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LIVE-WORK DEVELOPMENTS: FROM THEORY TO PRACTICE

**Submitted in partial fulfillment of
The requirements for the degree of
Master of Urban and Regional Planning**

By

Alfiya Kakal

School of Urban and Regional Planning

Ryerson University

April 2010

Toronto, Ontario

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Abstract

Live-work developments are becoming increasingly important as a type of mixed-use development. This is manifested by the growing number of such units across the Greater Golden Horseshoe. Along with their growing popularity, these units are being espoused by governments at all levels as a way of creating complete communities, reducing car trips and enhancing the public realm by allowing for a mixed-use, diverse, pedestrian-friendly built form. For these reasons, live-work units can be considered a means for promoting progressive planning principles. Their development however, challenges municipalities on a number of fronts. Residential expectations of peace, security and quiet enjoyment can clash with commercial externalities such as noise, traffic and parking constraints. Because of this live-work units have a tendency to revert to pure residential which then negatively impacts economic growth. Live-work units in a largely residential neighbourhood are particularly prone to such an outcome which can undermine the work function of the units. As well, design and building code considerations such as maximum allowable floor space can also significantly impact the viability of businesses in these units.

Given these challenges, this research explores two cases of live-work developments in the Greater Golden Horseshoe to assess their overall impact in meeting the stated goals of such developments. The two cases which are Cornell Village in Markham, Ontario and Port Credit in Mississauga, Ontario respectively are explored from the perspective of sustainability, economic impact and affordability. This research is intended to be exploratory in nature and used as a launch pad for additional, more quantitative analyses of the impact of such developments, particularly with regard to their economic impact in light of increasing immigration. The findings reveal that while both developments have had a certain degree of success in meeting their performative function, live-work units are highly context dependent. And their contributions towards environmental sustainability, job creation and urban development are determined by the economic and socio-spatial milieu in which they are located.

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Acknowledgements

I would like to thank Dr. Joe Springer for advising me on this Major Research Paper. His help and support has been invaluable. Additionally, I would like to thank Alex Taranu for inspiring me to conduct research on this topic and for his comments and suggestions that helped shape this paper. And finally I would like to thank Madhuparna Debnath and Peter Gabor from the City of Brampton and Chris Rouse from the City of Mississauga for providing me with information and data.

TABLE OF CONTENTS

1.0 INTRODUCTION	6
1.1 Context	
1.2 Making the Case for Live-Work Units	
1.3 Historical Overview	
1.4 Live-Work Typologies in the Greater Golden Horseshoe	
1.5 Overview of Challenges	
2.0 METHOD	14
2.1 Research Objectives	
2.2 Data	
2.3 Analytic Framework	
3.0 THEORETICAL BASIS FOR LIVE-WORK DEVELOPMENTS	19
3.1 New Urbanism and the Sustainability Agenda	
3.2 Economic Restructuring and Self-Employment Trends	
3.3 Urban Revitalization and the Creative Class	
4.0 PROVINCIAL LED POLICY INITIATIVES	28
4.1 Places to Grow Act, 2005	
4.2 Planning Act Amendment, 2006	
4.3 Community Improvement Planning	
4.4 Small Business Advisory Board	
5.0 CASE STUDIES	31
5.1 Port Credit, Mississauga	31
5.1.1 Background Information and Project Profile	
5.1.2 Built Form and Urban Fabric	
5.1.3 Local and Regional Policy Context	
5.1.4 Regulatory Context	
5.1.5 Analysis	
5.2 Cornell, Markham	39
5.2.1 Background Information and Project Profile	
5.2.2 Built Form and Urban Fabric	
5.2.3 Local and Regional Policy Context	
5.2.4 Regulatory Context	
5.2.5 Analysis	
6.0 CONCLUSIONS	50
6.1 Comparative Analysis of Case Studies	
6.2 Conclusions and Recommendations	
REFERENCES	60

List of Figures and Tables

Figure 1: Advantages of live-work units represented diagrammatically

Figure 2: Images of live-work typologies

Figure 3: Map of GGH showing study areas within the municipal boundary

Figure 4: Port Credit images

Figure 5: Map of Port Credit

Figure 6: Cornell Images

Figure 7: Map of Cornell

Figure 8: Comparison of rear laneways

Figure 9: Comparison of open space

Figure 10: Comparison of neighbourhood urban fabric

Figure 11: Comparison of streetscape

Table 1: Bohemian Occupations

Table 2: Port Credit live-work units' business information

Table 3: Cornell live-work units' business information

Table 4: Commercial and residential real estate in the two case study areas compared with the live-work units

Table 5: Comparison of live-work units' commercial and residential cost/sq ft relative to that of the neighbourhood commercial and residential real estate rates

Table 6: Comparison Matrix

1.0 INTRODUCTION

1.1 CONTEXT

The evolution of post-war urban development, particularly in North America, has received much criticism by scholars and planning practitioners alike, for fostering low-density, segregated and auto-dependent communities. More broadly understood as suburban development, such communities are characterised by endless sprawl and social fragmentation resulting largely from a de-emphasis of the public realm. Modern urban planning practice has thus come under attack on various fronts for its inability to provide liveable urban spaces. Within the Ontario context, various reforms have been introduced and new legislation passed that have been designed specifically to guide the growth of future communities and aid municipal governments in promoting cities that offer a *sense of place*.¹ (Kunstler, 1994) Such goals often coincide with *environmental considerations* pertaining to low-density sprawl and its associated impact on natural heritage and resource consumption. (Johnson, 2001) These two inter-related goals, suggest strongly that the current policy context, as outlined by the 2005 Provincial Policy Statement, is based largely on the concept of urban sustainability, which broadly writ, refers to a holistic approach to urban management that seeks long term viability through the protection of environmental assets while maintaining social harmony and economic efficiency. (Wheeler, 2000)

Within this broad context, live-work developments have emerged as but one way of promoting these goals. While the concept of live-work has been around for centuries, manifested at different times as cottage industries, mom and pop establishments and the informal den-office made possible largely through technological advances, modern live-work units are purposefully built to be used as one's dwelling quarters and place of employment. (Fish et.al, 1994) To that extent, live-work developments are *specifically designed* to accommodate residential and employment needs within a single unit. This conscious attempt at bringing these two uses *under one roof* and selling them as a single unit is what differentiates present live-work developments from the older models where combined living and working was purely circumstantial. As well, because the work

¹ The concept of 'sense of place' draws from the work of James Howard Kunstler put forward in his book "The Geography of Nowhere" (1994) where he derides the American suburban landscape calling it a "social landscape without soul." (p 43) City planning and urban built form, he argues, should emphasize of sense of collectivism and the public realm rather than private individualism.

component and live component are under a single municipal address, they differ from the more general iterations of mixed-use developments. They can then be understood as a more fine-grained version of general mixed-use.

The growing importance of live-work developments in the Greater Golden Horseshoe (GGH) as both a new land use and building type is illustrated by that fact that in the City of Brampton alone, six new applications for live-work housing were processed in 2009 of which two have been approved. This also highlights a new reality that while the earlier, more circumstantial forms of live-work developments were largely seen in inner-city neighbourhoods, today they are assuming an important role in newer, suburban municipalities.

1.2 MAKING THE CASE FOR LIVE-WORK DEVELOPMENTS

Live-work units are seen as a means for implementing progressive planning principles on a number of fronts. Most importantly, they aim to foster zero-commute patterns and thereby positively affect traffic congestion and poor air quality related to a daily home-to-work commute. Through zero-commute, they also advance municipal goals of reducing greenhouse gas emissions. This latter concern is of particular importance in light of the current emphasis placed on global climate change. On the social front, they allow people to spend more time in their communities rather than simply coming home at the end of the day. This then results in increased levels of social cohesion which has been largely undermined in conventional subdivisions through the segregation of uses and a car-dependent culture.(Wight, 1996)

As a strategy for mixing uses through the sharing of facilities and infrastructure services, live-work units reduce excessive land consumption and alleviate pressures for urban sprawl. Through mixed-use, these developments reduce the auto-dependency of the community at large, and not simply the occupants of the units, by improving access to goods and services within the neighbourhood. This then positively affects the public realm around live-work development locations by increasing walkability and leading to opportunities for social exchange. By bringing employment and homes in close proximity, live-work units also have the capacity to meet density targets set out by the Provincial government, measured in terms of people plus jobs per hectare which then

contributes towards the goal of creating complete communities.² (Places to Grow, 2006) Additionally, as a form of well-designed, mixed-use development, the units present themselves as a new building type that again creates vibrancy through diversity of streetscape. In this way then, it breaks the monotony of conventional suburban developments and provides consumers with a new alternative.

Moreover, live-work units have the capacity to bring people and employment back into older distressed areas that are often characterized by de-industrialization. This is largely due to a cultural transformation wherein inner-city living has acquired a new panache (Zukin:1995) In this context, live-work units are actively promoted by municipalities through the implementation of flexible zoning, to allow a range of uses that will then improve the urban environment within the area while simultaneously increasing municipal tax revenues. Furthermore, because development is occurring within the built-up area, the live-work units are seen to be maximizing the use of existing infrastructure where this maximization occurs through the use of existing services as well as the adaptive re-use of historic buildings.

Apart from improving the urban environment and reducing congestion, live-work units have tremendous economic importance in their capacity to create and incubate jobs. As Fish et.al (1994) point out, job creation figures consistently show that 85%-90% of jobs are created in the small business sector which refers to firms with 99 employees or less. They further point out that more than 50% of these jobs are created in the micro-business sector which refers to firms with five employees or less. Because live-work units are attractive mainly to small business owners, facilitating this sector of the economy through the development of these units can significantly boost the number of jobs created. Additionally, as larger firms look for increased efficiencies and downsize their operations, live-work units can absorb redundancies by providing individuals with the opportunity to adjust to home-occupation or initiate new ventures of their own. In this way then, they can be considered as the medium through which entrepreneurship can flourish. Here, new business ventures, which are often fragile undertakings, can

² Complete communities are defined in the Provincial government's Places to Grow: Growth Plan for the Greater Golden Horseshoe as those which meet people's needs for daily living throughout an entire lifetime by providing convenient access to an appropriate mix of jobs, local services, a full range of housing and community infrastructure. (p 41)

significantly benefit from the cost efficiencies that live-work units offer such as sharing of facilities between work space and living quarters, a single mortgage, tax advantages and lower maintenance costs. Thus, in light of these conditions, live-work units have the capacity to serve as an effective means for increasing both housing affordability and job creation.

The diagram below graphically represents the advantages of live-work units as discussed, and the factors that motivate them.

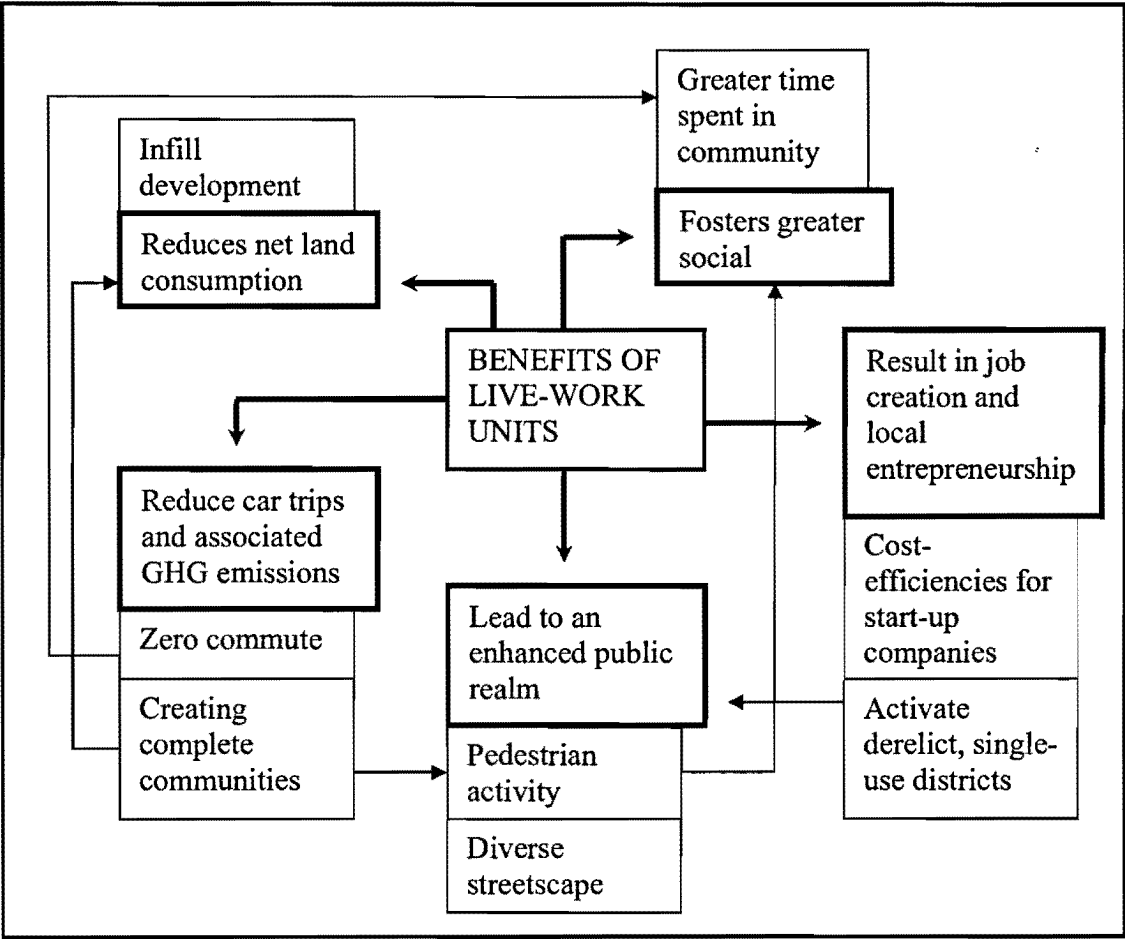


Figure 3 Advantages of live-work units represented diagrammatically

1.3 HISTORICAL OVERVIEW

The modern concept of live-work has a long history which originated in Paris in the mid 19th century as artists started inhabiting buildings where they both lived and worked as a way to make ends meet.(Zukin,1989) By the turn of the 20th century the live-

work movement had spread to New York and other large North American centres. The original live-work units were custom built studios located in warehouses that were converted into lofts and used in conjunction with manufacturing plants or storage space. By the 1960s loft living became chic as artists in New York's Soho district began inhabiting these converted warehouse spaces. The high ceilings, exposed brick and wide-open spaces provided plenty of light making them the perfect creative ateliers. As well, by virtue of being in industrial areas, it afforded cost-effective living opportunities that were particularly attractive to bohemians with little disposable income. This trend coincided with the era of rapid de-industrialization in Western nations as economies shifted from manufacturing products to providing services. The economic restructuring also led to advances in information technology which made telecommuting or running a home business possible. Within this milieu, commercial activities that were capable of being carried out at home, led to the rise of tele-work. To that extent, the home office space in the form of a den has now become a common feature of most suburban homes. Most recently however, live-work has emerged as a way of promoting mixed-use, compact forms that are heavily influenced by New Urbanist theory³ that aims at recreating an urban environment much like that of the 1920s and '30s with family-run corner stores and housing over retail.

1.4 LIVE-WORK TYPOLOGIES IN THE GGH

The development of live-work housing in the GGH falls under one of three categories. This typology has been put together by the design firm of DPZ. The first type of live-work is the urban loft which is well-suited to serve as an artist's studio. These lofts are traditionally abandoned warehouses that have been converted into lofts because of the post and beam construction, large panel windows and high ceilings. However, with the boom of the urban loft market, developers have begun to construct such live-work units anew and market them as lifestyle lofts. They are built using modern materials and construction technologies and incorporate the latest amenities. In the GGH, such lofts, both new and conversion are primarily located in the King-Spadina and King-Parliament

³ New Urbanism is an urban design movement that promotes mixed-use streetscapes with corner shops, front porches, and a diversity of well-crafted housing as a way of achieving compact, walkable communities. New Urbanism is advocated largely as a reaction to conventional suburban sprawl.

regeneration areas which, prior to 1996, were abandoned industrial districts. Specific examples include the Toy Factory Lofts in Liberty Village, and the Artscape Wychwood Barns which adaptively reused an old Toronto Transit Commission facility.

The second category is the live-above, also known as the storefront typology. These are usually three storey row houses with commercial activity at grade and living quarters on top. The storefront typology's roots date back to the 'mom-and-pop' establishments of the 1920's that were typically run by family members. Today, these types of live-work units are designed to create a traditional main street environment-one that is pedestrian in scale, diverse and mixed-use. Storefront live-work units are thus used to promote Traditional Neighbourhood Developments.⁴ In the GGH, this typology is seen as both infill and greenfield development. An example of the former is the storefront live-work development along Lakeshore Road E. in the Port Credit district of Mississauga. Initially a regional trading centre, this area has been revitalized through specific municipal policies and urban design guidelines. And an example of a greenfield, storefront, live-work development is located along Bur Oak Road in the New Urban community of Cornell, Markham.

The last type of live-work dwelling is the suburban live-behind typology. These more closely resemble conventional suburban developments in that they are typically manifested as detached or semi-detached units with ancillary space towards the front that can be used for commercial or employment purposes. Because these developments seek to maintain a predominantly residential character, walk-in trade is usually limited. To that extent, these units are geared towards professional consultants such as lawyers and accountants who typically have an existing client base. Built largely as greenfield development, their contribution towards intensification and sprawl curtailment stems from the fact that they offer zero-commute opportunities. Furthermore, because they provide opportunities for sharing facilities, they potentially eliminate the need to build an office complex elsewhere thereby reducing net land consumption.

⁴ Traditional Neighbourhood Development can be considered a branch of New Urbanism in that it too aims to foster compact, complete communities. However, they pay less emphasis to a specific design aesthetic and can include a range of architectural elements that are both neo-traditional and contemporary.

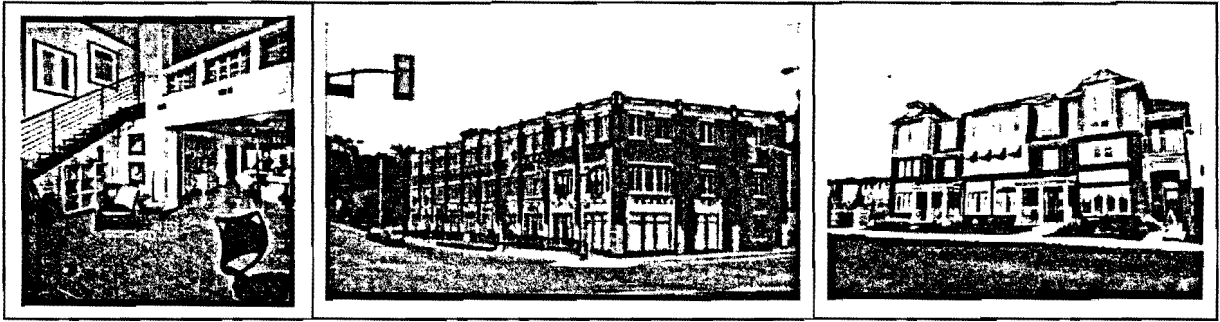


Figure 4 Left to right: Interior of a typical loft; infill storefront development in Bronte; suburban live-work units in Oakville

1.4 OVERVIEW OF CHALLENGES

Early experiences with live-work developments in various jurisdictions across North America have highlighted a number of systemic issues which act as barriers to their successful implementation. The range of live-work typologies, coupled with the local politic, socio-economic and physical environment in which they are immersed can yield live-work communities that perform at vastly different capacities. One of the main challenges in implementing live-work developments has been the need to establish a happy medium between residential requirements of privacy, security and quiet enjoyment expectations with those of employment such as parking requirements, utilities, and storage.(Pinaird, 2002) Because of this inherent dichotomy, municipalities struggle to define live-work units particularly in the context of an outmoded regulatory framework that functions on the principles of Euclidean zoning. The challenge has thus been not simply how to define live-work developments but how to make them fit within a rigid regulatory framework. In response, the City of Toronto Zoning Bylaw 438-86, as amended defines live-work units to mean “a dwelling unit that is also used for work purposes, provided the resident or residents of such accommodation work in the dwelling. unit and the dwelling unit may also be used for work purposes by any number of persons Other municipalities are less clear in their definition, and resort to specific zoning by laws to set the parameters for these units. Given these inherent conflicts, several papers and articles from industry-specific magazines point to the challenges associated with achieving successful live-work developments.(Hardin:2003; Pinard: 2002;Jenkins:1998; Ohm et.al: 1996) Specifically these include the following:

- Municipal zoning by-laws put restrictions on the types of uses permitted, maximum allowable floor space, parking requirements and signage acreage. This leads to design issues that can limit the ability of employment activities to flourish in live-work dwellings.
- Building code regulations such as ceiling and building heights, maximum number of persons allowed, ventilation systems and fire separations result in procedural constraints that increase the cost of live-work units.
- Due to shifting socio-economic trends live-work units are increasingly being marketed and sold to the upwardly mobile class. This leads to an increase in property values resulting in affordability concerns. (Blackwell, 2006)
- Pressures for residential reversion of live-work units have the unintended consequence of ‘imported NIMBYism’ which can be understood as the gradual displacement of existing residents practicing year-round employment because of neighbourhood opposition to their activities. This is prevalent predominantly in established employment areas where a surge in the local resident population can drive out established commercial enterprises. (Wong: 2006)
- Residential reversion may also occur where a live-work development is located in a neighbourhood that has yet to transition into a commercial centre. In such areas, where economic activity is currently unviable, the units are likely to be used as purely residential. This can again lead to NIMBYism where the units that do occupy a business may receive opposition from the surrounding neighbours.

These challenges highlight the multitude of push and pull factors that differentiate live-work units from yet another housing typology and set them apart as a dynamic, mixed-use, socio-spatial phenomenon-one that planners and policy makers may play an influential role in determining.

2.1 RESEARCH OBJECTIVES

Based on the benefits of live-work units as summarized in Figure 1, municipalities in the GGH are actively promoting these developments, particularly as a way to retrofit suburbs and promote intensification. However, there is little research done to critically examine these developments and assess their success in meeting their stated goals. To that extent, a number of questions remain to be answered. Specifically, do live-work units truly foster zero-commute? Or are they just used as an extension of the home? Are they occupied by business owners who live and work there or are they bought largely by investors who then rent out the live and work spaces separately? How do they compare with other similar real estate in terms of cost-effectiveness and how does this impact their affordability? What has been their contribution towards enhancing the public realm? Is this just manifested in brownfield sites or can a vibrant public realm be created through live-work units in greenfield areas as well? Have they been successful in attracting business entrepreneurship? Or are they used as franchises of incorporated businesses? These then are some of the questions that this research has uncovered. While obtaining accurate answers to many of these questions is beyond the scope of this study, **the paper seeks to serve as a preliminary analysis of these units by providing an exploration of the strengths and weaknesses of two live-work developments in the GGH.** While live-work developments can take various forms, this research will focus specifically on the storefront typology because they are the particular focus of public policy makers as opposed to the loft typology which seems to be driven largely by market mechanisms. To that extent, the specific research objectives are to:

- Provide a theoretical basis for live-work developments based on a review of relevant literature and government policy documents.
- Trace the development trends of live-work dwellings in the GGH using two case studies.
- Identify key elements of municipal regulations that influence the performance of live-work units.

- Propose future policy directions that can be used to maintain and support economic activities in live-work developments.

While much work has been done on general mixed-use developments, the current study is warranted in that it attempts to shed light on a single type of mixed-use namely storefront live-work units. As well, this type of development is becoming increasingly popular with numerous examples across the GGH such as Alton Village in Oakville, the Bronte infill development in Burlington and the Mount Pleasant live-work units in Brampton. Because of this activity, live-work developments have increased in importance on the agendas of municipal planning and design departments. Thus, their growing incidence and the limited amount of research devoted to storefront live-work developments make the current research both timely and warranted.

2.2 METHOD AND DATA SOURCES

This research uses a mixed methods approach employing both primary and secondary research. First an extensive literature review was conducted to explain the theoretical underpinnings of live-work developments. In doing this literature review, specific key word searches included mixed-use developments, brownfields and urban revitalization, New Urbanism, self-employment in Canada and the creative economy. This scholarly research was supplemented by a review of government policies and programs that can be considered to have facilitated the implementation of live-work developments.

Next, two examples of live-work developments were chosen as case studies to demonstrate their practical application. These cases were chosen because of their unique contexts for one is a greenfield site and the other a brownfield. However, they are similar in that they both are examples of storefront live-works. This similarity allows for meaningful comparison while the difference highlights the impact of the local context. As well, within the category of storefront live-work developments, these two cases are some of the earlier examples in the GGH which then provide them with sufficient history to formulate meaningful conclusions with regard to the overall success of these live-work units.

While conducting these cases studies, first, information was gathered with regard to the history of the site and the planning regime under which they were developed. This was then supplemented by site visits to determine the current context in which these developments operate. These site visits were also used to determine the units' municipal addresses, number of units in each development, neighbourhood characteristics such as surrounding geography, types of businesses occupying the units as determined by the signage and level of pedestrian activity. This primary data was supplemented by an analysis of the supporting regulations. To that extent, the Official Plan, Secondary Plan, and zoning bylaws for each case study were reviewed to assess how the policies inform the performance of the units. Following the two case studies, a comparative analysis was conducted which then led into the conclusions, general recommendations and directions for future research.

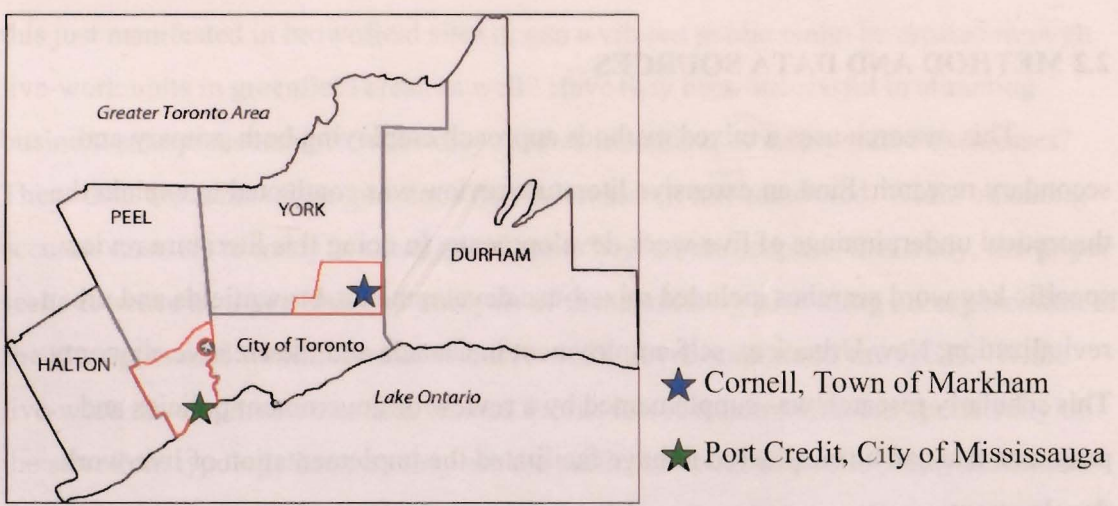


Figure 3 Map of GTH (inner ring) showing study areas within the municipal boundary

2.3 ANALYTIC FRAMEWORK

Each case study was looked at from the lens of sustainability, affordability and economic impact. Sustainability is defined to mean the extent to which the units offer an opportunity to reduce land consumption, automobile travel and greenhouse gas emissions. This is measured by looking at the number of units that are zero-commute and the overall walkability of the community. Municipal property data was obtained to match the owner of the units with the operators of the businesses as revealed through internet

searches to determine whether a unit fell under the zero-commute category or not. The walkability of the community was determined based on the street grid, massing, streetscape and urban design elements, and how well-serviced the area is by transit.

The concept of affordability is used to determine how competitive these units are compared to other similar residential and commercial property within the municipality. Data to assess this was derived from the municipal property assessment records for the individual units. Current market rates for commercial and residential real estate was gathered via the Multiple Listing Services website. With gross floor area outlined in the Secondary plans for the two case studies, estimates were calculated for the cost per square foot. This was then compared with the price per square foot for office and real estate properties for sale in the vicinity. For determining the affordability of the units as residential properties, their MPAC⁵ assessment was used as a proxy for their market value and then compared with the average costs of housing in the municipality determined through secondary sources.

The economic potential of the case study units was assessed to determine a) the extent of the units that were indeed hosting businesses and b) their contribution towards encouraging self-employment through entrepreneurship. Within category b) a second variable studied was whether these activities were part of the creative economy as defined by Richard Florida⁶. Based on the hypothesis that an enhanced, vibrant urban realm draws in the creative work force, the economic impact assessment looked at the extent of creative work activities occurring in these units. Data for this analysis was obtained through primary research which was collected during site visits where the presence and nature of various businesses was gathered through the signage or the lack thereof. Businesses were classified as being a form of self-employment based on whether they were a franchise or an independent company. The observations made were qualified through internet searches with regards to the history of the business.

The limitations of this study are that internet searches do not guarantee that all the appropriate information will be available such as name of business owner/operator. This then made it difficult to identify the commute patterns associated with certain units that

⁵ Municipal Property Assessment Corporation

⁶ See Richard Florida's "The Rise of the Creative Class" (2002)

did appear to host a business. As well, the Multiple Listing Service provided real estate information for only those properties that are for sale at a particular time. The lack of a more representative sample of commercial properties makes it difficult to accurately determine the average cost per square foot. Lastly, current assessment may not be a true reflection of a unit's market value making the comparisons skewed.

3.1 NEW URBANISM AND THE SUSTAINABILITY AGENDA

By combining living quarters with employment spaces, live-work units are inherently a form of mixed-use developments. The fundamental difference between the two is that in live-work units, the two uses occur in one spatially connected unit represented as a single municipal address. By comparison, mixed-use refers to the more general practice of having multiple uses within a particular building or development project housed in different units. It is however, quite possible that live-work units are built as part of mixed-use developments where they occur in tandem with pure commercial spaces or pure residential spaces. Thus, a strong case can be made for the development of live-work units using the theoretical basis of mixed-use where the latter can be defined as a planning principle that discourages the separation of uses through Euclidian zoning. However, the grain of mixed-use can vary such that it occurs at the block level, the development level or the individual unit level with live-work dwellings being perhaps the finest grain of mixed-use planning.

While mixed-use was advocated as early as the 1960's in the work of Jane Jacobs that called for a fine grained mixing of diverse uses to create vibrant neighbourhood, in more recent times, the Congress of New Urbanism is the leading advocate of mixed-use development. In her review of mixed-use theory, Grant (2002) concludes that mixed-use as advocated by New Urbanism has three inter-related goals of increasing land-use intensity, increasing streetscape diversity and integrating segregated uses. The first principle of increasing land-use intensity essentially implies building a higher densities and is motivated largely by environmental activists. It is argued that higher density either through infill/intensification or compact, greenfield development will a) reduce land consumption and thereby protect natural habitats from further human encroachment, and b) cut greenhouse gas emissions by decreasing total vehicle miles travelled which in turn offers economic and social gains associated with reduced commuting hours. Thus, higher density achieved through mixed-use development leads to overall resource efficiency and infrastructure maximization. (Johnson, 2001)

Increasing built-form diversity and integrating segregated uses are seen to be advantageous largely from a social perspective. A diverse streetscape featuring multiple uses and building types allows for a vibrant, pedestrian-oriented public realm that is in

stark contrast to the monotony of conventional subdivisions. By offering multiple housing types at a range of affordability levels, mixed-use can enhance social equity while meeting the housing needs of people at different stages of their housing cycle. As well, through the provision of various activities within close proximity, mixed-use ensures that live, work and play opportunities are accessible by foot or transit. In sum, from a social planning perspective, mixed-use leads to the development of more complete, age-friendly communities.

Advocates of contemporary mixed-use promote the principles in one of many ways. First is the idea of having master planned communities with clusters of compatible uses oriented to encourage walking or transit. The Urban Land Institute (1987) on the other hand, suggests multi-use projects in inner city areas which comprise several uses in one or more buildings. The various applications of mixed-use flow from the two distinct themes of New Urbanism namely Transit Oriented Development and Traditional Neighbourhood Development (TND). Multi-use projects in close proximity to transit services take the form of a TOD intervention by seeking to achieve high enough densities that can support transit. (Kelbaugh, 1997) As well, because transit nodes and corridors are often found in the urban core, TOD developments typically are some form of infill or urban intensification or regeneration project. While most sources claim that TOD is largely an urban redevelopment phenomenon, to the extent that these multi-use projects are built on greenfields organized around a transit node, they can be considered TOD as well. One such example is the Mattamy live-work development located near the Mount Pleasant GO station in the City of Brampton.

TND developments by contrast, focus mainly on achieving a mix of grain that is finer than what is found in typical suburbs. Compact development is achieved through apartments over garages, residential units over stores in a low-rise town centre and zoning codes to allow people to work from home. (Grant, 2002, pp.73) Thus TND developments can best be described as planned communities with a distinct master plan and multiple phases of development that are designed to foster increased levels of social interaction and community engagement. These communities are complete with a variety of housing types, land-uses, schools, civic buildings, retail and even industrial areas.

Canadian experience with TND has been both in the greenfield context and as infill developments.

The literature on mixed-use development shows that live-work units are an important means to curb urban sprawl, reduce automobile dependence, create a sense of place and foster socio-economic mixing. In this context, live-work units assume a prominent role in municipal design guidelines that aim to achieve a fine grain of mix and well-designed buildings largely through the site plan approval process. While mixed-use has been part of policy documents since the early '90s, the current impetus for live-work development is motivated largely by the provincial Growth Plan for the Greater Golden Horseshoe which sets specific density targets expressed as a sum of jobs and people per unit of land for the various zones within the GGH.

3.2 ECONOMIC RESTRUCTURING AND HOME-OCCUPATION TRENDS

The basis of live-work units is the idea of dwelling and occupation occurring under one roof. To that extent, the success of live-work developments is intrinsically connected to home-occupation trends and the rise of the latter, is arguably a strong justification for increasing attention to such developments. Various Statistics Canada Surveys have suggested a strong growth in the number and proportion of the labour force doing some or all of their regularly scheduled work at home. Home-occupation has been attributed specifically to a rise in tele-work as well as an increase in self-employment. While self-employment does not exclude individuals whose work premises are outside their home, it has been recorded that of the total number of people working from home in 2005, 54.6% were self-employed and this number has risen by 5.1% since 2000. Employees working from home, by contrast, comprise 9.8% of the total home-based working individuals and this number has decreased since 2000 by 0.4%. (LaRochelle-Cote, 2010) Based on these figures, and the fact that tele-work does not in and of itself require specific quarters allocated to their work activity, much of the discussion on home-occupation trends will draw from the literature on self-employment as the leading form of home-occupation and thus of most relevance to live-work developments.

The importance of self-employment has been documented in the research undertaken by Kuhn et.al (2001). Using the Survey of Consumer Finance between 1982

and 1998, the authors show that self-employment rates in Canadians between the age of 25 and 54 increased by 119 per cent. Their study highlights, that this increase in self-employment is largely due to labour market conditions based on unemployment rates and the employment to population ratio. For men, the increase in self-employment has been attributed to a rise in unemployment and a decline in the overall employment to population-ratio suggesting a deteriorating labour market for men. For women, while the labour market has been positive, their increase in self-employment was linked to higher rates of retention compared with those in the wage-salary sector. Their study further points out that men and women who are self-employed are increasingly own-account-i.e. without paid help. While this can be attributed to improved technological advances, the authors contend that the more likely reason is the decline in self-employment earnings, which were larger than those observed in the wage-salary sector during the same period. Thus the authors conclude that for the male segment of the self-employed population, self-employment rates increased despite declining qualities of self-employment opportunities, because wage-and-salary opportunities also became less attractive and less abundant. Given this research, a strong case can be made for improving the affordability of live-work units if they are to be truly beneficial to the self-employed segment of society.

In another, related study by Li (2001), the author explores self-employment through the lens of immigrant entrepreneurship. Using the Longitudinal Immigrant Database in Canada from 1980-1995, the data indicates that for each entry cohort the rate of self-employment, which was relatively low in the initial years, progressively increased in subsequent tax years. Only about 5 to 8 per cent of immigrants of the 1980 landing cohort engaged in some form of self-employment during the first three years after landing, but by the fifth year (1985 tax year), the rate increased to 10 percent, and it continued to climb to over 14 percent in the seventh year (1987 tax year) and to over 16 percent after 10 years. These figures suggest that the prevalence of self-employment among cohorts of immigrants is a function of their duration in Canada after arrival, with those who had been in Canada longer showing a higher tendency towards self-employment. Immigrants who have been in Canada longer have a higher tendency towards self-employment, since they have more opportunities to acquire the necessary

knowledge, capital and resources to start their entrepreneurial venture. This study demonstrates the increasing economic importance of self-employment particularly in light of the immigrant tendency to value entrepreneurship over salaried jobs and the related success of their endeavours measured by the overall increase in the extent of self-employment. It also highlights that self-employment is not necessarily a result of the blocked-mobility thesis wherein, self-employment is seen as a recourse to limited resources and employment opportunities as suggested by Kuhn et.al.

The final article examined explored the determinants of success for self-employed individuals using surveys and the administrative files of small-scale, self-employed individuals who accessed credit from Calmeadow Metrofund, which is Canada's largest non-profit micro-lending institution. (Gomex et.al, 2001) The survey results led the researchers to conclude that, given the nature of small-scale employment activity, which is often rooted in home-based, local entrepreneurship, social capital is a major determinant of success. That is, higher levels of social capital have led to better levels of economic performance for the credit borrowers.

Drawing from the writing of Jane Jacobs and Robert Putnam, the authors go on to explain the importance of neighbourhood characteristics to social capital. Urban design for example, can affect the performance of own-account, self-employed individuals in that the social capital required to succeed in a small business is more easily formed within highly populous, highly integrated, and economically clustered urban areas. (ibid, p 946) Greater proximities offer valuable opportunities for interaction and act as a catalyst to small-scale innovation and information sharing. Higher concentrations also generate higher levels of demand for goods and services which then determines performance. Urban design which favours pedestrian use, again improves social capital by forming weak bonds which the empirical analysis revealed, were more important to economic performance than strong bonds. Thus, the study highlighted that, neighbourhood characteristics, as a function of social capital, is a determining factor for the success of microfinance borrowers and by extension, self-employed individuals that are largely own-account and that only certain types of urban environments, namely those built before the 1960s are amenable to small-scale entrepreneurship.

Finally, the article concludes by drawing attention to the importance of micro businesses to the economy at large by suggesting that the existence of microfinance institutions-common in low-income economies for several decades-in the urban centres of developed nations signals the rise of a “new tertiary economy and a fundamental change in the overall occupational structure in which the self-employed workforce takes on greater importance when compared with that of wage earners.” (ibid, p. 964)

3.3 URBAN REVITALIZATION AND THE CREATIVE CLASS

Rapid deindustrialization witnessed by many North American cities during the 1970's had the effect of leaving large parcels of inner-city lands vacant, derelict and often contaminated. In the case of Ontario, the urban fragmentation caused by the presence of vacant industrial lands occurred not just because of the decline of manufacturing as the primary economic driver but also because of the shift in these and other employment types to the urban periphery. This phenomenon has been most aptly described by Garreau in his book titled “Edge City: Life on the Frontier” (1991). He defines edge cities as suburban downtowns that comprise of “glistening office towers [and] huge retail complexes and are always located close to major highway intersections” (Garreau, 1991 pp. 23) Specifically, Garreau notes that these edge cities witness more people entering the city in the morning than leaving and vice versa in the evening. Edge cities are thus large tracts of development devoted almost exclusively to commercial activities with no resident population. Tracing the development of North America, post WWII, Garreau asserts that the rise of the edge city is the third wave of suburbanization. In the first and second wave, people and the market were pushed to new frontiers and the third wave is characterised by the shifting of employment into the suburbs. While more pronounced in the USA than in Canada, the result of these edge cities has been large tracts of vacant, inner-city lands with underutilized infrastructure, a deteriorating public realm and a stock of architecturally significant Victorian style factories and warehouses. The loss of industry to these edge cities and associated reduction in property taxes have been associated with a period of gradual disinvestment and the creation of what has been characterized in the literature as, areas of ‘urban blight’ with adverse socio-economic impacts on the local community and surrounding neighbourhood districts.(Larson, 2005)

In light of these trends, the 1990s ushered in an era of deliberate urban revitalization policies and programs as a way of spurring economic development in the city and subsequently improving socio-economic conditions. As well, it was seen that to attract and retain employment, in particular those within the high-technology sector, cities needed to improve their urban image in order to achieve global competitiveness. In the early part of the decade, Toronto's redevelopment plans were motivated by the same kind of de-industrialization trends that plagued other so-called "rust-belt" cities. To that extent, the City embarked on waterfront revitalization project in 1993 with the release of a report titled "Regeneration: Toronto's Waterfront and the Sustainable City" which looked at greening strategies such as habitat restoration as a way of urban revitalization. By the mid to late 1990's however, the prevailing policy focus was on brownfield redevelopment which refers to the redevelopment of vacant, contaminated sites for the purposes of attracting investment in older, urban centres, improving social conditions and maximizing infrastructure.(De Sousa, 2002)

In order to achieve, these goals, the central thrust of brownfield redevelopment policies has been to facilitate private sector involvement particularly in the site remediation process and to introduce financing mechanisms to reduce the risks and liabilities associated with such redevelopment. The first step in this direction was the publication of the "Guidelines for Use at Contaminated Sites in Ontario" in 1996 followed by the "Brownfields Statute Law Amendment Act" of 2001. These policy initiatives include the encouragement of adaptive re-use of existing buildings through the implementation of flexible zoning policies and reduced standards.

One outcome of this initiative was that many old industrial buildings were converted into residential or mixed-commercial developments which led to the conversion of empty warehouses into condo-lofts. However, perhaps more influential than government initiatives was the strong real estate market in the central city which fuelled the development of condo-loft buildings. Such market conditions have been attributed largely to the fact that the exodus from the urban core that characterized other rust-belt cities was not as pronounced in Toronto.(Wong: 2006) Their effect has been to create a new urban image for the City, one that is attractive, diverse and bustling with people and social activities. Thus, given the rise of the edge city and associated urban

revitalization programs, loft live-work housing is deeply imbedded in the vision of creating a world class city.

Brownfield redevelopment, as a basis for loft-style live-work developments is closely related to the idea of the creative city put forth by Richard Florida. Realizing the global shift in the mode of economic production from resource-based manufacturing towards a knowledge-based, service-oriented society, Florida emphasizes the role of the creative capital for the future of 21st century economies. Creative capital is broadly defined as those occupations concerned with problem solving, problem defining and the creation of innovative goods and services. This then includes a broad array of occupations ranging from arts, design, and media workers through to highly skilled, knowledge-based professionals. (Florida: 2002)

In a report titled, “Competing on Creativity”, Gertler et.al. (2002) use empirical analyses to determine the correlation between creative employment types and the presence of high-tech industries in Ontario cities. The researchers use three variables namely a Talent Index, a Bohemian Index and a Mosaic Index to analyse their correlation with the strength of the local high-technology sector. They conclude that while all three variables have an effect on knowledge-intensive economic activity, the Bohemian Index was found to be the most strongly correlated followed by talent, measured as the number of individuals with a bachelor’s degree, and cultural diversity. The implications of this research are that public policies supporting and nurturing the arts are a key condition for successful economic development. Given this importance, they argue that certain underlying conditions of place, such as its quality, local cultural scene and overall urbanity, determine their ability to attract diversity and artistic individuals, which can directly lead to innovation and growth. Such a condition of place can then be fostered through the adaptive-reuse of buildings into live-work units. Figure 3 shows the list of Bohemian occupations as derived from Canadian Census data. What is striking about this list is that most of these activities are compatible with live-work units suggesting that, if appropriately designed and used, they can be considered a stepping-stone for future urban and economic development. Therefore, cities looking to be globally competitive need a renewed commitment towards the arts and cultural diversity for these two factors profoundly influence quality of place.

List of Occupations used by Florida to define the Bohemian Index
Writers
Producers, directors, choreographers, and related occupations
Conductors, composers and arrangers
Musicians and singers
Dancers
Actors
Painters, sculptors and other visual artists
Photographers
Graphic designers and illustrating artists
Interior designers
Theatre, fashion, exhibit and other creative designers
Artisans and craft persons
Patternmakers

Table 1 Bohemian Occupations

The review of the literature on brownfield redevelopment and the rise of the creative class highlight the possibility that the development of live-work units and their effect on quality of place offer a strategy for attracting talented human capital whether that entails creative occupations broadly writ or artistic/bohemian occupations. Further, when developed on brownfield sites, they provide cities an additional advantage in that what was earlier a vacant parcel of land is now being put to productive use.

4.1 PLACES TO GROW ACT, 2005

While no policies or strategies have been implemented at either the provincial, regional or municipal level of government to enhance and promote the development of live-work units specifically, their policy context can be understood to emerge largely from within the tools laid out for intensification and compact-development. Indeed, it can be argued that by encouraging mixed-use and zero-commute, live-work units embody the principles of Smart Growth.⁷ (Behan, 2008) To that extent, the principal provincial-led policy initiative to foster land conservation and sustainable commuting patterns is the 2005 Places to Grow Act and the corresponding Growth Plan for the Greater Golden Horseshoe (2006). This award-winning, 30-year plan to intensify and manage the regional expansion of the GGH emphasizes space over sprawl. (van Nostrand: 2007). Backed by legislation in the form of the Places to Grow Act, the Growth Plan marks a renewed commitment to compact urban form and anti-sprawl tendencies, both of which are consistent with the theoretical basis for live-work developments.

The Plan acknowledges the importance of existing cities and the extensive investments that have already been made there through the identification of urban growth centres, intensification corridors and major transit nodes. However, it goes a step further in calling for a minimum density target of 50 persons plus jobs per hectare for new greenfield developments. Apart from densification targets, the Plan also speaks to the need for a variety of different housing types taking into account affordable housing needs to form complete communities. Specifically the Plan states that:

Population and employment will be accommodated by encouraging cities and towns to develop as complete communities with a diverse mix of land uses, a range and mix of employment and housing types, high quality public open space and easy access to local stores and services. (pp14)

Upper and single-tier municipalities have been asked to develop a housing strategy to meet minimum affordable housing targets through investments in community infrastructure.

⁷ Smart Growth can be considered a land-use and development principle that enhances and completes communities by placing priority on infill, redevelopment and densification strategies. Thus it differs from New Urbanism in that it expresses a commitment to redevelopment and the maximization of infrastructure.

Thus, the Growth Plan and the legal framework behind it, through its imagery and language, can be considered the chief provincial led-initiative for the development of live-work units. A number of complementary tools and initiatives that pre-date the Growth Plan act as enabling mechanisms. Following is a brief analysis of particular tools that serve as supportive policies for mixed-use and intensification as embodied by live-work developments around the GGH.

4.2 PLANNING ACT AMENDMENTS-BILL 51

Effective January 2007, a number of changes were made to the Planning Act to support the development of more compact, well-designed communities. Under these new and expanded planning tools, municipalities have the authority to establish minimum and maximum height and density standards in their zoning bylaws in order to ensure that land and infrastructure is used more effectively (section 34.3). As well, the Act enables municipalities to establish official plan policies and zoning bylaw provisions that permit second suites in detached, semi-detached and row houses as-of-right in residential areas. (section (24.1) and (36.1)) Additionally, Bill 51 provide municipalities with the power to enforce site plan controls such that developments consider “the external design of buildings, including character, scale, appearance and design features, including sustainable design features, provided there are official plan and bylaw policies in effect.” However, as it is currently being employed, the site plan control is one of the later phases in the development approval process and by that time many external design characteristics have already been finalized. In this light, a more powerful is the Development Permit System which can be used by municipalities to expedite the approval of developments that meet public policy objectives and the larger goals of good planning practices. Overall, the Amendment allows for the quality and characteristics of a proposed development to be taken into consideration such that positive contributions are made to the external physical appearance of buildings and their surrounding areas. Site Plan Control and the Development Permit System, when used effectively are two such tools that have the potential to promote mixed-use in general and live-work units more specifically.

4.3 COMMUNITY IMPROVEMENT PLANNING (CIP)

CIP was originally conceived as a process required for provincial downtown revitalization grants. However, it has evolved into a tool for significant rehabilitation, development and land-use change. CIPs get their legislative authority under section 28 of the Planning Act, sections 106 and 365.1 of the Municipal Act, 2001 and sections 82 and 333 of the City of Toronto Act, 2006. They are essentially a form of municipal financial assistance or incentives given to the private sector in order to achieve desirable, sustainable planning objectives. The range of conditions under which municipalities can qualify for CIP status include, but are not limited to, brownfield environmental assessments, remediation and redevelopment, preservation and adaptive reuse of industrial and heritage buildings, provision of affordable housing and space conversion of residential to commercial uses.

4.4 SMALL BUSINESS ADVISORY BOARD

The Small Business Agency of Ontario (SBAO) is an advisory body reporting to Ontario's Minister of Economic Development and Trade. The agency was established in 2005 and focuses on improving the interactions between government and small and medium enterprises (SMEs) in Ontario. The Agency's main role has been to identify key issues affecting the growth and competitiveness of small and medium-sized businesses in Ontario and recommend appropriate solutions. One specific strategy that can be useful for live-work developments has been the creation of a one-stop website for businesses to find out and comment on the government's regulatory initiatives that affect small and medium-sized businesses.

5.1 PORT CREDIT, MISSISSAUGA

5.1.1 Background Information and Project Profile

The district of Port Credit has an impressive 170 year history, originating first as a trading village independent of the Town of Mississauga until it was incorporated into the City in 1974. As a regional trading port and then as a shipping centre with the construction of the CN railway, Port Credit has been home to various industrial activities such as the Port Credit Brick yard and the Imperial Oils refinery. The site of the current live-work units was occupied by the St Lawrence Starch Works which operated there till 1989. Since then the district has evolved from underused industrial lands to a stable residential area and now a centre for commerce and tourism. The live-work units being studied are built as part of a larger, 10.5 hectares development complex by the FRAM Building Group and Slokker Canada. As a brownfield site surrounded by mature residential neighbourhoods, the project required extensive remediation measures and public consultations. The redevelopment project began in 1998 and was completed in 2006 over multiple phases. The live-work units, which are part of Phase I, were completed in 2000 and consist of 18 units occupying a lot area of 3350 sq meters. Based on the maximum gross floor area for the residential and commercial components given in the Port Credit District Policies, the commercial floor space of each unit is estimated to be 40 sq meters and that of the residential section is 238 sq meters. The units are located off Lakeshore Boulevard East, just east of Hurontario Street. They are set in two buildings that are emblematic of the industrial warehouse architecture of historic Port Credit and can be considered pedestrian in nature through the provision of on-street parking and reduced setbacks. Parking for the residents is provided at the rear. The FRAM development as a whole was the winner of the 2003 Ontario Home Builders Project award.

5.1.2 Built Form and Urban Fabric

With a history that pre-dates post war suburban planning, Port Credit follows a tightly packed, linear street pattern ensuring small block sizes for easy pedestrian

circulation. The arterial road of Hurontario Street and the major collector routes of Lakeshore Road and Mississauga Road, running through Port Credit, are important transit corridors making the site well-served by all forms of transportation facilities. In addition, the area is regionally connected through the presence of a GO station in the immediate vicinity. A well-developed waterfront provides opportunity for recreation and enjoyment enhanced by a network of parks, open spaces and nature trails. The built form, which is largely low to mid-rise in density, offers a diverse streetscape that is human in scale and complemented by a range of retail shops and service establishments interspersed with public plazas. Other amenities such as a library, arena and police station are also easily accessible from within the community. In an effort to maintain the historic character of Port Credit, many of the buildings have been designated heritage sites such as industrial artifacts from the Starch factory and the Company's old administrative building. In keeping with this historic ambience, new developments incorporate neo-traditional design elements such as trellis work and front porches. And finally, tree plantings, landscaping and coordinated street furniture contribute to overall urban character.



Figure 4 Port Credit streetscape featuring the live-work units and associated urban design elements

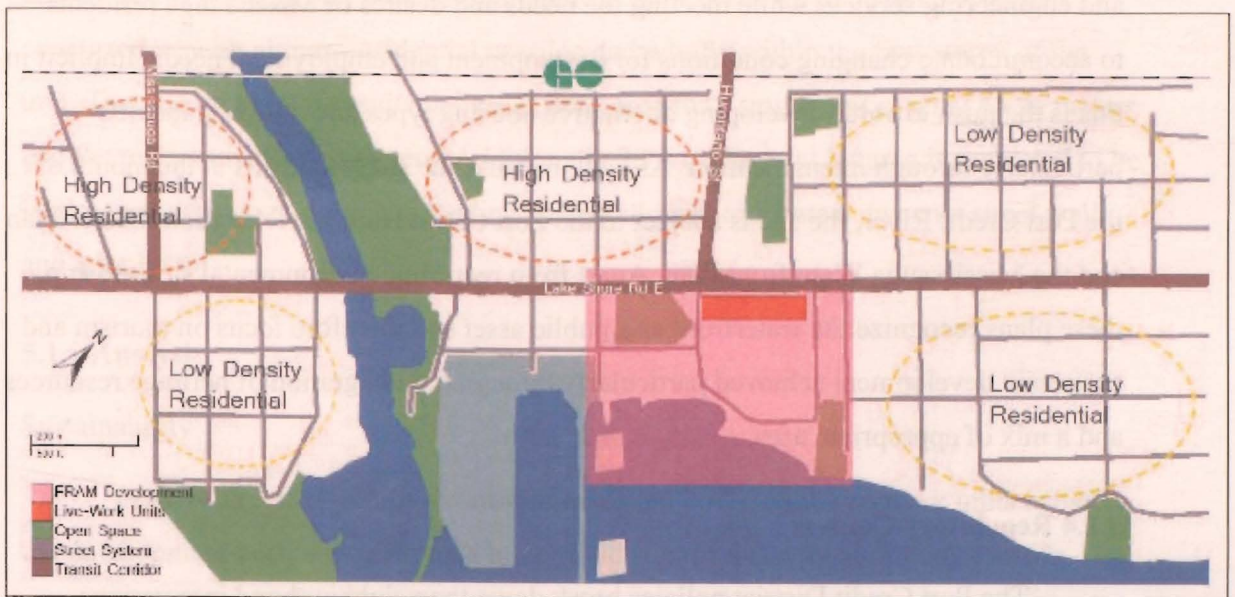


Figure 5 Map of Port Credit

5.1.3 Local and Regional Policy Context

Port Credit district is subject to the City of Mississauga's planning policies which serve to guide development within the study area. Drawing from the theoretical foundations of live-work units, the Mississauga Official Plan was reviewed to understand the policy context as it relates to mixed-use and intensification, employment trends, housing typologies and their affordability. The Plan went through a comprehensive review in 2003, however since then it has been updated to conform with the Places to Grow Act. The live-work area is designated Mainstreet Commercial. "Mainstreet retail commercial" is described as "pedestrian-oriented, street-related areas where development recognizes the scale, and enhances the form of traditional mainstreets." (Section 3 pp.11) Further, infilling through a combination of retail, commercial and residential uses is stated to be the preferred form of development. The area is also a designated Community Improvement area through which funding can be made available for, among other things, the formation and continuation of Business Improvement Associations, the preparation of design guidelines, and encouragement of site remediation.

With regard to future employment trends, section 2.4.1.2 stipulates that the City will "ensure that housing is provided in a manner which maximizes the use of community

and engineering services while meeting the needs and desires of Mississauga residents” to accommodate changing conditions for development and employment needs. Implicit in this is the push towards developing alternative housing types and design standards particularly through intensification. As well, because the study area sits at the mouth of the Port Credit River, the site is subject to the Port Credit Harbour Transition Master Plan and the Mississauga Waterfront Plan. Apart from requiring environmental stewardship, these plans recognize the waterfront as a public asset and therefore focus on tourism and economic development achieved particularly through the integration of heritage resources and a mix of appropriate uses.

5.1.4 Regulatory Context

The Port Credit District policies break down the neighbourhood into various ‘Special Site Areas’ each with a different development concept. The live-work units fall under Special Site Area 4A which is intended to be a:

“low to mid-rise, urban, pedestrian-oriented mixed-use precinct that will provide an attractive destination for local and City residents, with access to the lake and function as a lively mix of live, work, leisure and recreational activities, which will contribute to maximum public use and enjoyment of the waterfront. Built form will be in keeping with the established context of the old town of Port Credit...” (p. 21)

Specifically, the Mainstreet Commercial Character area of Special Site Area 4A is to have building heights generally not exceeding 2 storeys with a maximum of three storeys allowed for live-work units. Parking is to be provided on-street, underground or in small parking lots ideally located behind buildings.

As per the City of Mississauga zoning bylaws, the lands for the live-work units at 143-179 Lakeshore Rd E are zoned C4 exception 5 where C4 signifies that they are subject to the provisions for Mainstreet commercial zones and the digit 5 is used to identify them as being subject to additional regulations. Thus permitted uses are limited to townhouse dwellings, office, restricted medical office, retail store, dressmaking or tailoring establishment and repair. The bylaws clarify that:

"Retail Store" means a building, structure or part thereof, in which goods are offered for sale, lease and/or rental to consumers. Where the primary function of the retail store is the sale of food, food shall not be produced or prepared on the premises and shall not be offered for sale to the public for consumption on the premises.

The residential and non-residential gross floor areas are to be developed in concurrence, with all non-residential uses located wholly within the first storey of the unit. The maximum non-residential gross floor area for a single unit is set at 65 sq meters and the minimum at 40 sq meters. Additionally 20% of the total lot area is regulated to be landscaped with no parking and loading spaces allowed to locate between a street wall and a lot line.

5.1.5 Analysis

Sustainability

Perhaps the most positive contribution of the Port Credit live-work units is that the development occurs as infill on a brownfield site. In this way, it directly curtails urban sprawl. Second, because the urban fabric of Port Credit pre-dates modern planning, the block configuration is tighter, compact and consists of through streets making it pedestrian friendly. Because of this, the live-work units benefit from the area's existing walkability. The development's contribution towards enhancing this walkable urban layout is made evident in its dense built form, limited parking and reduced setbacks and strict landscaping requirements. Additionally all of the 18 units were found to host some sort of commercial activity suggesting that the mixed-use function of the development has been met with success. Personal observations revealed that two units are being used for work purposes but do not have signage to identify the name and nature of business. Thus, insofar as these developments encourage active transportation through design and mixing of use, they can be considered as being positively associated with the concept of sustainability.

With regard to promoting zero-commute, six of the 18 business units were confirmed as being operated by the property owners and four were not. For the remaining there was insufficient information to establish a clear link between the property owners and business activity. Of the six owner-operated businesses, one has a mailing address separate from the unit address suggesting that the unit is likely used as a commercial location in its entirety and therefore not the owner's place of residence. Thus, at a minimum, 5 out of 18 (27.7%) units presently fall under the zero-commute category. However, it should be noted that this is a conservative estimate and that in the case where

there is a lack of supporting information, it is conceivable that other units are zero-commute. The greatest potential of this occurring is where the unit is leased out as a whole to an individual or a party which would then allow for zero-commute opportunities. As well, the two unidentifiable businesses have a high probability of being used by the owners/residents as a home office given that the mailing address is the same as the property address.

Considering the age of the development and its prime location on a busy, well-developed commercial corridor, the rather low number of owner-operated businesses is surprising. One reason for this might be the particularly small amount of space allocated for commercial activity (~430 sq feet) which can be a deterrent for many small businesses or professional service consultants. The case may also be that commercial establishments that are likely to capitalize on the dual use function of these units are not locating here because of a fear of NIMBYism given the presence of mature neighbourhoods to the north side of Lakeshore Rd and the high-end residential real estate development directly behind the live-work units. Lastly, it may also be that units are owned by investors who have little interest in utilizing the units as a whole because they may be able to accumulate greater revenue by leasing them out separately. This last observation seems plausible given the units proximity to the waterfront making them highly desirable real estate.

Economic Impact

A breakdown of the businesses by use shows that the units are currently occupied by an assortment of commercial establishments which include 1) personal services including a hair salon and a pilates centre, 2) retail which includes a restaurant, a florist, a kitchenware shop, a clothing store, a cellular devices store and a dressmaker's establishment, 3) art galleries and institute, 4) business commercial in the form of sales and distribution offices, and 5) professional service providers which include a barristers office, an event management company and a design firm. Given this range of commercial activities, no single type dominates the spectrum but the greatest concentration is of retail shops at 5 businesses, followed by artistic enterprises at 4 and professional services at 3. Thus, to the extent that all units are occupied by active businesses, it can be said that the development has been 100% successful in promoting employment. As well, the relatively

even distribution of business types indicates that the units are equally suited for a range of commercial activities. This observation is likely a result of the Mainstreet character of the area which makes it viable for both walk-in trade and businesses with a fixed clientele.

What has been the effect of this employment activity on promoting entrepreneurship? The units have been particularly successful in this respect in that all business except the Rogers Wireless Devices store and the Carl Weil kitchenware store, are non-franchise establishments. One reason for this success may be based on the fact that the Port Credit district policies specifically seek to develop the area as a tourist destination given its history and location to the waterfront. This coupled with the fact that the district is a Community Improvement Area which provides funding for the establishment of a Business Improvement Association can explain why the Port Credit live-work units have a high concentration of speciality shops such as the multiple art galleries, dress making shop, florist and high-end re-used children's clothing store. While the zoning does not limit uses as such, except for the restriction on food production and preparation, it is perhaps the development's urban design elements and municipal landscaping, parking and loading requirements that market these live-work units as a destination shopping and tourist site. This factor directly relates to the reasons why there are a significant number of creative-industry related businesses and occupations. Including the design firm and event management business, there is a total of six such businesses which represent 33.3% of the total businesses. Thus, it can then be concluded that the live-work units in Port Credit have had a certain degree of success in fostering a creative culture economy, however, this may be at the expense of opening up the area to self-employed individuals in other vocations such as the construction sector or technical services.

Unit No	Name of Business	Industry	Mailing Address same as Unit Address?	Link between business operator and property owner	
143	Gallery Jeanette	arts and crafts	Y	No	
145	unavailable	unavailable	Y	Unsure	
147	Carl Weil **	retail franchise	N	Unsure *	
149	Ave Florist	retail	Y	Unsure	
151	Unavailable	unavailable	Y	Unsure	
153	Rogers Wireless **	retail franchise	Y	Unsure	
155	Second Wind Pilates	personal services	Y		Yes
157	El Event Management	professional services	Y		Yes
159	Kaleidoscope Clothing Store	retail	Y	Unsure	
161	Access Control Sales	sales and distribution	Y		Yes
165	Designable Environments	professional services	Y	No	
167	Marilyn Sparrow Barrister	professional services	N	Unsure *	
169	Sun Sushi	retail	N	Unsure	
171	The Village Art Gallery	arts and crafts	Y	No *	
173	Euroline Performance	sales and distribution	Y		Yes
175	Imagemaker Art	arts and crafts	N		Yes
177	Partina Atelier	arts and crafts	Y		Yes
179	Capo Hair Salon	personal services	Y	Unsure	

* owned by a corporation

** franchise

Table 2 Port Credit live-work units' business information

Affordability

As per the municipal property assessment records, the Port Credit live-work units are assessed at \$620,500 for corner units and \$554,500 for the inner units. Using the total floor space for all the units given in the Port Credit District policies, the gross floor area of each unit was estimated at 278.8 sq meters (2992 sq feet). Dividing this by the assessed house prices, the cost per sq foot for the units comes to an average of \$ 207.38. Other comparable commercial properties in and near the Port Credit vicinity which are also new developments and are retail units, either free standing or within a plaza, were found to range between \$379 and \$460 per sq ft. Given these figures, the live-work units when used for non-residential purposes, appears to be at the low end of the market making them a cost-effective business solution.

When comparing the live-work units with residential real estate within the area, the average price per sq foot for the latter was calculated at being approximately \$353.5/sq ft which is again significantly lower than that of the units. Given this, the units can be considered affordable as both employment premises and dwelling location.

However, it should be noted that according to the City of Mississauga's economic indicators for the last quarter of 2009, the price of a standard townhouse was \$285,000 which comes up to approximately \$167.64 per sq ft. Thus compared to the City of Mississauga as a whole, the units appear to be above the City mean per sq ft. cost suggesting that when used entirely as residential the units are not affordable compared to the City average. But when compared with real estate within the Port Credit district they are at the low end of the market. This is likely because of the prestige associated with these units given that they are close to the waterfront, are surrounded by mature residential neighbourhoods and because the FRAM developments have received considerable recognition for their design and layouts. This then raises the question of the suitability of developing live-work units in prime locations if they are to be affordable for the broader public and in particular start-up companies that seeks to gain from such an arrangement.

5.2 CORNELL, MARKHAM

5.2.1 Background Information and Project Profile

Cornell is a large, master-planned community located in the north east section of the suburban municipality of Markham. The lands were acquired by the provincial government as a result of an expropriation drive in 1973 to make way for a second international airport in the GTA. Prior to this, it was the site of the Christian Reesor and Elizabeth Cornell farm. With the construction of the airport being cancelled, the site remained as greenfield lands till the mid 1990s.

Cornell occupies an area of 1500 acres and is bounded by Ninth Line on the west, Highway 407 to the south and the Little Rouge River valley on the northern and eastern margins. The development of Cornell was the result of concerted action on the part of the municipality to build the area as a demonstration community. The municipality, well-aware of the growing demands of the city and the issues associated with conventional suburban development, retained the design firm of Duany and Plater-Zybrek (DPZ) to develop a forward-looking New Urban community. Markham planning official and municipal council endorsed the master plan in 1994 after two years of presentations and

consultations, with DPZ actively involved throughout the process. By 1995, Cornell was approved for development and the first set of residents moved there in 1998. The community of Cornell is designed to incorporate 10,000 dwelling units, twelve schools, three community centres, a major retail and employment centre, and 9000 jobs by 2020. (Warson, 1995) Currently, aerial shots reveal that a little over half of the total area is built-up. The live-work units in Cornell run along either side of Bur Oak Avenue between 16th Avenue and White Hill's Avenue. They are constructed by Mattamy Homes and were the recipient of the 2006 Design Excellence Award of Merit. The development consists of 53 units set in the form of storefront live-work units and were built between 2005 and 2006.

5.2.2 Built Form and Urban Fabric

As a New Urban development, Cornell is designed as a Traditional Neighbourhood Development with residential densities significantly higher than conventional suburbs to support transit. Gross residential density in Markham is 8 units per acre compared to the three to four thresholds that define typical low-density development. (Skaburskis, 2006) Along with higher densities, transit supportive development is achieved through the mixing of uses. To that extent, the Cornell land use map includes business park areas, institutional uses such as the Markham-Stouffville hospital, and multiple community amenity areas for retail and commercial activity. It is also important to note that much of Cornell's eastern and northern boundaries are adjacent to environmentally protected lands implying that there is limited room for eastward expansion beyond the already identified areas. However, despite Cornell's layout and built form designed to support transit, the community can not be considered a TOD given that no major transit hubs are located in or near the area.

In terms of transit accessibility, the 2008 amendment to the Markham Official Plan and Cornell Secondary Plan re-designated Bur Oak Avenue from a major arterial road to a major collector road, allowing the road to assume a commercial corridor character as future development occurs in the area. Currently public transit service to and within the community is restricted to bus routes along Bur Oak, Ninth Line and Highway 7. As a New Urban community, the Cornell urban fabric is further defined by a network

of public parks and opens spaces and a diverse streetscape incorporating traditional neighbourhood design features such as balconies and front porches. However, because of the community's short history and the presence of greenfield lands, Cornell lacks the critical mass that is characteristic of older planning districts.

The built form of the live-work units in particular seem to be a hybrid of the storefront typology and the suburban typology given that the initial purchasers were able to select either an apartment or commercial arrangement for the ground floor unit. According to the developer's website, the purpose of such an arrangement is to facilitate the transition of units into commercial activity as market demands change. This illustrates the point that the Cornell live-work units have been developed to be used as pure-residential rather than exclusively live-work. Each unit is divided into two distinct, yet internally connected components, but are represented as a single property in the municipal addresses database. The units come with a two-door garage accessible through side lanes and feature raised decks in lieu of backyards.

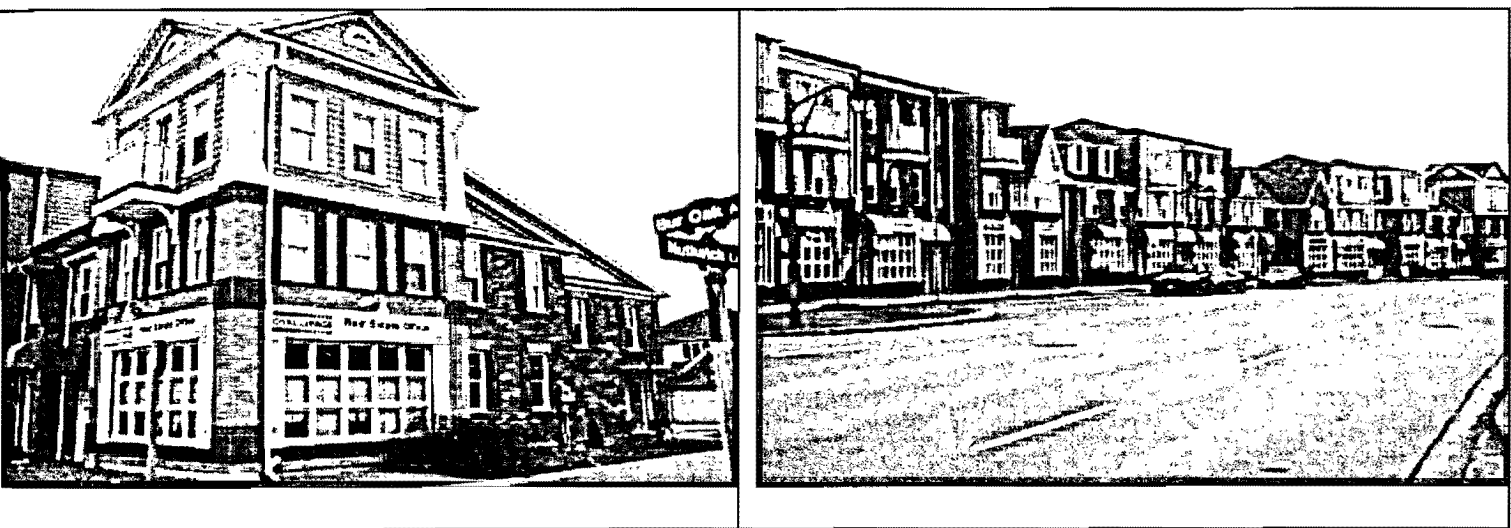


Figure 6 Left to Right: Corner unit showing the hybrid design of Cornell live-work units; Streetscape along Bur Oak Ave

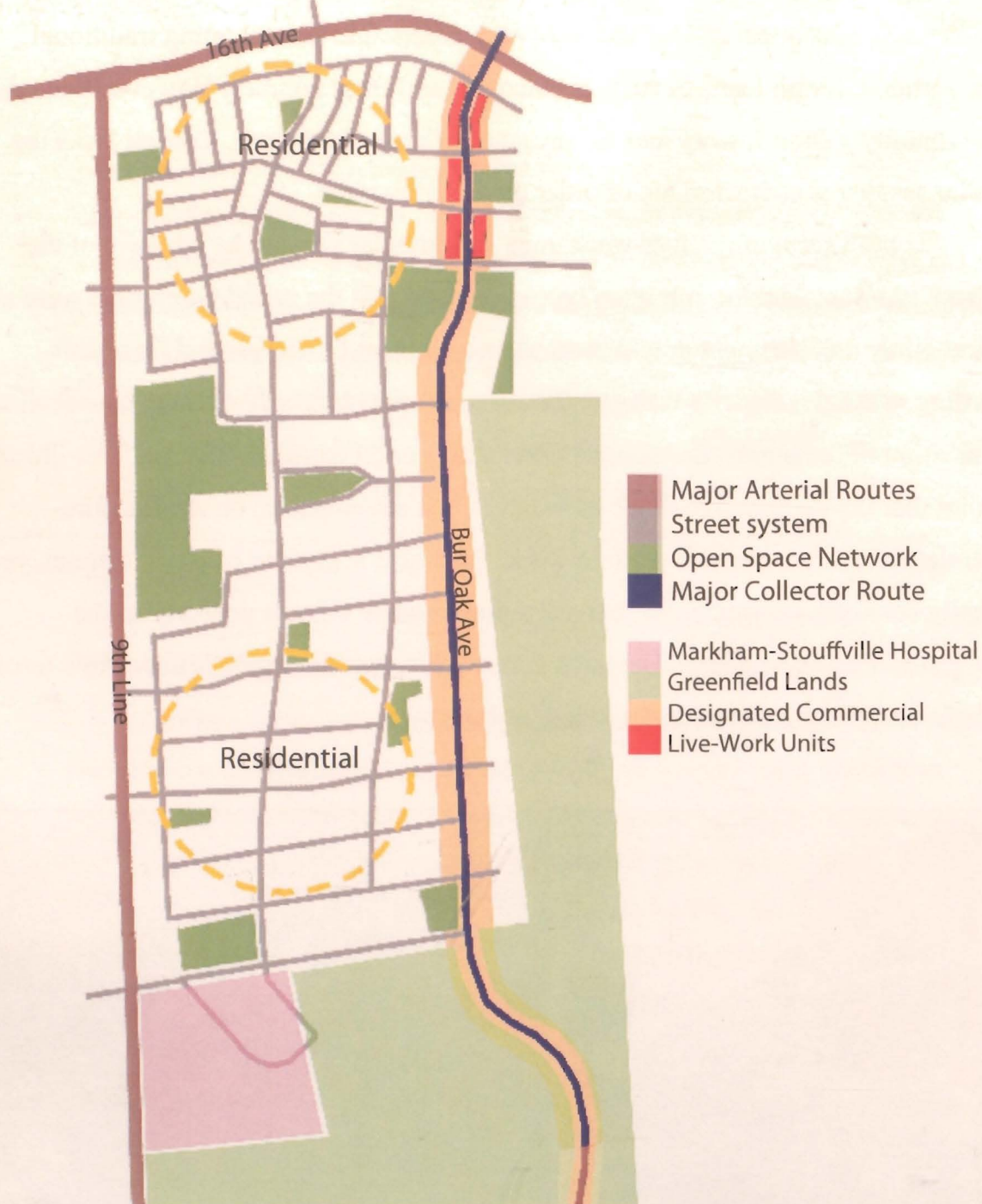


Figure 7 Map of Cornell

5.2.3 Local and Regional Policy Context

Policy direction for the development of the Cornell community was first put in place in 1993 with the adoption of Official Plan Amendment No. 5. The Official Plan was re-evaluated again in 2008 with the passing of Amendment No. 168 to conform to

the Provincial Growth Plan and related legislature and update the existing land-use schedules to allow for increased employment and institutional uses in the district. Together, these policy documents provide the context of the Cornell Secondary Plan which identifies the main goals of the Cornell development to balance projected urban growth with the protection of the natural and cultural heritage resources through the promotion of a more compact urban form and a range of housing types. (pp 14)

Subsequent Regional level policies such as the Centres and Corridors Strategy (Regional OP Amendment No. 43, 2005) closely reflect this goal. This strategy focuses on concentrating live/work development opportunities at transit-supportive densities. However, the strategy does not provide guidance specifically with regard to live-work units as a housing typology and uses the phrase live/work developments largely to mean a mix of land-uses. Similarly the Eastern Markham Strategic Review Committee which is charged with improving the balance of jobs versus residents in eastern Markham recommends the designation of a business park in Cornell near the intersection of Highway 407 and the Donald Cousens Parkway but does little to address the economic potential of live-work units. Based on this, it can be said that live-work units in Markham are largely a consequence of local and regional policies aimed at achieving a particular built form that is walkable and complete and less so to achieve a balanced jobs versus resident ratio.

5.2.4 Regulatory Context

Section 6.3 of the Cornell Secondary Plan designates the live-work units along Bur Oak Avenue as being a commercial land use and further categorizes them as a community amenity area. This designation is intended to provide a mixed-use, 'main street' focus for residential neighbourhoods. The general development and design policies indicate that buildings adjoining Bur Oak Avenue shall be primarily residential in use but with the ground floor designed to accommodate secondary retail, personal services and offices compatible with the primarily residential use. In order to foster non-residential uses at grade, the policies require that the floor area for non-residential uses generally represent a minimum of 75% of the total ground floor area. While the list of permitted uses includes restaurants, Section 6.3.2.1 d) stipulates that they are allowed

only through the approval of a site-specific development proposal and zoning approval. And finally, to ensure a compact, pedestrian friendly built form, the policies recommend building heights to be a minimum of three and maximum of four storeys (between 7.6 and 12.0 meters) with the primary entrance oriented to the street and vehicle/loading access restricted to interior streets or lanes.

More specifically, according to the Town of Markham By-Laws # 171-96-Consolidated August 2nd 2006 the units are zoned CA3 with exceptions 191 and 225 applicable to them. Permitted uses include apartment and multiple dwellings, art galleries, business offices, home occupations, personal service shops and private home day cares. Exception 255 further clarifies that medical offices, financial institutions, repair shops and retail stores are additional uses allowed in the Bur Oak corridor live-work units. Notwithstanding these permitted uses, the general provisions and use standards limit these activities in one way or another. For example, maximum permitted floor area for commercial use is 90 sq meters which means no loading spaces are provided. As well, home occupations are limited to exclude any activities that require delivery of merchandise, goods or equipment by a vehicle other than a passenger motor vehicle. These use standards systematically restrict the range of uses that could occupy the non-employment space.

5.2.5 Analysis

Sustainability

The developments along Bur Oak avenue in Cornell, Markham are unique in that they mark the beginnings of a new form of live-work housing which is distinctly suburban in that they are built on greenfield lands at the fringe of the built-up area. Despite being greenfield development, the units can be said to curb sprawl because they are built at significantly higher densities than conventional suburban developments, and allow for a more fine-grain mix of uses to support walkability. Thus, at this most basic level, it can be said that the units meet sustainability criteria. Of the 53 units, 36 host commercial activities of some sort, representing 67% of the sample. This shows that with regard to fostering mixed-use neighbourhoods, the development has fared well. However, because of a lack of critical mass given the absence of mid-high density apartment buildings, Bur

Oak has not been able to replicate a traditional Main Street, resulting in limited pedestrian activity. This condition is perhaps also a result of the fact that while walk-in business is permitted most of the commercial enterprises cater to clients on an appointment basis and many of their websites' specifically state this preference. This preference is arguably the result of zoning regulations which seek to restrict a continuous flow of commercial activity by capping the number of employees at no more than one individual aside from household members and/or limiting delivery options which then results in a narrow range of uses. It can thus be said that to a certain extent, the zoning is preventing the transition from a quiet, suburban road to a vibrant, commercial corridor. While the initial intent may have been to develop Bur Oak Ave as a low-activity corridor, Amendment 168 redesignated it from a major arterial to a major collector road. This suggests that the Town does intend to plan for increased uses and foot traffic along the corridor.

With regard to their effect on fostering zero-commute patterns, of the 36 active businesses, 15 are definitively operated by the property owners as gathered through internet searches and 5 are not. For the remaining 16, there is a lack of publicly available information to answer the question of whether the owners of the units are indeed the ones operating the commercial activity which is the main proxy for measuring sustainability through zero commute. However, of the five businesses that are not owner-operated, four have a different mailing address on the property assessment, suggesting that the unit is likely leased out, either as a whole or as separate commercial and residential. If the case is the former, it may be that the business is run by the tenants and therefore falls under the zero-commute category. Using the available information, 15 out of 53 show that a minimum of 28.3% of the total units are contributing towards sustainability goals. In terms of the total number of business-occupied units (i.e. 36), a minimum of 41.6% are operated by the residents. These figures illustrate that if a business is to locate here there is a reasonable chance that it will be a zero-commute business. However, because a number of units are entirely residential at this point, as a whole, the Bur Oak live-work units have had a mediocre impact on reducing overall work-related commutes. A greater emphasis on the work performance of the units could thus, improve this ratio. Overall, the case study indicates that people are willing to live in higher density, suburban

residential developments with commercial at grade, and that there is a market for live-work housing, but the units are currently not attracting the bulk of this market.

Economic Impact

A break down of the employment activities shows that an overwhelming number of enterprises are within the health and wellbeing industry specifically, chiropractors and physiotherapists. (12 out of 36) Next is the predominance of personal service establishments such as hair and nail care. They sum up to a total of seven such businesses. Barring certain anomalies such as finance, real estate, pet services, child care and education services, convenience retail and insurance, the remainder of the units are evenly distributed between construction services, technical services and art and media productions. As a preliminary observation, the one third portion of health and wellness establishments might be a consequence of the development's proximity to the Markham-Stouffville hospital. Perhaps what we are observing here is the emergence of a clustered employment district which is making it less attractive for other forms of activities, in particular retail commercial. The almost exclusive focus on appointment-based clientele in the employment area broadly writ, is perhaps one reason why these live-work units have been unable to tap into the larger market for live-work housing.

To the extent that almost all the businesses are independently owned and operated and not a franchise of a larger incorporated business, the live-work units can be considered as having a positive effect on fostering entrepreneurship and self-employment opportunities. However, based on the list of creative jobs used in Florida's analysis, these live-work units have had limited success in attracting the "Bohemian" work force, save for the three artist and media related enterprises. This illustrates that as such, the Bur Oak live-work units seem to have a limited appeal to the creative work force despite its emphasis on providing enhanced liveability. The case of Cornell highlights that for such individuals a live-work arrangement may not be as valuable as perhaps locational attributes, measured in terms of proximity to the central business district area. It puts into question New Urbanism's ability to draw in creative talent especially given the fact that New Urbanism espouses diversity, urban design and public spaces in much the same way as urban revitalization does. But in so far as entrepreneurship can be considered a

creative enterprise there has been a net gain based on the presence of various micro-businesses. Indeed since the time of Florida's analysis, there has been debate on what exactly constitutes creative work and at present, many research-based, high-technology sector jobs are also included under the broader umbrella of creative employment.

Unit No	Name of Business	Industry	Mailing Address same as Unit Address?	Link between business owner and property owner
2669	Absolute Wellness Centre**	health and wellbeing	Y	Unsure*
2671	Moro Shay Salon	personal services	N	Unsure*
2673	Balanced Living Massage Therapy	health and wellbeing	Y	Yes
2675	Oak nails and body care	personal services	Y	Unsure
2677	Fotographs	arts and media	N	Unsure
2679	Daisy Mart**	convenience store	Y	Unsure
2681	May Nails and Spa	personal services	Y	Yes
2687	State Farm Insurance	insurance	Y	Yes
2689	York Dry Cleaners	personal services	Y	Yes
2691	Cornell Physiotherapy	health and wellbeing	Y	Yes
2693	Licensed Home Child Care	child care	Y	Unsure
2695	Sight Optical	health and wellbeing	N	Unsure*
2697	Cornell Cuts for Kids	personal services	N	No
2699	Cornell Chiropractic Centre	health and wellbeing	Y	Yes
2705	Keen Mind Learning	child care	N	Unsure
2713	Poochies Paradise	pet services	N	No
2715	In Balance Chiropractic	health and wellbeing	Y	Yes
2717	The Blue Gecko Art Company	arts and media	Y	Unsure
2719	The Painters Group	construction	Y	Yes
2720	Dr E Medical and Travel Clinic	health and wellbeing	Y	Unsure*
2721	Footzone Orthotics	health and wellbeing	N	Unsure
2723	Ten 80	technical services	Y	Unsure
2724	High Definition Automation	technical services	Y	Unsure
2726	Therapy Source	health and wellbeing	Y	Yes
2728	Cornell Foot and Orthotic Clinic	health and wellbeing	Y	Yes
2729	Room at a Time Painting	construction	N	No
2732	Salon Capricci	personal services	Y	Yes
2733	Shinzo Media	art and media	Y	Yes
2736	ZoE Wellness Centre	health and wellbeing	Y	Yes
2738	Pur Mer Aesthetics	personal services	Y	Unsure
2740	Royal Lepage**	real estate	Y	No
2742	Family Dentistry	health and wellbeing	Y	Yes
2744	Anchor Transcontainer Inc	logistics	Y	Unsure
2748	The Renovators	construction	N	Yes
2752	Target Recruitment	career counseling	N	No
2758	Mac and PC repair	technical services	N	Unsure

*owned by a corporation

** franchise

Table 3 Cornell live-work units' business information

Affordability

One of the main benefits of live-work housing as purported by many home builder association magazines is their cost-effectiveness for small business owners who would otherwise be paying for both housing quarters and commercial space separately. Given that live-work units are capable of providing both these facilities within a single expenditure item, cost-effectiveness is then one of its main advantages. As per the municipal property assessment information, the live-work units cost between \$295,000 and \$360,000 with the bulk of the units assessed at the early \$300,000 mark. In terms of size the average unit is 2444 sq ft with the ground floor commercial space at 716 sq ft and the dwelling units at 1728 sq ft. Simple arithmetic's was used to first obtain the average cost of the units and then determine the cost per square foot which amounted to be \$135. Comparing this with the market rate for commercial space, both office and retail, within the broader Cornell area highlights that the live-work units appear to be significantly competitive in that the commercial property rates were in the range of \$230 and \$290 per sq ft. This analysis reveals that by and large, the Bur Oak live-work units meet the affordability criterion for individuals who choose to use the unit as an active commercial premise. However, it should be noted that regardless of affordability, the true measure of the success of these units would be a based on whether these units were indeed occupied by start ups or those businesses operating on a limited profit margin. While the answer to this question can not be accurately determined based on the available information, insofar as many of the businesses offer professional services particularly in the health and wellness sector, it can be said that the units do not seem to be attracting those business endeavours less dependent on a highly specialized set of skills and knowledge.

While the live-work units offer commercial space at a highly competitive rate, as dwelling units they are not particularly affordable. According to a report released by the Town of Markham's economic department which profiles the municipality's economic indicators for the year of 2009, for a standard townhouse within the same square footage range as the live-work units, the average house price is \$330,000. This figure closely matches the average cost of the units as derived through the municipal property

assessment data suggesting that the units do not cater to those in the lower end of the housing market. This is further reinforced by the Affordable House Prices information bulletin prepared by the Ministry of Municipal Affairs and Housing in 2006 which states that for Region of York Residents, a house price of \$338,000 is affordable only for those in the 60th income percentile which represents an average household income of \$100,200 or more. Thus, these information sources illustrate that while the units are averagely priced when compared to the municipality as a whole, they are affordable only for those in the upper income percentiles.

6.1 COMPARATIVE ANALYSIS

The purpose of the two case studies has been to demonstrate the different contexts in which live-work units, as manifested as the storefront typology, occur in the GGH and how that has affected their performance. These units are similar in that they are located in a suburban municipality but differ as one is developed within the greenfield context and the other as brownfield development. As well, both developments have received recognition by the design community and the public at large, and are considered exemplars of live-work housing. Thus, given their reputation, it becomes particularly relevant to assess their performance for the purposes of setting an informed public policy agenda.

Comparing the two using the sustainability lens, the Port Credit live-work units meet this criterion most successfully. As an example of infill development, they directly curb sprawl and maximize on the existing infrastructure. Moreover, because they are located in an area that was developed prior to WWII, they capitalize on the street layout which allows for greater pedestrian and transit access by virtue of being compact and grid-like. As well, because the Port Credit live-work units are entirely occupied by business activities unlike the Cornell ones wherein the business occupancy rate is 67%, it can be said that the former have been more successful in achieving a mixed-use neighbourhood which again works to reduce auto-dependency. While, Cornell, as a New Urban development espouses the same goals, and does manage to do so in a number of ways (particularly through the substantial increase in residential densities when compared to other conventional subdivisions) on the whole the development's built form is not as sustainable as that of Port Credit. It still has a fairly suburban layout given that unlike Port Credit which has a one-car garage, the Cornell units provide parking for two cars. As well, while Cornell makes a conscious attempt at eliminating cul-de-sacs and dead-end streets, its block layout is not as tightly packed as that of Port Credit. And finally, while Cornell does not have at-grade parking lots as seen in conventional suburban commercial areas, the development is nonetheless characterised by increased setbacks and 'elbow-room' between uses. Overall the development has had a limited impact on reducing car-use and enhancing pedestrian activity within the community. Thus, in terms of the urban environment, the Port Credit development has fared well in promoting goals of

sustainability as compared to that of Cornell. However, it should be noted that much of Port Credits success is based less on the live-work units and more so on the existing urban fabric, but to the extent that the units work towards positively adding to such a fabric rather than detracting from them, they can be considered as being successful.



Figure 8 Built form of rear laneway . Cornell (left) and Port Credit (right)

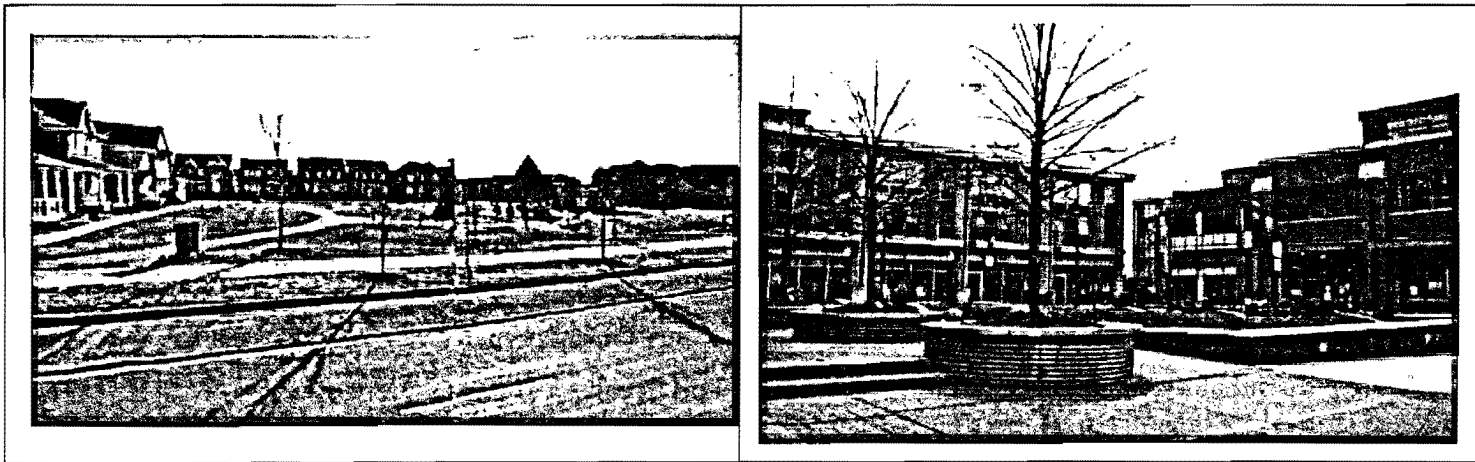


Figure 9 Open Space in Cornell (left) and Port Credit (right)

Despite this, it is interesting to note that the Port Credit units have not been quite as successful in promoting zero-commute. Here only 27.7% of all the businesses are confirmed as being zero-commute whereas in the case of Cornell, the figure is significantly higher at 41.7%. This difference is likely a factor of cost, location and municipal policies. For one, perhaps Port Credits more densely built urban form makes it less desirable as a residential dwelling which is why people that work there do not

necessarily chose to live in the above residential quarters. It also points to the fact that it is perhaps Cornell's suburban-ness that makes it an attractive arrangement for both home ownership and business occupation. Thus, by being able to achieve a better balance between residential and commercial requirements, Cornell has achieved greater success in terms of zero-commute. Specifically, the maximum gross floor area for commercial uses is set at 65 sq m in the Port Credit live-work development while for Cornell the figure is 90 sq m. As well, in Cornell, restaurants may be permitted through the approval of a site-specific development proposal in Port Credit food is not allowed to be produced, prepared or served on site altogether. This might explain why the location of the Sun Sushi restaurant in Port Credit was for lease as witnessed during the site visit. In light of this, the case studies highlight the deep-seated consumer preferences with regard to residential dwelling location and character which is perhaps what ultimately determines the performance of live-work units. So while, suburban municipality consumers may be willing to live in higher densities, they nonetheless prefer a quiet street with limited through traffic in their backyard.

Comparing the affordability of the two case studies, first in absolute term, the Port Credit units are significantly higher at \$207 per sq foot. This represents a 53.3% increase in cost per sq foot when compared with the Cornell live-work units which are \$135 per sq ft. Thus, overall the Cornell live-work units appear to be more affordable than the Port Credit units making them the more cost-effective option. This difference in cost can be attributed to locational factors which significantly impact property values. The overall urbanity, maturity and historic character of Port Credit yield greater property values compared to Cornell which is still a nascent community.

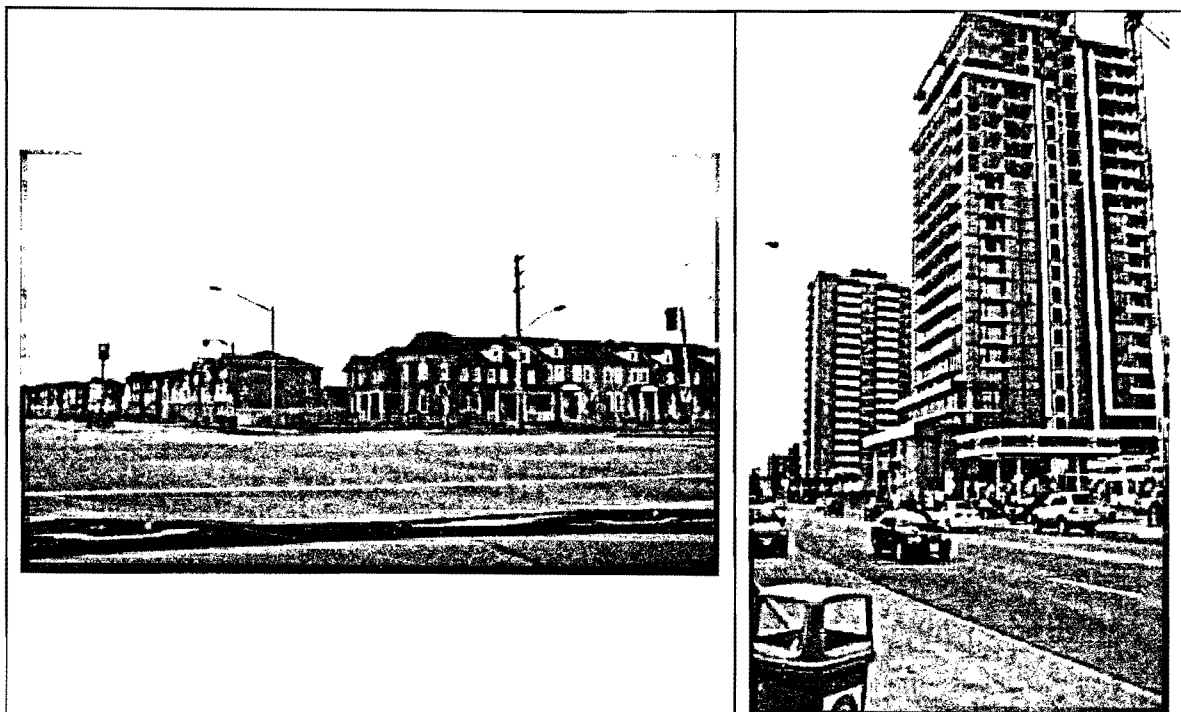


Figure 10 Neighbourhood urban fabric; Cornell (left) and Port Credit (right)

Both case studies also highlight that live-work units in general are considerably more affordable than other comparable commercial real estate within the area. So while the Port Credit units are more expensive than Cornell, they are nonetheless cost-effective when compared with similar commercial real estate in the region. Similarly, when compared with residential real estate within each area, both developments appear to be more cost-effective than the neighbourhood average. Interestingly however, the Port Credit units were proportionately more cost-effective than the Cornell units when each is compared with similarly located residential real estate. Thus, as a residential dwelling in Port Credit, these live-work units are considerably more affordable than the market average whereas in the case of Cornell, the price of the live-work units appears to be more in line with the average house prices of comparable properties. This difference is likely explainable by the fact that the built form of Cornell live-work units, which is markedly suburban, is not dissimilar to that of other rowhouses in the Cornell neighbourhood. The Port Credit live-work units by contrast, differ from that of other rowhouses in the district such that the latter include a larger lot area, and overall greater amenity space such as a backyard. Notwithstanding these variances, both the Cornell and

Port Credit case studies highlight that the live-work units have demonstrated the ability to achieve increased cost efficiencies through the sharing of utilities, servicing, parking and amenity space between ones living quarters and work place as is evident in their average cost per sq foot when compared with similar residential and commercial real estate. Given this, the two developments can be said to have met the affordability criterion as shown in figure 3. Additionally figure 4 shows that in both cases, the greatest cost efficiencies are seen in the live-work units' employment function where other comparable commercial real estate is approximately 100% greater than the case study units. In summary, comparing the affordability of the two live-work units it can be concluded that while Port Credit is more affordable *compared to other residential and commercial properties in the district*, overall the Cornell units provide the greatest cost efficiency. While considering the units as housing alone both seem to be unaffordable compared with the City average but as housing *and* work place, there are gains to be made through such units. (Ministry of Municipal Affairs and Housing Information bulletin, 2006)

	Cost/ sq ft of live-work unit	Average cost/sq ft of commercial real estate	Average cost/sq ft of residential real estate
Cornell	\$135	\$260	\$195
Port Credit	\$208	\$420	\$353

Table 4 Commercial and residential real estate in the two case study areas compared with the live-work units

	Percentage increase (commercial)	Percentage increase (residential)
Cornell	92.5%	44.4%
Port Credit	102%	69.7%

Table 5 Comparison of live-work units' commercial and residential cost/sq ft relative to that of the neighbourhood commercial and residential real estate rates

The final comparison theme is with regards to the economic impact of the two live-work developments. In terms of the success of each development in promoting business activities, the Port Credit units have clearly fared better than those of Cornell given that in the former case all units are occupied by active businesses whereas in the latter, site visits revealed that only 67% were. Thus insofar as this measure can be considered a proxy for both job creation and incubation it seems that the Port Credit units have had higher success overall. This however can be qualified by the fact that because

the Port Credit development consists of 18 units compared to the 53 in Cornell, they can be said to have a higher probability of hosting a business enterprise. A more robust reasoning for lower business occupancy rate in Cornell can be explained by the fact that the units are significantly younger than the Port Credit development. This can then indicate that perhaps they have received little exposure and also lack the appropriate market conditions such as a certain threshold of commercial and traffic activity, to be a viable business location. A final reason may be that the Cornell live-work units were developed giving the buyers an option for their ground floor configuration to be either residential or commercial suggesting that they were catered to both, home owners and business owners rather than exclusively the latter. The absence of such an opportunity in Port Credit can be another factor for its overall higher business occupancy rate.

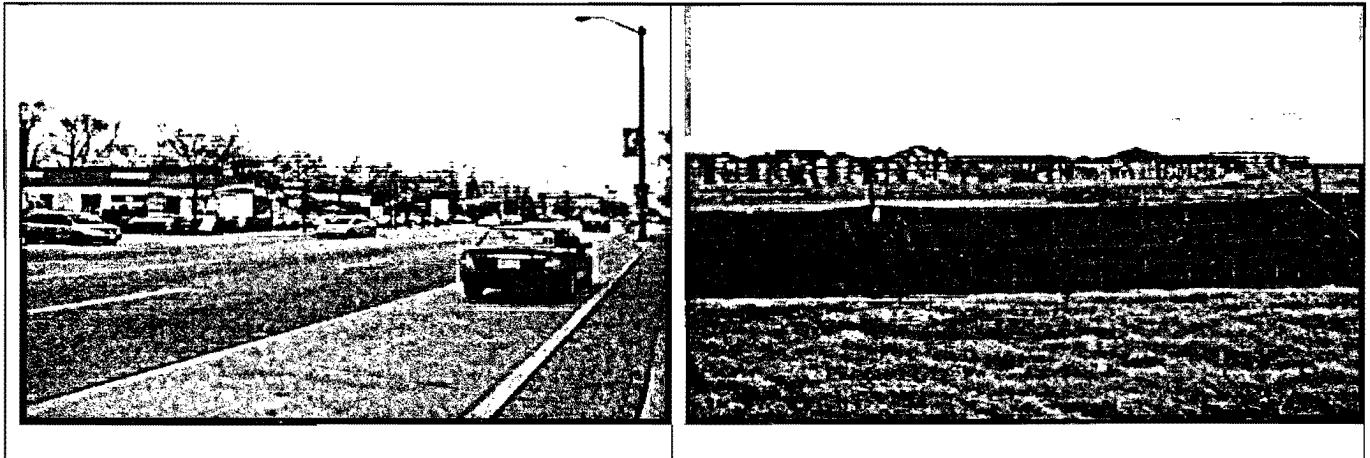


Figure 11 Streetscape along Lakeshore Rd E (left) and Bur Oak Ave (right)

In terms of types of occupations, both units have fared well in promoting micro-businesses given that only two businesses in Port Credit were a franchise or on incorporated company and three in Cornell. However, the types of industry which most of the businesses belong to in each case differed. While Cornell seems to have attracted a high number of professional in the health and well-being sector, Port Credit businesses demonstrate a certain degree of success in attracting artistic or creative occupations. In both cases health and well being and creative occupations respectively, comprise one third of the total number of business. This shows that live-work units designed in the storefront typology in themselves do not draw in the creative class. Rather the units

nurture artistic enterprise where they serve to enhance and improve the public realm and associated area identity factors. This raises the question: will the Cornell live-work units foster artistic expression in the future as the neighbourhood evolves and acquires the urbanity that Florida speaks of? Or is such an environment created exclusively in brownfield regeneration projects? While any answer to that question would be little more than speculation in light of the current research, the two cases of Port Credit and Cornell do highlight that a built environment that comprises med-high densities can be an important contributing factor.

Additionally, the literature on the creative economy suggests that the economic impact of a vibrant public realm is related to their ability to foster a knowledge intensive work force. Within this context live-work units are seen as enabling the necessary urban environment which then attracts these knowledge intensive jobs. In this light, the example of Cornell illustrates that despite its limited impact on creating a vibrant urban environment, the units have nonetheless attracted a fair degree of specialized occupations related to the health and wellness sector. Thus, the two cases show that the relation between creative class workers, a knowledge-based economy and an enhanced public realm is rather fluid. Live-work units may or may not result in attractive, vibrant, cultural spaces, and the case of Cornell illustrates that this does not seem to be a pre-requisite for attracting the knowledge-intensive work force.

	Cornell	Port Credit
Sustainability		
zero-commute	X	
net land consumption		X
walkability		X
Affordability		
cost/sq foot relative to surrounding real estate		X
overall cost effectiveness	X	
Economic Impact		
rate of business occupancy		X
Creative occupations		X
knowledge-intensive occupations	X	

Table 6 Comparison Matrix
Note: a blank cell simply implies to a lesser extent than the adjacent cell rather than a lack of

6.2 CONCLUSION

This research study has sought to bridge the gap between the theoretical underpinnings of live-work developments and their practical application as exemplified by two case studies in the GGH. Overall the findings highlight that storefront live-work developments have had mixed results. While there have been positive results with respect of economic activity, their capacity to eliminate work related commutes has been limited. To better understand the impact of live-work developments on job creation and incubation, future research could entail a more quantitative look at the characteristics of the individual businesses and the extent of own-account establishments. Doing so would allow more informed decisions concerning who live-work developments should be catered for. Moreover, despite the growing number of live-work developments, they are still a small fraction of the total housing stock making their impact on overall traffic congestion necessarily limited.

Using the two case studies to judge the popular claim that regulatory ordinances limit the performance of live-work units again resulted in mixed conclusions. Most business activities that can conceivably function in a 700-900 sq ft space are allowed as-of-right except for those in the food industry or those requiring mid-large size delivery vans. As well, because the land-use designation for the units is commercial, there seems to be little opportunity for complaints from neighbouring residents. While increasing the minimum commercial floor space would be helpful in order to attract a broader array of commercial activities, it may be inappropriate if the units are to cater to own-account businesses that do not have any employees. This highlights the difficulty with balancing the affordability aspect of live-work units with broader goals of increasing mixed-use and economic activity. One step forward might be the creation of live-work arrangements on a rental basis. This would be particularly fruitful for those unable to qualify for a mortgage and allow for an easy transition as people move through both their housing and occupational careers.

Considering live-work developments as a built form, their impact on the public realm can greatly vary based on the design and existing local context. Undoubtedly, the two factors are complementary forces given that the scale, massing and elevation details are largely determined by the existing urban fabric. To that extent, flower beds, benches

and colourful facades in Port Credit are a reflection of the fact that the area had the potential to receive high volumes of foot traffic. Cornell too provides a unique lifestyle opportunity vis a vis conventional developments but its built form can be characterised as being walkable without necessarily being urban. Given their overall higher success in fostering zero-commute it appears that a certain sense of place described as being cultural, diverse and hip may not be the necessary way forward for successful live-work units. While the link between an enhanced public realm and creativity within professionals and/or entrepreneurs seems fairly tenuous it may be that the New Urban aesthetic, as epitomized by Cornell, is enough to appeal to the creative work force. This also highlights the need to determine a methodology for better understanding the factors that motivate the creative workforce and how best to measure their incidence.

In terms of design the two cases also highlight the role of flexibility in live-work developments. Cornell has been designed to accommodate both residential and commercial uses at grade whereas Port Credit is geared strictly towards commercial use. While flexibility in the design and layout can be a recipe for residential reversion of the entire development, the balance between business occupied and non business occupied units in Cornell suggests that it is a good strategy for neighbourhoods that are in the midst of a transition from largely residential to mixed-use.

In sum, live-work units are still a relatively new type of development and the industry has yet to determine what works and what doesn't. Given the research on the immigrant tendency towards entrepreneurship and future population growth forecasts, live-work units can gain in economic importance when located in areas with high concentrations of certain ethnic groups. Municipalities should consider monitoring these projects as they are built-out and conduct the necessary research and analyses to determine their impacts and subsequently provide guidance that would shape their performance function in such a way that best achieves the goals of the Growth Plan and those of social cohesion and equity. Thus they should be considered as not just another development form but treated as a unique socio-spatial phenomenon requiring additional support programs to identify more accurately the reasons for success and failure to ensure that they function as intended. By conducting follow-up studies over the initial years of a particular live-work development, municipalities may be in a better position to determine,

their impact on and how they are impacted by, the surrounding community. This would be particularly relevant in light of increased development pressures, residential reversion and the more subtle forces of gentrification. This last point is particularly relevant to the Cornell case where prices have steadily increased over time as the community has matured. (Skaburskis, 2006) As live-work units increase in prevalence, they are likely to force municipalities to reconsider capital improvement plans that are based on the assumption that the workplace and the home will always be separate.

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