Infill Housing Vision

growing creativity with character

SCARP
School of Community
And Regional Planning

City of Kelowna

PC: Tourism Kelowna

Table of Contents

Executive Summary

Kelowna, the largest community within the Central Okanagan Regional District, is projected to experience population growth of an additional 45,000 residents by 2040. To accommodate future growth, the City of Kelowna is in the process of developing an Infill Housing Strategy that envisions gentle density that contributes to complete, vibrant neighborhoods where citizens can enjoy a high quality of life.

The main purpose of this report, created in partnership with the City of Kelowna, is to

provide the City with recommendations and street-scale visualizations for future infill development, which can be used as a reference for Kelowna's future infill housing strategy.

These recommendations are for infill development in primarily single-family, residential neighbourhoods in the Core Area, and were developed through the lens of Inclusivity & Liveability. This report also seeks to understand the needs and values of Kelowna residents and stakeholders and includes analysis of previous infill public engagement conducted by the City and recommendations for future engagement.

This report considers the geographical, social, and contextual challenges that Kelowna faces, along with the City's need and desire to apply an equity lens to their future strategy. Informed by the synthesized learnings from an analysis of design, policy, and engagement, the report offers a comprehensive vision for infill housing to support the City's strategy development.

Acknowledgements

We would like to acknowledge that Kelowna, the city of focus for this report, is situated on the unceded, traditional, and ancestral territory of the Syilx/Okanagan People.

This report was created in partnership with the City of Kelowna and UBC's School of Community and Regional Planning to help inform the City of Kelowna's future Infill Housing Strategy. We are grateful for the support we have received through all phases of this project, and would like to thank the following people:

- Arlene Janousek, City of Kelowna
- James Moore, City of Kelowna
- Danielle Noble-Brandt, City of Kelowna
- Maged Senbel, UBC SCARP
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Section 1: Project Introduction

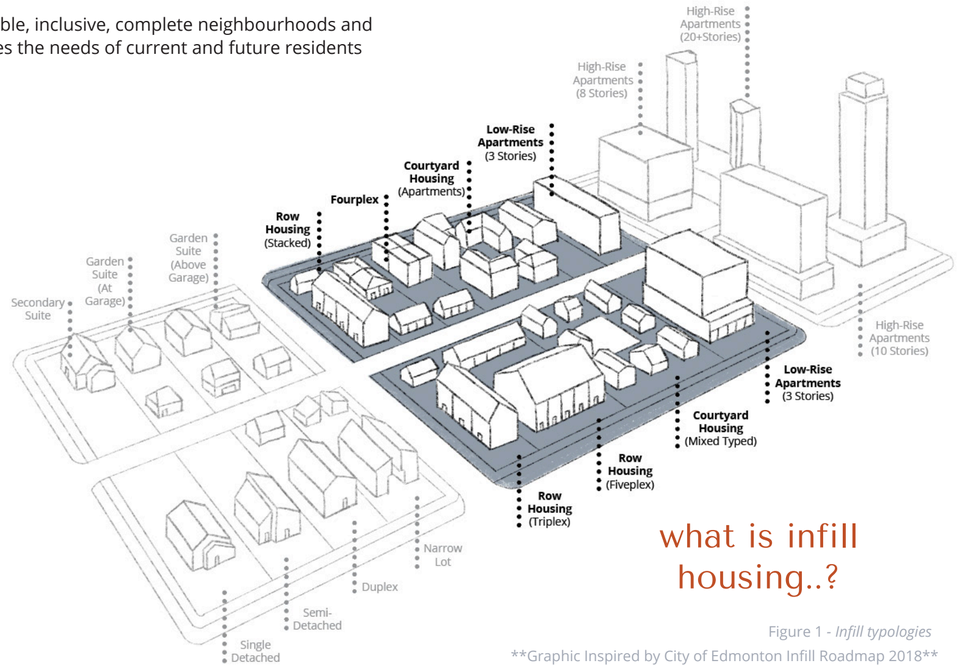
Project Overview
Focus Areas
Background & Context
Objectives

Project Overview

From September 2021 to April 2022, the project team has worked alongside City of Kelowna staff to develop a supporting document that will inform the City's future Infill Housing Strategy. As Kelowna faces challenges that pose limitations on outward growth, the City has looked towards infill housing as a solution to the anticipated increased housing demand needed to support an additional 45,000 people by 2040 (City of Kelowna, 2020a). The recommendations provided in this report focus on methods that support growth and foster Inclusivity & Liveability, as this was embedded in Kelowna's criteria for the Infill Challenge Design Competition 2.0. The City of Kelowna (2021b) defines the desired outcome as:

- Contribut[ing] to accessible, inclusive, complete neighbourhoods and ensur[ing] housing serves the needs of current and future residents (pp. 7)

The recommendations and design visuals outlined in this report address community and City values by focusing on enhancing the streetscape, aligning with neighbourhood character, and considering diverse housing design preferences. Through the project, our team was committed to providing valuable work to our partner and ensuring that the recommendations can prove beneficial for the creation of the future comprehensive Infill Housing Strategy.



what is infill housing..?

Figure 1 - *Infill typologies*

Graphic Inspired by City of Edmonton Infill Roadmap 2018

Defining Our Lens and Focus Areas

Our project lens, *Inclusivity & Liveability*, has three main focus areas:

Figure 2 - *Project lens*

ACCOMMODATING DIVERSE & ACCESSIBLE NEIGHBOURHOODS

Our recommendations prioritize infill housing strategies that support the diversity of current and future Kelowna residents. Examples include ensuring infill housing contributes to more accessible neighbourhoods for all ages, needs, and abilities, and considers cultural differences and values that reflect the needs of diverse communities.

FOSTERING COMMUNITY BUILDING & SOCIAL INTERACTION

There is community value in maintaining spaces and neighbourhoods that foster community-building and meaningful social interaction for all. We considered this throughout the process of building our recommendations through different approaches, such as finding ways to make socializing easier or more accessible in infill housing neighborhoods.

COMPLETE COMMUNITIES WITH ACCESS TO AMENITIES, SERVICES & GREEN SPACES

Our recommendations for infill housing aim to promote the development of complete communities, with improved and more frequent access to the places and things that people need in their daily life. Examples of approaches include improving pathways and transportation routes from infill housing neighbourhoods, and finding ways to decrease barriers of access to amenities or services that people need.

Background & Context

Geographically, Kelowna is situated along the lakeside and valley, which poses spatial challenges to future development. The City has also established a permanent growth boundary, in order to protect the Agricultural Land Reserve (ALR) and important rural lands that extend further from the urban centres. Kelowna faces an increased need for affordable housing with access to public and active transportation, amenities, and green spaces that help to enable complete neighbourhoods and communities. At the same time, there is a desire from within the community to maintain the various neighbourhood character and not let future development detract from the current landscape and liveability. Finally, Kelowna is increasingly affected by the impacts of climate change. Through infill housing, the City of Kelowna can address growth effectively while considering these challenges.

Infill housing, by definition, is development that adds new units to an already developed neighbourhood. For the City of Kelowna, desired infill consists of 3 or more units on 1-2 standard lots, to the maximum of a small apartment building, in order to successfully address the challenge of increased density. The area of focus for the infill is Kelowna's Core Area, just outside of the five Urban Centres (Downtown Kelowna, South Pandosy, Rutland, Capri-Landmark, & Midtown), where approximately 25% of the new units are to be accommodated.

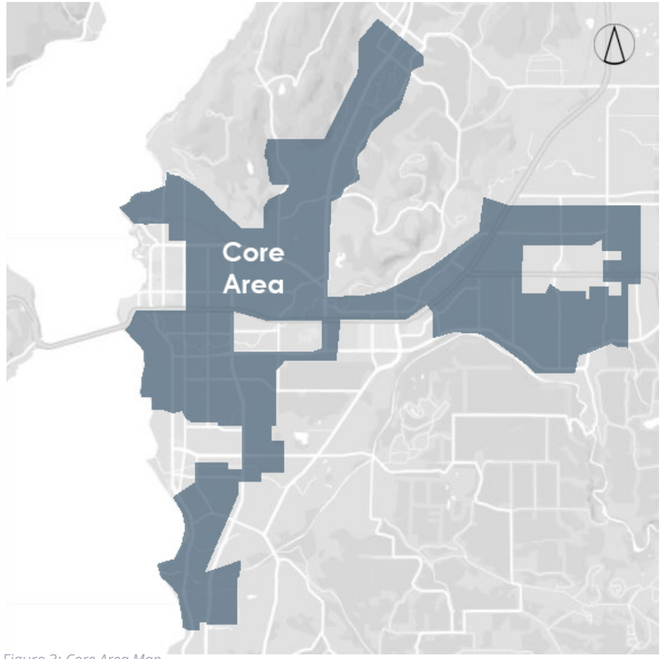


Figure 3: *Core Area Map*

Our Approach

The overarching goal of this project is to provide the City of Kelowna with a useful guide and supporting recommendations, which can be used as a reference to develop the City's comprehensive Infill Housing Strategy. To achieve this goal, our team has developed the following objectives:

1

INSPIRE NEW IDEAS THROUGH A COMPILATION OF CURRENT ASSETS

The City of Kelowna has already undertaken progressive infill projects, conducted public engagement as part of planning for the 2040 OCP and created various policy tools in order to achieve its objectives. This past work is an important foundation for our project, and it was reviewed, synthesized, and summarized to inform our project and the City's future strategy.

2

BROADEN INFILL HOUSING THROUGH IDENTIFYING OPPORTUNITIES

Through review and analysis, we identified opportunities to densify Kelowna neighbourhoods based on the context, existing zoning regulations, community visions for growth, and different infill housing typologies.

3

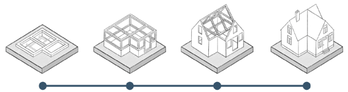
EXPLORE NEIGHBOURHOOD-SPECIFIC TOOLS

To better understand how zoning influences neighbourhood character and density, we created an infill block design, visualizing how a single-family neighbourhood could gradually change over time. We also incorporated key design attributes to consider for infill projects that promote Liveability & Inclusivity, inspired by the highest ranked Infill Design Challenge 2.0 submissions.

4

PROVIDE RELEVANT RECOMMENDATIONS TO CULTIVATE LIVEABILITY & INCLUSIVITY

Based on our research, the team developed a range of visual and written recommendations to help identify creative and context specific solutions for infill housing that contribute to a liveable and inclusive Kelowna. This includes suggested next steps to continue the development of a comprehensive infill housing strategy.



Section 2: Analysis

Design Introduction
Design Summary & Observations
Policy - Demographics
Policy - 2040 Official Community Plan Directives
Engagement
Visions for Growth

Design Introduction

The team undertook a design analysis to better understand the current context and design of Kelowna neighbourhood blocks, as well as search for opportunities that can help inform the future Infill Housing Strategy. The main Core Area neighbourhoods in Kelowna that are more likely to see infill housing in the shorter-term are: Rutland, Glenmore, South Pandosy-KLO, and City Centre (see Figure 4).

Although the City has a relatively consistent visual expression and overall design characteristics, the individual neighbourhoods have unique elements which contribute to their identities. For this analysis, four separate blocks within the Core Area were selected and analyzed (see Appendix A for the full analysis). Each block was selected based on the following criteria:

- **Located within the Core Area and not within an Urban Centre as defined by the 2040 Draft Official Community Plan.**
- **Large enough lots to allow for a minimum of four dwellings per the RU7 - Infill Housing zoning.**
- **Currently all or mostly single-family homes.**
- **Located close to local amenities found in each region's Urban Centre (Less than a 30 minute walk).**
- **Located close to public transit (Less than a 5 minute walk).**
- **Currently lacking in desirable street scape character and/or public amenities (sidewalks, bike lanes, street trees, etc.)**
- **Include most common lot configurations within their particular neighbourhood (rectangular, pie shaped, etc.)**

This selection criteria was developed to help identify blocks within these growing neighbourhoods that have potential to add additional gentle density. All of the blocks analyzed have the potential to grow from underutilized single-family neighbourhoods to communities with enough people to support an active public realm.

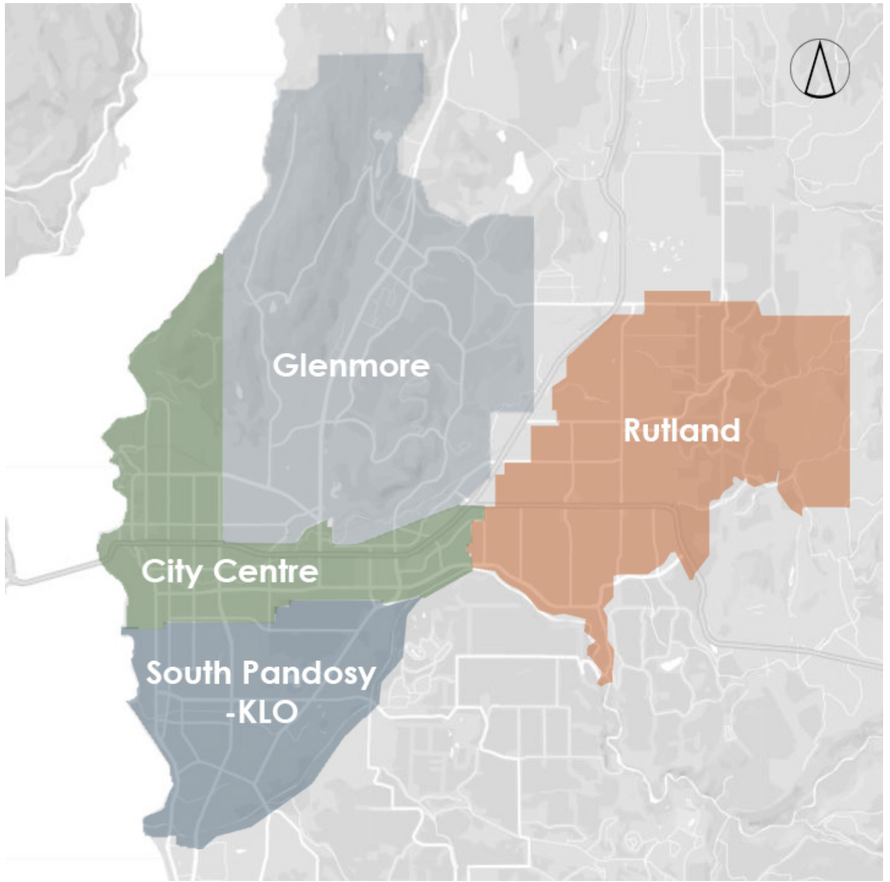


Figure 4: *Neighbourhood Map*

Design Summary & Observations

We first selected neighbourhoods with potential for gentle density. We then used criteria, based on conversations with the City regarding suitable street characteristics for infill housing, to evaluate each neighbourhood. Table 1 summarizes the key block (street-scale) attributes which improve or detract from the overall quality of the streetscape.

Additionally, as shown in Table 2, further analysis of each individual block's strengths and weaknesses was conducted and summarized. This comprehensive analysis was important to highlight what elements should be maintained moving forward and which could be improved upon through design interventions or recommendations. Solutions based on this analysis have been included in Sections 3 and 4 of this document.

Table 1: *Block Attrribute Summary*

	Rutland	Glenmore	City Centre	South Pandosy-KLO
No Sidewalks	X			
Two Sidewalks			X	X
One Sidewalk		X		
Laneway				X
Street Trees		X		X
Mature Private Trees		X	X	X
Usable Yard Space	X	X	X	
Off-Street Parking	X	X	X	X
On-Street Parking	X	X	X	
Bike Lanes				
Street Lighting		X	X	X
Deep Front Setbacks	X	X	X	
Close to Local Amenities & Services	X	X	X	X

Table 2: *Block Strengths & Weaknesses Summary*

	Rutland	Glenmore	City Centre	South Pandosy-KLO
Strengths	Dead end streets contribute to minimal traffic Generous yard space leading to a high percentage of permeable materials on lots Some mature private landscaping provides varied levels of privacy Human scaled homes 1 - 1.5 stories typical Ample public & private parking	Attractive streetscape with lush landscaping, street trees, and a single sidewalk High level of personal privacy Generous yard space leading to a high percentage of permeable materials on lots Variety in home designs create some individuality Street lights increase perception of safety Ample public & private parking Large lot sizes	Generous yard space leading to a high percentage of permeable materials on lots Mature landscaping provides a modest level of privacy for residents Street lights increase perception of safety Corner lots present a great opportunity for more intense development Ample public & private parking Laneway access could improve streetscape by relocating parking to behind homes	Variety in home designs create some individuality Attractive streetscape with lush landscaping, street trees, and two sidewalks Suitable private parking Minimal home front setbacks contribute to increased social interaction amongst neighbours Some housing unit type variety Street lights increase perception of safety
Weaknesses	Homes situated in the middle of lots making it challenging to densify around them Repetitive 1.5 story home design typical of the era Lack of activated streetscape characteristics / public amenities	Homes situated in the middle of lots making it challenging to densify around them Absence of social interaction due to high levels of personal privacy Missing one sidewalk and protection for active transportation	Homes situated in the middle of lots making it challenging to densify around them Large two car garages, but most cars parked on the driveway instead No sidewalks reduces level of safety Oversized road inhibits feeling of intimacy	Reduced yard space and permeable surfaces on more intensely developed sites More intense shadows on neighbouring properties as a result of taller homes Reduced public street parking - parking time restrictions applied

Policy - Demographics

INTRODUCTION

We conducted a policy analysis, researching population and housing trends to ensure that our recommendations align with the growing needs of Kelowna residents. We also reviewed key development and land use policies in order to provide infill recommendations that meet the City of Kelowna's objectives. The following section provides insights on Kelowna's projected population growth and housing needs, and summarizes the 2040 OCP objectives relevant to this project.

RAPID POPULATION GROWTH

As of 2021, Kelowna is the fastest growing city in Canada (Statistics Canada, 2022). Between 2011 and 2021 the population increased by 25,000 people (please refer to the graph below) (Government of British Columbia, 2021, and Statistics Canada, 2022). This presents an average annual growth rate of 2.15%.

The main driver of this rapid population growth is migration. National migration (intra-provincial and inter-provincial) was responsible for almost 90% of the overall population increase between 2011 and 2016. During the same time period, most new Kelowna residents moved to the city from the Lower Mainland and Alberta (City of Kelowna, 2018a). International immigration is also increasing because Kelowna is recognized worldwide as a desirable place to live, work, and play. Kelowna's population will continue to increase in the next twenty years.

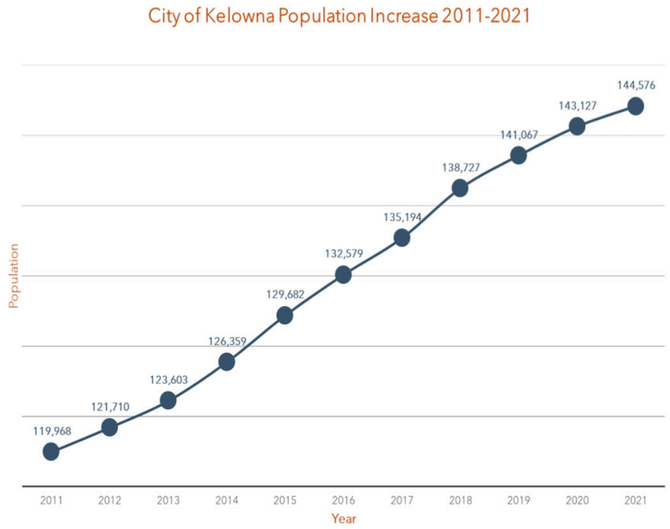


Figure 5: *Population Change*

Estimates show that the average annual growth rate will be approximately 1.34%, or 45,000 new residents arriving in Kelowna over the next twenty years (City of Kelowna, 2020a). Please note that this projection is based on historic trends and does not account for future unforeseen events, especially difficult-to-predict future migration patterns. Housing an additional 45,000 new residents will be a challenge and infill housing can be one effective solution.

POPULATION IS AGING

Like many Canadian municipalities, Kelowna has an aging population. The city is one of the most significant retirement communities in Canada. The median age increased from 43.0 to 43.8 between 2011 and 2016 (Statistics Canada, 2017). The elderly population (defined as residents aged 65 or older) was larger than the young population (individuals 15 or younger) for the first time in 2016 (Statistics Canada, 2017). Kelowna's senior population will continue to grow in the future. The proportion of seniors in the overall population will increase to 25% in 2039 compared to 21.5% in 2021. On the other hand, the population of young professionals (individuals between 20 and 39 years of age) will decrease by 5.4 percent in the next 20 years. As a result, the population of seniors will be greater than the population of young professionals by 2040 (City of Kelowna, 2020b). Accessibility will have to be one of the key focus areas of the future housing market to address Kelowna's aging population.

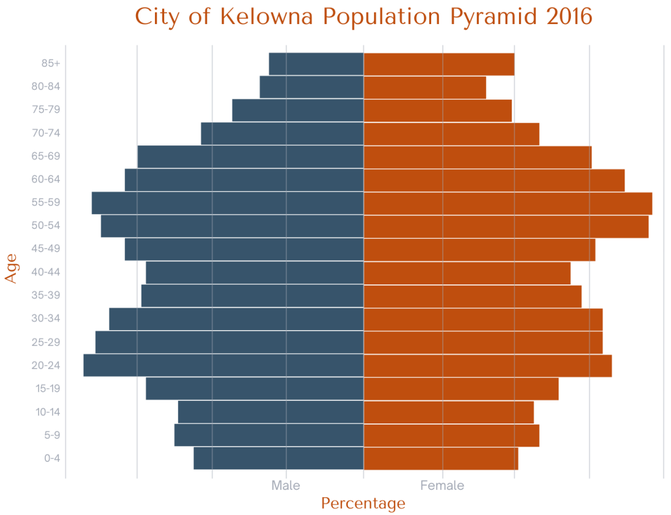


Figure 6: *Population Pyramid*

Policy - Demographics

FAMILY STRUCTURE AND HOUSEHOLD SIZES ARE CHANGING

Planning for future housing demand relies on understanding that household types change over time. The analysis of household types in the 2011 and 2016 Censuses shows that households with children within a census family increased by 62% during this period, while other types experienced slight growth. 17,000 Kelowna households had at least one child under the age of 24 in 2016, compared to 10,500 in 2011 (Statistics Canada, 2017). On the other hand, the average family size will be smaller over the next twenty years due to decreasing birth rates, increasing death rates, and increase in divorces (City of Kelowna, 2018a). Consequently, the average household size, defined as the average number of persons per household, will decline from 2.0 in 2021 to 1.68 in 2040 (City of Kelowna, 2020a). Family structure will also change in the next 20 years. There will be more blended families (a family unit where one or both parents have children from a previous relationship, but they have combined to form a new family), intergenerational households, and elderly dependency (City of Kelowna, 2018a). As a result, a diversity of housing options will have to be provided to address changes in family structures and declining household sizes.

BECOMING A STRONG EDUCATIONAL HUB

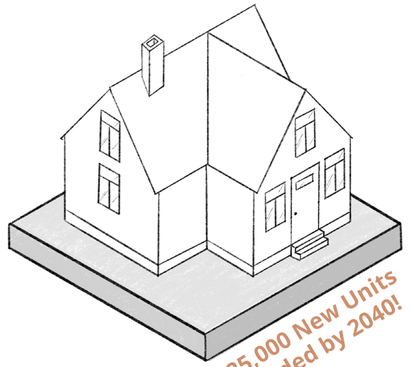
Kelowna has a growing student population. The number of current post-secondary students is higher than 15,000. Approximately two thirds of them study at the University of British Columbia Okanagan campus, while the rest attend Okanagan College (City of Kelowna, 2020a). The student body will continue to grow in the future. Both major post-secondary institutions have ambitious expansion plans which will have a significant impact on enrolment of new students. More housing options will be necessary in the future considering students' limited resources and low vacancy rates which have a negative impact on housing affordability.

HOUSING IMPLICATIONS

Most Kelowna residents live in single-detached houses, although their number slightly decreased between 2011 and 2016. According to the 2016 Census, the proportion of residents living in single-family detached homes was 45% (Statistics Canada, 2017). While most housing types experienced slight growth, apartments in buildings with fewer than five storeys experienced a 46% increase and duplexes experienced a 35% increase during this period (Statistics Canada, 2017). This trend correlates with the initial stage of infill developments in the City.

Rising demand for housing is one of the main challenges that Kelowna will continue to experience in the future. Based on current population projections, additional 25,000 units will need to be provided by 2040 to accommodate the growth (City of Kelowna, 2020a). 79% of new dwelling units in Kelowna over the next 20 years will be in the form of multi-family due to decreasing household sizes, land constraints, and affordability challenges. Multi-family developments are usually more accessible than single-family homes, which is important to address the growing senior population in Kelowna. In addition, changes in family structures and household sizes will result in reduced house sizes. Average home sizes will be smaller because the average household size will decrease. With housing prices increasing faster than average incomes, it is expected that demand for rental units will jump from 28% today to almost 40% in 2040 (City of Kelowna, 2018a). Infill housing is a good solution to address these trends. Infill options will also benefit the growing student population because it will provide more (affordable) housing options. Another advantage of infill housing is that the areas pre-determined for infill are in Kelowna's urban core or one of the neighbourhood centres.

According to the 2017 Future of B.C. Housing report, millennials state that housing costs, proximity to work, and access to public transit are three top factors for housing (Resonance Consultancy, 2017). Introducing new housing forms in these areas, especially innovative infill solutions, will help create compact, accessible, more affordable, and complete communities, bearing in mind Kelowna's aspiration to become a crossover between a retirement community due to its ageing population, and an educational hub due to its increased student population (City of Kelowna, 2018a).



Policy - 2040 OCP Directives

INTRODUCTION

The Core Area is a key component of the City's long term growth strategy because of its proximity to Urban Centres and the prevalence of residential neighbourhoods that can meet the diverse needs of future Kelowna residents. Density is to be concentrated along proposed Transit Supportive Corridors, such as Glenmore Road, with a long-term goal of 50 to 100 people per hectare within a 200m radius of these accessible transit networks and amenities (OCP Policy 5.2.1, City of Kelowna, 2020a). Within existing neighbourhoods, infill should be reflective of massing, setbacks, and form where possible. The OCP supported building height in Core Area neighbourhoods is 2 storeys (Table 3.3, City of Kelowna, 2020a). This section highlights 2040 OCP objectives and policies for future infill that align with Inclusivity & Liveability. To encourage responsive residential infill development, the City has facilitated two Infill Design Challenges, created an initial RU7 infill zone, and has introduced Policy 5.3.6 in the 2040 OCP, which prioritizes small lot developments over larger lot consolidation in specific parts of the Core Area.

COMMUNITY BUILDING & SOCIAL INTERACTION

The OCP encourages that future infill housing incorporates elements that help to connect residents with one another and are inclusive of all family types. This includes providing porches, shared landings, outdoor amenity space that is usable in all seasons, and low (1.06 m maximum) fencing. Dwelling walkways and entrances should face the main street, but there should be a transition zone from the private to public space, which can be accomplished through landscaping. This transition zone is also referenced in Happy City, which finds that 'soft zones' such as semi-private porches and yards that are approximately 3.2 m deep provide people with the convenience of either chatting with their neighbours or enjoying their privacy (Montgomery, 2013, p. 133).

RELATED 2040 OCP DIRECTIVES:

Objective 5.11 - Increase the diversity of housing forms and tenure to create an inclusive, affordable, and complete Core Area
Relevant Policies - Policy 5.11.6. & Policy 5.11.7

Objective 5.16 - Create neighbourhood streets that are safe and comfortable for people to walk, bike, and play on
Relevant Policies - Policy 5.16.2. & Policy 5.16.3

STREETSCAPE ENHANCEMENTS & PEDESTRIAN SAFETY

To create a transition between the private sidewalk and public streetscape a 0.6m grade transition is suggested. Where possible the development should have pathway connections to nearby pedestrian and cycling pathways. Installation of street trees to provide shade and enhance the neighbourhood is referenced in several OCP objectives (Policy 5.5.2, Policy 5.14.1, and Policy 5.16.2). Creating streets that are safe and convenient for walking and cycling while reducing reliance on personal vehicles is emphasized for the Core Area. There is potential to relax parking requirements if a project provides a comprehensive Transportation Demand Management Strategy. Emphasis is made on complete streets and protected bike lanes that connect to nearby parks, schools, public transit, amenities, and office-retail space.

Street trees and connected walkways were identified by Kelowna citizens as "integral to the success of infill in Core Area neighbourhoods" in the OCP Infill Strategy and RU7 Lessons Learned Report to Council (City of Kelowna, 2020b).

RELATED 2040 OCP DIRECTIVES:

Objective 5.14 - Increase the diversity of housing forms and tenure to create an inclusive, affordable, and complete Core Area
Relevant Policies - Policy 5.14.1, Policy 5.14.2 Policy 5.14.3

Objective 5.16 - Create neighbourhood streets that are safe and comfortable for people to walk, bike, and play on
Relevant Policies - Policy 5.16.2.

Objective 5.19 - Adapt and respond to shifting long term demand for parking facilities
Relevant Policies - Policy 5.19.1, Policy 5.19.2, Policy 5.19.3

COMPLIMENTARY INFILL DESIGN

Future infill in Core Area residential neighbourhoods should be ground-oriented and promote gentle density. Suggested typologies include houseplexes, townhouses, and narrow lot housing. Setbacks should be reflective of existing homes and introduce landscaping that reduces surface runoff and provides enjoyable social space. The front facade should be designed in a way that multi-unit dwellings are distinct from one another. This is described in the OCP's section 3.1.2 Scale and Massing as designs that integrate "recessed entries, balconies, a change in materials and slight projection/recess in the facade" (City of Kelowna, 2020a, p. 198). Suggested exterior building materials include wood, natural stone, metal panels, and fibre cement siding.

RELATED 2040 OCP DIRECTIVES:

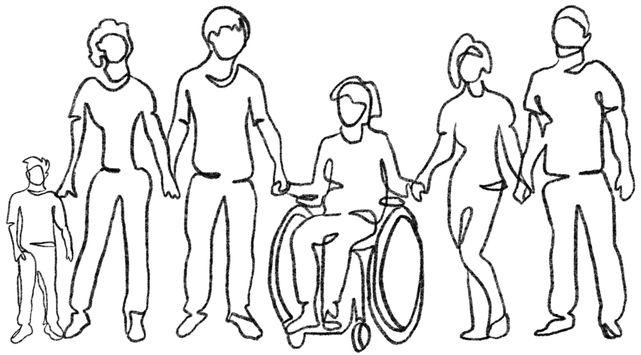
Objective 5.3 - Design residential infill to be sensitive to neighbourhood context
Relevant Policies - Policy 5.3.1., Policy 5.3.2., Policy 5.3.6., Policy 5.3.8

Objective 5.11 - Increase the diversity of housing forms and tenure to create an inclusive, affordable and complete Core Area
Relevant Policies - Policy 5.11.1., Policy 5.11.3., Policy 5.11.4

Visions for Growth

INTRODUCTION

Although the team did not conduct any new public engagement during the project, it was important to analyze previous recent City of Kelowna engagement to gain an understanding of values and themes related to infill housing for the community. Through reviewing and analyzing conversations and feedback collected from Imagine Kelowna and the 2040 OCP engagements, as well as insights from Public Hearings and Reports to Council, there were multiple themes that can be derived from the data to guide the City's Infill Housing Strategy (see Appendix B for more details). The following themes were extracted through the filter of housing, infill housing, streetscapes, liveability, and inclusivity. It is important to note that these themes do not represent the views of all Kelowna Residents, but instead represent general comments and themes across the data analyzed from those engaged or in attendance at public hearings. The themes are listed in order of frequency mentioned in the engagement summaries and reports analyzed. However, we recommend a next step of future engagement that involves vetting these themes with the community to dive deeper into these Visions for Growth, and whether they think anything is missing (See Section 4 for future engagement recommendations).



COMMUNITY

1 INCREASED MOBILITY AND DIVERSE TRANSPORTATION OPTIONS

Residents expressed that having improved and increased transportation options close to their homes, especially active and public transit, is a common value and important consideration when planning for the demands of increased growth. Many public hearing participants also shared a common value of housing that supports access to more transportation options. While some residents were in support of the reduced parking requirements that come with infill housing, there were still concerns expressed about access to parking spaces. Active transportation routes and walkability to surrounding amenities was an additional value expressed relating to transportation.

2 LIVEABLE & COMPLETE STREETSCAPES

Community members noted multiple values that relate to liveable and complete streetscapes. The need for more complete streetscapes, including improvements to streets, protecting street trees, green space, and sidewalks was repeatedly mentioned. One concern that was noted was how some streets do not have access to bike lanes or even sidewalks. The community cautioned that increased infill development should be met with increased civic investment for improved liveability.

3 INCLUSIVE, DIVERSE & ACCESSIBLE NEIGHBOURHOODS

In general, residents expressed value in a diversity of housing types and tenures in order to support the various levels of housing need, ages, and abilities. Emphasis was put on ensuring multi-family housing forms would be able to cater towards families, are safe, and are suitable for the diversity of Kelowna residents. It was expressed that, to achieve inclusivity, there is a need for better outreach with equity-seeking groups. When given the option between supporting affordable housing and maintaining low density in neighbourhoods, preference was largely in support of affordable housing options (75% of responses).

4 ACCESS TO SERVICES, OPPORTUNITIES, AND AMENITIES

Having access to amenities, opportunities, services, and employment close to home was recognized as a value by many participants and ultimately increases the liveability of a neighborhood. When asked about the trade-off between living close to local services or maintaining low density, residents overwhelmingly preferred living in a neighborhood close to local services. In terms of green spaces, participants noted that having smaller, more local and frequent parks throughout the community were preferable to having larger and less frequent parks.

5 SOCIAL AND COMMUNITY COHESIVE NEIGHBOURHOODS

Community members noted multiple values that relate to community cohesion. The Public Hearings also revealed many residents value the social cohesion of their neighbourhoods, and want to ensure new infill development does not hinder community-building.

6 GENTLE DENSITY WITHIN CONTEXT

Residents frequently noted the importance of increased density within the Core Area, especially when presented as a solution to urban sprawl, protection of agricultural lands, projected growth, and the opportunity to contribute to more complete communities. Ensuring that neighborhoods do not lose their unique character through densification was a common value shared. While the idea of density was generally supported, there were some concerns about appropriate height levels of infill and ensuring the density is sensitive to the surrounding area.

Visions for Growth

Stakeholders such as City Staff, Developers, and Architects have technical knowledge and their own separate Visions for Growth that are more specific to their roles and industries. The following visions are also generalized, but provide important information that can inform how the City of Kelowna can approach their future infill housing strategy.

CITY STAFF

- Gentle growth targeted within the Core Area
- Non-monotonous infill housing form
- A formal strategy for street urbanization projects and use of funds
- Equity-based approaches to Infill housing
- Housing diversity so that everyone has access to suitable housing

DEVELOPERS / ARCHITECTS

- Simplified & fast-tracked planning and building permit approvals processes
- Interventions that make infill easier and lowers risk.
- Pre-zoning, to facilitate a shorter development application process
- Pre-approved plans to limit process complexities
- Interventions that lower land costs for small lots

Figure 7 - 10 : *Community Events*

Section 3: Visualizing Infill in Kelowna

Infill Design Elements
Block Transformation

Infill Design Elements

INTRODUCTION

Throughout the duration of this project, the City of Kelowna simultaneously held the Infill Design Challenge 2.0. This challenge was an open competition for architects, developers, and designers to present innovative infill housing designs that meet Kelowna's goals and enhance the current housing landscape. The following top three winning designs from the competition are outlined to highlight key design elements that make them successful prototypes for infill in Kelowna.

FIRST PLACE: Miguel Angel Jimenez Gonzalez Cruz

Lot Size: 38.0 m X 21.0 m (798.0 m2)

Ground Floor Setbacks:
- 2.0 m Sideyard E, 4.0 m Driveway W
- 6.0 m Front
- 19.0 m Back

Site Coverage:
- 32.56% Buildings (259.9 m2)
- 69.84% Buildings + Structures + Hardscape (557.3 m2)

Floor Area Ratio: 0.47

Number of Units: 4

Unit Mix:
- 2 Bed (1 flex) + 1 Bath
- 2 Bed + 1 Bath + 1 Toilet
- 2 Bed + 1 Bath
- 3 Bed + 2 Bath

Figure 11 - 12: *Infill Design Renderings*

DESIGN FEATURES

- Individual bike parking sheds
- EV charging points
- Rear parking + accessible parking
- Side laneway to rear parking
- Shared outdoor green and gathering spaces
- Diverse unit types
- Ample trees on lot
- Large front setback
- Mix of paved and permeable surfaces
- Shared workshop space
- Unique design that fits neighbourhood scale

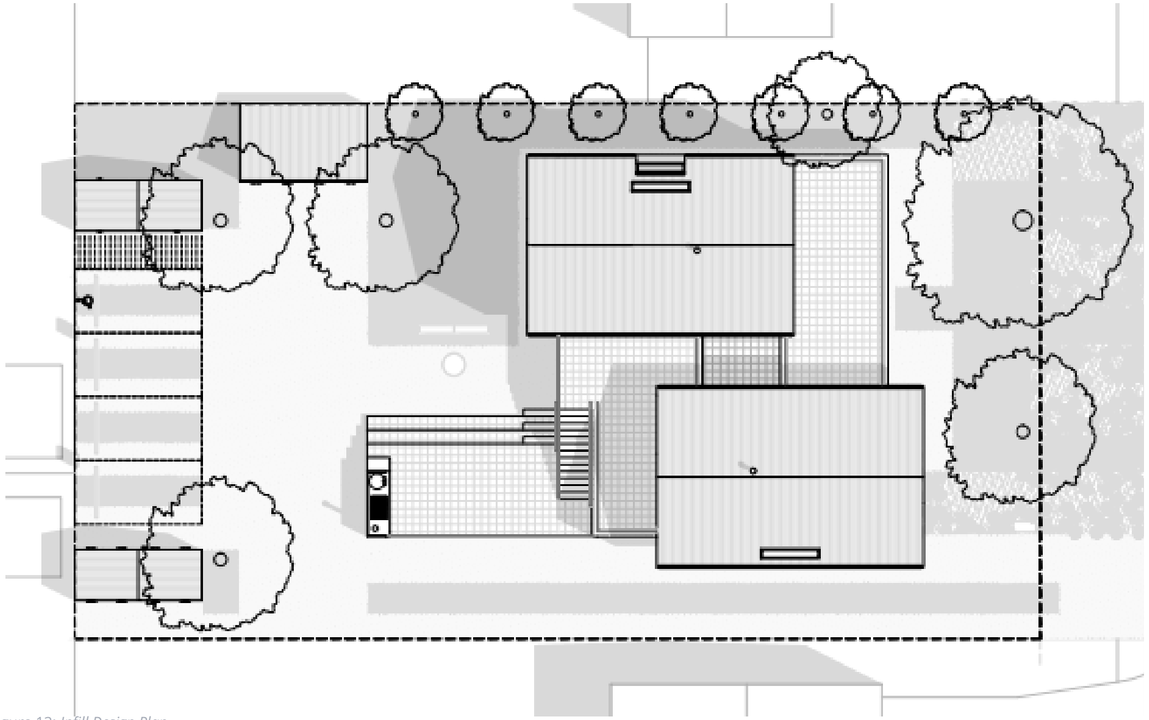


Figure 13: *Infill Design Plan*

Infill Design Elements

SECOND PLACE: Bluegreen Architecture

Lot Size: 28.0 m X 21.0 m (588.0 m2)

Ground Floor Setbacks:
- 2.6 m Sideyard, 5.7m Side Aisle
- 3.7 m Front
- 0.9 m Back

Site Coverage:
- 40.04% Buildings
- 60.4% Buildings + Structures + Hardscape

Floor Area Ratio: 0.53

Number of Units: 4

Unit Mix:
- 3 Bed + 2.5 Bath
- 3 Bed + 2.5 Bath
- 2 Bed + 1 Bath
- 1 Bed + 1 Bath

Figure 14 - 15: *Infill Design Renderings*

DESIGN FEATURES

- Accessible units
- Bike storage space
- Mix of privacy and shared communal space
- Neighbourhood scaling
- Diverse unit types and sizes
- Covered parking
- Side laneway to parking
- Shared garden box
- Mature trees and decorative plantings
- Rooftop patios

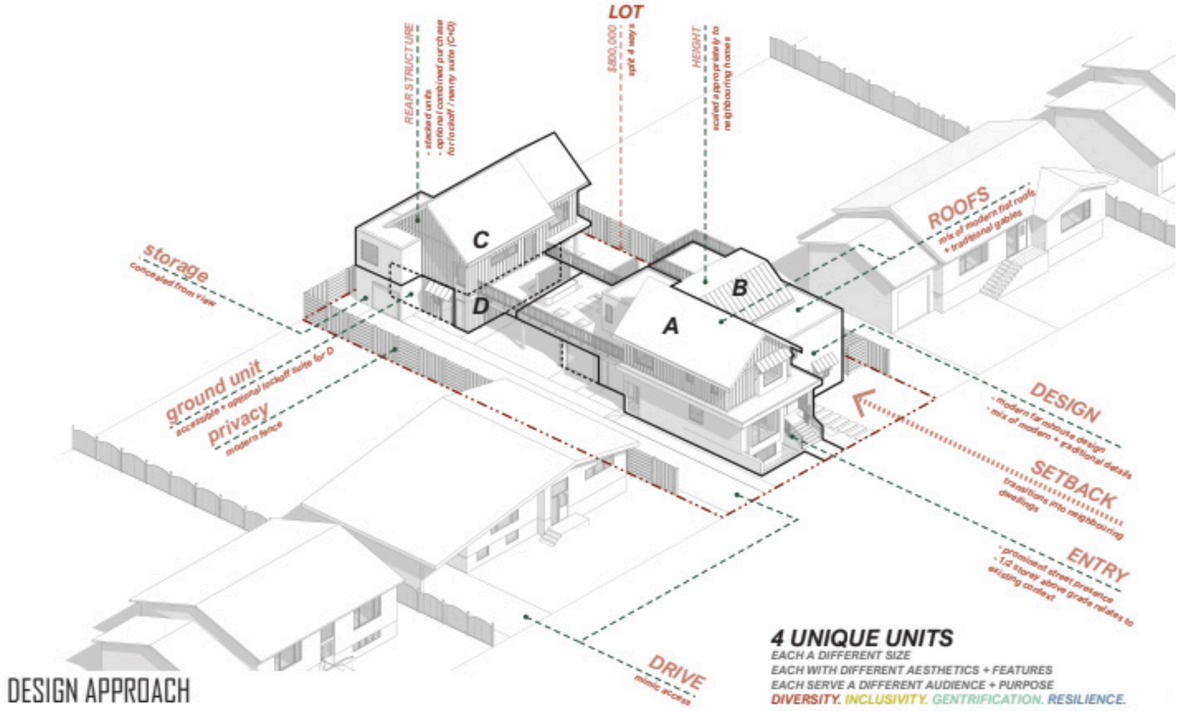


Figure 16: *Infill Design Plan*

Infill Design Elements

THIRD PLACE: Twobytwo Architecture Studio

Lot Size: 38.0 m X 21.0 m (798.0 m2)

Ground Floor Setbacks:
- 2.0 m Sideyard, 2.0 m Side Aisle
- 6.0 m Front
- 3.0 m Back

Site Coverage:
- 30% Buildings
- 42% Buildings + Structures + Hardscape

Floor Area Ratio: 0.56

Number of Units: 4

Unit Mix:
- 2 Bed
- 2 Bed
- 3 Bed + 3 Bath
- 3 Bed + 3 Bath

Figure 17-18: *Infill Design Renderings*

DESIGN FEATURES

- Ample trees on site
- Indoor bicycle parking space
- Mid-lot parking, accessible by a side laneway
- Shared courtyard space and rain garden
- Mix of permeable and impermeable surfaces
- Diversity of unit types
- Accessible units
- Mix of shared and private outdoor spaces
- Rooftop garden

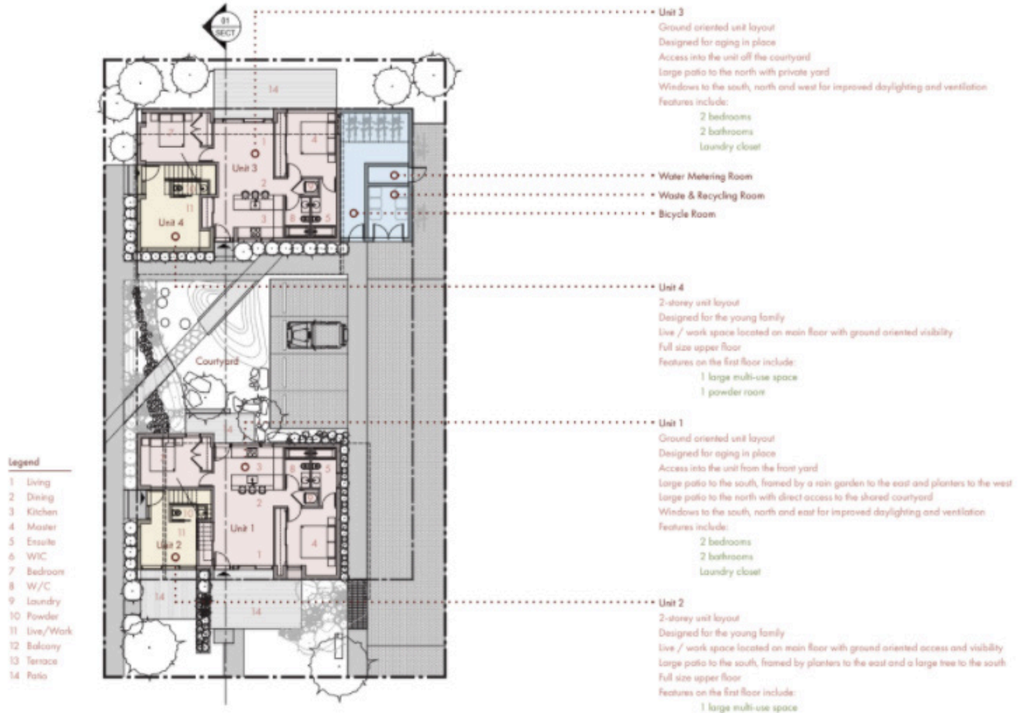


Figure 19: *Infill Design Plan*

Block Transformation

INTRODUCTION

To provide a visual reference for how infill development could transform an area over time, our team modeled an existing block in Rutland before and after a variety infill developments. The infill developments shown range in typology, size, density, and complexity. In reality, it would be very unlikely to see this level of variety within one residential block, but the intention of this visualization is to present a range of options to spark creativity in design solutions moving forwards.

CURRENT STATE

Lot Size:
- Corner Lot: 21m x 36m (756 m^2)
- Mid-Block Lot: 20m x 40m (800 m^2)
- Pie-Shaped Lot: 15m x 45m x 36m (1081 m^2)
- Average Lot Area: 874m^2

Ground Floor Setbacks:
- 5.0 m Side, 2.0 m Side
- 8.0 m Front
- 15.0 m Back

Number of Units: 14

Gross Density: 4 Units / Acre

Unit Mix:
- 3-5 Beds + 2 Baths

Streetscape Features:
- No sidewalks
- No street trees
- Ample space for on-site and off-site parking
- No street lights
- Deep front setbacks
- Large private yard space
- Poorly maintained gravel shoulders
- No public spaces to sit or interact with neighbours
- No crosswalks

Figure 20 -21: *Block Plan Renderings*

Figure 22 - 23: *Block Perspective Renderings*

FUTURE POSSIBILITIES

Lot Size:
- Corner Lot: 21m x 36m (756 m^2)
- Mid-Block Lot: 20m x 40m (800 m^2)
- Pie-Shaped Lot: 15m x 45m x 36m (1081 m^2)
- Narrow Low: 10m x 40m (400 m^2)
- Average Lot Area: 705 m^2

Ground Floor Setbacks:
- 2.0 m Side, 2.0 m Side
- 3.0 m - 8.0m Front
- 7.0 m - 15.0m Back

Number of Units: 37

Gross Density: 10 - 12 Units / Acre

Unit Mix:
- 1 Bed + 1 Bath
- 2 Bed + 1 Bath
- 2 Bed + 2 Bath
- 3 Bed + 2 Bath

Streetscape Features:
- One sidewalk connected to existing sidewalk network with crosswalks
- Numerous street trees
- One dedicated parking stall per unit on site + a number of street parking stalls
- Street lights provided to illuminate crosswalks and sidewalk
- Minimal front yard setbacks
- Gravel shoulders reduced and replaced with climate appropriate landscaping
- Benches provided at intersections
- Increased accessibility for those with mobility challenges

Section 4: Infill Housing Strategy Recommendations

Recommendations
Visualizing Policy
Recommendations for Future Engagement
Final Thoughts

Recommendations

To support the City of Kelowna in their mission to develop an Infill Housing Strategy, we have created a series of recommendations that intertwine our research and analyses conducted on design, policy, and engagement. These recommendations are categorized through the themes derived from the community's Visions for Growth that relate to Liveability & Inclusivity. We then provide some specific recommendations for future engagement.

Table 3:Liveable & Complete Streetscape Recommendations

LIVEABLE AND COMPLETE STREETSCAPES		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Consider providing native plant storm-water management solutions that limits the amount of off-site stormwater runoff (bioswales, gravel/rock gardens)	The City of Surrey provides photos and de-sign recommendations for drainage features at the site-level scale, supplementing existing engineering guidelines	City of Surrey, Biodiversity Design Guidelines
Provide walking paths to maintain pedestri-an connectivity where street connectivity is not possible, and provide a fine-grained and well-connected street grid, with short blocks to minimize walking distances, and avoiding cul-de-sacs.	The District of Kitimat emphasizes that development should prioritize accessibility and improvements for those with mobility challenges. Noting that their population is aging, development will continue to prioritize compact, walkable design. This will provide overall benefits for quality of life in Kitimat. They also highlight the importance of main-taining and enhancing green spaces, trails, and bicycle lanes. The Township of Langley recommends that newly developed communities and neigh-bourhoods should provide 'direct and safe' pedestrian and cycling paths to public transit	District of Kitimat OCP, 2021, pg. 20 3.2 Core Themes for the Future Township of Langley OCP, 2013, p. 39 Policy 2.5.6
Encourage pedestrian and bicycle use with public realm design that provides high-quali-ty open space or plazas, weather protection, pedestrian-scale lighting, street furniture, bus shelters, street trees, and public art	The Township of Langley specifies in their OCP that pedestrian and bicycle use should be encouraged through public realm designs that include the following: high quality open space or plazas, weather protection, pe-destrian-scale lighting, street furniture, bus shelters, street trees, and public art.	Township of Langley OCP, 2013, p. 39 Policy 2.5.8

Table 4:Transportation & Mobility Recommendations

TRANSPORTATION AND MOBILITY		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Implement more pedestrian paths in infill neighborhoods to improve active transpor-tation	The City of Maple Ridge recommends de-fined pedestrian corridors and pathways that are in alignment with neighbourhood poli-cies and municipal Area Plans	City of Maple Ridge, Ground Oriented Resi-dential Infill Guidelines
Incentivize active and public transportation options	The City of Edmonton supports the evolution of livable mature neighbourhoods through residential infill by locating density where it will support transit and maximize walkability. The City encourages residential infill near LRT stations, on high frequency transit corri-dors, and near major shopping hubs.	City of Edmonton Procedures

Table 5:Neighbourhood & Community Cohesion Recommendations

SOCIAL NEIGHBOURHOODS AND COMMUNITY COHESION		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Consider infill forms that leave space for social interaction	I.e. shared yard space in between infill devel-opments similar to renderings from Design Challenge 2.0 winners. Both the City of Coquitlam and the City of Portland require that a portion of the site area is dedicated for common outdoor space.	City of Coquitlam, RT-1 Infill Residential, (13) Other Regulations City of Portland, Code Update, Table 110-3
Encourage infill solutions where neighbours can engage in mutual activities together (i.e. food production through community gar-dens)	Urban gardens are a permitted use in the City of Edmonton's RF3 Small Scale Infill De-velopment Zone	City of Edmonton, RF3 Small Scale Infill De-velopment Zone
Set maximum fencing heights to encourage social interactions between residents and people walking through the neighbourhood.	In 2020 the City of Kelowna amended By-law No. 8000 Section 7 - Landscaping and Screening, 7.5 Fencing and Retaining Walls, 7.5.3, setting a maximum fencing height of 2.0 m for residential zones	City of Kelowna Regular Council Meeting - Tuesday, February 25, 2020

Recommendations

Table 6:Maintaining Neighbourhood Character Through Gentle Density Recommendations

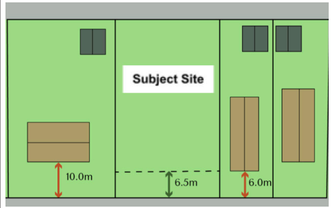
MAINTAINING NEIGHBOURHOOD CHARACTER THROUGH GENTLE DENSITY		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Maintain front setback consistency by including contextual dwellings as a permitted use for Core Area zoning.	In the City of Calgary, new developments that meet the contextual rules set by the Land Use Bylaw are not subject to public appeal. The City of Calgary calculates the required front setback distance for the new development by taking the average setback distances for the two properties on either side of the site and subtracting a 1.5m allowance. (City of Calgary)	 Illustration referenced from Calgary's Contextual Drawings
Where a landscaped buffer is provided, allow for a moderate variance to the setback requirement	The City of Edmonton allows for a front setback reduction of 1.5m where a Treed Landallow for a moderate variance to the setback lane is provided.	City of Edmonton, 110.4, 8a City of Edmonton, RF3 Small Scale Infill Development Zone
Provide developers with visuals of preferred design solutions and materials that compliement existing neighbourhood character.	The Infill Design Challenge 1.0 and subsequent Infill Design Challenge 2.0 provide developers with visual references for preferred massing and design.	City of Kelowna Infill Design Competition 2.0
Specify density and percentage of unit type per lot in the Neighbourhood Plan.	The Township of Langley's Yorkson Neighbourhood Plan provides permitted housing type mix and permitted densities for land assemblies based on property size.	Schedule W-2 Willoughby Community Plan, Yorkson Neighbourhood Plan, Table 4.1

Table 7:Inclusive, Diverse & Accessible Neighbourhoods Recommendations

INCLUSIVE, DIVERSE, & ACCESSIBLE NEIGHBOURHOODS		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Require developers to provide an estimate of home purchaser costs during the development application stage. This would ensure that the infill project met the City's affordability and inclusivity objectives.	This information was provided for various unit types by one of the top 2.0 Infill Design Challenge submissions.	City of Kelowna Infill Design Competition 2.0
Remove the minimum parking requirement for new developments. This would reduce construction costs, helping to reduce economic barriers for affordable housing.	In 2020, the City of Edmonton removed minimum parking requirements from their zoning bylaw. In the Village of Cumberland, a developer can opt to pay $3,800 per parking stall in lieu of providing required parking for R-1A infill zoned lots. In Kelowna's 2040 OCP, developing a cash-in-lieu parking program is a policy recommendation for Core Area neighbourhoods (Policy 5.19.3).	City of Edmonton, Open Option Parking Village of Cumberland, 6.2 Cash in Lieu Provisions, d)
Allow missing middle housing in all zoned single-family neighbourhoods. This would increase housing availability, affordability, and diversity.	In 2019, the City of Edmonton approved semi-detached and duplex homes on RF1 Single Detached Residential Zone lots that have a minimum area of 250.8 m2 and 300 m2, respectively. The City of Portland has effectively transformed all single-family zoned properties into three different infill zones based on minimum site area.	City of Edmonton, RF1 Single Detached Residential Zone City of Portland, Residential Infill Project and New Development Projects
Provide additional units per site if half of units provided are affordable for households earning up to 80% of the median family income.	The City of Portland is allowing 4 to 6 units on most residential lots, if they meet the City's definition of Deeper Affordability	City of Portland, HOU-3.09

Recommendations

Table 7:Inclusive, Diverse & Accessible Neighbourhoods Recommendations

INCLUSIVE, DIVERSE, & ACCESSIBLE NEIGHBOURHOODS - CONT.		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
A portion of DCCs and CACs collected from new development projects should be allocated towards Kelowna's Housing Opportunities Reserve Fund.	The City of North Vancouver allocates 80% of CACs to their Civic Amenity Reserve Fund for civic facilities and community amenity space and 20% to their Affordable Housing Reserve Fund. The City of Mission has recently completed a new Affordable Housing Strategy that contains a variety of recommendations on how they are providing more resources and policies aimed at tackling affordable housing.	City of North Vancouver, Affordable Housing Reserve Fund City of Mission, Affordable Housing Strategy
Require adaptable design of all new multi-family residential housing units.	The City of Langford is requiring all new multi-family residential housing units to be designed in a way to allow for easy ADA adaptability.	City of Langford OCP, 2013, p. 56, Policy 5.7.3
Ensure that a minimum of 10% of the units in any development over 10 units are "visitable" by those with mobility challenges, i.e., access to front door with no steps or steep grades, wide front door, accessible washroom on main floor	Thompson Nicola Regional District is ensuring that people with mobility challenges will still be able to engage with their community by removing barriers limiting them from interacting with people within their homes.	Thompson Nicola RD, OCP for Green Lake and Area, 2012, p. 21: Policy 6.48

Table 8: Improving Access to Service, Opportunities & Amenities Recommendations

IMPROVING ACCESS TO SERVICES, OPPORTUNITIES, & AMENITIES		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Shared neighbourhood amenities such as shared bicycle storage, or bike share stations	Similar to permitting urban gardens in infill zones, shared bike storage or other amenities could be permitted under the bylaw	 PC: Tony Webster/Wikipedia Commons
Where feasible, consider where services, home businesses or shops can be incorporated to support infill neighbourhoods by providing close access to things that people need.	This recommendation is based on conversations with the City of Kelowna regarding the future development of 'mature' infill blocks. A neighbourhood scale infill strategy could be developed, specifying the types of permitted small-scale businesses on corner lot properties and/or home businesses could be permitted by the zoning bylaw	 Google Maps

Visualizing Policy

INTRODUCTION

To put some of the recommended policies into context, the team has tagged them on the block transformation model. These are the policies that shaped the design direction for this visualization in the first place, and are important to implement in future infill design projects across the City of Kelowna.

Figure 21: *Block Plan Renderings*

1. Allow middle housing in all zoned single-family neighbourhoods.
2. Remove the minimum parking requirement for new developments.
3. Maintain front setback consistency by including contextual dwellings as a permitted use for Core Area zoning.
4. Provide additional units per site if half of units provided are affordable for households earning up to 80% of the median family income.
5. Incentivize active and public transportation options
6. Shared neighbourhood amenities such as bicycle storage, or bike share stations

Figure 23: *Block Perspective Renderings*

7. Encourage pedestrian and bicycle use with public realm design that provides quality open spaces, weather protection, pedestrian-scale lighting, street furniture, trees, bus shelters, and public art
8. Ensure that a minimum of 10% of the units in any development over 10 units are accessible by those with mobility challenges
9. Consider infill forms that leave space for social interaction
10. Reduce front yard setback requirements to encourage neighbour interaction
11. Set maximum fencing heights to encourage social interactions between residents and people walking through the neighbourhood.

Recommendations for Future Engagement

Table 9:Equity-Centered Engagement Recommendations

EQUITY-CENTERED ENGAGEMENT		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Place accessibility and equity at the forefront in engagement.	Consider who in the community faces barriers to involvement or access and work towards addressing these barriers first and foremost. Where are there power imbalances in engagement? Think of creative and interesting ways to break these barriers or shift power dynamics – which may mean creating multiple forms of an engagement exercise.	SFU Centre for Dialogue, Beyond Inclusion
Meet people where they are at.	To ensure that engagement is centered around equity, consider where equity-seeking groups and people naturally gather and find creative ways to engage with them or meet with them in these spaces.	Jay Pitter, Engaging Black People and Power
Welcome and seek alternate ways of engaging.	While one way of engaging may be effective for one group, it may not be effective for another. Think creatively about future engagement and be open to ways to engage that may be atypical of municipal processes. For example, engagement through oral storytelling where the community leads the conversation can be an effective way of learning about different peoples relationships with their neighbourhood.	Jay Pitter, Engaging Black People and Power
Choose spaces and communication methods that make people feel safe.	Consider the relationship between the place chosen for engagement, the way it is communicated, and psychological safety of the participants. Ensure that you select the right spaces to share stories in a way that is safe, appropriate to the group, and strengthens bonds.	Jay Pitter, Engaging Black People and Power
Gather feedback from possible future Kelowna residents.	Examples of people within this category could be students who moved away to go to school, past residents who moved away with the hope of moving back, or anyone with the hopes to move to Kelowna in the future. This feedback could be beneficial in understanding how infill housing could support these demographics.	British Columbia Ministry of Health, Rural and Remote Engagement Tip Sheet *Note: This is a Public Health document but offers great tips for remote/rural engagement generally.

Table 10: Future Public Conversations about Infill Recommendations

FUTURE PUBLIC CONVERSATIONS ABOUT INFILL		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Review the Visions for Growth with the Community	We recommend that reviewing and vetting the current Visions for Growth with the community as an important next step to ensure that they are truly representative in the context of Infill Housing. Suggestions include asking "did we get this right?" and "is there anything missing?". Having community members rank the visions afterwards can give a better sense of which visions are most commonly shared.	See Visions for Growth on page 17 - 19
Have conversations about infill over time. Implement infill development in neighbourhoods already close to village centres, corner stores, etc...	We designed the Block Visualization of infill over time, not only as a tool to help the City visualize our analysis findings and recommendations, but also as a tool to use for future engagement. This tool can help community members visualize how infill could transform a neighbourhood over time by eliminating common myths or misconceptions, and showing the community how their values and visions for growth can come to life.	See Section 3 for Visuals to help with these conversations.
Simplify communication about neighbourhood change.	The past engagement for Imagine Kelowna showed us that simplifying the language and discussing trade-offs and growth scenarios is important in order for the community to see the larger picture of what is happening in the community. We recommend continuing to do this through future engagement about infill housing, as it helps to break down the complexities around the projected growth and gives people a better understanding and vocabulary to talk about density.	Sparc BC, Community Engagement Toolkit
Engage kids/youth	Kids are the future of our communities and often are not engaged in meaningful ways. Yet, there is insight they can provide that is often missed by adults. Conducting a neighbourhood mapping exercise on an infill-targeted site is a great way to get them to weigh in on what is important to them in a neighbourhood.	CIP, A kid's guide to Building Great Communities Section 3.7 of City of Edmonton, Evolving Infill Stakeholder Engagement Results

Recommendations for Future Engagement

Table 10: Future Public Conversations about Infill Recommendations

FUTURE PUBLIC CONVERSATIONS ABOUT INFILL - CONT.		
ACTION	**EXAMPLE**	**VISUAL / LINK TO MORE INFO**
Conduct more community engagement on-site (embodied engagement)	I.e. "Walk-shops" and "bike-shops" with community members and the planning team. Walkshops may especially be useful for equity- seeking groups to learn what barriers there are to accessing certain types of housing, and other considerations for the streetscapes. This type of engagement (also known as Embodied Engagement) can often be more meaningful, emotional and dynamic as it can better activate the senses. Since being on-site requires a certain level of accessibility, there will need to be considerations made to accommodate people who have alternate levels of mobility and adapt the activity depending on the needs of the group.	Town of Ladysmith, OCP - Community Engagement
Encourage conversations about infill (outside of formal city processes)	Inspiring conversations outside of the formal consultation process about infill housing (whether between neighbours, neighbours with builders, or different community groups) can be helpful for problem solving, dealing with conflict, relationship building, and broadening our understanding. Promoting easy and barrier-free ways to inspire conversations about infill and housing that are not necessarily part of public consultation processes, can help community members and stakeholders have productive conversations, learn and become better engaged with what is happening in the community with infill housing.	City of Edmonton, Infill Action Conversation Toolkit

Final Thoughts

LIMITATIONS

Due to the COVID-19 pandemic, the team worked remotely to conduct most of the research, aside from one site visit where we were able to explore the area of focus to gain a deeper understanding of Kelowna's unique context. The pandemic also limited the team's ability to conduct meaningful engagement with Kelowna community members, and instead we relied on engagement previously conducted by the City. We recommend further engagement is prioritized when developing the Infill Housing Strategy. Many of the policies we referenced are relatively new and therefore it is too early to evaluate their effectiveness related to infill development over a long-term evaluation period. Finally, due to the scope of the project, the team was unable to provide a more comprehensive analysis of municipal financing tools for streetscape improvements, stormwater management, and housing affordability.

CONCLUSION

Through this project, we have gained an appreciation of the challenges and opportunities that municipalities face with infill development. By increasing density and allowing for more diverse housing types in existing neighbourhoods, this can create more cohesive, complete communities. However, there needs to be community support for these initiatives, and infill needs to be developed in a way that preserves existing community character while enhancing the streetscape, with complete streets and street trees, and walkable neighbourhoods. We thank Arlene Janousek and James Moore for their thoughtful advice and suggestions throughout the project and our SCARP Studio instructors for their support. This project is timely as we face a growing housing affordability crisis and there has been interest by municipalities to reenvision single-family zoned neighbourhoods to allow for missing middle housing. As our team enters the planning profession, we are eager to continue to find creative ways to grow with character.

Thank You

References
Appendix A
Appendix B
Appendix C

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References

FIGURES

Figure 1
Drawn by Mikaila Johnson - Inspired by the City of Edmonton. (2018). *Infill roadmap 2018*

Figure 2 - 4
Drawn / Created by Mikaila Johnson

Figure 5
Government of British Columbia. (2021). *Municipal and sub-provincial areas population, 2011 to 2020* [Data file]. Retrieved from https://www2.gov.bc.ca/gov/content/data/statistics/people-population-community/population/population-estimates

Figure 6
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Figure 7 - 10
Retrived from the City of Kelowna Website (n.d)

https://www.kelowna.ca/sites/files/1/styles/inside_banner__1038_x_auto_/public/2018_strong_neighbourhoods_vaudeville_in_the_park_26.jpg?itok=aHyqBqND

https://www.kelowna.ca/sites/files/1/styles/inside_banner_large/public/uploads/banners/inside/engagement-banner-ik.jpg?itok=ajK-gyyH&timestamp=1528391389

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Figure 11 - 13
City of Kelowna Infill Challenge 2.0 - Miguel Angel Jimenez Gonzalez Cruz (2022)

Figure 14 - 16
City of Kelowna Infill Challenge 2.0 - Bluegreen Architecture (2022)

Figure 17 - 19
City of Kelowna Infill Challenge 2.0 - Twobytwo Architecture Studio (2022)

Figure 20 - 23
Designed and produced by Mikaila Johnson

COVER PAGE

Tourism Kelowna. (n.d.) *Aerial of kelowna* [Image]. Tourism Kelowna. https://www.tourismkelowna.com/lan/about-kelowna/

TABLES

Table 1 - 2
Created by Mikaila Johnson

Table 3 - 10
Compilation of Resources - References Hyperlinked in Table

Appendix A

Fife Road - Rutland

HISTORY

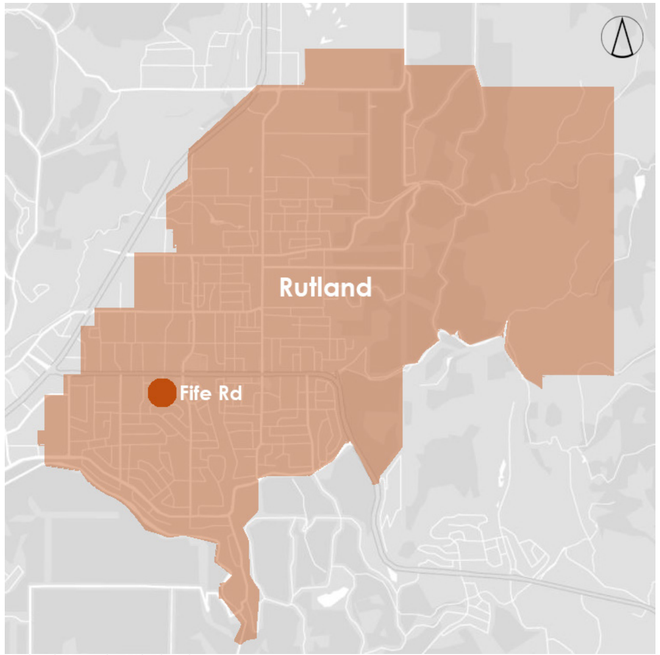
Rutland was formerly known as Ellison Flats before it was named after John "Hope" Matthew Rutland, a farmer of the flats east of Mill Creek in the early 1900's. The neighbourhood was formerly merged into the City in 1973, and is located on the most northeastern edge of the City's core. Rutland is the largest neighbourhood in Kelowna, and is predominantly composed of single-family homes with one main commercial centre - Rutland Town Centre (Vielvoye, 2017).

SELECTION CRITERIA

- Located within the Rutland neighbourhood and the Core Area boundary
- Currently zoned as RU1 and under-densified
- All lots have no lanes
- No sidewalks, bike lanes, or street trees
- Close to local amenities:
  - 10 minute walk / 1 minute drive / 750m to Rutland Town Centre

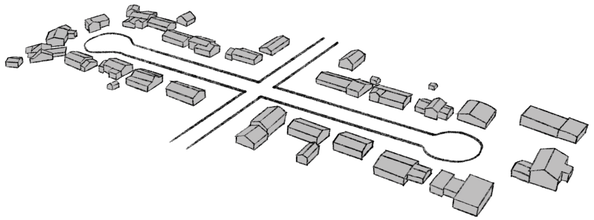
METRICS

Zoning: RU1 Zone - Large Lot Housing
Gross Density: 4 Residential Units / Acre
Lot Sizes: +/- 20m Wide x 30m Deep

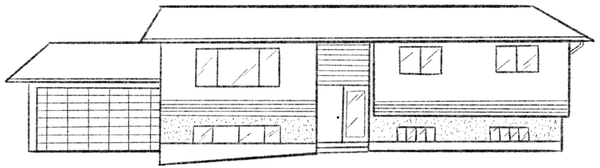


Rutland Map - by Mikaila Johnson

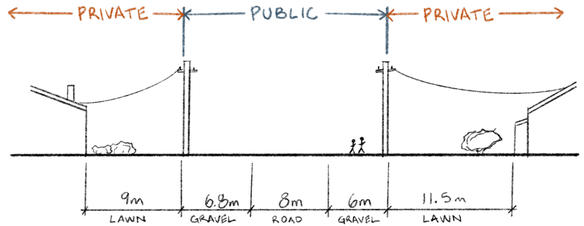
Figure Ground Plan



Block Axonometric



Typical House Front Elevation



Street Section

Fife Road neighbourhood character - by Mikaila Johnson

Appendix A

Lambert Avenue - Glenmore

HISTORY

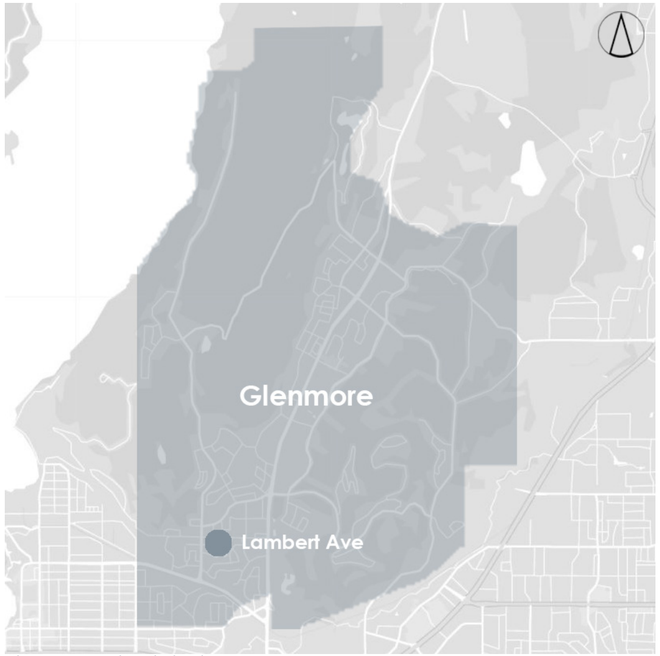
Glenmore is the central north neighbourhood in Kelowna located above and beside Highway 97. It is located within the region previously known as the Dry Valley, and gained its name after an open competition in which citizens presented their ideas for a $100 dollar prize in 1901. The name Glenmore, which means 'the great valley', was presented by a local farming couple who owned a farm in the region with the same name. Given the minimal rainfall in the area, the majority of the land was used for cattle ranching, logging, and subsistence farming. The area is now predominantly composed of single-family homes, a small village centre, golf courses and parks. Glenmore Road (GEID, n.d.).

SELECTION CRITERIA

- Located within the Glenmore neighbourhood and the Core Area boundary
- Currently zoned as RU1 and under-densified
- All lots have no lanes
- One sidewalk and no bike lanes
- Some street trees + mature trees on private property
- Close to local amenities:
  - 30 minute walk / 6 minute drive / 2.5km to Capri-Landmark Town Centre

METRICS

Zoning: RU1 Zone - Large Lot Housing
Gross Density: 4 Residential Units / Acre
Lot Sizes: +/- 24m Wide x 35m Deep



Glenmore Map - by Mikaila Johnson

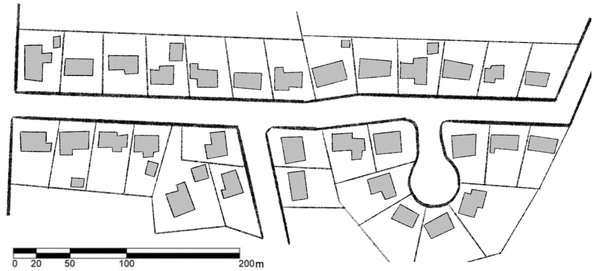
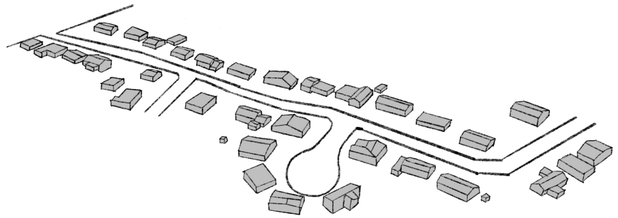
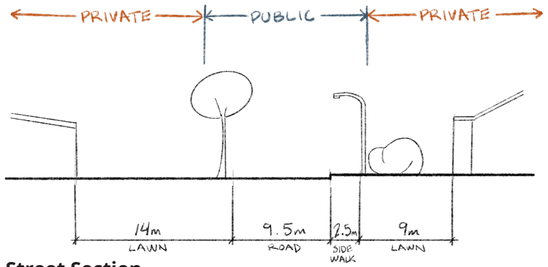


Figure Ground Plan



Block Axonometric

Typical House Front Elevation



Street Section

Lambert Avenue neighbourhood character - by Mikaila Johnson

Appendix A

Rhondda Crescent - South Pandosy-KLO

HISTORY

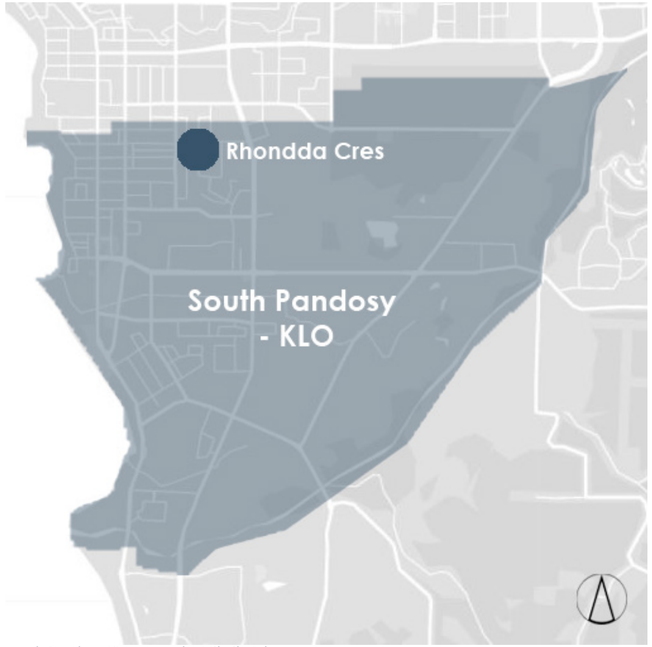
South Pandosy-KLO was named after Father Charles John Felex Adolphe Marie Pandosy, known as Charles Marie, who was an Oblate priest from Margerides, France. Three Oblates, including Father Pandosy, were tasked with opening a mission in the Okanagan Valley, and so they founded the first settler community in 1860 which included a church, a school, and farms. Father Pandosy would perform baptisms, marriages and funerals as well as teach the Indigenous Peoples European agriculture techniques and interceded for them when it came to land and fishing rights. The second half of the neighbourhood's name, KLO, was added after the Kelowna Land and Orchard Company (KLO) purchased 6,700 acres of land in south-east Kelowna in 1904. Presently, the neighbourhood is growing rapidly and is composed of a variety of uses and amenities. There is a busy commercial corridor, Okanagan College, waterfront resorts, single-family homes, multi-use developments, and Gyro Beach (Sthankiya, 2016).

SELECTION CRITERIA

- Located within the South Pandosy-KLO neighbourhood and the Core Area boundary
- Currently zoned as RU1 and under-densified
- All lots have no lanes
- No sidewalks, bike lanes, or street trees
- Some mature trees on private property
- Close to local amenities:
  - 22 minute walk / 4 minute drive / 1.7km to South Pandosy-KLO Town Centre

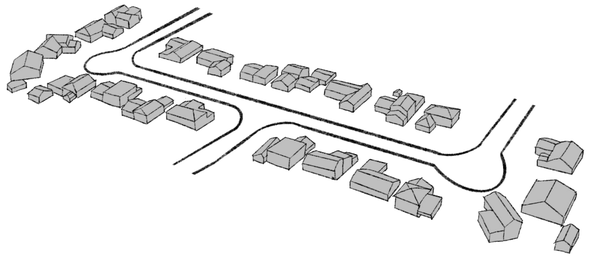
METRICS

Zoning: RU1 Zone - Large Lot Housing
Gross Density: 4.4 Residential Units / Acre
Lot Sizes: +/- 20m Wide x 32m Deep



South Pandosy-KLO map - by Mikaila Johnson

Figure Ground Plan



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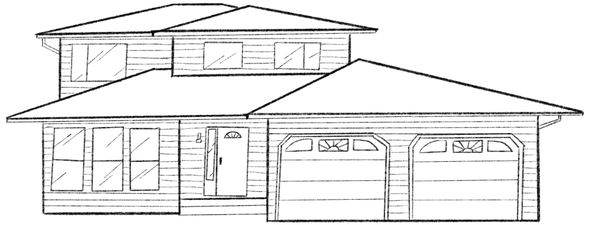
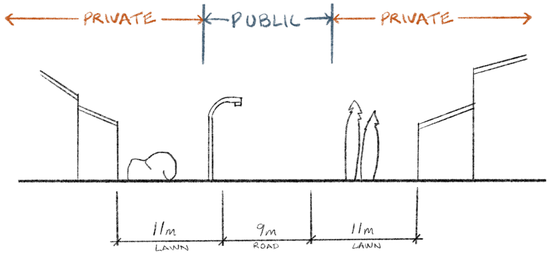


Typical House Front Elevation



Street Section

Rhondda Crescent neighbourhood character - by Mikaila Johnson

Appendix A

Fuller Avenue - City Centre

HISTORY

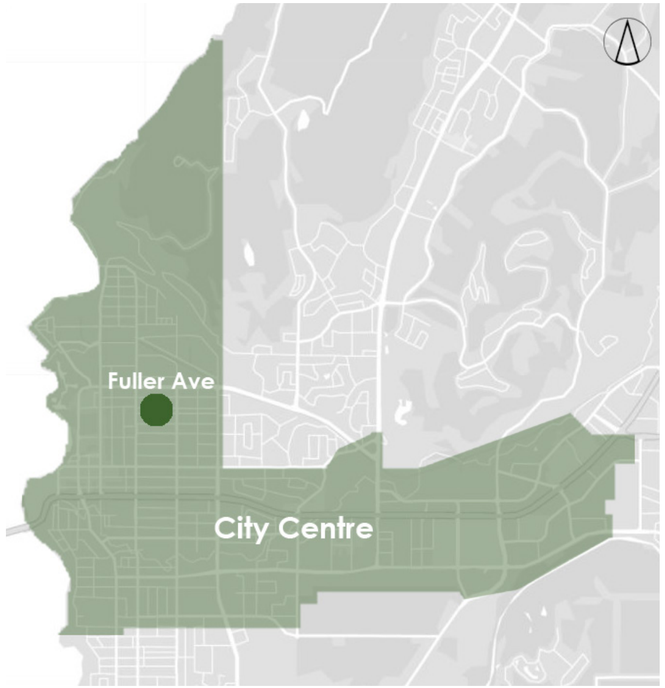
The City Centre developed as the City of Kelowna grew overtime. The Okanagan Valley's first known settlement began over 6,000 years ago with the Syilwx/Okanagan peoples who thrived on hunting, fishing, gathering, and trading. The first European settlement took place in 1859 in Mission Creek and began to spread throughout the region. In 1893, Lord Aberdeen, Canada's Governor General, purchased a vast amount of land in the region due to the fruit growing potential. Kelowna officially became a city in 1905 with a recognized population of 600 people. The name 'Kelowna' was chosen based on the Indigenous word "Kim-ach-touch" which means brown bear. Overtime, it became Kelowna which means "Grizzly Bear" because it was easier to pronounce. Presently, this neighbourhood is composed of all of the City's critical institutions such as City Hall, Kelowna General Hospital, Kelowna Downtown Library, Kelowna City Park, the Cultural District as well as shops, residential developments, and single-family homes (Tourism Kelowna, n.d.).

SELECTION CRITERIA

- Located within the City Centre neighbourhood and the Core Area boundary
- Currently zoned as RU7
- All lots have lanes, sidewalks, and street trees
- No bike lanes
- Close to local amenities:
  - 12 minute walk / 2 minute drive / 1.0km to Downtown Kelowna

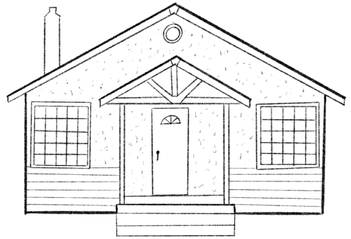
METRICS

Zoning: RU1 Zone - Large Lot Housing
Gross Density: 4 Residential Units / Acre
Lot Sizes: +/- 24m Wide x 35m Deep

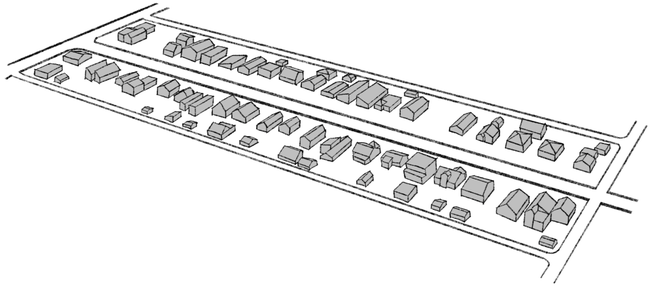


City Centre Map - by Mikaila Johnson

Figure Ground Plan



Typical House Front Elevation



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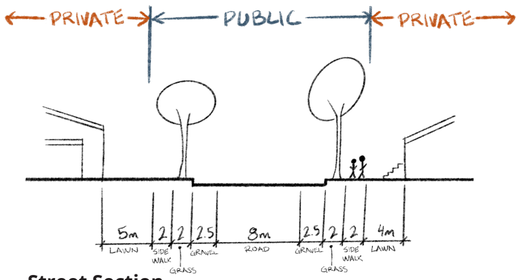


Street Section

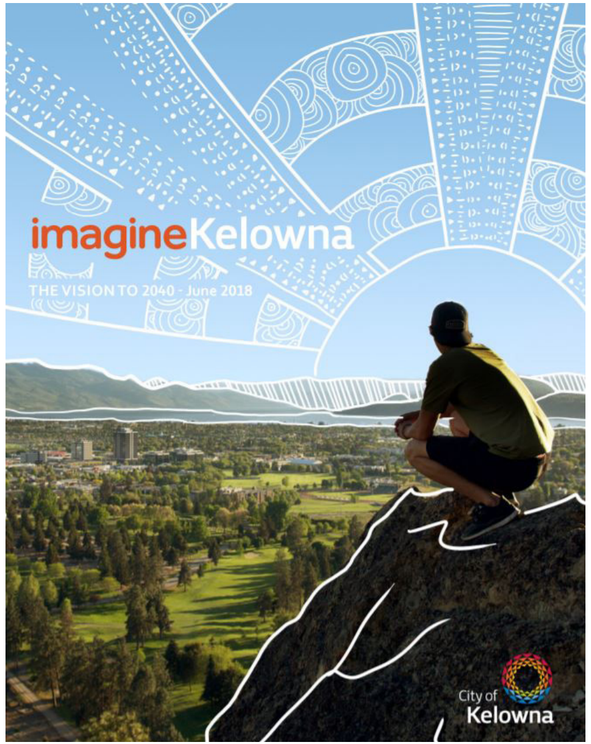
Fuller Avenue neighbourhood character - by Mikaila Johnson

Appendix B

Engagement Analysis Continued

INTRODUCTION

The City of Kelowna has undertaken extensive community engagement over the past several years in preparation for Kelowna's 2040 Official Community Plan (OCP), including the supporting document Imagine Kelowna. While the engagement is not specific to infill housing, the data collected provides a great snapshot of the different opinions and visions for what growth, and housing to support that growth, can look like. Additionally, with the development of the RU7 zone and successes of the City's first Infill Design Challenge, there has been insight and feedback surrounding current and future infill development through public hearings and reports to council. Through the analysis of these different outlets for community input, key values and themes were identified to reveal the various visions for infill housing, including ties to the streetscape, and improving elements of Inclusivity & Liveability.



PC: City of Kelowna
City of Kelowna. (2018d). *Imagine Kelowna: Affirm phase engagement report.* City of Kelowna [Image]. https://kelownapublishing.escribemeetings.com/ filestream.ashx?DocumentId=11132

ANALYSIS

Imagine Kelowna & the 2040 OCP

Imagine Kelowna, the document developed to outline the community's vision, principles, and goals, is the result of a variety of engagements and contributions from the community that ultimately have guided the direction of the City of Kelowna's OCP. In addition to this, numerous thorough engagements have taken place in order to develop and finalize the 2040 OCP and capture the voices of the community and stakeholders. Throughout the engagements, conversations were held with the community, thought leaders, subject matter experts and academics through the following methods shown in Table 3.

TABLE: Engagement Summary (Imagine Kelowna & 2040 OCP)

Imagine Kelowna	2040 OCP
• Workshops • Community events • Stakeholder presentations • Forums • Public info sessions • Surveys	• Public neighbourhood expos • Infill strategy stakeholder workshops • Pick your path questionnaire • Online engagement • Surveys • Focus groups • City hall interactive display • In-person exhibits

In terms of participants, a broad range were engaged through the process and demographics differed depending on the specific engagement. Generally, across those engagement summaries that were analyzed, there appeared to be lower representation in the 18-34, and 75+ age categories. The majority of respondents were also located in the more central areas of Kelowna, including Central, Knox Mountain, Capri-Landmark, South Pandosy, Lower & Upper Mission, and East Kelowna.

City of Kelowna. (2018d). *Imagine Kelowna: Affirm phase engagement report.* City of Kelowna. https://kelownapublishing.escribemeetings.com/filestream.ashx?DocumentId=11132

Public Hearings & Reports to Council

An understanding of Kelowna's community perspectives and visions relating to past and current infill development can also be obtained through an analysis of key themes from three Public Hearings and three Reports to Council shown in Table 4. The public hearings were all related to infill housing and were thematically analyzed in order to understand the values expressed by the community. In addition to the public hearings, further engagement and details about community feedback was included in several reports to council on the RU7 zone and Infill housing updates.

TABLE: Engagement Summary (Public Hearings & Reports to Council)

Public Hearings	Reports to Council
• December 13th, 2016 - BL11310, BL11311, BL11312, BL11313, & BL11314 • May 12th, 2020 - DVP20-0033 – 615 Francis Ave • July 14th, 2020 - Z20-0029 – 472 Knowles Road	• November 14th, 2016 - Rezoning and Text Amendment - Infill Challenge • July 13th, 2020 - RU7 Infill Housing Updates • September 28th, 2020 - 2040 OCP Infill Strategy and RU7 Lessons Learned

Of the speakers within the public hearings analyzed, those who took the opportunity to speak were a mix of genders, mostly white in ethnicity, and were estimated to be 40 – 75 years of age. While there was a mix of support and opposition for the developments and rezoning applications, the majority of those who chose to speak were in opposition.

City of Kelowna. (2016, December 30). *Public Hearing Minutes: Tuesday, December 13th, 2016.* Retrieved from https://www.kelowna.ca/city-hall/council/council-meetings-public-hearings/public-hearing-2016-12-14-020000-2016-12-14

Appendix C

Site Visit to Kelowna

In order to get a better sense of Kelowna's key challenges and opportunities for Infill Housing, the SCARP Team conducted a site visit from October 24th - 25th. The team visited the neighbourhoods of Old Glenmore, Rutland, South Pandosy, and met with project partners James Moore and Arlene Janousek who gave a tour of the Downtown neighbourhood.

The site visit gave the team a better understanding of the type of infill housing that has been successful in Kelowna, as well as some of the challenges and limitations inhibiting its wider implementation. The team was also able to gain a better understanding of the different neighbourhood contexts, character, and spatial challenges. The learnings from the site visit have largely informed our research and recommendations, as they have contributed to a deeper contextual-understanding and a more complete picture of the need for infill housing within Kelowna.

All Site Photos were taken by Team Members