Housing High-Tech in Victoria:
Examining the Relationships between High-Tech Investment and Decreased Availability and Affordability of Rental Housing in the Harris Green Neighbourhood

by

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Ethics Statement

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

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Abstract

The high-tech sector in the City of Victoria has experienced exponential growth in recent years (2010-2017) along with a concurrent drop in housing availability and affordability. The purpose of this research paper is to understand how the high-tech sector's growth has impacted housing in the Harris Green neighbourhood of Victoria. The Harris Green neighbourhood was chosen as a 'case study' for its unique centralized location, small size and density. A concentration of high-tech activity and workspaces has occurred within close proximity to Harris Green, as well as recent growth in multi-family developments, retail/commercial space and high population growth. By analyzing the activity and growth within a concentrated area, an understanding of the relationships between high-tech growth and housing conditions was developed to assist in future decision-making by local governments concerning economic growth and housing sustainability.

Dedication

This paper is dedicated to all of those who have supported me along the way, but mostly to my Mother, Judy, who passed away in 2009. She always valued education and learning and would be proud to know I pursued these in my own life.

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I would like to acknowledge the support of the faculty and staff in the Department of Urban Studies for their patience, dedication and passion for all things Urban. They have always been approachable and kind in assisting me throughout this degree.

I would also like to acknowledge those who dealt with me throughout some of the toughest parts of this degree, which included many major personal life changes. During difficult times, I was ready to give up, but those who continued to show support for my endeavour made it worthwhile. I would also like to thank myself for being stubborn and persistent in ensuring I finished this degree and didn't sell myself short. Thanks to you all.

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List of Acronyms

KBUD   Knowledge Based Urban Development

OCP   Official Community Plan

VIATEC   Victoria Innovation and Advanced Technology Entrepreneurship Council

KISE   Knowledge Intensive Service Economy

Chapter 1.   Introduction & Context

1.1. Study Area and Introduction

This research project will focus on the current rental housing affordability issues facing the City of Victoria and what relationships may be occurring between this and increased high-tech investment in the city's core.

Currently, the City of Victoria is dealing with a persistent trend towards an increase in rental housing costs and decreasing availability with concurrent growth in its high-technology employment sector. For example, the Canada Mortgage and Housing Corporation in reported in its rental market report (2015) that vacancy rates in the Victoria CMA declined from 1.5% to 0.6% between October 2014 and October 2015. This dramatic drop, of which the reasons are not entirely understood, may be effectively researched through the narrowed lens of a specific aspect of the housing problem facing Victoria; the increase in knowledge-sector investment and employment. Coinciding with reduced vacancy rates, the Victoria Innovation and Advanced Technology Entrepreneurship Council (VIATEC) states that Greater Victoria has an active community of high technology companies, which numbered close to 884 in 2014, not including those who are self-employed.[1]   In further sections of this paper, more details are provided on increases in the high-tech sector and growth occurrences in the past five to seven years. It is at this point of a rising concentration of high-tech companies and reduced vacancy rates that I will have examined a local neighbourhood in the City of Victoria. For the purposes of this research project, the area of focus will be applied to one neighbourhood in the City of Victoria; namely the Harris Green neighbourhood in the downtown area.

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[1] Economic Impact of the Greater Victoria Technology Sector (2014) – VIATEC report

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Figure 1 shows the Harris Green neighbourhood profile with the current population statistics and percentages of owners and renters highlighted, as this statistic is important for this study. The characteristics of the renter profile versus the owner profile in this neighbourhood historically provides context to the changes occurring over recent history in this area. The most important aspect shown in Figure 1 is the large majority of renter households in the Harris Green neighbourhood; identifying the area as one with more potential turnover in residents. Population figures for Harris Green are discussed further in Chapter 5. Figure 2 shows the neighbourhood mapping boundaries for the City of Victoria, which shows the location of the Harris Green neighbourhood in context to the rest of the City of Victoria. The Harris Green neighbourhood was chosen for it's high concentration of existing high-tech businesses and exponential population growth – but more specifically because of the location the VIATEC technology hub at 777 Fort Street and other tech hubs within the immediate area, to be discussed further in Chapter 3.

Figure 1   Harris Green Neighbourhood Profile (1991-2011)

Population

2011	2006	2001	1991	
1,870	1,680	1,575	1,045	825 new residents (44% growth) over 20 years

Private Household Breakdown	
Total number of private households	1,325
Total number of persons in private households	1,825
Average number of persons in private households	1.4
Single-detached or semi-detached houses	0.4%
Multiple family dwellings	99.6%
People per hectare	78
Tenure	35% owned, 65% rental

Source: City of Victoria Neighbourhood Snapshot Profile, July 2016

Figure 2　　　Neighbourhood Boundaries (Harris Green Highlighted)
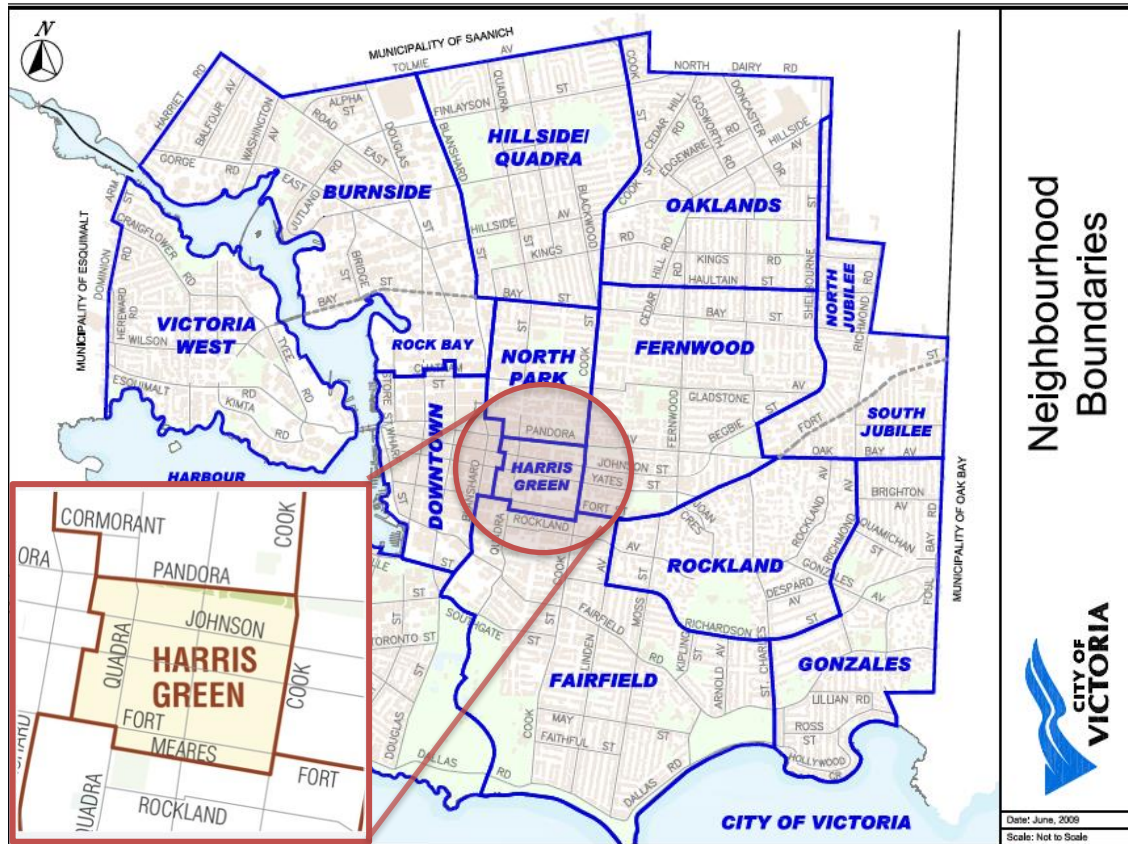
Source: City of Victoria (modifications by author)

In recent years, the City of Victoria has embarked on numerous projects and initiatives to address the need for economic growth and prosperity coupled with the need for improved economic development and housing affordability. These include initiatives such as the *Mayor's Task Force on Housing Affordability* which was created in July of 2015, the *Mayor's Task Force on Economic Development and Prosperity* established in April 2015 and the City of Victoria Business Hub, which opened in December 2015. This cross-section of programs and projects are occurring at a time when new mixed-use redevelopment projects are being constructed in the downtown area at increasing rates. The Harris Green neighbourhood and the immediately adjacent neighbourhoods are seeing new developments under construction and an increase in investment on both the commercial and residential ends of real estate, which will be shown in subsequent chapters of this paper through analysis of development applications and rezonings. It is

at this juncture where the research question lies – is this development on both ends of the real estate spectrum (commercial and residential) adversely affecting the existing rental market in the specified area? The literature reviewed for this paper provides the context from which high-tech growth impacts residential patterns and access to affordable housing in highly active markets. Problematic results of limited affordable housing access adversely affect not only localized populations but also regional populations, seen in places such as Vancouver, and urban centres that exist in geographic proximity to the highest areas of impact. In the City of Victoria's case, higher costs of housing in the central city could ultimately lead to region-wide housing cost increases, pushing moderate-to-lower income residents further to the edge of the region. This can be seen in the extremely high growth occurring in more distant and suburban areas of Victoria such as Langford, Metchosin and Sooke. The micro-level research being done in this paper is transferable to a greater discussion on local economic prosperity and related pressures that arise in housing a workforce of higher incomes; which includes preferences for proximity to amenities and urban culture, such as restaurants, cafes, entertainment and the arts described by Kunzmann (2009) in Chapter two. The small geographic scope of the study enables a thorough analysis of the factors such as development and population growth that apply on a much larger scale in urban regions, but was kept within an appropriate scope for the purpose of this paper.

1.2. Context and Justification of Research

The results of this research will be useful to urbanists as it may reveal opportunities at identifying trends to avoid when assessing housing equality and governmental (both municipal and provincial) land use decision-making. Access to affordable and quality housing is a fundamental characteristic of inclusive modern cities, allowing for a deliberate blend of income levels, diversity of living situations and encouraging less transience in the working population. Lower costs of housing also encourage improved economic conditions as more disposable income is spent in the local economy when not being spent on rent or excessive living costs. The combination of these factors assist in establishing a more cohesive social realm that addresses the need for growth while counteracting the potentially negative impacts of this growth on lower income populations. Broadly

speaking, rapid changes in localized economics can adversely affect sustainable housing provisions. Donaldson (2014) states: "the context of global economic changes that are polarizing the workforce into highly-skilled 'knowledge workers,' disproportionately benefitting from growth, and lower-skilled 'service workers,' whose salaries are often pegged to static norms set by the minimum wage" provides the basis from which I chose this research topic - establishing a stronger understanding of economic disparities that arise in a high-tech economy and its impact at the local level. The following relational graphic identifies my general approach to understanding the cross-section of methods and approaches to carrying out my research.

The research conducted has attempted to identify relationships between high-tech knowledge economic investment and the increased cost of housing and decreased availability of rental housing in the City of Victoria by using one neighbourhood as a

microcosm. My research concentrated on whether the investment currently seen in Victoria's high-tech business sector is a contributing factor to rental housing pressures seen within the central city area and what relationships may exist between the metrics identified and analyzed in the research. Much of the existing research on this topic is focused on larger metropolitan city-regions such as San Francisco and Seattle; therefore, the overarching purpose of this research, and what makes it unique, is to provide a better understanding of the ramifications that an increasingly knowledge-based economy may be having on the local housing market in a mid-sized Canadian city. In the Canada, this has not been examined with the exception of Waterloo where the investment presence was on a more unilateral scale, specifically Blackberry and therefore dissimilar to Victoria's situation, which has seen a more multi-faceted investment scene. This research also builds upon relevant case-specific literature associated with housing in high-tech economies, creative class literature and how local economic development and housing policy may impact the cost of housing. At the broadest scale, the scope of this research is to ultimately connect the post-industrial, globally adaptive high-tech economy and potential effects on local populations.

The conceptual themes present in my research will occur at the intersection of *local economic growth* and *housing affordability* with particular focus on the knowledge economy (high-tech) as a catalyst for housing inequality. Frenkel, Bendit and Kaplan (2013) state that "ensuring the quality of life and amenities desired by knowledge-workers is necessary for building sustainable knowledge-cities," with amenities including proximal retail, shopping and cultural opportunities. This specific study was focused on the city of Tel Aviv and it's metropolitan region. Lawton et al (2012) describe that "individuals reside in more established urban locations, due to their association with lively and active streets, and availability of amenities such as bars and restaurants, and as a result enjoy a more satisfying urban experience presumably when compared to individuals who live beyond the centre." This describes the Harris Green neighbourhood on many levels and is reflected in the centrality of this neighbourhood. Locational preference and knowledge worker behaviours may play a role in contextualizing the reasons for housing pressures in the City of Victoria but are most likely part of a larger constellation of factors affecting availability and affordability. What part might the high-tech knowledge sector play in the overarching discussion? These are the types of questions that I have attempted to answer

while connecting to research on affordability and high-tech economics in the housing market of Harris Green and Victoria.

Recognizing that rapid growth in the high-tech sector may affect the availability of accessible and affordable housing, local government housing policy responses such as the City of Victoria's Housing Task Force on Housing Affordability's key theme to: *Increase the City of Victoria's capacity to support development of affordable housing* [2] act as key drivers behind establishing initiatives that respond to the effects of these issues. The contribution of these policies, discussed in Chapter 4, to the situation being observed will enable a more definitive understanding of the complexities of the City of Victoria's economic and housing situations, where rental vacancy rates are some of the lowest in Canada[3]. According to the Canada Mortgage and Housing Corporation, there may be some correlation between reduced vacancies, population growth and improved economic opportunities for young people.[4] The linkages between these are reviewed in Chapters 3 and 4.

While the scale of the City of Victoria's economy, population and global reach is limited in comparison to larger metropolitan regions such as Metro Vancouver, the factors contributing to the housing situation may very well be the same. The Victoria Innovation, Advanced Technology and Entrepreneurship Council (VIATEC), which is a regional organization that focuses on sector research, innovation, networking and promotion for the Greater Victoria area will provide contextual resources to link the local activities of the high-tech scene to the aims of the research question; such as local business networks and employee behavioural choices. Another question is that the City of Victoria attracts investment because of its desirability as a destination within close proximity to other successful regions such as Greater Vancouver and Greater Seattle, while offering lower real estate costs.[5] The premise for this research is also established by recent public conversations regarding the state of housing and economic growth in Victoria, with many

[2] Recommendations from the Mayor's Task Force on Housing Affordability, July 16, 2015.

[3] The rental vacancy rate in the Victoria CMA declined from 1.5% in 2014 to 0.6% in 2015.

[4] CMHC Rental Market Report Victoria CMA – CMHC 2015

[5] Colliers International indicates that investment is occurring in Victoria because of lower cap rates than the lower Mainland (2017)

publications currently discussing the recent decrease in both commercial and residential vacancy rates as a sign that the City of Victoria is growing. In 2015, a Colliers International tenant demand study showed that in "the downtown core, tech accounted for 90,000 square feet of space leased in 2015 while government leasing accounted for 111,000 square feet." This is substantial when considering the implications of the traditional economies of government and tourism in Victoria, which are now competing with high-tech as a viable player in the regional economy.

Academic research done on this specific topic is not entirely plentiful, when related to connections between high tech sector and housing affordability; there is, however, enough measurable evidence from other jurisdictions, that show a relationship may exist between these two elements of the research, reflected in Chapter two. Recognizing that the City of Victoria is a smaller urban area whose high-tech sector is minor in comparison to cities such as Vancouver, Seattle and San Francisco is the first step in understanding potential impacts; yet, it is important to acknowledge the scale of tech sector-related investment could be of a similar magnitude based on per-capita impact. It is at this intersection of inquiry where a deeper understanding of the relevant factors contributing to housing affordability and availability connects to high-tech growth in the City of Victoria.

1.3. Research Question

The research question is intended to address concerns about affordability and availability of rental housing in a medium-sized Canadian municipality experiencing high-tech sector growth. The fundamental basis of this research was to uncover whether the growing push for municipalities to become 'knowledge economies' or 'high-tech clusters' is affecting the City of Victoria's rental housing market. The question is therefore framed as:

What are the potential relationships between increasing high-tech company investment and rising housing costs and decreased availability for renters in the central city Harris Green Neighbourhood of Victoria?

The objective of this research project is to establish a deeper understanding of particular elements of housing affordability concerns by focusing on one key identifiable issue: the

high-tech investment effect on housing access and affordability. Although high-tech investment and knowledge-sector workers are not the only factors in the complexity of attributes contributing to housing pressures, which may include, but not limited to, foreign capital investment, population growth, land constraints and municipal regulations, they were chosen to narrow the scope of the project and draw connections to one area of the problem. As opposed to attempting to analyze the entire scope of issues that may be involved in housing access and affordability.

Literature has been drawn from various related sources, including creative class literature, housing markets, similar theses, news articles, grey literature and direct peer-reviewed research on the topic of housing affordability and increased tech investment. While the issue has been extensively studied in the United States and for much larger urban regions, this impact of high technology on housing is fairly new to a mid-sized Canadian city, which may or may not lead to evidence of a positive correlational relationship instead of a causal relationship.

The study area was selected for not only its proximity to the technology incubator, Victoria Innovation and Advanced Technology Entrepreneur Council (VIATEC), but also as a means of maintaining a workable scope for the project. This area is meant to reflect just a small snapshot of what potential factors are affecting the City of Victoria's rental housing market, and perhaps a small component of the broader issue of housing access and high-tech growth as discussed in further chapters. Neighbourhoods in close proximity to the study area were used for comparative purposes, but were not extensively studied to keep the amount of research manageable.

Chapter 2. Literature Review

The following literature review draws on a theoretical creative class literature, grey literature[6], locational preference of knowledge workers and research into housing affordability in high-tech economies. The approach in this literature review is to examine the definitions and impacts of the knowledge economy and creative class on housing in cities that actively promote high-technology investment for economic growth, which is identified further in Chapter 4 as a priority for the City of Victoria. Examining the intersection of these definitions and the theoretical basis of housing conditions in high-tech economies contributes to the conceptual framework for this research project; namely the relationships that may be occurring in the City of Victoria's Harris Green neighbourhood and the potential broader impacts on the City as a whole.

2.1. Knowledge Economy and Urban Development

The knowledge-based economy does not have one strict definition, but the most readily available one is provided by the Organization for Economic Co-operation and Development (OECD) "which describes the knowledge economy very broadly as an economy that is directly based on the production, distribution, and use of knowledge and information" (Švarc & Dabic, 2014). This definition was developed over 20 years ago when the western post-industrial economy was moving towards a more service and knowledge-oriented mode of economic activity. The pressure to facilitate innovation and attract knowledge labour in urban centres has increased exponentially, with city-regions competing for resources as expressed by the following statement:

> A model for urban vitality and competitiveness [that] has become increasingly dominated by talent attraction, commercial concerns—and ultimately—the implied success of large metropolitan centres (Lewis & Donald, 2008).

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[6] Grey literature is "that which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers." – defined by Fourth International Conference on Grey Literature. http://www.greylit.org/about

.   The "development of the knowledge economy, and of globalization, and international competitive pressure, has increased the importance of creativity and innovation in local economies" (Yigitcanlar, Making Space for Knowledge Economy, 2010) which encourages the drive for neighbourhood revitalization, nodes of investment and innovation precincts. As the economic metrics of cities have changed, so too has the approach to attracting people involved in these dynamic, more globally oriented industries. The drivers of growth behind new "knowledge community precincts" (Yigitcanlar, 2010) provide the basis for concentration of activity exchange in central city activity nodes; specifically neighbourhoods where businesses are concentrated and perhaps their workers too. These knowledge precincts provide a proximal base from which centralized thought and learning can occur under the umbrella of a "knowledge-intensive service economy (KISE) with higher proportion of high-tech production and high-tech service sectors, which could reconcile scientific research, technological innovation, and service activities" (Švarc & Dabic, 2014). As municipalities have become more responsive to this newly realized form of urban development, "local authorities [have] started to invest more in the quality of life and place in order to attract such talented workers" (Florida, 2005). The combination of adaptation to a more globalized, knowledge-intensive industry with increased local interest in attractive, urban amenities such as vibrant downtown cores, has lead to the increase in central-city investment and population growth which, in some instances, may relate to issues of gentrification. An operational definition of gentrification provided by Ley (1986) contextualizes the definition of gentrification as: "a change in household social status[7], independent of the housing stock involved, which might be either renovated or redeveloped units." For the purposes of this literature review and research paper, the issue of gentrification will not be centrally examined in order to maintain direction in the research; however, it does provide a supportive framework from which to base the key hypothesis of this paper: that relationships do occur between higher-income workers and decreases in housing accessibility and affordability.

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[7] Social status index is defined for each census tract as the mean value of (1) the percentage of the work force employed in the quaternary sector (professional, managerial, technical, and administrative jobs) plus (2) the percentage of the population with university education – Ley (1986).

This brings the discussion to the concept of knowledge-based urban development (KBUD), which encapsulates the idea of central-city urban development resulting from the knowledge industry. The concentration of these industries and activities are described by Baptista (1996) who explains that:

> *"The evidence suggests that a localised pattern of development actually facilitates a "collective learning process", increasing the speed of diffusion of new innovations by reducing uncertainty."*

What Baptista is indicating is that a prime indicator of tech investment is the clustering of those involved into small geographic areas in order to improve cross-communication, collaboration and idea transferring. While the concept of proximity to collaboration in knowledge-based economies appears to be a key driver in the methods used to establish urban precincts with high-technological industries, the quality of life factors such as climate and higher education, also appear to contribute equally, when considering post-industrialized, dynamic modern economy cities.

The concept of KBUD therefore supports the idea that these clusters are providing economic opportunity for cities, with the theoretical basis focusing on the idea that:

> "(re)development of cities and the clustering of knowledge-based industries is seen as "a new form of development that potentially brings both economic prosperity and sustainable socio-spatial order to our cities" (Yigitcanlar, 2007).

This could be argued as a case for gentrification, but what Yigitcanlar is identifying is the notion that:

> "KBUD requires a strong spatial relationship among knowledge clusters (i.e. knowledge community precincts) in order to augment the knowledge spill-over effect that contributes significantly to the establishment and expansion of creative urban regions and supports linkages and networking between these clusters (Yigitcanlar et al., 2008). It also entails quality of place and an urban development that is ecologically sensitive and sustainable. (Yigitcanlar, 2007).

As urban development occurs, the process is moving beyond traditional forms of urban planning as separation of uses, but adapting to a highly mobile and distinct set of characteristics that define the modern city. These characteristics of KBUD are clearly

delineated in the list below showing the essential elements of a knowledge-based development structure.

1. knowledge base: including educational institutions and R&D activities;
2. industrial structure: affects the progress and development of a knowledge city;
3. quality of life, place and urban amenities: ensure that the KBUD has necessary elements and that knowledge workers are attracted to provide a strong knowledge base;
4. urban diversity and cultural mix: as instruments in encouraging creativity;
5. accessibility: encourages and facilitates the transfer and movement of knowledge, people, goods and services;
6. social equity and inclusion: minimized social disparity and negative tensions;
7. scale of a city: larger knowledge cities tend to offer a greater knowledge pool and greater diversity and choice for knowledge workers and businesses.

(Van Winden et al., 2005).

When considering the above list of principles that contribute to a successful application of a KBUD, it seems many of them play into key concepts of the creative class literature, including high quality of life indicators, diversity, educational attainment and urban amenity. For example, number 6 on the list above references 'social equity and inclusion' which my research question is attempting to examine in a more narrowed context – specifically housing conditions in a high-tech city. These characteristics may not be entirely applicable to a smaller city-region with a smaller economy, such as the City of Victoria, but the principles in themselves do provide a framework from which smaller cities can establish vibrant high-tech districts. As these districts develop and attract workers, investment and knowledge collaboration, inevitably they also affect the housing market that exists there. Section 2.1.1 will provide a more contextual review of applicable conceptual literature related to the residential and locational choice of the workers in the high-tech, knowledge sectors.

2.1.1. Locational & Residential Preferences of Knowledge Workers

The focus of this section will be on the locational preferences of knowledge workers, and for the purposes of this research, specifically high-technology workers. Following on the previous section, a priority set of ideas provided by Klaus R. Kunzmann (2009) helps delineate the particular elements of effective planning for knowledge communities, which include:

- The specific location requirements of knowledge industries
- ***The location preferences of knowledge workers***
- The image dimensions of knowledge industries in a city
- The integration of knowledge industries into urban neighbourhoods
- The policy arenas of knowledge development

The items populating the list above establish a connection between not only the needs of the industries themselves, but also the workers. This intersection of needs is where the best understanding of how and why urban knowledge precincts develop and what factors drive their growth and related impacts on socio-spatial considerations, including housing and income. Special characteristics drive the locational choices of workers in these sectors, particular foci include: "an affordable housing market, improved accessibility and mobility options, quality educational and health services and cultural, entertainment and sports facilities" (Yigitcanlar, 2010) which have an impact on the desired locational choices for knowledge sector employees and their families. While an affordable housing market is mentioned as a primary attractant, the results are generally the opposite; with housing markets becoming further disconnected from moderate incomes as knowledge-sector high-tech workers move in. Knowing this, knowledge community precincts are considered most effective when located in central and vibrant city places providing a high quality of life and proximity to amenities. Kunzmann (2009) further supports the proximity paradigm by stating: "One particularly important location factor for knowledge industries is proximity," although his research is focused in Europe, the applicability of this concept appears to be universal in nature. This proximity discussion builds upon the idea that a concentration of activity, whether in residential, commercial or educational activity will draw particular individuals to areas that reflect their political, professional and personal interests. This idea can be transferred to the central hypothesis of the research question, where the active promotion of a district, whether via municipal interest or private enterprise, has any lateral effects on housing and employment in the immediate area. The causalities of the location choice of the knowledge workers and their families are further entrenched in the idea of proximity - with Kunzmann (2009) further essentializing the role that housing plays in the location decision-making process by stating that positive connections are found to be "linked to the local housing market" and that "opportunities to buy or rent a house or apartment that is not too far away from the

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work place" drives location choice of knowledge workers. Furthermore, it can then be illustrated that proximity is defined mostly by the perception of convenience and housing affordability in newly forming economic concentrations, shown on some degree in the Harris Green neighbourhood. Therefore, urban development in modern tech-savvy cities, especially in post-industrial cities, would benefit most from development forms that promote the active delivery of housing, services and information within tighter concentrations, positioned in central areas of activity; such as the aforementioned knowledge communities identified by Kunzmann's article on "*The Strategic Dimensions of Knowledge industries in Urban Development*" (2009).

The preferences of knowledge workers and the high-tech sector are highlighted in the supporting literature of this section, identifying conceptual factors that bring a specific group of people to a neighbourhood and city. Furthermore, the residential choices of knowledge workers have been researched to some extent; illustrating "the importance of economic development, socio-cultural development and quality of life [as] key factors in the intra-metropolitan residential location of knowledge-workers (Frenkel et al, 2013). The literature supports the previous discussion on amenity location and the preferences of those working in highlighted sectors of the knowledge economy, which include those employed in "service industries such as engineering, computer services, motion picture and video production, surveying and mapping, scientific and technical consulting, telecommunications, and research and development" (BC Stats, 2016).

Further to the specific locational and amenity preferences of knowledge workers: "quality of life will be a paramount issue in determining which places can establish, maintain, and continuously regenerate the concentration of human capital (people with knowledge) on which regional innovative capacity rests (Cortright et al., 21st Century Economic Strategy: Prospering in a Knowledge-Based Economy, 2002)." Therefore, quality of life may be an important component facing the City of Victoria's housing pressures, as the City is known as an attractive location in Canada for its moderate climate and cleanliness. The downtown core of Victoria has a walkable, dense structure that lends itself to the locational preferences of knowledge-workers and therefore Harris Green provides a good example of the theories of place discussed here. This part of the City's identity may complement some of this research project and support the suggestion that

quality of life indicators referenced in the creative class literature show a positive correlation to the housing situation in the City of Victoria and Harris Green.[8]

The Creative Class literature is further connected to the issue of social inequality in housing access, Rowland Atkinson and Hazel Easthope (2009) discuss in their article *The Consequences of the Creative Class: The Pursuit of Creative Strategies in Australia's Cities,* that "the very pursuit of creativity either masks or sets in motion particular directions of development activity that may exclude or diminish the role or engagement of particular constituencies." (p.70). This highlights the potentially inherent qualities of creative class economics, that punctuates a defined difference between social classes, effectively rendering mute entire populations of people whom are not 'classified' as being part of the Creative Class. In the context of this research paper, the housing affordability issues can be seen to occur as a result of an influx of creative workers or knowledge industry participants. This is further enhanced by the statement about Florida's research that "companies follow creative workers (rather than the reverse) and creative workers have a large degree of choice over their location." (Atkinson & Easthope, 2009). According to the same article, "Florida himself has recognized that inequality is strongest in city-regions at the top his creativity scale." (Atkinson & Easthope, 2009) further identifying the growing housing inequality that is occurring in parts of Victoria and much of Harris Green, which could potentially be linked to a growing core of creative workers, namely high-tech, in that area.

The notion of city-region size and related retention of knowledge industry creatives is further highlighted by the talent retention research done on St. John's, Newfoundland by Lepawsky et al. (2010). For example, "In each of these themes, the interviewees perceived relative city size and location of St. John's to be conditioning factors—both positive and negative—in their decisions to be based here and their future career aspirations"(Lepawsky et al.,2010). The positive elements being small-town social cohesion and community, the negatives being isolation, lack of opportunities and smaller salaries. The geographic isolation and size of St. John's creates a unique set of variables

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[8] The centrality of the Harris Green neighbourhood along with the quality of life elements that Victoria offers, provides anecdotal support to the concept of this area of the city proving attractive amenities to those involved in the high-tech sector

for it, but in Victoria's case, the situation is different due to a proximity to a much larger population base; namely Vancouver. This provides a larger concentration of mobile individuals transferring out of a larger urban region and into Victoria in search of more affordable options for housing. Lepawsky et al. (2010) identify the mobilities inherent in creative industries, albeit in the context of Newfoundland, where the concept of affordable housing is less pronounced and creative workers preference is more one of access to social networks than it is to amenities. The locational choices of the high-tech sector and knowledge-economy workers is more complex than just choosing a place based on amenity, but also a confluence of factors related to personal ties. Furthermore, "from the perspective of employers and intermediaries, St. John's relative size and location make attraction and retention of talent a distinct challenge" (Lepawsky et al. 2010). St. John's and the City of Victoria share some characteristics, being coastal, island cities that dominate their respective regions (Newfoundland and Vancouver Island respectively) both in population and economic activity, with key differences being Victoria's adjacency to Vancouver, weather and population size (Victoria is approximately 2.5 times bigger than St. John's). For creative industry and knowledge workers, Victoria provides a larger and more complex community of people to work with when compared to St. John's, perhaps building a more dynamic economic sector from which growth occurs.

2.2. Municipal Economic Development & the Knowledge Economy

"Despite the fact that knowledge flows most easily to nearby firms, economic benefits do not flow automatically to the regions where research occurs. To take advantage of academic research, a region also needs to have a local industry base that makes use of the ideas, otherwise they are likely to flow to other, established industry centers (Cortright, 2002 & Fogarty 1999)."

The quote from Cortright above provides a base from which economic development initiatives of the City of Victoria are rooted. More directly, the proximity to three major post-secondary institutions (University of Victoria, Royal Roads University and Camosun College) and the Provincial governmental presence in Victoria, positions the city well in comparison to other municipalities of similar size in Canada; Kelowna or London, Ontario being examples, when referring to the above statement. This academic proximity

is most beneficial to the concentration of knowledge generation, strategies for local talent retention and readily available infrastructure for easy transfer of ideas, communication and sharing of resources. Filion et al. (2004) further support this concept in their research on successful downtowns in small metro regions by stating: "local institutions and public policies will play an increasingly important role in establishing the underlying conditions for success in the knowledge-based economy." Essentially, the retention of students and growth of educational institutions is an imperative in the municipal economic development context and is further discussed in chapter four. This is further supported by research from Filion et al (2004) regarding healthy downtowns that found through a primary survey of successful smaller urban regions that:

all highly rated CBDs possess at least one of the following assets: a university that is in or close to downtown; presence in a metropolitan region with a strong visitor orientation; a well preserved historical district; and a state capital or provincial legislature.

The City of Victoria possesses all of these characteristics and is therefore recognized in the study by Filion et al as a highly successful downtown. Furthermore, the creative class literature by Richard Florida also supports this notion of a positive relationship to service proximity and cultural activity as an imperative ingredient to the success of downtown. This quote from Filion et al (2004) incorporates creative class references that support the above points focusing on downtown vitality:

> From an economic development perspective, lively, entertainment- and culture-rich down- towns are depicted as appealing to the "creative class," broadly defined to include people engaged in professional, product development, entrepreneurial, artistic, and management occupations. According to the perspective expounded by Richard Florida, the creative class assumes a leading role in economic growth.

High-tech workers are direct participants in the professional and entrepreneurial occupations mentioned above when coupled with initiatives of municipal governments, including the City of Victoria, to active economic prosperity in their downtown areas, this research supports my research question to some extent – namely, the indicators of a healthy downtown in today's economy, is one that engages with a dynamic clustering of mobile professionals involved with high-tech in many cases. This is highlighted by the creation of the City of Victoria's Mayor's Task Force on Economic Development.

Municipal economic growth initiatives, programs and policies play a pivotal role in the advent of KBUD as a tool for urban regeneration and reinvention, with housing impacts being further discussed in the next section. This section will focus primarily on the grey literature and supportive documentation highlighting the programs and policies that have promoted economic growth through high-tech investment in Victoria. The City of Victoria is uniquely placed as an attractive location to live, ranking high on the scale provided by Filion et al. (2004) who placed Victoria in the top 19 of 202 cities studied on indicators of success. The cities present on this list included a number of mid-sized urban regions throughout the United States and included Kingston, Ontario and Halifax, Nova Scotia. These success indicators were based on "the easy accessibility of natural amenities, generally bodies of water, untarnished by defacing developments such as waterside freeways" with another key factor identified in this ranking being the presence of continuous facades, heritage buildings and a marked shift away from chain retailers (Filion et al., 2004). These are all characteristics of Victoria's downtown core with the ocean within walking distance, lack of freeways, well-maintained heritage character and general walkability. The particular placement of Victoria as a provincial capital also provides it a stronger ranking due to increased central employment opportunities for those working in the governmental sector. This relates to municipal economic growth initiatives, as these factors importantly position Victoria to actively recruit, retain and build upon existing talent; especially in the new knowledge-economy which, as mentioned, is built upon the location and quality of life preferences of the class of workers involved in that industry.

Furthermore, educational institutions play an integral role in knowledge-workers' preferences, as shown in this quote from Frenkel, Bendit and Kaplan (2013):

> The knowledge-workers' residential location choice is positively related to the socioeconomic index of the municipality. As the index is a proxy for the population share in the municipality of highly educated population employed in prestigious occupations providing an abundance of networking and collaboration opportunities, this result confirms hypothesis H5 indicating that knowledge-workers tend to be attracted to knowledge communities characterized by highly educated population.

The City of Victoria, as far as a medium-sized urban region is concerned, has a high number of educational institutions including the University of Victoria, Royal Roads University and Camosun College amongst other private colleges. The current situation in

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the city is that students are tending to remain rather than leave, as was the case in Victoria's past and emphasized by Margaret Lucas (Interview, 2017) in this statement:

> We used to see UVIC with all the young people. We had the biggest brain drain than any other university because they could not stay and live here. They loved Victoria and they wanted to be here but they couldn't afford to stay here. Now with some of the things we're starting to do and the businesses and the tech companies that are opening up, it's allowing these people to stay.

By encouraging students to remain in the city, it has allowed, to some extent, for a revitalized urban core, with much of that focus occurring in the Harris Green neighbourhood through directed city planning policy, residential development and it's central location in the region. Furthermore, Colliers International reports that as of Spring 2017, there is anticipated growth in the student population and the high-tech sector, as stated here:

> We are forecasting (in the proposed, approval, and under construction process) the addition of ~3,556 units to Victoria's downtown with an additional ~3,940 units to the Westshore Region, which will ease our very tight vacancy levels. However, as we anticipate a continued in-migration of students to our 3 major post-secondary learning institutions along with employment growth in the burgeoning tech industry, combined with an influx of empty nesters, our rental market should not experience significant increases in vacancy levels.

While the real estate industry is subjective in its analysis of growth, there are indications that real estate development is occurring as an increasing rate along with decreasing rental vacancies due to condo conversions of existing stock. The replacement of affordable rental units with more costly condo conversions is a concern, as purpose-built rental units in many cases, provide a lower rental threshold, while privately held secondary rental units generally command a higher rent. This is reflected in the following statement:

> Condominium apartment rents are typically higher compared to those for purpose-built rental units, as the former are generally newer and offer more amenities (e.g., in-suite laundry, dishwasher, underground parking, etc.). In 2015, average rents for two- bedroom condominium apartments were 13 per cent higher than those for two-bedroom units in the purpose-built market. (CMHC, Rental Market Report, 2015).

Currently, the City is in the process of increasing the number of purpose-built apartment buildings in response to the concerns about affordability.

2.2.1.   High-Tech Sector Promotion

The promotion of the high-tech sector in municipal and regional economies has been a result of the influx of Creative Class theory explained in the section 2.1, where city-regions are forging new paths in the "new economy."[9] Many major metropolitan areas around the world are now drawn to a formula that combines a focus on the new economy, investment in cultural resources and an attempt to create a vibrant sense of place. Two of the best-known names in the creative city movement are Englishman Charles Landry and American Richard Florida. While there are some similarities in their arguments, both theorists approach the issue of the creative city in distinctive ways (Atkinson & Easthope, 2009). The digital creative industries associated with the Creative Class are connected to a growing understanding that to be competitive; a city somehow has to attract those involved in these industries. This is further expressed in the ideas around 'Clustering' of the economy, which is defined by Stuart A. Rosenfeld in his article titled *Just Clusters: Economic Development Strategies That Reach More People and Places* (2002) as:

> *"a spatially limited critical mass (that is, sufficient to attract specialized services, resources, and suppliers) of companies that have some type of systemic relationships to one another based on complementarities or similarities."*

An interesting aspect of the cluster economy is that much of their success appears to lie in the establishment of locally-trained 'mid-skilled' workforces who tend to be more geographically constrained (Rosenfeld, 2002). This is further enhanced by the idea that through the clustering of knowledge and social capital, that communities form and assist in the transmission of knowledge from individual to individual. Therefore, local economic development appears to understand the necessity of having engaged communities of like-minded entrepreneurs and similarly-skilled workers within close proximity to one another; even in a global marketplace. For example, "the use of clusters as a focus for economic development strategies does not necessarily directly benefit low-income people, small employers, or distressed regions. Left to their own devices, clusters do not explicitly pursue social goals" (Rosenfeld, 2002). This is important to note as the purpose of this research paper is to understand the impacts that a potential high-tech cluster in downtown

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[9] The New Economy is essentially based on the innovation and the knowledge economy as opposed to older economic structures focused on manufacturing and resources.

Victoria may be having on those who are on the periphery of its activity; particularly those who are attempting to remain in or access the rental housing market. Knowledge clusters have come to "be associated with increased income disparities and limited career ladders" (Rosenfeld, 2002) which is a result of the educational levels of those involved in these sectors to the exclusion of those who are unable to access higher levels of education. Mentioned further in section 4.2.1 is the idea that Victoria's localized highly-educated population is a growing factor in the positive correlations occurring in affordability and increased retention of local (national and international) talent. Innovation clusters also, for example, may result in gentrification, making "neighbourhoods of cities and towns more attractive to investors but can also make them less affordable to current residents" (Rosenfeld, 2002), once again reiterating the impacts that clustering and knowledge-based workers can have on the local housing market.

The parameters of a successful city in the knowledge economy appear to apply to the City of Victoria; namely these include amenity proximity, highly educated workers, desirable location and concentrated access to communication technologies and tech firms. Recognizing the importance of actively building upon these strengths, the City of Victoria has established some documentation, programs and policies that actively promote the high-tech sector and business development. The City of Victoria and local tech incubators have established the following reports and initiatives[10] that address the inclusion of the high-tech sector in Victoria's economic directions:

1. Making Victoria – Unleashing Potential: Economic Development and Prosperity Economic Action Plan (October 2015)

2. City of Victoria Economic Development and Downtown Prosperity Task Force (2015)

3. City of Victoria Downtown Core Area Plan (September 2011)

4. The City of Victoria Business Hub (December 2015)

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[10] Other reports and initiatives exist including the OCP, Economic Development reports and the like, but do not reference high-tech as central to their reports, but part of the greater confluence of factors.

5. Angel Investor/ Micro-VC Fund Analysis (Tectoria Venture Partners) (May 2016)

6. VIATEC – Economic Impact of the Greater Victoria Technology Sector (September 2014)

To remain competitive and attractive to capital, the City has taken on the KBUD principles identified by Yigitcanlar (2007) and Van Winden et al., (2005) in the previous section and has recognized the need to establish key priorities for growth in the knowledge and high-tech sectors. For example, the terms of reference for the *Mayor's Task Force on Economic Development and Prosperity* (City of Victoria, 2015) specifically includes directions for the successful promotion and delivery of strategies for improved business activity, including high tech. The following list highlights these terms:

a) *Fill downtown retail and commercial vacancies*

b) *Support start-ups, 'scale-ups', and business relocations to Victoria*

c) *Foster entrepreneurship*

d) *Support job creation in particular for college and university grads who want to stay and work in Victoria*

e) *Support social enterprises and community economic development initiatives. (services addressing the needs of marginalized citizens)*

A key driver of the tech sector is the establishment of 'start-ups' that require the principles described in section 2.1 and based on the knowledge precinct ideas expressed by Yigitcanlar (2010) in the same section. The establishment of these precincts is further supported by the Official Community Plan (OCP) Section 21.4.2, which specifically defines the need for the Harris Green Neighbourhood and Downtown to "Strengthen the function of the Core Business designation as an employment district by increasing its office capacity" (City of Victoria, 2012). Figure 3 below shows the location of office densities and directives for neighbourhood change in the Harris Green and Downtown [11]focus areas. Harris Green shows "Core Business" and "Core Residential" designations with targeted increases in height and density along the westerly edge of the precinct.

Figure 3   Harris Green and Downtown Neighbourhood OCP Strategic Directions
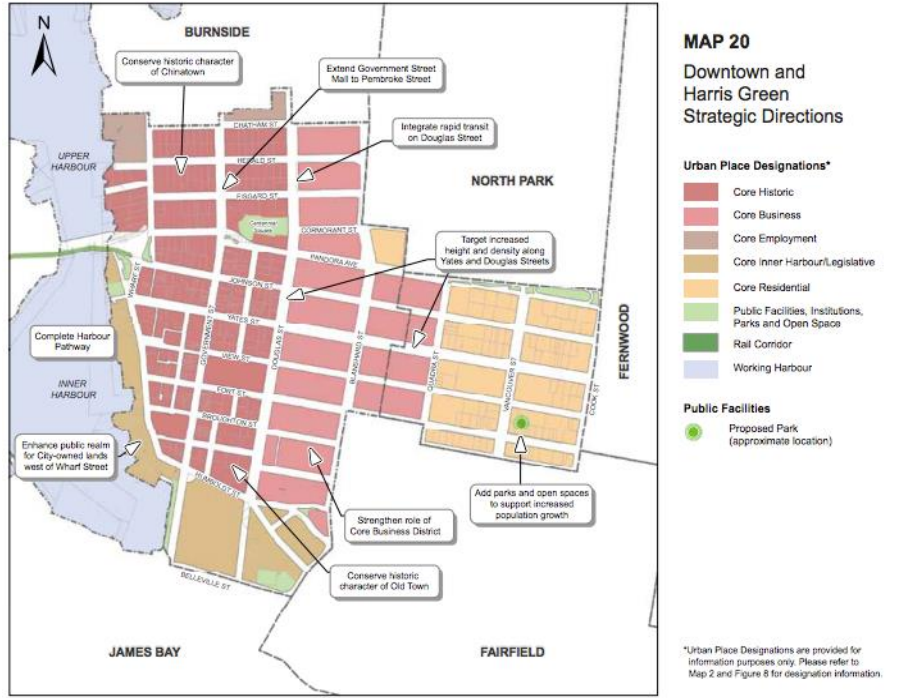
The City of Victoria is actively utilizing available regulatory tools, such as the Official Community Plan and Neighbourhood Plans[12] to establish a robust policy response to the integration of high-tech firms into the local economy. With the inclusion of the Task Force, further investment programs were developed, including the establishment of the business hub, which was designed to streamline the process of business licensing in the City of Victoria. The importance of start-ups in this particular section of the economy is highlighted in the research by Richard Florida (2015)[13] where he finds that "venture capital investment and startup activity in software and media and entertainment shows clear evidence of an urban shift back to downtown areas, while investment in biotechnology is more clustered around major universities and research institutes." This correlates to the

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[12] No specific neighbourhood plan is available for Harris Green as it is included in the Downtown Core Area Plan and the Fort Street Corridor (in 2018)

[13] StartUp City Canada – The Geography of Venture Capital and Startup Activity in Canada - 2015

activity occurring under the auspices of the projects being implemented by the municipality to encourage investment, including the task force, business hub and policy frameworks such as the economic action plan. Furthermore, VIATEC has provided some research under their report titled *It Takes A Community: How Community-Based Organizations Can Help Grow Advanced Technology Companies in Regional BC* (2016) which elaborates on the current economic scene in Victoria, establishing that the concurrent activities happening in Victoria are a result of proactive collaboration between the City and private ventures. For example, between 2010 and 2015, not only did the launch of Tectoria (the innovation-based technology hub in downtown Victoria) happen, but the venture accelerator program, the Victoria Business Hub, the Task Force and changes to the directions in the OCP. The combination of these changes has formulated in the rapid development of the tech sector in the Greater Victoria resulting in an estimated $3 billion or more in direct economic impact (Wetterberg, 2014).

2.3. Housing Affordability in High-Tech Centres

Gentrification, for example, is expressed as a spill over effect of drawing in those involved in high-tech and knowledge industries to a city. Moreover, Atkinson and Easthope (2009) describe "there is also a disjunction between the perceived attempt to attract young and affluent groups, and the inequities that this has generated in many neighbourhoods through patterns of gentrification." Particularly important is the idea that attraction of these groups is part and parcel with the creative class population that Florida speaks about. While the affluence arrives, there are many actors in the city's population who do not benefit from this. For example, "many key actors in the community sector felt that the pursuit of a creative class was synonymous with a desire actively to promote gentrification and thereby supplant more needy communities by affluent groups who might also facilitate the improvement of the physical fabric of the city" (Atkinson & Easthope, 2009). While local economic development initiatives focusing on Creative City Strategies[14] have good intentions, the overall process generally ends with exclusion of one group over another: "While a rhetoric of engagement and universal social potential is often seen accompanying

[14] Creative City Strategies are focused on the creation of a long-term strategy that involves the importance of human and cultural capital in building economically resilient cities.

ideas around the creative city, it appears that urban governance approaches seek to enhance the possible rewards associated with this agenda and yet have been generally ignorant of those excluded from, or unable to join, the new economy" (Atkinson & Easthope, 2009). This argument may play a particularly important role in the concerns facing housing in the City of Victoria as the role of high-tech in the economy has grown so quickly through proactive investment and policy mechanisms created by the City, discussed further in Chapter Four.

The literature focusing on high-tech sector impacts on local housing markets generally leans towards cost variables (renting vs. owning) that result in unequal access to housing. The literature tends to be more quantitative in nature when focused specifically effects of high-tech on housing. This is supported by the key works of Quercia, Stegman & Davis and Kathryn P. Nelson, which quantify the effects on housing in high-tech cities. For example, "after controlling for employment growth, development restrictions, and socioeconomic characteristics, they found that a high-tech presence "significantly contributes to critical housing problems" (Nelson, 2002). While the work done by these researchers is useful in terms of contextualizing the impacts of high-tech economic activity on local housing markets, the application of their methodologies were more transferable to a larger scope than this research project. The focus is on the U.S. economy, as well as larger metropolitan regions with more dynamic and complex markets, which are transferable to my hypothesis that high-tech is impacting rental housing affordability, but not on a replicable scale for this research. Therefore, I used their information as a basis for my argument but have established a different process to measure effects on declining affordability and availability of housing and will be covered in the Data Collection and Methodology of Chapter 3. My research hypothesis is further supported by another quote by Nelson, which states "housing markets in high-tech metropolitan economies tend to be tighter and more expensive than in other areas, with worse shortages of affordable housing and higher shares of extremely low income and very low income renters having severe problems" (Nelson, 2002). It is the combination of the research done by Nelson, Quercia, Stegman & Davis and work by Stephen Malpezzi on *"Urban regulation, the "new economy," and housing prices* (2002) that sets the stage from which a conceptual frame, including data on location quotients, for understanding the impacts that high-tech economic activity has on the local housing market. Further

research by Quercia, Stegman & Davis (2002) shows "high-tech economic growth is expected to lead to an increase in critical housing problems. Moreover, given that high-tech growth appears to exacerbate income inequality, it may affect the incidence of housing problems, probably even over and above the impact of overall economic growth." Supporting Quercia, Stegman & Davis's research, Kathryn P. Nelson provides an effective analysis of the case for lower affordability in high-tech centres; for example, she states "in the mid-1990s, vacancy rates were lowest in high-tech areas for all rental units, for units costing below fair market rents (FMR)[15], and for units affordable to very low income renters" (Nelson, 2002). The work by Stephen Malpezzi does discuss the impacts that urban regulation has on housing price increases, while measuring the levels of urban regulation using a regulator index that quantifies levels of municipal intervention in building housing.

For the purposes of this study, I have used these policies as a reference point, such as zoning mechanisms and the Official Community Plan, but only as guideposts towards understanding the outcomes of my research question more thoroughly. I have examined urban regulatory constructs, such as zoning bylaws, which have informed this research through the municipal regulatory context along with a review of potential impacts on the City of Victoria's housing market which is further referenced in chapter four.

The City of Victoria implemented the Mayor's Task Force on Housing Affordability in April 2015 with a set of key goals and objectives that will help address the current housing concerns facing the city. Jacqueline Luffman (2006) also discussed the metrics of housing affordability and the complexity of the issue, especially when identifying trends that blanket one group into similar categories; shelter cost burden being one of them.[16] This connects to my research question by recognizing that potential municipal initiatives are addressing the concerns about housing affordability in the City. The recommendations

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[15] U.S. methodology used to define how much a unit would rent or lease for currently – used to decide how much rent will be paid for under Section 8 of the U.S. Housing Act

[16] Luffman describes those with a severe shelter-cost burden as a diverse group, although one-person households have a greater tendency to fall into this category (Luffman, 2006).

set the tone for housing development in the city and may impact the amount of housing to be built in the coming years. The goals and targets outlined include:

- Increasing the overall housing supply in the city

- Have a minimum of 19% of new housing units built as affordable

- Generate and Allocate Additional City Revenue to Affordable Housing

- Create Places Everyone Wants to Live through Urban Planning Principles

(Source: City of Victoria, 2015)

It is under these conditions that a proactive policy response from the city has been formulated in combination with a general housing strategy that has guided my understanding of the housing market in Victoria and Harris Green. The figure quoted above stating 19% of new housing units being affordable could assist in addressing vacancy and affordability problems, but this would take years to come to fruition due to development processing and construction timelines. However, it would support the first point indicated that overall housing supply must increase to address the problem of reduced supply. The Canada Mortgage and Housing Corporation also releases annual Rental Market Housing reports in conjunction with the Rental Housing Index that both provide census-related calculations on the availability and affordability of the rental housing market. The rental housing index, for example, provides a snapshot of a particular rental scenario, showing information such as average rental household income, number of rental households and number of total rental households in any particular municipality (BCNPHA, 2011). While this data is not specifically linked to the high-tech sector, it does have merit when discussing concerns about affordability when addressing my research question. Understanding the economic variables concerning access to housing links to the discussions about high-tech workers having higher salaries and concentrating in particular locations, when combined, having an effect on housing conditions in neighbourhoods within close distance. In addition, there is evidence that a relationship does exist between lower incomes for renter households and a higher cost-to-income ratio for basic household costs (Luffman, 2006). The effects of this can be severe in the City of Victoria, where conditions of availability in housing may force renters into situations where they are unable to adequately afford the costs associated with shelter. Luffman

(2006) is quoted as saying, "Rents vary considerably across the country, and for the most part, the larger the city, the higher the costs." The City of Victoria may be an outlier in this case as the costs of renting in Victoria are considerably higher than many other jurisdictions of similar size in Canada, which can be found in the Rental Housing Index and Canada Mortgage and Housing Corporation's housing data. For example, the City of Kelowna ranks 49 out of 72 municipalities in Canada for housing affordability, while Victoria ranks 56th indicating a less affordable housing market. When comparing these two cities, the primary reasons for Victoria's more expensive housing is most likely due to location and size.

The associated rental market housing reports and the provision of affordable housing initiatives by the City of Victoria such as the Victoria Housing Strategy have helped formulate the concepts around potential links between increased promotion of the high-tech sector and the concomitant drop in housing availability that is occurring.

Chapter 3.   Methodology & Research Approach

In order to support my research question, I focused on a specific time period from 2011-2016 (based on census periods) in order to identify characteristics, such as increases or decreases in high-tech business openings and housing availability and costs, in the City of Victoria, during this timeframe. Besides the correlation with the census periods, this timeframe has also been chosen because it is during this time that much of the growth and investment in the City of Victoria's tech sector has occurred; along with concurrent drops in affordability and availability of housing. Nelson (2002) also explains that research on affordable rental stock in U.S. cities was linked longitudinally "over four-year periods between 1985 and 1992 to study change in the affordable rental stock." For the purposes of this research, however, one 5-year census period is used as the changes in Victoria's downtown housing market have only recently occurred, along with the influx of tech businesses during a similar time period.

The data and findings collected throughout my research were found via secondary sources available in statistical databases including B.C. Statistics, the City of Victoria Open Data Catalogue, Canada Mortgage and Housing Corporation Rental Market Report, the Canadian Rental Housing Index and grey literature from the municipality, VIATEC and real estate researchers. These databases, except for the Rental Housing Index[17], provide statistical data from 2011 to present on indicators including, but not limited to, housing costs, building permits, development permits, labour force and income, business licenses and high-technology sector investment by municipality. In this research, identifying the trends surrounding recent housing vacancy and availability issues within the City of Victoria in conjunction with increases in high-tech sector employment and related business licenses enabled an analytical framework of connections to be qualitatively studied. These connections were used to base the central thesis argument of housing impacts in one urban neighbourhood being affected by changes in the types of workers and businesses locating there. The general approach to this research is inductive in nature and has resulted in drawing out the particular relationships inherent in the data and the interview responses; reflecting the premise of the research question. The analysis of the annual

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[17] The Rental Housing Index was launched in September 2015 and uses NHS data from 2011

changes in each metric such as number of housing units built or available followed a mixed-methods approach where the 'hard' data, such as specific numbers of development applications, were supported and enhanced by interviews with key stakeholders selected through a judgement sampling or non-probability sample based on roles in development, housing, politics and business. This was combined with a small snowball sampling of selected organizations, including VIATEC, the Urban Development Institute and the Downtown Victoria Business Association, developers and high-tech business representatives operating in the downtown core. The snowball sampling was done upon recommendations from other interviewees and references involved in the preliminary research process. A specific focus was made along the Fort Street corridor and the Harris Green neighbourhood boundaries as described in Chapter 1, as much as possible, as this is where the concentration of downtown mixed-use development and high tech activity is occurring.

According to VIATEC, Greater Victoria has an active community of high technology companies, which numbered close to 884 in 2014 not including those who are self-employed. [18] The number of overall high-tech businesses according to Dan Gunn of the VIATEC, has grown dramatically since 2014, but as VIATEC's last study "is three years old and [we're] in the middle of our next one" (Interview. Gunn, 2017), those numbers are not available currently. Gunn (2017) stated "we know there's been growth" in the number of tech businesses and overall sectoral revenue in Victoria. As no study was conducted prior to 2014, the most recent figure is the most accurate representation of growth in the sector in recent years.

3.1. Data Analysis

My approach to analysing the data has followed a mixed-methods approach including some descriptive statistics, such as the number of high-tech businesses in the subject area, population changes and development applications occurring. I have

[18] Economic Impact of the Greater Victoria Technology Sector (2014) - VIATEC

supported patterns in the data with qualitative information collected from semi-structured interviews as well as content analysis of supporting documentation from housing reports, municipal business, economic reports along with reports from third-party organizations such as VIATEC and graduate theses.

My analysis is built upon available secondary data along with key informant interviews that encouraged a precise and localized understanding of the research question and potential relationships between the high-tech presence in Harris Green and what possible impacts it may be having on housing in the neighbourhood. I chose to keep the geographic scope small, in order to make the research more manageable, while ensuring rigor and accuracy. As mentioned, the interview sample is being kept small and specific to the director, owner or managerial level in order to produce a more thorough understanding of the decision-making process behind investment and development projects. A mixed-methods approach was the most effective for my research purposes as key connections were made to support the relational characteristics of the numbers and how they support the research focus. This was found via comparative review of the available open data and interviews, as highlighted in section 3.1. The interview sample size is representative of the small geography of the research project as those involved are higher-level decision makers which helped assist with a broader understanding of the neighbourhood versus a micro-level experience, or community member living in the neighbourhood, which may have provided a more subjective perspective that would not reflect the approach needed to address my research question. Although interviewing key informants in the community may have provided specific experiences of a renter in the neighbourhood, I wanted to maintain an arm's length in order to build my research around policy, development and data and the general overall impacts occurring. The secondary data analysis and content review was used primarily as a way to quantify key identifiable issues, such as location of new developments to high-tech businesses, business license issuances and to provide support of interview narratives or themes arising from the literature review.

Secondary data was collected from three main sources: Business Licenses, Census Profile and Development Permit data from the City of Victoria Open Data Catalogue (2011-2016), BC Statistics Building Permits by Type and Statistics Canada

data on housing tenure, population and labour (2011-2016) – this included Canada Mortgage and Housing Corporation data on housing. Document and content analysis and semi-structured key informant interviews have provided supportive qualitative approaches to the secondary data. Tenure data from the Canadian Rental Housing Index and the City of Victoria open data catalogue combined with qualitative data collected from interviews with the manager of VIATEC and representatives of organizations for projects based on their proximity to technology hub forming near Harris Green and Downtown. The sample for the interviews was chosen to keep the frame manageable but impactful, while addressing key facets of housing policy, new development and high-tech businesses activity in central Victoria. The participants interviewed are all working on the management side of projects, policy and business, and were selected to build an understanding of the broader context of growth and change in downtown Victoria. Selection criteria for development projects will be based on proximity (within the neighbourhood boundaries) to the study area of Harris Green neighbourhood census tracts.

3.1.1. Definitions of High-Technology Labour

The BC Labour Market Scenario Model (2010) definitions for high-technology occupations have been used to identify high-tech businesses for the purposes of this research project. These high-technology occupations are identified in the following table as:

Physical Science Professionals
Life Science Professionals
Civil, Mechanical, Electrical and Chemical Engineers
Other Engineers
Computer and Information Systems Professionals
Technical Occupations in Physical Sciences
Technical Occupations in Life Sciences
Technical Occupations in Electronics and Electrical Engineering

Medical Technologists and Technicians (Except Dental Health)

Source: BC Stats, BC Labour Market Scenario Model - High Technology Occupations (2010)

Furthermore, the North American Industry Classification System (NAICS) Canada 2017 has provided the definitional structure for the labour market scenario definitions; which classifies the tech sector into the following:

"The main components of this subsector are legal services; accounting, tax preparation, bookkeeping and payroll services; architectural, engineering and related services; specialized design services; computer systems design and related services; management, scientific and technical consulting services; scientific research and development services; and advertising, public relations, and related services.

The distinguishing feature of this subsector is the fact that most of the industries grouped in it have production processes that are almost wholly dependent on worker skills. In most of these industries, equipment and materials are not of major importance. Thus, the establishments classified in this subsector sell expertise. Much of the expertise requires a university or college education, though not in every case." (Statistics Canada, NAICS Definitions, 2017).

Additionally, according to the 2016 *Tech Talent Report* by the BC Tech Association, the following subsectors of high-tech comprise the main elements of BC's technology sector:

Information and Communications Technology (ICT)
Lifesciences (LS)
Interactive and Digital Media (IDM)
Cleantech (CT)
Engineering Services

Source: BC Tech Association Tech Talent Report (2016)

The combination of these categorized definitions linked into the active business licenses in the city as well as the occupational characteristics of the companies operating and moving into the subject area. For example, when I was selecting the particular business licenses to analyze for this report, these categories listed above aided in identifying those business licenses most closely aligned to the professional definition. For the purposes of this research paper however, the labour market scenario model definitions were the best choice for reference as they were collected by the Province of BC's Statistical agency; providing an objective non-biased approach to categorization.

3.1.2.   Open Data

The data collected through the City of Victoria's Open Data catalogue assisted in categorizing business licenses by category and year, development and building permits by year and type and housing tenure information by year. The purpose of the secondary data analysis is to illustrate annual changes from 2011 to 2016 (and in some cases 2017) in rental housing tenure, development and rezoning permits, high-tech business license issuance and housing starts within the identified census tract areas.   The dates were chosen to allow for a limited scope timeframe of available data within a census period, as mentioned previously in this paper, and ensured that insurmountable amounts of data were avoided.   For the purposes of analyzing the data, I referred to some analytical methods in Michelle McGuire's (2014) thesis on a specific housing area plan in Vancouver, including comparative neighbourhood demographics in combination with Laurel Donaldson's (2014) thesis on growth management in the knowledge economy. McGuire (2014) utilizes a similar data collection approach used in this research paper, which uses census data for comparison neighbourhoods and development permit data in combination with content analysis and interviews. Donaldson (2014) uses specific neighbourhood case studies and background trend analysis on secondary data available through governmental data sources. The locational preferences of the identified businesses, in conjunction with the established analytical frameworks of researchers such as Laurel Donaldson (2014), enable a thorough mixed-methods approach to my research, reflecting the state of the local economy and resultant housing situation. While McGuire and Donaldson used some

quantitative statistical analysis, I chose to focus on the qualitative aspects of my research question by analyzing the data for relationships and making connections to it through document review and interviews, discussed in section 3.1.2.

Collecting of this data was used to identify the locational characteristics of recent high-tech business locations within the central city of Victoria, specifically drawing out higher concentrations and their proximity to new building and development permits. Kathryn P. Nelson in her article on housing policies in high-tech communities (2002) provides some quantitative analysis options through the use of location quotients measuring the number of high-tech firms per 1,000 workers, but the scale of Victoria's high-tech community does not appropriately translate into useful data, as the margin of error would be quite significant for a smaller city such as Victoria when compared to San Francisco. Throughout this analysis, I have tracked where concentrations of both developments and new businesses are occurring and to draw relationships between these concentrations and concurrent changes in housing access and affordability.

3.2. Interviews

The geographic scope of the secondary data and interviews was kept narrow, specifically to the neighbourhood level (Harris Green & Downtown), in order to analyse the results within a manageable timeframe. Responses from the interviews reinforced the research question and shared similar themes and perspectives. All secondary data collection was entirely dependent on information availability from sources on housing, investment metrics[19] and affordability. The interviews responses and discussion ultimately supported the secondary data and provide a qualitative framework to discuss the research question. The literature mentioned previously helped guide my approach to building this narrative in combination with transcription and document analysis. As my research focused on inductive methods, I was able to establish a connective relationship between the interviews, content analysis and secondary data analysis identifying specific changes over

[19] Millions of dollars in investment per year, year-over-year growth in high-tech sector employment or number of business licenses issues in the City of Victoria on annual basis.

the time period. A deeper quantitative analysis was difficult to apply to the smaller geography and limited data of Harris Green with the potential to broaden the scope of this research paper beyond what was necessary to provide a solid discussion of the topic. The decision to implement a policy such as an affordable housing initiative (City of Victoria) or why a particular location was chosen for a business hub or building (VIATEC and Developers) was the direction the interviews were crafted to follow. The questions were worded to ultimately support the secondary data and provide a qualitative analysis, as described in the literature review, from which to establish a holistic narrative of research outcomes instead of solely focusing on numbers to explain the comparative analysis.

Interviews were used to strengthen the subjective experience of those involved in the housing and business sectors of Victoria, while assisting in drawing comparisons and geographic concentrations that may arise in the secondary data. Themes identified in the interview transcripts established a narrative as described by Babbie and Benaquisto (2002) and Feldman et al (2004) such as locational preference, costs and employee behaviours.

All interviewees provided pre-consent obtained through an emailed consent form. These interviews were held in either a private office location or at a location of choice for the interviewees and to maintain confidentiality if they chose a non-public location. The purpose of the interviews with selected representatives of identified organizations was to gather qualitative information on their experiences and knowledge in their respective fields of expertise – specifically high-tech sector investment, business investment and the housing market in Victoria. Clustering the interviewees based on their respective involvement in a particular topic allowed for a broad, but defined, approach to collecting a qualitative understanding of the environment in which high-tech is operating within the focus neighbourhood and related housing changes. This approach was qualitative in nature and followed general principles of qualitative analysis as outlined by Babbie & Benaquisto (2014) and allowed a comparison of the thoughts, ideas and opinions of those interviewed by collating observations and theorizing on the connections made between observations. For example, linkages regarding company growth and vacancy rates were made between statements such as:

I can tell you that since September 2016, in this building alone, there are 200 or 180 people. There 25 downstairs, 50 on the other, and at least 100 in just this building we are located in. So Giftpic, Camerapp, Summerfor, Cellutions and they're growing. So the second floor is now moving up to the fifth floor, which is currently occupied by the Urban Economic Development Board, they're leaving which will leave one tenant left in this building which is not IT related, which is the Parole Board. (Morehouse Interview, 2017).

And;

They were having a hard time with finding space for their companies but also residential as well. So space for the companies because of the high-tech necessity for their buildings and fibre-optics and things like that; they were having a hard time. (Hogan Interview, 2017).

The interviews interacted in a way that supports the general research question to some degree; which is exampled above by cross-referencing the statements, it is clear that high-tech growth is happening and limitations on both commercial and residential space for this sector is occurring.

After reviewing potential organizations to interview, I chose to contact the Victoria Innovation, Advanced Technology and Entrepreneurship Council (VIATEC), which is a regional organization focusing on sector research, innovation, networking and promotion for the Greater Victoria area, providing an excellent resource for linking tech sectoral growth to changes occurring in the central city. In addition to **Dan Gunn**, CEO of VIATEC, the other organizations and interviewees included:

Jason Morehouse, Co-Founder & Chief Executive Officer of Checkfront Inc.[20]

Rasool Rayani, Board of Director for Victoria Foundation, Owner – Heart Based Pharmacy Group, Board Member of VIATEC and active High-Tech Angel Investor and Real Estate Investor

Kathy Hogan, Executive Director of the Capital Region Urban Development Institute

Kerri Milton, Executive Director, Downtown Victoria Business Improvement Association

[20] Checkfront Inc. is a high-tech company specializing in online booking software

Margaret Lucas, Councillor for City of Victoria and Harris Green Neighbourhood Representative

Justin Filuk, Director of Development, Townline Developments[21] and;

Adam Cooper, Development Manager, Abstract Developments[22].

These interviewees were selected based on their associated roles in upper-level management, ownership or directorial positions in high-tech, business and politics within the downtown or Harris Green areas. Additionally, in November of 2016, a small luncheon was held by the Urban Development Institute of Victoria titled,"*How can the Development Industry Facilitate the Growing Needs of the Tech Sector?"* The specific topics of discussion being held between Rasool Rayani and Jason Morehouse, both selected interviewees, focusing on addressing the topic of "workspace requirements and housing needs for the high tech sector" while answering the primary question outlined above in the title of the event. Mr. Rayani and Mr. Morehouse were chosen as selected respondents since they had spoken publically in regards to the issue covered in this paper, while acting as meaningful members of both the high-tech and real estate communities in Victoria.

The other interviewees were selected basd on their activity in the downtown core and specific roles related to the advancement of business, real estate and investment in the core. Kathy Hogan, the Executive Director of the Capital Region Urban Development Institute, was referred via another key contact who was unable to interview. She is directly involved in the advancement of Victoria's development community and improving the investment environment for Victoria businesses, developers and investors. The Urban Development Institute was responsible for holding the luncheon event mentioned above in November 2016, which lead to further discussions in the community and to interviewing those involved in the event. According to Hogan, "the rental situation in Victoria is dire." At 0.6% rental vacany rate, this makes it one of the worst rental markets in the country. The following Figure 4 shows Victoria's rental vacancy in comparison to other cities of similar size in Canada as a point of reference. Other municipalities do come close to Victoria's low vacancy rates, but Victoria remained the the lowest amongst the selection.

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[21] Townline Developments is a local development company based in Vancouver and Victoria
[22] Abstract Developments is a local development company specializing in higher-end projects

Figure 4 Comparisons of Mid-Sized Cities Vacancy Rates (October 2014 – October 2015)

City	Vacancy Oct 2014	Vacancy Oct 2015
Victoria	1.5	0.6
Abbotsford-Mission	3.1	0.8
Kingston	1.9	2.8
Hamilton	2.2	3.4
Guelph	1.2	1.2
Regina	3.0	5.4
Kelowna	1.0	0.7
London	2.9	2.9

Source: CMCH, City of Victoria Housing Report (2015) – adapted by author

However, Hogan also pointed out that "there is more rental coming on stream than there are condominiums. About five years ago, was the first market rental building that was built in over 30 years in Victoria." (Interview Hogan, 2017). Further to this, in the tech sector "15,000 are employed directly, 3,000 have consulting, contracting and freelancing and 5,000 have tech jobs not working for tech companies" (Gunn Interview, 2017). Data on housing changes, development growth, tech-sector growth and investments in the focus neighbourhoods (and the greater region to some extent) further reiterated by other interviewees supported the research question. Through specific questions identifying the growing concentration of tech businesses in the downtown core and Harris Green neighbourhoods and prospective effects of the growing pressure on housing availability and affordability in the core areas.

Interviews with the tech owners (Dan Gunn, Rasool Rayani, Jason Morehouse) and development organizations (Kathy Hogan, Kerri Milton), one politician (Margaret Lucas) and two development representatives (Justin Filuk and Adam Cooper) assisted in clarifying details about the tech sector environment, building and development changes in order to establish a qualitative analysis on the state of housing and why the businesses have invested in their particular locations in Harris Green and downtown. The interview questions were divided into two categories and sets of questions based on the following (with some variations due to conversational directions):

A) Entrepreneur/Tech Business Representatives

1. What is the type and nature of the business you operate?

2. What factors led you to choose to locate your business where you did in the City? Why?

3. How long have you operated your business in the City?

4. What factors led you to invest in the City of Victoria?

5. Where do your employees tend to want live in the City? Downtown, suburbs, or no pattern?

6. How important is it to your employees to be located close to your business? Does your business prefer this as well?

7. What do you feel/see are the major issues relating to housing your employees?

8. What do you think has led to decreased rental housing availability in the city? Both downtown and the city overall.

9. Do you see links between housing high-tech workers and rental housing affordability and availability in Victoria? Please explain.

10. What do you see as the future trends for housing and high-tech business in the downtown area?

B) Organizational and Development-Oriented Representatives

1. What is your understanding of high-tech sector growth in Victoria?

2. What is your understanding of the tight rental housing market in Victoria? Specifically the areas in close proximity to downtown.

3. If there have been decreases in both availability and affordability of rental housing in Victoria, when and how did you start to notice these changes?

4. When did you notice there was increased high-tech investment interest in the City of Victoria? Please explain.

5. What do you think has led to decreased rental housing availability in the city? Both downtown and the city overall.

6. Do you believe there are connections between housing high-tech workers and rental housing affordability and availability in Victoria? Please explain.

7. What do you see as the future trends for housing and high-tech business in the downtown area?

Responses from these interviews were collected and transcribed, which enabled a cross-sectional review of the respondents' understanding of the impacts of the newly expanding tech sector on the downtown's housing supply. This is further described in Chapter 5, Findings and Outcomes.

Chapter 4.   Municipal Policy, Economic Development & Housing Review

Themes and patterns within my documentation were found through identifying key narratives and then using this information to support the interview responses and supplementing with the review of municipal documents and research reports from other organizations such as the BC Non-Profit Housing Association. The importance of the municipal policy context on housing, affordability and economic innovation helped to guide the discussion and identify key patterns and general dates of implementation and whether this affected both the economic environment and housing activity. The document analysis and interview data in Chapter 3 was reviewed for emerging themes aimed at understanding of policy changes, investment and growth in the selected neighbourhoods. This section aims to broaden the discussion to understand the municipal context of housing strategic directions, which assists in understanding any concomitant impacts on the Harris Green neighbourhood and Downtown areas.

I reviewed for specific information on years when a municipal economic policy, such as the Mayor's Economic Development and Prosperity Task Force was implemented and whether this was related to increases in both high-tech investment and potential concurrent housing impacts, if any. This enabled a broader understanding of the factors that are contributing to housing issues and related growth in high-tech investment in the catchment area of Harris Green.

Figure 5   Timeline of Municipal Planning, Housing and Economic Development Initiatives

Name of Municipal Document or Initiative	Implementation Date
Downtown Core Area Plan (minor revisions in 2013)	September 2011
Official Community Plan	July 2012

City of Victoria Housing Reports	**2014 & 2015**
Mayor's Task Force on Economic Development and Prosperity Action Plan	**October 2015**
City of Victoria Business Hub (Part of the Economic Development and Prosperity Action Plan)	**December 2015**
Victoria Housing Strategy	**June 2016**

Source: Author analysis

4.1. Neighbourhood Plans, Housing Policy and Official Community Plan from City of Victoria

4.1.1.   Downtown Core Area Plan (DCAP), 2011

The Downtown Core Area Plan (City of Victoria, 2011) provides a framework for the long-term growth expected in the Downtown Victoria area. Of specific relation to the research, this municipal document highlights key directions that address economic vitality, development and increasing housing options. The Harris Green neighbourhood plays a central role in the applicability of the policies outlined in this document – including three key pillars that would increase both housing and high-tech business activity. These are:

1. Increasing Housing Options

2. Improved Economic Vitality

3. Liveability

To further enhance the outlined directions in the DCAP, the City specifically notes "that ideas for making the Downtown Core Area more attractive for residents, workers and visitors alike are supported through new or improved public amenities and recreational facilities, as well as expanded arts, cultural and learning options" (DCAP, 2011) while mentioning the importance of the following priorities related to housing and economic development:

- *Provides a new framework for land use, building height and density that supports a strategic balance between employment and residential development.*

- *Concentrates higher density development along the Douglas Street/ Blanshard Street corridor to relieve development pressure within the historic Old Town Area, Chinatown and Victoria Harbour.*

- *Expand the Central Business District (CBD) as the primary location for offices and other forms of commercial development (and) supports the retention of commercial land within the CBD.*

- *Accommodates and fosters a greater range of housing options throughout the Downtown Core Area by land use, urban design and transportation policies, including support for non-market housing.*

- *Ensuring the Downtown Core Area has enough residential and commercial space available to keep up with short- and long-term growth forecasts, without damage to the natural environment or the livability and quality of life in the Downtown Core Area. (DCAP, 2011).*

Within these descriptions is the provision of both housing and economic development providing strategic directions impacting the entire Harris Green Neighbourhood. These strategic policy directions in combination with the previously mentioned OCP designations of "Core Business" and "Core Residential" in the area are further enhanced with the DCAP designations of the "Central Business District" and "Mixed-Use Residential" policies. These districts are illustrated in Map 1.1 below where density provisions are highest encompassing the entire district of Harris Green. Of particular importance is the inclusion of the entire Harris Green neighbourhood into the 'Residential Mixed-Use District', shown in Map 1.2 and which is described as:

"The largest of all the Downtown Core Area districts and includes the majority of the residential land base for the area, with some under-utilized or vacant parcels still available. Because of the RMD's close proximity and direct connections with the Central Business District, it is today a mixed-use urban community, with a concentration of compact mid to high-density residential, mixed-use and commercial development." (DCAP, 2011, p.33).

Map 1.1 - Urban Structure Concept (Focus Area Circled)
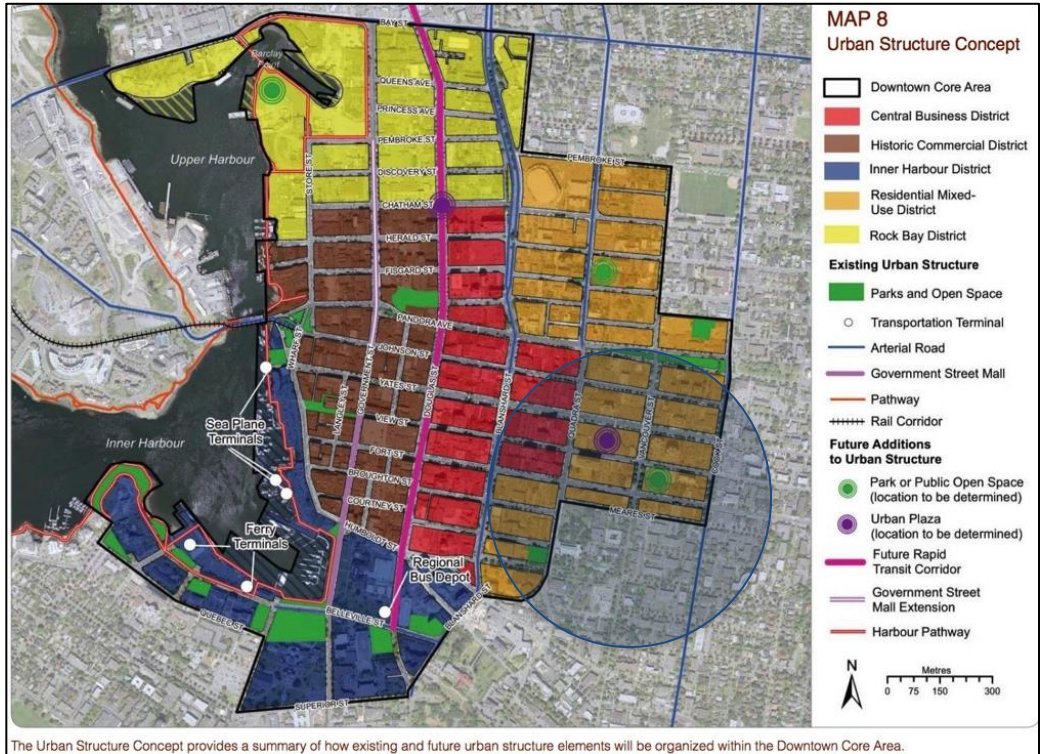
Source: City of Victoria (DCAP, 2011, p.33)

Map 1.2 – Residential Mixed-Use Designation – Harris Green

Source: City of Victoria (DCAP, 2011, p.33)

These designations further support the concept that residential development in the Harris Green neighbourhood is expected to rapidly increase. This is directly reflected in the development data provided in Section 3.2.5 showing development permit and rezoning activity as increasing at an exponential rate in this area. The approximate population growth in Harris Green alone was 36%[23] between 2011 and 2016, which means residential development is occurring. These designations further enhance the city's position of both encouraging economic and residential growth in these areas. The 'Residential Mixed-Use Designation' is not the only district applicable to Harris Green, but as mentioned previously, the area shares a 'Central Business District' (CBD) designation. This designation is expected to continue its base as the economic centre of the region.

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[23] Data created by author as dissemination areas overlapped.

For instance, the DCAP defines the CBD to have a:

> "concentration of higher density office buildings [which] helps to attract and retain districts a range of supporting commercial uses – such as restaurants, cafés, convenience stores, office supply stores, retail stores, hair salons and other personal service businesses, as well as major banks and other financial institutions – to provide the daily amenities and services required by the businesses, employees and residents within the CBD." (DCAP, 2011).

The combination of density, business concentration and activity within these designated precincts sets a base framework from which high-tech investment could benefit from proximity, recognizing the locational preferences of it's businesses and workers alike. By officially designating these areas as focal points for investment, growth and housing, an inevitable change to the area's character and activities has occurred in the past 5 to 8 years. This is managed through a density bonusing system for new developments as well as the establishment of zoning mechanisms that enshrine these policies into regulation.

The density bonusing system provides a structured framework, which encompasses the entire Harris Green Neighbourhood therefore enabling a higher density formation of residential and commercial buildings within the neighbourhood. Appendix F highlights Map 15 of the DCAP, showing the specific areas within the downtown where density bonusing can occur. The entire Harris Green neighbourhood is identified within this bonus system through four areas that specify eligible uses and the maximum permitted base density. The location of the bonus density system in this area is reflected in the number of units being constructed as well as the relaxations to height and density occurring in the area since the release of the DCAP - this is further discussed in Chapter 4. An example would be the C-1 area (also shown in Appendix F), which defines uses for commercial, residential and mixed-use in the following table:

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
C-1	commercial	3:1	5.5:1
	residential*	3:1	5.5:1
	mixed use [9,10,*]	3:1	5.5:1

Map 15 Excerpt – Section 4: Density Framework (DCAP, 2011)

The importance of this to the future of housing in the area is that further density can be provided through the provision of amenity contributions, which may or may not be included in the Harris Green neighbourhood, but would benefit the city as a whole. The increased density is expected to be tempered through the provision of these amenities, such as parks, while developers would benefit from extra floor space to build more commercial and residential floor space throughout the City.

4.1.2.   Official Community Plan

The 2012 Official Community Plan (OCP) provides the long-term directions for growth and land use planning in the City over the next 30 years to approximately 2040. Through this analysis, I reviewed relevant sections of the OCP including:

1. Section 3: Vision, Values and Goals

2. Section 6: Land Management and Development

3. Section 13: Housing and Homelessness

4. Section 14: Economy

5. Section 21: Neighbourhood Directions

These sections delineate economic, housing and neighbourhood planning directions and were selected for their applicability to the subject matter of this paper – namely economic and land-use patterns identified in the OCP long-term community planning objectives. In my review, I recognized that all sections of the OCP contribute to neighbourhood planning and development, but my analysis focused primarily on the implications of how land-use patterns and economic development have impacted the study area being researched.

Within the OCP, it is highlighted that approximately 50% of the expected residential population growth in the City will be focused on "Urban Core and surrounding Urban Residential designations;" (OCP, 2012, p.24). Statistics on this are not yet readily available as this is referenced to a longer period of time beyond ten years; however, based on the number of development applications and rezonings in this area, this expectation is moving towards its goal of 50%. This population growth directive is significant to this research as the municipal policy context identifies the two core land-use designations that occur (Core Residential and Core Business) within the Harris Green neighbourhood and define the City's long-term growth objectives.   The objective to direct population growth into such a concentrated area reflects the ongoing development pressures that are currently affecting the Harris Green neighbourhood and the surrounding Downtown area.

Section 3 of the OCP provides a broad view of the growth projections and expectations for the overall goals and policies guiding the implementation of the OCP. The general growth scenario as mentioned, highlights an expectation that 50% of population growth in the City of Victoria is to be concentrated downtown, which is shown in Appendix E, along with a number of key goal areas that relate to the scope of this paper, which were extracted from a larger list of goals and highlighted here:

> i. **Land Management and Development**
> A. Victoria has compact development patterns that use land efficiently.
> C. Neighbourhoods include centres of economic activity that serve the needs of residents within walking, wheeling or cycling distance

     ii.   **Housing and Homelessness**
        A. All residents have access to appropriate, secure, affordable housing.
        B. A wide range of housing types, tenures and prices gives residents choices.

     iii.   **Economy**
        A. Victoria generates economic growth, through innovation, entrepreneurship and new business formation, and attracts and retains sustainable enterprises well-suited to the region.
        B. Victoria contributes to global knowledge, produces and attracts talented researchers, incubates innovation, and brings new goods and services to market.
        C. Victorians have the knowledge and abilities to support a vibrant regional economy and the capacity to creatively adapt to economic change.

These items set the stage for increased investment, growth and residential mixed-use developments in the subject area of Harris Green and guide the entire approach of land-use management within the OCP.

Section 6 focuses on the above approach to Land Use Management and Development and reflects, more so than other sections, on broad land use objectives that correlate at a policy level to changes discussed in this paper towards development pressure and housing change in the Harris Green Neighbourhood. [24] As discussed previously, 50% of all population growth is expected to be concentrated in some form in and around the core areas; this is further encouraged by the objective outlined in section 6(a) that:

> "at least 20,000 new residents and associated housing growth is shared across the city in the following approximate proportions: 50% in the Urban Core; 40% in or within close walking distance of Town Centres and Large Urban Villages; and 10% in Small Urban Villages and the remainder of residential areas."

Since Harris Green falls into the core areas identified, it can be ascertained that residential and commercial growth is expected to impact the neighbourhood, which is further confirmed by the guidelines identified in Section 6 and mentioned earlier as "Core

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[24] The concept of this relationship is based on the objectives of population and employment projections being directed to the downtown core and immediate vicinity. While not a quantifiable metric, the relationship can be ascertained through reading the policies outlined in section 6 of the OCP.

Business" and "Core Residential"; these guidelines are outlined below in this excerpt from the OCP designation guidelines:

Figure 6   Urban Land-Use Designation Guidelines

Designation	Built Form	Place Character Features	Uses	Density
Core Residential	Multi-unit residential, commercial and mixed-used buildings from three storeys up to approximately 20 storeys. Large floor-plate commercial and institutional buildings oriented to the street. Buildings up to approximately eight storeys for the area east of Cook Street/ south of Pandora Avenue/ north of Meares Street. Buildings up to approximately six storeys for areas: south of Meares Street/ east of Quadra Street; and, north of Pandora Avenue/ east of Cook Street.	Three to five storey building facades define the street wall with upper storeys set back above. Buildings set close to the street to define the public realm along retail streets, with landscaped setbacks in more residential areas, wide sidewalks, regularly spaced tree planting. Building heights are greatest along Yates Street and Blanshard Street. Off-street parking structured, underground or located at the rear.	Diverse housing types, including low, mid, and high-rise multi-unit residential and mixed-use. Commercial, including office and visitor accommodation. Institutional and complementary uses. Home occupations.	Total floor space ratios generally ranging from a base of 3:1 to a maximum of 5.5:1 for the area south of Mason Street/ east of Quadra Street/ west of Vancouver Street; and, east of Vancouver Street/ west of Cook Street/ on Pandora Avenue. Total floor space ratios ranging from a base of 1:1 to a maximum of 2:1 for areas: on Mason Street/ east of Vancouver Street/ west of Cook Street. Total floor space ratios ranging from 2:1 up to approximately 3.5:1 for the areas: east of Cook Street; and, south of Meares Street/ east of Quadra Street/ west of Cook Street. Total floor space ratios ranging from a base of 3:1 to a maximum of 5:1 for the area west of Quadra Street/ north of Pandora Avenue/ south of Caledonia Avenue. Total commercial floor space ratios up to 1:1 except along Pandora Avenue (base of 1:1 to a maximum of 3:1), and Yates Street and Fort Street (base of 3:1 to a maximum of 5.5:1 west of Cook Street and a base of 2:1 to maximum of 3.5:1 east of Cook Street).
Core Business	Buildings up to approximately 24 storeys in height in select locations, with high site coverage. Commercial, institutional and mixed-use buildings oriented to the street.	Three to five storey building facades define the street wall with upper storeys set back above. Regularly spaced street tree planting, wide sidewalks with public squares and open spaces. Underground utility lines. Continuity of commercial uses – preferably retail – at grade, through-block passageways, mid-block crossings. Civic and institutional buildings. Off-street parking structured underground or at the rear.	Commercial, including office and retail along with complementary uses including residential, hotels and other visitor accommodation. Civic and public facilities. Home occupations.	Maximum residential floor space ratio of 3:1. Total commercial floor space ratios ranging from a base of 4:1 to a maximum of 6:1.

The specifics shown above in the C-1 map excerpt emphasize exponential increases in floor space area for the identified designations within Harris Green. The height limits on the buildings also insinuate that density for both commercial and residential developments

in these areas is increasing and encompass the Harris Green area almost entirely.[25] Cross-referencing these OCP designations with the Downtown Core Area Plan and referencing the number of developments that have occurred since the implementation of both the DCAP and OCP, a objective understanding of the neighbourhood's centrality within the City's growth objectives is quite clear; one that encourages residential growth in conjunction with the inclusion of commercial and employment uses, including high-tech.

Section 13 of the OCP, while not explicitly related to the discussions throughout this paper, is primarily the reason for why I decided to contextualize the issue of housing and homelessness by examining potential ramifications of development and growth. While this paper has focused on the high-technology sector components of economic growth and concurrent affordability and access to rental housing, this section broadly states the importance of providing long-term sustainable forms of housing for various life stages. This section is further enhances the Victoria Housing Strategy which is discussed in the section 4.1.3. The importance of providing policy context for the supply and demand of affordable housing in the City is paramount to addressing the 'crunch' that Victoria has endured in the past ten years.[26] The data on availability and vacancy in the area has been reviewed and analyzed throughout this paper and in Chapter 3, outlining data sources and current housing statistics. The general directions of Section 13 encapsulate an approach the housing spectrum[27] and highlight the City's approach to dealing with housing needs through identifying housing diversity, transitional/supportive housing, rental (both market and non-market) and owner housing typologies. This information will be further discussed in section 4.1.3.

Section 14 of the OCP focuses on the economy of Victoria, providing the economic parameters and guidelines from which the City will position itself for future and sustained business growth. In this section, Advanced Technology is discussed a number of times

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[25] As shown throughout this paper, the boundaries of Harris Green are defined by Pandora Street to the North, Quadra Street to the West, Cook Street to the East and Meares Street to the South.

[26] According to Section 13 of the OCP: "Victoria has ranked among the most expensive places to buy housing in Canada. According to the 2006 census, 60% of all Victoria households are renters, considerably higher than the regional average of 34% and twice the provincial average (30%)."

[27] See Appendix D

and is listed under the "Urban Place Designations-Economic Guidelines" of "Core Business" which applies to Harris Green and includes:

- Transportation and warehousing
- Public administration
- Finance, insurance, real estate
- **Advanced technology**
- Healthcare services
- Tourism and visitor services
- Arts, culture and entertainment
- Residential goods and services (retail, commercial and community services)

(Source: City of Victoria Official Community Plan, July 2017)

The inclusion of Advanced Technology signals a direct and concerted effort by the City to promote this sector in all of its economic directives and initiatives. This is further enhanced by the inclusion of "Advanced Technology" as a listed economic activity or sector in 6 out of 11 urban place designations in Section 14 of the OCP. The designation that applies most to the Harris Green neighbourhood is "Core Business" but this does not entirely reflect the existing business activity occurring in Harris Green, specifically related to High-Tech, as many businesses are also located within the "Core Residential" designation, which will be discussed further in this section and shown previously in Map 1.1. Section 14.39 also explicitly identifies Advanced Technology as a key driver of the city economy as shown here:

> "14.39.1 - Support for the efforts of regional economic agencies and business partners to grow the technology sector in the Victoria region;" (OCP, 2012).

Overall, the economic directions outlined in the OCP are reflective of the current conditions of Harris Green, along with a growing interest in this area as a centre of both residential multi-unit developments and new business activity.

Section 21 establishes neighbourhood directions for all identifiable neighbourhoods within the City and specifically mentions Harris Green as an area of key strategic growth. This is important to the context of this thesis as Harris Green is outlined as being inherently

tied to the Downtown neighbourhood, which throughout this paper has been characterized as having very similar growth impacts to Harris Green. The most applicable strategic direction to this research within Section 21 highlights the importance of the area as not only the heart of the city, but also states directions in the following sub-policy sections (bolded indicates highly applicable policy context):

- "21.3.4 - **Primary area for new attached housing and office employment growth;**"

- "**21.3.6 - Harris Green is a key high density residential neighbourhood in the Urban Core;**"

- "21.4.2 - Strengthen the function of the Core Business designation as an **employment district by increasing its office capacity;**"

- "21.4.5 Add parks and open spaces in north Downtown and Harris Green to **support increased population growth;**"

- "21.4.6 **Target increased height and density** north-south on Douglas Street and **east-west on Yates Street, east of Douglas Street;**"

In addition to functioning as one of the primary growth centres for the 'Urban Core', the Harris Green neighbourhood is identified as the main area for high-density residential development and new office employment, further supporting the relationships identified in this research paper. Section 21 provides only a small snapshot of the neighbourhood and assists in colouring the specific area into context with the rest of the City's communities.

4.1.3. Victoria Housing Strategy (June 2016)

The City of Victoria's Housing Strategy was established following the creation of the Housing Affordability Task Force (July 2015) and follows three strategic directions aimed at the following three key items:

- *Increase Supply of housing for low to moderate income households*

- *Encourage Diversity of housing types, tenures, and prices across the city and within neighbourhoods*

- *Build Awareness and partnerships for affordable housing through communication, education and advocacy*

The strategy recognizes the fairly constant pace of growth in Victoria in conjunction with a decrease in availability and affordability of housing. This strategy links the most important factors related to addressing housing needs[28] in the City over the next 10 years, with the objective of revisiting the housing expectations every 10 years. The Strategy covers the challenges and opportunities that currently relate to ownership, rental housing and homelessness issues by identifying targets and strategic directions. For example, the housing unit targets for the next ten years (to the year 2026) projects, based on household growth and income ranges; and these include:

- 100 market rental units for families

- 450 affordable rental units for families

- 2,300 market rental units (all households)

- 800 affordable rental units (all households)[29]

With these targets in mind and in connection with the OCP and the DCAP mentioned previously, the policy context from which the City is approaching housing appears more cohesive and reflects the discussions occurring throughout this paper regarding housing affordability, availability and economic changes that occur as a result of municipal housing directives or policies; such as those mentioned in this chapter. Of particular interest and applicability to this research is the section on rental housing, which identifies the pressures facing Victoria on the rental housing front, stating that "In 2011, 59% of Victoria households rented, compared to 51% in Vancouver, 34% regionally, and 29% across the province," which combined with "vacancy rates [that] have been consistently low, ranging from 1.3% to 2.4% since 2007, dropping to 0.6% in October 2015" highlighting a strong denominator of poor availability (vacancy) and potentially lower incomes overall.[30] This is

[28] These are generally identified in the housing strategy as increasing supply, setting targets for affordable housing types, protecting existing rental stock,

[29] Adapted from the Victoria Housing Strategy 2016

[30] Referenced from the Capital Region Housing Gap Analysis and Data Book (August 2015)

according to the Capital Region Housing Gap Analysis and Data Book (August 2015) "renter households commonly have lower incomes than owner households, and are more susceptible to changes in housing costs." This can be linked to the concept that high-tech workers (See Section 3.2.2.) have higher incomes than the general population and require urban amenities and concentrated locations of activity. The reality that Victoria has a higher percentage of renter households than other areas in the region could also be impacting the rental housing structure in the Harris Green neighbourhood and Downtown areas.

Within the Strategy, the discussion around purpose-built rental buildings is also important to note since it addresses the realities of a rental housing shortage. This relates to Goal 5.3. of the OCP:

> "Supporting new residential development that integrates a blend of market and non-market housing." (OCP, 2012)

While this does not explicitly state purpose-built rental as this new residential development, the general concept of purpose-built rentals is to provide more affordable housing options throughout the City. [31] There is a recognition that increasing the purpose-built rental stock in the city will improve the current vacancy rates.

An additional section in the Housing Strategy covers the provision of secondary suites and garden suites, which are not applicable to the study area as they are statistically irrelevant based on the existing residential stock in the Harris Green neighbourhood, which is primarily in the form of multi-family development and apartment condominiums. The Strategy also touches upon the growth in the senior population and their need for rental housing options which is based upon a projected demand increase of 26% for rental units in the City (Victoria Housing Strategy, 2016). As much of this Strategy is focused on the entire City, the impact on the Harris Green neighbourhood is not easily identified, however, when cross-referenced with the OCP and created in a policy context that encourage increased rental units, centralized economic activity and the related designations, the

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[31] According to the Strategy, "purpose-built rental is the most stable source of rental housing" and becomes more affordable over time as rental rates rise more slowly than housing prices."

Strategy does set up a more robust housing environment for the downtown focus areas in this paper.

4.1.4.   City of Victoria Housing Reports, 2014 & 2015

The City of Victoria Housing Reports issued in 2014 and 2015, provide a detailed snapshot of the City's housing situation regarding units builts, vacancy rates and supply. The data provided supports the fact that Victoria has a rapidly growing downtown that is currently going through a dynamic and exceptional growth period, but facing a prolonged and critical shortage of housing options. In the City of Victoria Housing Report from 2014, statistics were utilized from 2013 building permit data, which were referenced in Chapter 3, showing purpose-built rental units in the city. There was a marked increase in rental market housing from 2013 to 2014, with "215 more rental units in 2014 than 2013, bringing the total inventory of purpose built rental units (in buildings with 3+ units) to 16,270." (Victoria Housing Report, 2014) The increase in rental units, was coupled with an increase in rent costs and marked decrease in vacancy rates in the City of Victoria; [32] which was also reflected in the rental condominium market as well. When reviewing the 2014 report, it is shown that zero dwelling units (shown in the tables below) and secondary suites (or garden suites) were approved for construction in the Harris Green Neighbourhood, which was discussed in section 4.1.3. as being a statistically insignificant housing option in the Harris Green neighbourhood.

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[32] Vacancy rates in the City of Victoria decreased from 2.4% in 2013 to 1.3% in 2014. Greater Victoria vacancy rates also decreased to 1.5%, down from 2.8% in 2014. During the same year, the national rental vacancy rates increased from 2.7% to 2.9%. (Victoria Housing Report, 2014)

Dwelling Units Approved by Neighbourhood (2014)

Neighbourhood	New Construction (excluding secondary/garden suites)	Conversions (excluding secondary/garden suites)	Secondary Suites (including new construction and conversions)	Garden Suites (including new construction and conversions)	Total (excluding demolitions)	Demolitions (including units lost through conversions)	Total (including demolitions)
Burnside	20	25	1	0	46	-2	44
Downtown	0	113	0	0	113	-2	111
Fairfield	15	4	4	1	24	-4	20
Fernwood	38	1	3	0	42	-17	25
Gonzales	6	0	9	1	16	-2	14
Harris Green	0	0	0	0	0	0	0

Secondary/Garden Suites Approved by Year

Neighbourhood	1996–2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total 1996–2013
Burnside	1	1	0	0	1	0	2	0	1	2	1	9
Downtown	0	0	0	0	0	0	0	0	0	0	0	0
Fairfield	14	3	1	3	5	8	12	2	9	5	5	67
Fernwood	7	1	1	4	3	3	8	6	5	3	3	44
Gonzales	9	4	4	8	6	10	7	7	6	8	10	79
Harris Green	0	0	0	0	0	0	0	0	0	0	0	0

The reports provide a quantifiable understanding of the changes in the housing market leading up to the implementation of the Victoria Housing Strategy. In addition to the 2014 report, a report was issued in 2015, showing some fairly drastic changes in the number of units being built year over year. According to the 2015 report, there was an increase based on a number of new multi-unit residential buildings being constructed, with specific mention in the Downtown and Harris Green neighbourhoods. The following Table 1 provides a snapshot of the changes from 2014 to 2015:

Table 1   Changes in Housing Units Built from 2014 to 2015 (Harris Green, Downtown and Citywide)

	Year	New Units Constructed	Purpose-Built Rental Units
Harris Green	2014	0	0
	2015	134	134
Downtown	2014	111	0
	2015	430	209
Citywide	2014	306	24
	2015	978	527
Total Purpose Built Rental Units	2014		16,270
	2015		16,468

Source: Adapted by author from City of Victoria Housing Reports 2014 & 2015

It appears a housing report for 2016 or 2017 has not been issued as of the date of this paper, so it has not been included in this analysis. However, the data is current enough to be of value for discussion and to establish context for the current state of housing in these neighbourhoods.   This is particularly important when looking at purpose-built rentals, which shows that between 2013 and 2014 there were approximately 215 more rental units built and 198 more between 2014 and 2015.

4.2. Economic Development and Business Review

4.2.1.   The Mayor's Task Force on Economic Development and Prosperity Economic Action Plan (2015)

The Mayor's Task Force on Economic Development and Prosperity was established in 2015 and provides the overarching framework for economic growth and development in Victoria. This particular document focuses on six categories of interest, but I have chosen to review one area of this report more closely - the 'technology' sector component of the economic strategy with some discussion about entrepreneurship and start-ups. The six categories of interest are (technology has been bolded for reference):

1. Advanced Education and Research & Development
2. Ocean and Marine Sector

3. Experiential Tourism
4. Government
5. **Technology**
6. Entrepreneurship, Start-Ups and Social Enterprise

Under this action plan, the Technology sector has been identified as one of the top six sectors (as listed above) that provide higher incomes overall. This has been mentioned numerous times throughout this report and provides the broad objective for the research stating that the higher incomes of the tech sector are affecting the costs of rents in central city areas, with focus on Harris Green. As mentioned in Chapter 2, the amenity-driven change that occurs as a result of the infusion of high-technology firms is measurable and is reflected in this report that encourages the provision of amenities such as:

"Amenities for downtown residents include more grocery stores, clusters of restaurants, coffee shops and pubs, green space, food carts, night markets, and destination events." (Economic Development and Prosperity Action Plan, 2015).

While this, in itself, does not denote high-technology, based on the interview responses for this research paper, the concept of high-amenity areas being attractive to the high-tech sector workforce is a realistic prospect and may be driving development in some areas. Section 7 of the recommendations of this action plan provides the framework from which the City will approach Technology as a key driver of economic diversification and prosperity. In Chapter 1, I discussed the growth of the tech sector and the metrics of the growth are reflected in this action plan as well, showing again that the "Greater Victoria tech sector brings in annual revenues in excess of $3.15 billion with an economic impact far in excess of $4.03 billion. The 884 local tech firms now employ approximately 15,000 employees directly with another 3,000 employed as contractors and independents." (Economic Development and Prosperity Economic Action Plan, 2015). [33] This document recognizes the importance of this industry to the future

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[33] It is noted that over 350 technology companies choose downtown for their location which is further enhanced by Dan Gunn's interview stating a similar statistic

economic health of the City and the region, by incentivizing growth and integrating development policy and economic policy together to provide a healthy and robust eco-system for vibrant communities that include good employment opportunities. Furthermore, the impacts of the tech sector on Victoria are recognized by Kerri Milton with the following statement:

> We have giant new structures that are coming up - of course, Chard and Associates just announced on Yates Street two giant towers that are going in there. They're going to be for that sector as well as the capital building that is going in behind the legislature building as well. There's going to be all kinds of new stuff there. We have them (high-tech) to thank for that, because we need more 'stuff' downtown so we're just in this strange spot where we don't have enough inventory and the current tech industry and real estate industry need more. (Milton Interview, 2017).

The Action Plan further reiterates that the concentration of research facilities and universities in Victoria provides an ample opportunity to grow this sector locally; but not does quantify it specifically, only mentioning it's importance. In addition to establishing action items to build a broader base of investors in the field, the City also identifies the need for affordability and liveability as paramount to encouraging tech sector growth and investment. In order to effectively address the economic value of the tech sector along with integrating policy actions that encapsulate a holistic approach through the collection of metrics such as shown below in Figure 6. These items reflect the approach taken in this paper through the collection of business license data and number of tech companies located centrally and downtown.

Figure 7   Metrics for Tracking Tech Growth

METRICS

Did the Action move the intended needle?

- Number of significant tech company acquisitions.

- Number of acquired companies that remain local.

- Number of tech companies located in downtown.

- Number of new business licenses for tech companies.

- Amount of local capital invested in local companies.

- Amount of outside capital invested in local companies.

- Number of tech goods and services provided to local companies, government etc. *by* local tech companies.

Source: Mayor's Task Force on Economic Development and Prosperity Economic Action Plan (2015)

Advanced Education and Research were also highlighted in the document, further enhancing the discussions in the interviews mentioning increased retention of young people in recent years. For example, the following interview comments were made regarding universities and young people in Victoria:

> "We used to see UVIC with all the young people. We had the biggest brain-drain than any other university because they could not stay and live here." (Lucas Interview, 2017).

> "The universities enrolment has increased and with that the student population soaks up a fair amount of the rental capacity of this city when they're not housed on campus. And just an increased employment demand, so I think as the employment base and population increase has also been a factor." (Rayani Interview, 2017).

Metrics for the retention of students are shown in Figure 7, that show a willingness to engage with universities and research institutions to ensure that young people and students are employed in the city and able to build business connections. This

Figure 8   Metrics for Tracking Advanced Education Impacts

METRICS

Did the Action move the intended needle?

- Increase in number of students who find well-paying jobs in Victoria after graduation.

- Increase in co-op placements in Victoria businesses and organizations.

- Increase in number of students who start businesses in Victoria after graduation.

- Increase in local use and commercialization of products and technologies developed in post-secondary institutions.

- Increase in number of interdisciplinary research projects that meet a community need.

The metrics highlighted in this particular element of the plan further enhance the research discussion by emphasizing the growing economic opportunities and retention of a younger demographic of tech-savvy individuals deciding to live and invest in downtown Victoria. These factors will indefinitely have an impact on housing, when the locational preference of younger, educated people has a tendency towards the centralized urban core.[34]

> "Some folks are tending to want to be urban and they tend to be younger, maybe don't have kids, aren't married yet, they want to be downtown around the action." (Cooper Interview, 2017).

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[34] The interview data shows a general acceptance that a younger cohort of workers tends to prefer living downtown. This is reflected in the literature review as well.

The combination of both increased tech investment promotion and advanced education retention in the City are likely a contributing factor to the housing concerns that face the region, with particular focus on the downtown core and adjacent areas, including Harris Green.

Furthermore, entrepreneurship and start-ups are identified as being key to the economic growth plan and integrate well into the approach to technology action items. Some highly applicable metrics are also included in this Action Plan highlighting high technology in local employment. For example, from 2003 to the time the Action Plan was published, there was a 38% growth statistic, which was higher than both Metro Vancouver and B.C. with approximately 27,000 people employed in the high-tech sector in Victoria and nearly 3,600 employed in full-time work as of 2012. [35] All of these metrics combine to provide a strong outlook for the high-tech sector but also mirror the City's understanding that engaging with this sector through land-use planning mechanisms and investment initiatives such as streamlined business licensing and services for businesses through the newly established Victoria Business Hub[36].

4.2.2. BC Innovation Council (BCIC) – Victoria Tech Ecosystem Development Case Study

This provincial government agency has provided an overview of the direction that tech is taking in the City of Victoria. Primarily, the focus of this case study is the establishment of VIATEC and how the current accelerator program has been a success. There was direct provincial investment in the City of Victoria's tech industry and the active promotion of the growing industry within the capital region. A timeline is provided of the period from which VIATEC began, showing concurrent growth in the sector during the evolution of VIATEC as an organization:

1. 1989 - 2000: The community creates VIATEC
2. 2000 - 2005: The shift to an ongoing, viable entity
3. 2005 - 2010: Broad community recognition and growth

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[35] According to the Action Plan, this was all since 2003
[36] A business centre provided out of Victoria City Hall.

4. 2010 - present: The launch of Tectoria and the VIATEC Accelerator Program (BCIC, 2016).

While this document provides a subjective look at the industry, it does connect to the discussions throughout this research paper showing a productive relationship exists between the growth of the tech industry in Victoria and the growing recognition of VIATEC as a tech growth accelerator. The Access to Capital Program was a good example of the beginning stages of VIATEC's growth and "was part of a larger cross Canada initiative. It's important to note the local ROI of $20,000,000 in capital raised from private sources on a program investment of $900,000 exceeded the national average by 11.2%" (BCIC, 2016). However, the most important element of this document is the time series from which the VIATEC accelerator began in 2012 and the related spinoffs.

> "Since its start in 2012, the VIATEC Accelerator Program has already shown a remarkable return on investment thanks to government vision and investments, by directly assisting 95 program participants that have created 164 new jobs, increased their revenues by $11.3 million, and raised $22.5 million dollars in private investment."

Although this document is a programmatic overview and is subjective in nature, it does provide some quantifiable information that supports the conclusion that tech industry growth is magnified in Victoria at the present time, with concurrently high incomes[37] and preference for incubator-like business locations. Furthermore, "by 2014 Greater Victoria tech sector revenues had more than doubled to $3.15 billion dollars annually." (BCIC, 2016). This is additionally supported by comments relating to the benefits of locating centrally and being offered proximal access to other tech startups and initiatives: "Startups who participate in the Accelerator often note that one of the prime benefits of the program is the opportunity to interact with other start-ups." (BCIC, 2016).

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[37] The BCIC states that the worker employed in the technology industry typically earns over $75,000, well above the average BC wage of $52,000, and more than BC's median household income of $69,150.

4.2.3. VIATEC – Economic Impact of the Greater Victoria Technology Sector

Further supporting the BCIC report in section 4.2.2, VIATEC also issued its own report on the impacts of the tech sector in Victoria showing similar data results. This document provides some salient comments on the most recent benefits and spinoffs of the industry on the city. For example:

> "Companies responding to the survey had an average of 35 full-time employees and 2 part-time employees and the majority of employees (82%) are located in Greater Victoria. Interestingly, three in five companies had used at least one contractor in 2013. Half of the companies expect employee count growth between 1-50% over the next two years, while about a quarter believe their workforce will stay the same" (Wetterberg, 2014).

This combined with data supporting the higher wages[38] of the workforce in this industry provides a snapshot of the growth metrics and potential of tech. Data in this case study collected the data from a survey of respondents showing estimated direct impacts, business counts, revenues and economic sectors involved in the tech sector in some capacity. The overarching business sectors identified are shown below in Figure 19 and we extracted directly from the document.

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[38] Aggregate wages and salaries increased by 7.7% in 2012, with high tech employees earning an average of $1,440 per week (substantially higher than the provincial average of $870). (Wetterberg, 2014).

Figure 9   Business Sectors – Tech
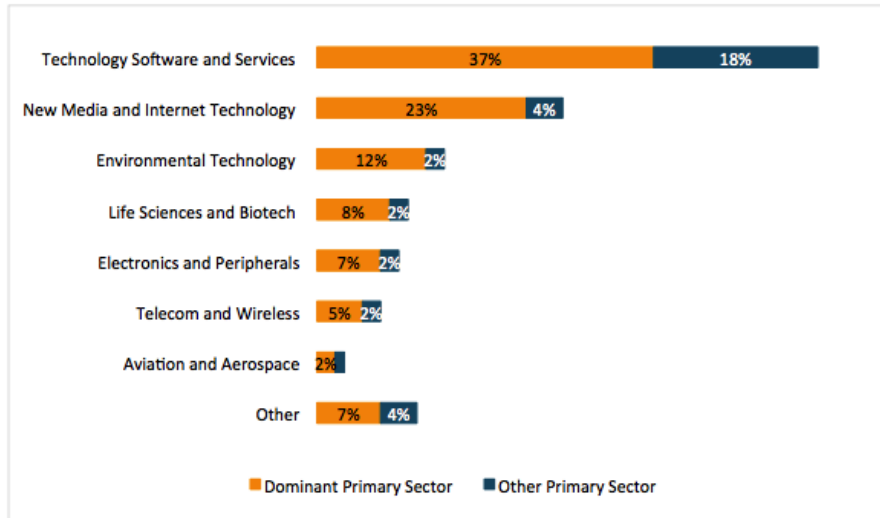
Source: Wetterberg, 2014

The research provided in the analysis done by VIATEC was supported by data provided by survey respondents and cross-referencing it with BC Statistics and Statistics Canada definitions and sector data such as economic multipliers to identify potential estimated impacts of the industry on both employment and revenues. A statistic that tells an interesting story about the growth of the sector is the number of employees that are engaged in a particular workforce or specific business. This document highlighted the diversity in size and composition of tech company employment in Victoria with a broad range of 38% with four or less employees to 17% employing fifty or more people with 25% of companies having more than 20 employees who were mostly located in Greater Victoria.[39]   By painting a data driven picture of the tech industry in Victoria, VIATEC established a significant amount of understanding in how this industry is growing and altering the employment scene in Victoria.

[39] These statistics were adapted from Figure 20 in the Economic Impact of the Greater Victoria Technology Sector document.

4.3. Housing Market Changes & Affordability

4.3.1. Capital Region Housing Gap Analysis and Data Book

"According to the Canada Mortgage and Housing Corporation (Fall, 2014), average rents have increased by 30.4% in the past ten years in the region (2005 to 2014), which is an average annual increase of 3.2%. This rate of increase is higher than inflation during this time period, which was 17.3%, an average increase of 1.2% annually."

"Vacancy rates, particularly for units considered more affordable in the rental market, are experiencing very low rates not seen in the capital region since 2007/2008. For the 23,866 purpose built rental apartment units in the Victoria CMA, the average vacancy rate for 2014 was 1.5% which indicates an unbalanced rental market." (Community Social Planning Council of Greater Victoria, 2015).

The two quotes above encapsulate the concerns facing a challenged housing market in Victoria, with particular focus on the lower income rental sector. The document provides an overview of income factors and related housing metrics which includes a comparative analysis showing that nearly 50% of the those identified in the Capital Region fall into the moderate to low income categories, but that over 80% of housing in the region is geared to households with moderate to high household incomes. This represents a vast gap in the provision of affordable housing for those who are earning on the lower end of the spectrum, including those in the middle-income brackets. Additionally, data in this report showed that "nearly half (47%) of all renter households demonstrated affordable housing need compared to only a quarter (23%) of all owner households" *(Community Social Planning Council of Greater Victoria, 2015).* The concern of affordability for renters varies greatly across the region as well, according to the data outlined in this document, and the central City of Victoria has the highest percentage (40%) of renters who were spending far more than 30% of their income on housing. The core need for affordable housing is highest in the City of Victoria.[40]

The overarching analysis in this particular report is to quantify where housing is most needed, where the growth in population is occurring and median before and after-

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[40] The Highlands area of the region has the lowest number of those in need of affordable shelter based on income

tax incomes across the region. The analysis also focuses on the comparisons between owner and renter households and the difference in household spending on shelter. Ironically, the highest costs of rental housing occur in the City of Victoria, but it also has the lowest median before-tax income of all the municipalities in the Capital Region at $45,287 with the highest percentage of renter households at 59%.[41]

An interesting statistic on housing starts, although representing 2011 to 2014 and not the current state of housing starts, showed that "if housing starts continue at the same rate of 318 units per quarter, the   projected 2014 total housing starts is 1,271 units. This projection will   represent a sizeable decrease in housing starts by 414 units (25%) from 2013 to 2014." (Community Social Planning Council of Greater Victoria, 2015). There could be a connection to this downward trend of housing starts and the concurrent issues with vacancy rates among rental units in Victoria during the same time. The general results of the data shown in this document represent a trend downwards in housing starts across the spectrum. While this may not directly affect the Harris Green neighbourhood, some correlation can be anecdotally drawn from this result about the availability and vacancy of rental housing. Additionally, rental rates were shown to have climbed during the period of the data, as mentioned above, by 30.4% over the ten-year period.

Across the spectrum, not only did housing starts decline, but rents also increased along with decreased purpose-built rental vacancies as shown in the graphic chart below, taken from the Housing Gap Analysis and Data Book (2015) referenced in this section. Overall, the report characterizes a situation in which housing for renters has become precipitously limited and costly.

Figure 10   Average Vacancy Rates for Purpose Built Rental Apartments in Victoria (2011-2014).
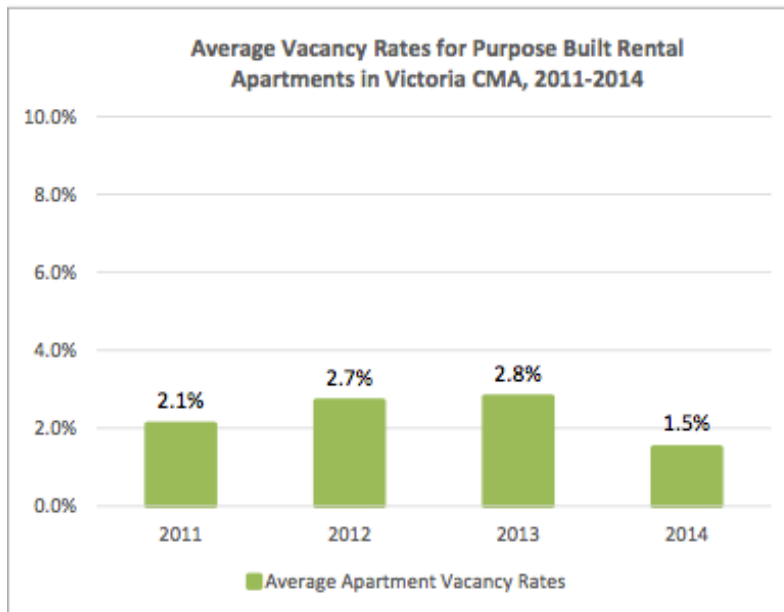
Source: Rental Market Survey, Rental Market Survey, CMHC Housing Market Information Portal

4.3.2.   CMHC Rental Market Survey Reports

The Canada Mortgage and Housing Corporations provided annual reports on the rental market in select Canadian census metropolitan areas. These reports provide statistical snapshots of the previous year's rental housing activity including vacancies, availability, starts and trends. I chose to review a five-year timeframe in order to review some of the changes in rental housing conditions to stay consistent with the remainder of this research paper and to follow on section 3.3.1, which showed vacancies from 2011 to 2014. In the 2012-2013 report year, discussion was occurring regarding the increased employment opportunities for those in the 25-44 year demographic, with statements highlighting the "significant increase in full-time employment for the 25-44 age group [which] was recorded in October 2012 compared to a year ago." (CMHC, 2012). Additionally, "Millennials may have a preference for living in rental, but they have also had less time to amass the rapidly increasing down payment required to make the transition to ownership" (CMHC, 2017). Noting this particular characteristic of the population reflects that understanding that retention of the millennial cohort tends to cause a downward

pressure on the rental housing market as this population group has a much higher tendency towards rental than ownership. [42] Further, the connection to employment retention for younger people in Victoria also ties into the research around the general age of high-tech workers being under 40. An anecdotal connection between the age of this workforce and the reduced vacancies and increased costs of rental housing may be intrinsically related to the housing pressures faced in Harris Green and Downtown; highlighted by the survey results.

Year over year, the vacancy rates are tracked showing the changes in rental vacancy in the CMA, with more specific rates provided for neighbourhoods. The following charts were provided from 2012 to 2015 tracking the general vacancy changes year-over-year; 2016 and 2017 did not have the same graphs provided, but data is shown below.

Vacancy Rates Relatively Unchanged

Vacancy Rate by Bedroom Type, Victoria CMA

Source: CMHC. Average vacancy rate – all apartments in purpose-built rental structures.
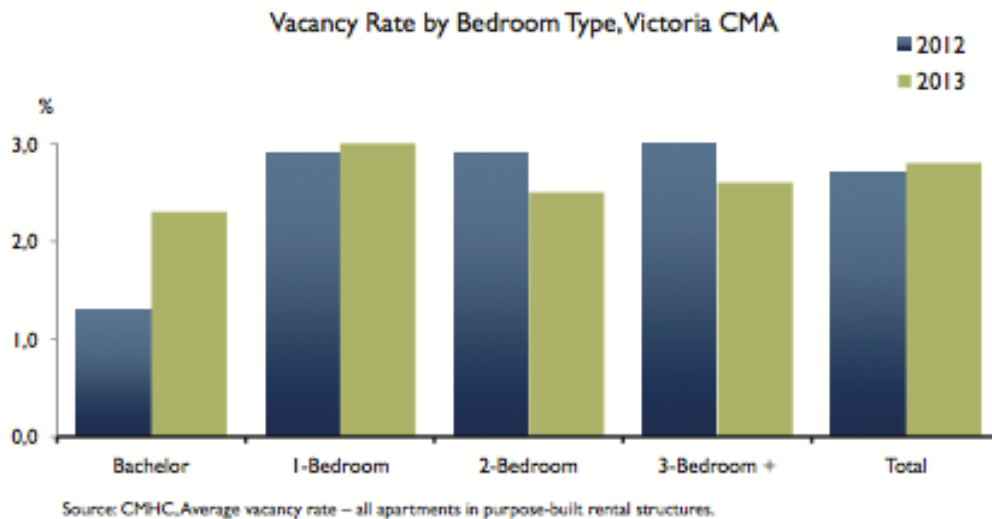
[42] According to the CMHC Rental Market Reports younger workers tend to be renters. Other data suggests a similar curve towards rental tenancy in the younger demographic workforce.

Vacancy Rates Move Lower
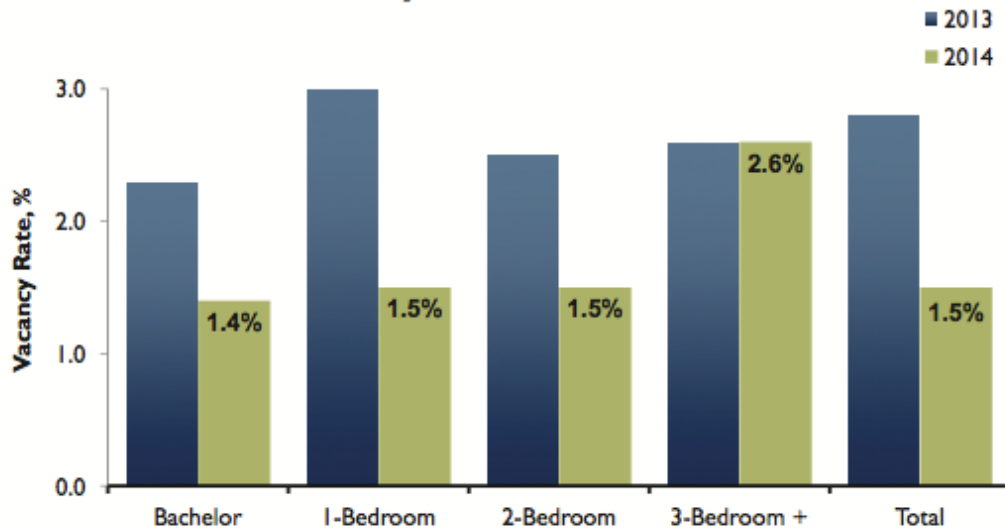
Vacancy Rates Move Lower
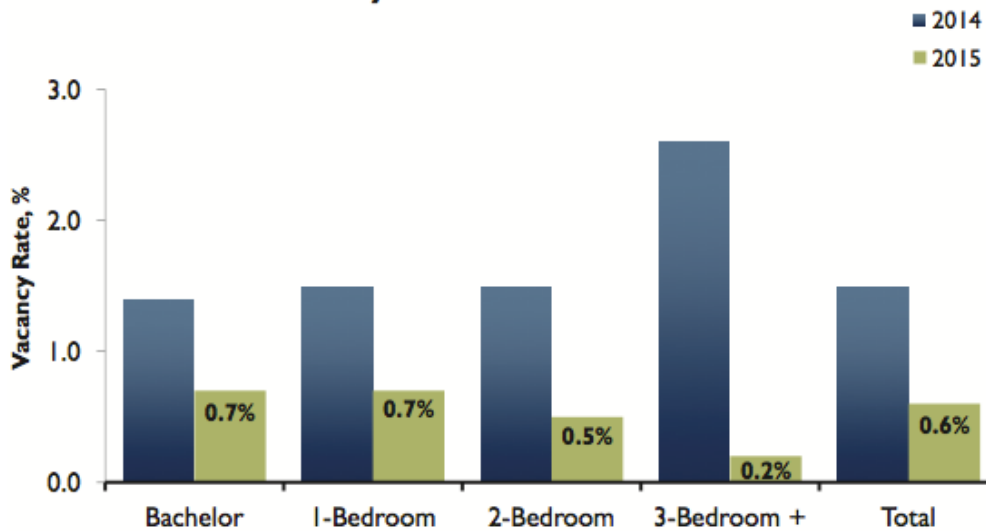
Source: CMHC Rental Markey Survey

According to the 2015-2016 report, "the results of the Rental Market Survey conducted in October 2016, the vacancy rate in the Victoria CMA declined to 0.5 per cent, from a vacancy rate of 0.6 recorded in October 2015." Following this, the vacancy rates increased slightly from 2016 to 2017, from 0.5% to 0.7%, reflecting the slight increase in

purpose-built rental units throughout the City. However, the 2017 report emphasizes that supply in the rental market has not kept pace with the growth in the overall renter population. The concurrent result is that "lower vacancy rates with increasing rents are the result." (CMHC, 2017). The following excerpt graphics from both the 2016 and 2017 reports show a drop in vacancy from 2015 to 2016, while reflecting the increase in vacancy from 2016 to 2017 due to increased completion of purpose-built rental units.

Rental Market Report - Victoria CMA - Date Released - 2016

The overall vacancy rate*...

DECREASED to

0.5%

Below CMA
Similar to CMA
Above CMA

PRIMARY RENTAL MARKET *(by bedroom type)*			
Bachelor	One bedroom	Two bedroom	Three or more bedrooms
0.4%	0.5%	0.6%	0.5%
Vacancy Rate	Vacancy Rate	Vacancy Rate	Vacancy Rate

Rental Market Report - Victoria CMA - Date Released - 2017

The information provided in these reports was an overview of the regional housing environment, but specific neighbourhoods were included such as the Fort Street Area. Although the boundaries of the neighbourhoods do not match with Harris Green, the resulting data is applicable as the close proximity most likely mirrors similar housing changes in Harris Green. For example, the Fort Street Area showed a vacancy rate of 0.3% in 2016 and rose to 0.6% in 2017.   This is shown below in Figure 11.   This change in vacancy would be fairly similar to the Harris Green neighbourhood, indicating some growth in vacancy due to rental supply increases or renters moving to other areas or graduating to home ownership.

Figure 11   Private Apartment Vacancy Rates Victoria CMA 2017

Zone	Bachelor		1 Bedroom		2 Bedroom		3 Bedroom +		Total	
	Oct-16	Oct-17	Oct-16	Oct-17	Oct-16	Oct-17	Oct-16	Oct-17	Oct-16	Oct-17
Cook St. Area	0.0 b	0.0 b -	0.6 a	0.5 a -	0.6 a	0.4 b -	0.0 d	0.0 d -	0.5 a	0.4 a -
Fort St. Area	0.0 b	0.5 a ↑	0.4 a	0.7 a ↑	0.4 a	0.2 b -	0.0 d	0.0 d -	0.3 a	0.6 a ↑
James Bay Area	0.8 a	1.8 b ↑	0.7 a	0.7 a -	1.0 a	1.3 a -	0.0 d	0.0 d -	0.8 a	1.0 a -

Table title: I.I.I Private Apartment Vacancy Rates (%) by Zone and Bedroom Type — Victoria CMA

Source: CHMC Rental Market Report 2017

The information provided in these reports helps to identify overarching trends and data results of the rental housing market changes from year to year in Victoria. As is illustrated throughout and in the figures above, the rental housing market has been under very tight conditions for a number of years, with minor fluctuations from year to year showing that conditions have been relatively poor in the market throughout the region and within close proximity to the study area. This supports the overall research relationship, showing that very low fluctuations are occurring in vacancy rates, with overall rates hovering close to 0%.

Chapter 5. Findings & Outcomes

5.1. Interviews

Figure 12 shows the frequency of certain words used throughout the interviews, which paints a higher-level picture of where key connections can be made; for example the five highest frequency words were "People, Thinks, Downtown, Buildings and Victoria" which were closely trailed by "Housing, Rental, Developments and Starting" which reflected the thinking of the respondents' concepts of the housing and tech sector changes occurring in the downtown area. By visualizing these responses, it can be seen that the discussions lean towards an idea that downtown development is increasing, along with interest in rental housing and localized growth is occurring; although these responses are representative of opinion and experience, they do show an overarching perspective of change and growth.

Figure 12 Interview Word Frequencies
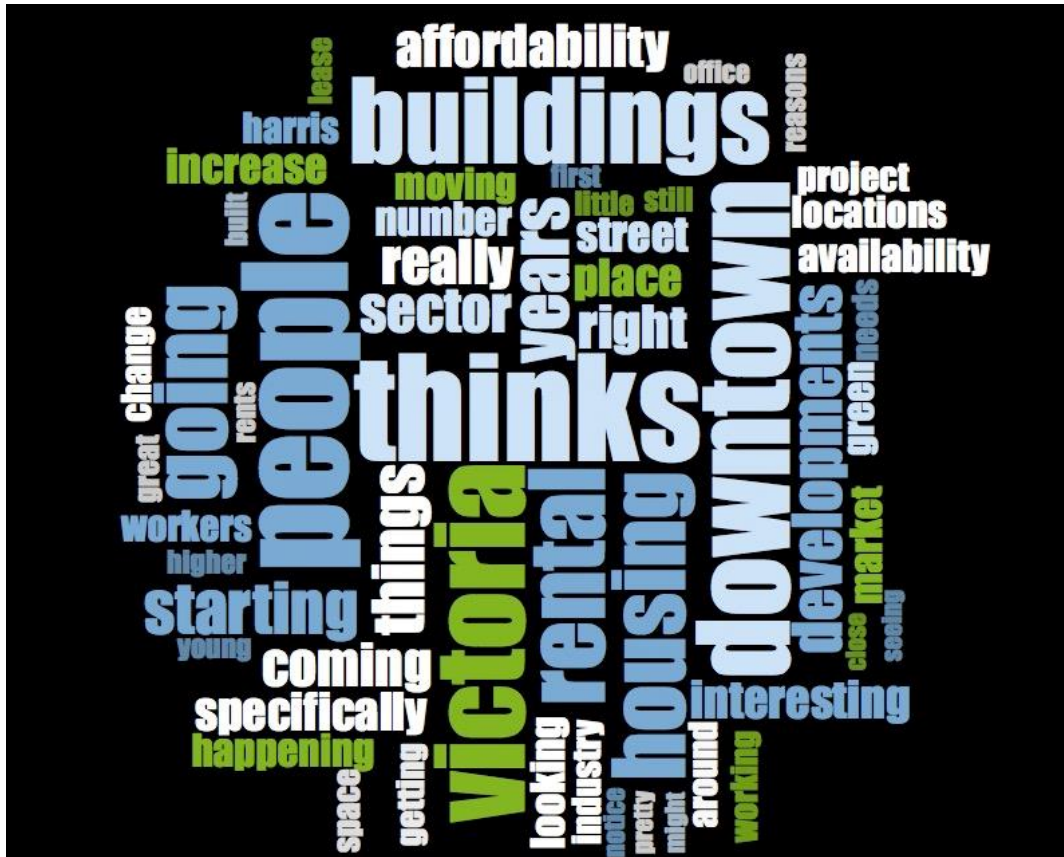
Source: Interview Data Analysis – Created by Author

As was shown in Figure 12, the most frequent words reflected the thoughts of the respondents, but this does not provide a complete context from which to draw analysis, but does address the overarching thought processes behind the key interviewees. In order to address the deficiency of the word frequency, I looked at themes and patterns in the interview responses that supported the concept of the tech industry impacts on rental housing in the subject neighbourhood of Harris Green. The questions, as mentioned, highlighted the impressions and experiences of the interviewees in relation to housing for high-tech workers in the City of Victoria. The changes in the workforce, growth in the tech sector and variability in affordability were shown to have a correlative effect which is reflected in the following statements:

It [investment] came very quickly. It just came in the last 5 years. We're seeing out of Vancouver, big developers that are moving in Concert Properties, you know these are the big boys. They're here building. (Lucas Interview, Councillor, 2017).

And;

The tech industry continues to grow. They can afford more than your average worker because they are paid better and they want to be here and it's growing, right. So I assume that it's having an impact. (Gunn Interview, 2017).

And;

The interest in this city has for sure in the last five years with everything that Dan Gunn has done with Tectoria and then with the Space Station and all these different companies. (Hogan Interview, 2017)

These comments coincide with the chosen timeline in this research and correlates to this particular timeframe of approximately five years, where the critical concentration of developments and high-tech began to occur in the centralized neighbourhoods of Victoria, with strong focus on Harris Green. This all points to the reality that a pivot point in development and investment occurred in roughly 2011 to 2012 in Harris Green and Downtown as a whole. The changes have been rapid and visible.

While many of the responses reflect anecdotal concepts and opinions, their importance lies in the influence of the individuals, represented in the political realm, tech industry leadership and development managers. The themes and patterns were identified based on the following criteria and reference points, reflecting overarching discussion points:

1. Business Type

2. Costs, Pricing, Affordability

3. Demographic Characteristics and Behaviour

4. Developments

5. Growth in Tech & Housing

6. Housing affordability

7. Housing Availability

8. Impacts of Tech on Housing

9. Income and Workers

10. Investment-related references and changes

11. Liveability

12. Locational Preferences

13. Promotion, Visibility and Marketing

14. Rental Housing Changes

15. Statistical references and ideas

16. Tech Industry General

17. Tech Investment & Growth

18. Timelines & Dates

Figure 13 shows the matrix coding done in NVivo to identify the most frequent responses under specific categories by each interviewee. The shading in the table shows which were the most common areas of reference for each interviewee and assists in identifying the overall picture of what is occurring within the tech, development and housing situations in relation to the experiences and opinions of the respondents. As the interviewees represent a broad range of interests in the research topic, the data provided reflects the commonalities across sectors while additionally reflecting the current understanding of those most closely involved in the administration of policy, housing and business growth in Harris Green and Downtown Victoria. The metrics in the interview data show patterns in responses for certain categories; for example, the six most referenced criteria points were "Developments, Impacts of Tech on Housing, Locational Preferences, Investment Related References, Rental Housing Changes and Tech Industry, Investment & Growth" showing that much of discussion focused on the impacts of the tech industry growth on specific aspects of rental housing and new developments in the area.

Figure 13   Interview Data Response Matrix

	Adam Cooper	Dan Gunn	Jason Morehouse	Justin Filuk	Kathy Hogan	Kerri Milton	Margaret Lucas	Rasool Rayani	Totals
Business Type	1	1	2	2	1	3	0	2	12
Costs, Pricing, Affordability	2	0	0	3	1	1	5	1	13
Demographic Characteristics and Behaviour	4	1	1	5	3	4	2	6	26
Developments	13	2	6	13	7	3	7	2	53
Growth in Tech & Housing	1	12	0	1	9	12	4	0	39
Housing affordability	4	2	4	3	3	6	2	4	28
Housing Availability	3	4	7	1	5	3	2	4	29
Impacts of Tech on Housing	11	2	9	3	11	9	4	4	53
Income and Workers	0	5	0	3	0	0	0	0	8
Investment-related references	6	4	9	2	7	6	4	5	43
Liveability	0	0	1	0	1	1	2	4	9
Locational Preferences	8	8	8	2	6	11	6	6	55
Promotion, Visibility and Marketing	0	8	0	0	0	1	0	0	9
Rental Housing Changes	13	0	1	9	9	2	3	8	45
Statistical references and ideas	3	5	1	3	2	2	3	3	22
Tech Industry General	5	4	9	2	12	7	5	4	48
Tech Investment & Growth	5	14	9	4	0	0	0	5	37

Timelines & Dates	0	4	6	3	2	3	5	3	26

Source: Created by author in NVivo

In specific relation to whether Harris Green is seeing particularly acute rental housing impacts from high-tech business, the responses were generally in support of the research question with some responses fully in support of the impacts on Harris Green and other responses with less confirmed confidence. For example, when probed for more information with the question: "You've spoken about the tight rental market. What component of that or what elements of that do you think, or let's say percentage of that, could be related to high-tech investment and housing downtown?" The response was:

> So for the amount (high-tech sector relationship to housing affordability and availability), I couldn't give you a specific amount, but I know for sure it is a factor - absolutely 100% (Hogan Interview, 2017).

On the other end of the spectrum, there was a little more scepticism regarding the matter, but it was not denied outright as a potential factor in the overall reduction in accessible and affordable rentals in Harris Green; for example, Adam Cooper, Development Manager, responded by saying:

> In terms of impacting the overall affordability, I think that there are bigger factors at play than just the tech sector (Cooper Interview, 2017).

This statement does recognize that other factors in housing pressures facing Victoria are involved, but that the tech sector, especially in the particular area of study is still involved to some extent in the lack of affordable housing in Harris Green. Almost all of the interviewees agreed with the concept that high-tech workers are more urban and command higher salaries than many other professions, not to mention their tendency to concentrate into incubator-type nodes of activity. Responses relating to income in the high-tech sector supported the concept that less affordable housing can be rented or bought by those involved in the sector. A developer stated the following:

> Recognizing that tech sector jobs are higher paying typically than other entry level positions in Victoria, [and] so if we position our product as focusing on the tech

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sector, perhaps we can drive a higher dollar per square foot for rents for that project (Cooper Interview, 2018).

Beyond discussions about the tech sector, housing developments are growing considerably, with an increase in purpose-built rental buildings and condo developments as reflected in Justin Filuk's statement about the current growth of rental units in the core:

> Overall in downtown I think, the rental units that are going to complete are close to **700 units between now and 2020**. A lot of developers have flipped back to condos so we're seeing a bigger surge in condo supply now just because the conditions are kind of changing for building rental now (Filuk Interview, 2017)

When questioned: "From a percentage standpoint, how many people do you think are renting your units or potentially buying the condo units you're building and are involved in the high-tech sector?" Filuk responded that he believes 35% to 40% of the people living in his buildings are related in some way to the high-tech sector. This was in addition to comments by Adam Cooper that a project being built by Abstract Developments is specifically focused on high-tech workers:

> 1010 Fort Street project is actually specifically focused on being a tech-oriented project (Cooper Interview, 2017).

While this project is smaller in size at roughly 50 units, it still signals that this market segment plays an important role in changes in residential affordability in the downtown core. The 1010 Fort Street project is also directly within the Harris Green neighbourhood boundaries, signalling that high-tech is investing and being recognized by the development industry. Abstract Developments also caters to a wealthier set of buyers, highlighted in the following comment:

> Abstract's reputation is towards a higher-end product rather than an entry-level product (Cooper Interview, 2017).

This means that developers, such as Abstract and Townline, recognize that a growing market for higher-end condominiums and market-rental units is needed in the downtown and that amenity-oriented newly built projects are going to command higher rents and pricier units, as shown here:

I think it makes it easier for companies to attract good employees when they can say there's all these new rental buildings going up and we also make the connection that by providing capacity at the higher end it kind of frees up older stock that, older rentals that can't necessarily command a premium because they don't have the things like ensuite laundry, or dishwashers and that kind of stuff. (Filuk Interview, 2017).

In addition, the increase in incomes also caused some developers, such as Abstract, to increase the rental costs in their buildings as they recognized a growing higher-income group moving into the area during the construction of some of their projects.

We were originally looking at rents that were, you know, when we first started the projects we were forecasting rents at $225 per square foot and then it crept up to around $235 and now $240 per square foot and now rents are averaging $270 a square foot downtown. I think that would be true, if not even more so in Harris Green and this is for new stock with condo-like finishes and amenities in the buildings.

Interestingly, companies such as Checkfront Inc., also recognize that with the higher incomes and lower vacancy rates, that some of their employees are going to be challenged in finding housing, especially the entry-level workers in a competitive marketplace that is seeing exponential growth, highlighted by Jason Morehouse, owner of Checkfront Inc.,

Our entry level aren't going to be buying brand new condos, so yeah it's a big concern. There's two dozen other companies that are in the same growth period where they're looking to scale out and they're looking to bring other people in and they're all downtown (Morehouse Interview, 2017).

What is being inferred here is that the combined growth of companies is occurring mostly downtown, along with a large proportion of the workers for those companies, resulting in not only vacancy problems, but a recognition that many of their workers will also be impacted by the costs and availability of housing. Essentially, those involved in the tech sector are not necessarily all high-income, but making average wages, requiring places to live, that may not be available to them, but marketed to their higher-income cohort. This brings it back to the central research question regarding the potential relationships between all of these indicators on investment growth in housing and tech, showing that even within the industry itself, there is inequality of access in housing.

Statements made also reinforce the research question; for example, Dan Gunn, CEO of VIATEC, stated that in regards to the assumption of my research,

> Vacancy has been reduced by tech and thinks; that there's truth partially to that statement (Gunn Interview, 2017).

The inference is that tech "will be a component" of the overall picture, especially in Harris Green with hundreds of tech employees working there, with "something like 20,000 tech jobs in Victoria now" (Gunn Interview, 2017). Even amongst these numbers, however, high-tech does not represent that only condition contributing to the affordability and availability of housing in this area. It appeared throughout the interviews that locational preference of workers was an important factor in changes to both business location and commercial activity in the downtown core. Justin Filuk, Developer, stated that

> Over the last few years, there's amazing restaurants, cafes, I mean all that kind of [sic] popping up, which supports the team in just being able to enjoy their jobs. You go over to any of these coffee shops and you know most of them because they're all tech companies - you're always going to bump into somebody, investors" (Filuk Interview, 2017).

The growth and concentration of the tech sector within a small area of downtown is catalyzing development and commercial activity at a rate that has not been seen in the past. According to Kathy Hogan, UDI Executive Director, over the course of the past few years

> There was a glut on the market of all the A Commercial, which is new, and then B Commercial is kind of old, and then C which is the really old space. So there was a glut on the market of the B and C buildings but over the past few years and it's the tech companies that have come in and they're now starting to take over those B and C buildings so we don't have that problem anymore (Hogan, 2017).

The City of Victoria has developed a 'cool' factor that applies to the downtown and is intrinsically linked to the local educational establishments and the establishment of tech companies and related services into the downtown core. The coding of the data was analyzed using the list mentioned above and leaned heavily towards the category of locational preference. Identifying this characteristic within the data highlights the reality that tech workers are most likely locating themselves downtown because the culture of the business is such that high proximity and amenity-based location preferences of the

workers drives the location of the tech businesses as well. In addition, Margaret Lucas, city councilor, also describes the proximity of educational and research institutions as having high importance in the establishment of the tech sector in the city:

> We have now become a desirable place for tech, so why is that? And to me, from what I've heard, because I'm not in that business, but I've been told that 1. It's the importance of a research university - UVIC. Which has a huge reputation, I found out, in the tech industry. (Lucas Interview, 2017)

Furthermore, the timeline of when the tech branding elements became paramount to the discussion as it helps to identify when the increasing presence of this industry was being felt particularly in and around the 777 Fort Street address of VIATEC. Dan Gunn mentioned that they moved their premises to their flagship location around 2012, confirming with the following statements:

> "We moved in March of 2012 and we at the same time we increased some of our branding efforts on behalf of the sector." (Gunn Interview, 2017)."

> "838 Fort Street did the exact same model as us and they are doing the same thing we're doing and late last year 844 Courtenay Street - same thing. I think we're going to do more of this - we're going to find buildings that are underutilized and not ideal for any other industry and we're going to gut them and turn them into flexible and affordable tech space." (Gunn Interview, 2017). "

This shows the general timelines of interest in the growing reduction in housing options and increase in tech visibility and investment. The timeline was roughly five years going back to 2012, when VIATEC moved locations and began marketing itself aggressively. The five year timeline was also further confirmed by other interviewees who stated that much of the change and growth they've noticed in the area has been within the last five to six years, starting roughly around 2012. This is reflected in the following statements:

> "I would say the last five years for the actual companies in tech becoming majorly visible." (Hogan Interview, 2017).

> "The shift has definitely come in the last 5 years and in the last 5 years, people started to recognize the desire, but for a number of reasons." (Milton Interview, 2017).

The connections between the timing of when the changes related to growth and investment were noticed is effective in understanding when new residential buildings were

being built downtown and when vacancy rates also began to plummet with increasing rents following. Overall, the interviews were in support of the general thesis research question – that relationships do exist between housing vacancy rates, affordability and the growth in high-tech in the Harris Green neighbourhood. However, this is also tempered by an understanding that it is not the only factor contributing to this situation, perhaps playing a larger part in a greater suite of issues currently affecting housing, such as retirees, lack of investment in housing for many years and municipal policy that limited the construction of higher-density buildings and rental units.

5.2. Population Change & Growth

The size and population of Harris Green, according to the City of Victoria's population profile is comparatively small to most other neighbourhoods in the City. The population of Harris Green in the 2011 census was 1,870, while adjacent neighbourhood areas including the downtown had 2,740 with Fairfield having 11,650[43]. Figure 15 shows all of the City of Victoria (with Harris Green and Downtown highlighted) census neighbourhood populations in 2011 with Harris Green being the smallest of all areas within the Capital Region. Both Harris Green and Downtown had the highest growth rates in the City between 2006 and 2011 at 11% and 85%, with the exception of Burnside and Victoria West at 12% and 14% respectively. While the population of the neighbourhood is comparatively small, it also maintains the second highest densities in the city and is located within the city's designated central business district and residential urban mixed-use in the Downtown Core Area Plan (DCAP, 2011). What these designations mean is that new city core development will heavily impact the Harris Green neighbourhood since it is the smallest area both geographically and demographically. The designations outlined in the DCAP document will be discussed in Chapter 4 of this paper.

There was significant growth in both the Downtown and Harris Green neighbourhoods between 2006 and 2011, however, due the recent census, available data from the Open Data catalogue was not available on the 2016 neighbourhood population data. Statistics Canada does provide the population counts down to Dissemination Area,

[43] City of Victoria Open Data Catalogue – 2011 Census Data (Victoria 2011 Census Data)

which was used in my analysis of the potential population changes in the Harris Green Neighbourhood between 2011 and 2016. The census tract 9350010.00, which contains most of Downtown was used as the geographic reference point with the dissemination areas providing more detailed population statistics. Map 1.3 shows the geographic boundaries of the census tract and dissemination areas that are applicable to the areas of study. Census Tract 9350004.00 along Meares Street contains a small area of the Harris Green neighbourhood and upon analysis of the building structures and zoning (C-42/C-58/R-48) along that strip, I decided to remove this specific portion from the population analysis. There were only 2 developments in this area that had residential components of any substantial amount. The removal of this specific area may alter the population count by 100 to 200 hundred residents, but the zoning was primarily commercial with a scattering of small residential developments and its omission does not greatly impact the overall analysis.

Map 1.3 – Census Tract 9350010.00 & Dissemination Areas (Includes Downtown and Harris Green Neighbourhoods)
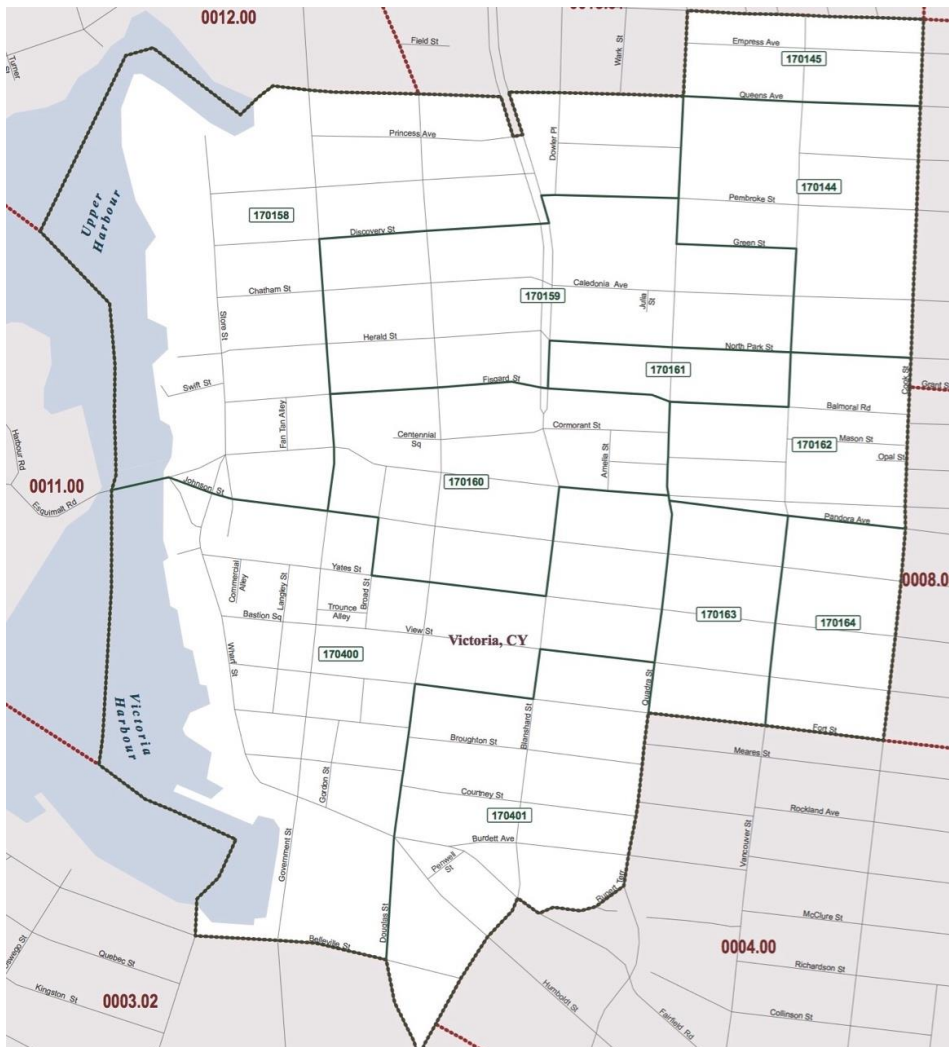
Census tract 9350010.00 has shown a 15.5%[44] growth rate since 2011, which contains most of the Harris Green neighbourhood. While the statistics on the growth specifically in the Harris Green neighbourhood were not available, the overall growth in the general area reflects a movement of population into the core areas of the City, including Harris Green. Figure 14 outlines the population characteristics of this area of the City of Victoria in 2016. Although the analysis for this paper is focused primarily on the Harris Green Neighbourhood, illustrating the changes within the adjacent communities, such as

[44] Statistics Canada 2016 Census Profile Data for census tract 9350010.00

Downtown, is important in understanding the context of demographic, economic and housing changes in Harris Green.

Figure 14   Population Characteristics of Census Tract 9350010.00

(Downtown Core of City)

Population; 2016	9207
Population; 2011	7971
Population percentage change; 2011 to 2016	15.5%
Total private dwellings	6523
Private dwellings occupied by usual residents	5570
Average age of the population	42.9
Median age of the population	38.9
Population density per square kilometre	4961.5

Source: Statistics Canada, Census Profile 2016

A population growth rate of 15.5% in this demographic area is indicative of a healthy growth rate throughout the downtown core. Shown in Figures 15 and 16, the population changes by percentage in selected neighbourhoods, reflect a veritable increase in population.

Figure 15   Neighbourhood Populations in 2006 vs. 2011

Neighbourhood	2006	2011	Difference	% Change
Burnside	5210	5860	650	12%
Downtown	**1485**	**2740**	**1255**	**85%**
Fairfield	11060	11650	590	5%
Fernwood	9575	9425	-150	-2%
Gonzales	3835	4175	340	9%
Harris Green	**1680**	**1870**	**190**	**11%**
Hillside Quadra	7280	7245	-35	0%
James Bay	10760	11240	480	4%
Jubilee	5215	5240	25	0%
North Park	3395	3050	-345	-10%
Oaklands	6365	6825	460	7%
Rockland	3540	3490	-50	-1%
Victoria West	5985	6805	820	14%
TOTAL City of Victoria	**75390**	**80015**	**4625**	**6%**

Source: City of Victoria Open Data Catalogue (Victoria Census) – 2011 Census Data

Figure 16   Dissemination Areas and 2016 Populations Harris Green/Downtown Area

Neighbourhood	Dissemination Areas	2011	2016	Difference	% Population Change
Harris Green (DAs only in HG)	DA59170164 DA59170163	n/a	1,494	n/a	n/a
Harris Green & Downtown (shared DA)	DA59170400	n/a	1,046	n/a	n/a
Not Included but proximal[45]	DA59170282 DA59170281	n/a	n/a	n/a	n/a
Total HG Population (2016)	DA59170164 DA59170163 DA59170400	1,870	2,540[46]	670	36% (35.8%)

Source: Statistics Canada 2016 Census Profiles (analysis by author)

Data from the 2011 dissemination area populations was not available through Statistics Canada's census profile data, but the population figures for 2016 were available. Based on a comparative analysis of the populations from 2011 and 2016 in the subject neighbourhoods, there has been exponential growth in the population in the subject neighbourhoods. Figure 16 above shows the percentage change from 2011 to 2016, which equates to an approximate population change of 36% during this time frame in the Harris Green neighbourhood. This is especially noticeable within the dissemination areas entirely bound by the Harris Green neighbourhood boundaries, shown as DA170163 and DA170164 in map 1.4 shown below.

[45] These dissemination areas were not included due to their location directly south of the two key dissemination areas. They include the area of Harris Green directly between Fort Street and Meares Street.

[46] This number was derived from calculating all dissemination areas that the Harris Green neighbourhood contains and/or straddles. This number is an approximation of total population in this area, but is at a small enough geographic level that the accuracy is effective for this analysis.

Map 1.4 – Dissemination areas entirely bound by Harris Green Neighbourhood
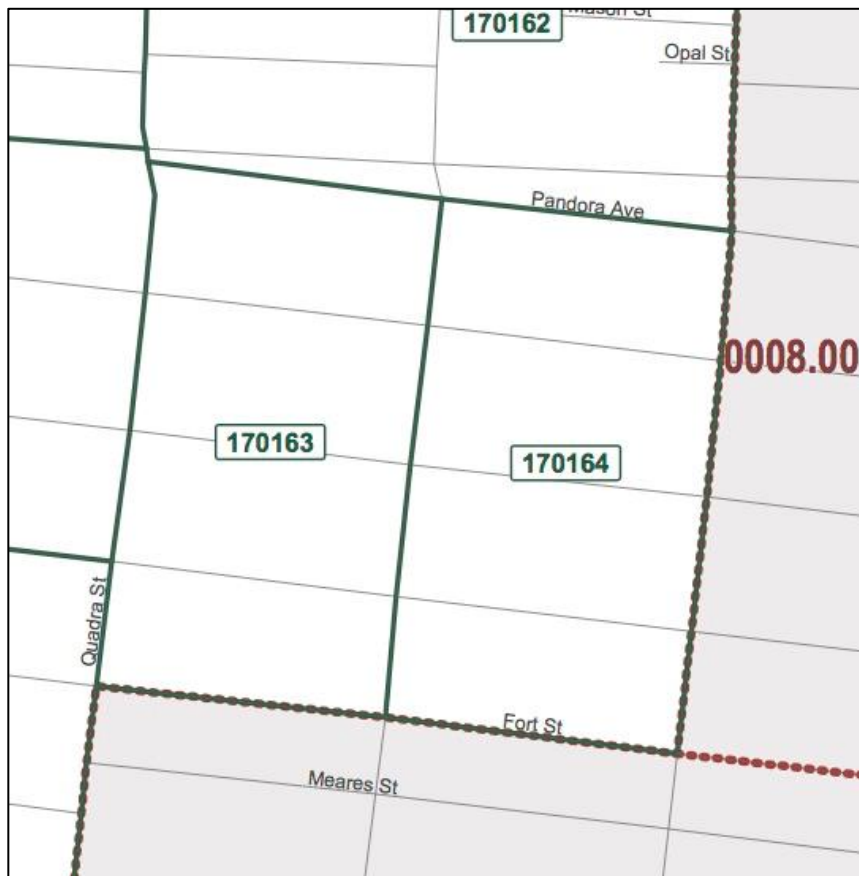
Source: Statistics Canada Dissemination Areas Census Profile, 2016 Census

5.3. Housing Affordability, Tenure Type and Structure Types

As shown in Figure 1 in Chapter 1, the 2011 statistics for owner and renter households in the Harris Green neighbourhood were 35% and 65% respectively. In comparison, the Downtown neighbourhood was 27% owned and 73% rented, reflecting the higher percentage of investment occurring in Harris Green housing. Comparing the total dwelling units of Downtown and Harris Green as well, the Downtown had 1,425 in total, while Harris Green had a total of 1,350 units. While Harris Green, in 2011, only had 75 less units in total, the population was close to 1,000 less than Downtown. This reflects a higher density of residents living in Harris Green as compared to the Downtown neighbourhood.[47]   When cross-referenced with the following Table, it does appear that the vast majority of housing in the Harris Green neighbourhood is in high-rise multiple-family dwellings.   Due the constrained geography, current list of active developments and most recent population growth, it can be ascertained that growth in the Harris Green has continued to keep pace since 2011.

Table 2   2011 Housing Structure Type (Harris Green)

Neighbourhood	Harris Green
Single- Detached House	0.40%
Semi-Detached House	0.00%
Apartments, Duplex	0.00%
Row House	0.00%
Other Single-attached House	0.40%
Apartments, fewer than five storeys	185
	14.00%
Apartments, Five or more storeys	1130
	85.60%
Total Units 2011	1320

[47] This information was found in the Victoria Census Profile for 2011. It shows that proportionally, the Harris Green neighbourhood has more people living in fewer units.

% Change	11%
Total Units 2006	1185
% Change	14%
Total Units 2001	1035

Source: City of Victoria, Open Data, 2017

Data from the 2016 Canadian Census shows the rate of unaffordable housing in specific census tracts throughout the country (dissemination areas are not available) and information was available for the City of Victoria 9350010.00 census tract containing both Downtown and Harris Green.   Shown in the following Table 3 is an analysis of the current rate of unaffordable housing in this census tract, along with comparisons to 2006 and 2011 – providing an excellent overview of the changes that have occurred in the study areas. The data in this table also shows the rate of unaffordable housing for both owners and renters and shows an exponentially higher rate of unaffordability for renters than for owners. While this does not reflect the exact parameters of unaffordability in the Harris Green Neighbourhood, based on the small geographic area of the study areas and to population counts, this number most likely represents the likelihood of unaffordability in Harris Green. Appendix B shows a map of the location of census tract 9350010.00 and associated unaffordable housing rate changes as shown in the Statistics Canada data mapper tool. This tool is provided by Statistics Canada in order to visualize key metrics and statistics through colour coding and mapping.

Table 3   Rate of Unaffordable Housing in Census Tract 9350010.00

Location	0010.00 [CT] in Victoria [CMA] (B.C.)
Rate of unaffordable housing 2016	44.7
Rate of unaffordable housing, 2006	40.5
Rate of unaffordable housing, 2011	52.1
Rate of unaffordable housing 2016	44.7
Unaffordable housing not in core need	790
Unaffordable housing in core need	1,250
Unaffordable housing not applicable for core need	445
Rate of unaffordable housing, owner-households	31.3
Rate of unaffordable housing, renter-households	50.3

Source: Census Program Data Viewer, 2016 Census

Below is another table identifying the bordering census tracts around the focus areas and as is quite clear, the rate of unaffordable housing and rates of unaffordable rental housing has been the highest in the focus areas. Although the rates fluctuated from lower to higher to lower again, this most likely is connected to the removal and redevelopment of new units within the subject neighbourhood, providing more affordable housing units in the last five year census period and discussed further in this 19.

Table 4   Census Tract Comparison of Rate of Unaffordable Housing (Focus Area Highlighted)

Location	0010.00 [CT] in Victoria	0008.00 [CT] in Victoria	0004.00 [CT] in Victoria	0003.02 [CT] in Victoria
Rate of unaffordable housing, 2016	44.7	38.8	38.6	36.7
Rate of unaffordable housing, 2006	40.5	41.6	38.2	40.4
Rate of unaffordable housing, 2011	52.1	44.6	42.4	38
Rate of unaffordable housing	44.7	38.8	38.6	36.7
Unaffordable housing not in core need	790	230	370	395
Unaffordable housing in core need	1,250	440	960	790
Unaffordable housing not applicable for core need	445	115	190	155

Rate of unaffordable housing, owner-households	31.3	21.9	20.5	22.3
Rate of unaffordable housing, renter-households	50.3	45	46.4	44.5

Map 1.5 shows the relative proximity of the focus areas and identifies the specific areas of concentrated unaffordability. These census tracts contain both the Downtown Neighbourhood and the entirety of Harris Green.

Map 1.5 –Census Tracts for Comparison – Unaffordability
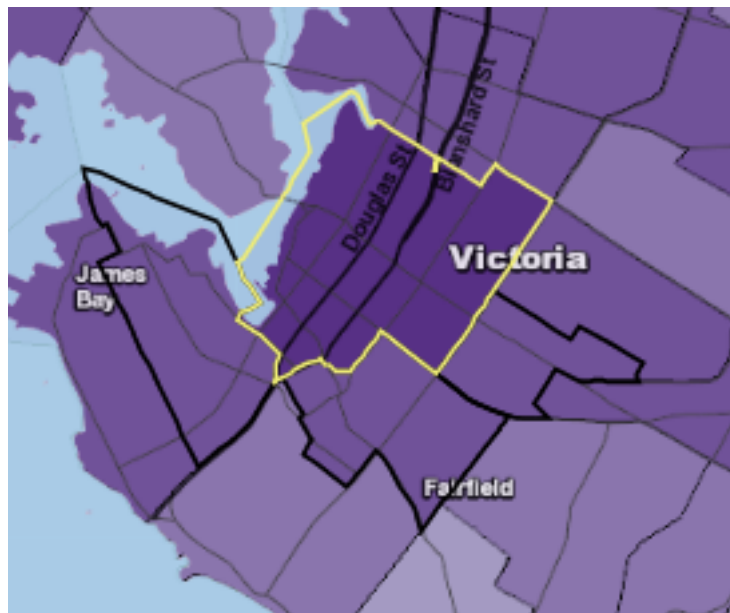
Source: Census Program Data Viewer, 2016 Census

Further to this concentration of unaffordability in the census tract of focus, there is data also available and shown in Appendix C highlighting the number of purpose-built rental units in the Harris Green neighbourhood and the numbers are particularly acute in their representation of the residential building activity occurring in the neighbourhood. For example, the City of Victoria Housing Report (2015) provides numbers showing that 100%[48] of the units built in the Harris Green neighbourhood in 2015 were for rental accommodation. This is reflected in the data provided where 134 units were purpose-built

[48] 100% = 134 units were built in 2015 in Harris Green and 134 of them were purpose-built rental

rental units in the neighbourhood, reflecting the total number of net new dwelling units. See Figure 17 below for the number of units built in Harris Green in 2015.

Figure 17   Purpose-Built Rental Units Approved by Neighbourhood (2015)

Purpose-Built Rental Units Approved by Neighbourhood

Neighbourhood	Purpose-built rental
Burnside	65
Downtown	209
Fairfield	0
Fernwood	0
Gonzales	0
Harris Green	134

Source: City of Victoria Housing Report, 2015

The following Figure 18 shows the change in units built from 2010 to 2017 for the subject census tract and shows the largest jump in construction of new units for rental from October 2016 to October 2017, further confirming that development of residential rental properties is occurring, but is not keeping pace with demand as there is still low availability and vacancy rates throughout the area, which is reflected in Figure 19.

Figure 18   CMHC Rental Market Time Series Data for CT 9350010.00

Primary Rental Market

Rental Universe

By:
Bedroom Type
Year of Construction
Structure Size

Display Options:

Historical Time Periods

Current Geography

Note:
Changes to display settings will reset date settings to most recent data. Available display settings are subject to change based upon data available.

0010.00 — Historical Universe by Year of Construction

2010 to 2017	Row / Apartment ▾	Bedroom Type - Total ▾	October ▾		
	Before 1960	1960 - 1979	1980 - 1999	2000 or Later	Total
2010 October	284	771	181	47	1,283
2011 October	282	763	185	47	1,277
2012 October	295	768	185	165	1,413
2013 October	282	773	184	165	1,404
2014 October	285	774	184	307	1,550
2015 October	295	892	173	328	1,688
2016 October	296	896	183	328	1,703
2017 October	299	897	182	586	1,964

Source: CMHC Rental Market Survey

Figure 19   CMHC Rental Market Vacancy Time Series Data for CT 9350010.00

Primary Rental Market

Vacancy Rate (%)

By:
Bedroom Type
Year of Construction
Structure Size

Display Options:

Historical Time Periods

Current Geography

Note:
Changes to display settings will reset date settings to most recent data. Available display settings are subject to change based upon data available.

0010.00 — Historical Vacancy Rates by Bedroom Type

Save

2010 to 2017	Row / Apartment ▾		October ▾							
	Bachelor		1 Bedroom		2 Bedroom		3 Bedroom +		Total	
2010 October	0.4	a	1.3	a	0.0	b	0.0	c	0.7	a
2011 October	0.2	a	2.3	a	0.0	c	0.0	d	1.1	a
2012 October	0.3	a	2.6	a	2.8	b	**		1.7	a
2013 October	3.5	a	3.5	b	3.3	c	**		3.5	b
2014 October	0.5	a	1.8	a	1.1	a	**		1.2	a
2015 October	0.2	b	1.1	a	1.0	a	**		0.7	a
2016 October	0.2	b	0.6	a	0.4	b	**		0.4	a
2017 October	1.3	a	0.5	a	1.4	a	**		1.0	a

Data analysis of the rates of overall unaffordability and renter household unaffordability shows that the main census tract observed has the highest rates of both indicators than the rest of the Capital Region. Shown in Figure 20 is a comparative graph showing the relative difference in the subject census tract (denoted with an arrow) to other census tracts in the immediate areas. In 2006, the census tract was more closely aligned with its

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neighbours, however, in 2011, there was a significant jump and then concurrent decline to 2016, yet the census tract still records the highest rates of unaffordability.

Figure 20   Comparison graphs of CT 9350010.00 to Proximal CTs
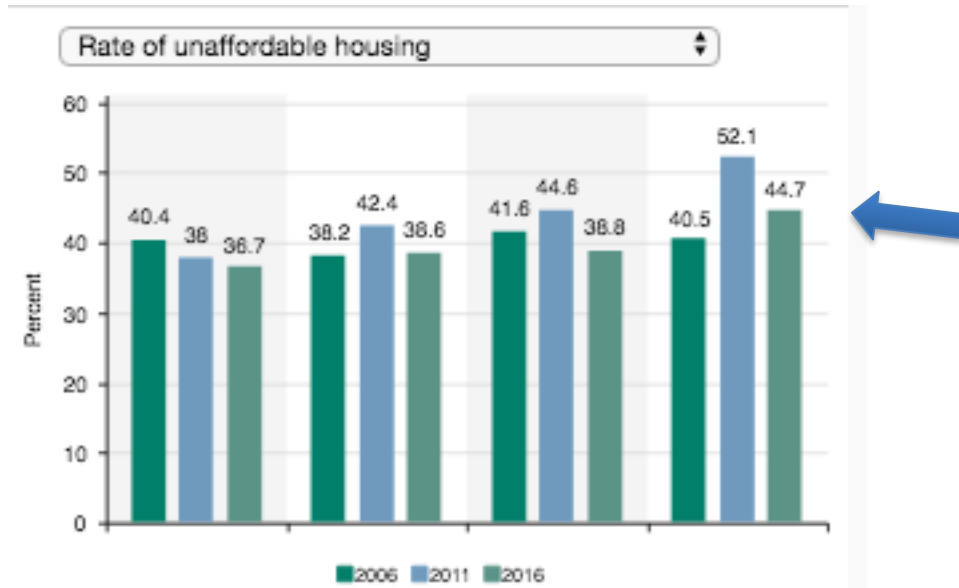
Source: Census Program Data Viewer, 2016 Census

5.4. Zoning Bylaw and Permitted Uses (Harris Green)

The City of Victoria has established numerous zones that apply specifically to the Harris Green and Downtown areas. These zones were established to reflect the unique density and characteristics of these neighbourhoods in the City of Victoria. Within the zones, specifications on density, height, permitted uses and setbacks are delineated to provide established approaches to neighbourhood characteristics. In the case of Harris Green, some zones are geared specifically to establishing robust commercial corridors with mixed-use typologies such as retail and residential multi-unit buildings. Another interesting case of the zoning in Harris Green is the inclusion of high-tech as a permitted use in many of the zones and in combination with multiple-unit buildings and other commercial-retail activities. The zones that specifically identify high-tech as a permitted use in the Harris Green Neighbourhood are shown in the list below:

i.	**CA-42** (Harris Green Commercial District)
ii.	**CA-42-F** (Harris Green Commercial (Fort Street) District)
iii.	**CA-43** (Pandora Harris Green District)
iv.	**CA-58** (Harris Green (947 Fort Street) District)
v.	**CA-66** (Harris Green (840 Fort Street) District
vi.	**CA-73 (**Pandora and Cook Apartment District)
vii.	**CA-4** (Central Area Commercial Office District)
viii.	**CA-HG (**Harris Green District)
ix.	**R-57 (**Johnson Street Residential District)
x.	**RA-48 (**Harris Green District Multiple-Dwelling)
xi.	**R3-C-Y** (Central Area Residential Yates Street)
xii.	**R3-C-T (**Central Area Multiple Dwelling & Technology District)
xiii.	**CA-35 (**Harris Green Walkway (Pandora) District
xiv.	S-1 (Limited Service District)

Source: City of Victoria Zoning (2017) – Analysis by author

High-tech is also defined in the zoning bylaw as its own specific permitted use, reflecting the City's desire to accommodate this growing industry throughout its downtown core areas. High-tech is defined in the City of Victoria's Zoning Bylaw No. 80-159, with the following definition:

"High Tech" means the design, research, manufacture, testing, and servicing of commercial products, including computer software and hardware, in the fields of electronics, telecommunications, engineering, robotics, bio-technology, health care, and related industries." (City of Victoria, Zoning Bylaw No. 80-159)

The definitions selected for the purposes of identifying tech labour and business were provided in section 3.2.1 of this research paper and are further enhanced by the City's definition provided above. These definitions have helped to formulate my understanding of high technology in Victoria and where these businesses are identified in the subject area through the cross-referencing of business license data. These zones are placed in this neighbourhood to reflect the directions of the City and its Downtown Core Area Plan and commercial designations that support dynamic economic activity, including high technology as part of the community planning process. Another interesting facet of zoning in the Harris Green district is the provision of many zones regulating high-density residential and at-grade commercial-retail space. For example, the R3-C zone allows a floor space ratio up to 3:1 (or 300%) when providing more open space and lower site coverage, reflecting a desire to encourage high-density, dynamic development providing a diverse array of uses along with a definitive intention of building residential units in this neighbourhood.

A list of zones currently within the boundaries of the Harris Green Neighbourhood are listed below in Figure 21. The zones that mention high-tech as a permitted use are highlighted to reflect the concentration of this use within a high-density residential neighbourhood and the associated regulatory permissions for certain commercial activities, namely high-technology. The zones that identify high technology as a direct permitted use account for nearly 54.1% (13 out of 24 zones listed) of all zones listed in the Harris Green district. Not negating the potential for rezoning as well, that percentage will climb higher if sites are rezoned over time permitting changes in use including high-density residential and high technology. This concentration of high technology inherently implies a preference by the City to encourage the clustering of this activity and to follow

the principles of the Official Community Plan designations such as 'Core Business' and 'Core Residential', both of which apply to the Harris Green neighbourhood.   A critical concentration of these activities will reflect the Urban Place Guidelines[49] in the Official Community Plan and are discussed further in Chapter 4.

Figure 21   List of Zones in the Harris Green District (yellow denotes high-tech use permitted)

Zones Found in Harris Green (High-Tech Permitted in Yellow)	
• **CA-43**	• **CA-66**
• **R-48**	• R-30
• **R-57**	• R3-V
• R3-C	• R-5
• **S-1**	• R3-C-VS
• **S-4**	• **R3-CY**
• **CA-73**	• R-25
• R-42	• R-11
• **CA-42**	• CA-3
• R3-C-C	• R-9
• **CA-58**	• **CA-66**
• **R3-C-T**	• **CA-42-F**

With such a high percentage of the area being designated for high-tech business activity and dense residential development, it's not surprising that a growing concentration of advanced technology incubators, startups and businesses are locating in this area. A map showing the location of tech hubs in the Harris Green and Downtown areas is shown in section 3.2.8.

[49] The City of Victoria's OCP provides a list of Urban Place Guidelines that provide long-term directions for certain areas of the City. – See Appendix 1

Shown in Map 1.6 below is a detailed map of all the zones applicable to the Harris Green neighbourhood, showing the designated sites where each zone applies. As can be seen, the zoning for this district is quite dynamic, reflecting the complex nature of this urban place and the need for flexible, permissive densification and diverse economic activity. For example, the R-48 (Harris Green District) zone permits "residential, including without limitation, multiple dwellings, rest homes, nursing homes, hospitals, and care facilities;"[50] In addition to allowing these residential and institutional uses, this zone also includes a variety of other permissions such as the following:

- institutions of a religious, educational, charitable, or philanthropic character;
- offices, banks, and financial institutions;
- retail;
- restaurants;
- personal services;
- theatres, auditoriums, and places of recreation;
- day care;
- home occupations;
- **high tech;**
- call centre
  (Source: City of Victoria Zoning Bylaw, Part. 3.67)

As can be seen above, high tech is included as a permitted use which is an expression on the City's part to identify key areas as focal points for specific economic activities such as high tech. However, another zone is more direct in its application of high tech and is named the R3-C-T (Central Area Multiple Dwelling & Technology District) zone. This zone explicitly details in section 3.94.2 that the 'Location of Permitted Uses' will:

> "notwithstanding Part 3.67 to the contrary, in a building constructed before 1971, **up to 100% of the ground floor area may be used for high tech use."**

---

[50] Part 3.67 – R-48, Harris Green District

Upon investigation, the zone is specific to one property at 1124 Vancouver Street as shown in Figure 22 and is currently occupied by a tech hub incubator that is home to two companies, Pretio Interactive and mobile data software company, Tutela; which are two successful high-tech companies located in Victoria since approximately 2012 and invested in the Harris Green neighbourhood. The fact that a zone has been created to accommodate the high-tech sector is a positive sign this industry is providing a strong presence and interest in the area; especially when other tech incubators such as Fort Tectoria (home of VIATEC) are located only a couple of city blocks away.

Figure 22   Image of R3-C-T Zone (1124 Vancouver Street)
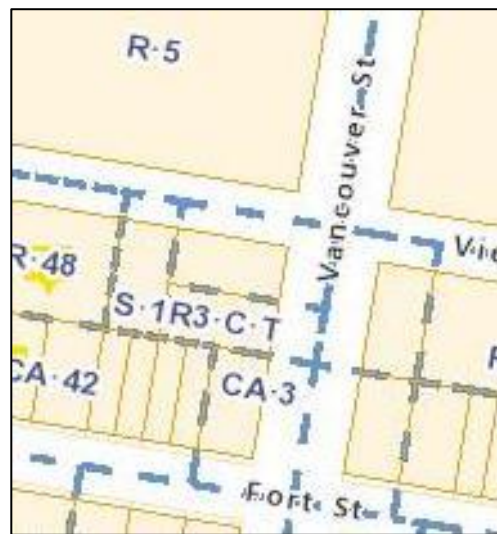
Source: City of Victoria, VICMaps (2017)

The theory of concentration and location preference (Yigitcanlar, 2010) begins to surface in this situation, providing a strong argument for the impact this industry is having throughout the downtown core. Map 1.8 in Chapter 5 highlights the location of specific tech hubs as identified throughout the ongoing analysis of this area; a list can be found in Section 3.2.8 which highlights the location of high-tech hubs throughout the central core, with five hubs being within or immediately adjacent to the Harris Green neighbourhood.

Map 1.6 – Detailed Zoning Map of Harris Green Neighbourhood
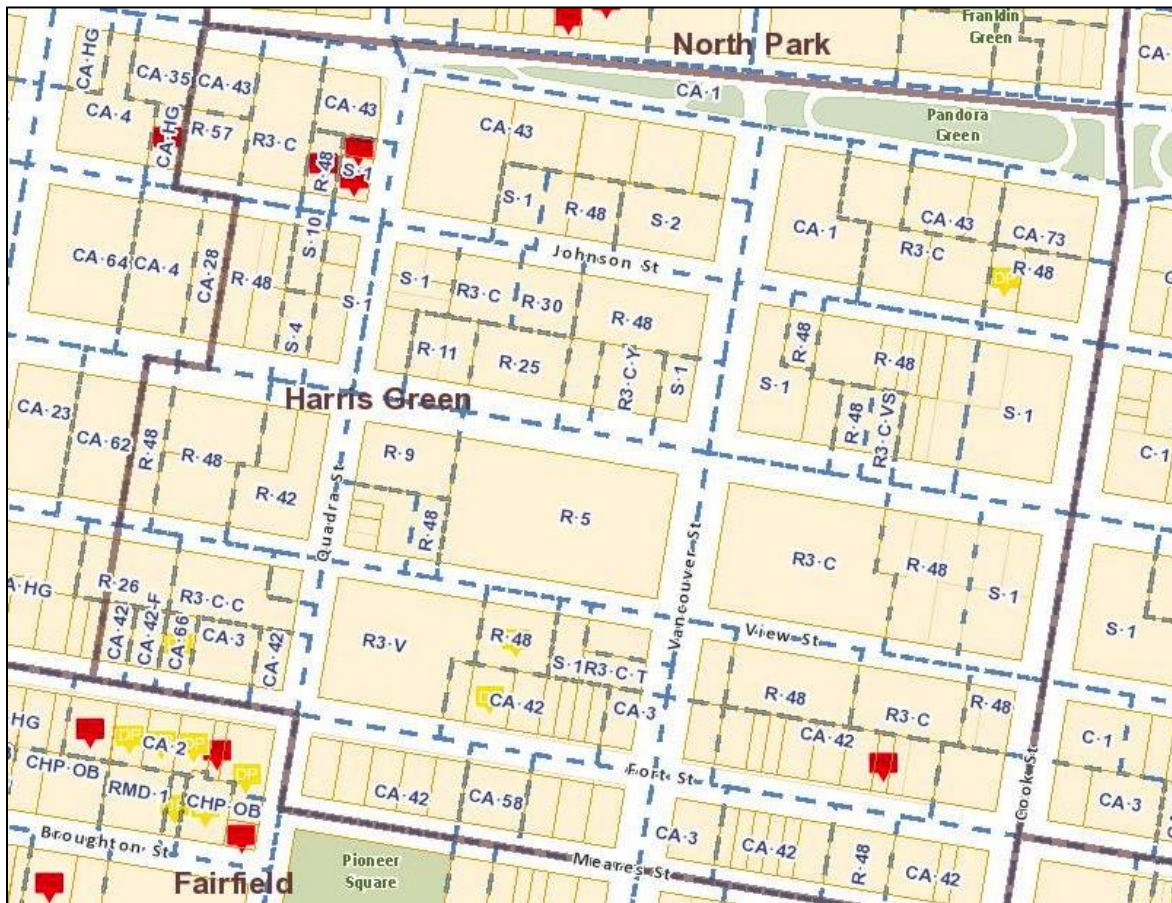
Source: City of Victoria, VICMaps (2017

5.4.1. Development Applications and Rezonings

To develop a better understanding of the development environment of Harris Green, it is necessary to contextualize the state of growth through an analysis of development permits and rezonings. The preliminary application stage of a new development is an indicator of the potential near future growth scenario – where and when densities will change, what will be built and what each building will contain – either residential, commercial or both. The City of Victoria, as mentioned, provides an updated list of development applications and rezonings throughout the city in order to track change and notify the public of upcoming projects. Figure 23 below illustrates the number of active permit applications in the city, filtered to the neighbourhood level (Harris Green and

Downtown) – the overall indication is that within this small geographic area a large amount of redevelopment and land-use change is occurring. While some of the projects listed have multiple associated application numbers, ultimately the indication is one of a focused interest on the part of the municipality and developers to invest and direct growth into this area.

The following tables are reflective of data provided through the City of Victoria's Open Data Catalogue and show the chronological fluctuations in the number of Development Permits that occurred over the entire census period of 2011-2016. Table 5 shows the increase or decrease in active development permits by year for the entire city of Victoria. Clearly visible, is the drastic increase in permits issued from 2015 to 2017, reflecting a changing business and development climate in the City. For instance, the number of Development Permits jumped from 19 to 44 in the span of one year (2016-2017) representing a very high overall percentage of permits active in the past five years. For the ten years between 2007 and 2017, the total number of Rezonings and Development Permits numbered around 214 in total with only 44 of those occurring between 2007 and 2015. Between 2015 and 2017, over 166 active applications were created, representing over 75% of all applications in that 10-year period. This rapid growth can be attributed on some level to a growing appetite for downtown living and general growth in the City's economy while investment in housing throughout the City continues to expand.

Figure 23   Development & Rezonings in Downtown & Harris Green (November 2017)

DOWNTOWN	PL-REZONING	REZ00294	1314-1318 and 1324 Wharf Street
DOWNTOWN	PL-REZONING	REZ00294	1314-1318 and 1324 Wharf Street
DOWNTOWN	PL-DEVELOPMENT PERMIT	DP000259	1314-1318, 1324 Wharf Street
DOWNTOWN	PL-DEVELOPMENT PERMIT	DP000259	1314-1318, 1324 Wharf Street
DOWNTOWN	PL-REZONING	REZ00294	1314-1318 and 1324 Wharf Street
DOWNTOWN	PL-DEV PERMIT WITH VARIANCE	DPV00045	777 Herald Street
DOWNTOWN	PL-HERITAGE ALTERATION PERMIT	HAP00225	1312 - 1314 Broad Street & 622 - 630 Yates
DOWNTOWN	PL-REZONING	REZ00611	1312 - 1314 Broad Street & 622 - 630 Yates Street
DOWNTOWN	PL-REZONING	REZ00611	1312 - 1314 Broad Street & 622 - 630 Yates Street
DOWNTOWN	PL-HERITAGE ALTERATION PERMIT	HAP00225	1312 - 1314 Broad Street & 622 - 630 Yates
DOWNTOWN	PL-HERITAGE ALTERATION PERMIT	HAP00209	737 Fort Street
DOWNTOWN	PL-HERITAGE DESIGNATION	HD000153	727-729 Johnson Street
DOWNTOWN	PL-HERITAGE DESIGNATION	HD000161	506 Fort Street
DOWNTOWN	PL-REZONING	REZ00611	1312 - 1314 Broad Street & 622 - 630 Yates Street
DOWNTOWN	PL-REZONING	REZ00611	1312 - 1314 Broad Street & 622 - 630 Yates Street
DOWNTOWN	PL-HERITAGE ALTERATION PERMIT	HAP00136	1314-1318, 1324 Wharf Street (Northern Junk)
DOWNTOWN	PL-HERITAGE ALTERATION PERMIT	HAP00225	1312 - 1314 Broad Street & 622 - 630 Yates
DOWNTOWN	PL-HERITAGE ALTERATION PERMIT	HAP00225	1312 - 1314 Broad Street & 622 - 630 Yates
HARRIS GREEN	PL-REZONING	REZ00593	930 Fort Street
DOWNTOWN	PL-REZONING	REZ00567	785 Caledonia Avenue
HARRIS GREEN	PL-DEVELOPMENT PERMIT	DP000502	930 Fort Street
DOWNTOWN	PL-DEV PERMIT WITH VARIANCE	DPV00034	515 and 533 Chatham Street
DOWNTOWN	PL-DEV PERMIT WITH VARIANCE	DPV00034	515 and 533 Chatham Street
DOWNTOWN	PL-DEVELOPMENT PERMIT	DP000505	700 Douglas Street
DOWNTOWN	PL-REZONING	REZ00596	700 Douglas Street
HARRIS GREEN	PL-DEVELOPMENT PERMIT	DP000503	1400 & 1412 Quadra Street / 850 Johnson Street
HARRIS GREEN	PL-REZONING	REZ00595	1400 & 1412 Quadra Street / 850 Johnson Street
HARRIS GREEN	PL-DEVELOPMENT PERMIT	DP000503	1400 & 1412 Quadra Street / 850 Johnson Street
HARRIS GREEN	PL-DEV PERMIT WITH VARIANCE	DPV00032	840 Fort Street
HARRIS GREEN	PL-REZONING	REZ00595	1400 & 1412 Quadra Street / 850 Johnson Street
HARRIS GREEN	PL-DEV PERMIT WITH VARIANCE	DPV00051	937 View Street
HARRIS GREEN	PL-REZONING	REZ00595	1400 & 1412 Quadra Street / 850 Johnson Street
HARRIS GREEN	PL-DEVELOPMENT PERMIT	DP000498	1088 Johnson Street
HARRIS GREEN	PL-DEVELOPMENT PERMIT	DP000503	1400 & 1412 Quadra Street / 850 Johnson Street

Source: City of Victoria Open Data Catalogue (2017)

Table 5   Development Permits by Year and Neighbourhoods - Entire City

Permit Type	Year	Number of Permits	Neighbourhood
Development Permit	2011	2	**Downtown**
Development Permit	2012	1	Fairfield
Development Permit	2015	13	Victoria West, Fernwood, North Jubilee, Fairfield
Development Permit	2016	19	James Bay, Gonzales, Rockland, Hillside/Quadra, Burnside, Fairfield, **Harris Green**
Development Permit	2017	44	Fairfield, James Bay, Victoria West, **Downtown**, Fernwood, North Park, Rock Bay, **Harris Green,** Hillside/Quadra, Oaklands, South Jubilee

Table 6 shows an analysis of the data available on development permits and rezoning applications in the City of Victoria from 2007 to 2017. As can be seen below, the final two years (2016-2017) show a substantial increase in overall development activity.

Table 6   Total Rezonings and Development Permits in Victoria

TOTAL REZONINGS AND DEVELOPMENT PERMITS IN VICTORIA (2007-2017)		
Years	**# of Active Applications**	**% Of Total Applications**
2007 – 2017:	**214 APPLICATIONS**	**100%**
2007 – 2011:	**20 APPLICATIONS**	**9.3%**
2011 – 2015:	**24 APPLICATIONS**	**11.2%**
2016 – 2017:	**166 APPLICATIONS**	**77.6%**

Source: City of Victoria's Open Data Catalogue (2017)– Analysis by author

Table 7   Development Permits by Year by Neighbourhoods (Harris Green and Downtown)

Permit Type	Year	Number of Permits (Active and on Hold)	Neighbourhood
Development Permit	2011	2	Downtown
Development Permit	2016	1	Harris Green
Development Permit	2017	6	Harris Green
Development Permit	2017	5	Downtown

Source: City of Victoria's Open Data Catalogue (2017)– Analysis by author

Table 8   Rezonings by Year by Neighbourhood (Harris Green and Downtown)

Permit Type	Year	Number of Permits (Active and on Hold)	Neighbourhood
Rezoning	2010	3	Downtown
Rezoning	2011-2016	0	Harris Green & Downtown
Rezoning	2017	5	Harris Green
Rezoning	2017	9	Downtown

Source: City of Victoria's Open Data Catalogue (2017) – Analysis by author

There is also a concentration of development and rezoning activity occurring just Southwest of the Harris Green neighbourhood in a small section of the Fairfield neighbourhood.   While this area is not directly within the neighbourhood boundaries of Harris Green as identified by the City of Victoria, it does fall directly adjacent to the Harris Green area and Downtown area as seen in Map 1.7. This area is of particular interest to the development activity in the area as high concentration of development activity is occurring there – this is the result of a major redevelopment of the site for a seniors' purpose-built rental building with 192 units; however, there are other developments for an 11 storey mixed-use development (REZ00621) and a six-storey mixed-use building with 63 residential units (DPV00032) and an increase in commercial activity on other sites.

While the largest redevelopment here is for a senior's residence, which does not relate demographically to the high-tech sector's workforce, this still infers that development interest is high in the area, especially for mixed-use residential-commercial properties.

Map 1.7 – Broughton Street (Fairfield) Development Applications and Rezonings[51]
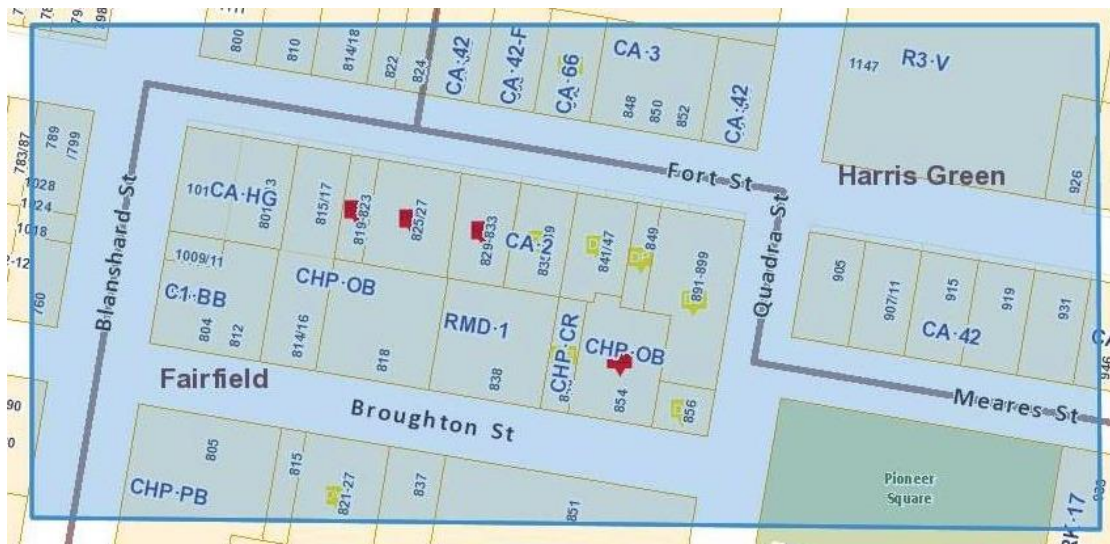
Table 9   List of Development Applications and Rezonings in Map 1.7

(Highlighted Applications = Other residential and/or mixed-use developments)

REZONING	819-823 and 825/827 Fort Street
DEVELOPMENT PERMIT	829-899 Fort St and 846-856 Broughton St
REZONING	829-899 Fort St. & 846-856 Broughton St.
DEVELOPMENT PERMIT	829-899 Fort St and 846-856 Broughton St
REZONING	819-823 and 825/827 Fort Street
REZONING	829-899 Fort St. & 846-856 Broughton St.
DEVELOPMENT PERMIT	829-899 Fort St and 846-856 Broughton St
REZONING	821-825 Broughton Street
DEVELOPMENT PERMIT	829-899 Fort St and 846-856 Broughton St
DEVELOPMENT PERMIT	829-899 Fort St and 846-856 Broughton St
DEVELOPMENT VARIANCE PERMIT	821-825 Broughton Street
DEV PERMIT WITH VARIANCE	840 Fort Street

[51] Red labels indicate a rezoning and yellow indicates a Development Permit or Development Variance Permit

As can be seen above in Table 9, this specific block has quite a list of applications currently in the process stage. While much of it is related to the rezoning and development permit work for the 829-899 Fort Street project (senior's housing), the other projects of significance are highlighted to indicate that major residential (and mixed-use) buildings are being considered for this area as well. Even though this block is not indicated within the neighbourhood boundaries of this study, the activity nonetheless reflects the changes and diverse redevelopments occurring within the subject areas, even if specified neighbourhood boundaries do not contain certain projects, the relative proximity of development projects is reflective of change.

During the interview phase, I also managed to collect some data on a development project by Abstract Developments titled "The Black and White" and located at 1010 Fort Street. This project data included the list of actual occupations of the resident buyers of the units in the building, which is provided in full in Appendix D. In the analysis of this purchaser profile, it was determined that out of the 70 buyers in the building, 14 were directly or semi-directly involved in the tech sector or tech-related industries; leading to 18.6% of overall buyers being tech-related workers to some degree. Within this small demographic snapshot, 6 of the 14 tech-industry buyers were from Victoria, which calculated to a 42.86% local buyer rate. However, these rates are slightly skewed due to a number of purchasers' information being unavailable due to privacy issues as well as certain categories such as "business owner" which do not delineate a clear industry affiliation.

5.5. Business License Data

Business license data was available through the City of Victoria's Open Data Catalogue and provides the contextual changes to the business community in the area over the past five years. The most recent data provides a snapshot of the percentages of businesses within Harris Green and Downtown areas that are related to the definitions and classifications mentioned in section 3.2.1. As can be seen in Table 10, when comparing the Harris Green neighbourhood to Downtown and Citywide data on businesses licenses associated with high-tech, Harris Green has the highest percentage of district business activity as high-tech. Keep in mind that many of the high-tech businesses vary in size, therefore the percentage of high-tech workers as a whole may be different from the percentages of total businesses.

Table 10   Business License Analysis (November 2015-September 30, 2016)

District	BL Category	Total s BLs by Area	Total High- Tech BLs by Area	% of Total BLs Citywide	High-Tech Businesses as % of total citywide	High-tech BLs as % of district total
Citywide	HT/Research/Info/ Science	8,041	350	100%	4.35%	4.35%
Downtow n	HT/Research/Info/ Science	1,874	129	23.31%	1.6%	6.88%
Harris Green	HT/Research/Info/ Science	379	30	4.71%	0.37%	7.92%

Source: City of Victoria's Open Data Catalogue – Analysis by author

The following Tables 11 and Table 12 are the most recently available lists of business licenses in the Harris Green and Downtown neighbourhoods classified under the NAICS description of 'Professional, Scientific & Technical Services' and identified as 'Technical, Design, Engineering' within the City of Victoria's business license categories. Within the two neighbourhoods, there are nearly 40 high-tech or highly technical businesses that currently operate and have been issued business licenses in less than two years (2016-2017). The data provided in the tables below is not fully reflective of all the business license activity in the areas, but does provide a snapshot of the concentration of technically-oriented business activity – of particular note, is the provision of four high-

tech or technically-related businesses in the 838 Fort Street building, named "The Summit" which houses high-tech co-sharing spaces. Though there are not a large number of businesses listed in the Harris Green Neighbourhood, almost directly adjacent to the community are three other hubs such as VIATEC's Fort Tectoria, 844 Courtenay Street and the Watershed Co-Sharing Space. As a note, the geographic spread of these businesses is minor in distance and some cross-pollination of activities and workers is expected, which is supported by the theories of proximity discussed in the literature review.

Further data was available on the approval and opening of businesses within Harris Green specifically between the years of 2011 to 2017. This data encapsulates an entire census period and provides a much more thorough analysis of the business license activity related to high-tech within the direct neighbourhood boundaries of Harris Green. The following Table 11 shows the number of professional, scientific and technical service business licenses approved by year. The data shows that approximately 64 businesses with a high-tech or professionally technical license were issued in this area over the five to six year timeframe. When the number of businesses is averaged out over the period, it equals approximately 13 businesses per year over a five-year timeframe or 10 per year over a six-year timeframe. While the data shows wild fluctuations in the number of businesses in the specific category of analysis (Professional, Scientific and Technical Services) from year to year, there is a clear increase, albeit the numbers are small due to the geographic frame of Harris Green, from 2013 to 2017 and a huge jump between 2011 and 2012 (800%).

Table 11   Approved High-Tech (NAICS Description) Business Licenses in Harris Green (2011 to 2017)

Year of Issue	Number of High-Tech/Technical Professional Business Licenses Issued	% Change/Increase Year over Year
2011	1	
2012	9	800%
2013	4	-55.5%
2014	11	175%
2015	12	9.09%
2016	16	33.3%
2017	11	-31.25%
TOTAL	64	

Source: City of Victoria Open Data Catalogue (analysis by author)

Table 11 represents a list of business licenses that were issued within the most recent year (2016-2017) and has a slightly different number from the table above accounting for the overlap in years and early 2016 data, which is not included in Table 11. As is clearly visible, there were 14 business licenses issued in the Harris Green neighbourhood that fall into the NAICS category of analysis. The data does not include the closing of businesses showing only new business licenses issued during this time. From 2013 to 2017, nearly 54 business licenses in the category were issued with only 10 issued from 2011 to 2012 and 27 issued between 2016 and 2017.   The percentage increase between the first year of analysis and the last year of analysis (2011-2012 and 2016-2017) is 170%[52] or the number of license issued in 2016-2017 was 170% higher than the number issued from 2011 to 2012.   The highlighted sections of this table show that 5 business licenses were also issued for one of the high-tech hubs identified in this paper at 838 Fort Street, reflecting the concentration of businesses of this type in this particular area.

[52] The difference between the first and last year of business license data was calculated by dividing the increase of each year (10 and 27 respectively) and generating the percentage difference.

Table 12 - List of High-Tech or Highly Technical Business Licenses in Harris Green (Nov 2016 – Dec 2017)

Neighbourhood	Address	NAICS Description
1. HARRIS GREEN	977 FORT ST	PROFESSIONAL - ARCHITECT
2. HARRIS GREEN	977 FORT ST	PROFESSIONAL - ARCHITECT
3. HARRIS GREEN	915 FORT ST	BUSINESS SERVICES - COMPUTER / OFFICE EQUIPMENT
4. HARRIS GREEN	403-1011 FORT ST	PROFESSIONAL - ARCHITECT
5. HARRIS GREEN	320-838 FORT ST	RESEARCH & DEVELOPMENT - VARIOUS
6. HARRIS GREEN	230-838 FORT ST	COMPUTER SERVICES - DEVELOPMENT & DESIGN
7. HARRIS GREEN	210-838 FORT ST	BUSINESS SERVICES - TECHNICAL / DESIGN / ENGINEERING
8. HARRIS GREEN	185-911 YATES ST	COMPUTER SERVICES - DEVELOPMENT & DESIGN
9. HARRIS GREEN	1124 VANCOUVER ST	BUSINESS SERVICES - TECHNICAL / DESIGN / ENGINEERING
10. HARRIS GREEN	111-1034 JOHNSON ST	PROFESSIONAL - ARCHITECT
11. HARRIS GREEN	1051 VANCOUVER ST	PROFESSIONAL - ENGINEER
12. HARRIS GREEN	101-915 FORT ST	BUSINESS SERVICES - SPECIALIZED DESIGN
13. HARRIS GREEN	100-838 FORT ST	BUSINESS SERVICES - TECHNICAL / DESIGN / ENGINEERING
14. HARRIS GREEN	100-838 FORT ST	COMPUTER SERVICES - DEVELOPMENT & DESIGN

Source: City of Victoria, Open Data, 2017

Map 1.8 – High-Tech or Technically-Oriented Business Licenses Located in Harris Green (2016-2017 Approved Business Licenses)
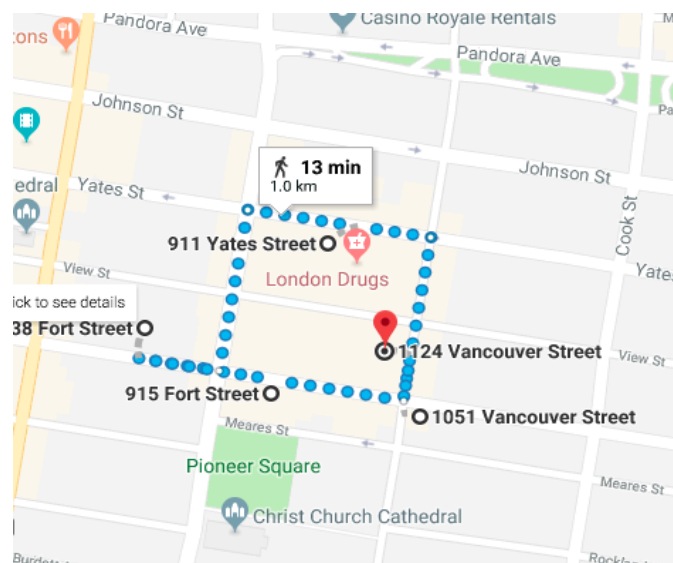
Source: City of Victoria – Open Data Catalogue (2017)

The above Map 1.8 shows the concentration of "highly"[53] technical businesses located within the Harris Green neighbourhood; reflecting only one year's worth of high-tech license approvals. As mentioned, 838 Fort Street houses a number of businesses in the field and the business licenses data available does not include licenses approved prior to 2016. Some of these businesses include consultancies and technical professions, such as Architecture, but are mostly composed of some form of technology-related work that requires a high education-knowledge factor as discussed in the literature review.

Table 13   List of High-Tech or Highly Technical Business Licenses in Downtown Neighbourhood (Nov 2016 – Nov 2017)

Neighbourhood	Address	NAICS Description
1. DOWNTOWN	1019 WHARF ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
2. DOWNTOWN	320-645 FORT ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
3. DOWNTOWN	3A-1218 LANGLEY ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services

[53] The use of this word indicates a business type that reflects the tenets of the NAICS descriptions and utilizes a high level of technology in its activities

4.	DOWNTOWN	808 DOUGLAS ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
5.	DOWNTOWN	1005 LANGLEY ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
6.	DOWNTOWN	3A-1218 LANGLEY ST	Professional, scientific & technical services / Professional, scientific & technical services / Specialized design services
7.	DOWNTOWN	517-1207 DOUGLAS ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
8.	DOWNTOWN	600-1405 DOUGLAS ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
9.	DOWNTOWN	1/2-614 FISGARD ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
10.	DOWNTOWN	794 YATES ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
11.	DOWNTOWN	400-1208 WHARF ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
12.	DOWNTOWN	101-524 YATES ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
13.	DOWNTOWN	301-1321 BLANSHARD ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
14.	DOWNTOWN	1-1407 GOVERNMENT ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
15.	DOWNTOWN	56 BASTION SQ	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
16.	DOWNTOWN	324-645 FORT ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
17.	DOWNTOWN	400-31 BASTION SQ	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
18.	DOWNTOWN	101-850 BLANSHARD ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
19.	DOWNTOWN	201-1005 BROAD ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
20.	DOWNTOWN	202-1019 WHARF ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services

21. DOWNTOWN	794 YATES ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
22. DOWNTOWN	43-560 JOHNSON ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
23. DOWNTOWN	200-1005 LANGLEY ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
24. DOWNTOWN	700-880 DOUGLAS ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
25. DOWNTOWN	302-560 JOHNSON ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
26. DOWNTOWN	301-1321 BLANSHARD ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
27. DOWNTOWN	47-560 JOHNSON ST	Professional, scientific & technical services / Professional, scientific & technical services / Specialized design services
28. DOWNTOWN	202-1005 BROAD ST	Professional, scientific & technical services / Professional, scientific & technical services / Specialized design services
29. DOWNTOWN	304-733 JOHNSON ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services
30. DOWNTOWN	8-532 FISGARD ST	Professional, scientific & technical services / Professional, scientific & technical services / Computer systems design & related services

5.6. Worker & Business Location Preference

As discussed in the literature review and throughout the interview process, evidence supports the idea that high technology workers have a strong preference for urban living in close proximity to services, activities and other businesses. The age demographic of the tech sector worker population also reflects the more urban preferences of a younger generation of people, mostly under the age of 40.

As highlighted in the interviews and supporting data on location of high-tech businesses in the downtown core, there are correlations between where new developments are occurring in downtown Victoria and their relation to the establishment of high-tech hubs and housing for workers. Although the housing projects are not entirely

driven by demand from the high-tech sector, it does play a substantial role in the implementation of housing projects in the Downtown Core and Harris Green. The projects showing on Map 1.9 identify the location of shared space high-tech hubs and new or currently planned large multi-unit residential/commercial developments within or in close proximity to the Harris Green and Downtown neighbourhood boundaries. The addresses of each high-tech hub are as follows:

High-Tech Hubs and Co-sharing Tech Spaces:

1. 777 Fort Street – VIATEC @ Fort Tectoria
2. 838 Fort Street – The Summit
3. 844 Courtenay Street
4. 955 View Street
5. 517 Fort Street – Space Station

Map 1.9 – Location of High Tech Hubs in the Downtown/Harris Green Neighbourhoods (Harris Green shown in blue outline)
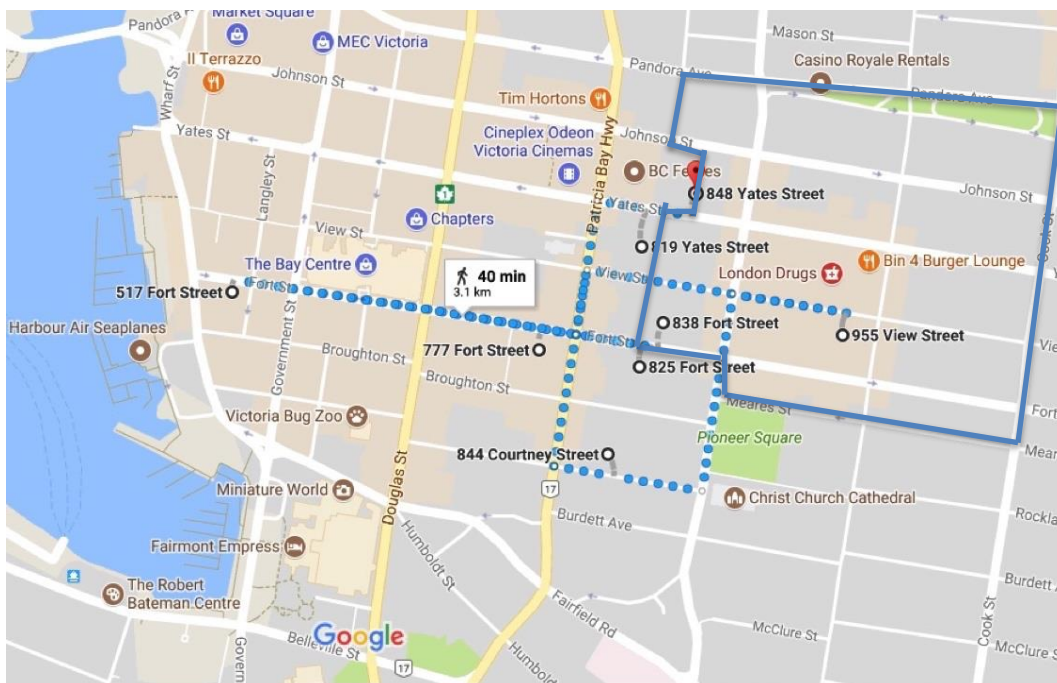
Source: Created by author in Google Maps, 2017

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While some of the high-tech spaces are located slightly outside of the Harris Green neighbourhood, they are still in close proximity to the area and do have spillover effects into the adjacent areas. This is reflected by the land-use designations discussed in the Official Community Plan that direct most high-density residential in the area to the Harris Green neighbourhood. The high-tech hubs generate enough activity and spin-off retail activity, that a critical concentration of both multi-unit rental and market residential buildings within close walking distance to Fort Tectoria and The Summit at 838 Fort Street, for example. These multi-unit residential buildings, which mostly consist of purpose-built rental market units are scattered within and around the Harris Green neighbourhood and all have been approved or built within the past two years. Map 2.0 below shows the location of these buildings within the proximity to the tech hubs and Harris Green. Only 1010 Fort Street and 930 Fort Street are marketed towards condo buyers and ownership versus remaining projects that focus on purpose-built rental stock.

The following projects are included in Map 2.0:

1. 1075 Pandora Avenue
2. 1010 Fort Street
3. 437 View Street
4. 1400 Quadra Street
5. 850 Johnson Street
6. 930 Fort Street
7. 1033 Cook Street
8. 1088 Johnson Street
9. 840 Fort Street

Map 2.0 - Location of New Multi-Family Developments

Source: Created by Author in Google Maps, 2018
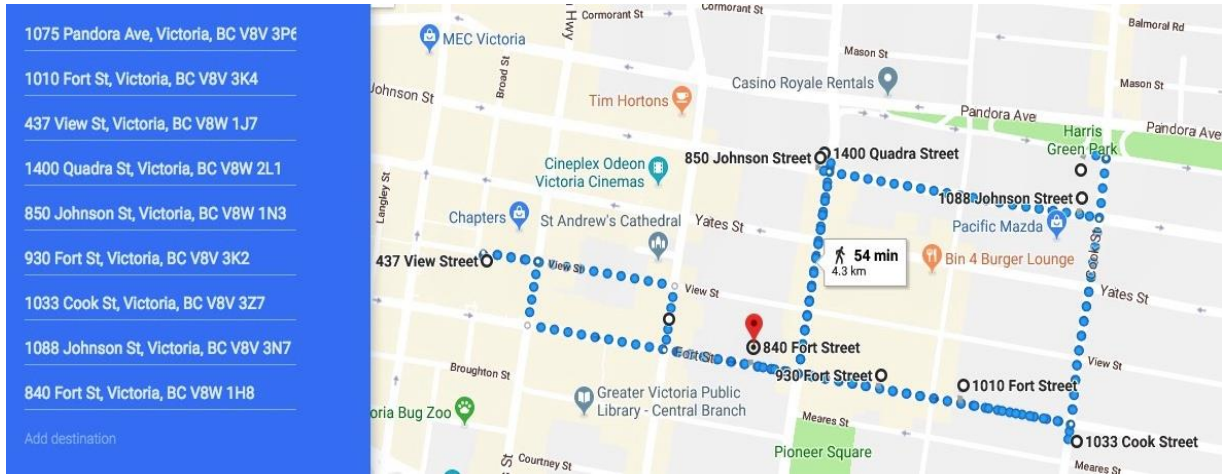
By cross-referencing the two maps, there is clearly a concentration of both multiple-family units being constructed in conjunction with a localized grouping of high-tech organizations and businesses. The area is highly walkable and provides a unique employment and amenity provision with a wide array of retail, cafés and restaurants within close proximity.

Chapter 6.   Conclusion & Recommendations

The outcomes of this research provide a qualitative understanding of the impacts that high-tech growth in the City of Victoria has had on rental housing vacancies and affordability.   The purpose of this paper was not to quantify a direct number of units or to establish a statistically exact impact of high-tech economic activity on housing in Harris Green; but more so to establish the relationships and discuss the characteristics and narratives of these relationships through the use of data. The data and interviews throughout the research provided in many cases, regional level information or at the census metropolitan level, yet the impacts of tech involvement and development on housing in Harris Green were highlighted in population changes, time series of investment, residential developments and business license data. This was done through a lens of comparative analysis reinforcing the interview matrix responses, population changes, business license data and housing starts in the area over the past several years.   An increased presence of high-tech industry workers in and around the neighbourhood since the introduction of the VIATEC hub in 2010 has changed the composition of the neighbourhood's retail, commercial and residential activities; bringing a younger, dynamic and more economically advantaged group to the area. This population and demographic change was represented as having a positive correlation in nearly all of the interviews, indicating that a demographic shift in the particular focus area may be impacting the overall rental housing vacancies and costs. Justin Filuk of Townline Developments stated:

> The first building we got a lot of students and international students and that was in 2014. And a lot of downtown professionals but as rents crept up and vacancies got lower, they found that there was a shift in the building that we completed in 2016 where it was a lot more what you would classify as tech workers and people coming into the city for contract positions and some of them related to government or military but a lot of them more coming in because they're working with firms that are writing code or something like that. So we found that over all the average age was creeping up from 20 to 35 cohort more into the 30-50 years old cohort. And incomes were, we were shocked at the number of high income earners making over six figures per year and some even exceeding $200,000 per year. (Filuk Interview, 2017)

The combination of purpose-built rental units coming on stream and the concurrent growth of the population in this area in conjunction with municipal policy initiatives and growth directives has positioned Harris Green as a central hot spot for both high-density

residential growth, but also a core concentration of commercial office activity, including tech development.

Discussed in Chapter 5, the Harris Green Neighbourhood had an 11% increase in population between 2006 and 2011, following that period, between 2011 and 2016, a population growth of roughly 36% occurred in Harris Green based on the Census Canada dissemination areas. This is a remarkable population growth for the City of Victoria and for a small neighbourhood geography, which highlights the interest, investment and locational preference to be driving changes in the downtown core and Harris Green. While population change in and of itself does not denote that housing pressures will result, the implication in this paper has been that a positive relationship exists between the growing interest in the neighbourhood and changes to the rental housing stock. In some cases, this has had a positive relationship as new units come online and developer interest has catalyzed the construction of new buildings, but in the interim, it has caused some reduction in affordability when the data on vacancies are connected to the timelines of tech investment. Both of which are highly aligned in the Harris Green neighbourhood between 2011 and 2017.

In section 5.3 there were indications that housing affordability was identified as being highest in the selected census tract, emphasizing the importance of providing affordable rental housing in the central downtown and Harris Green areas. This was further enhanced by the statistic that in 2015, all of the housing units built in Harris Green were purpose-built rental buildings and totalled 134 units. In 2014, the statistic was zero units, representing the fact that Harris Green was recognized as a key growth centre with over 13%[54] of all new housing units in the City being built in Harris Green and 23.6%[55] of all rental housing units being built in Harris Green. These numbers support the understanding that Harris Green has had increased interest in multi-unit housing, as reflected in housing starts mentioned in section 5.3, which may be reaching concentrations that effectively deal with the increase in localized population.

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[54] 134/1025 = 13% total units built in 2015 (City of Victoria OCP Annual Review 2016)
[55] 134/567=23.6% rental units built in 2015 (City of Victoria OCP Annual Review 2016)

In Section 5.5, it was shown that over 64 high-tech business licenses were issued in the Harris Green neighbourhood alone between 2011 and 2017. The Harris Green neighbourhood, when compared to the overall city and to the Downtown neighbourhood, had the highest percentage of high-tech businesses in this category. For such a geographically constrained area, this represents a statistically significant impact of this type of business activity on that neighbourhood. Further to the business license data showing growth particularly in that sector, the interviews also highlight much of the data inferences with statements such as: "there are pockets within Harris Green, where you've got your base zoning which allows for more residential than other parts of the downtown so there's definitely been a lot of [sic] we've tried to acquire sites in Harris Green, but we keep getting out bid by other developers because they can confidently build more residential there and the absorption is going to be predictable essentially" (Filuk, 2017) showing that residential development is in high demand there. Questions about the percentage of buyers in the particular buildings being constructed followed with responses of roughly 35% to 40%.[56] This perspective provides a strong relationship to the housing investment occurring and establishes the key undercurrent of the research question's purpose.

Throughout the paper, relationships were examined based not only on tech sector investment characteristics but also the municipal growth and development initiatives of the City, location of high-tech hubs and the construction of new multi-unit residential buildings. Development applications and rezonings were also abundant from 2015 to 2017, with significant increases starting around 2015, when vacancies had hit their lowest levels. In addition to the increasing number of approved development applications, the zoning mechanisms and OCP designations encouraged the concentration of residential activity within the area. For instance, some specific zoning applicable to Harris Green permitted high-tech use as a primary activity. This encourages concentration of this activity and thus supports the idea that high-tech has been focusing investment to this key neighbourhood in some manner. As mentioned previously in Chapter 4, the designations focused on core-residential uses and since the implementation of this policy, a number of buildings

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[56] Justin Filuk estimated this as the potential number of renters and buyers in Townline Development projects – this is also mentioned in section 5.1

have been approved in Harris Green between 2015 and 2017, with large increases in the past two years.

As shown by the relational graphic in Section 1.2, connections were made between the relationships found throughout this research and how they were connected in order to identify elements of the housing pressures that have faced Harris Green around the time the tech sector began to appear more substantially around 2011-2012. While most of the numbers available throughout the research point towards indications that population growth, tech-sector employment demographics and delayed housing developments have contributed to low vacancies and affordability in the area, the results still only represent a portion of the overall picture; as summarized in the following quote by Dan Gunn:

> **"It's looking at it as more of a component, as opposed to just being the actual cause of the impact" (Gunn, 2017).**

This quote sums up the entire approach to the research, with the intention of reaching towards an understanding of the solutions and future potential for the industry in Victoria as well as encouraging an active municipal response to housing conditions created when economic drivers drastically change the housing situation. Using the particular neighbourhood of Harris Green enabled a more directed and focused opportunity to understand a microcosm of the phenomena of Knowledge-Based Urban Development (KBUD) as discussed in the literature review.

6.1. Recommendations

The case study research predominantly focused on municipal planning mechanisms and policy as they relate to urban development in a knowledge-based economy, including knowledge precincts, which define the Harris Green neighbourhood to some extent. Issues with gentrification, access to housing, vacancy rates, housing affordability and economic development are all intertwined as key drivers of municipal planning and development. Within the context of this research, many municipalities could benefit from a more measured approach to promoting high-salary, high-tech companies to their regions while maintaining affordable and accessible housing stock. This is done through the mitigating effects of sound planning tools such as responsive processing

times, effective zoning measures such as 'rental-only' zoning and ensuring that affordable housing is included in all new purpose-built rental projects. This could potentially be extended to the private-rental and condo markets where new projects are required to have a percentage of units as affordable based on an income threshold of 30% or more of income going to housing costs. Current tools being used in Victoria are already moderately effective such as incentives, amenity contributions towards affordable housing in new developments and inclusionary housing policies.

The Victoria Housing Strategy is an excellent first step in addressing the needs of the City in regards to establishing more robust and diverse housing options in the City. While the City has developed key strategic directions that support its move towards a more diverse housing portfolio, the research shown in this paper indicates that concurrent economic development initiatives also create complicated conditions to implement such policies. Although specific causality between high-tech growth and housing in Harris Green was not concretely measurable in the scope of this paper, indications of the activity on both fronts highlights that more 'tools' can be used to examine the relationship between these shifts occurring in the area. A key municipal response would be the continuance of public consultations regarding high-tech growth and housing in conjunction with private organizations such as the Urban Development Institute and tech entrepreneurs. This would enable a broader understanding of encouraging economic growth in a low-vacancy housing market by integrating expected growth targets in both housing and high-tech investment and allowing for a moderated response to the issue; including recognizing connections through metrics such as housing starts and numbers of employees in the sector per year. This would enable a less reactive response to pressures on affordable housing and improve the overall strategic directives in the City's housing approval procedures.

Active stakeholder engagement and ensuring that changes (such as development permit, rezonings, units per neighbourhood, business licenses year-over-year) are tracked annually helps build a more robust understanding of the factors driving economic investment and housing development. Through these mechanisms, the City positions itself in a place to be one step ahead of the curve. Whether the housing conundrum facing Victoria and Harris Green can be solved is another question, but in the meantime,

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addressing the current situation by enhancing the options already on the table, such as enhancing housing funds, reducing restrictions on rental units, incentivizing affordable housing projects and establishing concrete targets for affordable units in short-to-medium term strategic planning is the best first step forward for municipalities that face this kind of dichotomy. Namely how to attract and retain talent in the knowledge economy while ensuring that others are not left in the shadows, fighting for basic access to appropriate and accessible housing.

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Appendix A.

Figure 17: Urban Place Designations – Economic Guidelines

Designation	Economic Sector
Core Business	› Transportation and warehousing › Public administration › Finance, insurance, real estate › Advanced technology › Heathcare services › Tourism and visitor services › Arts, culture and entertainment › Residential goods and services (retail, commercial and community services)
Core Inner Harbour/ Legislative	› Transportation and warehousing › Public administration › Finance, insurance, real estate › Advanced technology › Healthcare services › Tourism and visitor services › Arts, culture and entertainment › Residential goods and services (retail, commercial and community services)
Core Historic	› Transportation › Finance, insurance, real estate › Healthcare services › Public administration › Tourism and visitor services › Arts, culture and entertainment › Residential goods and services (retail, commercial and community services)
Core Employment	› Transportation and warehousing › Manufacturing › Wholesale trade › Finance, insurance, real estate › Advanced technology › Heathcare services › Arts, culture and entertainment › Residential goods and services (retail, commercial and community services)

Designation	Economic Sector
Core Residential / Core Songhees Residential	› Tourism and visitor services › Heathcare services › Residential goods and services (retail, commercial and community services)
Working Harbour and Marine Industrial	› Transportation › Manufacturing › Wholesale trade › Advanced technology › Heathcare services › Tourism and visitor services
General Employment	› Transportation and warehousing › Wholesale trade › Finance, insurance, real estate › Tourism and visitor services › Advanced technology › Healthcare services › Residential goods and services (retail, commercial and community services)
Industrial	› Transportation and warehousing › Manufacturing › Wholesale trade › Advanced technology › Heathcare services
Large Urban Villages	› Finance, insurance, real estate › Healthcare services › Residential goods and services (retail, commercial and community services) › Arts, culture and entertainment
Town Centres	› Transportation and warehousing › Wholesale trade › Finance, insurance, real estate › Healthcare services › Residential goods and services (retail, commercial and community services) › Arts, culture and entertainment

Appendix B.

Census Program Data Viewer, 2016 Census
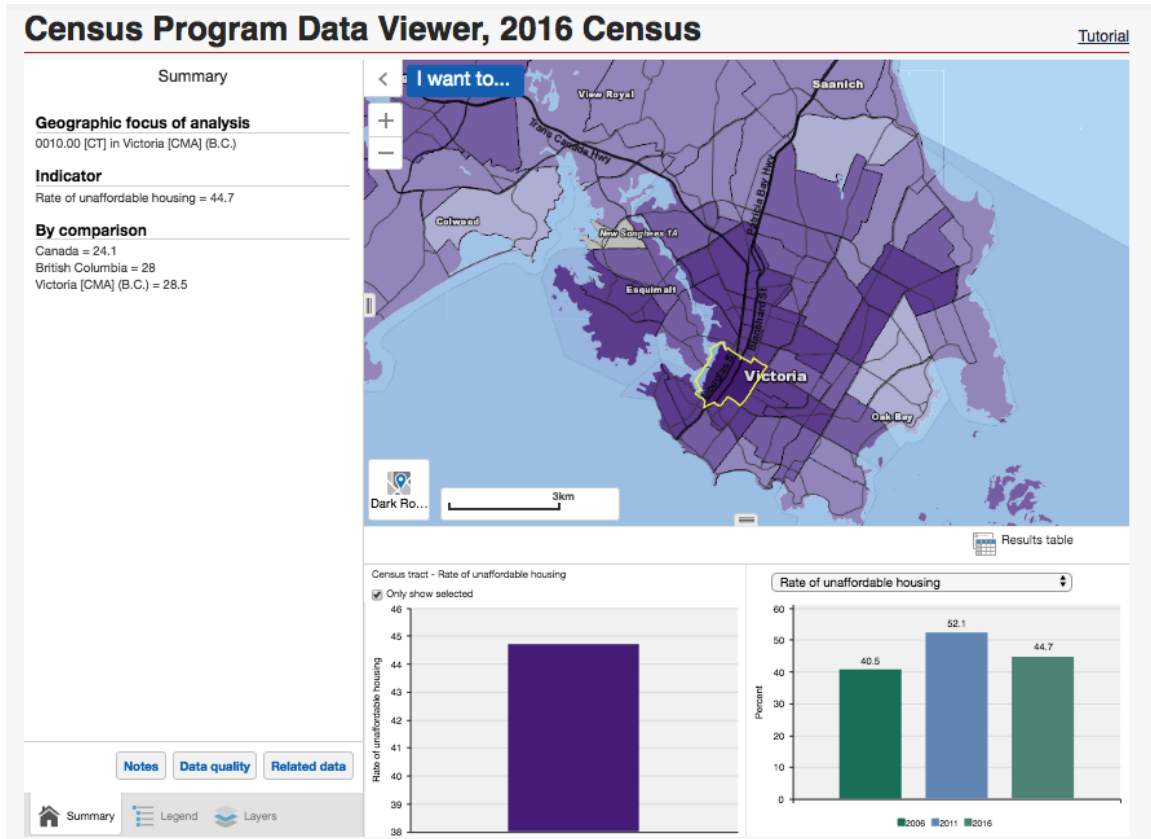
Appendix C.

Dwelling Units Approved through Building Permits Issued

(SOURCE: CITY OF VICTORIA)

Dwelling Units Approved by Neighbourhood (2015)							
Neighbourhood	New Construction	Conversions (excluding secondary/ garden suites)	Secondary Suites (including new construction and conversions)	Garden Suites (including new construction and conversions)	Total (excluding demolitions)	Demolitions	Net New Dwelling Units
Burnside	65	0	0	0	65	5	60
Downtown	379	51	0	0	430	0	430
Fairfield	115	4	9	2	130	12	118
Fernwood	37	0	5	1	43	10	33
Gonzales	8	0	5	0	13	5	8
Harris Green	134	0	0	0	134	0	134
Hillside Quadra	2	0	3	0	5	2	3
James Bay	30	0	1	0	31	9	22
Jubilee	2	0	3	1	6	5	1
North Park	11	0	0	0	11	1	10
Oaklands	20	1	4	0	25	5	20
Rockland	22	0	2	0	24	0	24
Victoria West	111	0	3	1	115	0	115
Total	936	56	35	5	1032	54	978

Appendix D.

Purpose-Built Rental Units Approved through Building Permits Issued

(SOURCE: CITY OF VICTORIA)

Purpose-Built Rental Units Approved by Neighbourhood

Neighbourhood	Purpose-built rental
Burnside	65
Downtown	209
Fairfield	0
Fernwood	0
Gonzales	0
Harris Green	134
Hillside Quadra	0
James Bay	0
Jubilee	0
North Park	11
Oaklands	0
Rockland	0
Victoria West	108
Total	527

Note: Purpose-Built Rental Units do not include secondary or garden suites.

City of Victoria OCP Section 13 – Housing Spectrum

Figure 16: The Housing Spectrum

The plan policies encourage a range of different types of housing and support services across the city and within every neighbourhood to meet the needs of residents at different life stages and circumstances, and to facilitate aging in place. This diversity of housing and services is illustrated by the housing spectrum. Households or individuals may require different types of housing over the course of their lives, based on their individual circumstances, preferences, needs and supports.

The spectrum is not meant to imply a step-by-step progression from one type of housing to another; rather, an individual or household may move from place to place along the spectrum over the course of their lives.

Types of Housing	Non-Market Housing				Market Housing	
	Emergency Shelters	Transitional Housing	Supported Housing	Non-Market Rental Housing	Market Rental Housing	Home Ownership
Examples	› overnight shelter › crash beds/ safe beds › short-term stay shelter	› low barrier housing › supportive housing › transition house	› group homes › long-term residential care (public and non-profit) › assisted living (public and non-profit) › supported housing	› social housing › co-operatives › rent geared to income	› market rental › boarding houses › assisted living (private) › long-term residential care (private)	› strata › fee simple › co-housing

Appendix E

Urban Core
> 50% of population growth
> approximately 10,000 new people by 2041

Town Centres and Large Urban Villages
(including areas within close walking distance)
> 40% of population growth
> approximately 8,000 new people by 2041

Remainder of City
> 10% of population growth
> approximately 2,000 new people by 2041

= 200 People

Urban Core

Town Centre / Large Urban Village

Remainder of City

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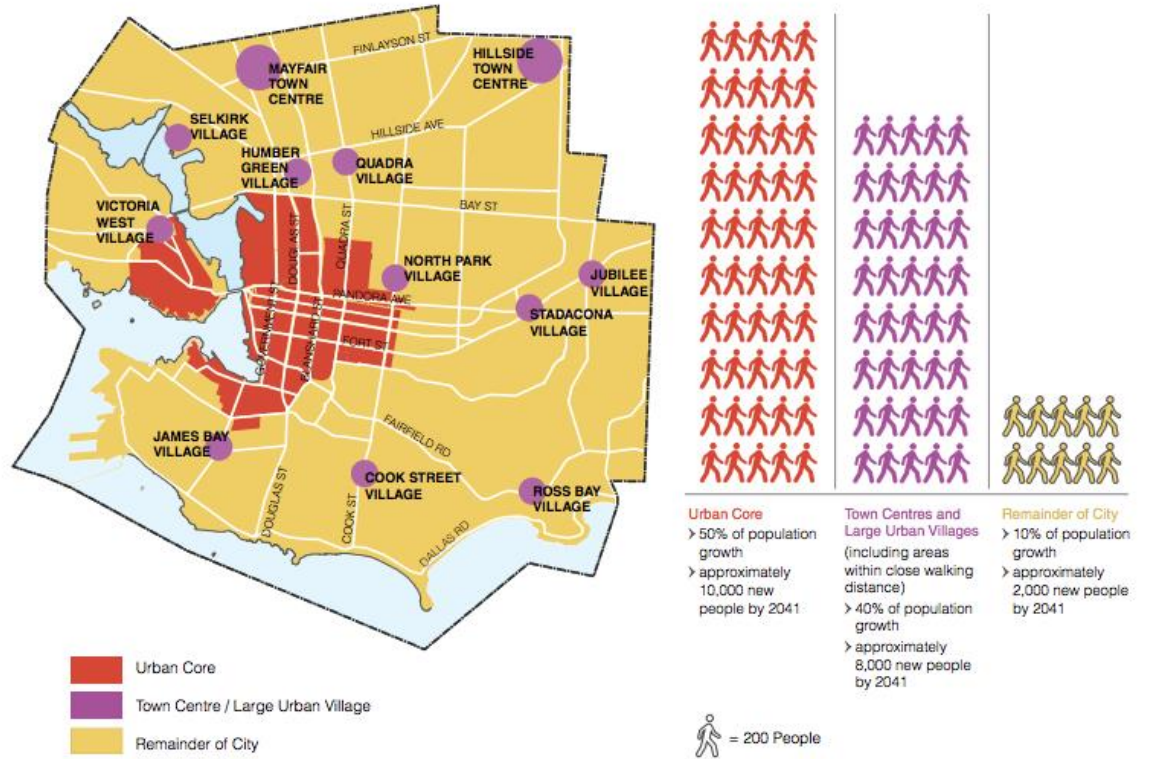
Appendix F

Downtown Core Area Plan – Map 15 (Density Bonus System)

MAP 15
Areas for Density Bonus System

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
A-1	commercial	4:1	6:1
	residential*	3:1	3:1
	mixed use [1,2,*]	4:1	6:1

1. The base density for mixed use development is 4:1 FSR, of which the residential portion shall not exceed 3:1 FSR
2. The maximum density for mixed use development is 6:1 FSR, of which the residential portion shall not exceed 3:1 FSR

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
A-2	commercial	3:1	5:1
	residential*	3:1	3:1
	mixed use [3,4,*]	3:1	5:1

3. The base density for mixed use development is 3:1 FSR
4. The maximum density for mixed use development is 5:1 FSR, of which the residential portion shall not exceed 3:1 FSR

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
B-1	commercial	3:1	5:1
	residential*	3:1	5:1
	mixed use [5,6,*]	3:1	5:1

5. The base density for mixed use development is 3:1 FSR
6. The maximum density for mixed use development is 5:1 FSR

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
B-2	commercial	3:1	4.5:1
	residential*	3:1	4.5:1
	mixed use [7,8,*]	3:1	4.5:1

7. The base density for mixed use development is 3:1 FSR
8. The maximum density for mixed use development is 4.5:1 FSR

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
C-1	commercial	3:1	5.5:1
	residential*	3:1	5.5:1
	mixed use [9,10,*]	3:1	5.5:1

9. The base density for mixed use development is 3:1 FSR
10. The maximum density for mixed use development is 5.5:1 FSR

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
C-2	commercial	1:1	3:1
	residential*	3:1	5.5:1
	mixed use [11,12,*]	3:1	5.5:1

11. The base density for mixed use development is 3:1 FSR, of which the commercial portion shall not exceed 1:1 FSR
12. The maximum density for mixed use development is 5.5:1 FSR, of which the commercial portion shall not exceed 3:1 FSR

Location	Eligible Uses	Base Density (Non-Cumulative)	Maximum Density (Non-Cumulative)
C-3	commercial	1:1	1:1
	residential*	3:1	5.5:1
	mixed use [13,14,*]	3:1	5.5:1

13. The base density for mixed use development is 3:1 FSR, of which the commercial portion shall not exceed 1:1 FSR
14. The maximum density for mixed use development is 5.5:1 FSR, of which the commercial portion shall not exceed 1:1 FSR

* Projects which provide on-site non-market housing consistent with the City's Density Bonus Policy may be considered for an additional 10% floor space bonus above the maximum indicated on Map 15: Density Bonus Areas. The total amenity and affordable housing contribution should be equivalent to 75% of the increase in land value resulting from density above the base density (see Policy 4.19)

N

Metres
0   75   150   300