

The Small-er House Design Scheme

by
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Author's declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

There is a conflict taking place between regional and community interests. This tension is nothing new. Often times this conflict is borne out of urban renewal schemes and major infrastructure interventions in core neighbourhoods. As the 'back to the city' trend increases however, these conflicts are more and more likely to push into first-ring and postwar suburbs. With intensification policy, like with urban renewal schemes of old, it is the small things that get lost in the shuffle. In Ottawa, Canada, this conflict is being fought over character; sun, trees, parking, landscaping, setbacks, and affordability. These are not the most glamorous aspects of architectural design and many would argue change is inevitable. But if these characteristics were in fact founding tenets of a residential community, then policy makers ought make every effort to protect them as they set and pursue intensification targets.

Unfortunately these low-density residential streets have fallen into a policy blind-spot and city planners are currently scrambling to refine new bylaws aimed at curbing invasive, or excessive, developments. So how do we add more people to these neighbourhoods without the wholesale replacement of the existing housing stock? For the suburb of Overbrook the answer may be to take a page out of the 50's and go small, extra small. The introduction of coach houses would unlock a much needed source of infill for this neighbourhood, and many like it across the country. This thesis proposes their regulation and deployment aided by a federal initiative inspired by the postwar Small House Design Scheme of the Central Mortgage and Housing Corporation.

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Dedication

This thesis is dedicated to all the old souls.

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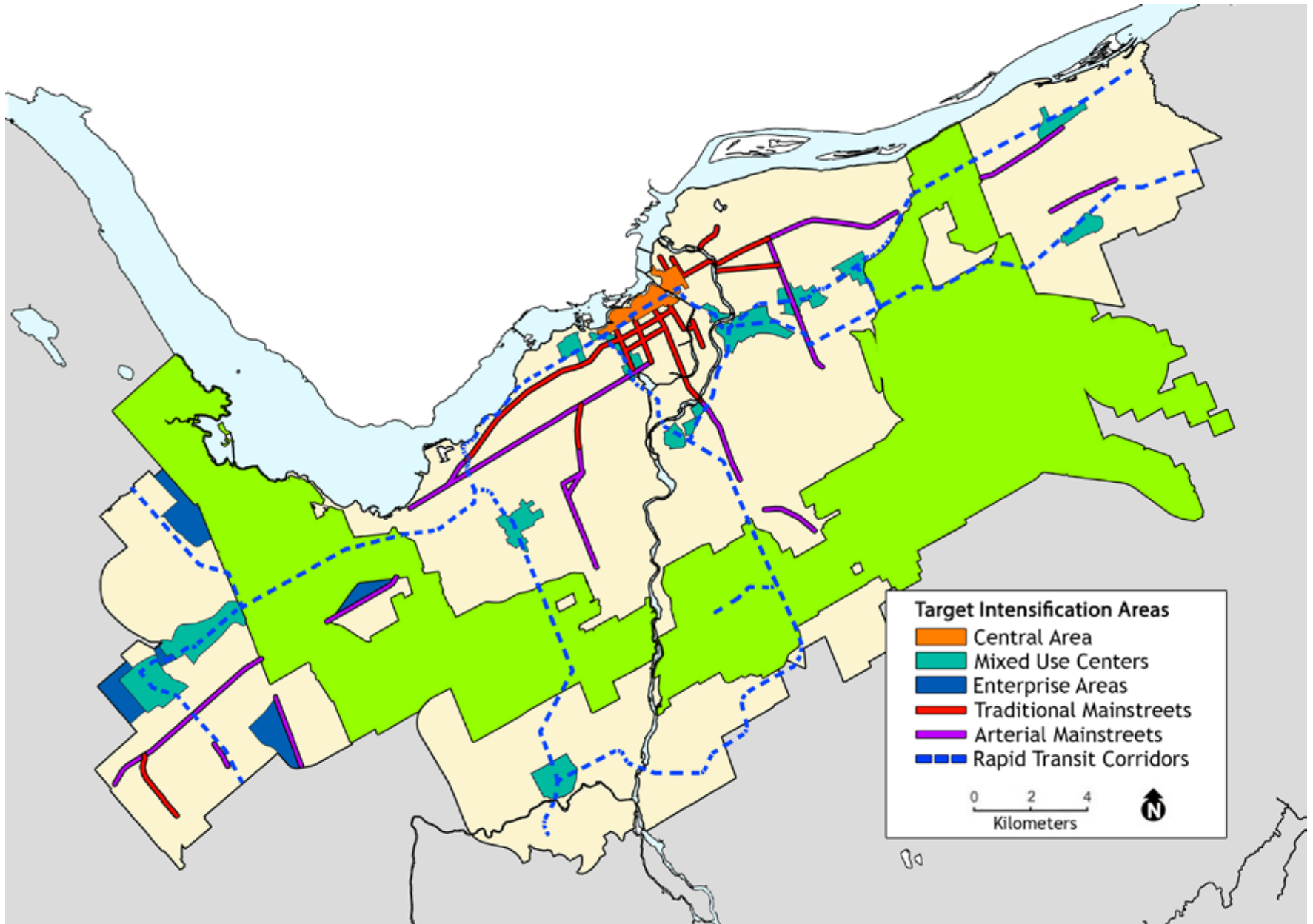


0.01 145 Glynn Avenue, Overbrook. 1954 - City of Ottawa Archives

Introduction

There are roughly three and a half million Canadian homes built in the post-war period of 1945 to 1970.¹ As of the 2011 census, they represent one quarter of Canadian homes, and they are in decline. The housing stock is ageing. The neighbourhoods lack modern amenities. The average value of the homes, as well as median household incomes, have stagnated and fallen behind all other urban zones. Both employers and schools may have come and gone. In large cities, their geographic proximity to core areas makes the land desirable but the homes themselves are often considered expendable tear-downs.

With single-family dwellings representing a smaller share of housing starts every year, particularly in core areas, it is important that we carefully consider the social and environmental trends which are changing the face of our core suburbs. On the surface, this manifestation of the back-to-the-city trend is a positive one for the city and its core communities. A redeveloped single-family dwelling typically means a young family has invested its life-savings in an aging community. How and why could this be a problem?

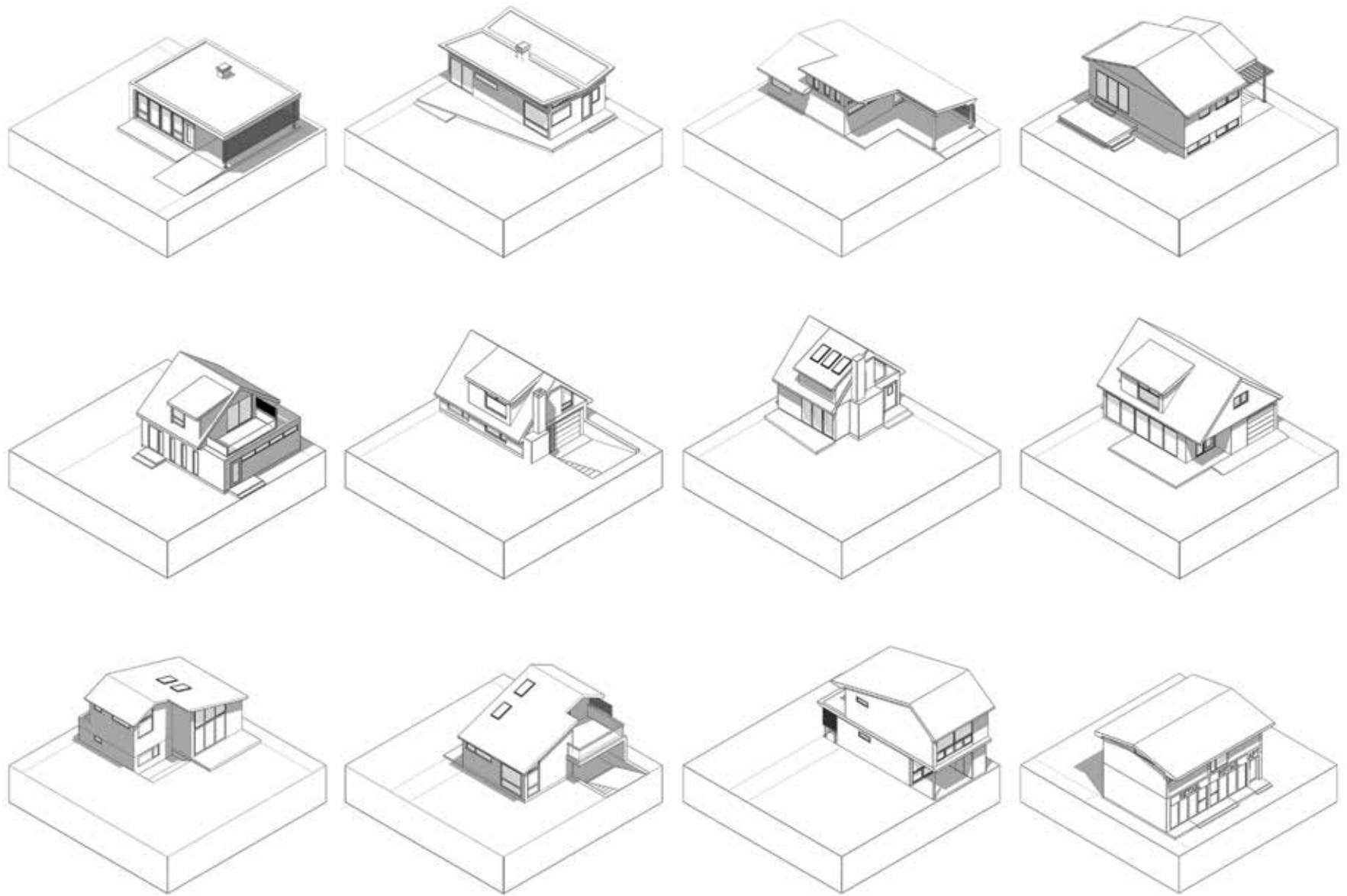


0.02 Ottawa's Urban Policy Plan, 2015.

Intensification

Since the 1998 Official Plan of Ottawa, target areas for intensification have consisted of; Central Areas, Mixed-Use Centres, Enterprise Areas, Mainstreets, and Transit Corridors. ² As seen on Ottawa's urban policy plan, the supply of land meeting these qualifications is actually restrictive to the broader pursuit of intensification. Under the general mandate to intensify lands within the greenbelt, developers have rightly seized the opportunity to capitalize wherever they can and the city, not wanting to obstruct its own objectives, has taken to compromising on its outdated zoning bylaws. More and more residential neighbourhoods have had to reform community associations to make their voices heard because there are so few legislative protections left. Properties are up-zoned on a whim, putting up ten storeys adjacent to bungalows. Land assemblies are redeveloped wholesale without any consideration for character. Single-family dwellings are rebuilt at double the footprint of neighbouring properties, blocking out sun and removing mature trees. Properties are severed, multiplying curb cuts and permanently reducing street parking.

These trends combine to erode stability, affordability, and character in walkable communities for only marginal increases in density. This thesis will demonstrate the viability of coach houses as a much-needed source of ground-oriented infill using the postwar community of Overbrook, Ottawa, as a case-study.



0.03 Coach house design variations



0.04 Coach house model C.001 paired with CMHC Small House Design 601.

Coach Houses

Coach Houses are freestanding secondary dwelling units located within their own building or within a building containing another accessory use such a garage, studio, office or retail space. They are typically located on rear or side yards and share an accessway with the primary dwelling. These basic site requirements make them a suitable form of infill for detached, semi-detached or duplex dwelling properties. As secondary suites they are required to be smaller than the primary dwelling and may be quite tiny depending on the size of the property or desired usage.

These coach houses provide discreet, ground-oriented infill in mature communities. They stimulate intensification and affordable housing for a wide array of vulnerable demographics while preserving character homes. This makes them an ideal form of infill for ageing, low density postwar suburbs in dire need of policy intervention.

The array of coach house designs seen here are further detailed in chapter 4.

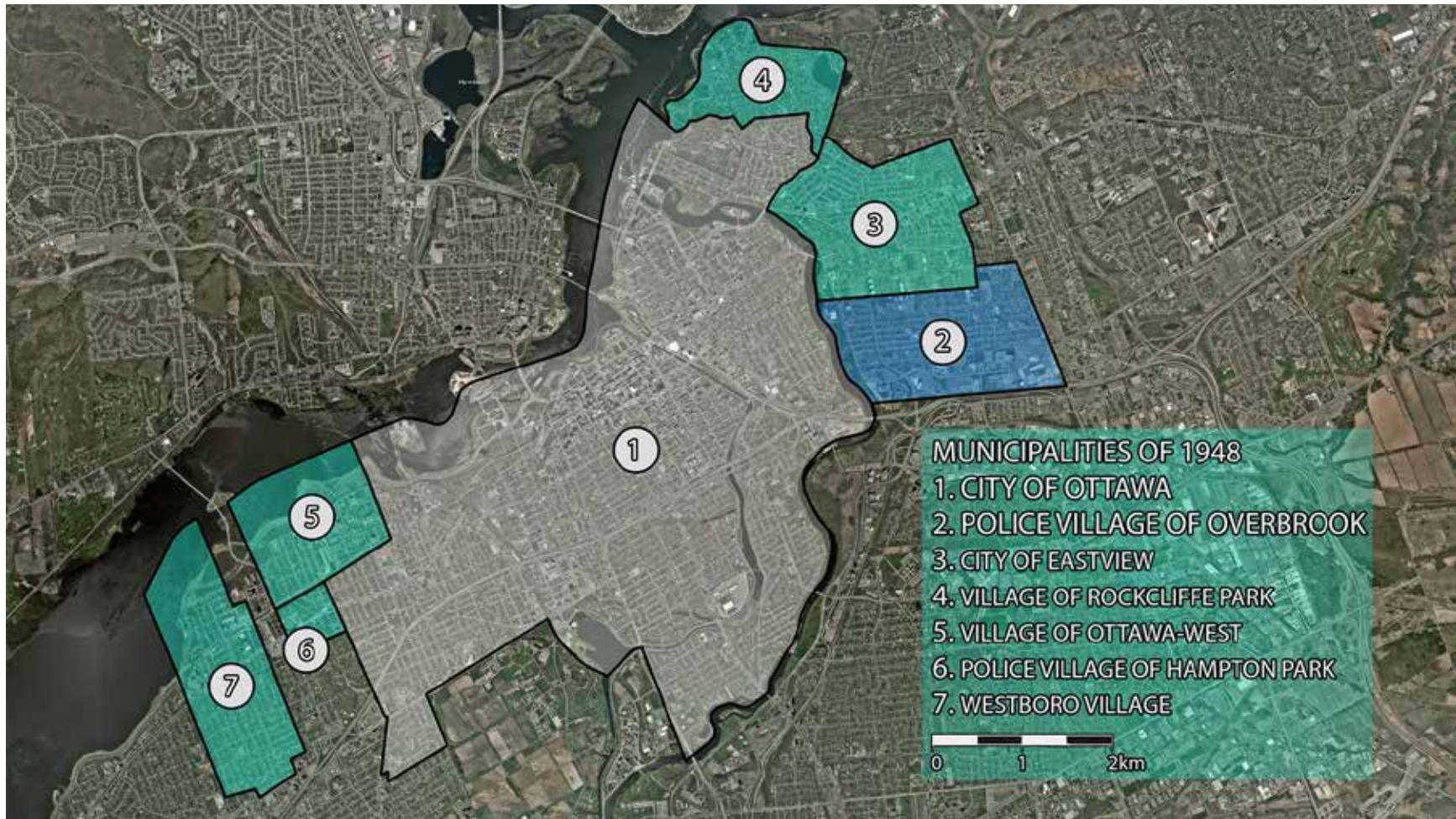


0.05 Coach house model D.002 paired with CMHC small house design 285.

Thesis Methodology and Structure

This thesis will contribute to on-going discussion of small-scale infill in mature suburbs of medium-sized Canadian cities. It propose the implementation of coach houses as a beneficial new form of intensification, supported by research on the past and present of Canadian postwar neighbourhoods. It focuses on the planning, social and economic considerations of coach houses with an eye towards establishing a copacetic new infill typology which may help retain a prolific but aging housing stock. The thesis consists of five parts:

1. A historical overview of Overbrook as case-study neighbourhood of typical post-war morphology, including the various construction periods and their differences. Part one will shed light on the origins of the community as well as its present state, including a look at its local context, boundaries, demographics and infrastructure renewal.
2. A study of post-war development patterns which preceded the contemporary suburb, framed by progressive work of the Central Mortgage and Housing Corporation and the debt-averse nation they housed. Part two is aimed at defining the character of post-war housing and how it can inform the use of coach houses to intensify these communities at present.
3. Discussion of theories, trends, and issues highlighting the opportunities afforded by post-war suburbs. These issues include changing demographics, affordability, intra-city migration, and the peculiar flexibility of post-war typologies. A summary of theories outlining the decline and turbulent renewal of postwar suburbs, part three will make the case for Overbrook's inclusion as a mature neighbourhood and demonstrate why the community is ideally situated for coach house infill.
4. Demonstration of coach house typologies and siteplan considerations for common building patterns in early post-war suburbs. This chapter proposes a set of design provisions applicable to all Canadian cities and six building types adaptable to any desired usage.
5. Conclusion summarizing the benefits of coach house infill for urban intensification and policy recommendations to promote their development both locally and nationally.



1.01 Municipal boundaries of Ottawa, 1948, overlaid on current satellite image.

1. Overbrook - A mixed Study

1.1. Brief history and Timeline

Overbrook is located approximately 2.5km east of Ottawa's core, measured from the Rideau River which forms the community's western border. Until the 2001 amalgamation of Ottawa, the community was located within the Township of Gloucester to Ottawa's east. This township first saw a real-estate boom in 1910 when farmlands were subdivided for development. A subdivision plan for Overbrook was registered the following year in 1911 and first appeared on a map the year after. It was later incorporated as a Police Village in 1922.³

Police Villages were early self-governed municipalities incorporated by township bylaws but which otherwise remained a part of the township that formed them. The various subdivisions carved out of Gloucester farmlands in these years were only built up slowly, if at all. The following decades were mired in the first world war, the great depression, and the second world war. Significant development began earnestly in the post-war period of the 1950's. Prior to this rapid expansion, Overbrook boasted a sparse few roadways branching eastward off Russel road at its western edge, now called North River Road, to the railroad track bisecting the community North to South.

The community had roughly 700 residents occupying various homesteads, houses and shacks. Much larger portions of the community consisted of various farms and light industries: the Wolfe family farm, the Sylvester nursery, a cow pasture, a garbage dump, a tannery, and allegedly a speakeasy.⁴ Lands built up prior to the 1940s can be distinguished on the following page by the matured tree canopy which appears darker than surrounding lands.



1.02 Aerial photograph of West Overbrook in 1928.



1.03 Aerial photograph of Overbrook, 1953.



1.04 Aerial photograph of Overbrook, 1959.



1.05 Chronology of housing developments in Overbrook.

In 1941 the Township of Gloucester began to sell land lost to tax arrears and later the Wolfe farm was subdivided.⁵ Though development was slow throughout the 1940's, the Greber plan captured the capital's attention and the war's end signalled a time of great expansion. On January 1st, 1950, the City of Ottawa annexed 14,605 acres of the Township of Gloucester, including Overbrook, to accommodate the rapid expansion necessitated by the baby-boom.⁶ Until this point, housing in Overbrook is largely owner-built and unplanned. Homes are built individually on unserviced lots, scattered about the few existing streets. This form of development would continue in Overbrook West of Lola street until roughly 1955. But to the East of Lola street, a new era of comprehensively-planned suburb had arrived.

The City of Ottawa moved quickly to commission roads, sewers and water mains from 1950 to 1955. Subdivision plans were registered for the remaining residential lands east of Lola street by 1956 and fully developed by 1960. Infrastructure and amenities were completed in the following five years including several churches, schools, recreation and retail. The railway tracks bisecting the neighbourhood were removed as part of the federal government's Railway Relocation program in the early 1960's and were replaced by a contentious boulevard a decade later.⁷ The Queensway, highway 417, began construction east of the Rideau River in 1959 and thereafter formed the southern border of the community. The Overbrook Community Center and the St-Laurent shopping mall were built in 1966 with the remainder of commercial and light-industrial lands developing slowly through the 1960's.



1.06 One-and-a-half storey homes in Overbrook built by Limited Dividend Housing company Bon Logis in 1954.

1.2. Suburban Characteristics

“What are the most enduring features of the suburb? Scholars, and Canadians in general, have usually identified six criteria, although varying in combinations:

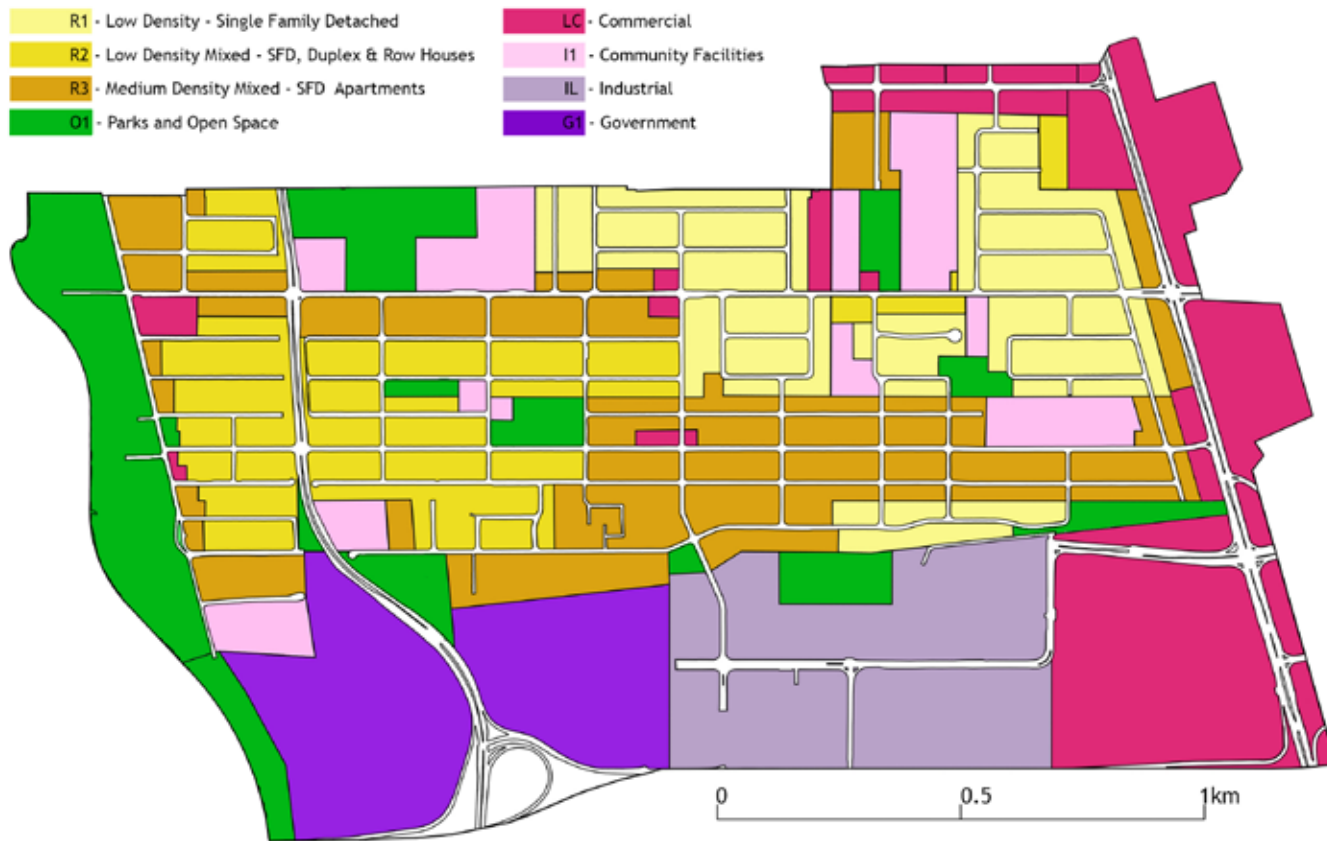
- i. Low density of development, typically of detached, or semi-detached, dwellings*
- ii. Location at, or close to, the urban fringe*
- iii. High level of owner-occupation*
- iv. Politically distinct*
- v. Middle, or upper-middle class in character*
- vi. Exclusively residential, implying that residents must commute beyond the suburb to work.”*

-Richard Harris, *Creeping Conformity*

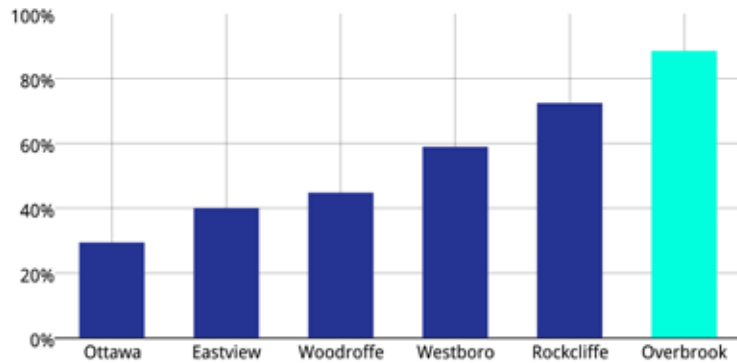
Overbrook exhibits many of the common traits associated with suburbs but demonstrates how they are overcome in time. Taken as a whole the six criteria identified by Richard Harris paint a monotonous picture of sleepy bedroom communities.⁸ Post-war suburbs were rarely so typical however. The 1950's were a time of transition. The automobile permitted settlers a retreat from the compact urban and industrial land-uses of the city, no longer restricted by the reach of walking distance, streetcars or horse-carriages. Progress in the economy and housing finance allowed families to settle new lands to build a prosperous future with sweat and labour. How does this particular community measure against the typical suburban characteristics?

i. Low-density development is strongly represented in its origins with a mix of owner-built homes, non-profit housing duplexes and tract-developments of single-family dwellings. The high levels of under-used land allowed a number of medium-density projects to develop along the fringes beginning in the mid 1970's but low-density remained the predominant character. New trends in infill housing are only now beginning to raise the density. These will be address in chapter three.

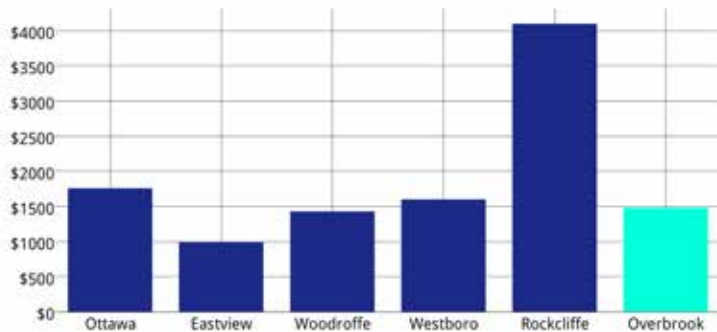
ii. Overbrook was located at the urban fringe at the time of its annexation to the City of Ottawa. This can no longer be considered true as suburbs continued to sprawl out towards the greenbelt and beyond. The greenbelt, originally proposed as part of the Greber plan, took form in the late 1950s. It was intended to constrain urban sprawl to a land surface thought large enough for a population of 500,000. By the mid-1960s sprawl had leapfrogged the greenbelt to mark the beginning of the outer-suburbs who's fringes are currently over 20km from the core.⁹ This is roughly 10 times further from the core than Overbrook, which is now considered outer-urban.



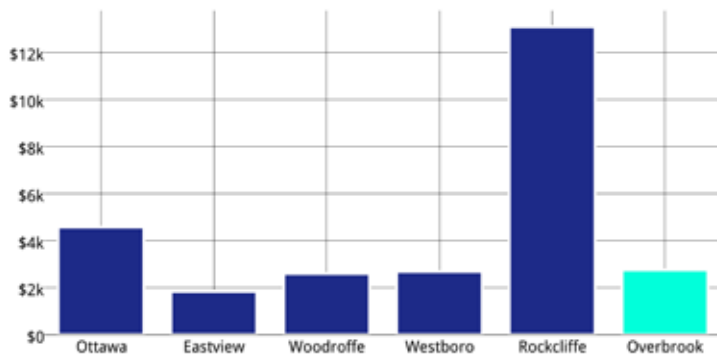
1.07 Landuse plan of Overbrook in 1979.



1.08 Rates of home ownership in 1950.



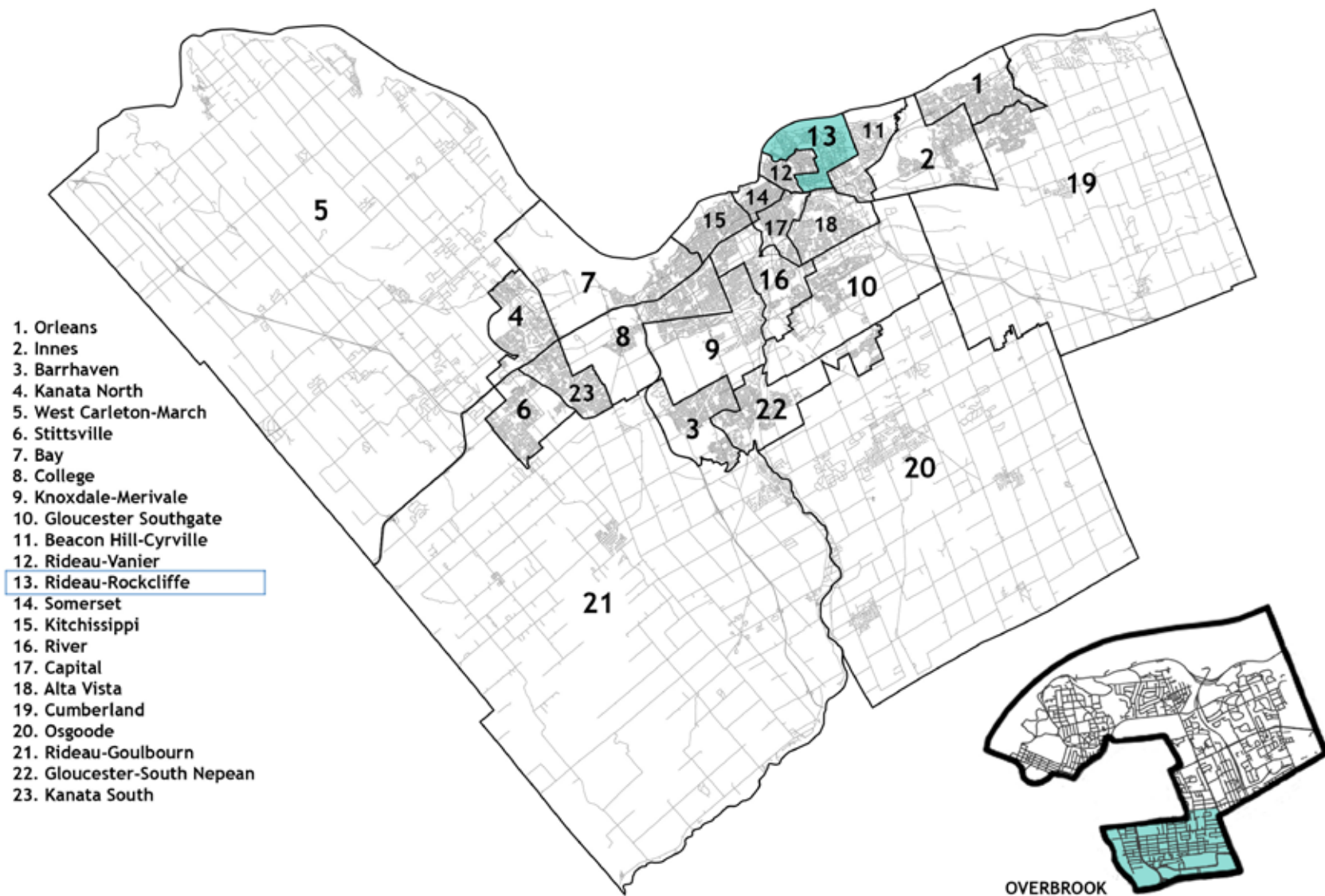
1.09 Average yearly household earnings in 1950.



1.10 Average value of owner-occupied dwellings in 1950.

iii. High level of owner-occupation was arguably a defining characteristic of Overbrook prior to annexation. According to statistics in the Greber Plan, released in 1950, Overbrook had the highest rate of owner-occupied dwellings of all communities within the combined regions of Ottawa and Hull at a staggering 88.5 percent. However, the Greber Plan also tells us that Overbrook held a meager 0.58 percent of the total population for this combined region, representing roughly 1,500 residents.¹⁰

The rate of ownership would thereafter regress towards the norm. The first and largest developments that followed annexation were non-profit housing projects delivered by Limited Dividend Housing companies, namely Lowren and Bon Logis.¹¹ These developments would permanently shift the balance of the community towards rental. As of the 2011 National Household Survey, the rate of ownership in Overbrook was a paltry 37.6 percent of occupied dwellings, leaving 62.4 percent as rental. This is roughly the inverse of city averages which were 66.7 percent ownership and 33.3 percent rental.¹² Therefore retaining what remains of owner-occupied housing in Overbrook, and other postwar suburbs, should be given due consideration when drafting future infill bylaws. Secondary suites, coach houses in particular, are known to create a symbiotic form of rental housing which helps retain owner-occupied homes.



1.11 Distribution of municipal wards for the City of Ottawa.

iv. Politically distinct for a brief history spanning from 1922 to 1950, Overbrook has since become a community defined more by its geographic boundaries than by any political boundaries. It is dependant on city-wide policies and forms a small part of municipal ward 13, one of 23 wards in Ottawa. Though the Overbrook Community Association has been around for roughly forty years, their political involvement has taken on a larger role since their incorporation as a non-profit organization in 2010, when the city attempted to re-appropriate a laneway easement and a developer proposed a 307 unit, 9-storey condominium on land zoned for 4 storeys.¹³

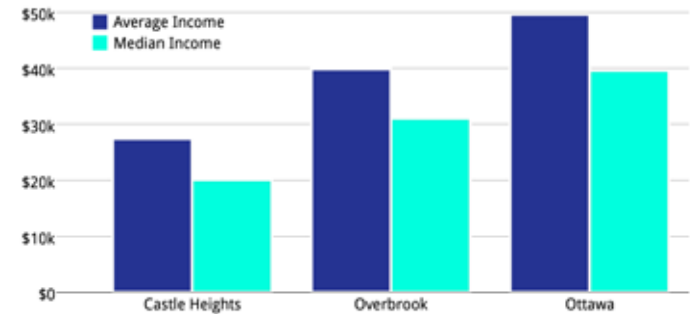
Proposals such as this, in which a property is spot-zoned for over-development, have become all too common. The same story unfolds in nearly every urban community and it has lead community associations to crystallize around similar such projects. In spite of existing zoning, secondary plans, and community development plans, approvals for so called 'over-build' persist due to the ambiguous language in the official plan which supersedes all other planning documents. Community associations have been a boon to citizen participation in development issues in response to this instability. Public consultations are on the rise for many planning concerns including heritage conservation, infill development, community safety and amenities, as well as pedestrian and cycling infrastructure.

v. Qualifying a person, family, or an entire community as middle-class can be a dubious prospect. What defines the middle-class? In a reductive sense, it means to earn an income in the middle quintile of a given cross-section, be it a city or national demographic.¹⁴ However one might expand the scope to include not only income but assets and debts to define a person's net worth. Others may use various social benchmarks to identify a person as middle-class. Are they renters or home-owners? Do they take public transportation or own an automobile? For the purposes of determining the class of a community as a whole, a combination of income levels and dwelling values should suffice in combination with previously mentioned ownership rates.

Like the reversal in rates of ownership from the 1940's to present, other economic indicators have also faltered. Statistics in the Greber Report indicate that both household income and dwelling value were then on par with other satellite communities at at \$1,480 and \$2,750 respectively.

More recent data seen the in the 2011 National Household Survey indicates a sharp relative decline. These statistics for Overbrook are divided as the community is comprised of separate census tracts named Overbrook and Castleheights. Though Overbrook, as a whole, lags behind city-wide averages in both individual and family incomes, the most notable inequality is in Castleheights due in large part to the predominance of social-housing in this census tract. Median total income of individuals in Castleheights is \$20,092, under two thirds of the median in Overbrook, \$31,046, and roughly half the city's median of \$39,625. The differences are greater still for median family incomes at \$46,255, \$73,494, and \$101,038 respectively.¹⁵ By all accounts this community is well below the middle-quintile of economic indicators.

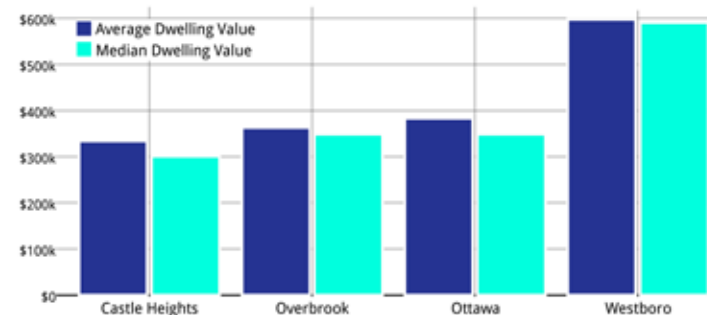
Their assets are presumably lacking as well. Dwelling values have appreciated far less than comparable satellite communities such as Westboro. The communities share similar proximity to the core but homes in Westboro are worth twice those in Overbrook.¹⁶



1.12 Income of Individuals, 2011.



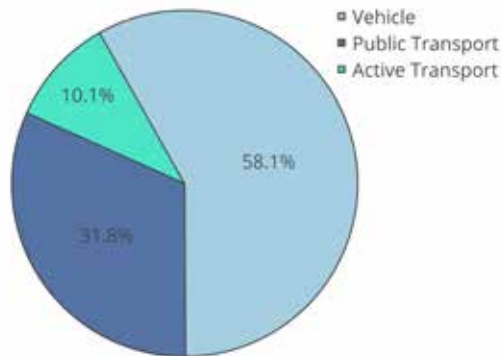
1.13 Income of families, 2011.



1.14 Dwelling values, 2011.



1.15 McArthur shopping plaza circa 1960.



1.16 Mode of transportation for commuters in 2011

“S.D. Clark has explored the consequences of new suburban settlement, taking his argument to a logical conclusion. [...] The suburb and its residents begin to age. People move out and others move in. Its demographic profile becomes more similar to that of the general population. As land values rise, multi-unit dwellings are built. In a matter of years, and certainly in a decade or two, it ceases to be distinctively suburban.”

-Richard Harris, *Creeping Conformity*

vi. While the area was predominantly farmland and light industrial throughout the prewar period, Overbrook quickly transitioned to an urban low and medium density community in the 1950s which remains the majority landuse. Yet there is a great variety of landuses within the community, concentrated along its perimeters. There is a high concentration of employment along the southern edge including a regional shopping mall, baseball stadium, hotel, corporate facilities, light-industrial businesses, and the headquarters of the Royal Canadian Mounted Police.

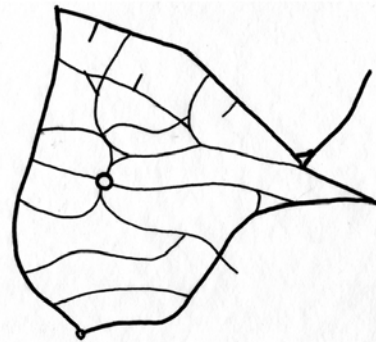
As a whole it represents a balanced urban community in which residents are not overly dependent on the car. Yet there is little in the way of traditional mainstreet or pedestrian-oriented retail. McArthur Avenue to the north of Overbrook is referred to in official documentation as a Traditional Mainstreet but in reality it consists largely of car-centric retail plazas similar to St-Laurent Boulevard, the arterial mainstreet forming the community’s eastern border.

Considerable effort was made in late planning phases to restrict through-traffic in residential areas to retain a family-friendly pedestrian environment. Yet proximity to these various landuses has not yet translated to significantly higher levels of active transportation. Only 10.1 percent of commuters walk or cycle to work compared 9.5 percent of the city overall, though it is still far greater than the 2 to 7 percent range in fringe suburbs. There is a higher dependence on public transportation by a 10 percent margin above the city average but this likely has more to do with income levels than with local transit infrastructure.¹⁷

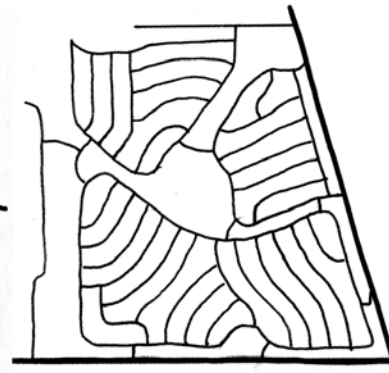
Looking at Overbrook through these six characteristics helps frame the life-cycle of suburbs. Overbrook was once a bedroom community at the edge of the city. Now it is positioned to be an urban community of ground-oriented housing. If being suburban is not its defining character then we must approach the question of character at a different scale, not of the community but of the street and the house.



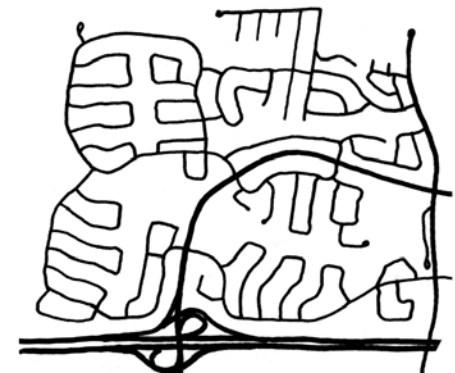
Rockcliffe Park, Ottawa - 1864
Thomas Coltrin Keefer



Uplands, Victoria - 1907
John Olmsted



Levittown, Pennsylvania - 1952
Levitt and Sons



Convent Glenn, Ottawa - 1970s
Costain Homes

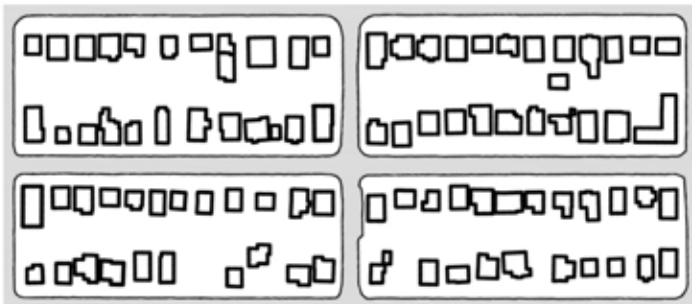


Overbrook, Ottawa - 1910s to 1960s. This community developed in the transition from unplanned to planned subdivisions, built up from West to East. The street grid grows more contorted and disconnected towards the eastern edge as a result of corporate development practices and various new regulations guiding subdivision plans.

1.17 Suburban street patterns. (Maps are not to scale.)

“In the nineteenth and early twentieth centuries land subdividers usually created rectangular lots within a street grid. This was the easiest approach and was consistent with the framework of rural lots and concessions from which urban subdivisions were usually carved. Most of those who subdivided land aimed to make quick money and showed little interest in what happened after lots were sold.”

-Richard Harris, *Creeping Conformity*



1.18 Typical block arrangement in Overbrook.

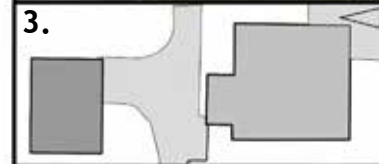
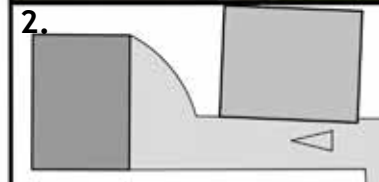
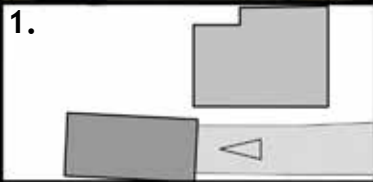
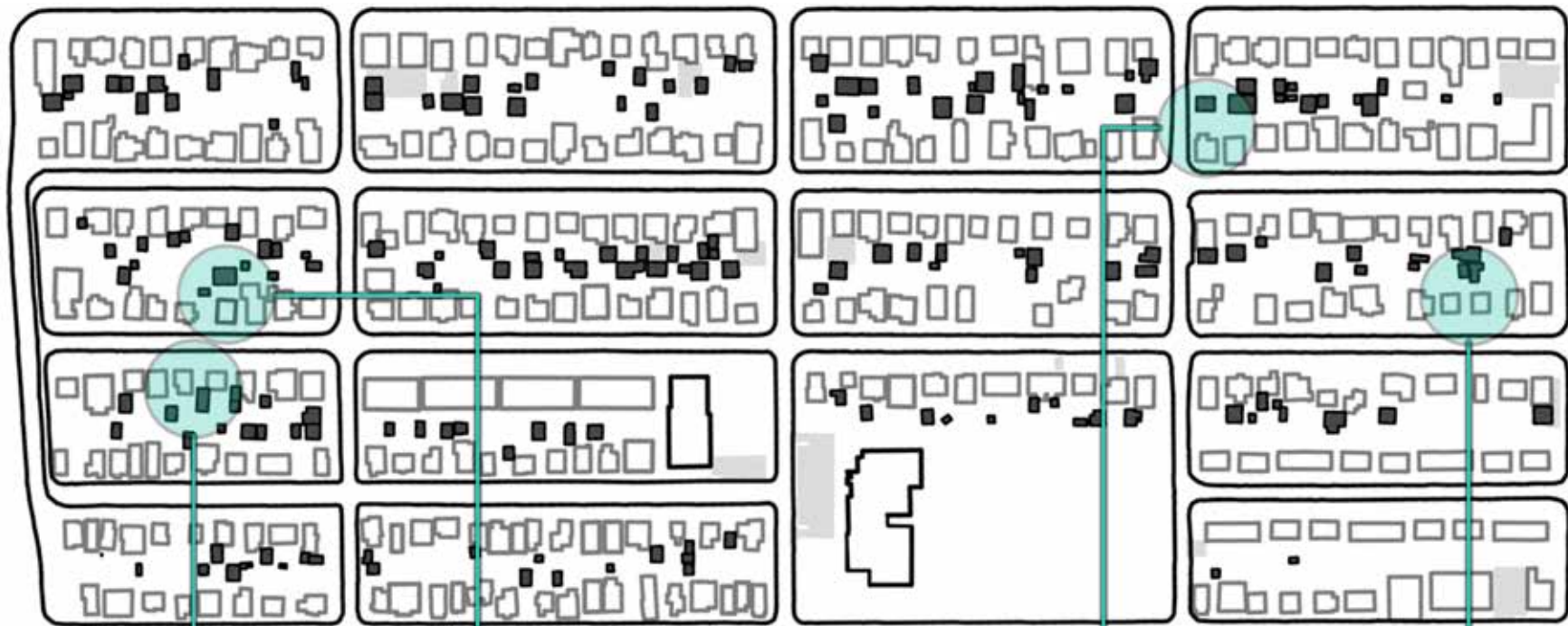
1.3. Mixed Suburban Morphology

The common perception of suburbs is one of homogeneity in combination with winding, disconnected streets. It is a misconception dating back to the nineteenth century in which a select few satellite communities were designed as idyllic, affluent enclaves. Rockcliffe park is a notable example in Ottawa, designed in 1864 by civil engineer Thomas Coltrin Keefer. Later the Olmsted family, pre-eminent landscape designers of the time, were commissioned to design several such subdivisions in the early twentieth century including the Uplands in Victoria, British Columbia. However, these meandering communities remained the exception to the norm until the late 1950's and the rise of comprehensively-planned subdivisions.

A different type of suburb dominated the boom and bust years. The streetcar suburbs and unplanned suburbs, driven by speculation, sprawled outward from cities in an urban pattern. These lands were typically subdivided orthogonally into regular street grids from which lots could be purchased and developed à la carte, so to speak.¹⁸ This street pattern permitted various landuses, efficient through traffic, and could be subdivided more expediently for a quick turn around.

The lack of regulations guiding these developments would be unconscionable today but it had its benefits, mainly the opportunity to build what one could afford and the elbow room to expand when one could afford it. The housing-boom following WWII brought with it significant changes to the financing of new development as well as new regulations for provision of services and the subdivision of lands, exhibited by developments like Levittowns or Don Mills. Thereafter winding roads become ubiquitous.

Overbrook is neither urban nor suburban in either conventional sense. But in a strange reversal of fortunes, it may combine the advantages of both: the opportunities afforded by urban location and pattern with the adaptability of a bygone suburban era.



1.19 Above: Distribution of detached structures in Overbrook
 Below: Typical siteplans of common detached structures.
 1- 142 Glynn Avenue: Garage and poolhouse on single driveway - 580ft²
 2- 147 Glynn Avenue: Large garage on single driveway - 940ft²
 3- 279 Columbus Avenue: Shed on corner lot with side access - 420ft²
 4- 309 and 312 Glynn Avenue: Garages on typical double driveway - 460 and 280ft²



1.20 Design 49-7, CMHC bungalows Catalogue 1949

“In the rare instances when garages are included in these drawings, they are separate buildings: the car was not yet the important accessory it would become in the story of Canadian postwar housing.”

-Ioana Teodorescu, *Building Small Houses in Postwar Canada*



1.21 Pre-war dwelling with detached garage
158 King George, Overbrook

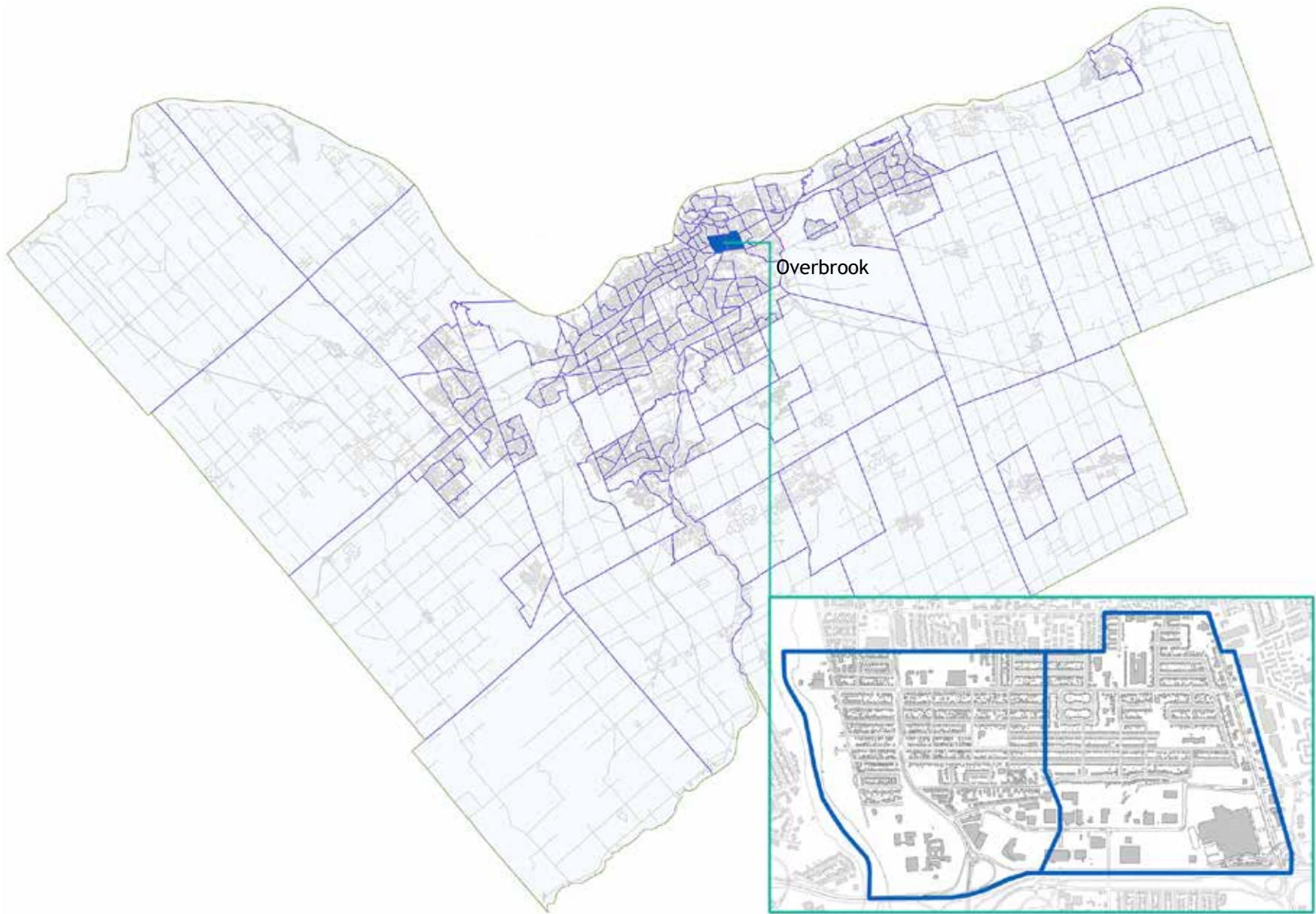
1.4. Detached Structures

An important distinction of postwar housing is the prevalence of detached structures, either as garages or simple sheds, in combination with rear laneways or, in most cases, side yard driveways. These outbuildings were used to store a variety of equipment essential to the suburban lifestyle and homeownership: gardening tools, lawnmowers, bicycles, deck chairs, snow shovels, and of course automobiles. The detached garage was not a new building necessitated by the proliferation of automobiles but rather part of a pattern held over and adapted from the time of coach houses used to store horse and carriage.

If a survey of CMHC Small House Design catalogues is any indication, attached garages only became commonplace as late as the 1970s and carports were the preferred solution through to the 1960s. No design in the 1949 catalogue includes an attached garage. Three years later they are present in 11 of the 98 designs in the 1952 catalogue, then 13 of the 134 designs in the 1965 catalogue representing only 10% in each.¹⁹

It is difficult to determine how common the detached garage was throughout the early twentieth century as the automobile was not nearly so pervasive. Canadians were by and large still a debt-averse people who spent what they could afford. People walked, cycled and took public transportation. As more families acquired their own cars they naturally would have constructed simple structures to store them as befitting their budget constraints.

These garages range in size from 200 to 1000 square feet but are built in four typical configurations: single driveway, double driveway, corner lot with side access and laneway with rear access. The century-long transition from coach houses to garages permitted a variety of adaptive reuses for sheds. A common usage for tradesmen was to use the out building as a workshop. In times of financial hardship, converting them to backyard suites provided a symbiotic system of affordable housing.²⁰



Overbrook

1.22 Distribution of Census Tracts for Census Metropolitan Area of Ottawa

Left: CT 0013.00 - Overbrook
Right: CT 0012.00 - Castleheights



1.23 Boundaries and linkages in Overbrook, 2015.
 1. Adawe Crossing - 2015
 2. Max Keeping Memorial Bridge - 2015
 3. LRT station bridge - TDB



1.24 Adawe crossing looking East - December 2015



1.25 Seasonal footbridge looking East - Undated







1.5. Context

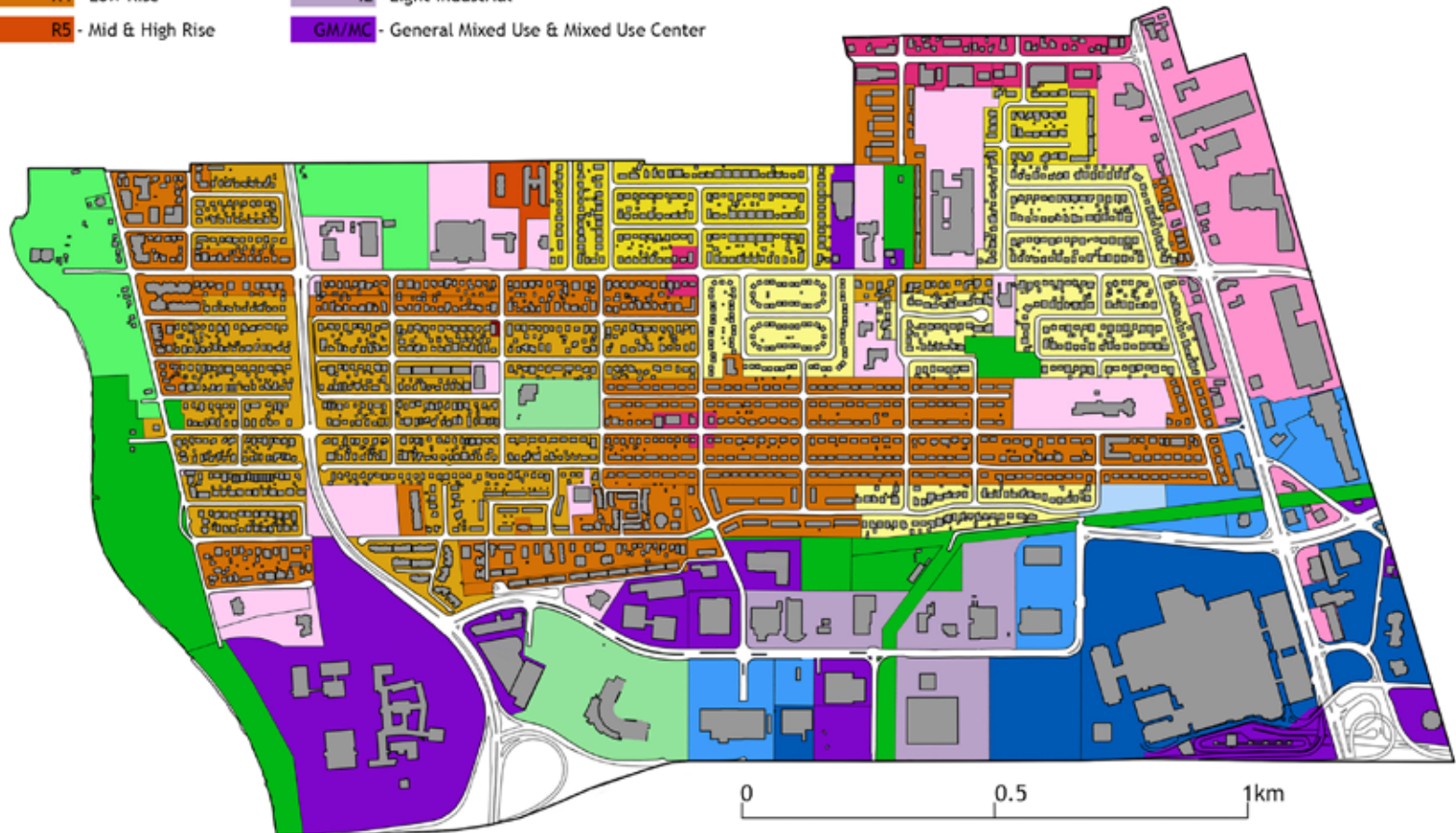
Though Overbrook has experienced some re-investment in recent years, its housing market is still well below comparable postwar neighbourhoods and thus may be ideally situated for coach house development. The following sections will explore the many reasons why Overbrook has been overlooked by those who would chose to live in urban areas and how renewal efforts are working to rebrand the community.

1.5.1. Boundaries

In spite of its proximity to central Ottawa the community is terribly isolated. Overbrook's boundaries place it in a kind of box. To the East is St.Laurent Boulevard, a six-lane arterial road with over a kilometer of continuous big box retailers and car dealerships. To the South is Highway 417, also known as the Queensway, and a transit corridor currently being retrofitted for light rail. To the West is the Rideau river and Riverain Park. These boundaries have restricted convenient through-traffic in every direction but North towards the neighborhood of Vanier and these communities have thus developed a codependency.

Highway and infrastructure projects of the 1960s frequently created permanent rifts between otherwise integrated communities. This is true of Overbrook and the Queensway but here it is the Rideau river which has most impeded residents from integrating with core neighborhoods. The University of Ottawa campus is 1km to the west in Sandy Hill where it creates immense demand for rental housing. Until recently, the lack of linkages accross the Rideau had prevented that demand from spreading into Overbrook. In 2015 a new intermodal bridge was constructed to reconnect these communities and alleviate unnecessarily long detours north via the narrow Cummings Bridge. It is a significant first step in reintegrating Overbrook with the core which was simply accomplished by restoring a historic link lost in the mid-twentieth century.

- | | | | |
|--|---|--|---|
|  R1 - Single Detached |  LC/TM - Local Commerce & Traditional Mainstreet |  TD3 - TOD subzone 3 (350 u.p.h.) |  O1 - Open Space & Parks |
|  R2 - Two Unit |  AM - Arterial Mainstreet |  TD2 - TOD subzone 2 (250 u.p.h.) |  L1 - Community Leisure Facility |
|  R3 - Townhouse |  I1 - Minor Institutional (Schools & Churches) |  TD1 - TOD subzone 1 (150 u.p.h.) |  L2 - Major Leisure Facility |
|  R4 - Low Rise |  IL - Light Industrial | | |
|  R5 - Mid & High Rise |  GM/MC - General Mixed Use & Mixed Use Center | | |



1.26 Zoning plan of Overbrook in 2016



1.27 Confederation Line route and stations with location of Overbrook at St. Laurent and Tremblay



1.28 Rendering of future LRT St. Laurent station

1.5.2. Landuse and Infrastructure Renewal

The construction of new intermodal connections is a preamble to small-scale intensification which is creeping out of the core. But the city of Ottawa is anticipating greater changes in the East urban community after the Confederation Line is completed in 2018. Steps are being taken to ensure adequate density in surrounding developments to support this new light rail transit(LRT) system. A study was conducted in 2012 to analyze development potential within 800m walking distance around all proposed stations. Recommendations in the study lead to the rezoning of surrounding lands into three tiers of Transit-Oriented Development(TOD) zoning. Zones TD1, TD2, and TD3 were assigned minimum densities of 150, 250, and 350 units per hectare respectively. ²¹

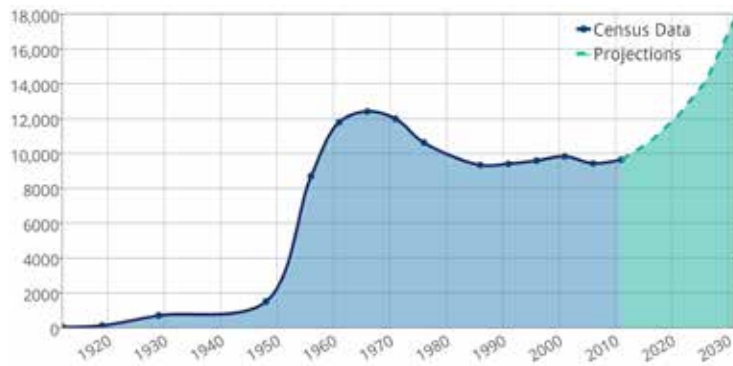
This new LRT corridor and its stations are being retrofitted from an existing rapid bus transit corridor. In its 2012 study, the city calculated short-term and long-term population estimates. For the 120 hectares of designated TOD lands around St-Laurent station the study estimated a population of 16,160 people by 2031 and 42,800 in the long-term. Calculations for precise zoning and land area within the Overbrook Census tracts indicate a longterm potential of 11,675 *units*, which is a population increase of 17,000 at a very conservative 1.5 persons per household. Both estimates would easily eclipse the current population of Overbrook.

However, the surrounding landuse is relatively unchanged going back 40 years and as yet there are no plans for redevelopment despite the radical up-zoning provided by the city. In fact, recent development proposals around St-Laurent and Blair stations are perpetuating models of autocentric retail. *You can lead a horse to water but you can't make him drink*, as they say. St-Laurent Shopping Center, by far the largest property, is particularly unlikely to be redeveloped in the short-term. Eventually however, the market *will* bear the intended landuse and stakeholders will get thirsty.

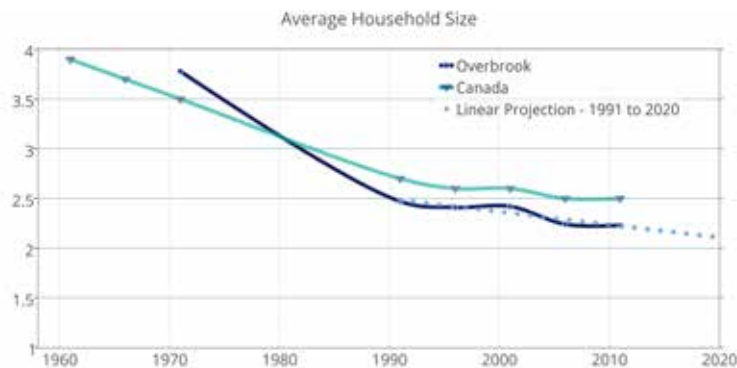
The city has rightly focused on large-scale intensification policies because they will drive the yeilds required to support infrastructure renewal. Regrettably, small-scale infill is redefining the character of urban communities faster than TOD and mainstreet policies can be implemented to absorb the intensification pressure. Since the residential zoning in Overbrook and similar postwar neighborhoods was applied retroactively, the existing housing stock is relatively undersized. A comparative look at the landuse plan of 1979 and the current zoning plan demonstrates the broad up-zoning of residential landuse zones. That discrepancy promotes the very thing that early zoning regulations were meant to prevent, uncertainty.

As will be discussed in chapter two, postwar homes were intended to be affordable starter homes with room to grow and adapt. Unfortunately, the incongruity in the expectations of 1950's homeowners and of present day homeowners is too substantial for simple growth. Infill projects often push building mass to its limits, as much as doubling or tripling the footprint of existing homes. On the other hand this trend is actually reflective of the opportunity presented by unplanned suburbs, to plan and build custom housing on individual lots according to the owner's needs. In 2015 the city amended its infill zoning bylaw for lowrise residential development. Known as by-law 2012-147, or '*Infill 1*', it is meant to address smaller concerns than previous smart growth policies by ensuring that existing character in mature neighborhoods is complimented by new infill rather than overtaken. Overbrook has yet to be included in this new overlay and thus remains vulnerable.

The city is working to rebrand Overbrook as a safe and urban family community via infrastructure renewal such as new linkages, bike paths and community amenities. Despite the notable absence of a legitimate traditional mainstreet, the increased desireability and eventual large-scale intensification of Overbrook will erode affordability. The next decade will create turbulence for local residents but it will also be an ideal time to build coach houses.



1.29 Population of Overbrook.



1.30 Average Household Size in Overbrook and Canada.

“Overall, the study areas [Don mills and O’Connor Hills] have undergone comparable changes that have mirrored broader societal shifts regarding an aging population and related changes in family size and an increased diversity of types of families that exists.”

-Laura Dent, *A Comparative Study of Attachment and Change in a Comprehensively-Planned Vs. Conventionally-Developed Post-War Suburb.*

1.5.3. Population and Decline

It is difficult to accurately track Overbrook’s population through the years as its borders have deviated to include various small annexes due to the city’s maturation process. The community’s Northern border shifts depending on which organization delineates them. These statistics may therefore have a margin of error which is difficult to identify though the majority of data points are sourced from census data. However, the significant drop-off through the 1970s (from 12,418 in 1966 to 9,410 in 1991) falls in line with known lifecycle trends which affect primarily detached residential communities.²²

In her study of suburban attachment in postwar suburbs, Laura Dent tracked household compositions of conventionally and comprehensively-planned suburbs. Dent identified a nearly identical trend in both types of communities, in which households transitioned from primarily *families with children* to a balanced spectrum reflective of national demographic trends.²³

The national average household size has declined from 3.5 persons per household in 1971, to 2.5 in 2011. The decline is yet more pronounced in postwar communities as they were settled during the so-called ‘Baby Boom’. The figure for Overbrook has reduced from 3.8 in 1971 to 2.2 in 2011, a difference of 1.6 persons per household or roughly a 40 percent decline.²⁴

Diminished population is only part of the larger socio-economic decline of postwar suburbs which will be further addressed in chapter three. Communities like Overbrook have suffered from disinvestment in their housing stock and high levels of aging in place, delaying neighborhood turnover rates. They have also fallen into a void created by two opposing trends: the decentralizing trend sprawling outwards to the urban fringe and the back-to-the-city trend repopulating urban cores. Intensification is beginning to address this void but innovative infill will be needed to stem the erosion of character in its wake.

“What commonly happens during bad times is there is a rise in interest in affordable housing. People psychologically are reluctant to commit themselves to large mortgages.”

-Dr. Avi Friedman, Director of the Affordable Homes program at McGill University

2. Then: 1900 - 1960

2.1. Sweat Equity & The Unplanned Suburbs

This chapter sets out to define the character and pattern of postwar suburbs. First as a timely reminder of the modest, self-sufficient and debt-averse nature of the Canadian people throughout the twentieth century. Then, to expound the principles and apparatuses by which, as a nation, we have efficiently provided affordable and professionally designed housing in the past. More than ever before this history bears revision. The Canadian housing market is currently propped up by record levels of debt but the road to affordable home-ownership may yet be rediscovered in the legacy of the greatest generation.

It is inconceivable today for the development of whole communities to be owner driven. Yet, this is how large parts of our cities were settled during the great population booms of the early century and postwar periods. As Richard Harris writes in *‘Creeping Conformity: How Canada Became Suburban 1900-1960’*, patterns of suburban settlement at the turn of the nineteenth century varied wildly to embody the class or income distribution of the Canadian population. There were affluent enclaves and custom-builders targeting the wealthy upper-class, speculative-builders catering to the middle-class, and a great segment of the working-class seeking to build their own homes. Perhaps the single unifying factor of early suburbs is this - people bought or built what they could afford.

Residential mortgages were seldom used because of the Bank Act of 1871 in which the *‘federal government had prohibited banks from lending on the security of real estate’*.²⁵ Families therefore relied heavily on savings and private lending in the form of five-year balloon mortgages to finance new houses. Self-sufficiency was paramount and so people relied on a trifecta of cost-savings: owner-building, taking on lodgers, and growing their own food.



2.01 Owner Building. Illustrated in the CMHC's *Choosing a House Design*, 1956.

Canada experienced soaring immigration rates at the beginning of the century which helped propel the national population by 34 per cent between 1901 and 1911. ²⁶ The majority of this increase was centred around cities and employment areas. The concurrence of the electric streetcar, widely adopted in the mid 1890s, with a population boom spawned the first national wave of suburban settlement.

Though renters would outnumber owners for another half century, home-ownership was increasingly prioritized. Immigrant and working-class families especially had sought after the security of ownership as renting was fraught with uncertainty. With inadequate legal rights, tenants lived by the whims of slum lords who might overcharge on rent, ignore basic repairs, or sell the property outright and put the tenants out on the street. ²⁷ The draw of newly subdivided land at the urban fringe was not to make capital gains but rather to find security of tenure and the capacity to adapt with the times.

Perhaps the greatest privilege of ownership was the flexibility to grow and physically adapt a house to fit one's circumstances. Here, low-income families built homes they could afford, even building them in stages, and *'no two houses were alike.'* ²⁸ Most homes had seen major improvements in sync with highs and lows of their regional economy and, in time, the quality of life in these communities was elevated. *A rising tide lifts all boats.*

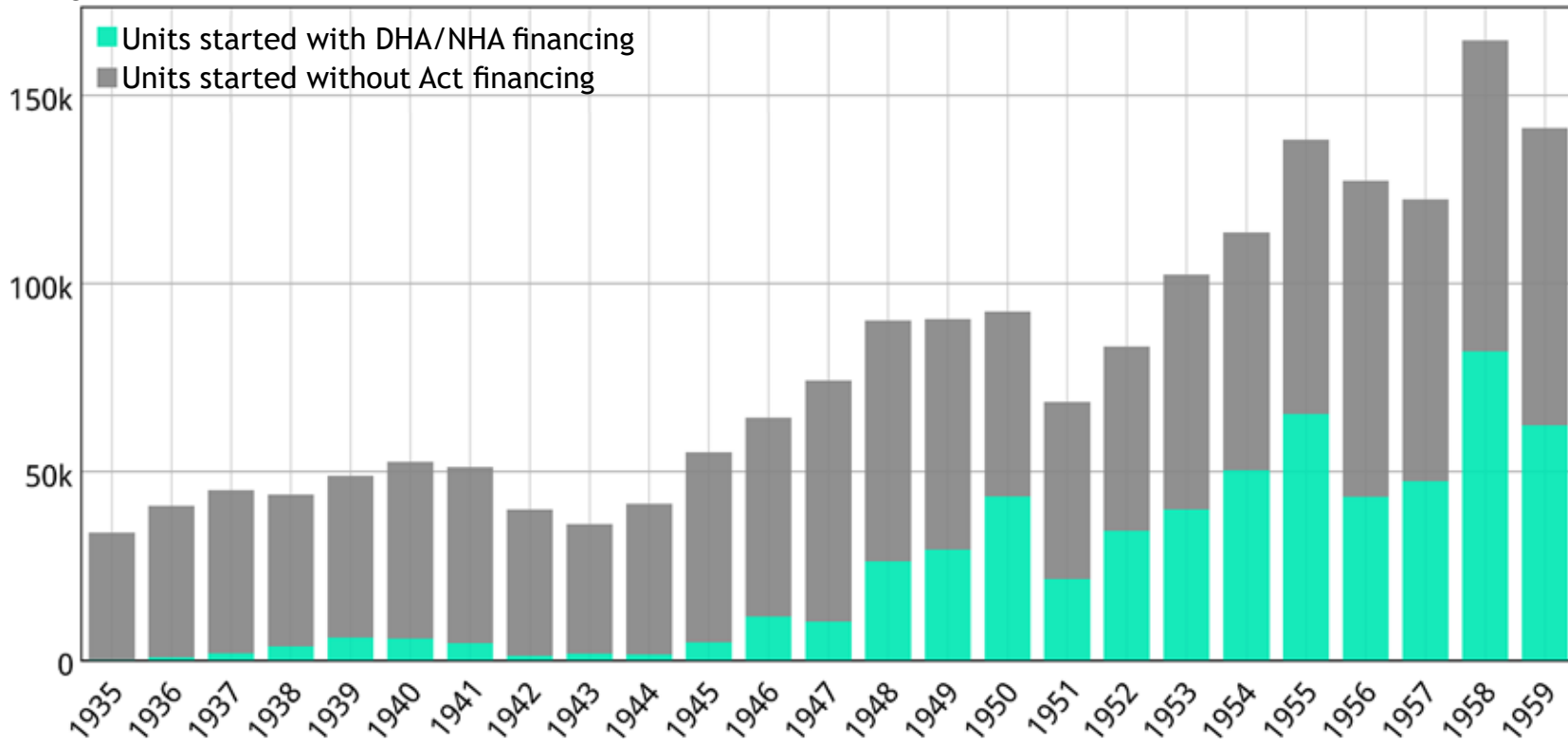
Admittedly, the self-sufficiency of immigrant settlements is here romanticized in retrospect. Certainly the unsanitary, overcrowded housing conditions of the earliest unplanned suburbs, given the diminutive label of 'shacktowns' ²⁹, are nothing to admire. Yet, the very notion that families had the freedom to strike out and build a future for themselves on modest incomes within commuting distances of urban centers is an inspiring antithesis to current day housing options.

"[...] In the early decades of the century, and again after the Second World War, hundreds of thousands of Canadians built their own houses. Many suburbs, including parts of the urban fringe around every Canadian city, were settled by immigrants and blue-collar workers."

-Richard Harris, *Creeping Conformity*

2.1.1. Aversion to Debt

Most people would be shocked to learn how recently in history we have charted down the path of highly leverage debt. In 2016, we live and breath debt but the system of institutional lending and insured mortgages only dates back roughly 60 years to the amended National Housing Act (NHA) of 1954. The mechanisms for residential mortgages begin with the joint loans of the depression era Dominion Housing Act (DHA) of 1935 and were further developed by the National Housing Act of 1944. Canadians were slow to adopt this system of mortgage lending. Only in 1958, 23 years after passing the DHA, were more than half of all new homes in urban areas financed through the NHA.³⁰



2.02 Housing units started by year and Act financing, 1935 to 1959.

“Throughout the first half of the century, more than 50 per cent of all residential mortgages in Canada were provided by private individuals, a much higher proportion than in the United States or than is common today.”

-Richard Harris, *Creeping Conformity*

“[...] as late as 1931 one-quarter of all households in Canadian cities contained lodgers. In some cases the guests were members of extended families, or, as was common in immigrant communities, they were friends and acquaintances from the old country. Quite commonly they were what Peter Baskerville has described as ‘familiar strangers’: people who belonged to the same occupational, linguistic, or religious communities as their hosts.”

-Richard Harris, *Creeping Conformity*

For the half century preceding WWII, housing was financed largely by savings and five-year balloon mortgages. This form of loan typically provided only half the value of the home and required the buyer to make a down payment of the other half. The borrower then paid interest on the loan throughout the term, during which he would save up to pay back the principal loan as a lump sum at term’s end.³¹ In some ways this system was self-regulating. Not only did it discourage people from borrowing more than they could afford but, as the loans were commonly made by private individuals, it required careful scrutiny on the part of the lender. Unfortunately only a minority of wage earners could afford the down payment.³²

Those who were fortunate enough to purchase a home still had to contend with lofty house prices caused by a housing shortage. As chartered banks were prohibited from lending on home loans, professionals builders too were prevented from fully realizing their potential, exacerbating the housing shortage. The tremendous demand for housing then encouraged owners to take on lodgers to supplement their income.³³ The prevalence of private financing in the absence of institutional lending espoused Canadians who cut costs en route to home-ownership. Families unable to access home financing were thus forced to rent, purchase an older home on a vendor ‘take back’ mortgage, or attempt to build their own.

Naturally, this promoted the unregulated patterns of owner-building produced along urban fringes where unserviced land was readily available.

2.1.2. Owner-Building

Owner-building was a persistent feature of Canadian housing for many generations, contingent upon the availability of land. The rising demand for housing at the turn of the nineteenth century sparked feverous land speculation which continued through to 1929 with only occasional downturns. Land was surveyed, subdivided, and frequently traded as though it were a stock or commodity. Those who speculated on these parcels did so knowing that they would get a higher return on parcels with *'basic public services, including paved roads and sidewalks, piped water, and sewers. By 1900 streetcar service was added to this list.'*³⁴

On the other hand, owner-builders sought out those parcels which were least costly, typically of narrow frontage, unserviced, and lacking building controls. Speculating on land was inflating costs and though land was frequently available in convenient locations workers were forced to leapfrog further and further away from urban centres to find affordable property.³⁵ They cared little for the poor planning this created so long as they could lay their claim. In these scattered and unregulated communities, low-income families could further cut costs by using personal labour and building their homes in stages.

This gave unplanned suburbs a motley arrangement as homes varied in size, stage of completion, and site planning. Fully developing their property was purely a longterm proposition. After incurring the cost of land alone, some people would only build and inhabit shacks at the rear end of the property which would later become sheds. This pattern was also manifest in major american cities such as Los Angeles and Detroit.³⁶ There was nothing glamorous about this hard life but there was certainly much to admire. Owner-building offered security a sense of pride but many who hoped to accrue sweat equity would face the harsh realization that homes in unplanned suburbs appreciated poorly.

“A common pattern was for a family to build a shack at the back of the lot and then make it a shed when later they built a substantial house at the front.”

-Richard Harris, *Creeping Conformity*

2.1.3. Great Depression

It is easy to blame the high number of foreclosures of the 1930s on the Great Depression but there was another fundamental cause overwhelming Canadian cities. Municipal finances had been troubled since the land speculation crash of the World War I period. This type of trading activity carried obvious risks and, when the downturn hit, people were stuck paying for empty but well serviced property which they had only intended to hold for a short while. Many of these people were unprepared to handle the extended burden and went into tax arrears forcing municipalities to take back the land and pay for any upkeep costs.³⁷

On the other hand, those who bought land precisely because it was unserviced and more affordable were creating untenable settlements in unplanned suburbs. In the early stages these communities would have been dominated by farmers who wished to avoid the costs of installing piped water and sewers. Afterward, they were sparsely settled by low-income families who preferred to keep taxes low. But relying on privies and wells only worked at low densities and was liable to create health risks if continued unchecked, as was the case in Hintonburg, an early suburb just West of central Ottawa.³⁸

“It is not clear whether this arrangement often caused health problems, but in some cases it certainly did. The best known case occurred in Ottawa, where typhoid epidemics in 1911 and 1912 were traced to surface pollution from outdoor privies in Hintonburg. Subsurface water from the privies drained into Cave Creek and thence into the Ottawa River, just above the water intake for the city.”

-Richard Harris, *Creeping Conformity*

The inefficiencies of providing services to vacant, now city-owned, lands and collecting limited taxes from scattered low-density suburbs proved disastrous. The problematic arrangement of scattered settlements and disparate municipalities came to a head when unplanned suburbs had filled in to higher densities requiring services in the 1920s. Installing piped water and sewers retroactively was far more costly than doing so at the outset of subdivision and many found themselves unable to afford the taxes.³⁹

The typical outcome was a significant loss of tax income and a downward spiral for municipalities leading into the Great Depression. Due to the tenuous finances of these suburban governments, some

municipalities were reluctant to take possession of properties from owners in tax arrears. Doing so was a lose-lose proposition with so few prospective buyers in a down economy.⁴⁰ Those families who were fortunate owned homes in slow growing communities, such as Overbrook, which could defer the installation until the postwar and likely annexation. Countless families were less fortunate however and lost their homes.

Hoping to flip the script, the federal government emulated the American Federal Housing Administration (FHA) with the Dominion Housing Act in 1935. The idea was to jumpstart the housing industry again with more affordable joint-loans but it was not the success they had hoped and studies showed it disproportionately favoured the affluent.⁴¹

2.1.4. The Greatest Generation

After two world wars and the Great Depression, Canadians had grown ever more cautious and averse to debt. But, while many carried on with traditional approaches to building, others would come to realize the opportunities of financial reforms and new federal programs. These were tools which would certainly incur debt but they were tailored to affordably deliver custom housing to the masses in a time when few people had any savings at all.

The war effort of the early 1940s had once again drawn people to urban centres to find work. Unemployment falls to near zero in 1941 due to the wartime economy and prevalence of military service but the swell of rural migrants had once again created a significant housing shortage.⁴²

Wartime Housing Limited(WHL), a Crown corporation, was founded in 1941 to alleviate this shortage by building 'emergency' rental housing. The small 'cape cod' style homes were meant to be dismantled after the war but the continued housing shortage prompted

“If suburban development had exacerbated the Depression, it also offered an activist government a lever with which to turn the economy around.”

-Richard Harris, *Creeping Conformity*

the newly formed Central Mortgage and Housing Corporation (CMHC), which had absorbed the WHL, to instead sell the estimated 30,000 homes to their tenants and returning veterans.⁴³

The Veterans' Land Act (VLA) was enacted under the Veterans Charter in 1942 to address the resettlement of returning soldiers and war brides. Adapted from the Soldier Settlement Act (SSA) of WWI, the VLA made provisional loans to veterans for small holdings, and 'part-time farming', on parcels as small as two acres.⁴⁴ Akin to the Victory Gardens initiative, it was conceived to supplement the worker's wages and food stores.

They presumed veterans would contract out their house construction but, whether they could not afford to do so or could not find tradesmen to hire, scores of applicants sought approval to do the work themselves. Bowing to demand, the Department of Veterans Affairs launched the 'Build Your Own Home' scheme in 1949. The scheme made provisions for *'field supervisors to offer on-site assistance, as well as evening courses in construction.'*⁴⁵ Between 1943 and 1975, the VLA financed the construction of 47,222 dwellings, a remarkable achievement for what turned into an 'aided self-help' program.⁴⁶ All told, it had quietly shed its pretense of settling veterans onto rural farmlands and became one of Canada's most successful urban and public housing schemes of the postwar.⁴⁷

Owner-building experienced a resurgence between 1945 and 1955 thanks to a confluence of circumstances; a shortfall in personal savings and of skilled tradesmen, newly affordable automobiles, inexpensive land, new portable tools, and newly standardized materials which complimented amateur builders.⁴⁸ In a sense, the postwar was the swan song of owner-building in Canada. The patterns of unplanned development were allowed to continue because land was once again in abundant supply. There was still an abundance of land available within existing communities due to the slowed economy of the Depression but the extended reach of the automobile promoted a second wave of suburban settlement which



2.03 Quill St. and Columbus Ave. Overbrook, 1953.

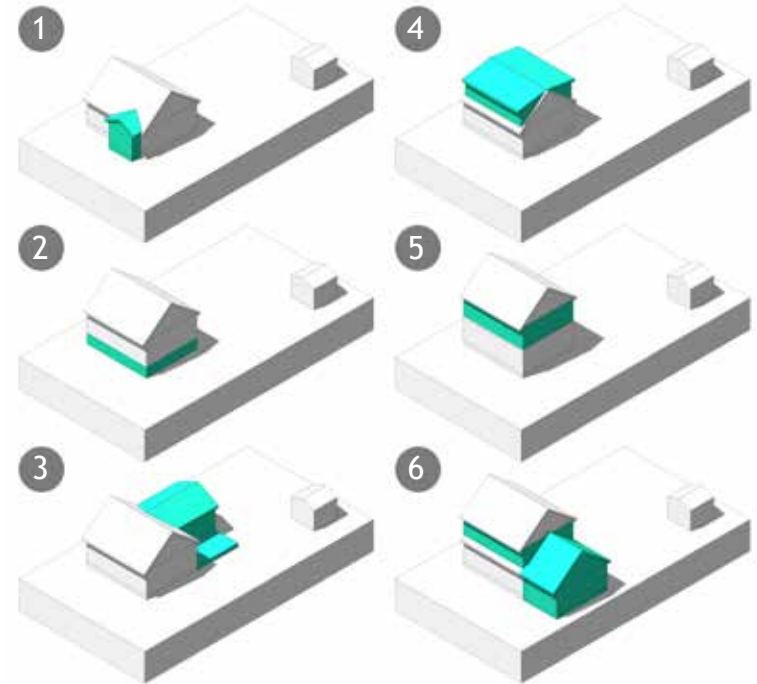
now constitutes the inner-suburbs.

Farmers on the outskirts of major cities seized the opportunity and began subdividing their tracts into smaller lots. These would be sold piecemeal to individuals in the early years as there were yet no large scale developers. Some would sell off lots only occasionally, as a way to cover their annual taxes.⁴⁹ Lot sizes varied but they were larger than those of unplanned suburbs in the prewar decades and generally increased in size relative to their distance from the city. A typical lot size may have been 15,000sqft where this was the minimum requirement for the installation of a septic tank. Until the mid-1950s, few municipalities could absorb the cost of utilities.⁵⁰ Whether they were catalogue, WHL, or CMHC designs, homes were still quite small in the late 1940s and these new lot sizes felt pastoral relative to previous generations. The postwar communities had a character all their own which was coming into focus by the mid-1950s but they were simply a natural progression of the land speculation of previous unplanned suburbs.

These wartime initiatives as well as the new Small House Design scheme of the CMHC amplified the self-sufficient character of Canadians for what would be the last era of unplanned suburbs. By providing small but affordable homes, all three programs had produced housing which was amenable to extensive modification. Wartime homes in particular were so diminutive as to all but require adaptations which have transformed otherwise uniform housing developments into a patchwork of custom homes.

Those modifications do bear some commonalities, however, as they were often conceived to solve typical issues created by the thirty or so designs used by WHL.⁵¹ These can be loosely categorized as adding: a basement, a foyer, a rear addition, additional dormers, a second storey, and occasionally a garage. This is a pattern of adaptation which would continue with CMHC small homes, particularly the one-and-a-half storey and bungalow models.

Countless families in the postwar boom continued a long



2.04 Most common modifications of Wartime Homes:

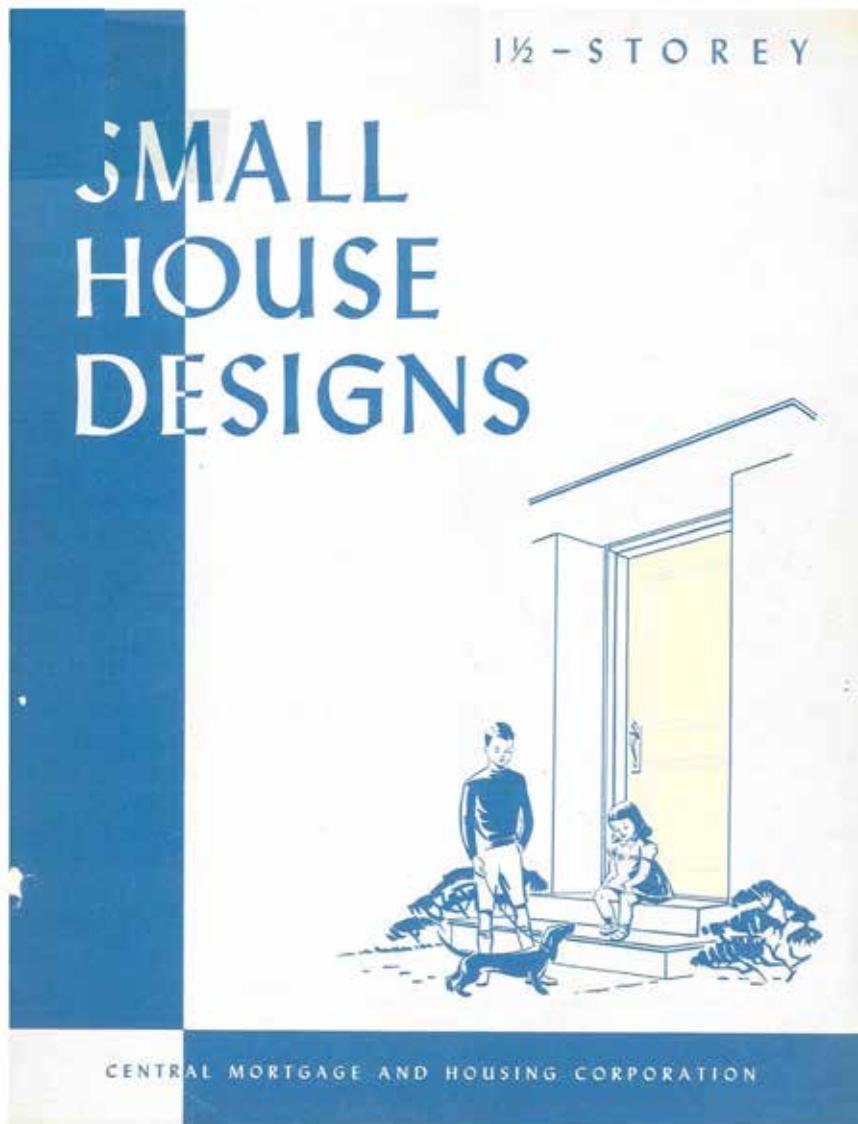
- | | |
|------------------|------------------|
| 1. Foyer | 4. Dormers |
| 2. Basement | 5. Second Storey |
| 3. Rear Addition | 6. Garage |

“The big story of house building is made of small deed-and-trial undertakings, too many to consider individually. The mix gives the Canadian postwar housing industry a remarkable flavour that hardly resembles the developers’ and big builders’ businesses south of the border.”

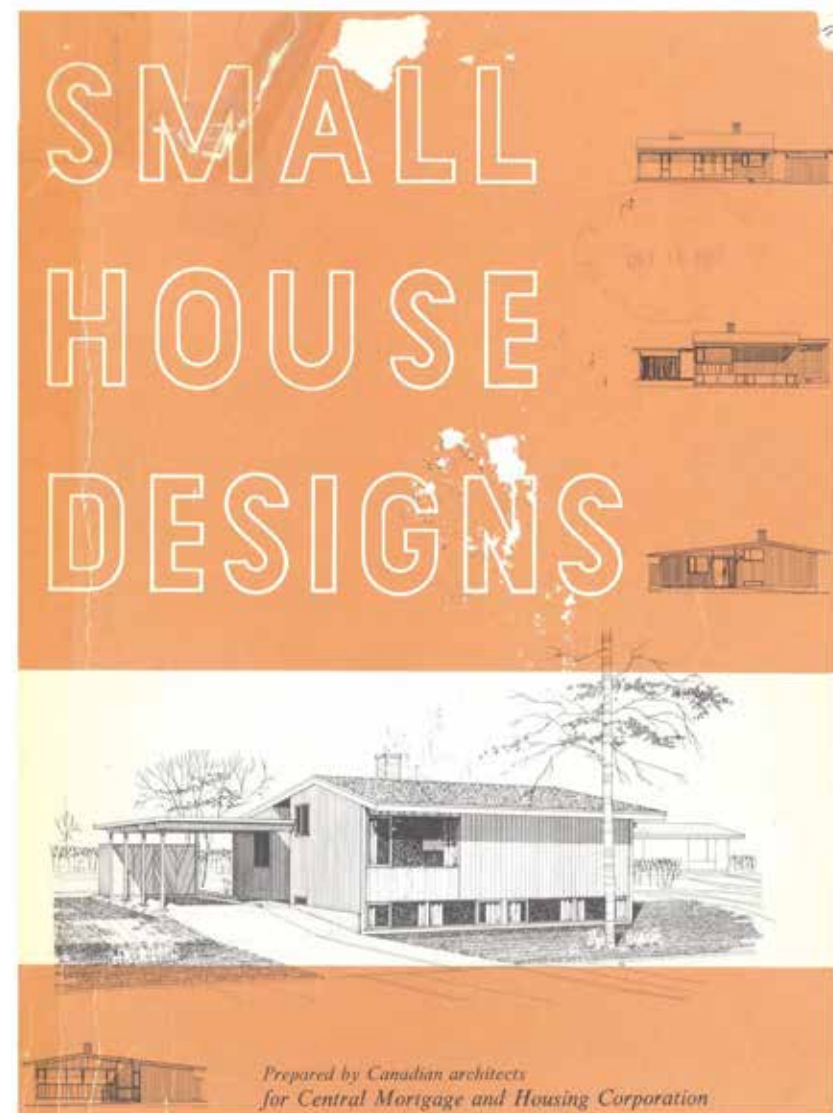
-Ioana Teodorescu, *Building Small Houses in Postwar Canada*

tradition of intimate relationships with their builders. Often in rural or older urban areas, clients would come to know their contractors and municipal authorities face to face en route to purchasing land of their own and arranging a custom-built home. The diversified patterns and forms of these unplanned suburbs recall those of older urban areas as both were produced over extended periods of time by the individual collaborations of farmers, builders, and municipal officials.⁵³

The continuation of handshake business, as it was facilitated by a variety of aided self-help programs, represents the peak of custom home development in Canada and that at a time of great financial restraint. The spirit of community coupled with new consumer-oriented paths to home ownership were quickly creating an urban nation by fostering amateur and small builders.⁵⁴



2.05 CMHC Small House Design catalogue cover examples.



Left: 1952 One-and-a-half storey catalogue cover.
Right: 1958 all designs catalogue cover.

67 HOMES for CANADIANS



2.06 Cover of *67 Homes for Canadians*, 1947.
The precursor to the CMHC Small House Design scheme.

2.2. CMHC & The Corporate Suburb

In the years following the end of WWII, the Central Mortgage and Housing Corporation (CMHC) was created to house returning veterans and, building off the success of Wartime Housing, almost immediately began the CMHC Small House Design Scheme. Starting something big in 1947 with the publication of *'67 Homes for Canadians'*, the Canadian government mediated a two decade long dialog between Canadian architects, builders and the working or middle-class. Architects submitted innovative small houses designed specifically for Canadian requirements while the CMHC distributed construction drawings of these plans for nominal fees. Educational guides were also distributed to prospective builders and home-owners alike. This process coupled with new municipal zoning practices allowed Canada to quickly develop a quality housing stock, nation-wide.

The anticipation of swift urbanization prompted the creation and oversight of higher building standards, zoning schemes, planning regulations, simplified financial support and standardization of building practices.

Following the initial publication in 1947, the CMHC developed four principle building typologies to address diverse housing requirements: one-and-a-half storey, split-level, bungalow, and two storey. These typologies simplified building standardization while providing architects a template within which to explore Canadian design sensibilities and retain subtle harmonies among grouped houses. Amongst these house types, Canadians of modest means could find a home to build within their budget. The system was an efficient social-housing and public-education strategy which helped bring prosperity to the Canadian housing industry and architecture to the nation.

However, what was created to help small builders and prospective owners was supplanted by something bigger and more efficient. Once industry standards and practices had been established,

the CMHC would take a back seat to the private sector, paving the way to a new paradigm of merchant builders.

2.2.1. Small House Design Scheme & House Types

Perhaps the most influential of the CMHC's postwar initiatives were the Small House Design catalogues. House plans had been promoted and sold in publications before but none had yet provided professional designs preapproved for federal financing in Canada. This scheme had notably facilitated the advancement of housing standards for both speculative and owner-builders. In doing so they introduced modernism to the everyman.

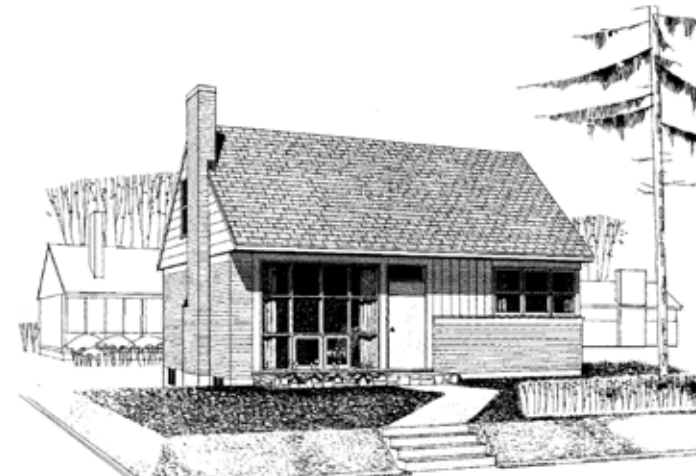
Prevalent features of CMHC designs included open planning, small footprints, efficient construction, three entrances, and accentuated connections to outdoor spaces. These designs earned a certain ubiquity as their application was national in scope but regionalism was achieved courtesy of the motley character of the building industry. Otherwise identical homes built in the postwar, such as these CMHC small houses, are frequently unrecognizable today as home-owners have carried out extensive modifications.

Emphasis on small and simple designs stimulated outward expansion consistent with family growth, where modifications to otherwise complex designs would have been too costly and thus urged families to move. The development of wartime and postwar homes created an immense stock of quality starter homes which could be tailor-made and remade to suit all stages of family life.

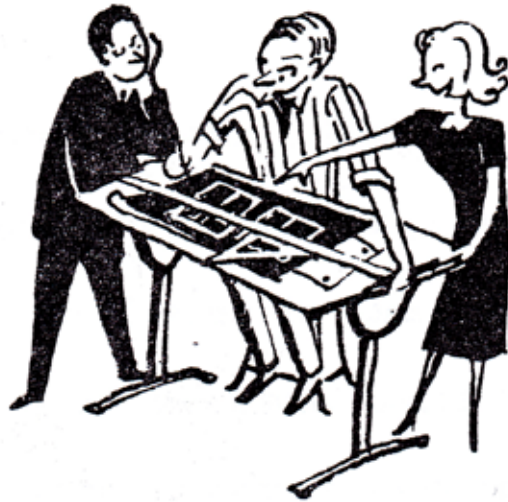
This decades-long cooperation of Canadian architects with the CMHC provided a remarkable public service for the postwar generation. Freely distributing presentation drawings and plans of designs opened a unique dialogue between architects and the nation. The CMHC held an on-going invitation to submit working drawings for approval of design and building standards. Popular designs were



2.07 Two women standing next to the Central Mortgage and Housing Corporation display at the Home Show. The display contains several model homes. Ottawa, 1954.



2.08 CMHC Design 301 - Architects: Wilson & Newton. Originally published in 1952 catalogues. This illustration is from the updated 1958 design.



2.09 Houses designed by architects,
Thirty Keys to Good House Construction, 1952.

retained for subsequent issues of the catalogue, while more were being added all the time. New designs grew in size and complexity while introducing more modern features desired by the Canadian people. This reciprocal experiment in housing design went on to define the first truly national architecture. It was a remarkable achievement distilled from the social obligations of civil servants, architects, engineers, builders, and home-owners.

The procedure for submissions was straight forward. A selection committee, organized in 1950, was comprised of a representative from the Royal Architecture Institute of Canada and the following from the CMHC: the Chairman of the Advisory Group, the Chief Architect, and a representative of the Information Division. They would review sketches, plans, and elevations of submissions, received in duplicate, with names of the designers concealed for objectivity. If a submission was deemed unsuitable, one copy was retained for their records and the other returned to the applicant.⁵⁵

Otherwise, a copy of the accepted submission was retained while instructions detailing required changes were sent to the architect for the preparation of working drawings. Approved designs were then assigned a sequential number coded according to the number of bedrooms provided.⁵⁶



2.10 CMHC Design 267 - Architect: M.G. Dixon.
This illustration from the 1958 catalogue.

- Bungalows with two bedrooms: 100-199;
- Bungalows with three bedrooms: 200-299;
- One-and-a-half storey with three bedrooms: 300-399;
- One-and-a-half storey with four bedrooms: 400-499;
- Two storey with three bedrooms: 500-599;
- Two storey with four bedrooms: 600-699.
- Split-level with two bedrooms: 700-750
- Split-level with three bedrooms at 750-850
- Split-level with four bedrooms at 850-

Once a design was completed, the Corporation compensated architects with a lump sum and royalties for every set of working drawings sold. In 1958 these figures grew from a \$200 sum and \$5 royalty per set sold to a \$1,000 sum and \$3 royalty. The Corporation also agreed to publish the architect's name on all publications of the design and the city in which they practiced.⁵⁷

Prospective home-owners bought complete sets of blueprints and specifications for only \$10. This represented a significant savings from the 5-10% fee for architectural services. Architects earned a respectable fee and excellent publicity. Though, in the early stages of the 1947 competition, architects were already facing immense pressure operating in the postwar housing shortage, younger designers were eager avail themselves of the opportunity.⁵⁸ Later, major architects may not have been interested in these trifling commissions but the scheme was especially enticing for students, interns, and young architects seeking to build a reputation. Young architects could earn instant recognition with an accepted submission and students could intern with the CMHC itself, building favorable connections which they could later benefit from in private practice.⁵⁹

Many such Canadian architects launched prolific careers off their successes with the small house design scheme. It is a path to practice which has since dwindled as there is little use for student-participation in our multi-billion dollar housing industry.

Four distinct types of stick-framed houses were prevalent amongst CMHC designs, each with its advantages and disadvantages.

The smallest was the bungalow, a single story unit which had minimal halls and stairs. This type was best suited for open plans, giving the impression of spaciousness, and reduced fatigue or accidents during house maintenance. It was also cheaper and simpler to make additions to a bungalow than other to types. However it was the least compact, requiring twice as much roof and foundation as a two-storey, along with larger lot requirements. It was therefore most efficient under 1,000sqft.



2.11 House types, *Choosing a House Design*, 1956.

The one-and-a-half storey house retained the appeal of a bungalow yet permitted an additional 75% floor area under roughly the same amount of roof. It could thus have a more compact footprint making it the most cost-efficient layout. It gained immense popularity among young families as the attic could be left unfinished until the family needed to expand at a later time.

A two storey house was more efficient if three or more bedrooms were required on the second storey. It was also well suited for narrower lots and easier to heat due to its compact form. However its tendency to look box-like was a common design challenge.

The split-level house, best suited to sloping sites, was introduced in the 1954 catalogues. Sharing traits with both bungalows and two storeys, it could provide a convenient and open layout, yet still provide greater separation of sleeping and living functions.⁶⁰

Compensating for stricter height and footprint limitations, this basic housing typology is also applicable to the design of coach houses. The various dwelling types fulfill different budgetary and lifestyle requirements on otherwise standardized lot conditions. As it happens, the site planning of postwar housing offers an amenable standard for coach houses: large lots upwards of 5,000sqft with low lot coverage ratios, existing outbuildings, side or rear lane access, and existing services. The site conditions of unplanned suburbs had fluctuated wildly from the beginning of the twentieth century but by the 1960s they had converged on a standard that was virtually institutionalized.

2.2.2. Financial Reforms of The National Housing Act

The CMHC opened its doors on January 1st 1946 to administrate the National Housing Act of 1944. With a generational boom on the horizon, the NHA stimulated the building industry by offering Canadians joint loans on more affordable terms than the

balloon mortgages of the prewar era. This financial instrument also provided the leverage to raise construction and planning standards within the industry. The Canadian government, throughout its tiers, sought oversight on every aspect of construction: finances, design, engineering, construction, planning, and zoning.

The NHA continued the practice of federally backed joint-loans, started by the Dominion Housing Act of 1935, for returning veterans and prospective home-owners. Of these joint-loans, 25 percent was furnished by the CMHC and the other 75 percent by an approved lending institution. The Act also ensured a maximum of 4.5 percent interest on loans, which enabled convenient monthly payments at longer amortization periods of 20 years, reduced down payments, and mandated new standards of construction.⁶¹

Before being granted a loan, the client was required to provide plans, specifications, and a proposed lot for review with land ownership required prior to the start of construction. The amount borrowed was determined by lending value equal to the lesser of estimated construction cost, including land, or the appraised value of the house and land.⁶² When buying a house from a builder of NHA financed homes, the mortgage would be transferred and the purchaser would make a down payment equal the difference between purchase price and loan value.

Whatever the scenario, early applicants to NHA loans were instructed to spend no more than one quarter of their income on mortgage payments.⁶³ Later, borrowers are instructed in the 1956 'Choosing a House Design' publication not to purchase a home costing in excess of two and half times one's gross annual income.⁶⁴ This figure, known as the median multiple indicator, is worth remembering in the following chapter as nothing more clearly indicates the declining affordability of housing at present. All told, these new financing terms made it exceptionally affordable to purchase professionally designed and built homes, thereby limiting the market for private financing and balloon mortgages.



2.13 Sound financing, *Thirty Keys to Good House Construction*, 1952.

“Simultaneous revisions to the Bank Act allowed the chartered banks to enter the mortgage field for the first time in three-quarters of a century. In this manner the federal government worked to marry suburban development with corporate finance.”

-Richard Harris, *Creeping Conformity*



2.13 Approved Lenders, *Choosing a House Design*, 1956.

In 1954, revisions were made to the NHA to stem the practice of joint loans in a growing housing market. Under the new Act five principle services were administrated by the CMHC. Firstly, the amended act shifted focus to insuring loans with the CMHC as underwriter of mortgages. Secondly, loans were granted to homeowners or rental property owners where other mortgage funds were not available or to rental housing operated by mining, logging, and fishing industries. The third was to offer guarantees on Home Improvement Loans made by banks. The fourth was to invest in acquiring and developing residential land, allowing the CMHC itself to build rental housing (for the Department of National Defense for example.) Lastly, under the new Part V, the 1954 NHA allocated grants to municipalities for slum clearance and grants for ‘housing investigations, research, and technical assistance’.⁶⁵

This shift towards insuring mortgages, modeled after the Federal Housing Administration of the United-States, cannot be downplayed. Concurrent with changes to the Bank Act in 1954, it permitted chartered banks to enter the mortgage market and thereby paved the way for individuals, pension funds, and others to contribute as well on the basis of a trading market.⁶⁶ As seen in figure 2.02, housing starts and NHA loans had decline sharply after 1951. Mortgage credit was drying up. Appraisers and lenders and NHA financing were increasingly wary about lending in ‘undesireable’ suburbs, including most working class communities in Ottawa, Edmonton, and Montreal.⁶⁷ These 1954 amendments not only increased the availability of mortgage credit for borrowers but permitted banks to make a compelling return on investment by increasing leverage, interest rates, and term lengths.

Speculative-builders, also, had benefited from higher availability of loans as NHA financed homes were remarkably safe investments. More revisions were made in the fall of 1959 to once again increase leverage, and term lengths, because inflationary tendencies had caused many to defer home buying.⁶⁸

In attempting to utilize conventional funds to finance loans, the CMHC had liberated more of their funds for public services such as financing limited-dividend housing, land acquisition, university residences, urban planning, and technical assistance. Not to understate the final goal of the 1954 revisions, David Mansur, then president of the CMHC, formed a pivotal advisory group chaired by Humphrey Carver and dedicated to the advancement of: architectural design, community planning, social satisfaction, building construction, and economics.⁶⁹

The CMHC had previously only been concerned with relieving the housing shortage and gave little thought to the patterns this was developing. But it had become clear that the scale of operations quickly devouring farmlands would require more thorough planning. Demand for new housing can be sated but the improvement of homes and communities is an ongoing process which can always be furthered.⁷⁰

Expanding on research initiatives and educational publications such as *'Thirty Keys to Good Construction'* in 1952, the committee sought to better educate both industry professionals and homeowners.⁷¹ The latter benefited from the publication *'Choosing a House Design'* for nearly two decades as it was originally circulated in 1956, then updated and republished in 1964, 1967, and 1972. The wealth of information disclosed in this book is remarkable. As a comprehensive body of knowledge made readily available to prospective-buyers, whether they sought to build their own home or simply purchase one, its effect was to empower and enlighten readers to carve their own path to home-ownership.

On the other hand, in 1954 the CMHC published *'Principles of Small House Grouping'* as a compendium of contemporary ideals in subdivision planning drawn from British and American journals. A decade later they released the *'Site Planning Handbook'* in 1966 and the *'Urban Renewal Scheme Preparation Handbook'* in 1967. These demonstrate by their content how the CMHC had moved on from

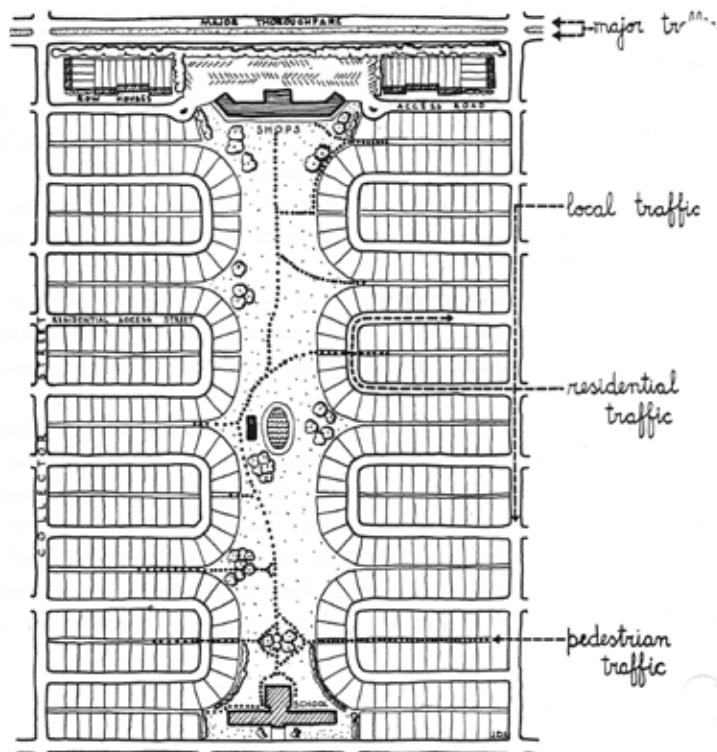


2.14 Building standards and inspections, *Thirty Keys to Good House Construction*, 1952.

“Under the terms of the National Housing Act, the Corporation may:

‘Cause generally such steps to be taken as it may deem necessary or advisable to promote construction of housing accommodation that in its opinion is sound and economical and to encourage the development of better housing and sound community planning.’”

-CMHC, *Site Planning Handbook*, 1966.



2.15 ‘Open Plan’ street system for community planning, *Principles of Small House Grouping*, 1954.

endorsing esthetic ideals to prescribing standards and regulations reflective of the quality control required for large-scale urbanization.

2.2.3. Zoning and Standardization

The precursors of residential zoning practices may be accredited to some common landuse restrictions of outlying suburbs in the early twentieth century. Those restrictions or building regulations would have varied to target specific demographics and stratify class distribution. Exclusive suburbs or enclaves were most likely to have actual zoning plans and building controls as prescribed by their developers, most commonly the prescription of a minimum dwelling value and type.⁷² These protected the idyllic esthetics of the community and ensured a kind of class segregation to which there was a ‘cost of entry.’

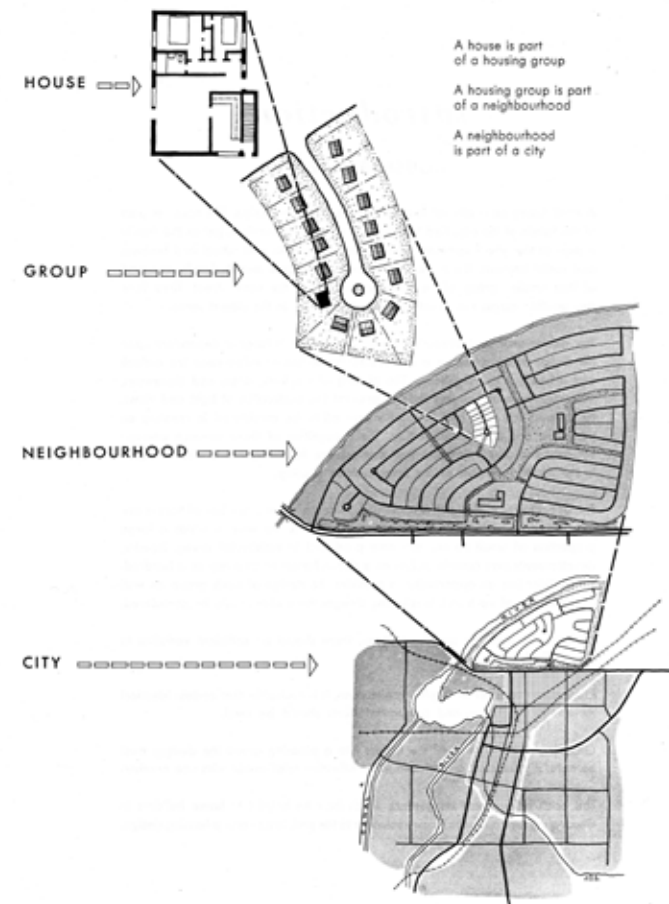
The very opposite applied in unplanned suburbs of the working-class. Farmers were reluctant to incur the cost of installing services and simply wanted to sell off parcels for easy profit. Subdividers used the lack of regulations as a selling point.⁷³ Here, buyers built modest, affordable homes in stages and though it earned these communities the moniker shacktowns, it permitted low-income families to quite literally improve their lot. Over time, these communities might incorporate to better organize their improvements and petition for new landuse regulations or services.

Middle-class suburbs built on speculation operated in between these extremes. As alluded to previously, a new approach to building regulation was integrated into financial reforms of the DHA and then NHA. To create a kind of dispersed, case-by-case building regulation, construction standards and site plan reviews were made compulsory to the acquisition of NHA financing.⁷⁴ But, as markets were becoming more invested in housing finance, it was becoming clear to all tiers of government that broader regulations should be implemented to safeguard the nation’s newly leveraged assets.

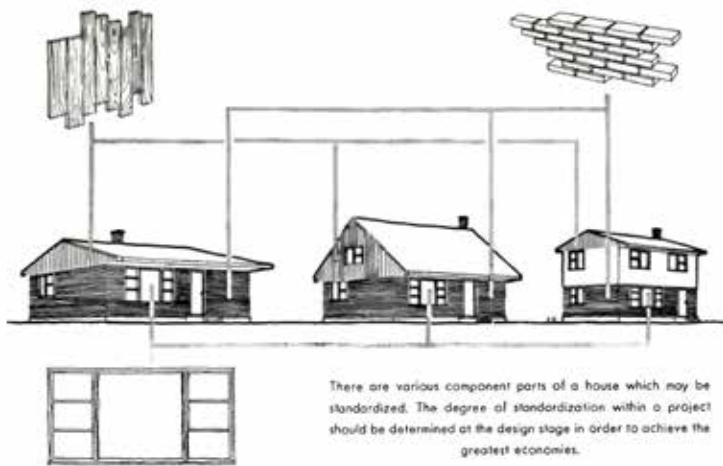
Mandating official zoning bylaws only became common practice in 1950s and was then considered a valuable insurance for residential capital. Zoning plans were prepared by municipalities to protect owners from the ‘*hazards of unrestricted building*’. Planning regulations in the past had been confined to city limits and there only concerned fire safety, public health, noise, and waste disposal.⁷⁵ The goals now were to provide convenient and holistic neighborhoods as well as protect mortgage investments by restricting the locations of objectionable building types such as factories, warehouses, landfills, highways, etc.⁷⁶ It was thought that the unforeseen construction of a neighboring shanty could cause one’s property value to drop by ‘25% to 50%’.

The preferred method of securing these assets was simply to allocate homogenous yet interwoven landuses, thereby guaranteeing buyers a certain predictability when shopping for a home. By the 1960s, landuse regulation grows to encompass site plan approvals on all new subdivisions. The provision of services, community shopping, transportation, schools, churches, and recreational space was a clear mandate. Failing in these respects reflected poorly on the municipality. Failure to protect communities from ‘blight’ was considered to have adverse affects on property values and consequently threatened the highly leveraged assets of a nation facing unprecedented growth.

Hard lessons had been learned from the downward spiral of the Great Depression. Demands on infrastructure and local governments were rapidly becoming too exhaustive to adequately provide should subdivision development continue in the ad hoc fashion the industry had previously fostered. Municipal and Provincial governments retained statutory controls on all planning initiatives but the CMHC leveraged its review and approvals process on NHA financed subdivisions to endorse new standards as set down in documents like the 1966 ‘*Site Planning Handbook*.’



2.16 The dichotomy of housing groups and neighbourhoods, *Principles of Small House Grouping*, 1954.



2.17 Standardization of parts and finishes, *Principles of Small House Grouping*, 1954.

Standardization in manufacturing played a key role in growing the housing industry. The standardization of framing members, cladding materials, and common plan components would expedite the work of small contractors but primarily accelerated the home construction of merchant builders. The use of four inch framing members and four foot sheathing materials simplified construction through the use of modular building methods without sacrificing customization. Bathroom and kitchen layouts in particular could be catalogued and rearranged throughout several designs, as well as window frames.⁷⁷ Massing and material decisions made early in the design stage saved the large builder both time and money. He could arrive at a set of house variations derived from modules, standard spans and components permitting cheaper bulk purchases and variety.⁷⁸

This process of standardization permitted the cost-effective and orderly grouping of houses necessary for a builder to operate on a new scale. Though the builder was not able to fully industrialize the construction process, he typically accelerated construction by phasing and scheduling specialized construction crews, effectively creating a production line on site and supplanting the jack-of-all-trades builder-carpenter. The division of labour allowed faster training or apprenticeship though it left the industry with a less skilled workforce. Economies of scale for larger building operations also made it profitable to use mechanized equipment for excavating, cutting, and assembling.⁷⁹

The change of scale in building operations happened relatively quickly after WWII. The majority of Canadian architects and builders alike had previously been trained to address houses as individual projects, even though the knowledge and insight required for mass-production had developed in the United-States much earlier.⁸⁰ With oversight from the CMHC, these building practices were quickly developed to house a rapidly growing nation. Unfortunately, the cumulative financial and regulatory advancements created adverse

conditions for small-builders. The practice of land assembly within major metropolitan areas would forever undermine affordability and adaptability for home-owners.

2.2.4. Land Monopolization & the Corporate Suburb

The construction boom saw the merchant builders define the future of building where small contractors and owner-builders had previously experienced a high point. By 1956 there were roughly 1,700 speculative builders operating under the NHA. Of these, builders of 25 or less dwellings per year outnumbered those of greater production nearly four to one. Yet in 1955 alone, only 85 of those 1,700 building operations completed 40 percent of their combined output that year. By comparison, the smallest 714 operations completed only 6.5 percent of those units.⁸¹

Still, a larger majority of all dwellings completed that year, some 66,000, were constructed by owner-builders and small entrepreneurs operating outside the NHA on a part-time basis.⁸² That activity would shift evermore in favor of the corporate suburbs in the 1960s however. By one estimate, 75 percent of all NHA financed homes in 1961 had been produced by large merchant builders.⁸³

Size of Operations Dwellings Completed in 1955	No. of Operations	Total Number of Dwellings Completed
1 - 6	714	2,367
7 - 14	415	4,144
15 - 24	202	3,739
25 - 49	201	6,747
50 - 99	82	5,337
100 or more	85	14,503
Total	1,699	36,837

2.18 Number of speculative builders operating under the NHA in 1955.

At first, the shift towards insurance allowed small builders to grow their business through added speculative building because NHA loans and homes had become remarkably safe investments.⁸⁴ As small-builders were able to acquire loans on speculative building they would build capital for themselves. This new availability of capital allowed small builders to grow their operations exponentially as larger profits could be reinvested into still greater land purchases at strategic locations. Some small builders thus became merchant-builders, a necessary transition given newly introduced requirements for builders to incur the costs of service installation.

Nonetheless, the new scale of operations in some markets could make or *break* a developer.

The large merchant builder often waited over a year between securing raw acreage for development and starting construction. As opposed to a small contractor who could start the day land was purchased and needed to quickly finish the project because he could not bear the carrying costs.

This merchant builder, or developer, would first identify a target demographic while consulting engineers analyze soils and negotiate utility extensions. Site planners and architects would then sketch out proposals for approval by capital lenders and the CMHC. The land would then be purchased and surveyed for approval by a host of authorities. They then submitted final plans, elevations, specifications and site plans for approval and paid all negotiated (PS244) development costs up front. Construction was only permitted once the builder's staff had completed details, cost estimates, material schedules, and made arrangements for temporary water, power, and waste disposal.⁸⁵

Concurrent with these subdivision regulations, metropolitan areas set out to complete regional plans to more efficiently distribute infrastructure spending. The Greenbelt in Ottawa, as conceived in the Greber Plan, was intended to encompass a land supply capable of housing 500,000 persons. It was assembled via acquisitions and

“Smaller land developers faced with high-priced raw land, a development approval process requiring at least 18 months and sometimes 3 years, and the trend to large-scale projects, have progressively been forced out of this market.”

-Peter Spurr, *Land and Urban Development*.

expropriations totaling ‘about \$40 million’ by the newly formed National Capital Commission between 1958 and 1962. Unfortunately the population had reached 500,000 by the early 1960s, almost 40 years ahead of schedule, and so the following year a regional plan was devised to focus future development along major approaches through the greenbelt. ⁸⁶

The Queensway had been under construction for several years by then and so major developers moved quickly to purchase as much agricultural acreage within these future development nodes as they could carry. These developers amassed such large tracts as to create regional monopolies, the details of which are revealed in Peter Spurr’s 1976 study ‘*Land and Urban Development.*’ Suburban settlement in the 1970’s became dominated by large, vertically integrated developers which, having bought out their competition and building suppliers, had decimated the market for small-builders. ⁸⁷

Under the direction of the CMHC, Canada doubled its building capacity between 1946 and 1955. ⁸⁸ It was predicted that this increased production of housing would develop a more competitive market in following generations, thus compelling builders to improve design and construction ‘*under more competitive pressure to win customers.*’ ⁸⁹ In the decades following 1955, the CMHC opted to focus on housing low-income demographics and allowed residential construction to adjust itself to market demand. Two decades later, the Small House Design Scheme was terminated.

The revised objective of the CMHC was to maximize the use of private sector capital for efforts previously funded by the federal government. Thanks in part to amendments of the NHA in 1954 and again in 1959, this transfer of market capital had in fact materialized, only, the resulting market adjustment had grown more towards a system of institutionalized monopolies than that of a healthy competitive market. As Richard Harris illustrates, the diversity of Canadian suburbs, whether planned or unplanned, affluent or poor, speculative or owner-built, had converged.

“Institutionalized concentration of ownership is evident:

-In the western node where Campeau Corporation’s ‘Kanata’ plan would house 65,000 people on the 3,200 acres, the regional goal is to accommodate 100,000

-In the eastern node where Richard Costain (Canada) Ltd’s ‘Convent Glen’ is to house 30,000 on 790 acres, the regional target is 35,000.”

-Peter Spurr, *Land and Urban Development.*



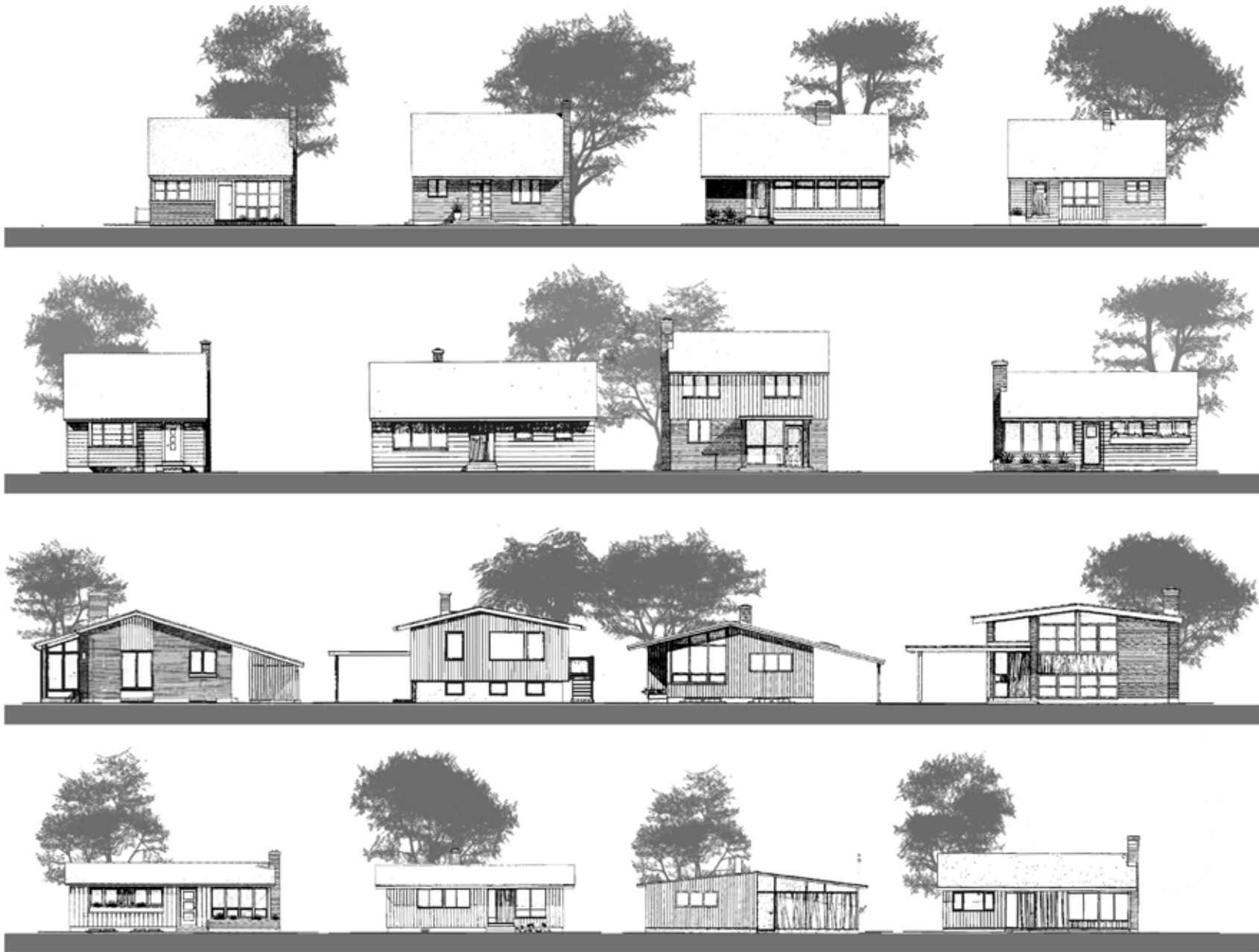
2.19 Queensway interchange at alta vista looking northeast towards Overbrook - 1960.

“Each of the major players had achieved its goal except, according to Humphrey Carver, those who, in buying a house, wished to express their individuality and their freedom of choice. Instead, their dwellings were ‘impersonal, synthetic, exchangeable, temporary’ and yielded only ‘uniformity, conformity.’ ‘Noble motives,’ Carver judged, seemed to have produced ‘unexpectedly horrible results.’”

-Richard Harris, *Creeping Conformity*.

The corporate suburbs have passed down a rigid pattern of housing which leaves no room for adaptation or self-expression. In a relatively short time, homes doubled in size from 1,000 to 2,000sqft as lot sizes shrunk to constrict outdoor spaces and setbacks. House models grew more elaborate and resistant to outward additions or modifications. From this point on, housing not only becomes increasingly expensive and commodified, but the paths to building a custom home have been limited to contracting an architect, choosing from a developer’s model selection or drafting plans for oneself.⁹⁰ The former has become wildly unaffordable; the latter monumentally difficult. Thus, the commodified, inflexible developer home still reigns though Canada is drowning in debt and choked by housing demand.

Perhaps it is now worth considering how prospective homeowners might repurpose and appropriate the legacy housing stock of the postwar, unmatched by successive generations in neither modesty nor adaptability.



3.01 Typical postwar streetscapes using CMHC Small House Design Scheme drawings from the 1958 catalogue.

3. Parallax: Contemporary Issues in Postwar Suburbs

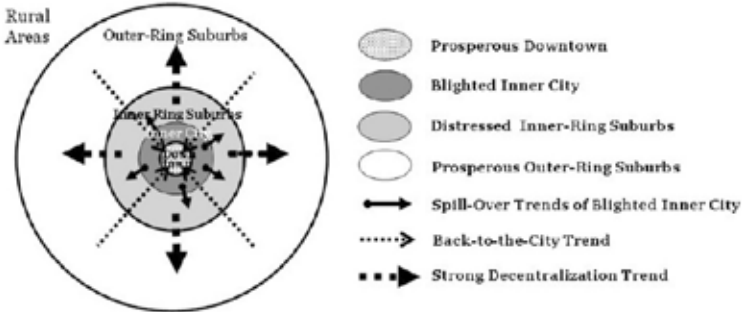
3.1. Decentralization and Back-To-The-City Trends

Postwar suburbs are now fifty years old and much has changed. Researchers have been aware since the 1980's that the prosperity of inner-suburbs would subside as the natural lifecycle of the residential communities progressed. However, empirical studies of this decline only became feasible once sufficient data could be assessed in the late 1990's. Several urbanists have conducted these studies in the United States but few Canadian cities had been studied until Dejan Pavlic's thesis '*Fading Inner Suburbs?*' In 2011.⁹¹

Expanding on Lee & Leigh's conceptual model of Inner-suburban decline,⁹² Pavlic confirms that prosperity in Canadian inner-suburbs, predominantly of the postwar era, has in fact declined in the wake of two paradoxical housing trends: the decentralization and back-to-the-city trends. In this study he examines the relative growth of average property values, average gross rent, and median household incomes by census tracts(CT) in 15 Census Metropolitan Areas(CMA) between 1986 and 2006.

The CT statistics are classified into five urban zones based primarily on age of the housing stock and density, then analyzed for growth relative to their disparate groupings during the study period. He identifies the five zones as follows: core, inner city, inner suburbs, outer suburbs, and fringe exurbs. Inner-suburbs were found to have the lowest relative growth in household incomes and dwelling values, along with the lowest standard deviations among all groups. That the overall findings for this zone exhibited the least disparity among all CMAs demonstrates a consistency which further confirms the decline of Inner suburbs. His tables of relative growth factors can be found in Appendix 1.

Of the three metrics, household incomes in inner-suburbs experienced the greatest relative decline. The inner



3.02 Sugie Lee & Nancy Green Leigh's Conceptual Model of Inner-Ring suburban Decline, 2007.

suburbs of Ottawa-Gatineau in particular suffered the greatest deterioration across all fifteen CMAs which supports the precedence of retaining affordable housing in this zone when developing smart growth strategies. So how and why was the conceptual model of intra-zonal movement used to predict these results?

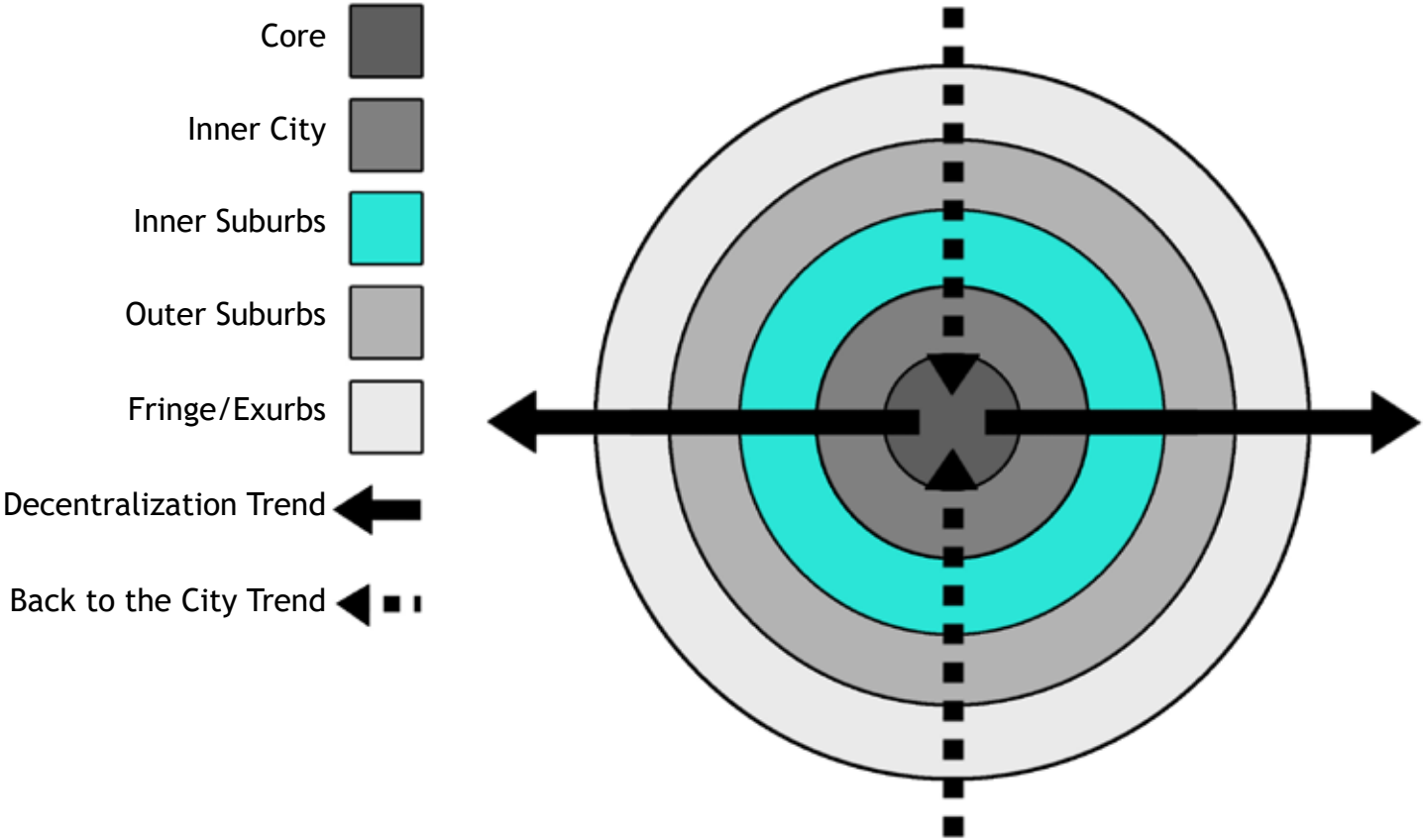
As previously indicated, Pavlic's conceptual model is but the latest iteration of previous efforts to track housing and demographic trends. While in the past they had indicated rural migration to cities, followed by suburban flight and urban blight, recent iterations have grown to include the back-to-the-city trend and predicted that gentrification of urban centers would push urban blight into neighbouring communities.⁹³

At present, there are two dominant trends which appear at odds. First is the tendency towards decentralization largely driven by the desire for contemporary suburban housing and economical land values. This trend persists from the strong suburban flight witnessed in the postwar era. This outward outward, centrifugal migration has always coincided with advancements in transportation. Streetcars created a notable land rush in the early twentieth century and facilitated the development of both planned and unplanned streetcar suburbs. Later, the automobile and its associated infrastructure projects permitted a whole new type of suburb. Dispersal of the voter base caused the disinvestment of core areas which only intensified the desire for suburban life. This decentralization is referred to as sprawl and has grown so expansive since the postwar era that urban planners still struggle to curtail the unsustainable and inefficient leapfrogging of greenfield developments into precious farmland.

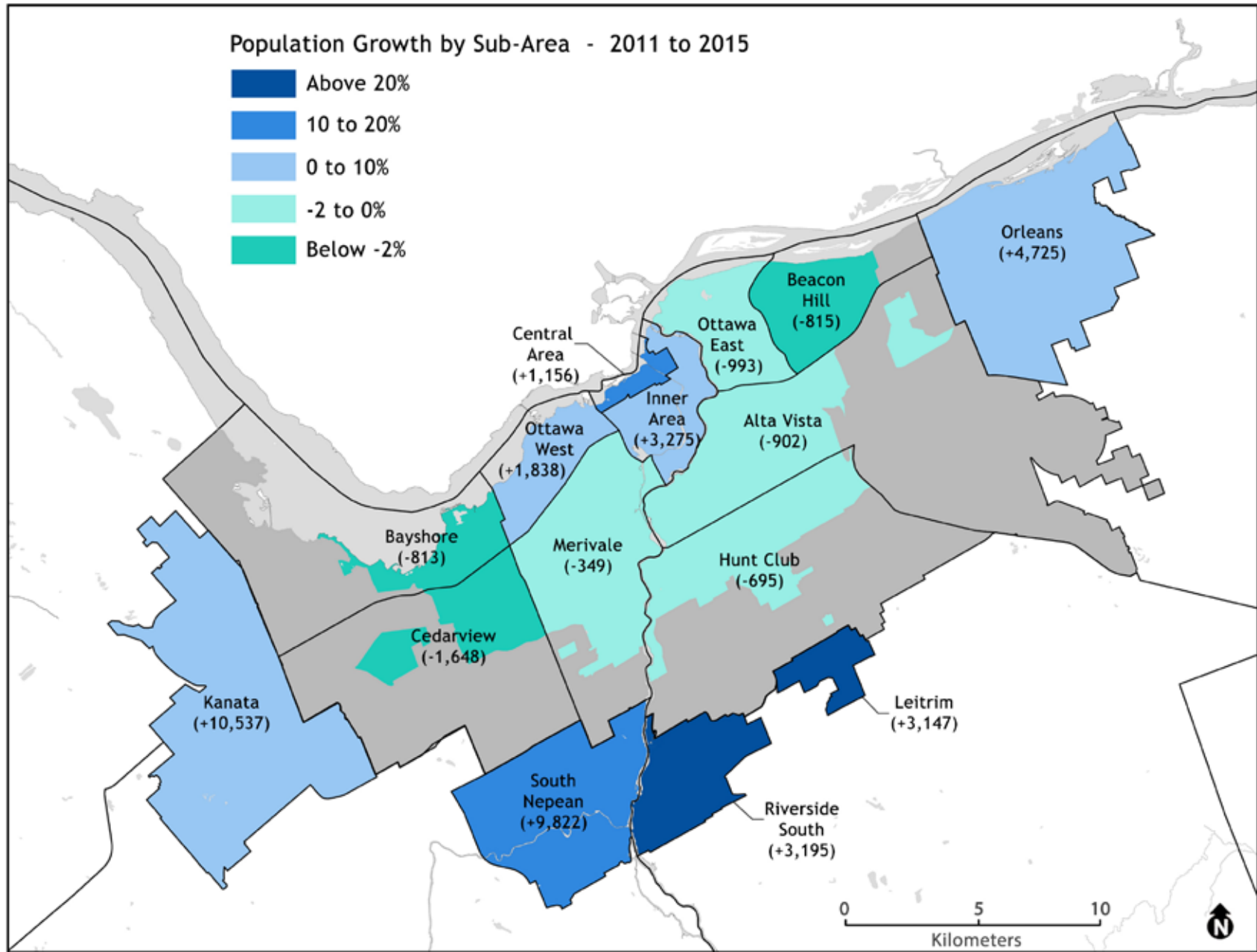
The reversal in planning theory began investigations into 'Smart Growth' strategies. The second trend, then, is very much a reaction to the first. As sprawl grows, the city thins out and people become isolated. Residents of the suburban fringe are dependent on the automobile for nearly all activities. Communities spread further away from the inner-city and ancillary costs of this auto-dependency

being to negate the advantageous cost of living in the suburbs. The back-to-the-city trend intensifies as sprawl increases and is thus strongest in Canada's larger CMAs. This reactionary trend is driven by the desire for proximity to core area amenities, institutions, and employment centres.

However, the inner city is burdened with higher density and limited supply of land. Land values here generally dictate smaller dwelling conditions than their suburban counterparts and therefore appeal more to the non-family households, the young, and the affluent.



3.03 Dejan Pavliv's Conceptual Model of Inner Suburban Deline, 2011.



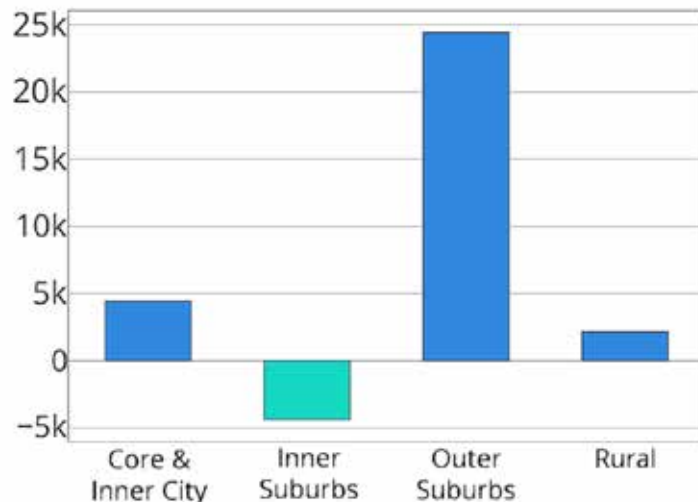
3.04 Estimated Population Growth by Sub-Area, City of Ottawa, Annual Development Report 2015, pg.22, Annex Table 3.

“Current governmental incentives rarely address the well-being of inner suburbs specifically. Therefore, local regional, and higher level governments must be more explicit in targeting these urban zones with specific policies that may refurbish inner suburban neighbourhoods.”

-Dejan Pavlic, *Fading Inner Suburbs?*

These housing trends are at odds and have, for several decades, created a sort of void between their extremes. Therein lies arguably the root cause of declining prosperity in postwar suburbs, which feature neither the contemporary housing standards of the fringe suburbs nor the amenities of the Inner-city.

Yet, this situation, only evidenced in recent years through verifiable statistics, has been on-going for a substantial period of time. These conceptual trend models are not static. They are snapshots of dynamic systems, at once retrospective and prospective. There is still too little census data to accurately update the model but we may begin to predict the next iteration by referencing regional statistics, market data, and current events.



3.05 Estimated Population Growth by Urban Zone, City of Ottawa, 2011 - 2015.

The city of Ottawa publishes comprehensive statistics in their annual development reports for instance. The reports include population estimates for detailed sub-areas of the city tabulated using building permits, demolition permits, rental vacancies, and a variety of other factors. Chart 3.05 tabulates the estimated population growth of sub-areas grouped into urban zones resembling those used in Pavlic’s model.

Though not directly correlated to his metrics, the inner suburbs are notably the only zone found to be in overall decline. That this zone is consistently losing population demands a closer inspection and should motivate governments to enact specialized policies. Though the zone level data does not serve to advance the model for predictive purposes, the sub-area data tells a different story.

Figure 3.04, which maps the five year estimates of all urban sub-areas, indicates that the inner-suburbs have not experienced uniform changes. The outer limits of the inner suburban zone appears to be declining at a marginally greater rate than those closer to the city. More importantly, the sub-area of Ottawa West has experienced significant intensification during the five year period. This area includes the community of Westboro which was infamously a hotbed of infill activity even prior to 2011. ⁹⁴

As demonstrated in figure 1.14, CT level data in the 2011 National Household Survey indicates that dwelling values in this community had already appreciated to nearly twice those of other inner suburban communities. The continued intensification of this area has no doubt exacerbated dwelling values since then and validated concerns over rapidly increasing property taxes.⁹⁵

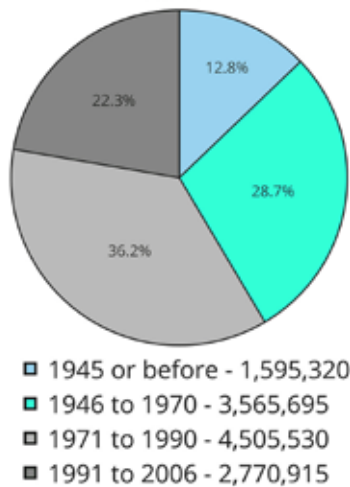
Westboro is a key example of intensification pushing out of core and inner-city neighbourhoods into adjacent suburbs. Granted, it is an accelerated representation in Ottawa due to its exceptional public transit access and vibrant traditional mainstreet. It suggests that the back-to-the-city trend is formidable enough to exceed the capacity of core areas. Given enough time, it is only natural that demand will exceed the limited supply of ground-oriented housing within the core.

Pavlic's own findings demonstrate that this trend has increased prosperity indicators more significantly in the inner-city than the core itself. He suggests this is due to the predominance of condominiums attracting smaller households to the core whereas the inner-city contains more ground-oriented housing.⁹⁶ In fact, the inner-city scored the highest relative growth for both incomes and dwelling values in Ottawa as well. His study also suggests the trend is stronger in the largest cities, such as Toronto or Vancouver, where the fringe suburbs are exceedingly distant.⁹⁷ These cities also happen to claim the highest housing costs in the country. There the inner-suburbs have already felt the progression of Pavlic's model and their postwar homes frequently eclipse the million dollar mark.

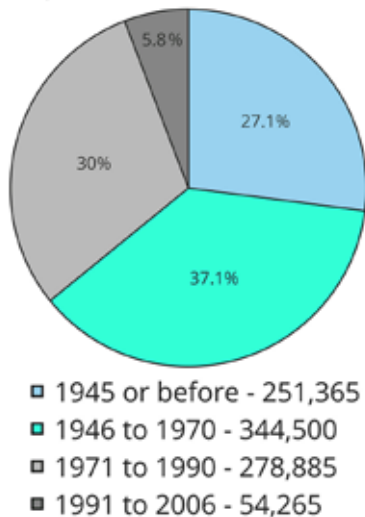
That is the third stage of the back-to-the-city trend. In a national economy which is shockingly dependent on real estate and construction,⁹⁸ the trends captured in the conceptual model are advancing quickly. It is most pronounced in overheated housing markets but, if the economy continue apace, it is certain to affect many other Canadian CMAs in time. However, where and when inner suburbs are faced with intensification, there will be other contributing factors to their long decline which must be overcome.

“Overall, it appears that there is high demand for inner city real estate in many CMAs. This suggests that the back to the city movement is perhaps stronger than assumed by this research.”

-Dejan Pavlic, *Fading Inner Suburbs?*



3.06 Private dwellings by period of construction, Canada. 2011.



3.07 Private dwellings requiring major repairs by period of construction, Canada. 2011.

3.2. Reasons For Decline In Postwar Suburbs

3.2.1. Housing Stock

The leading cause of decline is the housing stock itself. Chiefly, the homes are very small by modern standards. It's difficult to assign an average size covering the 25 year period but it's safe to say they range from 700 to 1,500sqft, increasing progressively over the period with a majority in the mid-range. A thousand square feet can be a difficult sell when buyers have an abundance of brand new developer homes twice that size from which to choose, contemporary homes that need little to no upgrades, in brand new communities with new schools, services, and retail.

Postwar homes on the other hand are often in dire need of repair. As of the 2006 census, they represented a 37 percent share of dwellings requiring major repairs, a disproportionate majority of the Canadian housing stock as a whole.⁹⁹ Many of the households may have foregone upkeep and maintenance throughout the declining decades. Even if one household chose to upgrade their home, the added value would be diminished by the overall state of the community keeping values in lockstep because of the uniform age of the subdivisions. For prospective buyers, the cost of necessary repairs or maintenance may negate any savings earned by buying a modest home in a depressed postwar suburb over a newer home at the fringe. These communities are therefore faced with stiff competition for upper and middle class residents.

Given that postwar housing represents as much as a quarter of the Canadian housing stock, overcoming the associated stigma is paramount in designing national housing strategies. While infill projects are an indispensable vehicle for reinvestment in a community, they are sporadic and in no way mitigate the negative perception of postwar homes. However, because they are uniquely suited to postwar site planning, coach houses may provide them a distinct advantage over the other urban zones.

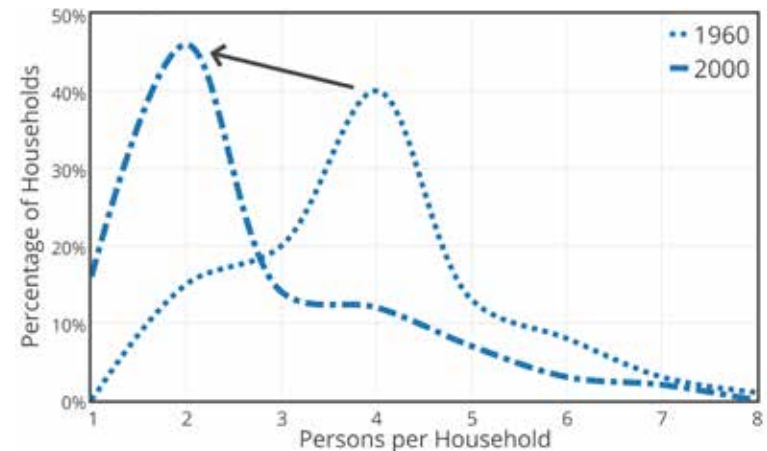
3.2.2. Demographic Changes

The natural decrease of population in postwar suburbs outlined in chapter 1 is also a notable concern. The lifecycle of household formation in these communities has previously been analyzed in Laura Dent’s doctoral thesis on attachment and change in postwar suburbs. In it she analyzed two case study communities in Toronto, Don Mills and O’Connor Hills, using several decades of census data and building assessment data.

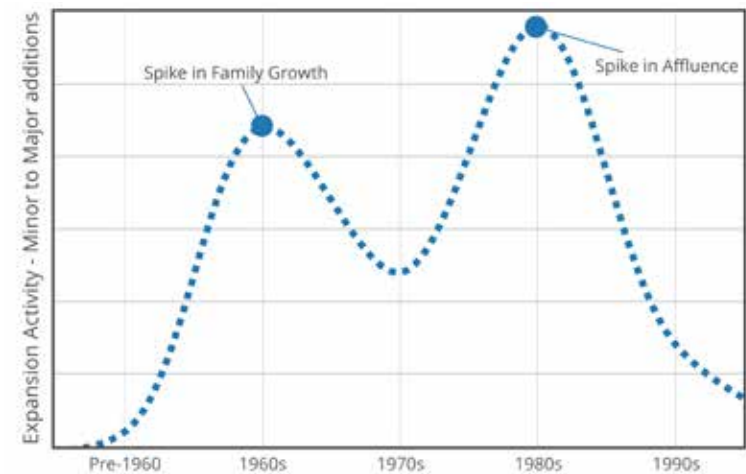
The two study areas exhibited remarkably similar profiles in household size throughout the study period. That data is used here to identify a typical progression of household composition. Household size increases steadily during the baby boom years and the early settlement phase of postwar developments. As the children age out of the home, household size begins to decrease through the 1980s and the decentralization of new suburbs stifles household turnover rates. A significant portion of residents also choose to age in place, further diminishing turnover. By the end of the study period, the population in both communities consisted largely of retired couples or singles (40% in Don Mills, 36% in O’Connor hills).¹⁰⁰

These trends were then corroborated by expansion activity in both study areas. Building additions and modifications increase during child bearing years to expand available space in the home. This activity diminishes throughout child rearing years and peaks again in the 1980’s as the parents reach their prime earning years. Additions decrease thereafter as residents enter retirement.¹⁰¹

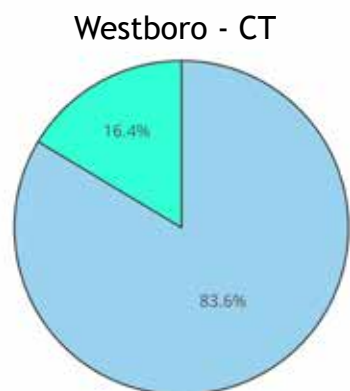
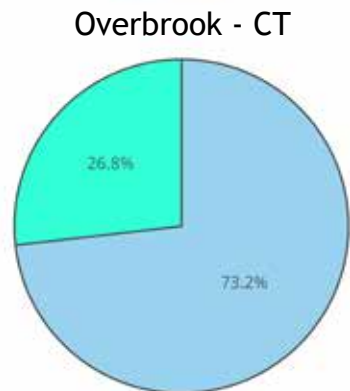
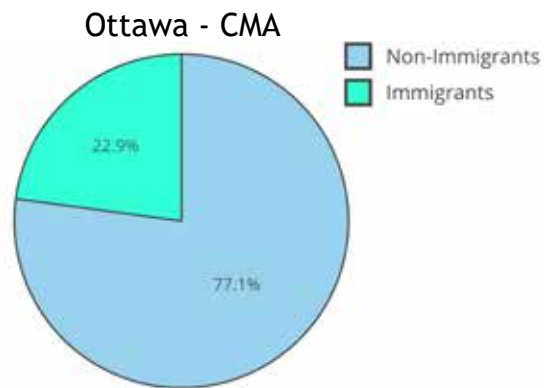
Besides having a relatively high elderly population, postwar suburbs also attract a disproportionate number of immigrant citizens. Pavlic speculates they may be priced out of the more affluent urban zones because they are more likely to work “*low-skilled and badly paid jobs*”.¹⁰² A glance at the 2011 National Household Survey data corroborates this notion however. The data shows that Overbrook carries a marginally higher rate of immigrant residents than the



3.08 Typical change in household sizes, 1960-2000.



3.09 Typical space expansion by time period.



3.10 Percentage of Population by Immigration Status, NHS 2011.

Ottawa CMA as a whole, representing 26.2% and 22.6% respectively. This is hardly a substantial difference but it is roughly 10% higher than the 16.3% rate in affluent Westboro.¹⁰³ Because Overbrook contains a large share of social housing units, relatively low dwelling values, and a proportionally higher immigrant population, Pavlic's assumptions bear some truth. Though the presence of social housing in postwar suburbs carries stigma, the tendency for immigrants to settle in postwar suburbs can benefit the revitalization of these communities. Many immigrants come to Canada from nations with higher birth rates than our own; they may help bolster localized population growth.¹⁰⁴

The predominance of both elderly and immigrant residents in postwar suburbs only increases the need for coach house provisions. Experts believe we are approaching a housing crisis as the baby boomer cohort enters retirement. They will only further increase the percentage of the population above 65 years of age, which has already doubled since the 1970's.¹⁰⁵ Coach houses could provide this cohort financial assistance in retirement, accessible homes within their communities, reduce the loneliness of a solitary life, and potentially ease government spending on housing the elderly. Immigrants, on the other hand, are twice as likely as Canadian-born residents to live in extended family housing configurations.¹⁰⁶ Coach houses could alleviate overcrowding in small postwar homes for extended family households at a reasonable cost.

3.2.3. Disinvestment

Decentralization following the postwar period affected far more than housing markets. Facing strong competition from other urban zones, employment and retail centres have tended to shift outwards as well. Postwar suburbs thrived on industrial and manufacturing sector jobs that often provided good wages in accessible, nearby locations. Unfortunately, Canada had undergone severe deindustrialization in

the decades to follow and many of these jobs were lost, replaced by service sector jobs and lower wages.¹⁰⁷ Though many of the larger industrial zones would remain, new industrial enterprises or business headquarters often followed the flow of decentralization to outer suburbs where they could take advantage of tax incentives and lower land costs. Prosperity in postwar suburbs declined substantially where the loss of quality employment coincided with local residents ageing into prime earning years or retirement.

Likewise, retail would face similar challenges. Just as the automobile spawned a whole new type of suburb, it also created a new form of auto-dependent retail. Many postwar communities were planned to integrate retail and institutional amenities but their distribution was segregated from residential zones. Whether as arterial mainstreets or newly introduced shopping centres, mixed-use retail was discarded. Once retail began to depend on consumers arriving by car, it had divorced itself from the local consumer base and suddenly found itself competing with regional shopping centres throughout city. Businesses followed the currents of decentralization as prosperity and wages began declining in the inner suburbs.

Meanwhile the core and inner-city were able to persist on the strength of a far denser consumer base combined with the convenience of mixed-use development. Prior to the amalgamation in many large CMAs, this economic decentralization had severely eroded the tax base and lead to persistent disinvestment in postwar communities. In many cases, little has changed as the population of these communities continues to decline even after municipal amalgamations and the implementation of stricter urban boundaries.

However, intensification and the back-to-the-city trend are beginning to reverse the decline and disinvestment. The smaller scale of postwar developments may have resulted in more evenly distributed retail than the outer suburbs, which have taken the segregation of uses to its limit. Alternatively, inner suburbs are far closer to inner-city amenities or traditional mainstreets than their

fringe counterparts.

Overbrook, for example, still remains in close proximity to both industrial parks and inner-city communities. As infill and reinvestment creeps in from the inner-city, it will also create opportunities for new forms of retail and office space. Coach houses might introduce small opportunities to integrate mixed uses on corner lots which are prevalent in the case of Overbrook due to the orthogonal pattern of subdivision carried over from the prewar period.



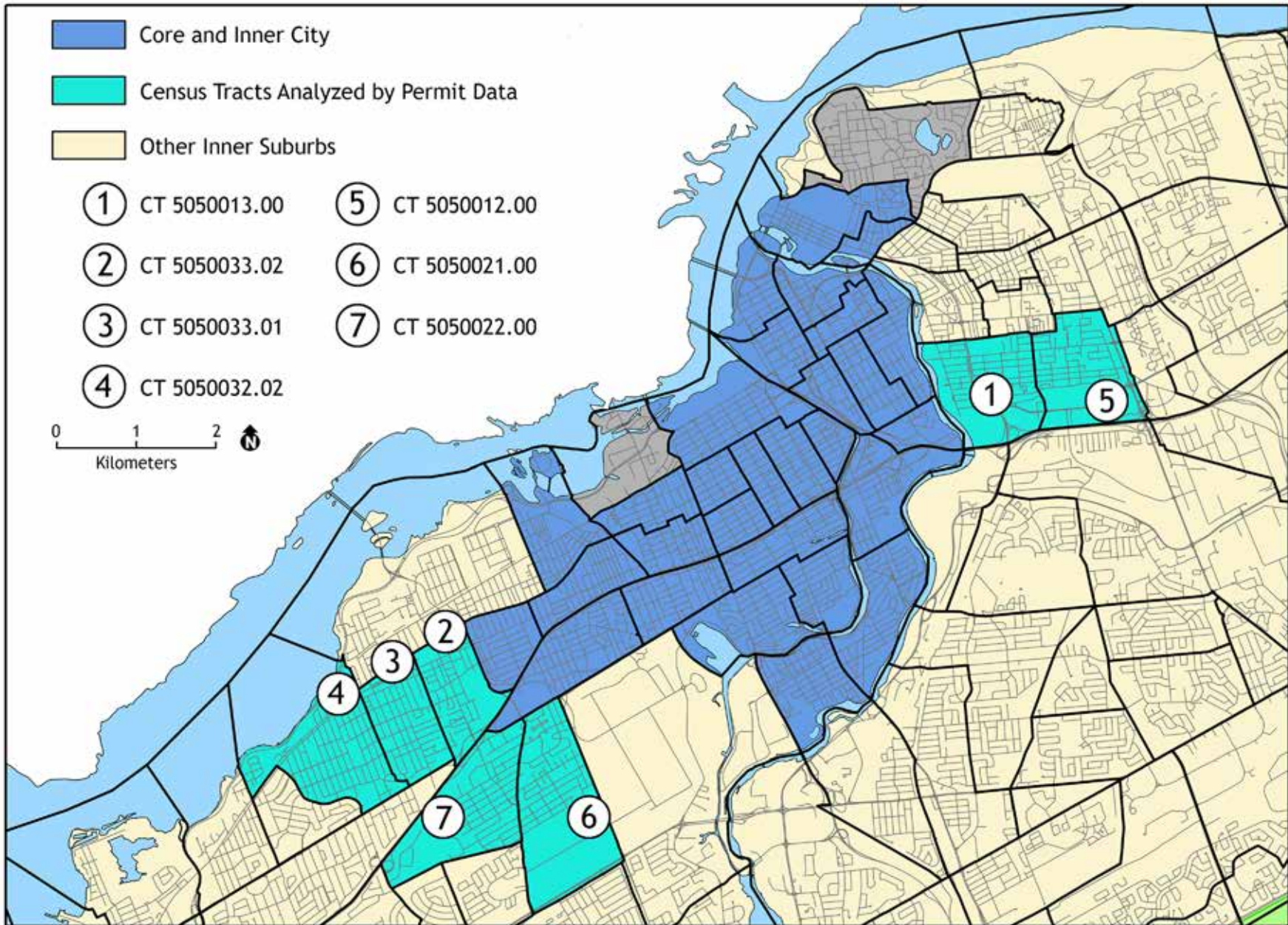
3.11 Distribution of known infill projects in Overbrook.

3.3. Statistics of Renewal

Though recent population estimates confirm the on-going decline of the inner suburbs, they do not assess whether the trend is being reversed in any defined areas. For this purpose, the sub-areas in the city's data set are still too broad. This section investigates building permits in order to more accurately track the progression of intensification into postwar suburbs and to confirm the next stage of Pavlic's model. But first, a visual survey of Overbrook was conducted to identify infill projects. These projects were then mapped to determine any distinct patterns in their distribution.

It is evident that infill projects are concentrated to the west, in CT 5050013.00, and there are very few projects to the east of Lola st, in CT 5050012.00. It is indicative of the desire to settle in close proximity to the inner-city. However, there are perhaps other contributing factors. The housing stock in the western section dates back to the early twentieth century and represents the ad hoc patterns unplanned suburbs. The homes are more diverse and their quality of construction, or state of repair, can be lacking compared to those of the planned subdivisions to the east. The absence of design consistency and upkeep make them more vulnerable to being torn down for infill.

Conversely, the eastern section carries the majority of the roughly fifteen hundred social housing units in Overbrook, much of it dating back to the early 1950s. They are more resistant to redevelopment and create a stigma that may repel certain buyers from the adjacent housing. Larger projects along the southern edge and northwest corner were developed in the 1980s on vacant or underutilized lands but, more recently, smaller infill propagates throughout the residential streets. A closer look at the permit data will reveal that this small scale infill is on the rise.

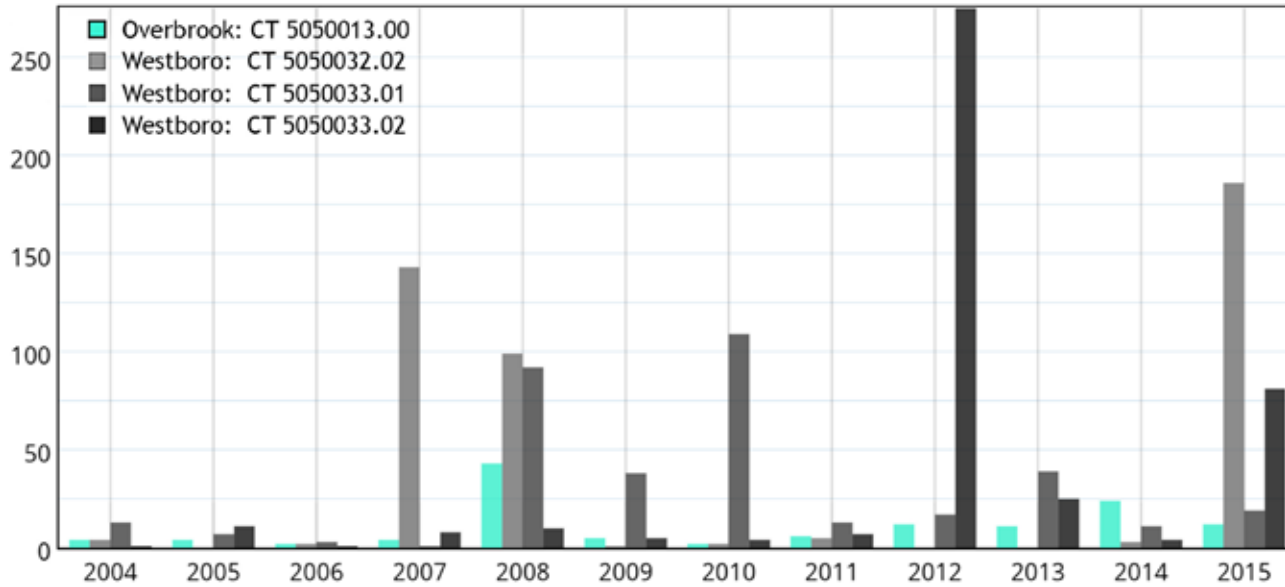


3.12 Location of census tracts selected for building permit analysis.

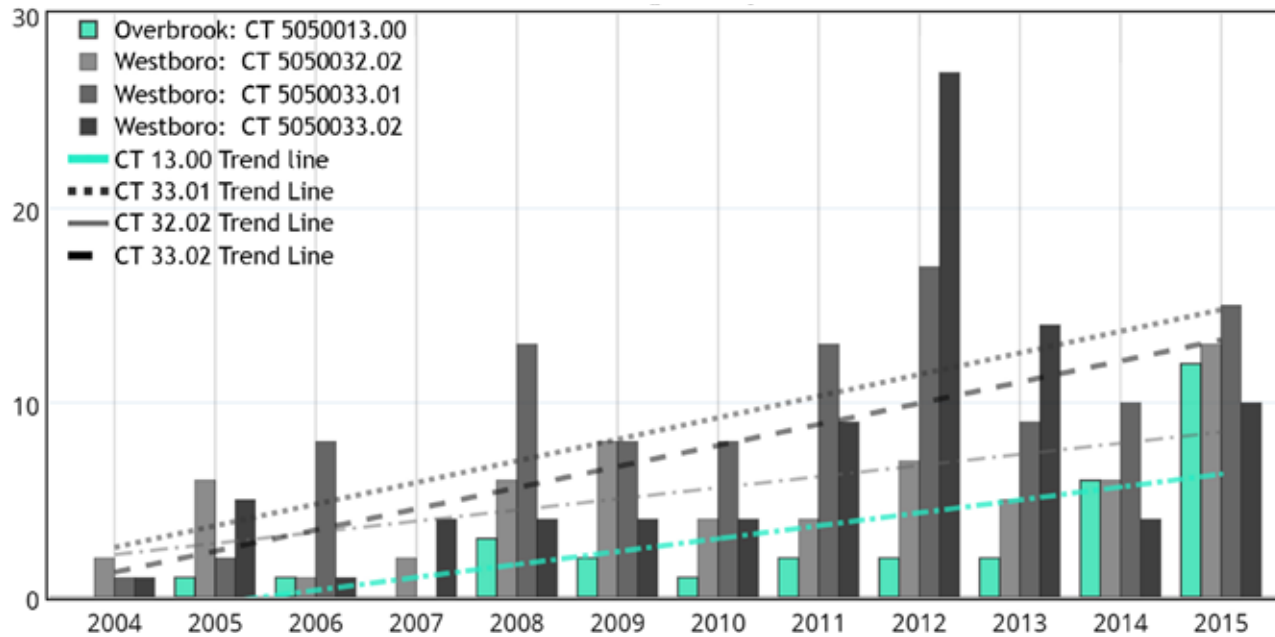
The Overbrook permit data is compared with three census tracts in Ottawa West, both to gauge the rate of intensification against a well known hotbed of infill activity and to confirm that infill pressure is moving outward from the inner-city. The communities also share an orthogonal street pattern and are the furthest most west or eastern suburbs to have such. This means they form the outer limit of an invaluable subset of land supply and infill activity is likely to plateau in these areas before it can adapt to the site conditions of the postwar corporate suburbs.

The permit data acquired from the City of Ottawa covers an eleven year period, from 2004 to 2015, in seven inner suburb census tracts, identified in figure 3.12. At first a ten year period was considered but it became apparent that all permits in Overbrook had peaked in the final year of the sample so an additional year was studied to confirm the on-going trend. In this additional year, dwelling units demolished doubled and new units constructed dropped only slightly, making it a valuable addition to the sample.

Census Tracts one through four are charted out in several graphs to compare the data. Permit data was also acquired for Castleheights (East Overbrook) and two other CTs in a community named Carlington, just southeast of the Ottawa West study area, to support the conclusions. However, these were omitted from the graphs to reduce clutter. The complete data set can be seen in Appendix 2.



3.13 Net new units (including apartments) by census tract. 2004 - 2015.



3.14 Dwelling units demolished by census tract. 2004 - 2015.

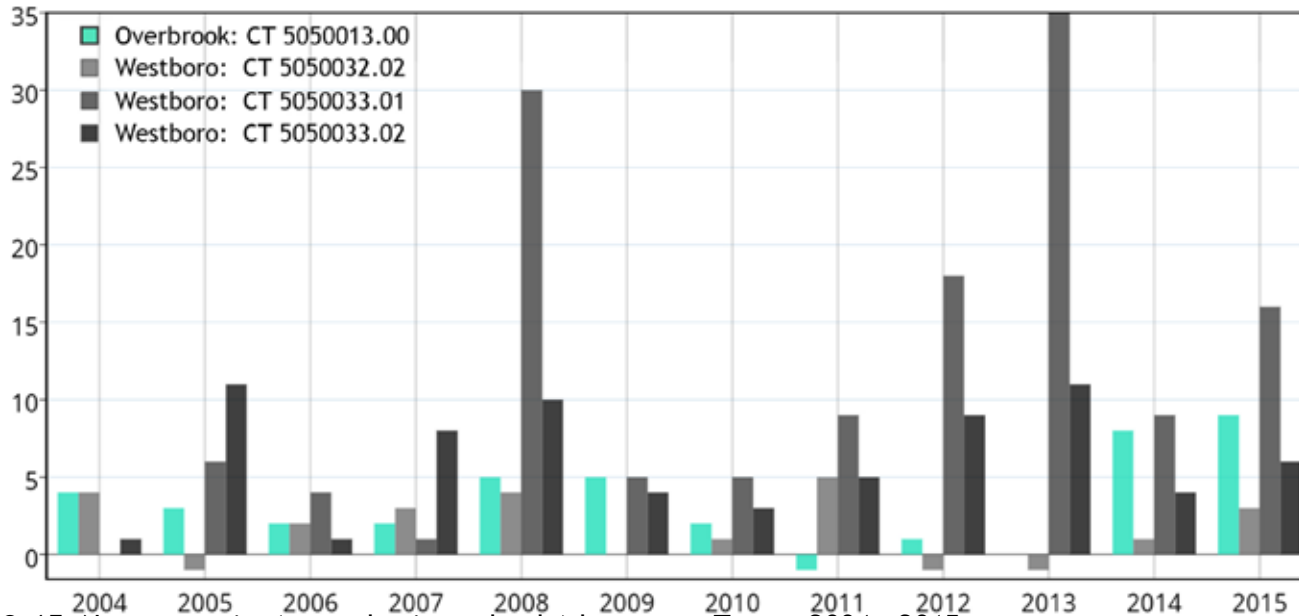
On the whole, the data proves that infill activity is increasing in all postwar suburbs studied as predicted but also that intensification, which is to say the substantial and efficient increase in population density, has yet to materialize anywhere but Westboro (Chart 3.13).

Overbrook only has one large scale infill project planned despite on-going infrastructure renewal in the community. This project, proposed in 2010, was met with community opposition due to being far out of scale with its location and has since faced several delays.¹⁰⁸ However, the rate of demolitions has accelerated and, most recently, the number of units demolished has reached the same levels as the Westboro CTs (Chart 3.14).

It's a valuable benchmark to consider because the housing stock in Westboro is quickly being transformed and replaced altogether. Demolition activity predominantly affects owner-occupied, ground-oriented housing. Over 70 percent of demolitions in all seven areas were single and semi-detached homes. This rate was most pronounced in areas furthest from the inner-city, particularly Westboro CTs three and four in which the rates were 93 and 100 percent respectively.

In Westboro CTs two and three, where demand is highest, nearly 10 percent of all single detached homes were torn down during the study period (Table 3.16). This trend is not only augmenting cost of land and housing, but is rapidly changing the character of the community without significantly increasing density. The 271 demolitions of ground-oriented homes resulted in a net gain of 295 units in the same category.

On the other hand, the real population gains are achieved through large condominium projects. 80 percent of the 1,477 net new units across all study areas were apartments, largely in mid-rise developments along mainstreets.



3.15 Net new units (ground-oriented only) by census Tract. 2004 - 2015.

Census Tract	Demolition Permits 2004-2015		Occupied private dwellings - 2006			Demolition Rate		Intensification
	Total	single+semi	Total	Single Detached*	Semi*	% of Total Single and Semi-Detached Units in 2006	Single and Semi-detached as % of all demolitions	Net New Units as % of Total Units in 2006
5050013.00	31	22	2375	520	109	3.50%	71.00%	5%
5050012.00	1	1	1545	420	210	0.16%	100.00%	0%
5050021.00	16	14	2705	814	206	1.37%	88.00%	3%
5050022.00	7	5	2605	505	120	0.80%	71.00%	1%
5050033.02	87	68	1370	595	115	9.58%	78.00%	31%
5050033.01	104	97	1790	775	276	9.23%	93%	20%
5050032.02	64	64	2395	1360	36	4.58%	100.00%	19%

3.16 Table of permit data analysis.

*Estimated from the percentage of total occupied private dwellings given in 2006 census tract profiles - Occupied private dwelling characteristics

Overall, the meager gains achieved through frequent demolition come at great cost to the community. This type of infill typically results in doubling the unit count of existing homes which is no greater than simply adding accessory dwellings units. No doubt it greatly increases building area and living space but the same could be achieved through the construction of coach houses with far less impact on the community.

Due to the relatively high costs associated with infill redevelopment, its application as a form of intensification is also quite limited. Yet, the data confirms that these small scale infill projects are increasingly popular in postwar suburbs (Chart 3.15). The chart excludes all new apartments for the sake of simplicity, even though some types of apartments such as triplexes, conversions or secondary suites may qualify as ground-oriented. Still, despite the inconsistent number of projects year-over-year relative to demolitions, the increasing yield is discernible and the chart does not account for new four storey apartment blocks going up on residential streets.

In Overbrook this trend is made all the more likely to continue as new infrastructure is put into place such as light rail transit, bicycle lanes, and pedestrian bridges. The Adawe bridge connects Overbrook to the neighbouring community of Sandy Hill which struggles with extreme infill pressure. The University of Ottawa in Sandy Hill creates immense demand for student housing which will continue to spill over into Overbrook.

When identifying which individual communities will face the greatest infill pressure from the back-to-the-city trend, these connections, amenities, and quality of housing will be crucial determining factors. They are the reason Westboro is the most advanced case in Ottawa and why select communities are progressing faster than others.

Nevertheless, in a closed system with a limited supply of land, the trend will only follow the paths of least resistance for

so long. In the end, the strongest factor remains proximity to the core. Permit data across all seven CTs confirms that intensification radiates outward from the inner-city. Net new units constructed, as a percentage of the existing housing stock in 2006, are highest in all CTs nearest to the city (Table 3.16). In Westboro CTs, total occupied dwelling units increased by 31, 20, and 19 percent. In Overbrook CTs, the increases were 5 and 0 percent. The data for Carlington also confirms this trend with increases of 3 and 1 percent.

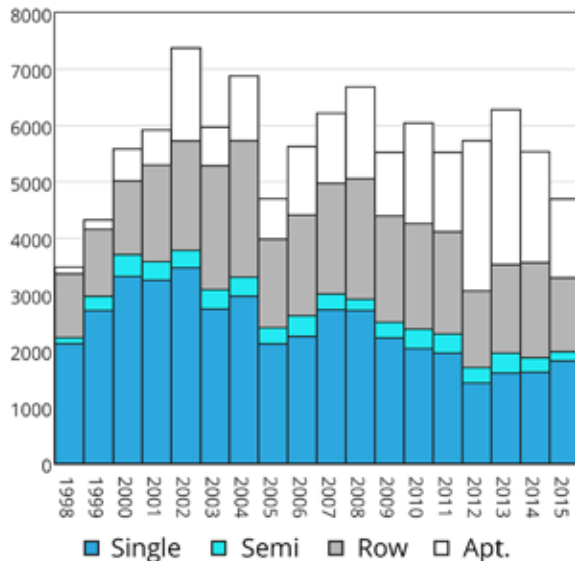
As the back-to-the-city trend progresses, its effect will reflect back further and further into postwar suburbs. New apartment units, excluding a spike in 2008, have steadily increased from zero in 2004 to roughly a dozen per year in Overbrook at present. This is a good sign but it is nowhere near the levels of intensification in Westboro. Large scale projects will no doubt be developed in the decades to come but small scale infill precedes them. It is a scenario which may become all too common; small scale infill forms the vanguard of intensification as it radiates out from the inner-city.

Therefore there is an urgent need for the city of Ottawa, and other Canadian municipalities, to review all guidelines and bylaws related to low-rise infill development. City-wide guidelines for large scale intensification are already well established in Ottawa. Planners should focus their efforts on reviewing bylaws for low-rise infill and, more importantly, regulating new forms of small scale intensification.

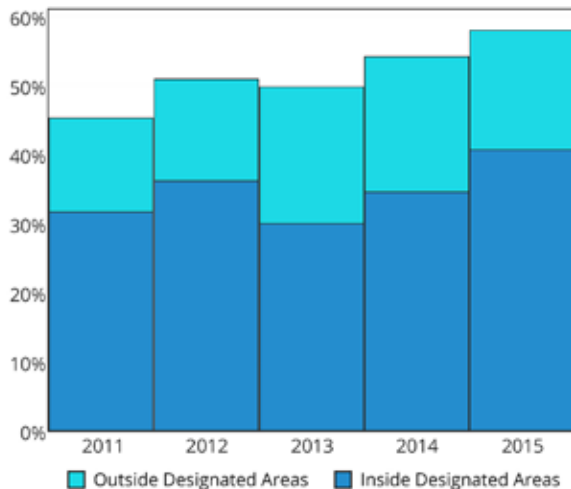
Laneway houses have gained some recognition in Vancouver and Toronto but too few suburbs were built to include laneways. Some that originally had laneways have since granted residents easements to shutter the alleys and re-opening them would be nearly impossible. Coach houses on the other hand would make a sensible extension of the laneway model for all postwar suburbs. If these communities are just beginning to reverse decades of disinvestment, it is important that all residents be given every opportunity to benefit. That means providing new forms of infill sooner rather than later.

“There’s an unfortunate policy in the City of Ottawa right now, in which it appears that our city government actually encourages and approves random spot zoning anywhere, any place.”

-Bill Teron, ‘Father of Kanata’



3.17 Housing starts by type, City of Ottawa 1996 - 2015.



3.18 Distribution of intensification units as a percentage of all new units, City of Ottawa 2011-2015.

3.4. Ottawa’s “Happy Problem” and Planning Reactions

Intensification has made great strides in a short 15 years. In the late 1990s it was still a fairly new concern for planners. A half century of rapid suburban sprawl had worked well for its time but there was no denying the necessity of smart growth as sprawl continued to exceed projections. In 1998, the city started tracking the number of dwelling units built in target locations for intensification. That year, they represented 10 percent of new units city-wide. In 2003, five years later, their proportion grew to over 20 percent of new units.¹⁰⁹

Though this figure declined in the mid-2000s, intensification in target areas has since reached a high point representing roughly 40 percent of all new units in 2015. This is due in part to 2015 being Ottawa’s lowest year for housing starts in a decade and intensification units showing resilience in the market (Chart 3.17). But intensification and infill projects are not, nor ever were, limited to these areas.

Perhaps out of desperation for new tax revenue or to simply take the opportunistic approach to intensification, the city made a habit of spot-zoning and approving infill projects far out-of-scale with their respective locations. Whether in the outer suburbs or core neighbourhoods, community backlash against ‘overbuild’ became a city-wide issue.¹¹⁰ To that end, the city approved its first of many urban Community Design Plan in 2007 for Westboro.

These plans were meant to direct intensification projects to targeted areas and deter them from others, incorporating community and stakeholder feedback. However, they were not necessarily paired with any kind of zoning amendments.¹¹¹ The more ambiguous language of the official plan and outdated zoning bylaws therefore took legal precedence in development applications, committee of adjustment hearings, and planning committee rulings. Ultimately these plans provided validation to the objections of community associations but proved ineffective at preventing invasive infill or addressing low-rise infill concerns at all.

Just how much stray infill evades target areas? Is this all just NIMBYism or is it a valid concern? According to the city's *2015 Annual Development Report*, the disparity is getting larger. That year, a remarkable 57.8 percent of all new urban and suburban units were classified as intensification, but only 40.6 percent were in target locations. Where did the missing 17.2 percent go? Likely along residential side streets. This is the blindspot, the intensification that is unaccounted for in planning policy.

In fact between 2011 and 2015 exactly one third of all intensification units were outside designated areas.¹¹² And while much of the controversy stems from mid and high-rise projects, we know from building and demolition permits that much of this missing third consists of unregulated low-rise infill. The city was ill-prepared for this type of activity. The zoning bylaw predated infill pressure and planning reports stemming from the 2003 official plan substantially underestimated the potential for small-scale infill. In a report titled *'Where Will We Live?'*, Ottawa planning staff estimated a potential of 208,539 new units within existing urban boundaries between 2001 and 2021. The estimate included only 1,353 small-scale infill for the twenty year period, a measly 0.6 percent of potential units.¹¹³ Yet, in only a five year period from 2009 to 2013, there were over 1,600 units of low-rise infill in mature neighbourhoods alone.¹¹⁴

That ground-oriented intensification is exceeding city estimates and has been called Ottawa's *'Happy problem'*; the beneficial trend creating unforeseen tension within mature neighbourhoods. This growing trend of infill development will certainly continue and it will require mindful oversight as it pushes out of the inner-city.

Small-scale infill is no longer a small-scale issue.

Following amalgamation of the Regional Municipality of Ottawa-Carleton in 2001, the new City of Ottawa needed to consolidate its then 36 zoning by-laws into a single zoning by-law with respect to the 2003 Official Plan update. Apart from the occasional up-zoning, the by-laws in various residential neighbourhoods remained essentially



3.19 Single Detached infill.
95 Donald St, Overbrook.



3.20 Semi-Detached infill.
57 Columbus Ave, Overbrook.



3.21 Semi-Detached infill.
135 Prince Albert St, Overbrook.



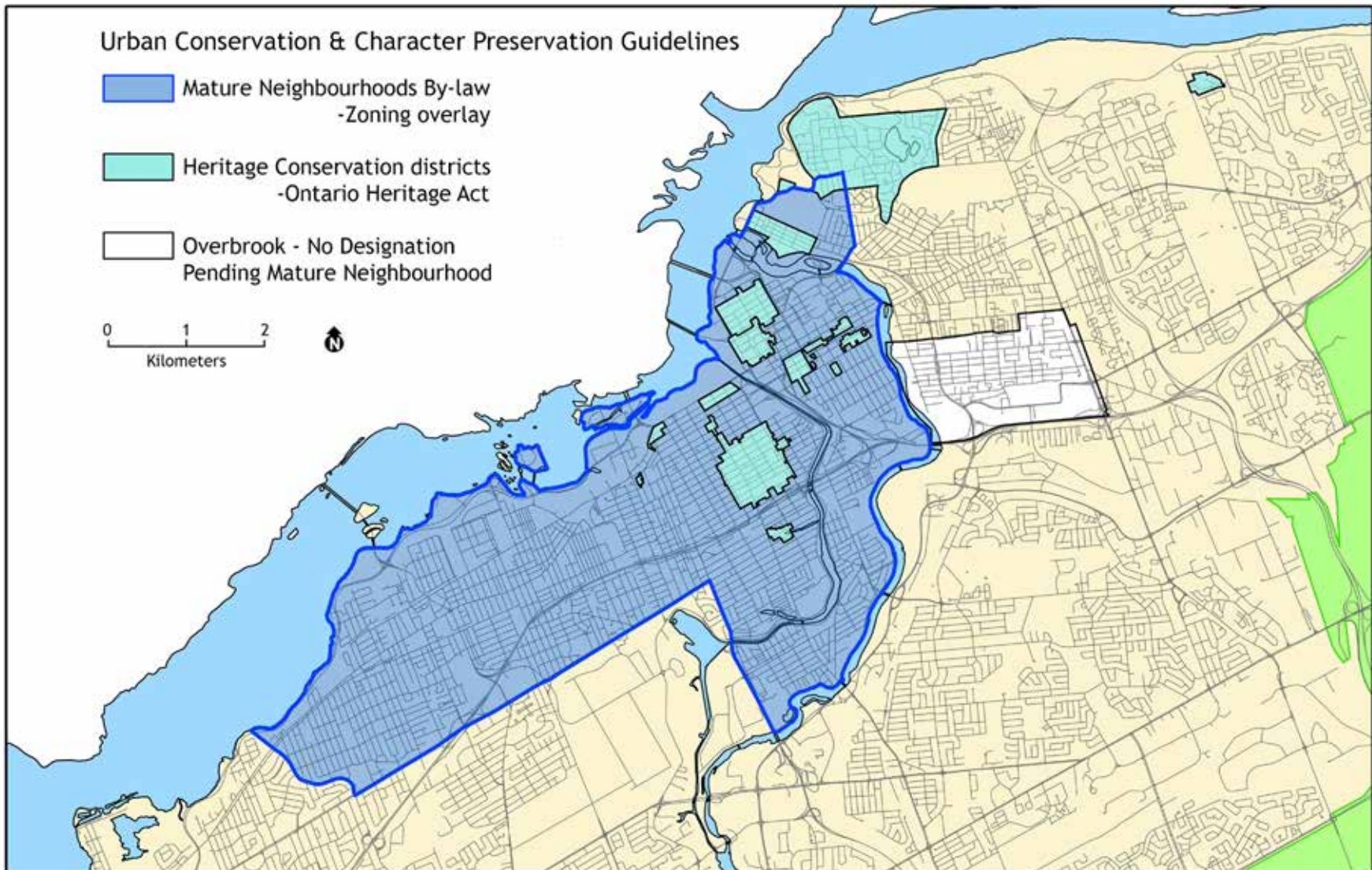
3.22 Townhouse infill.
19 Wright St, Overbrook.

the same with one glaring loophole. Limitations on maximum lot coverage, the total buildable area for houses and accessory structures, were excised from all but select R1 zones in order to reflect the intensification policies of the new Official Plan. They were substituted with minimum setback tables. To take full advantage of increased lot coverage, low-rise infill often utilizes garage frontage or front yard parking in order to exploit the buildable area previously reserved for side and rear yard parking.

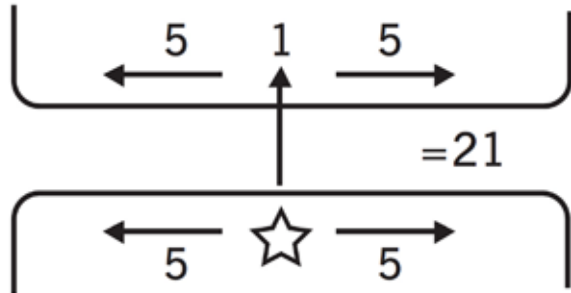
This practice can quickly transform the pedestrian friendly landscaping of yards on mature neighbourhood streets into a pattern of asphalt frontage. Once severances are factored, the streetscape becomes a dissonant sequence of driveways and garage doors. Water runoff increases and the space required for snow clearance is eliminated. Living spaces are often elevated to a storey above street level and the character of the street is permanently altered.

Ottawa has acknowledged the issue and, in late 2009, began extensive low-rise infill studies under the leadership of Alain Miguez, program manager for zoning, intensification and neighbourhoods. The purpose was not to inhibit infill but to analyze new building patterns and devise a bylaw which could enforce the retention of basic street character attributes. The bylaw was titled Infill 1, or the Mature Neighbourhoods Zoning By-law 2012-147 (Figure 3.23).

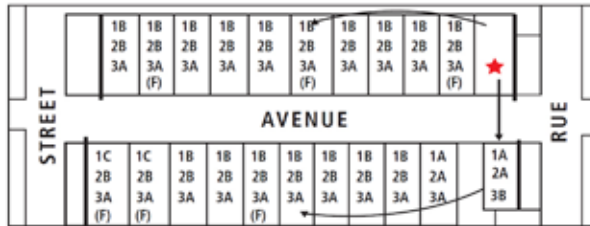
Five central wards were selected to assess the new rules, based on their high rates of infill activity and relatively compact urban fabric. They created a system without precedent in Ontario which hinged on the notion of ‘*dominant character*’,¹¹⁵ and coined the phrase “*Your street gives you your rules.*”¹¹⁶ The zoning overlay was approved by city council in 2012 but it took another three years of appeals to finally get the endorsement of the Ontario Municipal Board.¹¹⁷ In essence, the zoning bylaw fluidly adapts to any given street within the affected wards. As there was no other way to update zoning to match what was already on the ground, the new bylaw requires all low-rise development applicants to submit a Streetscape



3.23 Existing built heritage and character protections in Ottawa, 2016.



3.24 Basic Streetscape Character Analysis configuration (SCA manual)



3.25 Example Streetscape Character Analysis diagram. (SCA manual)

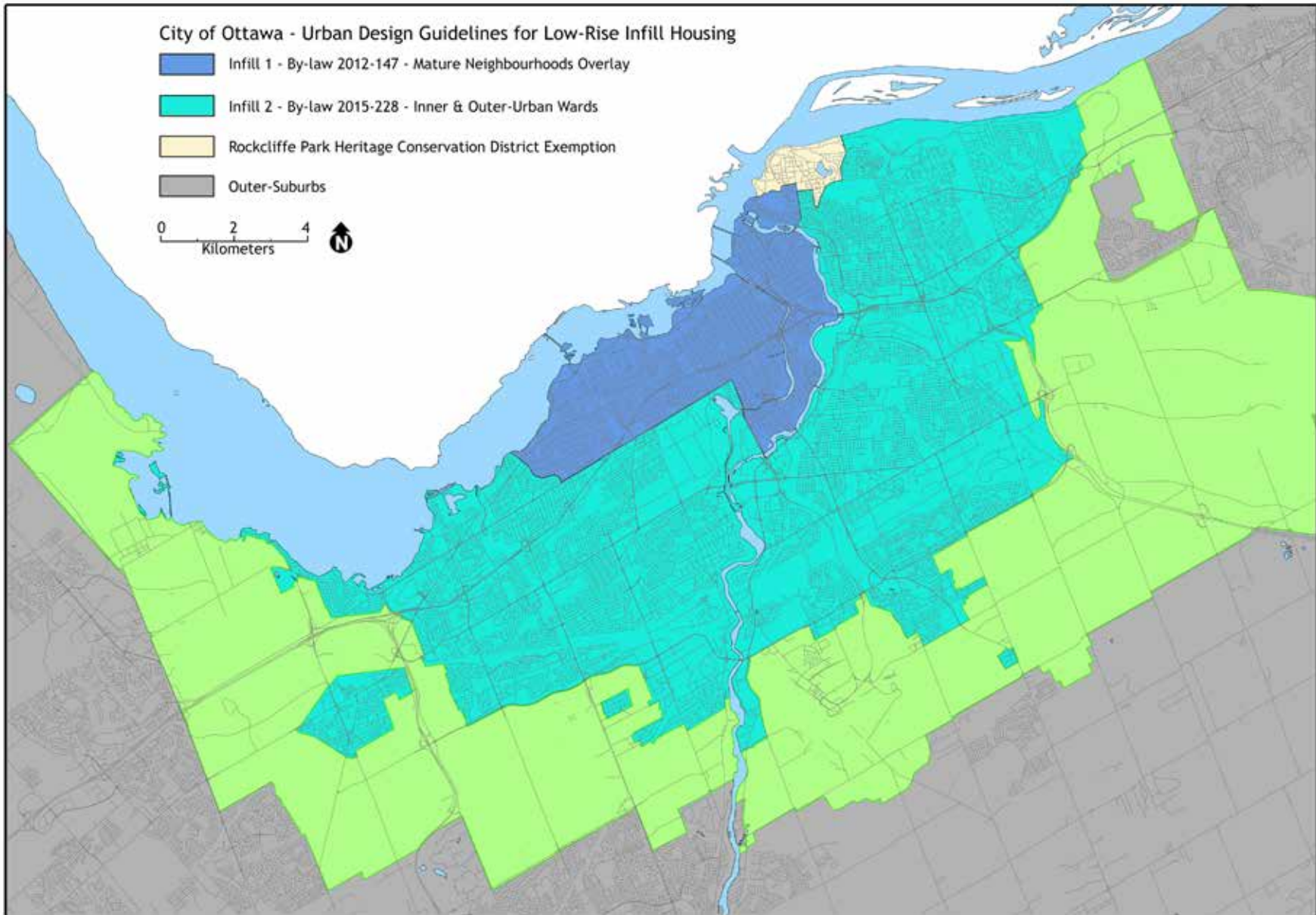
Character Analysis(SCA) form. Though it does not address building mass of new developments, Infill 1 sought only to address the way the homes meet the street.

To complete the SCA form, applicants must document the front yard and parking conditions, as well as main door orientation, of twenty one neighbouring properties. The subject lots are typically five to either side of the property being developed, as well as the eleven across the street. The analysis requirements are specified for a number of possible variations such as end lots, corner lots, cul-de-sacs, etc. Depending on the street configuration, the SCA may require as few as eleven or as many as 32 lots documented. ¹¹⁸

Documentation entails measuring lot, driveway and yard widths on all subject properties. These are sorted into their character groups based on predetermined ratios and then sub-grouped based on various attributes, such as soft or hard landscaping, and the precise location or type of parking space. Within this sampling, the most common character groups by category are considered the ‘dominant character’ which must be respected in designing the infill home. Should there be a two or three way tie, the owner or developer can choose his preference.

These character groups have no bearing on architectural style but simply force new developments to respect, at a bare minimum, the predominant parking and yard conditions of the street. But the impact of this by-law on current infill trends should not be underestimated. Such zoning would have a drastic impact on infill development in postwar suburbs.

Because postwar homes are so very small relative to their lot size and potential lot coverage, infill can be wildly out of scale with existing homes. In fact, the difference in character here may be more conspicuous than in any other urban zone. Yet Overbrook and most other postwar suburbs were excluded from Infill 1, the first phase of new low-rise infill guidelines. In the early stages of the mature



3.26 Recently proposed by-law overlays for low-rise infill regulation, 2016.

“The bylaw seeks to ensure some consistency. We’re not saying we don’t want multi-unit dwellings in Overbrook. We have a number of those and we’ll continue to see them... we know development is coming, but it should be more consistent with what exists in the neighbourhood.”

*-Rawlson King,
Overbrook Community Association President*



3.27 Apartment Building infill.
123 Queen Mary St, Overbrook.



3.28 Single & Semi-Detached infill.
97 Queen Mary St, Overbrook.

neighbourhood studies, the still nascent infill rates there did not warrant their inclusion, although the character groups and attributes established could easily be extended should the need arise.

To that end, the Overbrook Community Association made a formal request in 2015 to be designated a mature neighbourhood.¹¹⁹ However, it has yet to receive that recognition and Overbrook may, by its very omission, be subject to increased infill activity. It is the nearest suburb to the inner-city to lack any type of infill regulation or heritage conservation. This may work to its benefit for a time, given the reinvestment it represents, but Infill 1’s future effectiveness is diminished with every severance, row house, and ‘McMansion’ that is built in the interim. Alternatively, applying Infill 1 now, as the community desires, would undoubtedly help retain character and preserve two of the essential conditions for coach houses; side yard parking and rear yard access. And although phase 1 of the low-rise infill regulations would preserve the required site conditions for coach houses, phase 2 may compel builders to recognize their necessity.

After council approved Infill 1 in 2012 they instructed planning staff to begin studies for Infill 2. Where the former was meant to regulate how the house meets the street, the latter will directly address the building envelope. And though phase 2 also impacts the five central wards, its reach was expanded to include all eleven wards within the greenbelt. Infill 2 is meant to be a course correction in the fallout of the bylaw consolidation. The proposed changes would mean decreased square footage for small infill builders looking to capitalize on the intensification potential of large postwar lots. Besides placing additional controls on at-grade amenity spaces and rooftop terraces, the core of the proposal addresses four principles of massing. Combined, these regulations are meant to obstruct the trend of excessively large infill homes.

Feedback on the proposed changes was gathered by city staff in working sessions with both the Federation of Citizens Associations and representatives of the infill development industry. The comments received were, not surprisingly, divided.¹²⁰ Community associations supported the new rear and side yard requirements but remained concerned about building height, roof types, and severances. Some rightly asked why Infill 1 and Infill 2 were not being integrated, but rather put forth as separate amendments which left the majority of affected wards without simple character regulations.

On the other hand, developers strongly objected to the proposed rear yard setback requirements and maximum building heights. They haggled for circumstantial exemptions and argued in favor of intensification potential but, in doing so, failed to recognize the purpose of the by-law amendments. Low-rise infill regulations are meant to channel intensification into suitable locations, at appropriate scales. This is no different than how medium and high rise intensification has been regulated for decades. It only seems jarring because small infill has formerly been a profitable and unregulated market. Though city council has approved Infill 2 as By-law Amendment 2015-228, it may take years to overcome OMB appeals.¹²¹

The myopic concern over losing square footage *here*, or a storey *there*, misses the greater implication of both bylaws. Intensification in mature communities will simply require creative new solutions. The by-law amendments only set the parameters for these new solutions, parameters which greatly advantage the development of coach houses.

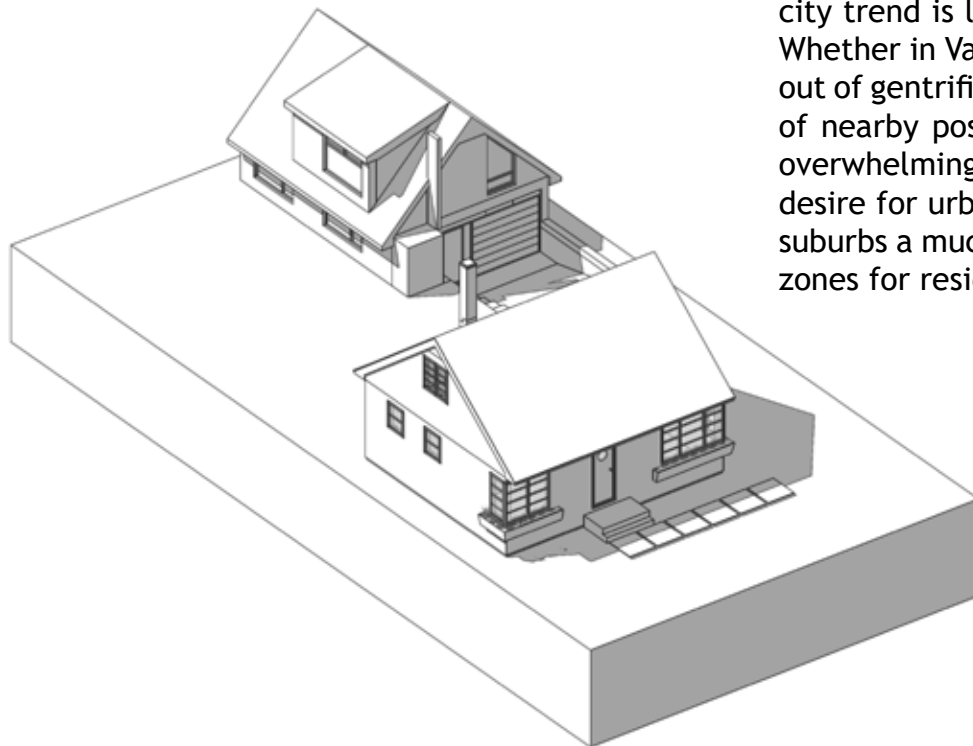
Unlike traditional infill solutions, they are not limited to new developments but can in fact benefit and compliment existing homes. It may take time for developers to assess and grow the market demand for coach houses beyond niche industry status. However, doing so should be feasible given certain trends in Canadian markets.

Four principles of the Infill 2 bylaw amendment:

1. Maximum building heights are reduced. Where zones R1, R2, R3, and R4 have previously been limited to 11 meters. They will now be limited to 8.5 metres in R1 zones, 9 metres in R2 zones, and 10 meters in R3 or R4 zones.
2. Minimum Rear yard setbacks are now the greater of either 25% of lot depth or equivalent to the proposed building height to enforce a one-to-one slope ratio to the rear property line.
3. Side yard setbacks of 1.2 meters or greater to ensure access to a rear yard.
4. Building mass regulations will be added to limit privacy concerns arising from certain types of projections including: rooftop accesses, decks, and bay windows.

For one, laneway houses have been a resounding success in Vancouver. Permits issued for laneway houses in the City of Vancouver have increased every year since the launch of the EcoDensity laneway housing initiative in 2009. In fact, permits issued for laneway houses have begun to exceed permits issued for single-family dwellings, and at far lesser cost. Through the first half of 2016, there have been 277 permits issued for laneway dwellings at an average value of \$183,360, while there were only 201 permits for detached single-family dwellings at an average value of \$816,331.¹²² By year's end there will be well over 2,500 laneway dwelling permits issued since 2009.

Their market demand is bolstered by abnormally high cost of housing within the city but it's worth considering that the back-to-the-city trend is largely driven by young individuals and young families. Whether in Vancouver or in Ottawa, they may find themselves priced out of gentrified inner-city neighbourhoods and seek the affordability of nearby postwar suburbs on the cusp of change. Canadians still overwhelmingly chose to live in the suburbs despite the increasing desire for urban amenities. Coach houses may just provide postwar suburbs a much needed advantage when competing with other urban zones for residents.



3.29 Coach house model B.003 shown with CMHC Small House Design 309



3.30 Typical postwar streetscapes with rear yard coach houses using CMHC Small House Design drawings from the 1958 catalogue.



3.31 One-and-a-half storey dwellings at 309-313 Glynn Avenue Overbrook, Ottawa. Taken in August, 2011.

4. Coach Houses

For coach houses to succeed in the housing market, and more accurately the infill market, building regulations will have to strike a well compromised balance between community and development interests. If guidelines and regulations are too strict, any municipal programs created to promote their construction will be dead on arrival.

It is crucial to consider all potential end-uses and demographics for which coach houses may prove enticing. And there are many. The most common are seniors or grand parents looking to downsize to either stay within their community or reside with, but separate from, their children. Vice versa, a young family may want to build a coach house to care for their ageing, possibly ill, parents or to provide independent housing for their adult children, as countless millennials are currently stuck inhabiting their parents basements due to their debts or untenable employment situations.

Others may wish to simply rent the unit to a third party and supplement their income in communities where house prices are escalating rapidly due to intensification and infill pressure. In such cases, a coach house might provide rental housing for vulnerable demographics priced out of home ownership such as single parents, single-income families, students, young professionals, disabled individuals or widows and widowers. Others may show interest in coach houses for the purpose of establishing a home office or business. The design considerations for these disparate groups will vary considerably. Therefore the most divisive elements of any coach house regulations will be maximum size and height parameters.



4.01 Postwar streetscape with coach houses. Primary homes modelled from CMHC Small House Designs.

A coach house is a secondary dwelling unit or accessory structure and should therefore always be smaller than the primary dwelling to remain subordinate. It might seem logical to limit the coach house to roughly half the footprint of the primary dwelling but this would create a significant issue in postwar suburbs where primary dwellings are smaller than in any other urban zone. For instance, half the footprint of a postwar one-and-a-half story house might allow the owner as little 32.5 square meters for a coach house. That is simply inadequate as an upper limit. Even a 45 square meter maximum would severely reduce design options.

This type of reciprocity in postwar suburbs would only further the devaluation of small postwar homes. A policy which is meant to drive reinvestment in postwar houses could very well endorse their obsolescence. For instance, if the available coach house's footprint is too small to accommodate accessible dwelling standards or extended family configurations, then market demand will be stunted. In addition, the smaller the coach house, the less rental income can be extracted from it and so they may not be worth the investment.

There would also be little reason to construct permanent structures rather than mobile or temporary dwellings. And while many design publications espouse the inventive interior design configurations of so-called 'tiny' houses, coach houses will be required to conform to building code standards. Meaning many of those design tricks like sleeping lofts or ship ladders may not be permitted.

When providing a ready-made framework for municipal coach house bylaws, it is essential that authorities not undercut the very market they are trying to kickstart.



4.02 Postwar streetscape with coach houses. Primary homes modelled from CMHC Small House Designs.

On the other hand, if regulations are too lenient, community opposition may contribute to project delays and drive up development costs. Much like the debate over character and intensification, these small infill projects could easily spark undesired conflicts within their respective communities. The right balance will vary from city to city but there are shared values and benefits which should hold sway across the nation: affordability and neighbourhood stability.

Coach house bylaws should pay due respect to the origins of their applicable communities. These two values might be considered founding tenets of postwar housing and should therefore be reflected in the design provisions proposed in all coach house bylaws. The latter is a very subtle quality which is difficult to engineer in contemporary housing markets. Correctly regulated, coach houses may go a long way to promoting stability and stemming the forced obsolescence of these homes. They may encourage residents to stay put in order to recoup their expenditure through rental income, reducing the turnover rate of residents within the community. They might otherwise offer longtime residents another avenue for family growth or income stability. These opportunities must be plainly communicated in the proposed guidelines for their success to be realized.

4.1. Design Provisions for Coach Houses in Postwar Suburbs

The following provisions are conceived for the express purpose of benefiting postwar suburbs and take advantage of their unique site conditions. Though these suburbs do vary greatly based on the years and areas in which they were developed, they generally share valuable characteristics such as large lots, low lot coverage ratios, side yard parking, and accessory structures like detached garages.

The provisions are therefore designed to integrate coach houses into these communities with minimal impact on streetscape character and provide local residents with reasonable expectations

for neighbouring coach houses. Provisions for other urban zones would require further studies to ensure the same level of integration.

4.1.1. Where a Coach House is Permitted

Where site conditions allow, a coach house should be permitted in rear yards of single family dwelling lots, semi-detached dwelling lots, and duplex dwelling lots. Other lot types in postwar suburbs would not provide enough exterior space for a sufficient accessway or already have adequate density. These may include townhomes, apartment buildings and multi-unit blocks.

A coach house should not be permitted where the primary dwelling already includes a secondary suite or where the lot is serviced by a private well or septic system.

4.1.2. Coach House Size Limit

There are several methods of determining the maximum allowable footprint for coach houses. In the case of postwar suburbs, the preferred method is a combination Lot Coverage Ratio(LCR), a maximum percentage of the primary dwelling's footprint, and mandatory setbacks. In this way, lots redeveloped for infill might be encouraged to build smaller primary dwellings in order couple the project with a sizable coach house. Correlating the maximum footprint of the coach house to a percentage of the rear yard or the primary dwelling alone would create problematic site plan conditions in communities with small primary dwellings on large lots or large primary dwellings on small lots.

The maximum allowable footprint for coach houses in postwar suburbs should be determined as the lesser of 90 percent of the primary dwelling's footprint or a maximum combined LCR of 65 percent. However, in all cases the maximum coach house footprint should not exceed 100 square meters and the minimum should not fall below 25 square meters.

4.1.3. Required Setbacks

Minimum setback between the coach house and the primary dwelling should be 3 meters.

For interior lots, or lots with adjacent properties on three sides:

- Minimum side yard setback should be 1 meter.
- Minimum rear yard setback should be 1 meter.

For corner lots, or lots adjacent to a public street and traveled lane:

- Minimum side yard setback adjacent to a public street or traveled lane should match the existing setback of the primary dwelling.
- Minimum rear yard setback should be 1 meter.
- Minimum interior yard setback should be 4.25 meters for a one storey coach house or 6.1 meters for a two storey coach house.
- In all situations, the interior yard setback should maintain a one to one ratio to the building height of the coach house.

4.1.4. Mature Tree Retention

A coach house is unlikely to have any effect on the mature trees in front yards as the location of parking and driveways should remain unchanged.

Mature trees in the rear yard however will occasionally conflict with the preferred siting of a new coach houses which is in line with an existing driveway. Fortunately this location is often occupied by an existing detached garage in which cases a rear yard tree is located to the rear corner opposite the driveway.

A coach house shall not encroach on the Critical Root Zone(CRZ) of the mature tree. The CRZ is defined by the City of Ottawa as having a radius equal to the diameter of the tree, measured at a height of 1.2 meters, multiplied by 10 centimeters. For example, a tree with a 40 centimeter diameter would require a 4 meter CRZ radius. A tree removal permit may be requested where this creates untenable site planning in small yards. Early postwar lots are typically 15 by 30 meters and should provide sufficient space to work around the CRZ.

Where a mature tree is located on an adjacent property, the CRZ of that tree may supercede the minimum rear and side yard setbacks for the coach house.

4.1.5. Height Limits

As coach houses are meant to provide compact and space efficient infill, it is important that allowed building heights provide for a variety of building types. Limiting coach houses to a single storey would promote sprawling designs which unnecessarily compromise amenity space at grade.

For interior lots, or lots with adjacent properties on three sides, the maximum building height should be 4.5 meters. This will allow for a bungalow, raised bungalow and split-level design types. Exterior walls adjacent to property lines should be limited to 4 meters measured to the height of a flat roof or to the mid-point of a pitched roof.

For corner lots and rear yards with direct access to a traveled lane, the maximum building height should be 6.1 meters. This will allow up to two storeys.

4.1.6. Doors and Accessways

A coach house shall have at minimum a 1.2 meter wide access route connecting to, and directly visible from, a public street. If the accessway includes an existing driveway, that driveway may be widened by 1 meter to supplement the width where necessary.

A coach house shall have a primary entrance facing a public street or the primary dwelling but in all cases must be visible from the public street. With respect to the regulation of windows, a secondary entrance may be placed on any facade if it is further than 2 meters from the adjacent property line. A secondary entrance is recommended for all coach house designs for the purpose of integration with landscaping, access to storage for waste and recycling out of sight from the primary entrance, or simply for secondary egress in case of emergencies.

4.1.7. Windows

No windows may be permitted on any facade within 1.2 meters of a neighbouring property.

Where windows are below a 3 meter wall height on a wall within 5 meters of an adjacent property, window area on that facade must not exceed 0.3 square meters per meter distance above 1.2 from the property question, not including the second storey or dormer windows. Where distance to a neighbouring property is greater than 5 meters or on facades facing the primary dwelling, there should be no limit on window area.

Where windows are placed on a second storey or dormer, window area must not exceed 0.15 square meters per meter distance above 1.2 unless facing the primary dwelling. No specific limit should be placed on skylights however, as they do not encroach on the privacy of adjacent properties.

Example: If a coach house facade is 3.5 meters from a neighbouring property, the permitted window area on that facade would be 0.7 square meters below a 3 meter height and 0.35 square meters above 3 meters height.

4.1.8. Overlooks from Patios and Balconies

Where the yard to be developed abuts a neighbouring property on all sides, the coach house may not have an elevated amenity space. No decks, porches, balconies or rooftop patios will be permitted 0.8 meters above grade or higher. Any design features which compromise the privacy of adjacent yards should be disallowed.

Where the yard abuts a secondary street, such as on a corner lot, or traveled lane wider than 6 meters, these elevated amenity spaces should be permitted on the condition they face said street or the primary dwelling and do not face into to the rear and interior yard.

4.1.9. Parking

A coach house must not require additional parking spaces. The new secondary dwelling must share existing parking space with the primary dwelling. This will promote multimodal transportation options and reduce impermeable pavement from dominating yard frontage. In the same spirit as Ottawa's Mature Neighbourhood Bylaw, this will promote the retention of street parking and side lane parking as a matter of character. The extension of an existing driveway should be permitted where the coach house design incorporates a garage or carport.

4.1.10. Servicing

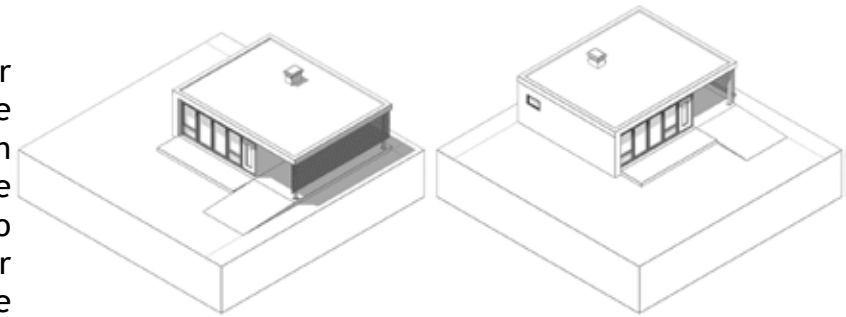
A coach house must be connected to water, wastewater, and electrical services via existing connections to the primary dwelling to ensure that the secondary dwelling may not be severed and to limit the cost of additional services to the municipality. Severances of rear yard coach houses would become problematic. Given their dependence on a shared access and driveway, severing the property would potentially create isolated lots without access to a roadway or emergency services.

4.2. Proposed Coach House Typology and Designs

4.2.1. The Bungalow Coach House

The bungalow would undoubtedly be the most popular type of coach house for all the same reasons that made it the most prolific postwar house type. It is the simplest design type to construct and may conceivably be owner-built by those with experience in the building trades, particularly where no basement is required. It is the most accessible design type for seniors or people with disabilities because all spaces occupy the same level and there are no stairs to climb. They also favor open plan designs which add the impression of spaciousness in otherwise small dwellings.

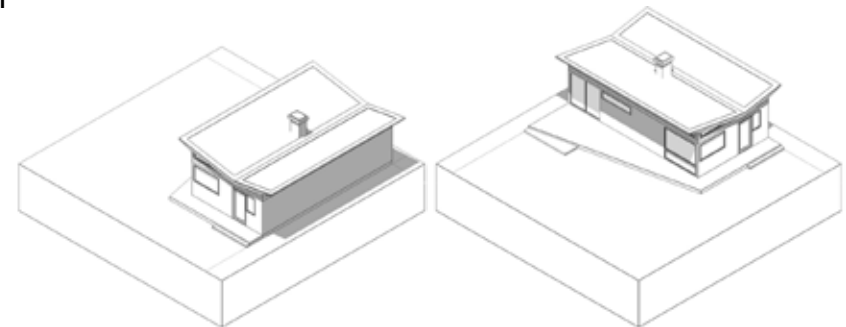
However, it is perhaps the least efficient in its use of building materials and yard space. Its maximum size is directly correlated to available yard space and therefore the bungalow type offers the least living area of all six types. It offers minimal return for minimal investment. The inclusion of a garage or carport further diminishes potential dwelling area.



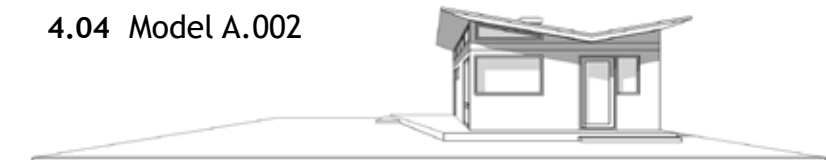
4.03 Model A.001



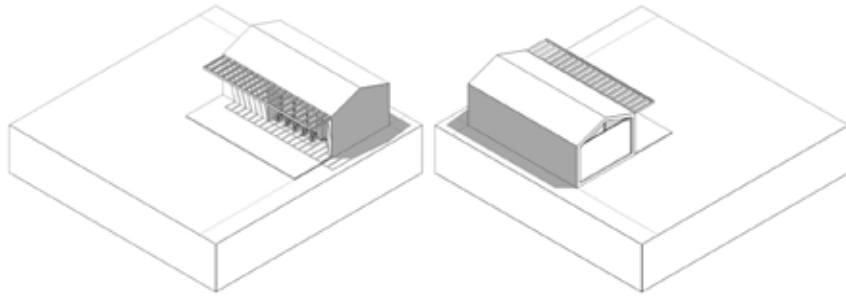
Floor Area/Footprint: 38 m² / 44 m²
Height: 3 meters



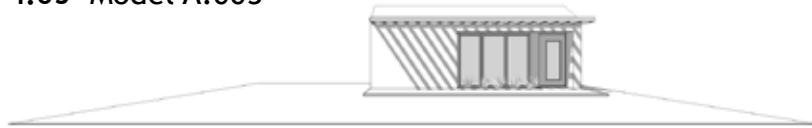
4.04 Model A.002



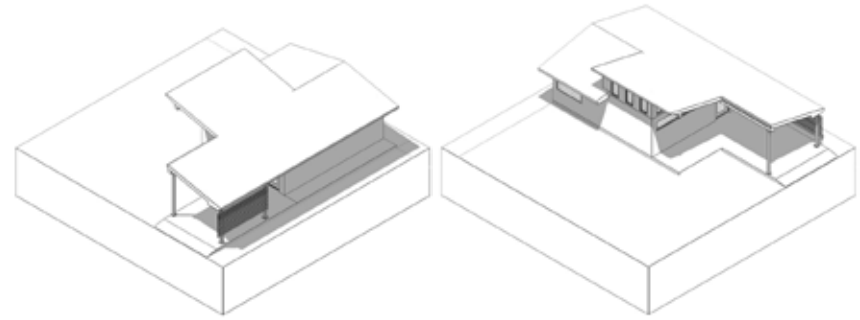
Floor Area/Footprint: 44.6 m² / 52 m²
Height: 3.2 meters



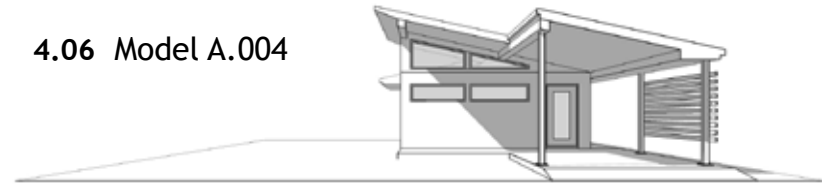
4.05 Model A.003



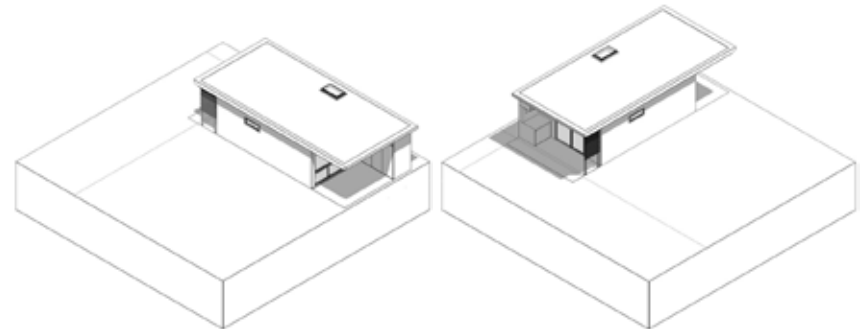
Floor Area/Footprint: 26 m² / 30.6 m²
Height: 2.9 meters



4.06 Model A.004



Floor Area/Footprint: 42.8 m² / 44.8 m²
Height: 3.3 meters



4.07 Model A.005



Floor Area/Footprint: 33.5 m² / 39 m²
Height: 2.9 meters



4.08 Perspective of coach house model A.002 paired with CMHC Small House Design 309.

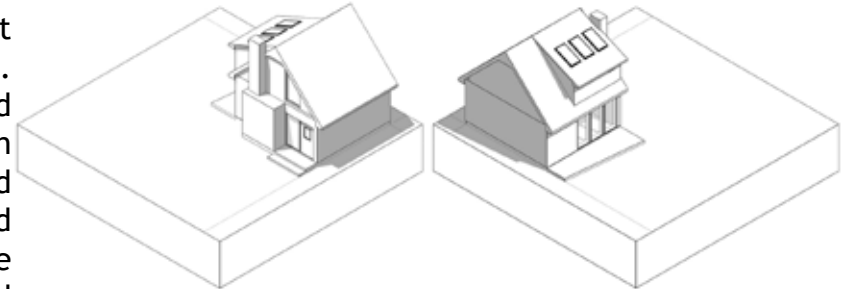


4.09 perspective of coach house models A.002 and B.003 paired with CMHC Small House Designs 133 and 309.

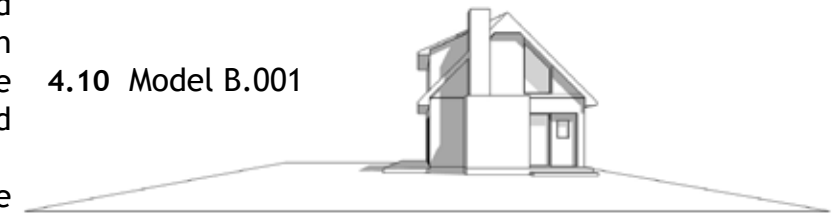
4.2.2. The One-and-a-Half Storey Coach House

The one-and-a-half storey design type offers the greatest value due to its efficiency of building materials to floor space. This is an invaluable asset on smaller properties with limited yard space. In extreme cases the interior can be completed in phases, finishing the first storey and leaving the partial second storey to be finished at a later date. The availability of a second storey opens the possibility of incorporating an attached garage at grade while providing adequate living area and preserving yard space. This might be an enticing proposal where the coach house is replacing an existing detached garage or where the existing detached garage is being grandfathered and modified into a coach house.

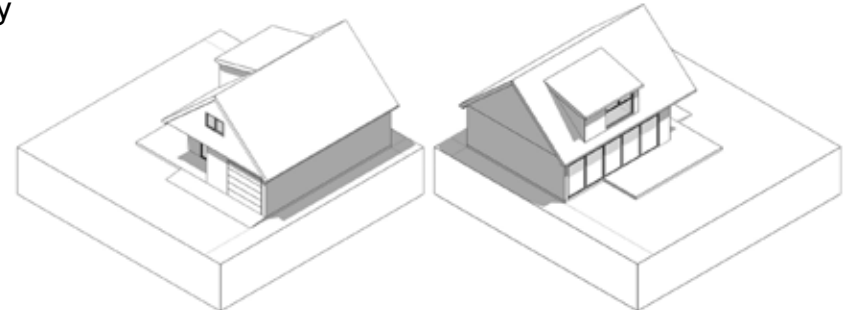
If located on a corner lot, the one-and-a-half offers the possibility of second storey balcony for amenity space as seen in model B.004. This would be invaluable in situations where the coach house is rented to a third party and at-grade amenity space is largely reserved for the primary dwelling.



4.10 Model B.001



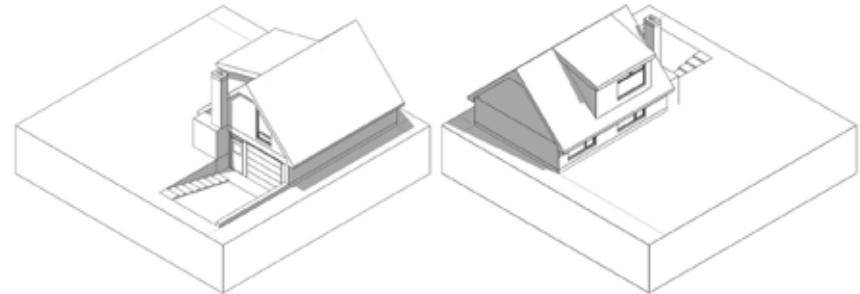
Floor Area/Footprint: 54.8 m² / 33.4 m²
Height: 4.5 meters



4.11 Model B.002



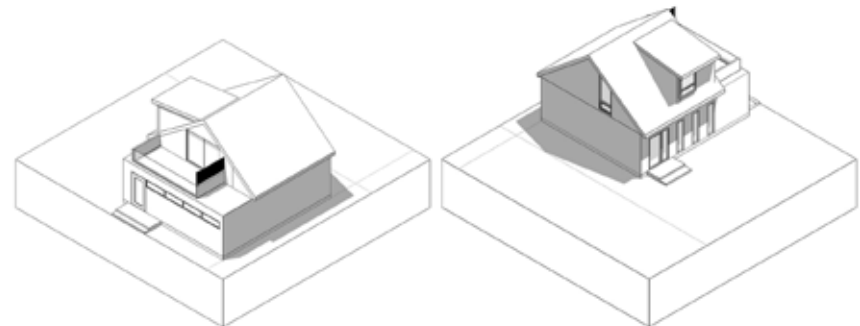
Floor Area/Footprint: 80.8 m² / 62.7 m²
Height: 4.5 meters



4.12 Model B.003



Floor Area/Footprint: 51.1 m² / 48.8 m²
Height: 3.2 meters



4.13 Model B.004



Floor Area/Footprint: 78 m² / 58 m²
Height: 4.5 meters



4.14 Perspective of coach house model B.002 paired with CMHC Small house Design 314.

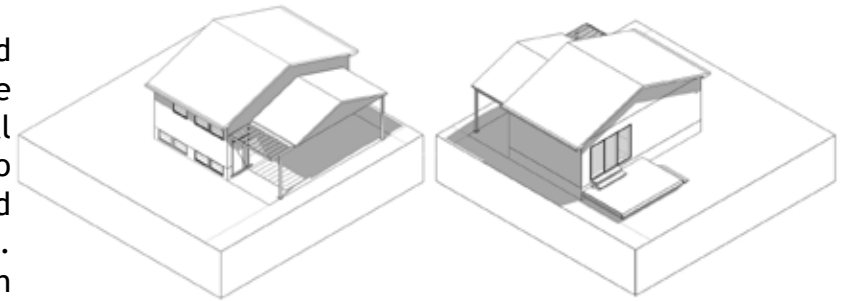


4.15 Perspective of coach house model B.004 paired with CMHC Small house Design 130.

4.2.3. The Raised Bungalow Coach House

The addition of a full height basement makes the raised bungalow the most efficient use of available space. On average it provides the most living area of all six types, making it ideal for small families or extended families. That efficiency also makes it a viable choice where a garage or carport is desired and retains yard space for other accessory structures and storage. Despite the elevated floor height, it can also incorporate an exterior amenity space such as a deck without infringing on the privacy of neighbouring properties. This could ideal for rental arrangements where a separation of exterior space is desired.

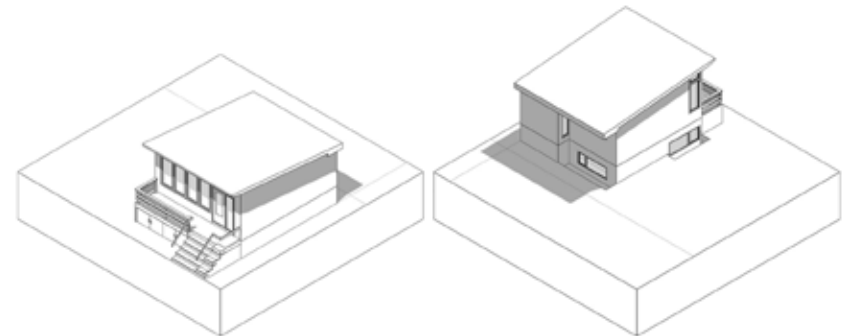
However, the elevated floor level means it is not suitable for accessible design standards and is not ideal for housing the elderly.



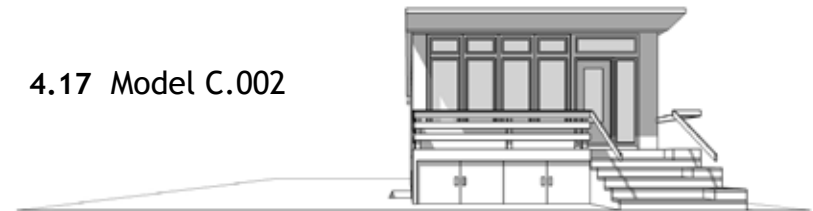
4.16 Model C.001



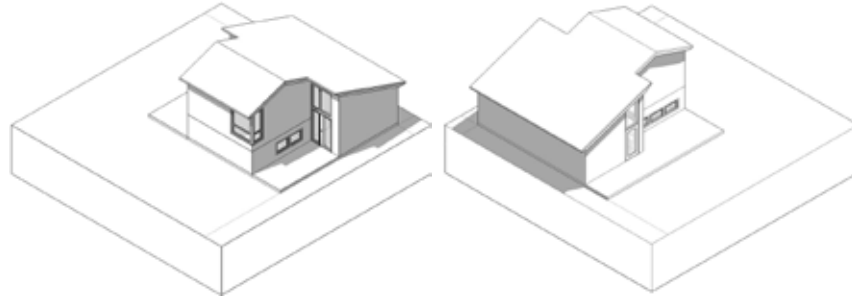
Floor Area/Footprint: 74.3 m² / 50.2 m²
Height: 4.5 meters



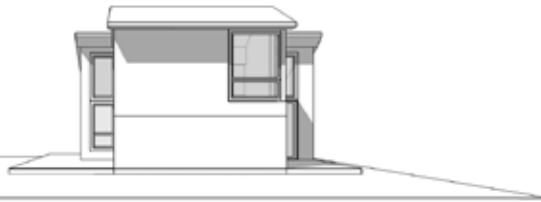
4.17 Model C.002



Floor Area/Footprint: 70.6 m² / 43.6 m²
Height: 4.2 meters



4.18 Model D.001

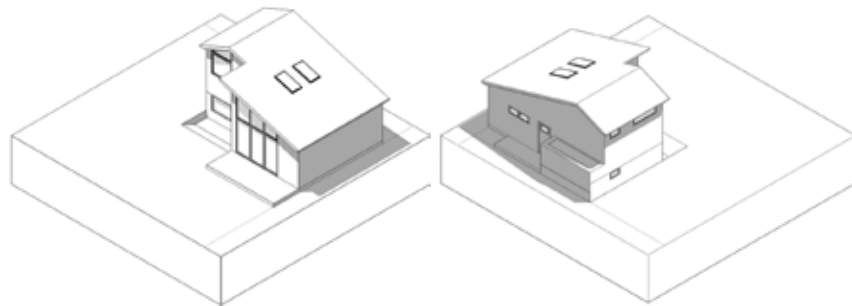


Floor Area/Footprint: 60.4 m² / 54 m²
 Height: 4.5 meters

4.2.4. The Split-Level Coach House

Similar to the one-and-a-half storey type, the split-level offers exceptional value for living space but can better accommodate irregular topography, including the possibility of a walk-out basement. It also opens the possibility for an above-grade amenity space on corner lots. This means it offers exceptional division of space and privacy between primary and secondary dwellings.

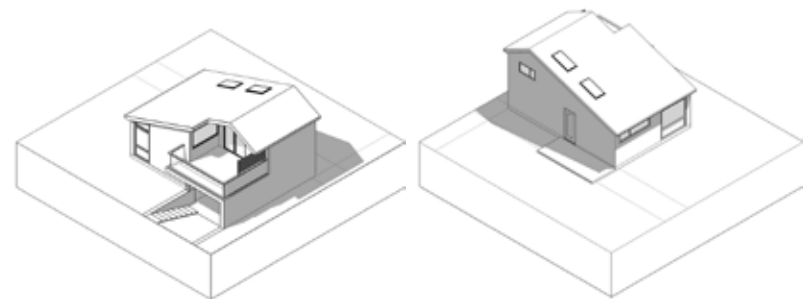
It also offers greater division of space within the dwelling which will be an attractive proposal for residents with children or extended families. Though not ideal for the elderly or disabled it is still a viable option making it the most versatile design choice.



4.19 Model D.002



Floor Area/Footprint: 55.8 m² / 48.3 m²
 Height: 4.5 meters



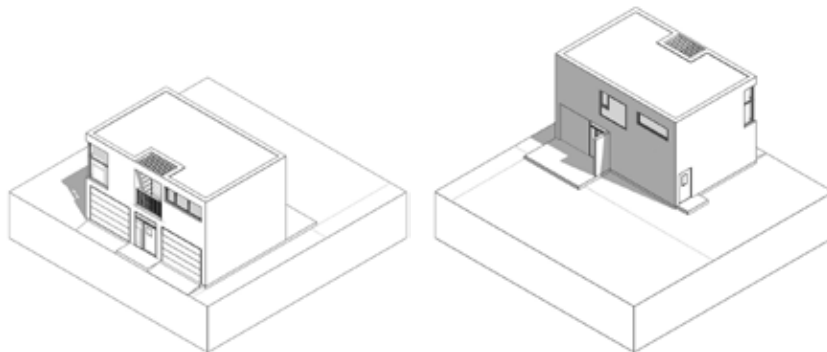
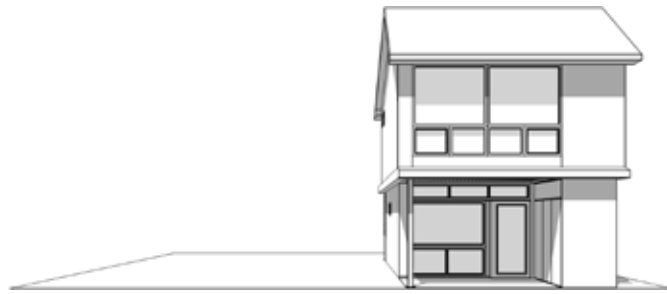
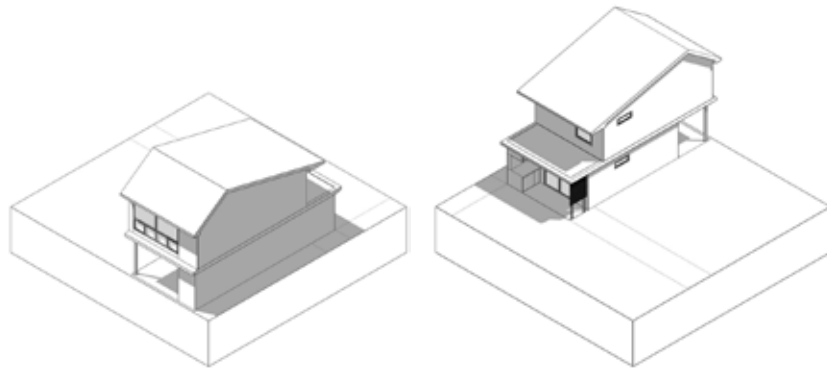
4.20 Model D.003



Floor Area/Footprint: 46.4 m² / 41.8 m²
 Height: 4.5 meters



4.21 Coach house models E.001 and E.002 paired with CMHC Small House designs 130(left) and 601(right)



4.2.5. The Two Storey Coach House

In communities with orthogonal street patterns, corner lots have the most potential for intensification. Coach houses can fill in the gaps where it is most needed while maintaining a generous interior yard setback. Exclusive to corner lots, the two storey type offers the greatest flexibility of design. A full second storey creates the most efficient landuse of all six types and opens up the ground level for shared garage space or any other desired amenities. Added street access lessens the privacy concerns which guide the design of coach houses for interior lots. This offers the possibility of balconies and other elevated amenity spaces.

These two storey designs may present the greatest investment value. A corner lot can often be severed, separately developed, and sold to a buyer but those development costs are likely to be more substantial than a coach house. Depending on local bylaws, severing the corner lot property may require a committee of adjustment request and all the development charges that entails while a coach house would simply require a building permit. Both options offer similar densities for intensification purposes but the latter would more convenient and advantageous if the owner wishes to retain some use of the full property.

4.22 Model E.001 (Above)

Floor Area/Footprint: 68.8 m² / 39 m²

Height: 6.1 meters

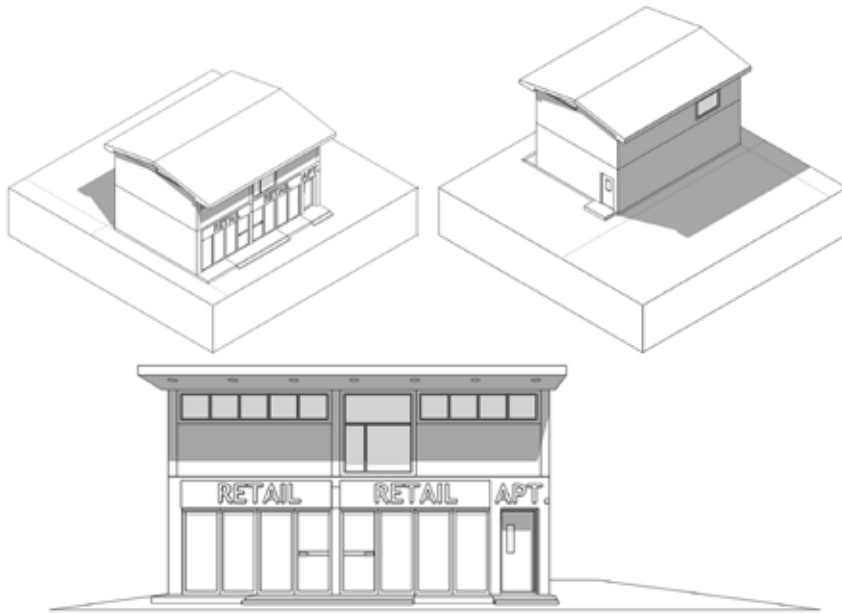
4.23 Model E.002 (Below)

Floor Area/Footprint: 54 m² / 58 m²

Height: 6.1 meters



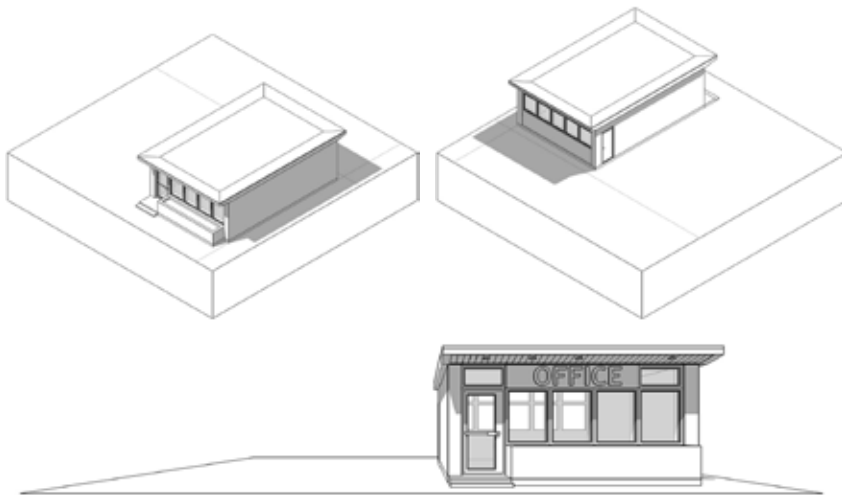
4.24 Coach house models F.001 and F.002 paired with CMHC Small House designs 130(left) and 601(right)



4.2.6. The Accessory Use Coach House

The true potential of corner lots within orthogonal street grids is to provide mixed-use infill and some semblance of a traditional mainstreet. These communities often lack pedestrian oriented businesses beyond the traditional corner store. Mixed-use coach houses, strategically located, may begin to fill the gaps or connect the dots, creating a unified mainstreet. Potential uses for this type of coach house could include amateur workshops, personal studios, professional offices or retail space. The latter would be the most common but all uses would benefit the community by activating otherwise vestigial segments of the suburban fabric.

The potential of a second storey on these corner lots opens the possibility of combining apartment and commercial uses though more localized studies are recommended for this building type.



4.25 Model F.001 Mixed-use (Above)

Floor Area - Apartment: 51 m²
 - Retail: 40.1 m²
 Footprint: 55.8 m²
 Height: 6.1 meters

4.26 Model F.002 Office or studio (Below)

Floor Area/Footprint: 39.6 m²/ 46.4 m²
 Height: 3 meters

5. Conclusions

5.1. Benefits of Coach Houses

It should be apparent that coach houses provide a wholly new type of infill which is worthwhile in and of itself regardless of its prevention of, or impact on, more aggressive forms of infill. Tear-downs, land assemblies, and severances will continue unabated so long as urban land continues to appreciate with increasingly limited supply. Such developments require significant capital and are thus limited to speculative builders. They exhibit little concern for the socio-economic impact on the communities in which they operate. Though they do contribute to regional intensification efforts, this is not their purpose. They are designed to extract the greatest return on investment and therefore must maximize their footprint and massing despite their affect on neighbouring properties or streetscape character.

Coach houses, on the other hand, recall the simpler patterns of unplanned suburbs in which development is owner-driven. Those who would build coach houses are local property owners whose intentions are to strike a balance of livability and affordability. They are local residents who mean to create housing solutions customized to their needs. Due to their diminutive size, coach houses may even appeal to those who mean to build sweat equity and thereby permit Canadians to re-discover the benefits of owner-building.

Though it is more likely, given the decline of employment in the trades, that owners would seek out the services of architects and custom-builders. These forms of small-scale development are hallmarks of early postwar suburbs, they are natural outcomes of property owners forging their own path to prosperity. Speculative and owner-driven development will always coincide as they tap into separate and distinct markets with little overlap. Coach houses simply create new opportunities for the latter to occur.

Though secondary suites are currently permitted in all ground-oriented dwellings in Ottawa, coach houses would more appropriately address the dominant trends affecting postwar suburbs. For various reasons postwar suburbs have stagnated and faced declining population for decades. The communities and homes were designed to house the all-important nuclear family. They created a culture built upon the family unit and generated a pattern of housing which offered little accommodation to non-families: elderly people, young people, single people, or even childless couples.

Unfortunately the nuclear family has a half-life. Children grow up and parents grow old. The average household size declines and once vibrant suburbs grow weary. As so many of these postwar suburbs have demonstrated a reluctance to adapt in scale, we must allow more sensitive approaches to intensification in order to break the homogenous pattern of single-family dwellings.

Conversions and secondary suites add rental housing for non-families only at the expense of the existing housing stock whereas coach houses add new and synergistic rental housing. They provide the flexibility to accommodate multi-generational housing, aging in place, downsizing, or simple tenant arrangements. In this way communities may adapt to the new normal without sacrificing the homes that define their character.

They not only provide well needed rental housing, they also provide additional ground-oriented dwellings in urban areas. At present, the latter are built almost exclusively at the urban fringes so any opportunities to promote their construction in core neighborhoods, including speculative infill, should be encouraged. As for rental housing, many postwar communities could benefit from the diversification of demographics to balance out the homogenous pattern of single-family dwellings. Other communities, such as Overbrook, may have high concentrations of social-housing but there are likely long waiting lists to be assigned a unit. Coach houses could supplement these and subsidizing their construction might prove to be a great social housing initiative.

On the other hand, postwar suburbs are also subject to larger trends affecting metropolitan areas and the rising cost of housing. Though many factors have contributed to the inflated cost of housing, demand most directly impacts the regional distribution of house prices. Demand is driven by the decentralization trend pushing new households to the urban fringe and the back-to-the-city trend attracting non-families to central areas. The postwar suburbs have benefited from neither, evidenced by population, income, and dwelling value data.

However, larger cities such as Toronto and Vancouver are demonstrating that demand for inner-city housing will, in time, push into adjacent communities creating the conditions for \$1 million detached homes. As this occurs, the cost of land outstrips the value of the homes themselves, raising its investment value for speculative infill. Longtime residents in such communities may find it difficult to afford the cost of living should the value of their homes appreciate suddenly. Seniors on fixed incomes can be forced out of their lifelong homes by increased property taxes alone.

This transition from depressed postwar suburb to affluent postwar suburb is predictable and coach houses can provide timely financial assistance to both new and existing residents as they weather the transition. Conversely for newcomers, coach houses would provide a financial incentive for buyers in affluent suburbs or a unique opportunity at affordable detached housing for buyers in depressed suburbs. In any case, it puts the opportunity to build equity firmly in the hands of property owners, as coach houses would not be the most profitable option for speculators. Beyond the financial assistance for owners, the additional diversity of incomes and demographics benefits the local economy by supporting a broader range of businesses.

The tangible benefits of coach houses are numerous but perhaps their greatest advantages are imperceptible by design. Their deployment provides '*Hidden Density*'¹²³ which contributes

to intensification efforts without impacting the dominant character of the community. In the many postwar suburbs of Canada coach houses can settle into and preserve an existing street pattern. They safeguard urban ground-oriented dwellings, side yard parking, and rear yard access. They also uphold street parking as they do not require the new curb cuts associated with severances. The character of the streetscape, a soft pattern of green yards and modest homes, is thus maintained while occupancy is doubled.

The postwar was an era of small housing and, as they must remain subordinate to the primary home, coach houses will mark a return to the design of modest and discreet housing solutions. Not only will this promote the construction of energy-efficient small homes and the reuse of existing infrastructure, it may double back to promote the retrofit of existing small homes as well. Though new homes are generally built to much higher environmental standards, it is worth remembering the three 'R's: reduce, reuse, and recycle. Factoring for the embodied energy of materials, the most environmentally friendly home is an existing home and, better still, a small one. Retrofitting a postwar house for higher efficiency can be accomplished quite simply by updating the building envelope and mechanical systems, as demonstrated by the CMHC's NOW house project. These benefits to both intensification and sustainability, however subtle, can have a significant impact in the aggregate.

Finally, coach houses are a natural extension of major planning initiatives that have only begun to improve the regulation of small scale infill. Ottawa's Community Design Plans and Secondary Plans were significant first steps towards understanding the stresses placed on mature communities. The objective of these policy instruments was to devise a consensus among community stakeholders as to the scale and distribution of large scale intensification projects but they lacked the zoning revisions needed to create a lasting effect. These plans did have a passable affect on mediating community and developer conflicts but there remained a blind spot in the smart-

growth policies. Small-scale residential infill, largely unregulated, was establishing reckless precedents. Thus a new zoning bylaw was passed in 2012 known as infill 1. This innovative bylaw is designed to protect the character and scale of mature communities without prohibiting infill projects. In order to assess the policy, the first stage was limited to select inner-city and pre-war neighbourhoods which demonstrated high frequency of infill development, those in urgent need of regulation. Infill 2 will extend a variation of this oversight to all urban communities within the Greenbelt which are predominantly classified as postwar suburbs. It will be a rare instance of drafting preventative policy rather than reactive, as infill pressure in these inner-suburbs is still relatively low.

Why is timing important? The benefits of permitting coach houses ought to stand on their own regardless of timing or context. Yet, housing cannot be extricated from real estate and the financial encumbrance it carries. Consider the back-to-the-city trend as one which occurs in phases, or waves, corresponding to risk-reward evaluations of land value and desirability of location. The first such wave reaches all the way back into the blighted city core. When property values there become untenable, the incident wave reflects back outward into adjacent communities. This second wave affects primarily inner-city communities such as pre-war streetcar suburbs. Ottawa, like other mid-size Canadian cities presumably, finds itself in the later stages of this second wave.

As we inch closer to the inevitable third wave we are also nearing a crucial window of opportunity where coach houses can be broadly applied to postwar housing before its land-value rises to levels which dictate redevelopment and land assembly. If applied to post-war suburbs, Infill 2 would hinder the creeping advance of garage frontage and over-building, thereby creating a market for coach houses to compensate for restricted development. They, in turn, would allow existing residents to build greater equity on long-held assets and generate new income to offset rising taxes.

They would also create affordable housing opportunities for new comers who would otherwise contend with inflated land values associated with more central locations. Overbrook is a prime example of timing in a transition suburb. Will the rising tide lift all boats, or just some? Demolitions and redevelopments in the area are increasing in frequency and are concentrated in the area closest to the city. Without Infill 2, Overbrook may quickly turn into a community of narrow rowhouses and oversized semi-detached homes which would only benefit the few residents looking to payout on their appreciated properties. Whereas applying Infill 2 now would both protect prevailing longterm residents but retain a large swath of affordable properties uniquely suited to the construction of coach houses. It won't halt the infill pressure of course. That is a force of nature. But it may channel intensification into more appropriate locations and building types.

A coach house bylaw, the natural progression of previous efforts to promote smart growth, would finally give owners and residents the direct influence on small-scale intensification which has so far elluded them.

Any good policy should be assessed on a macro scale and yet there are countless individual homes at stake. There is an issue of perception at play. We look at small postwar houses and regard them differently based on our individual positions. A couple buying their first home in the 1950s may have seen an affordable dream home. A comparable couple of first time buyers today may see an outdated, too-small home that isn't worth the cost of repair.

What's changed?

There is a parallax here to consider, not of physical distance or position but one of time and economy. The urban fabric shifts in the background with the times, just as the financial point of view of the buyer adjusts with the economy. The picture changes but the home is always the same. Assuming there is no shortage in supply of land for intensification, citizens will benefit from policy which best

frames these homes as worthwhile investments. At the municipal level, coach houses would serve as an excellent follow up to Infill 2 in the rehabilitation of Canada's postwar housing stock. However, the effectiveness of bylaws and regulations, like official plans, is limited by the intentions of residents and developers alike.

Efforts must be made to educate the public on all matters related to coach house construction and regulation. Such a task could be carried out in the form of planning documents comparable to Community Development Plans and distributed to relevant communities. Yet this type of educational material could easily reach a national audience with the aid of the CMHC's publishing and distribution networks. If postwar housing was considered a national endeavor, what role should provincial and federal governments play in the advancement of coach houses and other forms of small-scale infill?

5.2. Designing National Policy Instruments for Coach Houses

The difficulty in providing national policy instruments to support coach houses, or other detached accessory apartments, is in mediating municipal, provincial, and federal obligations. Zoning provisions discussed in chapter 4 are recommended specifically for the promotion of coach houses in Ottawa's postwar suburbs. Such provisions will remain the prerogative of individual municipalities and mandating the creation of these bylaws via legislation falls under provincial authority.

Ontario is fortunate to be among the first provinces to legislate accessory apartments with updates to the Ontario Planning Act in 2011 but most provinces have yet to introduce any such legislation.¹²⁴ Some simply offer grants to promote conversions and housing affordability. If the federal government holds no authority over the regulation or legislation of accessory dwellings, how best can they promote their construction?

This thesis began with years-long research into the Central Mortgage and Housing Corporation's Small House Design Scheme. Many factors contributed to the immense housing boom of the postwar era but this national initiative served as a profound inspiration for this thesis. It remains a shining example in the advancement of architectural design, national construction standards, and public awareness. Should the federal government, and by extension the CMHC, decide to launch a coach house program, the scheme would be a fitting model to revive.

Now, as then, the construction of affordable housing is incentivized. Naturally this involves new mortgage instruments, tax breaks, grant programs or public-private partnerships. But the two real strengths of the scheme were leveraging financial assistance to promote quality architectural design and enabling the Canadian people to devise their own housing solutions.

They accomplished this not by implementing planning regulations but by providing design services and educational literature directly to prospective homeowners. Due to the ubiquitous site planning standards of the postwar era there exists a vast, untapped supply of underdeveloped and owner-occupied land. If we can project increasing demand for detached accessory dwellings and that there is an ample supply of land, then the greatest impediment remains the cost of design services.

Given the right leadership and willing cooperation of the architectural profession, the relaunching of the Small House Design scheme could be a great benefit to both the architectural profession and Canadians at large. Better still, it would undercut the greatest risks associated with the construction of coach houses: bad design, substandard construction, and permit delays.

The application review process in many Canadian cities is considered one of the biggest impediments to the construction of infill and secondary suites. Industry representatives have claimed as much in Ottawa, Toronto, Edmonton, and more.¹²⁵ In Calgary, owners

wishing to build secondary suites must plead their cases directly to elected officials, tying up council meetings for entire days simply because they lack the necessary regulations and guidelines.¹²⁶

In the city of Vancouver, where over 2,500 laneway homes have been built since 2010, application reviews have bottlenecked the industry. As far back as 2012, their permit department handled as many as fifty laneway house permit applications a month, far in excess of the 350 permits actually issued that year. Though permits issued increased to upwards of 500 in 2015, many applications still face prolonged delays which dramatically impact development costs.¹²⁷

An important mechanism of the Small House Design Scheme was to pre-screen selected designs for construction standards. Site plan review will remain a delicate process when issuing permits for coach houses but having designs certified by a national agency would certainly accelerate permit reviews across the nation.

A vetted selection process would also improve the overall quality of secondary dwellings. The opportunity to add a low-cost income property would be an alluring prospect for cash-strapped home-owners. Particularly in cities lacking proper zoning provisions, quality design may prove to be a lower priority than a profitable balance sheet. Such cases may produce cheaply constructed or undersized shacks and, worse yet, create conflicts between neighbours. In the absence of nation-wide regulation, design is paramount in achieving the various goals set out in this thesis.

To revive the small house design scheme service we would first need to establish parameters and eligible dwelling types with which to put out a call for proposals. In a 2014 study of accessory dwelling regulations, the CMHC identified as many as fifty names used to classify various secondary dwellings.¹²⁸ That may seem incompatible with the original scheme's four house types but these variations include many redundancies and account for all interior secondary suites as well. In fact, many variations consist of illegal conversions

resulting from the lack of building regulations for accessory dwelling units. However, limiting the typology to detached secondary dwellings alone would make a new scheme feasible. Coaches houses and laneway houses would be appropriate starting points due to the ubiquity of suitable site conditions and general similarities between the two such as size limitations, site integration, urban location, and parking requirements. Their similitude and combined market demand may allow a stable framework for the CMHC to operate in.

The market for these dwellings is still in its infancy as regulations have not caught up to latent demand. In essence, relaunching this public service may jump-start a niche industry by facilitating their development. Tapping into latent demand at this early stage better positions the CMHC to establish site planning standards, provide a common typology within which to experiment, and monitor regional solutions as they develop to accommodate deviations in postwar development patterns.

Coach houses may still remain a niche industry for some time because the scale of their development is capped. They do not lend themselves to land assemblies, severances or wide-scale greenfield development. That their construction largely depends on owner participation raises the importance of delivering services directed at end users. A new scheme should therefore consist of both design catalogues and instructive literature, recalling 'Choosing a House Design' and other publications of the postwar.

Contemporary intensification guidelines and initiatives have so far neglected to address small-scale infill which has disadvantaged forms of infill dependent on owner-participation. Correcting this failure could mean re-introducing architecture to the middle-class and the timely revival of meaningful discourse on affordability and vernacular.

This dialogue is not only for the benefit of regular citizens. The practice of architecture has grown out of touch as it has gained a reputation for being a luxury service. Reviving this design competition

will be a valuable make-work initiative for young architects and graduate students lacking career opportunities.

Many participants in the original scheme earned notoriety from their designs which found a national audience. Some went on to have prolific careers thanks in part to their engagement in public service. If Canada's architecture schools choose to cooperate, the sheer number of students, in addition to graduated interns could supply ample designs to ensure the scheme's feasibility. The scheme could provide a meaningful leg up to a promising niche industry, support affordable housing options, and allow practice of architecture to raise a flag once more.

These humble homes may yet accomplish extraordinary goals.

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Appendix 1: Data summary tables of Dejan Pavlic's study of Canadian inner suburbs.

Table 1-1: Index of change for the median household income variable. 1986-2006.

	Core	Inner City	Inner Suburbs	Outer Suburbs	Fringe Suburbs
Toronto	1.11	1.06	0.87	0.93	1.07
Montréal	0.98	1.14	0.88	1.01	0.99
Vancouver	1.18	1.08	0.90	0.96	1.06
Ottawa - Gatineau	0.97	1.07	0.84	0.94	1.05
Calgary	1.05	1.14	0.85	0.92	1.01
Edmonton	0.96	0.99	0.87	0.95	1.04
Québec	1.09	0.91	0.87	1.01	1.04
Winnipeg	0.97	0.96	0.86	0.93	1.11
Hamilton	0.88	0.94	0.85	1.06	1.01
London	0.95	0.99	0.91	0.97	1.06
Kitchener	0.88	1.00	0.88	0.99	1.09
St.Catharines - Niagara	1.02	1.05	0.92	0.95	1.05
Halifax	0.77	0.96	0.88	0.99	1.06
Oshawa	0.84	0.80	0.85	1.01	1.03
Victoria	1.10	1.00	0.94	0.91	1.00
Mean	0.98	1.01	0.88	0.97	1.04
Median	0.97	1.00	0.87	0.96	1.05
Standard Deviation	0.11	0.09	0.03	0.04	0.03

Table 1-2: Index of change for the average value of dwelling variable. 1986-2006.

	Core	Inner City	Inner Suburbs	Outer Suburbs	Fringe Suburbs
Toronto	0.66	1.17	0.99	0.95	1.03
Montréal	1.07	1.35	0.98	1.01	1.03
Vancouver	0.95	1.05	0.99	1.00	1.09
Ottawa - Gatineau	0.93	1.17	0.96	0.93	1.08
Calgary	0.85	1.35	1.03	0.96	0.96
Edmonton	0.97	0.90	0.93	0.95	1.09
Québec	1.20	1.06	0.94	0.95	1.04
Winnipeg	0.99	0.97	0.87	0.86	1.17
Hamilton	1.00	0.89	0.93	1.04	0.98
London	1.01	1.01	0.95	0.89	1.07
Kitchener	0.97	1.09	0.92	0.99	1.03
St.Catharines - Niagara	0.93	0.98	0.93	0.96	1.07
Halifax	1.03	1.14	0.93	1.10	1.06
Oshawa	0.80	0.90	0.85	0.98	1.01
Victoria	0.93	0.99	1.00	1.13	0.98
Mean	0.95	1.07	0.95	0.98	1.05
Median	0.97	1.05	0.94	0.96	1.04
Standard Deviation	0.12	0.15	0.05	0.07	0.05

Table 1-3: Index of change for the average gross rent variable. 1986-2006.

	Core	Inner City	Inner Suburbs	Outer Suburbs	Fringe Suburbs
Toronto	1.01	0.96	1.03	0.89	0.98
Montréal	1.08	1.09	0.97	1.00	0.99
Vancouver	1.11	1.05	0.95	0.89	1.04
Ottawa - Gatineau	1.04	1.00	0.98	0.97	1.03
Calgary	0.90	0.96	0.98	1.03	1.15
Edmonton	0.90	0.97	0.98	1.03	1.06
Québec	1.06	0.99	0.99	0.99	0.99
Winnipeg	0.95	1.00	1.00	1.04	1.04
Hamilton	0.98	0.92	1.03	0.99	1.01
London	0.96	0.93	1.00	1.01	1.01
Kitchener	0.91	1.06	0.97	1.02	1.14
St.Catharines - Niagara	0.99	0.95	1.00	1.02	1.02
Halifax	1.17	1.01	1.01	0.75	0.92
Oshawa	0.87	1.09	0.98	0.96	1.10
Victoria	0.94	1.02	1.00	1.03	0.97
Mean	0.99	1.00	0.99	0.97	1.03
Median	0.98	1.00	0.99	1.00	1.02
Standard Deviation	0.09	0.05	0.02	0.08	0.06

Appendix 2: Total New Units, Net New Units, and Unit Demolition permits by Census Tract. 2004-2015.

Census Tract	New Units	2004						2005						2006					
		Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**
12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.00	2	2	0	0	4	4	2	2	0	1	5	4	1	2	0	0	3	3	
21.00	1	0	0	6	7	1	1	0	0	0	1	1	0	0	0	0	0	0	
22.00	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	1	1	0	
32.02	6	0	0	0	6	6	5	0	0	1	6	5	3	0	0	0	3	3	
33.01	1	0	0	13	14	1	2	6	0	1	9	8	2	8	0	1	11	10	
33.02	0	2	0	0	2	2	2	14	0	0	16	16	0	2	0	0	2	2	
Demolitions																			
12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13.00	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	1	1	
21.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
32.02	2	0	0	0	2	2	6	0	0	0	6	6	1	0	0	0	1	1	
33.01	1	0	0	0	1	1	2	0	0	0	2	2	6	0	0	2	8	6	
33.02	1	0	0	0	1	1	3	2	0	0	5	5	1	0	0	0	1	1	
Net New Units*																			
12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13.00	2	2	0	0	4	4	1	2	0	1	4	3	0	2	0	0	2	2	
21.00	1	0	0	6	7	1	1	0	0	0	1	1	0	0	0	0	0	0	
22.00	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	1	1	0	
32.02	4	0	0	0	4	4	-1	0	0	1	0	-1	2	0	0	0	2	2	
33.01	0	0	0	13	13	0	0	6	0	1	7	6	-4	8	0	-1	3	4	
33.02	-1	2	0	0	1	1	-1	12	0	0	11	11	-1	2	0	0	1	1	

*Total New units less demolitions

**Total new units less apartments

Source: City of Ottawa, Building Permits

Census Tract New Units	2007						2008						2009					
	Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**
12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.00	2	0	0	2	4	2	0	0	8	38	46	8	1	2	4	0	7	7
21.00	0	0	5	0	5	5	0	0	0	2	2	0	0	0	0	9	9	0
22.00	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	1	0
32.02	3	2	0	140	145	5	10	0	0	95	105	10	8	0	0	1	9	8
33.01	1	0	0	0	1	1	16	24	3	62	105	43	1	12	0	33	46	13
33.02	0	12	0	0	12	12	1	13	0	0	14	14	0	8	0	1	9	8
Demolitions																		
12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.00	0	0	0	0	0	0	3	0	0	0	3	3	2	0	0	0	2	2
21.00	2	0	0	0	2	2	0	0	0	0	0	0	2	0	0	0	2	2
22.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32.02	2	0	0	0	2	2	6	0	0	0	6	6	8	0	0	0	8	8
33.01	0	0	0	0	0	0	13	0	0	0	13	13	8	0	0	0	8	8
33.02	4	0	0	0	4	4	4	0	0	0	4	4	4	0	0	0	4	4
Net New Units*																		
12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.00	2	0	0	2	4	2	-3	0	8	38	43	5	-1	2	4	0	5	5
21.00	-2	0	5	0	3	3	0	0	0	2	2	0	-2	0	0	9	7	-2
22.00	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	1	0
32.02	1	2	0	140	143	3	4	0	0	95	99	4	0	0	0	1	1	0
33.01	1	0	0	0	1	1	3	24	3	62	92	30	-7	12	0	33	38	5
33.02	-4	12	0	0	8	8	-3	13	0	0	10	10	-4	8	0	1	5	4

*Total New units less demolitions

**Total new units less apartments

Source: City of Ottawa, Building Permits

Census Tract New Units	2010						2011						2012					
	Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**
12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.00	1	2	0	0	3	3	0	0	0	7	7	0	1	2	0	11	14	3
21.00	0	2	0	2	4	2	1	0	0	4	5	1	3	2	7	9	21	12
22.00	0	2	0	0	2	2	1	0	0	0	1	1	0	0	0	3	3	0
32.02	5	0	0	1	6	5	6	0	3	0	9	9	6	0	0	1	7	6
33.01	5	8	0	104	117	13	3	16	0	7	26	19	7	26	0	1	34	33
33.02	1	6	0	1	8	7	2	12	0	2	16	14	2	18	0	280	300	20

Demolitions

12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.00	1	0	0	0	1	1	1	0	0	0	1	1	2	0	0	0	2	2
21.00	0	0	0	0	0	0	2	0	0	0	2	2	5	0	0	0	5	5
22.00	1	0	0	0	1	1	1	0	0	0	1	1	0	0	0	0	0	0
32.02	4	0	0	0	4	4	4	0	0	0	4	4	7	0	0	0	7	7
33.01	8	0	0	0	8	8	10	0	0	3	13	10	15	0	0	2	17	15
33.02	4	0	0	0	4	4	9	0	0	0	9	9	11	0	0	16	27	11

Net New Units*

12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.00	0	2	0	0	2	2	-1	0	0	7	6	-1	-1	2	0	11	12	1
21.00	0	2	0	2	4	2	-1	0	0	4	3	-1	-2	2	7	9	16	7
22.00	-1	2	0	0	1	1	0	0	0	0	0	0	0	0	0	3	3	0
32.02	1	0	0	1	2	1	2	0	3	0	5	5	-1	0	0	1	0	-1
33.01	-3	8	0	104	109	5	-7	16	0	4	13	9	-8	26	0	-1	17	18
33.02	-3	6	0	1	4	3	-7	12	0	2	7	5	-9	18	0	264	273	9

*Total New units less demolitions

**Total new units less apartments

Source: City of Ottawa, Building Permits

Census Tract New Units	2013						2014						2015					
	Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**	Single	Semi	Row	Apt	Total	Sub**
12.00	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	1	1	0
13.00	0	2	0	11	13	2	1	6	7	16	30	14	2	4	6	12	24	12
21.00	1	0	0	22	23	1	1	2	3	3	9	6	4	0	0	0	4	4
22.00	0	0	0	3	3	0	1	2	0	22	25	3	2	0	0	0	2	2
32.02	4	0	0	1	5	4	7	0	0	2	9	7	16	0	0	183	199	16
33.01	9	16	19	4	48	44	7	12	0	2	21	19	11	20	0	3	34	31
33.02	2	23	0	14	39	25	0	8	0	0	8	8	4	6	3	78	91	13
Demolitions																		
12.00	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
13.00	2	0	0	0	2	2	6	0	0	0	6	6	3	0	0	9	12	3
21.00	2	0	0	0	2	2	1	0	0	2	3	1	0	0	0	0	0	0
22.00	1	0	0	0	1	1	2	0	0	2	4	2	0	0	0	0	0	0
32.02	5	0	0	0	5	5	6	0	0	0	6	6	13	0	0	0	13	13
33.01	9	0	0	0	9	9	8	2	0	0	10	10	15	0	0	0	15	15
33.02	14	0	0	0	14	14	4	0	0	0	4	4	7	0	0	3	10	7
Net New Units*																		
12.00	-1	0	0	0	-1	-1	0	0	0	3	3	0	0	0	0	1	1	0
13.00	-2	2	0	11	11	0	-5	6	7	16	24	8	-1	4	6	3	12	9
21.00	-1	0	0	22	21	-1	0	2	3	1	6	5	4	0	0	0	4	4
22.00	-1	0	0	3	2	-1	-1	2	0	20	21	1	2	0	0	0	2	2
32.02	-1	0	0	1	0	-1	1	0	0	2	3	1	3	0	0	183	186	3
33.01	0	16	19	4	39	35	-1	10	0	2	11	9	-4	20	0	3	19	16
33.02	-12	23	0	14	25	11	-4	8	0	0	4	4	-3	6	3	75	81	6

*Total New units less demolitions

**Total new units less apartments

Source: City of Ottawa, Building Permits

Census Tract New Units		Total 2004-2015					Total	Sub**
		Single	Semi	Row	Apt			
12.00		0	0	0	4	4	0	
13.00		13	24	25	98	160	62	
21.00		12	6	15	57	90	33	
22.00		5	6	0	30	41	11	
32.02		79	2	3	425	509	84	
33.01		65	148	22	231	466	235	
33.02		14	124	3	376	517	141	
Demolitions		188	310	68	566			
12.00		1	0	0	0	1	1	
13.00		22	0	0	9	31	22	
21.00		14	0	0	2	16	14	
22.00		5	0	0	2	7	5	
32.02		64	0	0	0	64	64	
33.01		95	2	0	7	104	97	
33.02		66	2	0	19	87	68	
Net New Units*		267						
12.00		-1	0	0	4	3	-1	
13.00		-9	24	25	89	129	40	
21.00		-2	6	15	55	74	19	
22.00		0	6	0	28	34	6	
32.02		15	2	3	425	445	20	
33.01		-30	146	22	224	362	138	
33.02		-52	122	3	357	430	73	

*Total New units less demolitions

**Total new units less apartments

Source: City of Ottawa, Building Permits

Endnotes

1. 1,756,965 occupied dwellings built between 1946 to 1960, and 1,757,155 built between 1961 and 1970. CMHC, *Canadian Housing Observer 2014. Appendix Table 9: Dwelling Condition by Tenure and Period of Construction, Canada, 2011.* A-12.
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