# REGIONAL GROWTH PLANNING IN PRACTICE: AN EXAMINATION OF BROWNFIELD REDEVELOPMENT ACTIVITY IN GUELPH AND ST. CATHARINES

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## ABSTRACT

For many cities, brownfield properties are an underutilized land resource. As a part of a comprehensive policy approach, *A Place to Grow: A Growth Plan for the Greater Golden Horseshoe*, encouraged development on brownfield sites to fulfill urban intensification goals and support regional sustainable growth objectives. Distinguishing between policy and practice, this study examines the extent to which brownfield redevelopment activity in two mid-sized cities, Guelph and St. Catharines, follows sustainable growth objectives and the implements the intent of the Growth Plan. Results were drawn from analysis of Records of Site Condition (RSCs) filed on the Province of Ontario's Environmental Site Registry, Community Improvement Plans and visual site inspections. Overall, brownfield redevelopment occurred in locations identified by the Growth Plan and achieved infill purposes, although the abundance of greenfield land in Guelph presented significant challenges. While market mechanisms remained a determining factor in both cities, St. Catharines appeared to better influence sustainable character in redevelopment activities. Recommendations to facilitate brownfield redevelopment and support sustainable growth objectives are provided.

*Keywords*: brownfields; growth plan, redevelopment, infill, contamination, sustainability, community improvement plan

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# CHAPTER 1: INTRODUCTION

The Province of Ontario's industrial legacy has left an indomitable mark on the environment and the built form of municipalities. Manufacturing industries that once laid the foundation for Ontario's economy have declined or transitioned to new modes of production. Consequently, potentially contaminated, derelict or vacant land exists throughout local communities. These sites are commonly referred to as brownfields. Ontario has been described as the most populous, industrialized, and brownfield-laden province in Canada (De Sousa, 2017). Historically, private sector participation and interest in brownfields has been quite limited. The high cost, regulatory uncertainty and legal liability often associated with remediation and redevelopment commonly make brownfields uncompetitive in the real estate market.

In the early 2000s, the Provincial Government of Ontario undertook a series of fiscal and legislative reforms in order to connect local municipal development with wider regional growth objectives. Arguably the most important framework which emerged was the *Places to Grow Act, 2005* and A Place to Grow: A Growth Plan for the Greater Golden Horseshoe (Growth Plan)(2006)(Revised 2020). The Growth Plan established strong urban growth boundaries enabling compact development patterns, the creation of strategic growth areas and the protection of existing agricultural resources and natural areas (MMAH, 2020). Municipalities in the Greater Golden Horseshoe were envisioned as complete communities. That meant new development should be compact, transit-supportive, make efficient use of public service facilities and existing infrastructure while supporting a range of housing options and contributing to the mixed-use character of cities (MMAH, 2020). One specific goal of the Growth Plan was the revitalization and redevelopment of brownfield sites.

> " Better use of land and infrastructure can be made by directing growth to settlement areas and prioritizing intensification, with a focus on strategic growth areas, including urban growth centres and major transit station areas, as well as brownfield sites and greyfields" MMAH, 2020, p.11)

The Growth Plan's interventionist policies deflected market activity away from land not previously developed (greenfield) to brownfields. Since the introduction of the Growth Plan in 2006, municipal land use planning has made a notable shift towards a more regional perspective.

The present study examines the impact of the Growth Plan on local brownfield redevelopment activity. In particular, to what extent does the scale and character of property

development on brownfield sites in mid-sized cities follow sustainable growth objectives. The City of St. Catharines and the City of Guelph in Southern Ontario, Canada were selected for comparative study. Records of Site Condition (RSCs) filed on the Province of Ontario's Environmental Site Registry and municipal Community Improvement Plans are the primary data used in the report. The development patterns and the socio-spatial outcomes of each city's brownfield policy agendas are compared.

This research builds on the work of De Sousa (2017). De Sousa (2017) analyzed brownfield redevelopment activity in Toronto, Waterloo and Kingston to understand the relationship between regional growth planning, brownfields remediation, and urban infill in southern Ontario cities. This study expands the existing research to encompasses two different cities in southern Ontario, Guelph and St. Catharines. Research conducted will contribute to the body of literature that examines the alignment of brownfield redevelopment activities with wider sustainability concerns. It will also provide a better understanding of the role of the provincial government in brownfield redevelopment.

Canadian scholarly literature has largely focused on the economic, legal and environmental implications of brownfield redevelopment. In contrast, this report examines the end product or result of brownfield redevelopment from a policy perspective. The promise of this type of analysis is it will distinguish between policy and practice. Additionally, existing literature has mainly referenced large Canadian cities such as Montreal, Ottawa, Vancouver and Toronto. Questions still remain regarding how smaller to mid-sized cities deal with the redevelopment of brownfield sites. The study is positioned to help address that gap.

### 1.1 Study Context

The research will focus on the experience of two cities, St. Catharines and Guelph, located within the Province of Ontario, Canada (see Figure 1). The City of Guelph and the City of St. Catharines are positioned along the outer ring of the Greater Golden Horseshoe, which boarders Lake Ontario, sharing proximity to both the United States border and the Greater Toronto Area. The City of St. Catharines is a lower-tier municipality within the Regional Municipality of Niagara. The City of Guelph operates as a single-tier municipality, although part of the County of Wellington, it is politically independent. Both cities combat the legacy of industrial decline and urban decay in a regional planning context that includes strengthened

growth boundaries, growing populations and rising market uncertainty. The City of Guelph and the City of St. Catharines have looked to brownfield sites as candidates for redevelopment and intensification to align with provincial sustainable growth objectives.

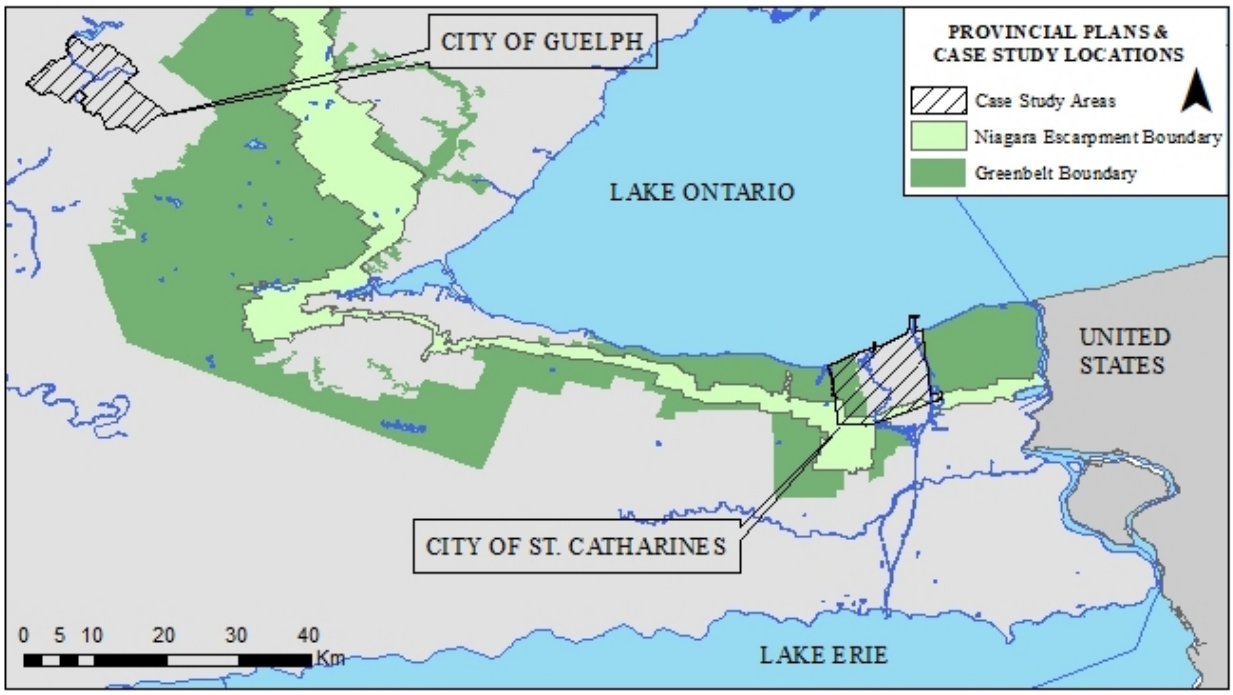


**Figure 1:** Context Map with Greenbelt and Niagara Escarpment Boundaries

The City of St. Catharines and the City of Guelph are classified as mid-sized cities with populations of 133,113 and 131,794, respectively [2016 Census] (Statistics Canada, 2017a, 2017b). St. Catharines' population growth has been largely stagnant and even decreased in the 2001 census year. Guelph's population has steadily increased each census year (see Figure 2). Yet, the Growth Plan has assigned identical growth targets for each municipality's respective delineated built-up areas, greenfield areas and urban growth centres. Growth targets for each area are listed:

- **Policy 2.2.2.1** A minimum of 50 per cent of all residential development occurring annually within each of the Cities of Barrie, Brantford, Guelph, Hamilton, Orillia and Peterborough and the Regions of Durham, Halton, Niagara, Peel, Waterloo and York will be within the delineated built-up area; and

- **Policy 2.2.3.2** Urban growth centres will be planned to achieve, by 2031 or earlier, a minimum density target of: (c) 150 residents and jobs combined per hectare for each of the Downtown Barrie, Downtown Brantford, Downtown Cambridge, Downtown Guelph, Downtown Peterborough and Downtown St. Catharines urban growth centres.

- **Policy 2.2.7.2** The minimum density target applicable to the designated greenfield area of each upper- and single-tier municipality is as follows: (a) The Cities of Barrie, Brantford, Guelph, Hamilton, Orillia and Peterborough and the Regions of Durham, Halton, Niagara, Peel, Waterloo and York will plan to achieve within the horizon of this Plan a minimum density target that is not less than 50 residents and jobs combined per hectare; (MMAH, 2020)

This presents an interesting set of conditions and opportunities for academic research on the relationship between brownfield redevelopment and existing regional sustainable growth objectives.

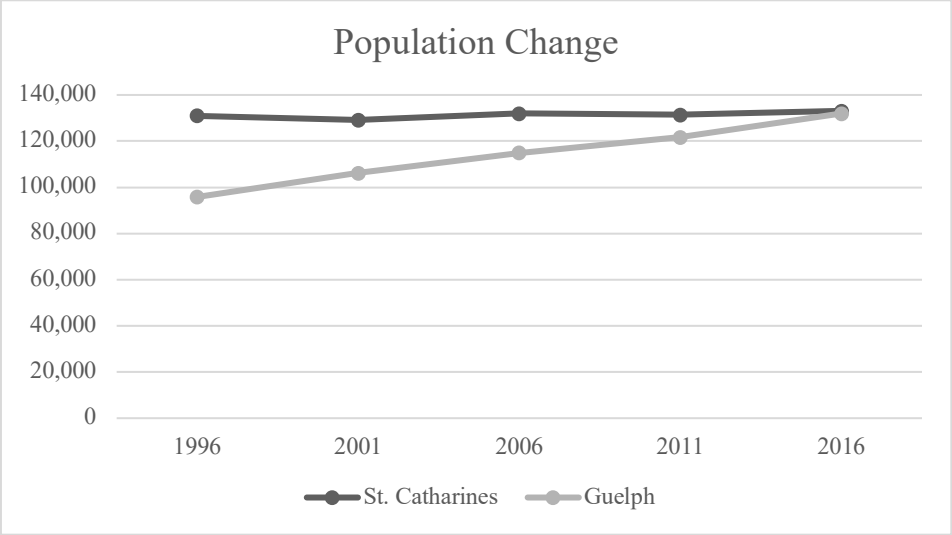


**Figure 2**: Population change between 1996-2016 in St. Catharines and Guelph (Statistics Canada, 2017a, 2017b, 2007a, 2007b).

### 1.2 Terms of Reference

This report references specialized terminology, legislation and regulatory requirements in order to describe and characterize property development on brownfield sites in Guelph and St. Catharines. To understand arguments made in upcoming chapters, an overview of these elements is required.

The redevelopment of brownfield sites is a complex, multi-disciplinary activity, spanning urban design, engineering, urban planning, geoscience, architecture, financial and legal functions. Part XV.1 of the *Environmental Protection Act* (EPA) is the main piece of legislation guiding the management of brownfield sites and the Ontario Regulation 153/04 (O. Reg. 153/04) provides the framework for redevelopment. Neither, O. Reg. 153/04 nor the Act define the term 'brownfield' explicitly.

Under Part XV.1 of the EPA, an RSC is submitted to the Environmental Site Registry if a property meets the applicable standards for soil, ground water and sediment as established by O. Reg. 153/04 (MECP, 2020). A Qualified Person (QPs) is the only individual authorized to submit the RSC to the online portal, referred to as the Environmental Site Registry. For certain types of land use changes proposed by property owners, such as industrial to a more sensitive land use like residential, the filing of an RSC is mandatory (MECP, 2020). But a property owner may voluntarily opt to submit an RSC in order to reduce potential future liability, to fulfill a condition of sale on a property, for financing, for a mortgage, or to obtain approval from a municipality for a building permit (MECP, 2020).

There are three types of RSCs:

1. RSC supported by a phase one ESA;
2. RSC supported by a phase one and two ESA (site meets generic standards) and
3. RSC supported by a phase one and two ESA, and an RA (site meets property specific standards).

(MECP, 2020, pg. 11)

ESAs form the primary content of an RSC. All RSCs filed on the Environmental Site Registry have completed, at a minimum, a phase one ESA (MECP, 2020). A phase one ESA is an initial assessment to determine the likelihood that contaminants are present on the property (MECP, 2020). A QP will conduct or supervise the phase one ESA, that normally includes a review of historical records, conducting interviews and visual site reconnaissance. A QP has a specified role and must meet qualification requirements set out in O. Reg. 153/04. But normally, QPs are professional engineers or professional geoscientists. A phase two ESA is mandatory if a potential contaminating activity is present, or an area of potential environmental concern has been identified in the phase one ESA (MECP, 2020). The phase two ESA is a more detailed assessment to determine the concentrations and locations of contaminants on the property, and it is also supervised or conducted by the QP. It usually involves borehole drilling to test the soil

and sediment as well as ground water sampling. After the phase two ESA has been conducted and if required, after remediation activities have occurred, the QP must certify that the property meets the applicable site condition standards prescribed by O. Reg. 153/04 (MECP, 2020).

Finally, if the generic soil and ground water standards cannot be met as part of the remediation efforts, an RSC supported by a RA may be filed by the QP. This filing must demonstrate that the property meets site-specific standards established in the RA and be certified by the QP (MECP, 2020). If the Director accepts the RA, the Ministry may also issue a Certificate of Property Use (CPU) which will require the property owner to undertake specified risk management measures and limit certain land uses/ activities on the site (MECP, 2020).

Remediation actions that may be undertaken on brownfield sites can be very costly and potential redevelopment activity is often inhibited by the financial burden incurred among other factors. While the redevelopment of brownfield sites dates back to the 1990s (De Sousa 2001), provincial legislation granting municipalities 'bonusing' powers within a Community Improvement Plan (CIP) framework gave needed 'teeth' to local governments. Private sector stakeholders could be incentivized by municipalities to undertake brownfield redevelopment.

In most cases, municipalities are prohibited from directly or indirectly assisting any business, industry or commercial enterprise through the granting of 'bonuses' or exemption from any levy, charge or fee pursuant to Section 106 of the *Municipal Act*, 2001. However, Section 28 of the *Planning Act* provides an exception and permits municipalities to exercise 'bonusing' powers, such as the provision of property tax assistance under Section 365.1 of the *Municipal Act*, 2001. The exception under the *Planning Act,* 1990 is a provision that must be enabled by an Official Plan amendment and the adoption of a Community Improvement Project Area (CIPA) within a CIP. CIPs are powerful tools that grant municipal councils broad authority to create and apply incentive-based programs for various purposes, one of which is brownfield redevelopment (Sroka, 2016). CIPs must be approved by the Province. The City of Guelph's and the City of St. Catharines' CIPs will be discussed in Chapter 4.

What is a 'brownfield' property? As stated earlier, the term 'brownfield' is often left purposefully undefined. Definitions of the term 'brownfield' that are used, vary greatly between different countries, provinces/states, municipalities, and even between different policy and legislative documents. For the purpose of this report, all properties listed on Ontario's Environmental Site Registry with a filed RSC will be referenced as a brownfield site. I contend

that properties with a filed RSC are either suspected or confirmed to be contaminated. This is based on the assumption that if a property needs a phase one ESA (generally the minimum requirement) to confirm the likelihood of contamination; contamination to some degree is already suspected on the property. Moreover, based on this assumption, properties listed on Ontario's Environmental Site Registry meet the definition of a brownfield as outlined in Ontario's planning policy framework. Brownfield sites have been defined in the Growth Plan and the Provincial Policy Statement as:

> 'undeveloped or previously developed properties that may be contaminated. They are usually, but not exclusively, former industrial or commercial properties that may be underutilized, derelict or vacant.' (MMAH, PPS, 2020 p.40-41)

The National Round Table on the Environment and the Economy in Canada has defined brownfield sites as follows:

> 'Abandoned, idle or underutilized commercial or industrial properties where past actions have caused known or suspected environmental contamination, but where there is an active potential for redevelopment (NRTEE, 2003, p. ix).

However, the most commonly cited definition of the term 'brownfield' was created by the US Environmental Protection Agency (EPA) in its Brownfields Action Agenda (1995) (Adams, De Sousa, & Tiesdell, 2010).

The US EPA defined a brownfield site as:

> 'abandoned, idled, or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination (US EPA, 1995, p. 1).

The above definition links liability implications with the label 'contamination' and supports federal actions under the *Comprehensive Environmental Response, Compensation, and Liabilities Act* (commonly referred to as Superfund) (Adams, De Sousa, & Tiesdell, 2010)

Heavily influenced by the US EPA stance, Canadian definitions also emphasize the concept of contaminated land both known and assumed (Adams, De Sousa, & Tiesdell, 2010). Often brownfield definitions are used to signify the opposite of greenfield land (not previously developed land) (Alker et. al., 2000). In the United Kingdom, brownfields have been taken to mean land previously developed for urban uses (Alker et. al., 2000). No reference is made to the prospect of contamination and therefore, all negative connotations associated with the term

'brownfield' are removed. Although, under the definition used by the United Kingdom, former agricultural land cannot be considered a brownfield. This interpretation is left open by Canadian definitions. The French Ministry of Environment considers that agricultural land can also become derelict and can be interpreted as a brownfield (Alker et. al., 2000).

Another common thread when conceptualizing the term brownfield, is the notion of redevelopment potential. That is specifically identified in the NRTEE's definition above. The definition used in the *US Small Business and Liability Relief and Brownfield Revitalisation Act*, (2002) also places emphasis on the potential for property expansion, redevelopment and reuse (Adams, De Sousa, & Tiesdell, 2010). Overall, most definitions utilize different combinations of the same language.

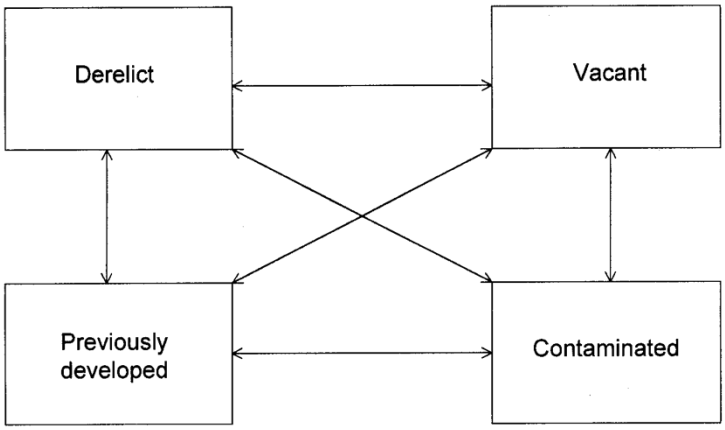


**Figure 3:** The terms associated with brownfields as interpreted by Alker et. al., (2000 p.56)

# CHAPTER 2: LITERATURE REVIEW

The review conducted in this chapter was informed by a wide range of British, American and Canadian literary sources and professional publications. The literature on brownfield redevelopment in the Canadian context is limited and dated. In a survey of available literature on the subject of brownfields, three distinct research perspectives emerged. Researchers either focused on (1) conceptualizing the 'brownfield problem' from an environmental, legal or economic perspective, or (2) studies attempted to explain the connection between brownfield policy agendas and sustainability concepts. Finally, the third (3) main topic was the role of government in brownfield redevelopment. It is this vein of research, which this report seeks to expand upon.

## 2.1 Conceptualizing the 'Brownfield Problem'

In Canada, early policy attention was given to the risks associated with contaminated land, defining liability and remediation objectives. The Canadian Council of Ministers of the Environment (CCME)(1991, 1993,1996, 1997), released a series of publications to guide public policy and provide technical support on environmental clean-up for contaminated sites in Canada. The National Round Table on the Environment and the Economy (NRTEE) (1996a, 1996b, 1996c, 2003) synthesized information gathered on the topic of contaminated land, promoting discussion and debate among key stakeholders at the federal level. Professional publications narrowly conceptualize the brownfield problem.

The financial feasibility of brownfield redevelopment and its economic implications are popular research questions in scholarly literature. De Sousa (2000) investigated private sector perspectives on the costs and risks associated with brownfield redevelopment versus greenfield development, while Sroka (2016) and Piccione (2003) highlighted the myriad of financial tools employed to redeveloped brownfield properties in Canada. Yet, Wang, Hipel, & Kilgour (2008) cautions that despite the presence of sufficient financial compensation, many developers will still decide not to engage in redevelopment efforts. Although, Silverstein's (2003) found that innovative technology and advanced toxicology models are resulting in cost-effective clean up methods and therefore improving the financial feasibility of site reuse. In agreement, Tam and

Byer's (2002) decision-making framework identified remedial action combinations for contaminated sites that maximizes an owner's net benefits. Regarding the economic impact of brownfield redevelopment, De Sousa, Wu & Westphal, (2009) and Woo, & Lee, (2016) investigate its effect on surrounding property values and Howland (2007) reviews the employment effects of brownfield redevelopment.

**2.2 Sustainability and the Brownfield Policy Agenda**

The linkage between sustainability and brownfield redevelopment is well established but increasingly this relationship has been formally articulated in public policy. In the United States, the Environmental Protection Agency (1998, 1999) made a clear connection between the pursuit of sustainability and the brownfield redevelopment process in local communities. Greenberg et al (2001) highlighted the incorporation of brownfield redevelopment policies into the popular Smart Growth movement in the United States. In the United Kingdom, the two key policy strands of sustainability and brownfield regeneration have become integrated (Dixon, 2006). For example, the UK government has established a 60 per cent brownfield housing target to not only improve urban environments, but also to relieve development pressures on the countryside (Dixon, 2006; Adams, De Sousa & Tiesdell, 2010). However, in interviews with UK development industry stakeholders, Dixon (2006) concluded that the 'reality' has not matched the 'rhetoric' in relation to sustainable brownfield regeneration. In Canada, Filion & McSpurren, (2007), point to Ontario's planning and development process as placing a strong emphasis on sustainable development principles, although these objectives have not been fully realized.

In many cases, brownfield redevelopment in sustainable policy agendas, necessitates land conversion from industrial into mixed use, commercial or residential land uses. A growing body of literature provides a counterargument to this dominant narrative. Leigh & Hoelzel (2012), asserts industrial land conversion weakens the urban economic base, reduces the supply of good job producing land and contributes to industrial sector suburban sprawl. In agreement, Chapple's (2014) work highlights the important contribution of industrial areas to the regional economy as job generators and providers of supplies and services. Furthermore, De Sousa, (2002, 2006), points to the potential that brownfield sites have for "greening" city environments, such as parks, playgrounds, trails, and other open spaces which are important elements in urban revitalization. Although as De Sousa (2002, 2006) states, green spaces lack the direct economic benefits from

tax revenues/and or jobs that are associated with brownfield redevelopment efforts, making this convergence not an attractive option to certain stakeholders.

Following the legacy of Elkington's (1998) 'Triple bottom line' accounting method and Campbell's (1996) Planning Triangle, scholars emphasize a need for a more comprehensive approach to sustainability. Chakrapani & Hernandez (2012) concluded brownfield redevelopment has a noticeably positive impact on the surrounding community across a range of economic, social and environmental factors, as exemplified by three brownfield redevelopment case studies in Ontario. Importantly, McCarthy (2009) explains how market failure can cause developers to overvalue project costs and undervalue the social and environmental benefits, to the effect of impeding brownfield redevelopment. In a Milwaukee case study, McCarthy (2009), found that the local government in incentivizing brownfield redevelopment, prioritized economic efficiency over spatial and social equity. While Bliek & Gauthier (2007), critiqued the relatively small number of technical considerations put forth in brownfield redevelopment, arguing heritage preservation should be incorporated into regeneration practices and discourse.

### 2.3 The Role of Government

Researchers have attempted to understand the role of government in brownfield redevelopment. Tang and Nathanail (2012) observe that many countries define 'brownfield' differently in regeneration policies and that effects how brownfield land contributes to sustainable communities. In support, Adams, De Sousa & Tiesdell, (2007) found that the British and North American understanding of brownfield land reflect the differences in governance structure. For example, in the United States experimental local pilot projects were used to address locally perceived problems but in England, national brownfield land target were created. In this example, De Sousa & Tiesdell, (2010) highlight the more limited and decentralized form of government intervention favoured in North America to contrast the UK's more centralized approach. Additionally, De Sousa (2000) indicates that government policies are a key determinant of the scale and character of brownfield redevelopment.

McCarthy (2002) describes public sector efforts to promote brownfield redevelopment as a dual land-use policy challenge, one which attempts to reduce private sector barriers to redevelopment (i.e. cost, regulatory uncertainty and legal liability) while also supporting community goals (i.e. environmental protection, urban revitalization and reduced suburban

sprawl). Government agencies often struggle with the complexity of balancing multi-stakeholder interests across multiple levels of government to facilitate brownfield redevelopment in local communities (De Sousa, 2006). As De Sousa (2006) asserts, Canada's efforts have been perceived by stakeholders as deficient, fragmented and piecemeal. In the absence of financial support and technical assistance, the market conditions in municipalities often dictated the success or failure of local brownfield redevelopment programs. De Sousa and Spiess (2018) found that private sector stakeholders in Southern Ontario were driven largely by real estate fundamentals (i.e. profit, market, location), and that brownfield redevelopment is determined by what the market permits, not government involvement. De Sousa and Spiess (2018), reaffirmed through geographic data that the vast majority of redevelopment activity is taking place in Ontario's strongest urban and suburban markets.

Although a relatively unexplored topic in Canada, a few studies have examined government efforts to align brownfield redevelopment with wider regional concerns. Jamal (2018) states that the strong regional growth management policies contained in the Growth Plan has altered traditional suburban approaches to planning in the City of Guelph and reignited private developer interest in revitalizing brownfield sites in the downtown core. However, Hayek, Arku, & Gilliland (2010) found that despite the provincial regulatory framework which supports brownfield redevelopment, overall private sector participation in brownfield redevelopment is low. Brownfield redevelopment in London, Ontario faces barriers such as competition from greenfield, risk cost, negative public perspectives and complex remediation processes (Hayek Arku, Gilliland, 2010). While, De Sousa (2017) acknowledged that dense redevelopment is occurring in locations identified by the Growth Plan, governments could be doing more to facilitate redevelopment and influence its sustainability character in weaker markets.

### 2.4 Summary

This literature review, although not exhaustive, contains several important and recurring themes which are applicable to the present study:

1. Private sector redevelopment of brownfields is most often determined by the strength of the market mechanism in a particular municipality;

2. Despite regional growth planning policies and environmental standards, municipal experience with brownfield redevelopment is context-dependent and varies greatly;
3. The redevelopment of a brownfield site does not automatically equate to achieving sustainable development objectives;
4. The brownfield 'problem' is predominately conceptualized as an economic, legal and environmental issue.

Research conducted for this report will either support or refute the themes identified in the existing literature. Additionally, this report will expand on the small body of research that examines the alignment of brownfield redevelopment activities with wider regional concerns in Ontario, Canada.

# CHAPTER 3: METHODOLOGY

Two municipalities were selected for comparative study to evaluate the outlined research objectives: St. Catharines, Ontario and Guelph, Ontario. A multi-phased methodology approach was utilized to support the comparative analysis. The two types of secondary source data chosen for this type of research, Records of Site Conditions (RSCs) and Community Improvement Plans (CIPs), were informed by the literature review. All secondary data used within the research paper is publicly available on provincial or municipal registries and digital platforms.

## 3.1 Research Objectives

The primary research questions this paper seeks to address are:

- What values and objectives are supported by each municipalities' CIP?
- What are the spatial patterns, scale and character of brownfield redevelopment sites in Guelph and St. Catharines?
- Does brownfield redevelopment in small and mid-sized cities follow sustainable growth objectives and the intent of the Growth Plan?

## 3.2 Data Sources and Methods

RSCs filed by property owners in St. Catharines and Guelph between July 1, 2011, to December 31, 2019, on the Province Ontario's Environmental Site Registry is the dataset used in this study. RSCs in this report are used as an account of assessed and remediated brownfields in each jurisdiction. It is a method adapted from De Sousa (2017) and De Sousa & Spiess (2018) established approach to tracking development activity on brownfield sites. Property conditions like lot size, location, ESAs conducted, and proposed land use change were manually copied from scanned records uploaded to the Environmental Site Registry under each RSC.

The chosen time period encompasses RSC filed under the most recent amendment to the O. Reg. 153/04: Records of Site Condition on July 1st, 2011. The December 31, 2019 date encompasses enough data to provide a comprehensive review of development activity while also capturing the progression of CIP policies in each jurisdiction.

The RSCs results are analyzed in two steps. First, ArcGIS Desktop Software Suite was used for its analytical and cartographic capabilities. The 34 sites identified in the RSCs filed for

St. Catharines and the 20 sites identified in the RSCs filed for Guelph were mapped. Spatial points for each property were determined by using existing address points from each municipality's open data portal. If the municipal address associated with the filed RSC was merged on title, the lot severed or an address not assigned, spatial data points were manually created using geographic coordinates. The urban growth boundaries and Community Improvement Project Areas (CIPA) established in each municipality's policy documents were manually converted into a polygon spatial layer. By locating each property and policy boundary within the urban fabric, a visual relationship was established between brownfield redevelopment activity and the environmental factors.

Additionally, the unique and distinct site conditions of each RSC filed was analyzed. Basic statistical tests (mean, medium, mode, etc.) were run on the property condition data manually extracted from the RSCs filed. In-person site inspections were conducted to identify and record the following visual details: development status, presence of heritage features, type of land use, number of stories and type of development. All visual data were collected from public rights-of-way surrounding each site in accordance with trespassing and privacy laws. Finally, a review of Building Permits and Plans (Plan of Subdivision, Draft Plan of Condominium, Site Plan) was conducted to support the visual data collected. Legal documentation in the public domain provided information on the number of units, design details, condominium or apartment development type, and affordable housing designations.

The second source of data used in this study were CIPs from the City of St. Catharines and the City of Guelph. Plans enacted between 2011 and 2020 are included in the review. The timeframe aligns with the recorded RSC dates and encompasses the most recent iteration of each city's CIP. A textual analysis is conducted to assess three major dimensions set out in the CIP; the application evaluation process, the CIPA locations, and the types of financial incentives offered (grants, loans, and tax assistance). Hayek, Arku and Gilliland (2010) assert, 'a CIP is an expression of a city's intention to facilitate revitalisation...' (pg. 391). It has also been described as a lens into a community's concerns with respect to growth (Jamal, 2018). As established by the literature, analysis of CIPs is a method to reveal the underlying values and objectives supported by each municipality.

### 3.3 Limitations and Scope

This research project looks at the results of property development on brownfield sites in Guelph and St. Catharines from a policy perspective. Findings are restricted to identified RSCs filed by property owners in St. Catharines and Guelph between July 1, 2011 to December 31, 2019.

- This research will not attempt to quantify the financial feasibility of brownfield redevelopment in the City of St. Catharines and the City of Guelph.
- This research will not investigate the potential of different remedial methods and technologies or the impact of different contaminants on the environment.

The availability of financial information and property data is a limitation of the analysis conducted in the following chapters. In general, publicly accessible data on the use of financial incentives to support specific brownfield projects were not available. Secondly, the types of publicly accessible property data differed between municipality. For example, the City of Guelph made building permits available in an open database. Collecting property data in St. Catharines was more difficult. Many City Council Meeting Agendas needed to be reviewed in order to find a specific Plan of Subdivision, Draft Plan of Condominium or Site Plan submitted by property owners or developer for city approval. This exercise was required in order to collect the necessary property data in St. Catharines.

# CHAPTER 4: POLICY ANALYSIS & FINDINGS

This section of the report will review, compare and contrast the City of Guelph and the City of St. Catharines' Community Improvement Plans (CIP). Only programs that can be applied to brownfield sites will be discussed. Each CIP explicitly references the Growth Plan in program goals, but are CIPs actually structured to incentivize sustainable growth objectives? A textual analysis is conducted to assess three major dimensions set out in the CIP; the evaluation process, the Community Improvement Project Area (CIPA) locations, and the types of incentives offered. Although CIP and CIPA are strictly legislated by the province, the types of incentive-based programs offered and how municipalities direct those financial mechanisms differ greatly from city to city. This analytical approach will reveal the underlying values and objectives which are supported by each municipalities' CIP.

## 4.1 St. Catharines Community Improvement Plan

The City of St. Catharines has a CIP, which contains financial incentive programs to support private sector redevelopment projects, downtown revitalization activities and brownfield remediation projects. The first version of the Plan was released in 2004 and then it was amended in 2015. In 2020, the City prepared and adopted the newest version of the CIP. The financial incentive programs applicable to brownfield sites in St. Catharines are summarized in the following table (Figure 4).

| Name of CIP | Type of Grant | Description | CIPA |
|---|---|---|---|
| St. Catharines Community Improvement Plan | Brownfield Tax Increment Finance Program (BTIF) | • (2015, 2020) Grant equivalent to 80% of the municipal property tax increase created by the project for up to 10 years after project completion<br>• (2020) Grant to 95% of the municipal property tax increase if the project includes a minimum 30% of Affordable Rental Dwelling Units for up to 10 years after project completion | All land within the urban boundaries |
| St. Catharines Community Improvement Plan | Brownfield Tax Assistance (BTA) Program | • Cancellation of part or all of the municipal property taxes and education property taxes for up to 3 years.<br>• Cancellation of Regional portion of municipal property tax is enabled by the Smarter Niagara Incentive Program (SNIP)(Program currently under review at time of 2020 CIP adoption)<br>• Cancellation of education property taxes is subject to approval by the Minister of Finance. | (2015) Priority Neighbourhoods<br><br>(2020) All land within the urban boundary |

**Figure 4:** Summary of incentive programs in City of St. Catharines' CIP 2015 and 2020

The incentive programs contained in this CIP are used individually and cannot be used together by an applicant for a single property. The total of all grants, loans and tax assistance cannot exceed the total value of eligible costs incurred in the redevelopment of a property (St. Catharines, 2015). As a lower-tier municipality, St. Catharines can partner with Niagara Region, the upper-tier municipality, for additional financial support in brownfield redevelopment projects. Applications for incentive programs contained in the St. Catharines CIP must first be granted by the City and then the municipal government in turn becomes the applicant to the Niagara Region. Since upper-tier municipalities do not have the legislated ability to create a CIP for brownfields, Niagara Region cannot receive applications from property owners in St. Catharines. The incentive programs contained in the St. Catharines CIP are the only financial mechanism available to property owners in the city.

The City of St. Catharines' CIP (2015) establishes all lands within the city's urban area boundary as a Community Improvement Project Area (CIPA). Within the CIPA, financial incentives are further targeted to smaller geographical areas classified as priority neighbourhoods

or intensification areas. The six priority neighbourhoods are as follows: Downtown, Queenston, Hartzel Road / Merritton, Oakdale – Moffatt, Western Hill and Ontario / Carlton Node. The Priority Neighbourhoods are responsive to changing environmental factors. For example, Ontario Street/Carlton Street node was added as a Priority Neighbourhood in the 2015 and 2020 CIP to reflect the redevelopment opportunity posed by the former General Motors plant (St. Catharines, 2015). Whereas the 583 Welland Avenue location has not been carried forward as a priority area from the 2004 CIP since remediation projects have now been completed and the area no longer warrants priority assistance (St. Catharines, 2015).

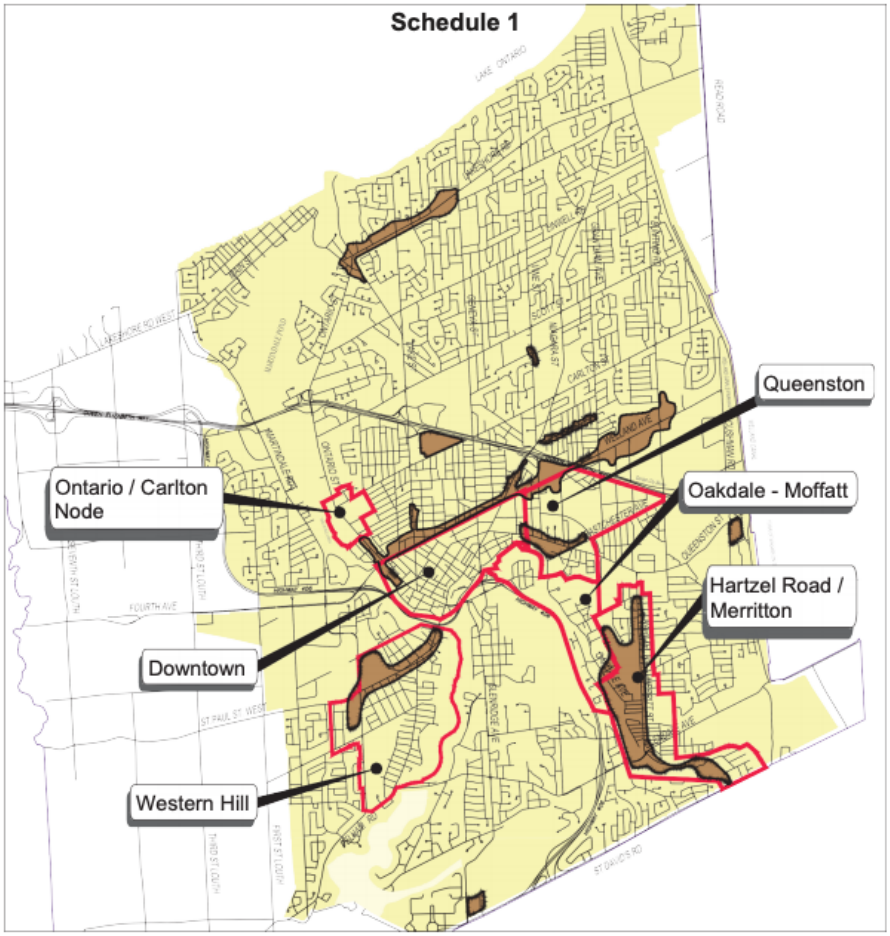


**Figure 5:** Community Improvement Project Area, Intensification Areas and Priority Neighbourhoods in St Catharines' CIP 2015 and 2020 (p. 35)

The seven intensification areas are copied from the Official Plan and are consistent with the Growth Plan. These areas are located along major street corridors, are undergoing a transition

towards a mixed-use environment, and have existing infrastructure which can support medium and higher density housing (St. Catharines, 2015).

The evaluation system built into St. Catharines' CIP application process weights certain development characteristics and types of urban infill differently. The 2015 CIP has a 28-point ranking system for the consideration of project approvals (Figure 6) The 2020 CIP further refined this criteria (Figure 6).

| **St. Catharines Community Improvement Plan, 2015 [p. 15]** | **St. Catharines Draft Community Improvement Plan, 2020 [p. 36]** |
|---|---|
| 1. Redevelopment Projects<br><br>2. Redevelopment Projects involving Remediation<br>• Estimated cost of remediation in relation to other projects:<br>3. Lot Size<br>• 1 hectare or less<br>• Greater than 1 hectare<br>4. Project Location<br>• Within the Downtown Priority Neighbourhood<br>• Within other Priority Neighborhoods<br>• Within an Intensification Area outside a Priority Neighbourhood<br>5. Financial Impact<br>• Net benefit on weighted assessment in relation to other projects<br>6. Density Generation<br>• (People and/or jobs per hectare) in relation to other projects<br>7. Value Added<br>• Urban design features (façade, landscaping, public realm, etc)<br>• Sustainability (LEED, energy efficiency, etc.)<br>• Accessibility (universal access, barrier free) in accordance with Facility Accessibility Design Standards (FADS)<br>• Heritage restoration/preservation | 1. Location: emphasis on Downtown, Priority Neighbourhoods, Official Plan Intensification Areas<br><br>2. Density generation: people and jobs<br><br>3. Environmental Remediation<br><br>4. Affordable Rental Housing<br><br>5. Heritage Restoration/Conservation<br><br>6. Mixed Use development: commercial nodes, centres, corridors<br><br>7. Municipal Financial Benefit: increased assessment, investment<br><br>8. Value Added: public realm, climate change, sustainability initiatives |

**Figure 6:** Evaluation criteria listed in St. Catharines' CIP 2015 and 2020

This evaluation system places the greatest emphasis on redevelopment projects that include environmental remediation (i.e. brownfield sites) above all other criteria. Location is also a key determinant of application approval. The CIP rewards a specific spatial pattern to

redevelopment within the city. In the 2020 CIP, the provision of affordable housing in redevelopment projects and brownfield redevelopment projects was introduced as evaluation criteria and a factor that determines the grant amount received by a property owner. Additionally, in the St. Catharines 2020 CIP, eligibility requirements target larger sites (i.e. 'the property is generally in excess of 0.5 hectares (1.2 acres) in size' p.15) and the generation of density on properties. Essentially, development activity that has the greatest potential for creating positive economic, social and environmental impacts on the surrounding community is incentivized first.

### 4.2 Guelph Community Improvement Plan

The City of Guelph has two Community Improvement Plans. The Downtown Community Improvement Plan (2011) is primarily intended to stimulate investment and revitalization in the downtown. These incentive programs can be applied to brownfield sites as long as the property is located in Downtown CIPA. The second Community Improvement Plan in Guelph includes incentive programs specifically designed to promote brownfield redevelopment. The City of Guelph has had a Brownfield Redevelopment Community Improvement Plan since 2004. A replacement plan was approved in 2012 and amended to the most current version in 2018. The financial incentive programs applicable to brownfield sites in Guelph are summarized.

| Name of CIP | Type of Grant | Description | CIPA |
|---|---|---|---|
| Brownfield Redevelopment Community Improvement Plan | Environmental Study Grant (ESG) Program | • Grant equivalent to 50% of the cost of a Phase II environmental site assessment, designated substances and hazardous materials survey, remedial work plan or risk assessment.<br>• Maximum grant of $30,000 per property/project<br>• Maximum of 2 studies per property/project. | All land within the municipal boundaries of the City of Guelph. |
| Brownfield Redevelopment Community Improvement Plan | Tax Assistance (TA) Program | • Cancellation of part or all of the municipal property taxes and education property taxes for up to 3 years.<br>• Cancellation of education property taxes is subject to approval by the Minister of Finance. | All land within the municipal boundaries of the City of Guelph. |
| Brownfield Redevelopment Community Improvement Plan | Tax Increment Based Grant (TIBG) Program | • Grant equivalent to 80% of the municipal property tax increase created by the project for up to 10 years after project completion | All land within the municipal boundaries of the City of Guelph. |
| Downtown Guelph Community Improvement Plan (CIP) grants | Major Downtown Activation Grant | • Tax increment-based grant for major redevelopment projects involving commercial and or residential buildings<br>• Eligible projects must contain a minimum of eight residential units or 800 square metres of office/commercial space | All land within the Downtown Guelph Community Improvement Plan Area |

**Figure 7:** Summary of incentive programs in Guelph's Brownfield CIP and Downtown CIP

The incentive programs contained in this CIP can be used individually or together to cover a greater percentage of the eligible cost incurred by an applicant for a property (Guelph, 2018). However, 'double dipping' is not allowed, meaning two or more programs cannot be used to pay for the same eligible cost (Guelph, 2018). The total of all grants, loans, and tax assistance cannot exceed the total value of eligible costs incurred in the redevelopment of a property (Guelph, 2018).

The Brownfield Community Improvement Plan (CIP) has designated all lands within the city's boundaries as a Community Improvement Project Area (CIPA). The Downtown Community Improvement Plan designates a small area in the downtown core as the Community

Improvement Project Area (CIPA). Incentive programs in each plan can only apply to their respective CIPA.

The Guelph 2018 CIP does not identify an evaluation system. The Guelph CIP states that applications will be evaluated on a first-come, first-serve basis and at the discretion of planning staff (Guelph, 2018). While planning staff might evaluate financial incentive program applications based on sustainability growth objectives, it is not codified and outlined in the CIP. Applications to the City's Tax Increment Based Grant (TIBG) Program, Major Downtown Activation Grant Program and the Tax Assistance (TA) program are evaluated against program eligibility requirements and recommendations made by City Staff to City Council for approval (Guelph, 2018). The Environmental Study Grant (ESG) Program is evaluated, and a decision on the grant application is made by city staff based on available funding from the Brownfield Strategy Reserve (Guelph, 2018).

### 4.3 Discussion

Results indicate that St. Catharines' and Guelph's CIPs provided financial compensation to facilitate brownfield redevelopment in two ways: tax reduction and supplied grants. Specifically, both cities offered a property tax increment grant program and a tax assistance program to property owners of brownfield sites. As of 2011, these incentive programs are the two most popular financial mechanisms used in Ontario (MMAH, 2011). Approximately 93% of all municipalities with a 'Brownfield CIP' employ a property tax increment grant program and 77% employ a tax assistance program (MMAH, 2011). This report's findings support conclusions made in earlier studies regarding the role of the provincial government in supporting brownfield redevelopment in local municipalities. Municipal governments are primarily responsible for attracting, guiding and managing brownfield redevelopment activity through the provision of financial compensation (De Sousa, 2006). While provincial governments serve as a regulatory authority to guide the local creation and implementation of CIPs and financial incentive programs (De Sousa, 2006).

It should be noted that each city offers development charge reduction programs available to brownfield sites, which are enabled under the *Development Charges Act*. These incentives operate independently from the CIP framework and therefore, are not discussed in detail in this report.

Given that the private sector is primarily motivated by economic profit when undertaking brownfield redevelopment (Wang, Hipel, Kilgour, 2008; De Sousa, 2000), the City of Guelph presents a more attractive financial package to potential owners and developers than St. Catharines. The City of Guelph has two more financial incentive programs than the City of St. Catharines, a property tax increment grant program and an environmental study grant program. More importantly, the City of Guelph permits multiple financial programs to be used on one brownfield site that can cover up to 100 percent of all eligible redevelopment costs incurred by an owner. In contrast, the City of St. Catharines has a strict one site, one financial incentive program rule written into their CIP. A brownfield property in St. Catharines is not eligible for more than one financial incentive program even though eligible costs may remain. Brownfield redevelopment is extremely cost intensive and not all properties can be funded due to the limitations of municipal resources. It can be assumed that the City of St. Catharines has taken the approach of allocating financial resources broadly to impact a greater number of properties rather than concentrating resources on a selected few properties. Regardless, multiple studies (Adams et al., 2000; Hayek, Arku & Gilliland, 2010) have proven that brownfield redevelopment projects are reliant on the availability of financial incentives. Incentives also enable brownfields to be more competitive in the real estate market with greenfield developments and thereby help to support urban infill rather than sprawl (Hayek, Arku & Gilliland, 2010)

A particularly interesting finding that emerged in the comparative review was the absence of an environmental study grant program in St. Catharines' CIP but its inclusion in Guelph's Brownfield CIP. Although, phase one and/or phase two ESAs fees are included in BTA and BTIF's list of eligible costs in the St. Catharines' CIP. The City of St. Catharines' CIP is structured to financially reward owners who engage in the entire redevelopment process and thereby become eligible for even greater grants or tax reduction. It is not designed for owners or developers who just undertake ESA's for reasons such as due diligence, condition of sale on a property or a financing/mortgage requirement. This observation supports Hayek, Arku & Gilliland's, (2010) conclusions drawn from interviews with key stakeholders involved in brownfield redevelopment. Interviews revealed that a CIP can become less effective when it assumes that the entire brownfield redevelopment process is implemented by one company and one developer (Hayek, Arku & Gilliland, 2010). Incentive programs need to be sensitive to the

many operational levels in the business side of the development industry and to the various independent parties involved in the redevelopment process (Hayek, Arku & Gilliland, 2010).

With regard to the geographic locations and CIPA boundaries within which the financial incentives are applied, the two cities differ greatly in their approach. The St. Catharines CIPA follows the established urban growth boundary. Incentive programs are further targeted towards specific intensification and revitalization areas (ex. Priority Neighbourhoods and Official Plan intensification corridors) through the use of evaluation criteria. This approach is extremely responsive to sustainable growth objectives set out in the Growth Plan. In contrast, Guelph's Brownfield CIPA boundary encompasses greenfield land beyond the built boundary. However, Guelph's Downtown CIP has narrowly defined the city's urban growth centre (downtown core) as a CIPA. In a journal article published by Jamal (2018), the presence of the Downtown CIP and the Brownfield CIP was cited as the reason land developers choose to build downtown. In particular, one brownfield site downtown has received grants from both the Downtown CIP and the Brownfield CIP, both of which share jurisdiction via their CIPA (Jamal, 2018). The author of this report, speculates that the achievement of sustainable growth objectives and revitalization in Guelph's downtown core has unintentionally acted as a screen, hiding the Brownfield CIP's potential for facilitating suburban sprawl.

Finally, the third dimension of comparison was the evaluation process utilized in each CIP. A strength of the St. Catharines 2015CIP and 2020CIP is the weighted evaluation system built into the application process. The ranking system directly prioritizes sustainable growth objectives like infill/intensification locations, affordable housing and LEED design. Findings indicate that the St. Catharines CIP application process benefited from increased transparency, overcoming a common problem associated with incentive programs (Alterman, 2012). St. Catharines' evaluation system provides property owners, developers and other stakeholders more assurance and certainty in the application process as well as encouraging the incorporation of sustainable growth objectives in redevelopment plans. The City of Guelph does not have publicly available evaluation criteria.

Overall, the St. Catharines CIP better integrates local brownfield redevelopment policy within the broader sustainable growth agendas promoted by the province. At the same time, the City of Guelph's suite of incentives is impressive, and the level of coverage permitted in the CIP is a great motivator to private sector stakeholders. However, the objectives of Guelph's

brownfield policy are too narrowly focused on just the successful redevelopment of individual sites. In order to ensure that redevelopment implements goals related to sustainability, individual brownfield sites should be considered part of achieving a wider regional plan (Hayek, Arku & Gilliland, 2010). Furthermore, the inconsistencies between incentive programs offered and terminology used across different jurisdictions suggests that provincial oversight has been fragmented and largely 'hands off' as established in earlier studies on this topic (De Sousa, 2006).

# CHAPTER 5: CASE STUDY ANALYSIS & FINDINGS

Records of Site Condition (RSC) submitted to the Environmental Site Registry, visual site inspections as well as supplementary legal documentation, informed the analysis and findings contained in this chapter. A short profile of each city is used to situate urban infill and brownfield activity findings within the broader socio-economic climate. The scale and character of brownfield redevelopment activity will be compared. An evaluation of the spatial patterns and building typologies will illustrate the extent to which brownfield redevelopment in small and mid-sized cities follows sustainable growth objectives and the intent of the Growth Plan.

## 5.1 City of St. Catharines Profile

The City of St. Catharines connects post-industrial, suburban and rural landscapes. St. Catharines is the largest city in Niagara Region, with a population of 133,113 (2016 Census, Statistics Canada, 2017). Commonly referred to as 'The Garden City," containing large swaths of prime agricultural land and environmentally sensitive areas protected by the Provincial Greenbelt Plan and the Niagara Escapement Plan. St. Catharines is an agricultural powerhouse with a total of 83 independent farms covering approximately 3,931 acres of farmland (Niagara Region, 2016). St. Catharines' farmland is ranked as the highest value per acre (2016 Farm Receipts) in the Niagara Region due to its tender fruit, vineyard and greenhouse production (Niagara Region, 2016). Additionally, the Niagara Region has been a heavy industry and manufacturing centre supported by transportation networks and infrastructure advantages. In the past two decades, the manufacturing sector has experienced a steady decline but gained jobs in the construction trades and in the service sector (Durrant & Philips, 2015). Niagara Region's economic diversity in the agricultural, tourism, health care and education sectors has helped somewhat to stabilize the economy after the 2008 recession (Durrant & Philips, 2015). However, poverty and unemployment issues remain.

## 5.2 Scale, Character and Distribution of St. Catharines' RSCs

A total of 34 RSCs were filed in the City St. Catharines from July 1, 2011 to December 31, 2019 (Figure 8). The RSCs filed represent a combined land area of 26.67 ha (65.91 ac). The average size per RSC is 0.78 ha (1.93 ac) with a median of 0.44 ha (1.09 ac). As predicted,

industrial properties (1.58 ha or 3.9 ac) were on average larger in size than commercial properties (0.59 ha or 1.46 ac) and the other identified land uses.

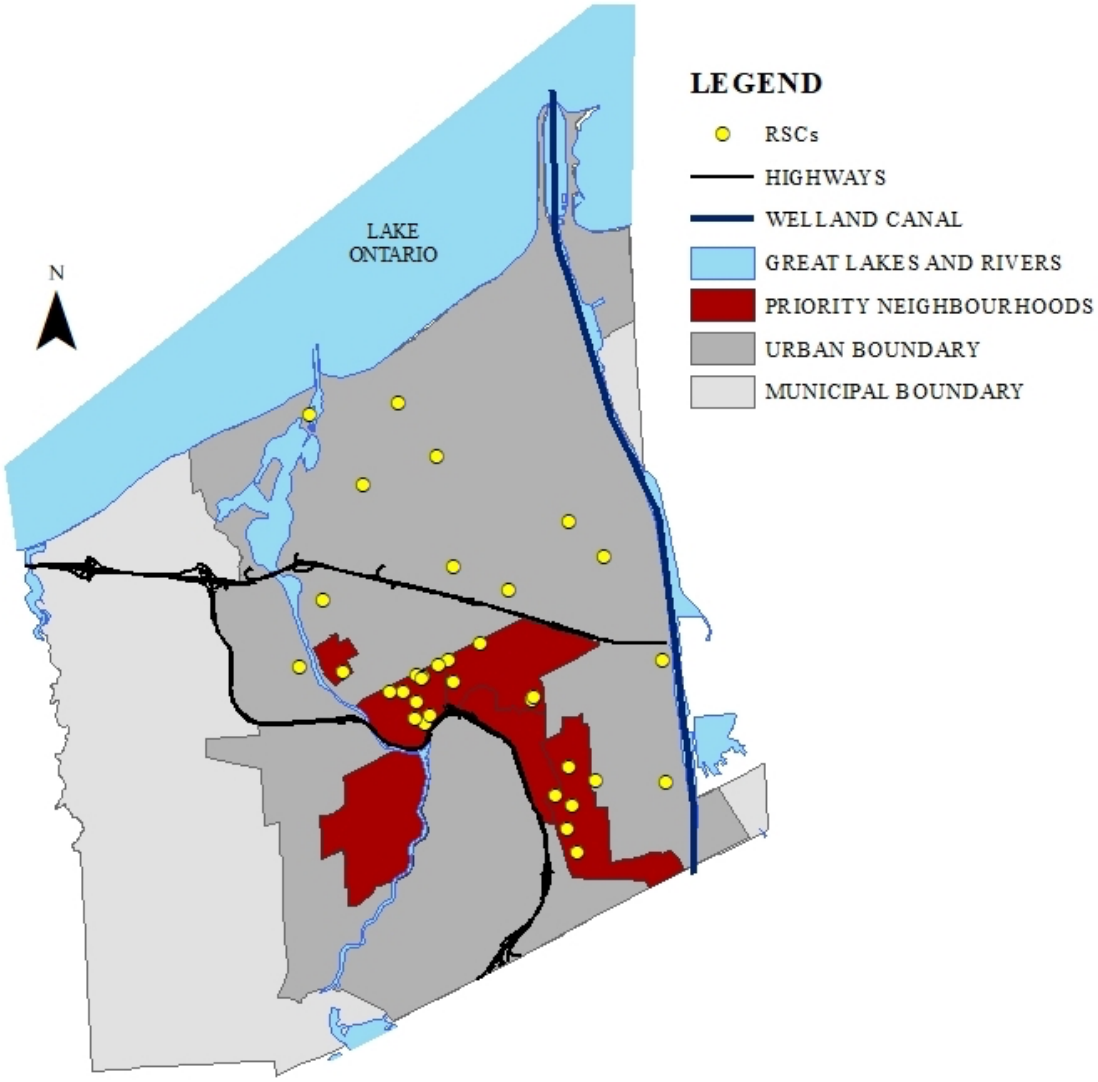


**Figure 8:** St. Catharines (34 RSCs 2011-2019)

The RSCs are spatially concentrated in strategic locations. Out of the 34 RSCs filed, 21 sites (61.8 %) are located inside priority neighbourhoods as established by the city's CIP (see Figure 8). In particular, 10 RSC sites (29.4%) are located in just the Downtown Priority Neighbourhood (see Figure 8). A significant number of brownfield sites are located along or in close proximity to the arterials, Welland Avenue and Hartzel Rd/Merritt St (see Figure 5 and Figure 8). These two corridors are identified as intensification areas in the Official Plan and in

the CIP. All the RSCs were located within the urban boundary. The scale of residential redevelopment activities on RSC sites is mapped as well (Figure 9). The greatest number of units have been created on properties located in the downtown area. However, pockets of residential density have been found scattered in the west end of St. Catharines. Residential units have also been created in the Hartzel Road/Meriton Priority Neighbourhood.

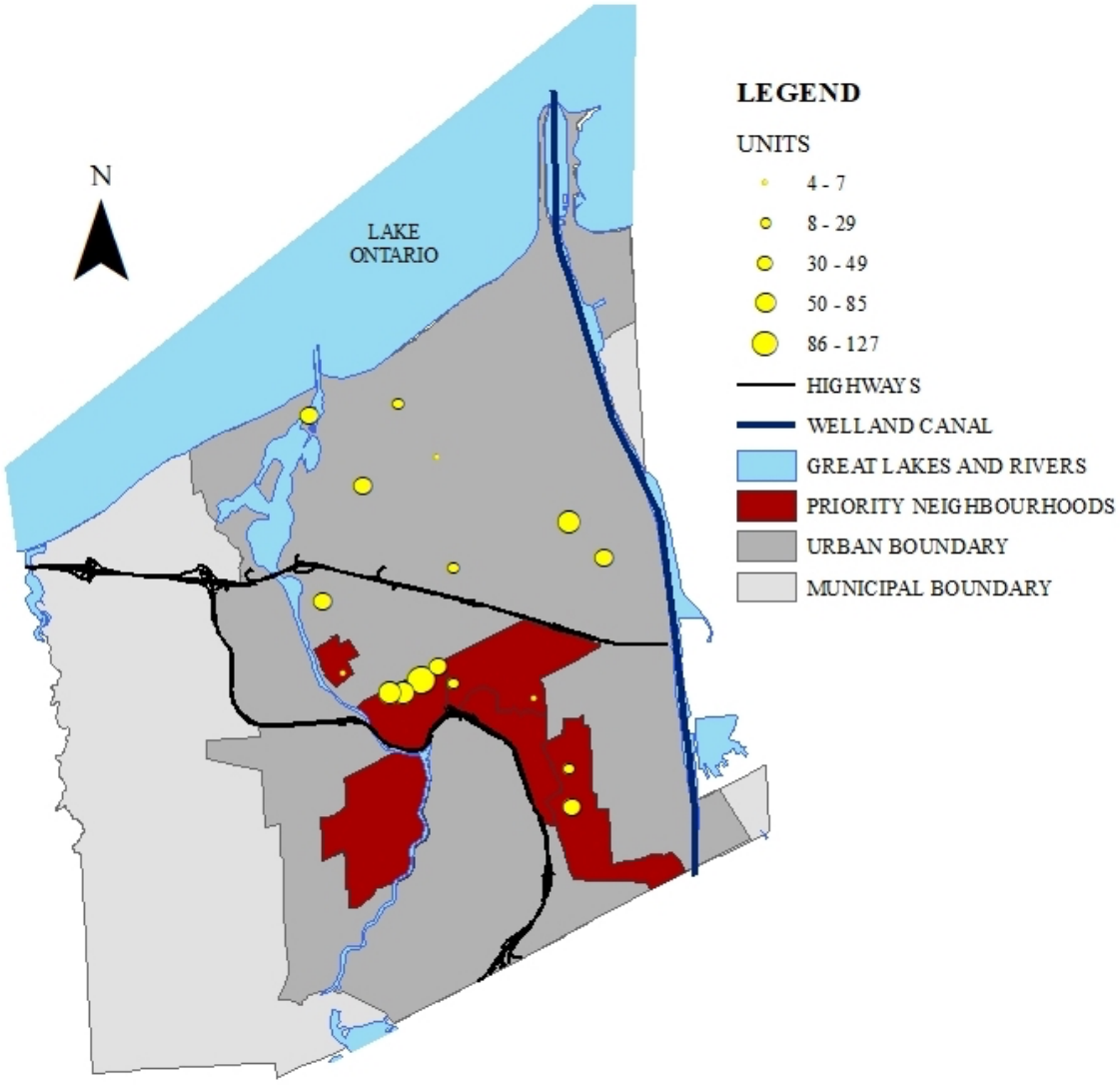


**Figure 9:** Residential Building Units, St. Catharines (17 RSCs)

In terms of environmental conditions and clean-up needs, the filed RSCs are spread across the spectrum. A small percentage of properties (4 or 11.8%) only filed a phase one ESA. Approximately two-thirds of the properties (20 or 58.8%) filed a phase one and phase two ESA. A significant number of properties (10 or 29.4%) filed an RA and pursued site-specific remediation and corrective measures.

The majority of RSCs represent former commercial properties (23 or 67.6%), followed in frequency by industrial properties (6 or 17.6%), community (3 or 8.8%), residential (1 or 2.9%) and agricultural/other (1 or 2.9%). The most common 'intended' use declared in the RSCs was residential land use (29 or 85.3%), commercial use (3 or 8.8%), institutional use (1 or 2.9%) and community use (1 or 2.9%). Out of the 34 RSCs filed, 21 sites (61.76%) have been redeveloped as of the end of March 2021. The development status was unable to be determined for two residential properties and one commercial property at the time of writing.

As indicated, conversion to a residential land use was the most popular property redevelopment approach on brownfield sites in the city. Out of the 17 residential projects completed or near completion; 8 properties included an apartment (rental) building type, 6 contained clustered townhouses, 3 properties had semi-detached building types, 2 properties have a tower condominium, and 1 property had a single detached building type. More than one building type was often present on a single property. On three large sites, entire subdivisions were created with private roadway access maintained by the condominium board. Rental apartment and tower condominiums ranged from 2 floors to 8 stories in height.

**Low-rise Condominium Buildings**

*Residential Land Use*
212 Lakeport Rd (Left)
16 & 14 Wood St. (Right)

**Condominium with Townhouses Units and Private Roadway**

*Residential Land Use*
58 Canterbury Dr. (Left, Above)
45 Dorchester Blvd. (Right, Above)
65 Lakeshore Rd. (Left, Below)

**Semi-Detached Dwellings**

*Residential Land Use*
26 Oakdale Ave. (Left)
265 Linwell Rd (Right)

A portion of the residential projects have incorporated social equity benefits. In St. Catharines, brownfield redevelopment has been seen as an opportunity to add affordable housing stock in the city. One RSC filed, 111 Church St., was redeveloped into an 11-story apartment building with 127 units of affordable housing for men, women and families of low to moderate income (Bethlehem Housing and Support Services, n.d). That project was facilitated by a public private partnership between regional and the city governments, the non-for-profit partner, Bethlehem Housing and Support Services and the corporate partners, First Ontario Credit Union and Penn Terra Group Limited. On another RSC site (527 Carleton St.), a 5-story affordable housing apartment complex was built with 85 units subsided by the regional government.

**Affordable Housing Units**

*Residential Land Use*
111 Church St. (Left)
527 Carlton St. (Right)

Redevelopment efforts on brownfield sites have been supported by the presence of Brock University in the City of St. Catharines. Brock University is an economic anchor for the city's downtown revitalization efforts. Brock University purchased and redeveloped a downtown RSC (198 St. Paul St.) that contained extensive contamination as well as significant heritage attributes. It now serves as satellite campus for the new Marilyn I. Walker School of Fine and Performing Arts. Indirectly, Brock University has also strengthened the local real estate market by creating demand for accommodations due to its student population. A total of three residential projects are rental apartments for Brock University students and Niagara College students. These sites are not officially affiliated with the college or university but provide a combined total of 158 units exclusively for student residences.

**Private Student Residences**

*Residential Land Use*
51 Lake St. (Right, Below)
11 Lyman St & 136 James St. (Left, Below)
34, 36 Queenston St. (Right, Above)

**Brock University, Marilyn I. Walker School of Fine and Performing Arts**

*Residential/ Institutional Land Use*
198 St. Paul St.

As recorded above, a significant portion of the properties have been converted into or retained commercial, community or institutional land uses. Two particularly notable developments on brownfield sites were the Meridian Centre, a hockey arena/event center and the new Niagara Regional Police Headquarters. Both sites can be considered economic generators in the downtown core.

**Meridian Centre**

*Community Land Use*
55 McGuire St.

**Regional Police Headquarters**

*Commercial Land Use*
198 Welland Ave

### 5.3 City of Guelph Profile

Guelph has a well-established and historic downtown. The downtown was modelled on a European City centre, with the Speed River as the focal point and streets radiating outward with large city squares and broad main streets (City of Guelph, n.d). Guelph is considered to be one of the first planned towns in Canada (City of Guelph, n.d). The decline of its manufacturing base located along Speed River led to core area decline and decay. Guelph's diversified industrial base, including agri-food, life science, IT, environmental enterprise, automotive, and advanced high-technology industries, has helped to mitigate the economic downturn (City of Guelph, 2012). In particular, the presence of Guelph University has supported a growing knowledge and technology-based economy centred on agri-food research (City of Guelph, 2012). Poverty rates are lower in Guelph than the overall provincial average (Malone Given Parsons Ltd & Lynn Morrow Consulting, 2009). The City also has a low unemployment rate of 3.9% compared to the national average of 6.6% as reported by Statistics Canada in 2017 (Jamal, 2018). Additionally, the City of Guelph is becoming an emerging tourist destination (Malone Given Parsons Ltd & Lynn Morrow Consulting, 2009).

### 5.4 Scale, Character and Distribution of Guelph's RSCs

A total of 21 RSCs were filed in the City of Guelph from July 1, 2011- December 31, 2019. In some cases, multiple RSCs were filed for different portions of the same property. The RSCs filed represent a combined land area of 24.60 ha (60.79 ac). The average size per RSC is 1.17 ha (2.89 ac) with a median of 0.4 ha (0.99 ac). Evident by the median calculation is the vast differences in property sizes. The smallest site was a former commercial property (0.13 ha or 0.32 ac), and the largest property was a former agricultural site (3.68 ha or 9.1 ac). Industrial properties (1. 76 ha or 4.35 ac) were on average largest in size. Former agricultural properties (1.56 ha) were only slightly smaller than industrial properties on average. While commercial properties are significantly smaller on average (0.26 ha or 0.64 ac).

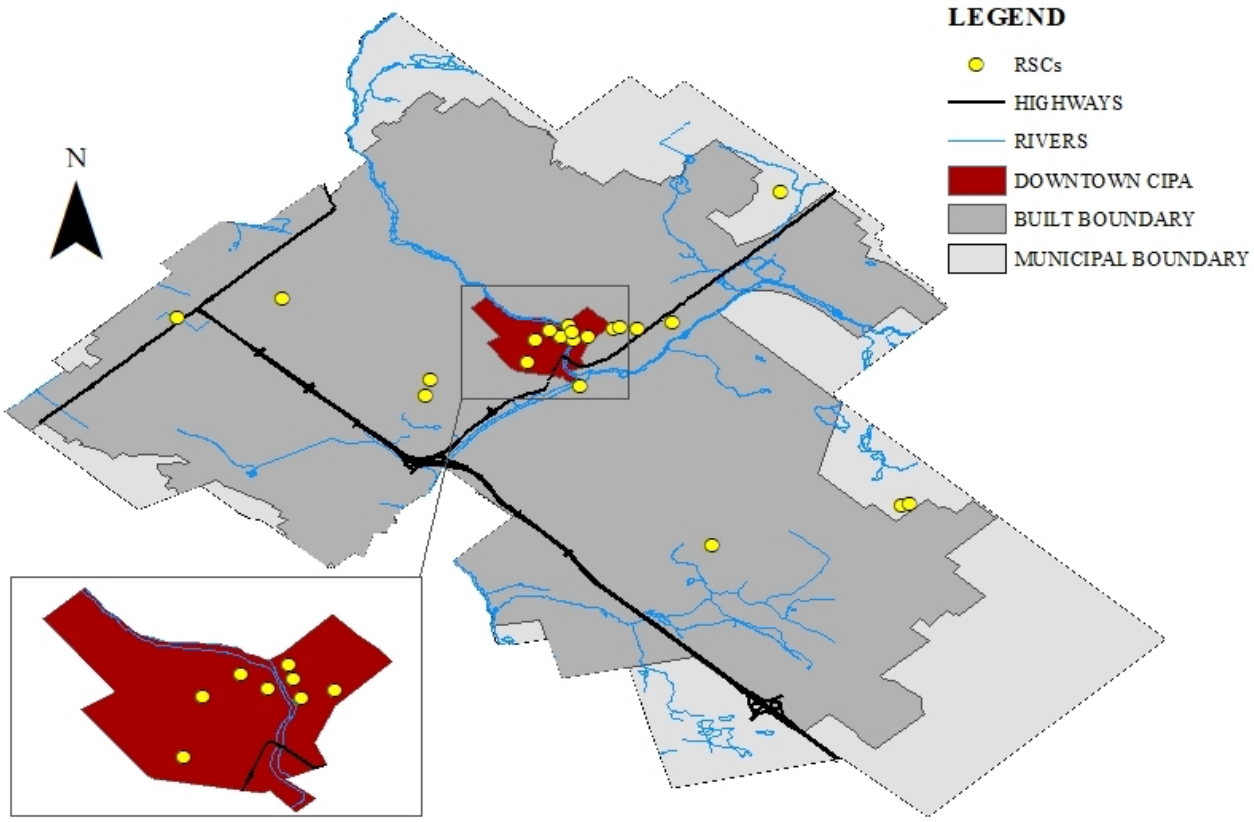


**Figure 10:** Guelph (21 RSCs 2011-2019)

With regard to the spatial distribution of filed RSCs throughout the City of Guelph, most brownfield sites are centrally located (Figure 10). Out of the 21 RSCs filed in the city, 8 RSCs (38.1%) are located within the Downtown CIPA. Redevelopment activities on residential properties are mapped as well (Figure 11). As expected, the greatest number of residential units have been created on properties located within the Urban Growth Centre (also referred to as Downtown CIPA). The spatial patterns indicate that brownfield redevelopment activity has primarily fulfilled urban intensification and infill objectives except for the three RSCs located outside the City of Guelph's built boundary (see Figure 10). A significant number of residential units have been created near the edge of the municipal boundary and on land not previously developed (Figure 11).

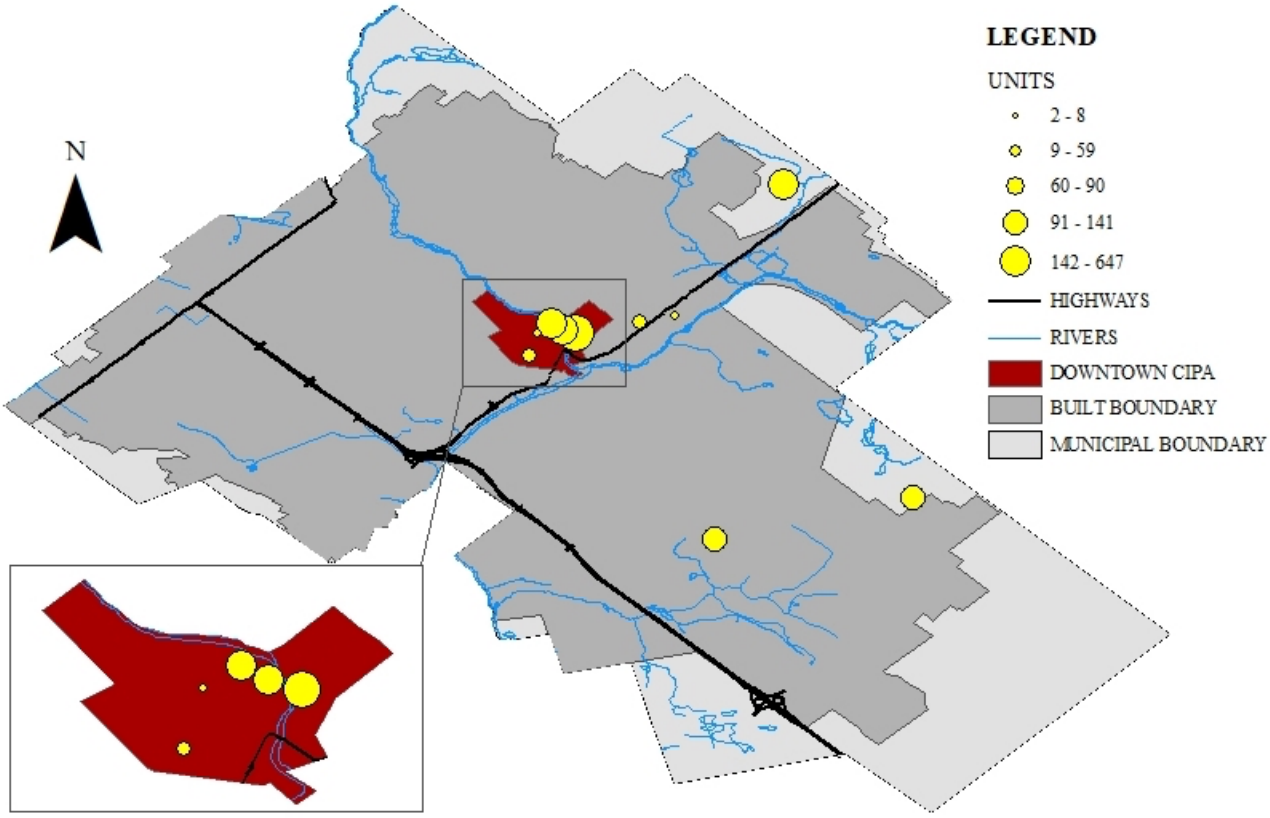


**Figure 11**: Residential Building Units, Guelph (10 RSCs)

The RSCs filed encompass different levels of site assessment and cleanup activity. A small percentage of properties (2 or 9.5%) only filed a phase one Environmental Site Assessment (ESA). Over half of the properties (12 or 57.1%) filed a phase one and phase two ESA. A significant number of properties (7 or 33.4%) filed a Risk Assessment (RA) indicating risk based corrective measures have been undertaken.

The majority of RSCs filed were for former industrial properties (10 or 47.6%), followed in frequency by commercial (6 or 28.6%), agricultural/other (3 or 14.7%), community (1 or 4.8%), residential (1 or 4.8%). The most common 'intended' use declared in the RSCs was residential land use (17 or 81.0%), followed by industrial (2 or 9.5%) and parkland (2 or 9.5%).

Out of the 21 RSCs filed, 12 sites (57.14%) have been redeveloped as of the end of March 2021. The development status was unable to be determined for two industrial properties and one residential property at the time of writing.

As recorded, conversion to a residential land use was the most popular property redevelopment approach on brownfield sites. Out of the 10 residential projects completed or near completion; 4 properties included a tower condominium building type, 4 properties have rental apartments, 4 properties included clustered townhomes, and 2 properties have single-detached building types. Rental apartments and tower condominiums ranged from 3 floors to 18 floors in height.



**Condominiums**

*Residential Land Use*
152 Wellington St. E. (Left)
160 MacDonell St. (Right)

**Rental Apartments**

*Residential Land Use*
139 Morris St. (Left)
171 Kortright Rd. (Right)

A total of four residential buildings included commercial units at grade. An eating establishment was a typical use of the commercial space. Although, in one development, a hair salon and spa occupied one of the commercial units.

**Development with Residential & Commercial Units**

*Residential Land Use*
7, 5 & 3 Gordon St. (Left)
82, 84 MacDonell St. (Right)

A total of two residential redevelopment projects occurred on former agricultural/other land. Three RSCs filed for two properties, 144 Watson St. and 246 Arkell Rd, are outside the established built boundary (Figure 10). In accordance with the City of Guelph's policy framework and the 2014 Development Proprieties Plan, both sites are classified as greenfield land (Guelph, 2014). Yet, both sites required a phase one and phase two RSC due to the high potential of pollution risks on site. The City of Guelph's Brownfield CIP (2018) defined an eligible brownfield property as a property that has conducted a phase two ESA and filed an RSC. This raises an important philosophical discussion. Is it greenfield land or brownfield land?

It should be noted that this agricultural land is not designated as a Prime Agricultural Area or a Specialty Crop Area (OMAFRA, 2016). In addition, the residential projects meet the required minimum density target of 50 residents per hectare for new development on a greenfield as set out in the Growth Plan (MMAH, 2020).

**Greenfield or Brownfield: A Question of Perspective**

*Residential Land Use*
144 Watson (Left)
246 Arkell Rd (Right)

Developers in Guelph displayed a willingness to preserve historical features and a property's industrial legacy. One RSC filed, 139 Morris St., attempted to mimic the design characteristics of a 19th-century Victorian era industrial factory by using wooden floor beams and a brick masonry exterior. No existing structures were left of the iconic Biltmore Hats Factory, before conversion into residential townhomes. Therefore, all design characteristics have been fabricated by the developer to tie the new land use into the industrial heritage of the property. The redevelopment project at 5 Author Street, preserved one of the original structures from the former Allan's Mill and Distillery. Not only an important landmark in the City of Guelph, but the building is historically significant, dating back to 1835 (Kirkor Architects & Planners, 2015). It has been adaptively reused into the Spring Mill Distillery and Restaurant. A third property, 120 Huron St., has not been redeveloped at the time of writing. However, a submitted building permit proposes renovations to convert the existing 4 story industrial building into an 87-unit apartment building (permit denied, at time of writing). The existing historical features and architecture would be utilized and not demolished if that permit does get approved in the future.

**Industrial Heritage: Real & Imagined**

*Residential Land Use*
120 Huron St. (Right, Above)
139 Morris St. (Right, Below)
5 Arthur St. South (Left, Below)

A significantly smaller portion of the RSCs filed remained an industrial land use as recorded previously. Two properties (20 Campbell Rd. and 335 Woodlawn Rd. W.) filed an RSC but retained an industrial land use. It is unlikely these properties actually triggered the RSC

process under O. Reg. 153/04, since the site was not converted to a more sensitive use. It is assumed that the property owners opted to participate in the RSC process for another reason which was likely linked to the consent for severance and the creation of a new industrial lot which was granted for both sites.

**New Industrial Lot & Demolition of Industrial Building**

*Industrial Land Use*
20 Campbell Rd.

**Industrial Land Severance**

*Industrial Land Use*
335 Woodlawn Rd. W.

### 5.5 Discussion

Results demonstrate that the scale of brownfield redevelopment activity in St. Catharines and in Guelph has been active and intensive. Despite a comparatively weak real estate market, both cities have managed to reclaim a total of 18.1 ha (St. Catharines) and 10.0 ha (Guelph) of land back into productive use. Approximately two thirds of the RSCs (21 or 61.76%) filed in St. Catharines have been redeveloped and a little over half (12 or 57.1%) of the RSCs filed in Guelph have been redeveloped at the time of writing. A total of 723 residential units in St. Catharines and 1346 residential units in Guelph have been created on brownfield sites. That has been one of the most important findings of this report. It complicates the popular narrative that

only large cities in Ontario such as Hamilton, Ottawa and Toronto can successfully facilitate brownfield redevelopment.

It should be noted that brownfield sites in St. Catharines retain a greater competitive advantage than brownfields in Guelph. St. Catharines has almost no available greenfield areas within its urban area and little prospect of urban area boundary expansion due to the presence of strong growth boundaries established by Greenbelt and Niagara Escapement designations that abut the existing built settlement area (see Figure 1). Therefore, developers are forced to seek infill opportunities on brownfield sites and other urban land resources. Since land within the City of Guelph has not been impacted by Greenbelt or Niagara Escarpment designations, hypothetically, development can continue to extend up to the municipal boundary (Figure 1). Municipalities with available greenfield land face tough challenges considering the profit-driven nature of private sector development (De Sousa, 2006)

In both cities, data on the type of Environmental Site Assessment (ESAs) reveal an above average percent of properties filed a Risk Assessment (RA) indicating risk based corrective measures have been undertaken. Results indicate that 33.4% of properties in Guelph have filed a RA and in St. Catharines 29.4% of properties filed an RA. In a study conducted by De Sousa and Spiess, (2018) using data gather from 4,524 RSCs filed in Ontario between October 1, 2004 and June 30, 2011, only 7% (320) conducted a phase one and two ESA with RA. In another study by De Sousa (2017) examining RSCs filed in that same time period, only 4.4% of RSCs reported used RA procedures in Kingston, one project in Waterloo filed a RA and a small share (6.6%) of properties employed risk-based procedures in Toronto. It is unclear why Guelph and St. Catharines differ from the trends established in earlier research on this type of data. Since this report reviewed RSCs filed to Ontario's Environmental Site Registry, from a more recent time period (between July 1, 2011 to December 31, 2019), it could be perceived as a sign of growing comfort with Ontario's regulatory approach and with heavily contaminated sites.

Brownfield development activity generally occurred in locations identified by the Growth Plan. The greatest number of residential units were created in the City of Guelph and the City of St. Catharines' urban growth centres or in close proximity and along major street corridors. However, two developments in Guelph break away from the prime sustainability-oriented objective of growing in-and-up instead of out (De Sousa, 2017). In fact, these developments have

blurred the semantic lines between greenfield and brownfields (De Sousa & Spies, 2018), as both of these sites were formerly "agricultural/other" land uses but underwent the RSC process.

Results illustrate that residential land use is the most popular redevelopment approach for brownfield properties in St. Catharines and Guelph. This supports the observations made by De Sousa & Spiess, (2018) on the nature of private sector involvement in brownfield redevelopment. Residential development remains profitable for developers despite the increased hard and soft development costs required for brownfield sites (De Sousa, 2000; De Sousa & Spiess, 2018). In Ontario, municipalities have displayed a willingness to rezone and densify properties, counting on the strong residential market to addresses brownfield challenges (De Sousa & Spiess, 2018). Another finding of this report was that the residential building typologies were dictated by the unique market dynamics and consumer preferences in each city. For example, building typologies that can be characterized as ground-oriented, such as townhouses and semi-detached dwellings were more prevalent in St. Catharines. In Guelph, high rise apartment and tower condominium buildings (10-18 floors) were more common. The scale and character of brownfield redevelopment is determined by what the market permits based on real estate fundamentals like profit, market, location (De Sousa & Spiess, 2018).

Although, brownfield redevelopment projects did contribute to the mixed-use character of the two cities, particularly in the downtown neighborhoods. Different approaches to achieving complete communities was observed in St. Catharines and in Guelph. For example, commercial units were provided in high density residential buildings, or properties were redeveloped into high occupancy entertainment, employment and educational land uses.

Brownfield redevelopment has always been a precarious balance between economic, social and environmental benefits that frequently skews towards cost-benefit calculations (Chakrapani & Hernandez, 2012; De Sousa, 2000). Multiple studies have found that social equity considerations and community needs are compromised in favour of what is economically viable or marketable for brownfield redevelopment projects (McCarthy, 2009; McCarthy, 2002). In that respect, St. Catharines achievement of affordable housing buildings on two different brownfield sites was an encouraging highlight of this report's findings.

Another interesting finding in Guelph and St. Catharines was the level of private and public sector participation in heritage preservation on brownfield redevelopments projects. Some developments were simply designed to reflect and invoke the site's past industrial heritage, while

some developments took efforts to preserve and highlight existing historical structures. These observations support a study conducted by Shipley et. al., (2006), that found older buildings represent an important aesthetic, cultural and economic resource. Industrial sites are frequently found in desirable, central locations and can act as important landmarks in cities, shaping the urban experiences of inhabitants for generations (Bliek & Gauthier, 2007). Therefore, these brownfield sites can become a catalyst for larger regeneration and revitalization strategies.

Finally, results point to a potentially concerning trend with regard to industrial land conversion. All industrial properties in St. Catharines and all but two industrial properties in Guelph have been converted into alternative land uses to facilitate redevelopment activity on these brownfield sites. While both cities performed the due diligence in employment area conversion in accordance with the Growth Plan, it remains a notable shift. This is a pattern also noted by De Sousa, (2017). It has been described as the 'blind side' of sprawl-containing strategies (Leigh & Hoelzel, 2012). Leigh & Hoelzel (2012) and Chapple (2014) both highlight the significant role industrial areas play in the regional economy and the urban economic base. For a city to grow sustainably, the presence of industries in urban neighbourhoods and the ready supply of good job-producing land is vitally important (Leigh & Hoelzel, 2012).

# CHAPTER 6: CONCLUSION

Brownfield redevelopment in mid-size cities such as St. Catharines and Guelph play an important role in implementing provincial sustainable growth agendas. The number of properties that underwent the RSC process between 2011 and 2019 displays a positive level of private sector participation in brownfield redevelopment activity. Moreover, the number of properties redeveloped in that time frame is a positive indicator for other similar municipalities with comparatively weak real estate markets.

This report's findings contribute to the body of work produced by De Sousa's (2017) study on brownfield redevelopment activity and regional growth planning in southern Ontario cities. Corroborating De Sousa's (2017) overarching conclusions, dense redevelopment in St. Catharines and Guelph occurred in locations identified by the Growth Plan. Brownfield redevelopment was primarily used as a tool for intensification and urban infill, fulfilling a key sustainable growth objective of the Growth Plan. However, the City of Guelph does contain two notable exceptions to this redevelopment pattern, which have been attributed to the abundance of greenfield land and the lack of strong growth boundaries within the municipality.

Additionally, the detailed site-specific approach undertaken by this report produced more nuanced conclusions with regard to the sustainable character of redevelopment projects on brownfield sites. It was clear in both cities that the scale and building typologies developed on brownfield land was determined by what the market permits and primarily centred on residential housing opportunities. In St. Catharines, a significant emphasis appeared to be placed on achieving higher order sustainability goals such as affordable housing, mixed use character and LEED design through brownfield site development. In particular, St. Catharines' CIP evaluation criteria proved successful at directing private sector developers to participate sustainable design and purposes.

The Community Improvement Plans (CIP) in each municipality were used as a tool to facilitate brownfield redevelopment and influence its sustainable character. Individual brownfield redevelopment 'success stories' in the downtown core were supported by Guelph's brownfield policy agenda. Whereas, in St. Catharines, a neighborhood or area-based approach to brownfield redevelopment activity was exhibited in the CIP.

In the future, the provincial government might consider taking a more centralized approach to improving the sustainability character of brownfield redevelopment in mid-sized

cities. While the Growth Plan has been largely successful with connecting local municipal development patterns with wider regional growth objectives; the objectives for brownfield land have not been fully realized. As noted in the literature and supported by this report's findings, the municipal experience with brownfield redevelopment is context-dependent and varies greatly. Currently, the provincial government has a limited ability to compel private sector developers towards brownfield land resources. The Province of Ontario should consider establishing specific development targets on brownfield land, similar to those used in England and/or develop stricter controls on greenfield development.

### 6.1 Recommendations

In the comparative case study analysis of Guelph and St. Catharines a series of key lessons emerged. The research findings in this paper can be generalized and applied to other municipal jurisdictions in Ontario, particularly to small and mid-sized cities. Recommendations to facilitate brownfield redevelopment and its sustainable character are provided:

1. **Create City-wide Public Awareness and Marketing Campaigns:** Educate residents to foster trust and build public buy-in for local brownfield policy agendas.

2. **Hire a Municipal Brownfield Coordinator:** Provide a resource for members of the public, landowners and potential developers while ensuring consistent communications and objectives are maintained across different municipal divisions.

3. **Go Beyond 'Sustainability by Default' to 'Sustainability by Design'**: Incorporate the use of a sustainable building code for all new development, similar to the Toronto Green Standard.

4. **Ensure Transparent and Consistent Evaluation of Financial Incentive Program Applications:** Establish evaluation criteria in the Community Improvement Plan (CIP) that incorporates sustainability growth objectives such as affordable housing, LEED design, mixed use development or public realm improvements.

5. **Be Strategic in the Creation of Community Improvement Plan Area(s) (CIPA):** Do not include greenfield areas in CIPAs to restrict the limited financial resources to intensification and infill opportunities that meet the intent of the Growth Plan.

6. **Support Each Operational Step in the Private Sector Development Cycle:** Create financial incentive programs that are sensitive to the many operational levels in the redevelopment process in order to better support private sector participation.

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