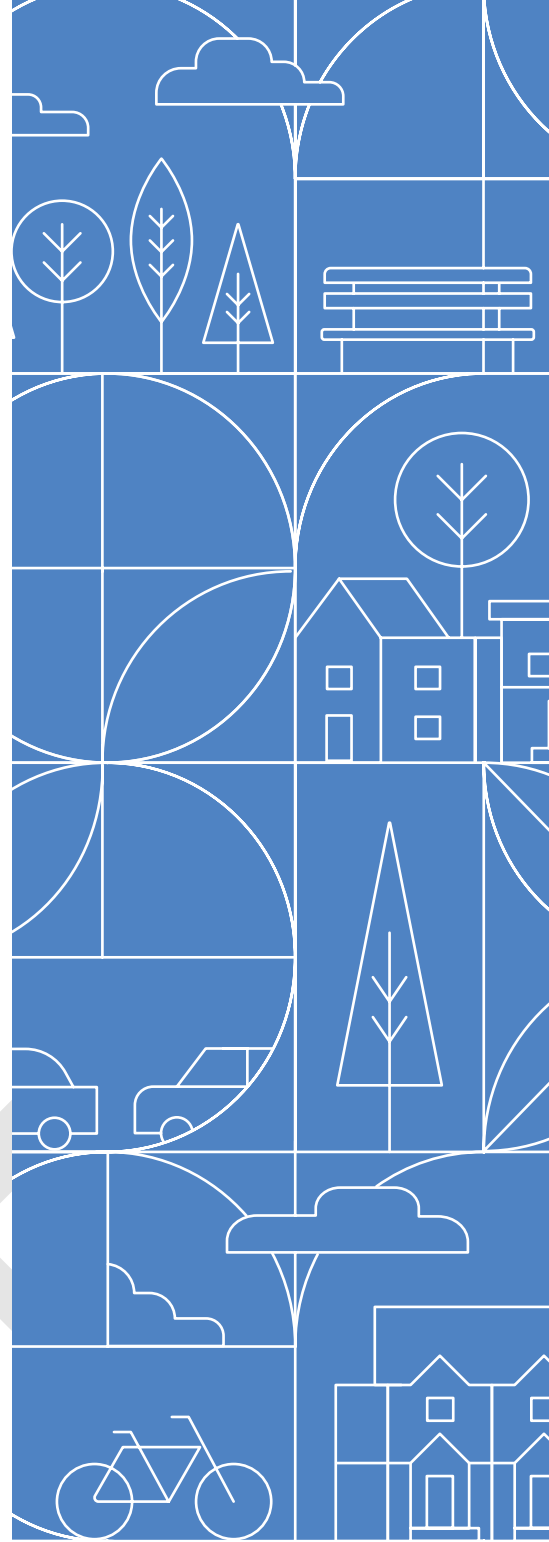
Evolving Infill: What We Heard— Phase 2 Stakeholder Engagement Results

This Executive Summary represents a condensed version of Evolving Infill: What We Heard—Phase 2 Stakeholder Engagement Results to provide readers with a high-level summary of the report as well as its key conclusions.

PURPOSE

In mid-2017 the City of Edmonton engaged with a diverse cross section of Edmontonians about how to welcome more people and homes in Edmonton's mature neighbourhoods, paying particular attention to medium and high scale infill. The What We Heard: Evolving Infill Stakeholder Engagement Results document captures the key messages heard from Edmontonians and assembles all input received in one place.

The purpose of this document is to share with all Edmontonians what Edmontonians had to say about how infill development is evolving.



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WHO WAS ENGAGED

The engagement phase of Evolving Infill involved reaching out to Edmontonians to hear a range of perspectives about infill in Edmonton's established, mature and core neighbourhoods. The aim of this consultation was to hear these perspectives and to seek a deeper understanding of people's values and concerns related to infill and to identify barriers to infill in Edmonton.

Drawing on the work of Dr. Marilyn Hamilton's Integral City model, the consultation and engagement activities undertaken during this project recognized four distinct but overlapping perspectives of city life: citizens; public institutions; the business community; and community organizations. It is recognized that these perspectives offer a variety of views and opinions about infill and its role in Edmonton's future.

HOW WERE THEY ENGAGED

Both targeted and open workshops were held to draw information from the different stakeholder groups. Specific workshop exercises were used to engage Edmontonians in a deeper and more nuanced fashion than more traditional public open house events. The most common workshop exercises included:

- **World Cafés:** The World Café process allowed participants to discuss, record and share their perspectives on the challenges and benefits of infill and identify actions to address the challenges and benefits.
- **Baby Ideas:** Participants were asked to identify 'Baby Ideas', to provide additional food for thought for the project team and help determine the themes identified in this document.
- **Open Space Technology:** The Open Space Technology process allowed participants to identify topics they wanted to discuss. Participants led discussion with others who shared their interest. Each topic/discussion was recorded, along with the issues addressed, key players and specific actions to be taken.
- **Blocks Game:** The blocks game was a process developed for this project. Participants considered where more people and homes could be located in Edmonton's mature neighbourhoods. They placed wooden blocks, representing infill developments, in areas where they thought infill could or should occur in the future. Participants recorded the assumptions they were making and the market conditions needed to achieve their vision.

AREAS OF INTEREST

While compiling the results from the stakeholder engagement four high level Areas of Interest emerged:

Built Form: Participants were interested in how the Built Form of an area might change as infill development occurs. Participants often felt that new infill differed in terms of architectural style, form of development and building massing compared to existing buildings. Key themes:

- Promote public amenity spaces and developments that support community building
- Promote development that is sensitive to its surroundings
- Invest in active transportation infrastructure
- Revise zoning regulations to support infill development and a greater diversity of housing forms
- Develop a strategic vision and regulations for the placement of different infill types at a neighbourhood level

Development Process: The infill development process was discussed by participants in all engagement sessions. Participants shared opinions about the current development process and suggested ways it could be improved. Key themes:

- Promote the creation of neighbourhood-level plans before major redevelopment begins
- Be more consistent with the application of development regulations
- Restructure the planning process to provide additional control to communities
- Incentivize infill development that aligns with community/city goals
- Enforce good construction practices and penalize non-compliance

Community Experience: The lived experience of residents where infill is occurring was of considerable interest to participants. Participants were interested in how changes might influence the community's sense of community. Key themes:

- Improve the affordability of infill
- Preserve the strong sense of community in existing neighbourhoods
- Address changes in crime, mental health and privacy
- Promote family friendly and seniors friendly infill types

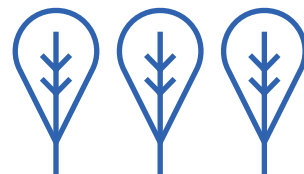
Infrastructure and Amenities: It is important to ensure that infrastructure and services have adequate capacity to serve the increased density of residents that infill brings. Participants identified a range of services that may need to be upgraded and proposed ways to ensure that upgrades would happen when and where they are needed. Key themes:

- Mitigate parking and traffic impacts related to infill development
- Address increased pressure on public open spaces
- Provide additional utility and service capacity to support infill
- Improve access to amenities and promote local businesses to attract infill development

LOCATING INFILL IN EDMONTON

Three development patterns emerged from the Blocks Game that provide high-level options for how infill could be located and integrated into Edmonton's mature neighbourhoods:

Development of Nodes: Infill development is clustered around key nodes and along corridors that support higher density living. This includes clusters around transit stations and transit corridors, as well as proximity to amenities



like grocery stores, hospitals, parks and schools.

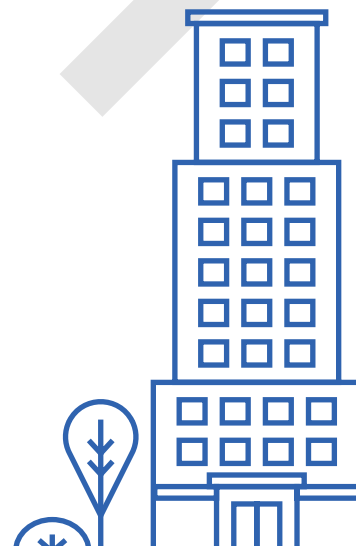
Dispersed Density: Infill development is more evenly dispersed throughout existing communities and between communities. Most neighbourhoods see an increase in density through the construction of lower scale forms of infill including narrow lot subdivisions, duplexes, row housing or low-rise apartments.

Existing Planned Areas: Infill development is primarily clustered in areas that have already been identified for intensification, redevelopment and revitalization. In this pattern, infill is primarily delivered in high scale, high density developments in areas containing large parcels of under-developed or vacant lands.

BARRIERS TO INFILL

One of the key outcomes of this engagement process was the identification of the factors, in Edmonton, that are barriers to increased uptake and success of infill. Comments from people build—or try to build—infill development were numerous, but suggestions also came from citizens, administrators and community organizations. Some of the key barriers:

- **Built form**
 - Uncertainty about how to align design with existing character of neighbourhood
 - Extra requirements for mid-scale developments (i.e. triplex, fourplex)
 - Restrictive nature of current design regulations
 - Strong emphasis on preservation
- **Development process – plans and regulations**
 - Uncertain and time-consuming Infill application and permitting process
 - Zoning bylaw too restrictive, Mature Neighbourhood Overlay too broad
 - Challenges engaging communities before development starts
 - Missing holistic review of policy tools (MDP visions for infill, update outdated ARPs)
- **Development process – financials**
 - High cost of land acquisition
 - Challenges leasing and financing mixed use developments in Edmonton market
 - Challenges assembling land in neighbourhoods, nodes and corridors
- **Community experience**
 - Communities reluctant to see change in their neighbourhoods
 - Strong emphasis on current residents over future residents
- **Infrastructure and amenities**
 - Parking requirements are too high, underground parking is costly
 - Missing high-level understanding of infrastructure capacity
 - Areas poorly supported by transit
 - Uncertainty about traffic impacts of infill development
 - Infill costs are higher than greenfield development



Evolving Infill: Edmonton's Urban Planning, Neighbourhood and Housing Evolution

This Executive Summary represents a condensed version of Evolving Infill: Edmonton's Urban Planning, Neighbourhood and Housing Evolution to provide readers with a high-level summary of the report as well as its key conclusions.

PURPOSE

In mid-2017 the City of Edmonton commissioned the study of how Edmonton's neighbourhoods have evolved over time. In partnership with the Edmonton Heritage Council, former City of Edmonton historian laureate Shirley Lowe provides a historic overview of Edmonton's development through six eras.

While the City of Edmonton is creating its next Evolving Infill implementation plan, the purpose of this document is to take a larger view of Edmonton's infill story and provide understanding of the economic, social and cultural issues that have shaped housing in Edmonton. With this story, we are better able to understand why we have the housing we do in our city.



**WITH THIS STORY,
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SIX CULTURAL INFLUENCES

Six phenomena have shaped how Edmonton has evolved over time:

The moral imperative of home ownership. The concept of home ownership is strongly embedded in our culture. In the settlement years, the promise of property ownership was significant, bringing social status to those who owned homes. Renters were viewed as transient and irresponsible, with low moral values. Until the mid-1900s, only property-owning Edmontonians determined matters of financial policy and spending in plebiscites and referendums.

Historical lack of affordable housing. From its beginnings, Edmonton has struggled with successfully housing lower income and disadvantaged citizens, particularly in boom periods. The first building code appeared in 1912. During recessions and wars, materials and financing was scarce. In boom times, mid and upper income earners were targeted in housing developments. There was no social housing built in Edmonton until the 1960s – and this housing was financed primarily with public funding.

An oasis: the suburban home. The peace and tranquility of a suburban home has been a selling feature of new home developments for decades. City plans, bylaws and zoning have worked to protect the status of single-family homes in suburbs. Single-family homes were the desired housing form in early Edmonton, and post Second World War housing developments took that to a new level. The suburbs became bedroom communities, with separated land uses promising quiet, privacy, and safety.

The car city. With the separation of commercial, institutional and light industrial from residential communities, residents could no longer walk or in many cases, take transit to work or shopping. The car became necessary, as did its support systems – garages, parking lots, large roads and freeway systems. Big box stores and arterial commercial strips continued the need for a car. In residential developments, the curvilinear designs both serve the car and prevent shortcutting while reducing walkability.

Planning and politics. Cities are in a constant struggle to balance the needs for development with the greater good of the city. Like other cities in Canada, laissez-faire governments were the norm. Edmonton had its first zoning bylaw in 1933 and its first municipal plan in 1963. In the 1950s, Edmonton hired its first city planner. Over the decades, the roles of public and private sector in land development have continued to shift and adjust.

Booms and busts. From its inception, Edmonton has been subjected to international and national influences, such as the Hudson's Bay Company, railways, two world wars and oil booms. Economic booms and busts involved cycles of housing shortages and over-supply. For example, in 1920, the City owned 70,000 lots because of tax defaults and in the 1970s, a housing boom was in full swing with high oil prices and baby boomers buying their first homes.



SIX ERAS

Evolving Infill: Edmonton's Urban Planning, Neighbourhood and Housing Evolution identifies six eras that characterize Edmonton's development story to date. Drawing on key cultural, social and economic factors, the report presents each era with its major influences, economic factors, housing style and development, as well as the politics and planning that were part of the times. Together, these show many changes over the years in the city's development, even as cycles and issues repeat themselves. These economic, social and cultural issues have shaped, and continue to shape, the city of Edmonton. The six eras are outlined below.

Pre-settlement. Pre-settlement housing forms in the Edmonton region are perhaps our only examples of vernacular architecture: structures based on local needs and Indigenous traditions, constructed by the skills of local builders using available construction materials. The primary forms of housing are those of Indigenous people—the Plains Cree, for example, built tipis with a three-pole frame, and the Blackfoot used four poles. Early European influence increased the size of tipis. After 1778, approximately one hundred fur trading posts were built in Alberta, and all used wood construction materials. In the 1850s, about 130 people lived inside the palisades of Fort Edmonton. There were no wooden buildings outside the Fort at the time. In addition, both Lac St. Anne and Lac la Biche were the sites of French speaking Metis settlements as early as 1840. By 1870, missionaries had supported Metis settlements at Whitefish Lake, Pigeon Lake, St. Albert, Victoria, and Dunvegan.

Settlement (1881–1913). The opportunity to own property in Edmonton was an influencer for people to come to the city, but what brought thousands of settlers to Edmonton was the railway. The Hudson's Bay Company and the Canadian Pacific Railway set patterns for early neighbourhood development in Edmonton. During this period Edmonton went from a rural frontier settlement to a sophisticated city, the capital of the new province of Alberta. This era built the foundations of the city and it experienced both its biggest boom times as well as economic collapse.

War and Recession (1914–1945). The real estate collapse at the end of the settlement era set the stage for thirty years of marginal growth and the deterioration of existing housing stock. The First World War, the Flood of 1915, and a devastating flu epidemic depressed an already floundering economy. Lack of materials and a decreasing population ensured that no new housing was built. The 1920s saw a mild recovery, but the entire continent of North America sunk into a depression in the 1930s. During the Second World War, the arrival of the American military and its supporting civilians brought dollars, American culture, and a severe housing shortage to Edmonton. This era introduced government interventions to the housing market.

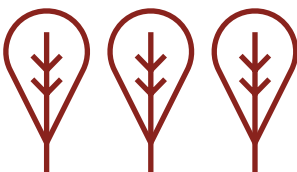
Post War Boom (1945–1963). For the first time in thirty years, Edmonton was experiencing a time of renewal and major growth. Financial support for returning veterans, the Leduc #1 oil discovery, and cheap land were ingredients for an economic and baby boom. Styles of homes and apartments changed. Edmonton hired its first planner to create and lead a planning department. New suburbs were designed, no longer using a grid block pattern, and single use residential neighbourhoods and tract housing were introduced. The last streetcar was gone in 1951, and the automobile became the primary mode of transportation in the rapidly developing suburbs. Edmonton built its first mall in this era.



Big Plan Era (1963–1981). Wholesale change was the order of the day in the Big Plan era. For the first time since the settlement era, Edmonton saw itself in a strong economic position and was determined to become a “cosmopolitan” city. It was out with the old and in with the new. Edmonton produced its first municipal plan, calling for urban redevelopment and the protection of suburbs as sanctuaries. Subsequent plans outlined directions for urban renewal and suburban growth. Residential high rises began to appear in central Edmonton. A major freeway system was planned and partially built, but abandoned due to costs and heavy pressure from the community. Edmonton became the first North American city, under a million people, with a Light Rail System. International politics created an oil boom and baby boomers created a housing boom. The ensuing affordable housing crisis was, for the first time, met with investments in public social housing. The oil sands came online. In a big change, developers took on the full cycle of development, from land consolidations to housing sales. The City and the province worked together to assemble land for Mill Woods, a large new suburban district.

Recession and Revitalization (1981–1998). This era is marked with the aftermath of the oil and subsequent real estate crash. It was once more a time when uncontrolled speculation and foreign investment inflated land and housing costs. Provincial cuts to services and the resulting job losses in the public sector affected Edmonton's economy. Housing starts ground to halt, and real estate was devalued, with many homeowners walking away from mortgages. Although some single-family homes were built in neighbourhoods that had been subdivided in the 1970s, the residential market did not see a recovery until oil prices began to recover at the end of the century. This was a time when the City created new program areas to deal with heritage sites, urban design, and the revitalization of downtown and other traditional commercial centres. Old Strathcona became the first successful revitalization. Environmental considerations were introduced into planning. District planning saw the development of several Area Redevelopment Plans. The City promised ongoing consultation with community and developers..

Growing Out and Up (1998–Present). This is an era of extremes, from the boom times at the turn of the century with a large population growth, to development in central communities and the new suburbs, to the 2014 recession. New developments grew the city up and out. High-rise construction increased in core communities, and was approved in some suburban communities. New suburbs were dense, but surrounded by commercial developments designed for car traffic. Light Rail Transit expansions, planning the Blatchford community, a downtown arena, and a focus on downtown revitalization were all features of this era. Affordable housing continues to be a challenge.



Evolving Infill: Municipal Tools Review

This Executive Summary represents a condensed version of the Municipal Tools Review to provide readers with a high-level summary of the report and its key conclusions.

PURPOSE

In mid-2017, the City of Edmonton commissioned research to identify tools that have been applied by municipalities to encourage and facilitate infill. The tools are high-level options considered to enable and encourage medium and high scale infill development in Edmonton. This document examines examples of their implementation to understand how they addressed challenges related to infill development. In addition, the document connects programs or services in use in Edmonton that may be similar to the tools discussed.

The purpose of this document is to capture, in one place, the variety of tools at Edmonton's disposal to enable and encourage medium and high scale infill development. This report document does not outline the City of Edmonton's proposed action plan to promote medium and high scale infill, although lessons learned will help to inform that plan.



**ENABLE AND
ENCOURAGE
MEDIUM AND HIGH
SCALE INFILL
DEVELOPMENT.**

INFILL DEVELOPMENT TOOLS

Four different approaches to promoting infill were identified that broadly categorize how different tools affect infill development. The table below identifies the four different categories of tools and the specific tools studied for this project.

POLICY TOOLS	ADVOCACY AND PARTERSHIPS	FINANCIAL TOOLS	ADMINISTRATIVE TOOLS
<p>Policy tools regulate what can happen and where.</p>	<p>Advocacy & partnership tools connect stakeholders and recalibrate perceptions and expectations</p>	<p>Financial tools focus on costs associated with infill development</p>	<p>Administrative tools promote coherent and efficient municipal decision-making that provides certainty</p>
<ol style="list-style-type: none"> 1. Identify priority infill development areas and sites 2. Urban growth boundaries 3. Policy provision for secondary suites 4. Mechanisms for promoting land assembly 5. Adaptive reuse ordinance 6. Ease or remove parking requirements in infill redevelopments 7. Form based code 8. Policy audit and reviews 9. Applicable residential density ranges 10. Commercial center priority 11. Checklist and measures to determine development suitability 	<ol style="list-style-type: none"> 12. Education and communication campaign 13. Identify vacant and underused plots or inefficient uses of land 14. Identify and engage with large land holders 15. Area financial improvement plan 16. Redevelopment agencies 17. Land banks 18. Provincial and regional partners 19. Increasing infrastructure capacity in areas designated for 20. Facilitate public/ institutional uses in infill locations 21. Not-for-profit community development corporations/ co-ops 	<ol style="list-style-type: none"> 22. Density bonuses in infill priority locations 23. Vacant land tax / land value tax 24. Property tax abatement program for infill locations 25. Community infrastructure levy 26. Development charges to fund infrastructure or amenities 27. Vacant building credit 28. Capital reserve fund 29. Brownfield grant program 30. Development incentive program 	<ol style="list-style-type: none"> 31. Expedite infill development permit process 32. Planning performance agreements (PPA's) 33. Infill project review team 34. Re-examination of planning and building fees

LESSONS LEARNED FROM TOOLS AND CASE STUDIES

A list of lessons learned was identified with each tool, identifying which issues a tool addresses, how effective the tool is, who the primary beneficiary of the tool is and any apparent limitations to the tool. Further, ten of the above tools were selected for further exploration through in-depth case studies. These case studies included research into the specifics of a tool's application and its outcomes. This information was acquired through annual monitoring documents, council update reports, telephone interviews and email surveys with staff from the involved municipalities. The ten tools examined as case studies were:

CASE STUDY

POLICY TOOLS	ADVOCACY AND PARTERSHIPS	FINANCIAL TOOLS	ADMINISTRATIVE TOOLS
<ol style="list-style-type: none"> 1. Vacant Lot Inventory, Saskatoon 2. Urban Growth Belt, Golden Horseshoe (Toronto) 3. Laneway Housing, Portland 4. Form Based Coding, Phoenix 	<ol style="list-style-type: none"> 5. Community Improvement Program, Hamilton 	<ol style="list-style-type: none"> 6. Density Bonusing, Vancouver 7. Tax Abatement, Regina 8. Vacant Land Tax, St Albert 	<ol style="list-style-type: none"> 9. Expedited Development Permit Process, San Diego 10. Planning Performance Agreements, Hackney



The following lessons emerged from analysis of both the tools and case studies and offer guidance to Edmonton as it seeks to identify actions and programs to pursue medium and high scale infill. development:

POLICY TOOLS	ADVOCACY AND PARTERSHIPS	FINANCIAL TOOLS	ADMINISTRATIVE TOOLS
<ul style="list-style-type: none"> ▪ Identifying an area for infill through plan making or zoning changes may not be enough without other supports (ie incentives or grants). ▪ Regional land use policies requires intervention of a higher order of government. ▪ Application of policy tools can be as simple as identifying desirable development and reducing barriers to that kind of development. 	<ul style="list-style-type: none"> ▪ Advocacy and partnerships require long term commitment. ▪ The City of Edmonton is undertaking a number of land development functions, similar to that of a municipal development corporation. ▪ Opportunities to work with large land holders should be explored. ▪ Promoting infill development means both working with communities and actively supporting new infill through infrastructure investments or other funds. 	<ul style="list-style-type: none"> ▪ There is a need to balance levying funds for additional amenities with affordability and market viability. ▪ City-sponsored loans are not available under Alberta legislation. ▪ Opportunities to add infrastructure should be undertaken in a transparent fashion. ▪ Incentives and fees should be scaled to match the capacity of those seeking the grants (i.e. smaller scale developments may be less able to bear the cost of infrastructure). 	<ul style="list-style-type: none"> ▪ Expediting the infill permit process does not mean guaranteeing application approval. ▪ It is possible to effectively establish designated teams to process infill development permit applications. ▪ It is possible and practical for expectations from all stakeholders to be outlined at the beginning of the development process.

- The research revealed the following overarching principles to guide the design and use of any tool:
- A suite of tools is more effective than a single tool
- Tools accomplish more when aimed at specific issues and take social context into account
- Market strength influences how tools operate
- Communication of regional benefits and mitigation of local impacts go hand in hand
- Clear expectations of the infill development process—for all stakeholders—is necessary



Evolving Infill: Market Housing and Affordability Study

This Executive Summary represents a condensed version of Evolving Infill: Market and Study, to provide readers with a high-level summary of the report and its key conclusions.

PURPOSE

This report presents an overview of infill dynamics, challenges (from a consumer and builder perspective), opportunities, and a key factor that drives the housing market: consumer preference. The report presents an analysis of the residential market with three pillars in mind: infill, density and affordability. The report examines housing mix, affordability, consumer preferences, and market balance. The report also examines the interaction of the residential and commercial markets to determine if "retail follows rooftops, or if rooftops follow retail?"

KEY FINDINGS

Increasing housing density within core, mature or established areas of the city, while achieving affordability, is not an easy task. Edmonton's infill activity has been shifting the housing mix toward more dense dwelling forms; however, the purchase price of these infill dwellings is still not appealing enough compared to developing suburban areas.

The relationship between three key analytical pillars (infill, density and



affordability) is not always linear (i.e. the most dense housing type may not be the most affordable, nor the most desirable from a consumer perspective). Therefore, it is important to effectively balance as many key aspects as possible that relate to infill development that is desirable and affordable for consumers.

Edmonton is one of the most affordable major cities in Canada when analyzed by its household income distribution compared to the average home price (resulting in an ownership level that is the highest in the country). If affordability is heavily impacted by the asking price of a dwelling, it is also strongly impacted by other factors such as the employment rate, household income, and economic policies, which are recently playing a big role in the local economy.

Edmontonians historically (and still to this day) prefer single-detached homes (approximately half of the infill homeowners surveyed during the focus groups searched for a single-detached home), however, most infill single-detached homes are unaffordable for the average middle-class family. Mature and established areas may also have limited land, which can make demolition with subsequent redevelopment the only real alternative, but it comes at a higher cost.

Infill dwellings like townhomes and duplexes tend to be a good alternative for families with a limited budget who are looking to own in a more central location. Furthermore, from qualitative findings, townhomes and duplexes have a reasonably high consumer preference that helps with demand, though not as high as single-detached homes. Infill townhomes and duplexes also strike a more balanced approach when trying to juggle competing aspects like consumer preference, density, and affordability compared to the resale market. Alternatively, as a secondary infill option instead of townhomes and duplexes, it may be advisable to build low-rise and mid-rise apartments in certain mature areas near existing commercial and transit nodes. Since low-rise and mid-rise apartments are the least favourite housing type (qualitative findings show that less than a quarter of infill homeowners searched for an apartment), it is important that they are built near existing infrastructure, like commercial and transit, in order to help boost their demand. However, it should be noted that slow sales absorptions for low-rise and mid-rise apartments, compared to single-detached sales absorptions, adds inherent risk to a builder and potentially longer sales timeframes. Furthermore, another challenge with low-rise and mid-rise infill apartments is their affordability compared to the same housing types in the suburbs (less expensive).



Based on Intelligence House data, the Edmonton housing market is reasonably balanced, however, roughly 16% of the population is priced out of the possibility of homeownership. Furthermore, first time homebuyers are waiting longer to purchase their first home (because of decreasing affordability), which leaves them in the rental market for longer. Based on this, the rental market may be another strong option for increasing density in infill areas. The purpose-built rental market is going through a healthy and important cycle of renovation with almost 4,000 new rental units coming/planned for infill areas between 2017 and 2020. These new rental units with "condo-like finishes," present a great alternative to accommodate consumers who are excluded from ownership (because of an insufficient down payment, or other affordability measures that prevent them from getting a mortgage approval).

When analyzing residential and commercial markets, and how they interact with each other, an often-asked question is "does retail follow rooftops, or do rooftops follow retail?" The simple answer is that it depends on the scenario. For example, in new developing areas in the suburbs, a developer may decide to build 1,000 new homes. As a result, commercial businesses will then commit to building in this new developing area and are able to plan retail centres spanning multiple acres, so in this scenario "retail follows rooftops". In mature neighbourhoods, however, smaller retail centres without grocery or department stores can be added, but new larger-scale retail centres can rarely be developed due to land scarcity. As a result, in mature neighbourhoods "rooftops follow retail" as new residential infill construction would follow existing larger-scale retail that is already in place. As a strategy for identifying which retail to follow in mature areas, the commercial portion of this report suggests six major commercial nodes that may have the highest probability of sustaining additional density.



