

**THE CHANGING FACE OF THE HALIFAX
PENINSULA: A NARRATIVE OF TRANSITION**

by

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ABSTRACT

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The urban landscape of the Halifax Peninsula has altered greatly over the 11-year period from 2009 to 2019. While surges in development affect the city in a plethora of ways, one of its most significant impacts is apparent in streetscape change. This alteration of urban structure presents the opportunity to chronicle a city in transition. Utilising the theory of creative destruction to situate the findings, the primary aim of this study is to describe and capture the effects of a newly invigorated development climate long characterised by stagnation. Employing Google Street View as a source of visual data for comparative analysis, this study demonstrates the utility of public domain software in studying built landscapes. GIS provides additional veracity in quantifying morphological change. Findings reveal that peninsular Halifax has undergone rapid transformation as a result of redevelopment, resulting in intensified land usage and densification. Most prevalent amongst study sites are multi-storey mixed-use structures, in contrast to previously smaller scale land uses. New built forms display a high degree of homogeneity common to urban centres across North America; while these developments are largely concentrated within the downtown core, they increasingly encroach into surrounding neighbourhoods and threaten local heritage. Development activity will likely have various social and economic implications, representing uncertainties for existing and potential residents in the form of new uses of urban space.

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CHAPTER 1

Introduction

1.1 Research Problem and Objectives

After a prolonged period of negligible development, Halifax has experienced a surge in construction activity evidenced by the proliferation of construction cranes and multi-storey building forms common to bustling North American urban cores. In recent years peninsular Halifax, as the principal urban core of the wider Halifax Regional Municipality (HRM), has experienced many alterations to its built environment. The increase in building has garnered a mix of praise and criticism as alterations to the city's landscape generally intensify the land use, produce an altered sense of place, and raise concerns regarding historical structures, affordability, and displacement.

Halifax's current development climate presents the opportunity to document urban alterations during the height of transformation while simultaneously providing insight into effects on sense of place, heritage, and social factors. Investigating recent impactful developments, this thesis aims to describe and analyse the visible transformation of the urban landscape and its built environment. In conducting this research, a noticeable gap will be filled as no comprehensive study documenting new developments and urban change through a comparison of Halifax's past and present streetscapes has taken place. Framed around the theory of creative destruction, this narrative of change will examine contributory factors and development impacts in order to demonstrate the significance of the built form's susceptibility to change.

In order to narrate urban landscape change on the Halifax Peninsula three main research objectives must be addressed. The objectives of this thesis are as follows:

- I. To chronicle urban developments across peninsular Halifax over the 11-year period from 2009 to 2019 by consulting various governmental and public data sources.
- II. To document urban changes caused by these developments through a comparison of past and contemporary Halifax streetscape imagery.
- III. To contextualise these recent urban changes on the Halifax Peninsula with regard to shifting land uses and social implications.

1.2 Thesis Overview

The second chapter of this thesis presents a literature review critically analysing academic works related to built environment change and its effect on aspects such as sense of place, historical preservation, and urban planning practices. Schumpeter's theory of creative destruction helps explain urban change while a review of landscape research methodologies offers a framework for those employed in this thesis. Chapter Three outlines the methodology employed in conducting research throughout this project by defining the study area, cataloguing data sources employed, and detailing steps involved in defining the study timeline. Further described in Chapter Three is the site selection process, steps followed in the quantitative analysis, including the development of a Geographic Information System (GIS), and the qualitative examination of relevant site-specific elements, concluding with study limitations.

Chapter Four provides a summary of results and conclusions gleaned from the methods employed in Chapter Three. Findings reveal a geographical dispersion of sites across the Halifax Peninsula, trends emergent from quantitative comparison, and development characteristics in situ

prior to and post redevelopment, including architecture, materials, and vegetation. The results chapter concludes with several case studies summarising the qualitative features of significant developments included amongst the study sites. Chapter Five discusses results in-depth with reference to concepts presented within the literature review and in alignment with study objectives, thereby contextualising conclusions with regard to Halifax's local development climate.

The final chapter of this thesis provides a brief summation of study findings, highlighting significant results. Analytical outcomes reveal that recent development intensification has greatly affected peninsular Halifax in terms of built environment features, producing implications for material and social aspects as a result of streetscape alteration. Concluding remarks offer policy recommendations, projections for the future of the Peninsula's built environment, and a brief personal stance on the state of Halifax's cityscape.

CHAPTER 2

Literature Review

2.1 Introduction

Documenting urban change requires knowledge of city growth patterns. It is both widely acknowledged and readily apparent through observation that cities, as centres of human activity, sustain alterations to their structural fabric as a result of fluctuating needs and preferences (Barke, 2018). Urban geographers trace the continually evolving state of cities, documenting changes to the built landscape and offering explanations for contemporary patterns of development through various theories. The field of historical preservation is one notable way to understand city change, providing a topic of ongoing debate due to tensions surrounding the conservation of older landscapes while allowing development to proceed (Listokin et al., 1998). As urban environments continually change it is imperative to record transformations over time for future remembrance and comparison.

By drawing on available literature, the primary objective of this review is to synthesize existing scholarly research relating to documentation and analysis of cityscape change, thereby contextualising the contributions of this thesis within the existing research pertaining to urban development. An overview of sources displaying the mutable built character of cities will offer explanation of urban theories and associated planning dogma. Meanwhile, the additional foci of historical preservation and landscape research methodologies provide further context for this project, broadening the explanation of factors involved in urban transformation.

2.2 Urban Change and Related Theories

The elements involved in producing cityscape change are widely documented, including the built environment's impact on various actors within cities and ecological repercussions of such changes (Xing et al., 2009). Cities displaying continual transformation are often viewed favourably due to the perception of change as an indicator of progress towards a robust urban environment (Zancheti and Jokilehto, 1997). Alterations affecting the built form of cities can be tied to development processes, including the redevelopment of city space repurposed for a different use. While a focus on city form is germane in examining change, this section will further discuss urban transformation by providing a brief overview of place theory, gentrification, and the development climate local to Halifax.

2.2.1 Urban Development

Typically, development rates within cities fluctuate, occasionally creating intervals of large-scale transformation leading to physical alteration of an urban area (Jones and Evans, 2011). Drivers of development vary and are often situationally dependent, however, the power of private capital in promoting cityscape change is of continual relevance in contemporary urban areas. Although wealth spurring development provides economic stimulus for cities, scholars have remarked upon the role of capital as facilitating change that more overtly reflects the interests of developers as opposed to broader demographics (Harner, 2011). The influence of political entities further guides urban change as governments often cooperate with private actors to realise new building projects (Harner, 2011). Practices dictating cityscape form are thus largely tied to the activities of governmental entities and commercial figures.

2.2.2 Redevelopment

Within many cities, the majority of land has been previously developed, necessitating alteration of space if continual inner-city change is to occur. According to Batty (2007) the majority of urban modifications take place in the context of redevelopment, rendering the repurposing of urban sites to be more common than development of previously vacant areas. An explanation for this process can be found in the theory of creative destruction. Originally coined by economist Joseph Schumpeter in the early 20th century as a method of describing change cycles, primarily with reference to economics, creative destruction explains how the movement of capital creates an impetus for incessant change – an idea highly applicable to processes evident within the built environment (Batty, 2007). In accordance with this theory, “...development is never completed and the city is always ‘provisional’ in its form and function” (Batty, 2007, p. 3), encapsulating the continual state of cities in flux.

Fenster (2019) provides further explanation for the ways in which destruction and creation can additionally be linked to planning principles as the ruin of previous landscapes is often sanctioned at the governmental level by planners. While “...the question of whether in every destruction there is a creation, or whether every creation necessitates a destruction” (Fenster, 2019, p. 39) evokes reflection upon cycles of change on a macroscale, this thought remains relevant to studies investigating the manifestation of this phenomenon in physical city structures. The theory of creative destruction is therefore applicable to analyses of city change in that an impetus driving continual transformation is established in the flow of capital.

2.2.3 Place Theory

Shifts in the structuration of cities produce identifiable change in the atmosphere of place. Place theory is a broad area of geographical study which centres around connections people have with their surroundings and feelings generated from being in a built environment (Knox, 2005). Within place theory the transformations effected in urban areas have been found to impact inhabitants' connection with the cityscape (von Wirth et al., 2016). In conducting a study on the major metropolis of Zurich, Switzerland von Wirth et al. (2016) found that recent development prompted mixed emotional associations with the changing city dependent upon how the alterations were viewed by urban dwellers. These findings provide evidence of the extent to which the built environment impacts its inhabitants.

Place attachment can be further affected by streetscape changes resulting in a display of what has come to be known as 'placelessness.' This term is used to describe built areas wherein the setting comes to feel mass-produced and standardized, generating a landscape somewhat indistinguishable from others with similar features (Knox, 2005). Archetypical suburban shopping centres and modern condominium tower developments are two examples of placeless phenomenon in the contemporary urban landscape. Although some contend that "[c]ities should not be allowed to become 'non-places' of transatlantic monocultural 'international' architecture" (Montgomery, 1998, p. 113), contemporary development climates often ignore these recommendations. According to Knox (2005), the establishment of homogeneous cityscapes is often the result of development aimed to foster individualism, facilitated by the employment of experts who use their knowledge to create forward-looking projects that ultimately fail to foster an inimitable sense of place.

The emergence of placelessness is increasingly attributed to globalisation, identified as a contributing factor to the apparent lack of individualism in built areas in combination with current developmental ideals, leading to unexceptional environments which can be found elsewhere (Vileniske, 2008). This occurrence is readily apparent in the "...wave of sameness [that] has washed over new residential architecture" (Sisson, 2018, n.p.), producing buildings which contribute to an increasing sense of homogeneity. Meanwhile, political control of urban development processes further exacerbates placelessness by permitting the advancement of projects that do not always promote individuality or harmony with existent built environment conditions (Harner, 2011). It can thus be concluded that the climate within which alterations to city streetscapes take place does not foster a sense of place due to the development ideals and types of projects currently favoured in the transformations of modern-day urban centres.

The concept of 'rescue geography' emerged in an attempt to combat and offer additional explanation for the increasing prevalence of placeless landscapes. Jones and Evans (2011) describe how the idea grew in response to newer developments as a way to document connections held by residents to existent urban environments, remember landscapes prior to change, and guide development processes by providing a record attesting to the site's previous use and context within a wider region. Although the concept of 'rescue geography' is relatively recent in its establishment, Jones and Evans display the utility of recording built forms prior to redevelopment as the provision of a historical record ideally acts to positively impact future development and provides valuable insight into an area's history, aligning with the objectives of this thesis.

2.2.4 Gentrification

Prominent among theories seeking to explain change in cities and account for increasing encroachment upon the individuality of urban areas is gentrification. According to Smith (1987) gentrification is the process by which typically lower to middle class urban areas are infused with capital and subsequently altered, in terms of both streetscape appearance and demographics, often with negative consequences for previous residents. Gentrification theory is further expounded by class dynamics. Smith (1986) explains how this phenomenon is typically characterised by the influx of higher-income residents to areas long inhabited by lower-income residents. Smith describes how this demographic shift often presents those gentrifying an area as “urban pioneers” (1986, p. 16), thereby depicting new residents as positively impacting gentrified neighbourhoods despite resultant displacement. The effects of gentrification often have drastic implications for the built environment and are thus heavily related to inner city restructuring.

Smith’s contributions to the development of gentrification theory are most significantly exemplified in his concept of the rent gap, which provides one reason as to why traditionally lower income areas of the city are subsequently transformed by outside forces. The rent gap as introduced by Smith (1979) is defined as the difference in value between a plot of land’s current usage and the possibility it possesses to be transformed to an alternate use wherein its prospective value is maximised by the landowner. In assessing urban built environment change the rent gap definition forwarded by Smith is useful as it recognises capital as a primary impetus for development in exacting change upon parcels of land in desirable urban locations previously used otherwise.

2.2.5 Urban Change in Halifax

Information relating to Halifax's booming development climate and its effects is readily available through media outlets such as local newspapers and broadcasters; however, academic literature relating to contemporary changes in the built environment is sparse. Nonetheless, Barber's 2013 study focusing on the central core prior to and in the midst of urban change, provides context and adequate discussion of alterations apparent in Halifax and the experience of its inhabitants. Barber (2013), using data collected from local sources relating to the issue, describes the state of ongoing deliberations characterising the city's development climate wherein controversies exist between heritage advocates and the development community. A major conflict affecting the future direction of Halifax's streetscape relates to the issue of potential lack of coherence within the downtown area as newer developments are attempted to be integrated with historical structures (Barber, 2013). Although Barber's study was published in 2013, the data collected for inclusion concluded in 2008, rendering the publication's content useful in contextualising precursory processes and providing an overview of discussions at the commencement of Halifax's development boom.

Roth and Grant (2015) provide further local context through investigation of one of the city's most noticeably changing streetscapes – Gottingen Street in the North End of Halifax. Recording the street's evolution from the early 19th century through to the second decade of the 21st century, Roth and Grant (2015) describe the process by which gentrification has come to characterise change apparent within this area, demonstrating the increasing need to document peninsular changes as the city continues to undergo alterations. Moreover, Roth and Grant emphasize the multifaceted nature of factors propelling urban change. Roth and Grant's study proves beneficial in examining Halifax's changing built environment by providing an in-depth

chronicle of a well-defined area within the urban core wherein several developments included in this thesis are located.

Further research by Grant and Gregory (2016) relating to demographic shifts in Halifax from the mid-20th to early 21st century cites regulatory planning structures as a driver of change. Identifying planning measures as impacting population change proves highly relevant to contemporary urban change studies in HRM with the Centre Plan's implementation. Regarding cases included within this thesis, Halifax planning policy changes likely further influenced HRM staff reports reviewed as the application process was possibly hastened to ensure municipal review under the older, more lenient regulatory framework. Additionally, Grant and Gregory's (2016) study provides a perspective on the potential for issues to be encountered in accommodating population influxes. With the presence of additional residential structures on the Halifax Peninsula, estimations such as these prove relevant to predicting development-related outcomes and possible impacts.

2.3 Heritage Preservation

The issue of heritage preservation remains contentious for many cities, including Halifax. Founded in 1749, Halifax is especially prone to preservation issues due to its early settlement and long history of development. Within urban environments “[b]uilt heritage, the abundant category of cultural heritage encompassing historic buildings, their ensembles, and other structures, has an indisputable influence on landscapes...” (Vileniske, 2008, p. 425). With elevated rates of redevelopment characterising peninsular Halifax, a review of sources relating to the preservation of historical structures is relevant. In order to consider and evaluate the effect select development projects have exacted upon the heritage building stock and implications for the wider urban area,

a discussion of heritage's value, potential for integration, rehabilitation and challenges associated with preservation will be reviewed.

2.3.1 Reasons for Demolition

The structural heritage within regions across Canada is undeniably important; however, historical buildings continue to be razed on a regular basis due to the need for continual transformation and renewal in urban areas. Shipley and Reyburn's (2003) study in Ontario documents the most prevalent processes by which historical structures are destroyed, revealing that destructions are most commonly traced to growth proving insensitive to local heritage, resulting in a loss of important built resources. Shipley and Reyburn provide several additional reasons to which the ruin of historical structures can be ascribed, including negligence, fire, and razing purposed to provide potential space for future development projects.

While heritage buildings vary in their former usage, the most common structures to be destroyed are those previously used for housing (Shipley and Reyburn, 2003). Overall, intensification of development puts heritage buildings at greater risk, identifying rapid change as a potential threat to the continued existence of these structural resources (Shipley and Reyburn, 2003). Smith's (1979) rent gap theory can, in part, explain the consequence of losing heritage building stock in maximising land value. In examining the value of heritage resources an identification of factors contributing to their loss aids in pinpointing existent buildings which may be at risk, thereby incentivising and rendering their documentation important for future consideration.

2.3.2 Value of Heritage Preservation

The value of heritage as a part of the built environment is widely discussed in literature with reference to its longstanding presence. Barber (2013) states that regional history is readily apparent and explicitly identifiable in its building stock, rendering the continual preservation of historical structures of great importance in the process of reconfiguration. In areas with abundant heritage building stock, Heritage Conservation Districts (HCDs) facilitate the supervision of built resources, "...enabl[ing] a municipality to protect the special character of urban and rural areas by setting up a review process that helps guide future change" (Kovacs, et al., 2014, p. 124). The importance of heritage is exemplified through its role in fostering a sense of culture, visible individuality, financial growth, and maintaining ecologically sound building stock (Listokin et al., 1998; Vileniske, 2008).

In spite of heritage's benefits, the importance of preservation is often deemed secondary, with structures falling victim to development intensification (Shipley and Reyburn, 2003). Zancheti and Jokilehto (1997) call for a reassessment of the benefits heritage provides while Shipley and Reyburn (2003) reveal a shortage in academic literature pertaining to the surveil of heritage in the built environment. It is thus readily apparent that studies relating to urban areas which include information on and assess the conditions of heritage within a certain locale, such as this thesis, prove valuable in contributing to an awareness of older buildings' role as historical resources in contemporary cities.

2.3.2.1 Rehabilitation

The revitalisation and maintenance of older buildings is essential to prolonging their presence within ever-modernising landscapes. In investigating the role played by heritage in

development and housing, Listokin et al. (1998) explain that rates of building restoration vary according to region, with longstanding areas logically displaying elevated rates of renewal and, in some instances, adopting the practice as a primary development method in facilitating change. The refurbishment of older building stock is often heightened by official recognition of heritage structures at a governmental level (Listokin et al., 1998), signifying their importance and thereby providing impetus for maintenance. Listokin et al. further note that historical preservation can positively advance cities, with the recovery of structures potentially spurring development in proximate areas. Rehabilitation of older structures renders heritage preservation valuable, as it reuses surviving structural arrangements and in turn prompts positive change that responds to established local heritage.

2.3.2.2 Heritage's Role in Place-Making

Relating to previous discussions of place theory, the value of heritage can be further explained through investigating its beneficence in place and observed significance (Vileniske, 2008). Literature focusing on place cites built heritage, including both structures officially documented and those unrecognised, as positively contributing to the construction of a place's significance and individuality (Mosler, 2019). The distinctiveness of place is directly connected to its material form, rendering streetscape usages which preserve heritage heavily contributory to the explicit demarcation of an area from others displaying similar configurations and qualities (Mosler, 2019; Listokin et al., 1998).

The benefits presented by contemporary development projects are often readily apparent from observation and actively promoted by developers in order to sanction their construction. However, it is imperative to note that new buildings simultaneously, in the process of

reconfiguring spatial usage, discourage maintenance of connections with the past, partially erasing the sense of place embodied in older structures (Dobson, 2011). Dobson refers to heritage buildings as “spatial reminders” (2011, p. 205), capturing the influence on place resultant from their longstanding, fixed nature in daily life.

2.3.2.3 Integrating Heritage

Contradictory to characterisations of heritage as a barrier obstructing contemporary visions of progress, Dobson (2011) maintains that the continued presence of older buildings can act to provide a meaningful background for future additions. When city change-makers purposefully incorporate historical constructions into modern environments the advantages of diversity presented by cohesive amalgamation are promoted and act to create positively enhanced settings to which inhabitants can relate, preventing isolation resulting from memorialising historical resources (Mosler, 2019). An alternative mode to the preservation of heritage structures is found in facadism, wherein a structural veneer is the sole building component conserved (Hume, 2008). Although facadism does not offer the same degree of historical integrity, it is considered an adequate alternative that allows for historical preservation and progress to coexist (Hume, 2008).

Amalgamating heritage encourages a cognisance of place’s human element by incorporating past and present uses into daily life, promoting longevity and constructing cities welcoming to inhabitants (Mosler, 2019). Heritage structures, through their commonly modest form, can act as cornerstones in guiding future development, exemplifiable in their importance within the redevelopment of residential areas (Sohmer and Lang, 1998). Furthermore, conserved buildings encourage on foot travel and moderate building massing which promotes a perpetuation

of longstanding recognisable residential forms (Mosler, 2019). In considering the utility of integration it is thus essential to distinguish the means by which properly managed heritage can create space harmonising past and present ideals.

2.3.3 Heritage Preservation Challenges

Although the benefits of heritage preservation provide incentive for continuation, it is important to review associated issues in order to fully contextualise the practice and acknowledge its drawbacks. Common barriers to preservation relate to unsubstantiated perceptions of the practice's effects on both the built environment and residents (Kovacs et al., 2014). According to Listokin et al. (1998) historical conservation can be viewed as a hindrance towards construction, coinciding with Vileniske's (2008) remark that such efforts prevent progress and new building. Hostility towards heritage districts is most commonly rooted in projected constraints upon ownership freedoms relating to historical structure usage (Kovacs et al., 2014).

Further issues encountered in the process of protecting historical landscapes relate to the practice's financial implications. Listokin et al. (1998) show that proposed development projects are occasionally halted in order to protect existent heritage resources. Prevention of redevelopment for the sake of heritage is thus argued to hinder capitalistic advancement. Strategies to ensure the productive coexistence of conservation and development can be implemented effectively to offset potential negative consequences of the continued presence of older structures in landscapes (Sohmer and Lang, 1998). Housing supply can also be affected, as heritage preservation can potentially contribute to deficient construction rates for low-cost residential stock and spur growth in traditionally lower-income areas, altering liveability for residents (Listokin et al., 1998).

A final area of concern relating to heritage prevalent within literature is the degree of regulation associated with conservation, leading efforts to be regarded as exerting an immoderate degree of power upon the built landscape (Listokin et al., 1998). Meanwhile, the management of heritage resources is often viewed negatively as a result of demanding governmental involvement (Kovacs et al., 2014). Sohmer and Lang (1998) find that economic implications are also evident in the maintenance of older structures as a result of rigidity surrounding decisions relating to their appearance and quality. Supplies employed in rehabilitation can be costly as a result of the need to preserve historical buildings in a way that correctly reflects past forms (Sohmer and Lang, 1998). Although historical integrity is important in preserving structures from the past, decreasing strict standards relating to physical presentation can offset financial consequences presented by aesthetic precision, in turn creating more liveable and economically accessible environments (Sohmer and Lang, 1998).

Recognizing the potential negative outcomes of preservation is the first step in reducing their impacts. In examining the implications of heritage maintenance Listokin et al. (1998) maintain that negative effects do not always occur in the process. It is thus imperative for actors involved in preservation to remain aware of potential negative consequences and strive to mindfully balance contemporary urban needs with those of the past.

2.4 Planning Theory and Ideology

Multiple theories and ideologies are present in the field of urban planning that act to inform and influence the built form of cities. Although numerous planning principles relate to urban change within Halifax's urban core, this literature review will focus on four which contextualise redevelopment and express ideals increasingly favoured in contemporary

development. The planning model of New Urbanism (NU), heritage conservation policies, neoliberal influences, and the prevalence of urban renewal will be briefly reviewed in order to provide explanation of components representing the planning practice within which contemporary development occurs, linking phenomena within Halifax to prominent approaches influencing urban change on a macroscale.

2.4.1 New Urbanism

NU is a planning dogma established in North America which seeks to create communities accommodating mixed resident groups, in terms of economic status, with the intent of promoting integrated living spaces that bear resemblance to longstanding residential settings and foster redevelopment of urban cores (Al-Hindi, 2001). Chief tenets of NU include architecture inspired by past styles, enhanced pedestrian activity, and prioritising green configurations of space (Al-Hindi, 2001). Similar to other planning theories, Al-Hindi states that NU is disapproved of for its idealistic principles, creating manufactured landscapes and, in contrast to its ostensible aim of providing a place for mixed residential income groups, catering to wealthier demographics. Nonetheless, the tenets defining NU are representative of contemporary shifts in planning which recognise the value of older built environmental conditions and revise the previously longstanding veneration of suburban areas by encouraging principles found within cities such as on-foot travel (Al-Hindi, 2001).

Proponents of NU further aim to eradicate uniformity found within the vast majority of planned newer developments with Andres Duany, a central advocate of NU, stressing the importance of diversity in planned environments (Al-Hindi, 2001). NU's recognition of the benefit of heterogeneity is relevant to studies of newer development as it is crucial to note the

physical urban form in order to assess its value. Meanwhile, the theory's ideology is related to contextualising influences on contemporary projects as it outlines key ideas popular amongst present-day urban reformers, offering insight into future avenues of urban growth.

2.4.2 Heritage Conservation Practices

The Slow City campaign, also known as CittaSlow, is a community planning approach which incorporates heritage conservation in attempt to create landscapes sensitive to regional conditions (Knox, 2005). As part of a more comprehensive attempt to foster individuality, Knox (2005) explains that proponents of CittaSlow advocate for explicit protection of historical resources as these contribute heavily to the uniqueness of place. Although cities abiding by CittaSlow codes are exceptional in their wholesale dedication to creating spaces resistant to the impacts of universal patterns of change, their incorporation of heritage preservation practices in attempt to strengthen individuality are similar to more general patterns and incentives for preservation (Knox, 2005). Slow Cities thereby demonstrate the potential effects of heritage conservation measures during periods of transformation.

Preservation measures are useful in the planning of cities on a broader scale (Kovacs et al., 2014). Examining the impetuses for conservation provides clarity regarding the motivations behind heritage maintenance in cities and displays the utility of ensuring the longevity of these structures. Several buildings chronicled within this thesis incorporate former historical structures, thereby proving of relevance to formal practices utilised in protecting the integrity of heritage.

2.4.3 Neoliberalism and Renewal

Troy (2018) describes how neoliberal ideology is applied to urban areas in overseeing change through the creation of increasingly lenient planning regulations with private interests guiding contemporary built forms by funding new projects. The previously discussed theory of creative destruction is described as one mode by which neoliberal principles are brought to life within urban environments (Fenster, 2019). Although the influence of modern planning codes facilitates increased opportunities for private interests, problems can also occur as a result, such as the allowance of deficiently-designed buildings, leading to issues for cities and their residents, and the promotion of private over public benefit (Troy, 2018).

Accompanying increased development freedom is the drive for densification, partially attributable to positive predictions related to repurposing of existing sites (Troy, 2018). Batty (2007) states that the majority of transformations occurring in contemporary urban settings can be classified as redevelopment, rendering greyfields to be of increasing relevance. Zancheti and Jokilehto (1997) point to the relevant practice of sustainable development which centres around the repurposing of extant urban forms, accounting for their utilisation and utility to the area. The development of previously otherwise used sites on the Halifax Peninsula has been facilitated by planning tools which display neoliberal qualities and, with the incorporation of facades in some cases, take into consideration previous site usages worthy of absorption and remembrance in new structures.

2.5 Landscape Research Methodologies

Landscape research on the built environment is abundant. The quantity of literature pertaining to the subject provides a wealth of valuable insight into useful methodologies

employable in documenting cityscape change. Dobson (2011) introduces the technique of retrogressive analysis as a means by which city change can be surveyed throughout a certain period. Drawing upon the contemporary landscape as well as earlier configurations, retrogressive analysis enables an awareness of history's continual ability to inform contemporary assemblages of space and facilitate the creation of change narratives within which existent built forms can be contextualised (Dobson, 2011). Componential in Dobson's historical analysis methodology is the concept of "... 'double exposure' – walking simultaneously in the past and present" (2011, p. 104). The utility of 'double exposure' is demonstrable in the ability of mapped study findings relating to seemingly disjointed uses of space throughout time producing an explanation and awareness for contradictory perceptions of a city by urban residents (Dobson, 2011).

Dobson's approach to landscape research which focuses on examining urban change proves relevant to the objectives of this thesis as it provides insight into the value of chronicling transitory built environments as well as the modes by which contemporary streetscape arrangements can be reconciled with earlier forms. Furthermore, Dobson (2011) explains the value of finding spatial patterns through the employment of GIS, a technical component relevant to this study in the mapping of selected sites from which spatial conclusions were drawn.

In addition to examining theoretical approaches, a consideration of source materials used in related studies is useful in determining documents of potential relevance. Shipley and Reyburn (2003) explain the value of demolition permits in finding significant historical material while Barber (2013) points to city planning sources for official data on the specifics of site development. Similarly, Bosselmann (2008) cites the usage of dated maps in finding information pertaining to historical uses specific to a geographic area. Relevant to site specific investigations, Fenster (2019) states that "[t]he 'archaeology of the address' methodology is based on sourcing

planning documentation at local and national level relating to a given property” (p. 45). The terminology employed by Fenster in this method of research accurately describes the process of investigating site-specific change and recognises the value of obtaining information relating to individual buildings or areas in narrating transformations on a broad scale.

A final methodology highly relevant to this study is the use of Google Street View in surveying urban environments. In gathering literature related to urban studies, it is apparent that the employment of Street View imagery is useful in gathering visual data for large swaths of urban land. Numerous studies demonstrate the utility of Street View imagery, including one conducted by Odgers et al. (2012), relating to the effects of local settings on youth conduct, wherein the authors conclude that Street View is “...a reliable and cost effective tool for measuring both negative and positive features of local neighborhoods” (p. 1009). From this review it can be established that the employment of Google Maps in surveil of landscapes produces satisfactory results; however, Bader et al. (2017) note the need to recognize the limitations of using Google Street View with regard to evaluating sense of place.

CHAPTER 3

Methods

3.1 Introduction

A variety of methodologies were employed to quantitatively and qualitatively document aspects of landscape change. Description of the research process will begin by defining the study area, followed by an explanation of site selection. An overview of the data sources and methods employed in conducting this study follows, observing changes to the built environment in peninsular Halifax. This chapter concludes with a brief review of limitations faced in the process of data collection and their implications for study results.

3.2 Study Area

The study area comprises the Halifax Peninsula, the central urban core within the Halifax Regional Municipality, Nova Scotia, Canada (Figure 3.1). This area is appropriate for analysis as the urban core has dramatically transformed within the past two decades, altering the cityscape on a macroscale, thereby providing ample opportunity for comparison of streetscape change and consequent implications. The accepted boundary defining the peninsular border is Joseph Howe Drive, located along the peninsula's western limit wherein it connects to the mainland. The remainder is bordered by water, providing a natural geographic boundary. In addition to overland access from the west, the Peninsula is also accessible by two bridges on the east facing side.

The Peninsula encompasses Halifax's dense downtown core and three generally defined residential neighbourhoods; the North End, South End, and West End. The North End was a

traditionally working-class district, the West End solidly middle-class, while the South End was generally recognized as Halifax's most affluent neighbourhood. As the urban core of Nova Scotia's provincial capital, the Peninsula houses a range of activity, rendering it a desirable development location. Accommodating four universities, the military and a wealth of government infrastructure, Halifax remains the centre of HRM both in terms of its geography and human activity, rendering the landmass subject to steady change.

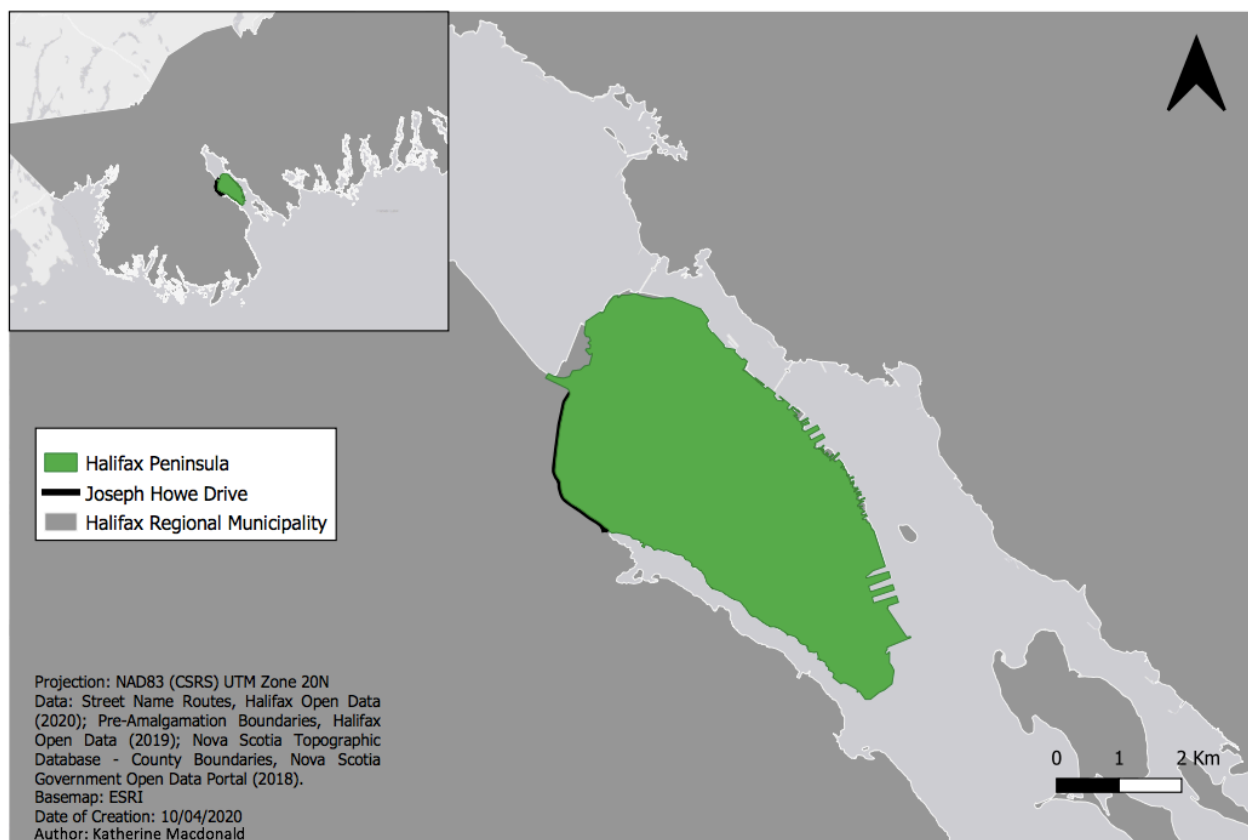


Figure 3.1. Study Area

Map displaying study area as the Halifax Peninsula. Joseph Howe Drive shown in black as line of demarcation. Top left inset highlights location of Peninsula within HRM.

3.3 Data Sources

Google Maps (maps.google.com) aided in exploration of imagery and streetscape views available through the software's Street View component, providing the primary source of imagery for this project. The Street View component of Google Maps facilitated the selection of sites prior to analysis and subsequent survey of Halifax's built form across this study's timescale. After selecting Google Maps as the primary source from which imagery was to be drawn, the timeline for developments suitable for inclusion within this thesis was established with regard to the availability of imagery. Within Halifax, Google Street View imagery begins in 2009, thereby excluding the possibility of including development projects commencing prior to this date as imagery is not available for comparison with post-development sites. The study timeline was thereby determined to span the eleven-year period from 2009 to 2019, terminating at the year wherein the research collection process began. The decision to restrict the study timeline to this period allowed for change to be examined on a long-term scale while limiting the number of included study sites to a manageable quantity, ensuring a thorough examination of each.

Gathering information relating to site-specific elements of each residential development involved the acquisition of HRM staff reports from the municipality's archive site (legacycontent.halifax.ca). The municipal website offers online documentation relating to recent developments, attained by querying each site's address or HRM Case Number. HRM staff reports contain the property name, HRM Case Number, project history, building use and type, date of review, projected number of storeys, and zoning. Additionally, GIS files were employed to facilitate a numerical comparison of developments prior to and post construction. Halifax's Open Data Catalogue (catalogue-hrm.opendata.arcgis.com) was used to obtain a 2020 'Building Outlines' Shapefile. Additional GIS data, in the form of HRM parcel Shapefiles and a 2006

orthographic air photo of the Halifax Peninsula, was provided by the Saint Mary's University (SMU) Geography Department's cartographer, Will Flanagan.

3.4 Methods Employed

3.4.1 Site Selection

Selection of sites employed Google Maps in gathering potential developments for inclusion. Initially, the process of determining suitable sites was to be undertaken through a survey of HRM demolition permits issued between 2009 and 2019; however, this method proved unsuitable as the dataset was found to be incomplete. Furthermore, employing demolition permits as indicators of change would exclude development sites previously vacant. This unanticipated fallacy led a manual survey of the peninsula to be conducted in order to determine the locations of new development.

By employing Google Maps imagery and personal knowledge of the local built landscape new developments constructed within the period were recorded. From this visual inspection, 46 buildings were developed within the 11-year period. These developments were recorded in an Excel table, along with the following variables for each site's pre- and post-redevelopment: location, site use, number of storeys, building materials, architectural style, site context, and presence of vegetation.

Each site needed to match additional criteria established prior to site analysis before finalising inclusion. Only 'substantial' single-structure developments were to be included. The definition of substantial, for the purposes of this study, necessitates residential structures to have unit counts greater or equal to 30. Non-residential structures were assessed more subjectively on the basis of massing. Meanwhile, sites needed to be substantially complete or fully built by 2019,

as this construction stage is necessary for comparison of exterior form. Buildings not meeting the criteria listed above were excluded while others were omitted later in the research process as a result of lacking information relating to the development. The imposition of these criteria resulted in a final sample set of 38 buildings, constituted by 32 residential and six non-residential structures. All included sites are listed in Appendix A Table A.1.

3.4.2 Quantitative Analysis

Quantitative analysis employing GIS necessitated the records stored in Excel to be geocoded. Using an address locator provided by the SMU Geography Department, the ‘Geocode Addresses’ tool was run, resulting in a match of 32 of the 38 addresses. The output Shapefile created from the geocode was then opened in QGIS mapping software and sites not matched through the initial operation were added to the dataset manually using the ‘Add Point Feature’ tool.

Following the creation of the development site Shapefile, the 2020 building outlines Shapefile from HRM Open Data was uploaded to ArcMap along with the parcel shapefiles for 2010 and 2019 provided by SMU. With each Shapefile encompassing the entirety of HRM, the datasets required a reduction in size for management purposes. By selecting all features corresponding to sample site locations using the ‘Select Features’ tool and selecting ‘Create Layer From Selected Features’ a new layer was created for both parcel Shapefiles and the 2020 building outlines Shapefile. The new Shapefiles were labelled ‘SampleBuildings2020’, ‘SampleParcels2010’, and ‘SampleParcels2019’. Although the ‘SampleBuildings2020’ contained the majority of new developments, four additional features were added in QGIS using

the ‘Add Polygon Feature’ tool for buildings recently constructed which were not included in the original HRM dataset.

Once the parcel and 2020 building Shapefiles were created, a 2006 orthographic raster image of the Halifax Peninsula was georeferenced for subsequent digitisation. Prior to georeferencing, the 2010 parcel Shapefile was re-projected to the projected coordinate system NAD83 (CSRS) UTM Zone 20N using the ‘Properties’ tab. The 2006 raster image was uploaded to ArcMap and georeferenced using the 2010 parcels as a guideline for adding ‘Control Points’. Once satisfactorily positioned, ‘Update Georeferencing’ was selected from the Georeference toolbar and saved to the map document. The georeferenced raster image was then employed to digitize the building footprints.

Following the creation of four study site Shapefiles prior to and after development, the areas for all features within each were calculated using ArcGIS. These numbers were attained by projecting all Shapefiles into the previously mentioned NAD83 projected coordinate system and adding a new field to each of the four attribute tables, labelled ‘ShapeArea’. Within each Shapefile feature areas were calculated by right-clicking on the ‘ShapeArea’ field, choosing ‘Calculate Geometry’, selecting the property ‘Area’ and running the tool. This produced area values in square metres for each of the four Shapefiles.

Completion of GIS analysis facilitated the creation of an Excel file for which all numerical values corresponding to development sites were entered. Variables for both 2009 and 2019 development sites include number of parcels, parcel area, number of buildings, building area, number of storeys, density, and floor area density. Values relating to the parcels and building areas were drawn from GIS calculations and imported into Excel. Heights in storeys for sites prior to development were obtained through visual observation of Street View imagery

while post development storey counts were determined using a combination of imagery and HRM staff reports. For each variable the mean, range, maximum, and minimum were calculated using Excel equations. The mode was included for the number of lots, number of buildings, and number of storeys. Two final calculations performed upon both data sets prior to and after development were density (Equation 2.1) and floor area density (Equation 2.2).

Equation 2.1.

$$Density = \frac{Building\ Area\ (m^2)}{Parcel\ Area\ (m^2)}$$

Equation 2.2.

$$Floor\ Area\ Density = \frac{(Building\ Area\ (m^2) * Number\ of\ Storeys)}{Parcel\ Area\ (m^2)}$$

3.4.3 Qualitative Analysis

Following the establishment of the final sample set, images of all developments were acquired through Google Street View. Images were captured at various viewpoints for the years 2009 and 2019, the latest year available. From these images, a qualitative analysis to compare past and present built forms was undertaken. The variables include location, site usage, streetscape context, architectural style, and on-site presence of greenery. Variables selected for inclusion were determined based on their utility in displaying change and form. Site specific elements corresponding to chosen variables were recorded in Excel for each site prior to and after

development. Elements recorded for each site were used to draw broader conclusions relating to change resultant from redevelopment. Imagery from Google Street View was further employed for an in-depth analysis of several sites selected on a subjective basis and deemed worthy of further consideration based on either distinctiveness or representativeness of general trends across study sites.

3.5 Study Limitations

Several limitations in the research process must be noted. Originally, demolition permit data was surveyed in attempt to locate all peninsular demolitions occurring within the study period. However, it became apparent that the dataset was incomplete, necessitating a change in methodology to visual observation of air photos as noted in Section 3.4.2, complemented by first-hand knowledge of the study area. Google Street View did not have imagery available at all building elevations from 2009. This did not allow for proper assessment of several buildings prior to redevelopment as it was difficult to discern physical qualities as a result of lacking imagery. Digitising building outlines for 2009 sites in GIS analysis may have led to area accuracy issues upon completion due to there being no available Shapefile with these building areas. Manual digitisation can potentially result in minor numerical discrepancies; however, this method remains suitable for the purposes of this project as the intent is to gather conclusions from larger data trends rather than individual, site specific elements.

A final issue encountered relates to parcel area calculations conducted during quantitative analysis. The parcel areas of pre-development sites include the entire area of all parcels consolidated for new developments. Meanwhile, on average, post-development parcels display

slightly smaller areas that reflect only the portions of the larger 2009 lot areas required to accommodate new construction excluding any remnant parcels created during subdivision.

CHAPTER 4

Results

4.1 Development Location Findings

The 38 sites included within this study are dispersed across the Halifax Peninsula (Figure 4.1). Developments are most noticeably located within Halifax's downtown core with the highest degree of clustering apparent in the area below Citadel Hill, wherein approximately 15 developments are located. Other evident clusters are located in two North End neighbourhoods, demonstrating intensified development rates in these areas. In spite of the bulk of development occurring in or near the downtown, outliers are apparent, exemplified by the recent addition to the Dalplex fitness facility in the South End and the Vincent Coleman apartment complex located in the study area's westernmost extremity.

Dates from which development projects were initiated gathered from residential HRM staff reports to council reveal that application numbers peaked in 2016 with eight of the 32 residential reports being processed that year (Figure 4.2). It can be noted that the majority of reports relating to residential development were produced between 2013 and 2016, revealing an increased expression of interest in initiating development projects. The upsurge in development interest is likely linked to the proposed Centre Plan for HRM, a secondary planning strategy guiding future peninsular development. The Centre Plan's implementation may have spurred developers to attempt to pass projects through council before new, firmer regulations came into place.

Zoning for each of the 2019 sites was gleaned from aforementioned HRM staff reports and HRM zoning maps (halifax.ca/home/maps). Nineteen of the 38 developments are zoned as ‘Downtown Halifax’ (DH-1), with ‘General Business’ (C-2) zones accommodating the second largest portion of newer projects (Figure 4.3). Zoning for non-residential sites, obtained from municipal zoning maps, reveal all to be contained within either ‘Low-Density University’ (U-1), ‘High-Density University’ (U-2), or DH-1 zones, excepting one which lies in a ‘Corridor’ (COR) zone.

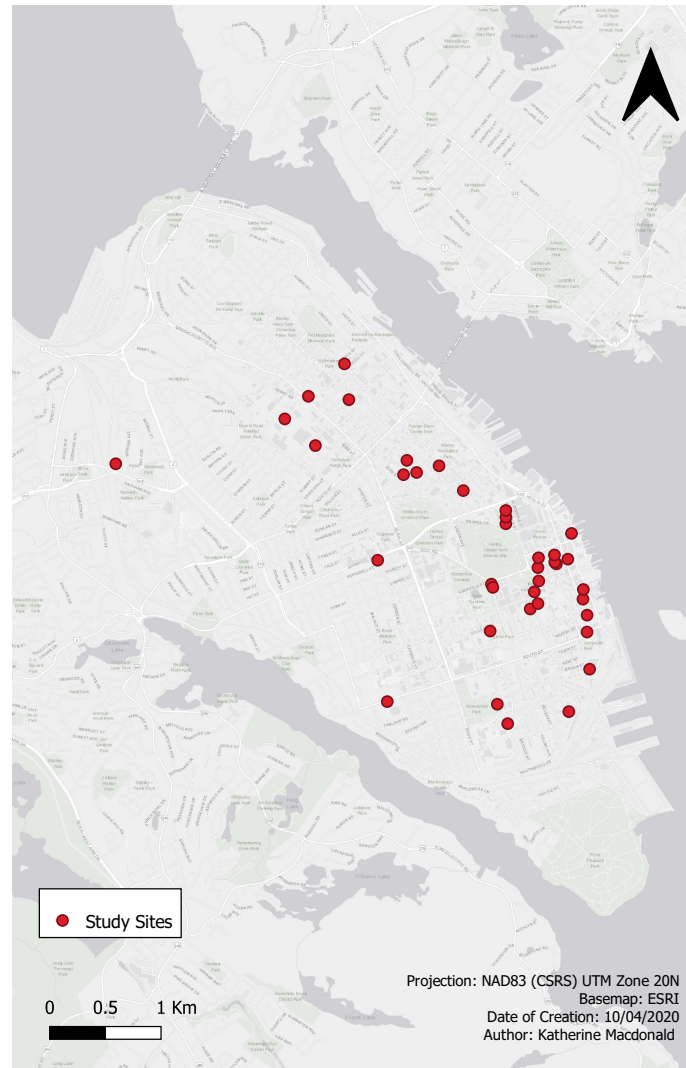


Figure 4.1. Mapped Study Sites

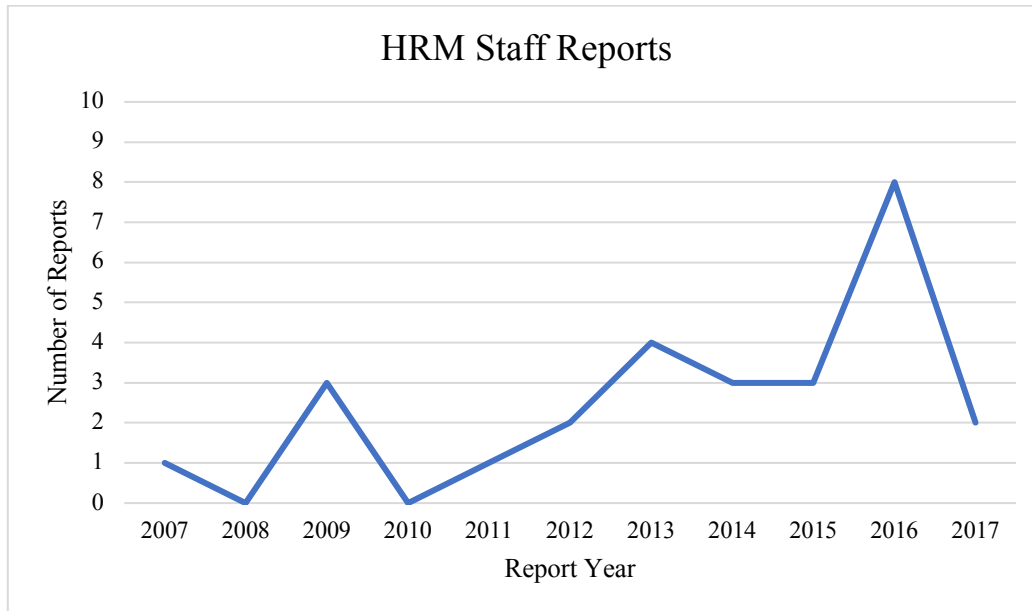


Figure 4.2. HRM Staff Reports by Date (Residential Developments)

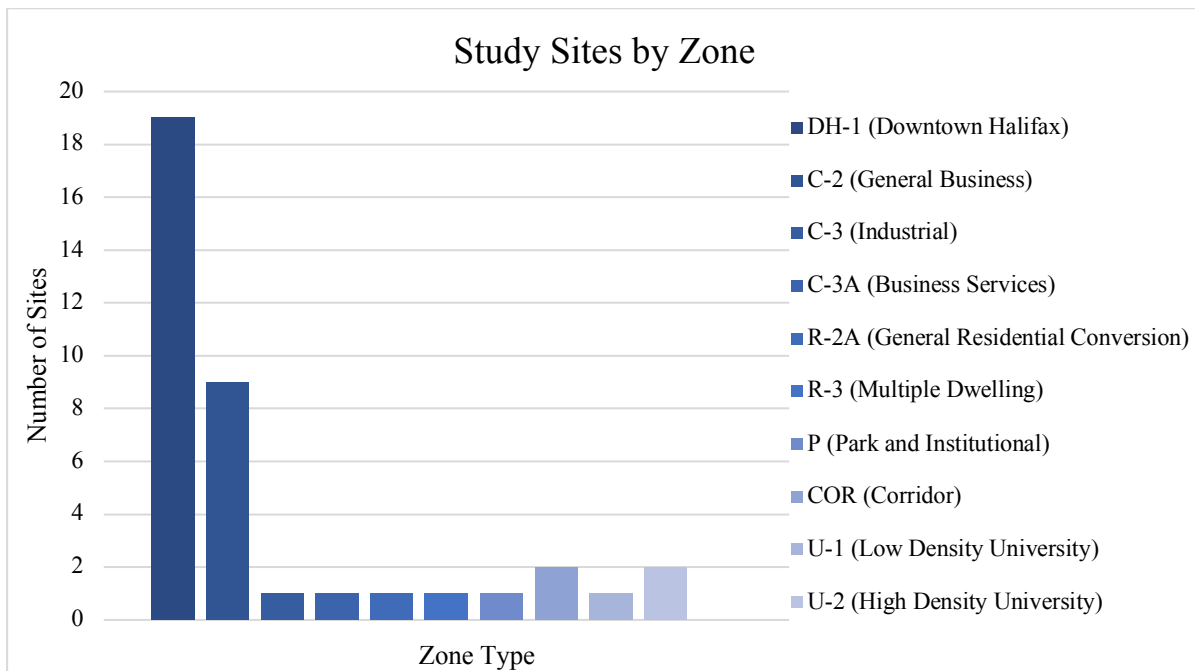


Figure 4.3. 2019 Study Sites by Zone
Data from HRM Zoning Map, Halifax Regional Municipality (2020).

4.2 Quantitative Site Analysis

Data for several applicable variables gathered from GIS analysis produced numerical insights relating to quantitative changes effected by new developments, allowing for a comparison between the 2009 and 2019 study site attributes. Each table below employs mean as a measure of central tendency, with mode included where applicable. The measurement of dispersion is shown in the range while maximum and minimum values are provided to display dataset boundaries. The variables analysed within this section include number of lots, combined lot areas, number of buildings, combined building areas, storeys, and measures of density for each of the development sites.

Post-development sites are almost universally contained within a single lot, excepting two – these being the larger development projects of Queen’s Marque and Monaghan Square, comprised of three and two lots respectively (Table 4.1). In comparison, pre-development sites averaged slightly over two lots (Table 4.1). The range of pre-development sites indicates a high degree of variation in the amount of lots necessitated to be consolidated for new development projects to take place. The mean of both 2009 and 2019 sites are close in value while the mode for both datasets is the same. From these statistics it can be inferred that, although the datasets present extremes, as displayed by the range, the majority of lots constituting pre- and post-development sites remain low in number with one parcel being most common to both.

While the number of lots illustrates changes resulting from redevelopment, combined lot area statistics present largely similar data excluding the average, attributable to lot consolidation as noted Section 3.5 (Table 4.2). The number of buildings occupying each site prior to redevelopment presents a higher degree of variation (Table 4.3). Building range in 2009 demonstrates that a variety of sites were repurposed to accommodate new single multi-unit

building development. Although the range values vary between the two sets, the mode of both years is one, displaying that the most common number of buildings per site remains the same before and after growth. The methodology of this study includes single-structures among post-development criteria explaining the values of one for the year 2019.

Building area statistics display substantial disparities in building size between 2009 and 2019 sites (Table 4.4). With the mean building area for 2019 data totalling over three times that of the 2009 average, it is apparent that newer peninsular developments maximize a larger portion of their lot. While the range for each dataset is broad, 2019 data is nearly 3000 m² over the 2009 set, displaying that new development is significantly larger. Although measures of central tendency and dispersion vary, the minimum for each prior to and after redevelopment are markedly similar, revealing a fraction of new developments to also be smaller in scale.

With the average 2019 building height reaching ten storeys, it is apparent that newer developments are typically taller than those previously occupying sites prior to redevelopment (Table 4.5). Similarly, the mode for 2019 sites is four times that of the 2009 building set, lending further support to the notion that buildings in peninsular Halifax are becoming higher, contributing in turn to substantial change with regard to Halifax's cityscape. The range of both sets is relatively great, displaying that variation in heights exists both prior to and after redevelopment. However, the 2009 range is explicated by the minimum number of storeys for the set being zero, as some sites were previously unoccupied by built structures. Meanwhile, the 12-storey maximum for 2009 remains low in comparison to the 2019 maximum of 22 storeys, placing newer buildings on a largely elevated scale in terms of stature.

The density, or building coverage, range, minimum and maximum for sites prior to and after development remain comparable, however, it is remarkable that the average density more

than doubled between 2009 and 2019 (Table 4.6). This figure demonstrates the increasing densification accompanying elevated rates of development evident in recent years within peninsular Halifax. In terms of floor area ratio, defined as a building's total floor area proportionate to the lot size, the mean figure is striking in displaying that newer buildings have increased nearly sevenfold in terms of bulk (Table 4.7), demonstrating that newer developments are becoming taller and converting former lower density sites into buildings maximising parcel area.

Table 4.1. Number of Lots

<i>Year</i>	<i>Mean</i>	<i>Range</i>	<i>Max.</i>	<i>Min.</i>	<i>Mode</i>
2009	2.15	8.00	9.00	1.00	1.00
2019	1.08	2.00	3.00	1.00	1.00

Table 4.2. Combined Lot Areas

<i>Year</i>	<i>Mean (m²)</i>	<i>Range (m²)</i>	<i>Max. (m²)</i>	<i>Min. (m²)</i>
2009	5146.82	21790.36	22220.46	430.10
2019	4157.07	20050.95	20480.95	430.00

Table 4.3. Number of Buildings

<i>Year</i>	<i>Mean</i>	<i>Range</i>	<i>Max.</i>	<i>Min.</i>	<i>Mode</i>
2009	1.56	7.00	7.00	0.00	1.00
2019	1.00	0.00	1.00	1.00	1.00

Table 4.4. Combined Building Areas

<i>Year</i>	<i>Mean (m²)</i>	<i>Range (m²)</i>	<i>Max. (m²)</i>	<i>Min. (m²)</i>
2009	843.36	5608.79	5809.55	200.76
2019	2566.89	8667.59	8913.57	245.98

Table 4.5. Building Storeys

<i>Year</i>	<i>Mean</i>	<i>Range</i>	<i>Max.</i>	<i>Min.</i>	<i>Mode</i>
2009	2.69	12.00	12.00	0.00	2.00
2019	10.00	20.00	22.00	2.00	8.00

Table 4.6. Density (Building Coverage)

<i>Year</i>	<i>Mean</i>	<i>Range</i>	<i>Max.</i>	<i>Min.</i>
2009	0.32	1.00	1.00	0.00
2019	0.75	0.95	1.08	0.13

Table 4.7. Floor Area Density

<i>Year</i>	<i>Mean</i>	<i>Range</i>	<i>Max.</i>	<i>Min.</i>
2009	0.98	3.79	3.79	0.00
2019	7.67	23.51	23.77	0.26

4.3 Qualitative Site Analysis

A qualitative description of the visually-apparent changes resulting from redevelopment shows additional landscape change. In examining change within areas accommodating new development Google Street View imagery was employed, allowing for a comparison of visual changes exacted by the developments and their context in place. The first part of this qualitative

analysis chronicles variables relevant to landscape change occurring during the 11-year period constituting this study's timeline including the location and site usage, context, architectural style, as well as greenery and vegetation. The subsequent section presents a series of case studies describing significant sites, emphasising differences and notable features prior to and after reconfiguration. Corresponding imagery for each case study site is contained within Appendix B.

4.3.1 Landscape Change Variables

In viewing 2009 imagery it is readily apparent that the majority of sites comprised one- to three-storey developments, primarily accommodating small-scale commercial businesses. Most prominent amongst previous site uses are parking lots and garages, vacant lots, single-family homes, historical structures, and office buildings. In contrast, post-development sites are less diverse, with the majority accommodating residential developments. Of the 32 residential sites, 24 are multi-storey mixed-use structures with commercial uses occupying lower levels and remaining upper storeys serving residential purposes. With an average height of 10 storeys for redeveloped sites, buildings are generally taller, presenting a departure from former small-scale site uses evident in pre-development imagery. Meanwhile, remaining structures within the 2019 dataset provide commercial spaces with a mean height of slightly over five storeys, presenting smaller in scale on average.

In terms of maintenance level, post-development sites are largely well-kept, however, some show early signs of wear such as staining, possibly resulting from the materials used on building exteriors. Imagery from sites prior to redevelopment reveals a range in terms of maintenance, with some structures showing evident signs of neglect and decay. The majority of sites shown in 2009 imagery are of older structures and thus appear to be more run down, with

apparent deterioration in the form of peeling paint, unkempt empty lots with natural growth, and graffiti. Nonetheless, some sites display a high level of maintenance, primarily observable in single-family homes and historical structures.

Context is highly relevant in narrating landscape change resulting from development. The conformity of new development within Halifax is largely dependent on adjacent uses. The urban core permits newer buildings to fit in more readily with surrounding structures, as the downtown is more architecturally diverse and recent surges in high rise construction are greatly concentrated in this area, with previous constructions, such as office towers, bearing similarity to recent structural additions. Contrastingly, areas where the rate of architectural change has remained lower, such as North End and South End neighbourhoods, are less accommodating to new structures, rendering their appearance incompatible with longstanding landscape forms surrounding new multi-use towers. Within the North End the surroundings for recent constructions are largely older commercial structures mixed with small residential dwellings, leading site uses apparent in 2009 imagery to be more compatible with proximate structures. Similarly, development taking place in the South End is primarily within residential neighbourhoods, providing a contrast to existing streetscape surroundings. As previously noted, massing of new developments is greater, often disrupting streetscape rhythms and allowing little to no setback from the street.

Prior to redevelopment many sites exhibit architecture typical of the 1970s. Industrial style buildings with brick and metal siding constituting the exteriors are most common. Nondescript stone and brick structures of various sizes are also prevalent within study sites, displaying older characteristics and little evidence of updating since the time of initial construction. Development taking place within neighbourhood settings away from the downtown

core primarily replace archetypical single-family homes of two to three storeys clad with shingles or vinyl siding. Notably, several heritage structures present on sites prior to redevelopment display more individualistic characteristics such as exterior detailing. Generally, prior site uses display more architectural variation, however, the built structures are often simpler in form.

Buildings in post-development site imagery are more consistent in style, with nearly all, excepting those incorporating historical facades, falling under the classification of corporate or neo-modern architecture typical of most recent constructions in North America. This contemporary architectural style has led to an increase of homogeneity in the local built environment in comparison to structures previously existent on the sites selected for study. Halifax's diminishing degree of streetscape diversity is further considered in Chapter Five. Nearly 75 percent of 2019 developments use glass as the primary façade material, oftentimes in conjunction with brick. Further building materials prominent among 2019 sites are metal siding, wood, stone, and concrete.

Within the pre-development sites almost a third contain no element of greenscaping. Meanwhile, those with existing greenery primarily exhibit it in the form of larger trees along sidewalks and landscaped lawns. Vegetation is also apparent on five properties as a result of free growth. In contrast, the majority of redeveloped sites, excepting four which maximize building size by covering the lot in its entirety, contain one or more elements of greenery. The dominant vegetation forms are trees along the curb, found within 19 sites, closely followed by the prevalence of planters, green strips along building edges, and larger grass areas. From this comparison it is evident that newer developments incorporate a greater degree of greenery.

4.3.2 Case Studies

The first case selected for further description is St. Joseph's Square located at 5454 Kaye Street in Halifax's North End (Figure B.1). Prior to redevelopment, 2009 Google Street View imagery reveals the site to have formerly housed a church displaying evident signs of exterior decay. The new mixed-use development includes ground floor commercial uses occupied by local businesses, townhouse units extending to the second storey, and seven additional storeys of residential apartments. St. Joseph's Square conforms with its surroundings, as it neighbours several recently-constructed buildings, the Hydrostone market, a modern residential complex on Gottingen Street, and a cluster of new single-family homes on Gottingen Street. Ample vegetation is employed in the development's greenscaping, contributing to the streetscape's aesthetics, while the building's exterior retains an element of the site's previous use in a church-inspired façade on Kaye Street (Figure B.2).

A similar development is the Vic Suites, situated prominently on the corner of Morris and Hollis Streets (Figure B.3). Previous to the new apartment complex, the site accommodated an Edwardian-style four storey residential building along with two older single-family homes. The demolition of these longstanding structures ultimately presented a loss for the historical building stock within Halifax and a departure from the area's sense of place and continuity formerly existent in the area with a row of historic homes situated opposite the lot on Morris Street. Nonetheless, the Vic Suites development boasts a distinctive exterior through its deliberately older-style appearance and three distinct façades intended to break up the building massing. Despite the Vic's towering presence, the building appears less imposing through the architectural techniques employed, presenting differentiation from the majority of recently-developed residential towers. With a rounded white brick and stone façade positioned on the downtown

corner, the Vic does not greatly disrupt the existing streetscape despite its contemporary elements.

Contrasting the two previously discussed developments, the nine-storey Mary Ann residence, located on the corner of Clyde and Queen Streets provides an example of a new development which does not conform to its surroundings (Figure B.4). Built adjacent to Halifax's well-known Schmitzville Historical Conservation District, the Mary Ann's busy appearance clashes with the cohesive heritage neighbourhood it borders (Figure B.5). The newer mixed-use commercial and apartment complex is clad with numerous materials which do not harmonise to create an aesthetically congruous exterior. However, the development's positioning across from the Halifax Central Library, completed in 2014, designed in postmodern fashion, enables the Mary Ann to somewhat blend in with its surroundings.

A block north of the Mary Ann sits the Doyle Apartments on Spring Garden Road (Figure B.6). Prior to redevelopment the site accommodated a hodgepodge of commercial uses such as a local café and boutique clothing store. The previous mixture of smaller businesses contributed to the diversity and character of peninsular Halifax's central shopping avenue. Though neighbouring buildings allow the new structure to fit in with its surroundings, the Doyle promotes homogeneity by presenting an entire block of glass-panelled store fronts below a glass and concrete structure as opposed to a variety of buildings with differentiating features.

Two further developments located in downtown Halifax are the Dillon (Figure B.7) and the South and Hollis (SOHO) apartment buildings (Figure B.8). The former incorporates a brick façade remaining from the site's former three-storey commercial structure on the corner of Market and Sackville Streets, maintaining a degree of the area's historical integrity. Although the tower extends upwards an additional five storeys, the streetscape is relatively unaltered from its

previous form and reminds pedestrians of Halifax's past. The SOHO building, positioned at the intersection of South and Hollis Streets, replaces a row of historical brick rowhouses and borders the recognisable former Elmwood Hotel presently used as an apartment building. SOHO is comprised of ground floor commercial and upper level apartments with a brick and glass exterior. Although the outer appearance recalls the former site usage in terms of building material, the replacement of longstanding historical houses with an apartment building ultimately detracts from the former historical cohesion of the block.

A final notable structure is that of Q Lofts located in Halifax's North End (Figure B.9). As displayed within the imagery, the area was formerly home to industrial buildings – with this history evoked by the materials employed in the new condominium structure's exterior materials. Q Loft's design incorporates corrugated metal siding, metal balconies, and a chain link fence surrounding the perimeter. These elements produce an individualistic residential structure which harmonises with its present surroundings, which include a fire station, small businesses, residential homes, and a large parking lot.

CHAPTER 5

Discussion

5.1 Introduction

Findings from this study reveal the multifaceted nature of Halifax's changing built environment. Using the relevant theory of creative destruction to frame urban change, this chapter discusses several crucial implications relating to recent developments. Factors considered include impact upon place, prevalence of homogeneity in the built environment, effects on the city's historical building stock, densification, and social consequences, concluding with a brief commentary relating to the future of peninsular Halifax's cityscape and personal stance.

5.2 Creative Destruction

Introduced in Chapter Two "...as representing the dilemma of the modernist planning project of the necessity to destroy the old world before creating the new world" (Fenster, 2019, p. 39), creative destruction principles remain central to discussions of urban change on a variety of scales. Chapter Four demonstrates how numerous areas within peninsular Halifax have been redeveloped, altering uses of space to suit contemporary urban needs. In this process, creative destruction is easily identifiable in the obliteration of previous land uses to enable new projects. Although the elimination of prior longstanding site forms presents a degree of loss, new developments simultaneously act to generate alternative usages of space, which reflect drivers of change and represent the future direction of Halifax.

Although Schumpeter's concept originally arose from a need to explain economic processes (Batty, 2007), an extension of the theory's components to urban analysis provides a meaningful set of ideas within which to place changing cityscapes. In this chapter's ensuing subsections, the notion of creative destruction is incorporated where appropriate in discussing impacts on the built environment resulting from development. This framework attempts to reaffirm the centrality of the notion that built transformations, particularly those occurring within urban environments, ultimately necessitate the coexistence of devastating and constructive forces to perpetuate inevitable change spurred by the redevelopment process.

5.3 Acknowledging Change

In considering the implications of urban transformation, both benefits and costs must be reviewed in order to examine all sides of the phenomenon. Accompanying peninsular development is an increased sense of desirability through the allure presented by construction, as newness is often deemed attractive and indicative of positive change. New development further enhances the appeal of inner-city living by providing residential constructions and ultra-modern downtown developments such as the Nova Centre. Meanwhile, increases in greenery, as noted in Chapter Four, ultimately create a more attractive environment, presenting a benefit to the cityscape through beautification.

Surges in construction have undoubtedly provided more opportunity to live on the Peninsula by increasing residential housing stock, coinciding with density figures displayed in Chapter Four. Urban population increases positively impact Halifax in several ways, in the form of economic activity, promotion of active transportation, and public safety. Benefits resulting from repurposing peninsular land can also be found in the economic stimulation produced by

their financial disbursements. The process of realising a new construction project is lengthy, involves numerous actors, and necessitates prior to construction costs that can be substantial. These capital expenditures represent fiscal infusion into the local economy, which at the endpoint will yield additional residents to further bolster the economy post-construction.

With the influx of new residents and capital, existing urban dwellers can be impacted as a result of changing economic cycles and altered landscape forms, culminating in a variety of social implications further discussed in Section 5.8. Similarly, effects of redevelopment can be identified in changing aesthetic forms. Developments driven by capitalistic motivations rather than a desire to improve environs and promote cohesion with existing streetscapes can lead to poor design outputs, demonstrated by the Mary Ann building on Clyde Street, detracting from neighbouring districts and heavily altering the sense of place in areas adjacent to new constructions with implications for urbanites (von Wirth et al., 2016).

5.4 Place and Change

Academic literature focusing on connections between people and place demonstrates the impact exerted by changes to the built landscape. By juxtaposing imagery of new developments in their surroundings with previous site uses it is readily apparent that the redevelopment process significantly altered the sense of place within each area. In viewing the sites following redevelopment, the degree of compatibility presented by each construction with its surroundings, or lack thereof, is the most striking feature and physically represents the departure from Halifax's long stagnant development climate to one where contemporary built forms are prevalent. Some structures cultivate a sense of place and harmonize with surroundings by drawing upon the built

character of neighbouring forms while others represent explicit departures from past site usages, acting to wholly transform the feeling within an area.

Q Lofts in the North End provides an example of development sympathetic to its surroundings yet contemporary in structural form and effect. Although the building appears ultra-modern, its use of atypical building materials reflects its commercial and light-industrial surroundings, invoking remembrance of the site's past usages and promoting integration with older buildings abutting the property. The Alexander apartment building located on Lower Water Street in the downtown core similarly assimilates with its environment. As exemplified in Appendix B, post-development imagery displays the new building's incorporation with the neighbouring historical Alexander Keith's Brewery through the use of compatible building materials (B.10). The residential tower deviates from the materials and style of podium by harkening to the early neo-gothic towers of New York and Chicago, complementing the urban setting. By way of actively combining existent structures with new developments it is readily apparent that older city uses can be compatible with the future direction of Halifax and accommodate city change.

Contrasting examples of overt attempts at assimilation to foster continuity, several developments erected over the study period display explicit disregard for their surroundings, in turn disrupting the area's previously established feeling of place. Most notably, the Nova Centre positioned within Halifax's downtown presents an example of placeless development that interrupts former landscape cohesion. Avenues adjacent to the Nova Centre boast unique streetscapes with some retaining historical structures, exemplified on Argyle and Brunswick Streets. The Nova Centre's glass exterior disturbs the formerly lower rise streetscapes occupying

the area below Citadel Hill, obstructing the contiguity by inserting a substantial tower which appears out of place amongst its distinctive surroundings.

Paralleling the Nova Centre's lack of integration is Gorsebrook Park, a multi-unit residential development located in the South End of Halifax. Replacing four former single-family homes, the glass and stone clad condominium development fails to assimilate with nearby houses. Although the condominium complex neighbours several other apartment towers, the architecture is modelled on the increasingly prevalent contemporary residential building style, overtly displaying the structure's modernity, and thereby presents a departure from understated vicinal structural forms.

5.5 Emerging Homogeneity

Widespread amongst contemporary development, both in Halifax and elsewhere, is a sense of homogeneity. As demonstrated by the results in Chapter Four, building materials employed in the majority of new developments are limited, with glass, brick, siding, and concrete constituting the majority of building exteriors. Further compounding material similarity is the architectural style employed in new projects, mainly constituted by boxy buildings with glass covering a sizeable portion of the façade. Trends in Halifax mirror those in other cities across North America. Figure 5.1 below displays the similarity of local developments to those elsewhere through a Google Street View comparison. The Keep development on the corner of Quinpool Road and Vernon Street displays nearly identical architectural characteristics to the Neptune Apartments located in downtown Seattle, WA. Though the two constructions vary in terms of minor exterior details, both buildings are constructed primarily from brick and include a rounded, glass-face corner at the streetway intersection. Additionally, the two residential complexes

accommodate ground floor commercial uses with a café in the corner space. By juxtaposing imagery of Halifax's built environment with that of other cities across North America it is readily apparent that the style of buildings increasingly characterising Halifax's cityscape can be found elsewhere, exemplifying the globalisation of architectural style.

Contrasting previously distinct structural forms, Halifax's recent development boom has led to an increasing sense of sameness in streetscapes, with buildings representing a construction style common to developments in other large metropolitan areas. This phenomenon ties into the trend of placelessness, as homogeneity in the built landscape represents a departure from individuality in place. The spatial configuration of sites included within this study, as shown previously in Figure 4.1, displays redevelopment as concentrated in the downtown core. However, the scattering of sites throughout the Peninsula simultaneously demonstrates the prevalence of architectural blandness in areas throughout the city, rendering regions across Halifax susceptible to homogeneous development – a trend apparent on national and global scales.

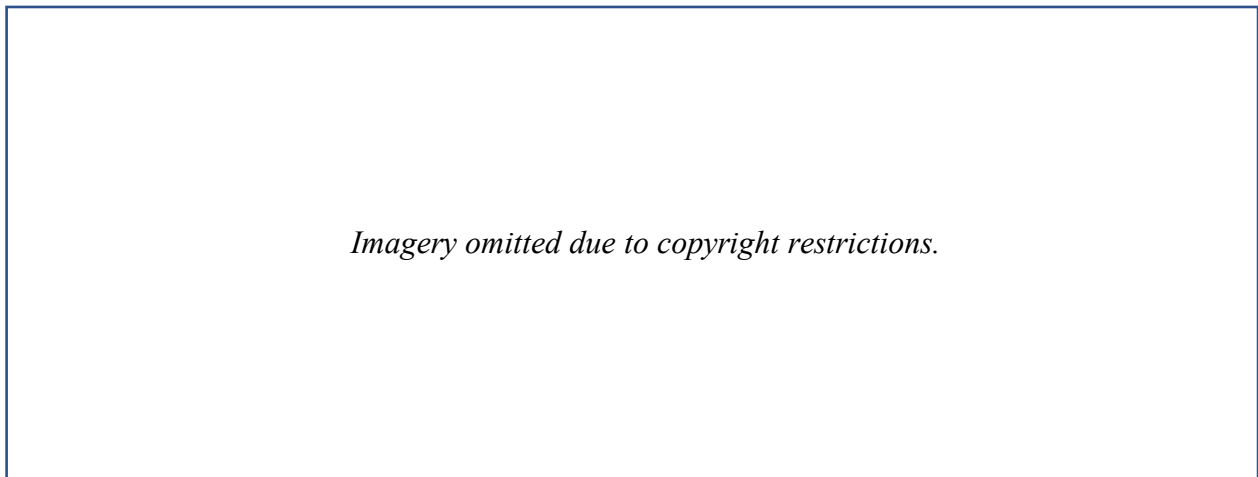


Figure 5.1. Comparison of Homogeneous Development
The Keep Condominiums, Halifax, CA (left, July 2019) and the Neptune Apartments, Seattle, WA (right, May 2019).
Google Street View.

5.6 Historical Implications

Reviewing development sites prior to construction reveals heritage building losses and the repurposing of others. The most notable instances of historical loss are evident in the development of the Vic Suites and Saint Mary's University Entrepreneurship Centre. In the case of the former, an Edwardian-style apartment complex was demolished along with two older homes displaying distinctive architectural features uncommon to typical single-family houses. Furthermore, the lot now occupied by the Vic Suites is located in a recently recognized Heritage Conservation District (HCD), known as the Old South Suburb, and surrounded by heritage resources. Although the historical buildings had begun to appear dilapidated, possibly resulting from deliberate neglect, their demolition acted to reduce Halifax's heritage landscape. Despite the Vic's architectural merits, the area's historical integrity is diminished through the removal of prominent built environment features which provided a connection with the past.

Construction of the Saint Mary's University's Entrepreneurship Centre similarly involved the destruction of a longstanding structure with an acknowledged past. Known as the Halifax Infant's Home and operating for several decades during the twentieth century, the former three-storey brick Second Empire building was an excellent historical resource (Built Halifax, 2013) and fit in place amongst nearby heritage homes, namely those recognized under the Tower Road Victorian Streetscape a block north of the structure. The demolition of the historical institution was followed by the construction of a contemporary three-storey glass building for educational purposes. This change of land use positively serves the university's purposes; however, the former structure's demolition irreparably damaged the heritage building stock and contrasts typical historical demolitions as it was carried out by an institution.

Changes experienced by Halifax in recent decades have reduced the cityscape's qualitative value by replacing individualistic buildings with unremarkable constructions. As a result, remaining heritage structures are devoid of the same degree of context previously afforded to them, exemplified in Halifax's Schmidville as discussed in Chapter Four. Although the HCD remains, the bordering Mary Ann development clashes with the area's historical integrity. Nonetheless, attempts at heritage maintenance remain, evidenced by the incorporation of facadism within the Dillon, Roy, and Green Lantern developments, all boasting brick veneers on the lower levels in an effort to offset losses and prolong the presence of built heritage.

5.7 Densification

Quantitative analysis using GIS reveals a large degree of densification as a result of recent development. As the average density for selected sites more than doubles over the study period, coupled with elevated massing and building heights, it is apparent that reconfiguration will have the potential to affect existing residents and the city as a whole by stimulating increased activity. Residential developments provide additional peninsular living opportunities, although the influx of prospective urban dwellers may strain urban resources. The presence of numerous new housing complexes within the urban core will have implications for local services, public transit, and place additional demands on public spaces such as parkland. Meanwhile, roadways may be affected through the generation of additional traffic congestion.

In spite of the potential strain presented by larger developments, benefits of densification are also apparent. The creation of additional residential units on the Peninsula allows for intensified land use, in turn increasing the attractiveness of downtown areas for prospective residents in terms of modernity, expanding opportunities for inner-city living, and promoting

urban vitality. Similarly, prominent public buildings such as the Nova Centre and Halifax Central Library provide increased incentive for downtown usage and encourage development, fostering the health of nearby areas by way of acting as cornerstones for future growth.

5.8 Social Considerations

The altered built forms and densification accompanying new construction affects liveability. Although average rental costs are not incorporated in this study's quantitative analysis, most residential developments appear to be less affordable than the buildings they replaced. The increasing prevalence of high-rent apartment and condominium complexes signifies changing living standards and reflects larger trends in the housing market wherein affordable housing is becoming an urban rarity. Elevated rental prices chiefly permit the entrance of higher income demographics to the Peninsula due to their economically unattainable living cost.

Accompanying the lack of affordability presented by new developments is gentrification. As noted in Chapter Two, a key definition employed in explaining the phenomenon is that of the rent gap, described by Smith (1979) as the difference in capital maximised from a lot under its current usage and that of its hypothetically altered form to conceivably produce greater monetary profit. The rent gap concept is apparent in comparisons of many sites included within this study. Comparing land uses before and after redevelopment reveals a maximization of potential usage through intensified density and increased massing, as displayed in Chapter Four. The presence of gentrification has additional implications for urban demographics. Long-time residents of newly gentrified areas are often forced to relocate elsewhere due to increased neighbourhood

desirability and elevated cost of living. Furthermore, inhabitants experiencing gentrification also face changes in their social networks as well as neighbourhood resources and built character.

Further elements of liveability impacted by the presence of new structures are walkability and accessibility. With the vast majority of developments being located within or proximate to the downtown core, on-foot travel is promoted through the centrality of sites. Meanwhile, access to services, both essential and relating to leisure, is similarly increased. Overall, the social consequences of urban change present benefits and drawbacks relating to a variety of living facets which must be viewed in the context of their effects upon the diverse populous constituting Halifax's social makeup.

CHAPTER 6

Conclusion

6.1 Summary of Findings

Development in peninsular Halifax over the past 11 years has primarily taken the form of multi-storey mixed-use structures with lower-level commercial space and upper-level residential units. As a result, there has been an increase in built density, along with an associated intensification of users. The majority of development has required the consolidation of previous lots, necessitating a legal reconfiguration of urban space. On average, new constructions are ten-storeys tall, greatly contrasting the previous mean building height of nearly three storeys. Although the majority of recent constructions are situated in the downtown core of Halifax within areas zoned DH-1, development within other regions is apparent, namely in the city's North and South End neighbourhoods. The West End remains relatively unchanged, with few developments taking place during the study period.

In surveying the exterior of appearance of study sites prior to and after development it is apparent that previous site uses are more diverse while redeveloped lots present a greater degree of similarity in built form, contributing on a local scale to the globally emerging phenomenon of homogeneous development. Though new buildings are more uniform in architectural style and similar to those found in global cities, they do not conform to their surroundings. Those displaying effective integration are primarily situated in the downtown core and produced with a cognition of adjacent uses in terms of design. Meanwhile, nearly all new developments are

accompanied by increased greenscaping, presenting a benefit to residents in the form of an urban amenity.

Examining Halifax's built form over time presents the opportunity to consider the effect of streetscape change upon residents. Redevelopment contributes to an altered sense of place by presenting a departure from previous attachments, reorienting perceptions and connections held by inhabitants. New structures also possess potential to foster place connections; however, the emergence of similar connections will take time as sense of place is rooted in experience as well as built form. Recent developments will likely incite demographic shifts due to affordability, sense of desirability, and accessibility of areas undergoing change. Furthermore, the impact of development on the city's heritage landscape is evidenced by the demolition of former historical structures and altered surrounding environments, in some cases negatively impacting the context of Heritage Conservation Districts. Ultimately, this study's narrative of Halifax's built form over time confirms the continual relevance of creative destruction in characterising the transformation of cities as recent developments actively destroy previous forms while simultaneously spurring new uses and meanings in place.

6.2 Policy Implications and the Future of Halifax

Increased development activity remains steady as demonstrated by peninsular construction rates. With the implementation of the HRM Centre Plan, it is likely that development will continue to intensify in the core as a result of additional regulatory guidelines aiming to direct prospective urban growth. Change effected through development presents an uncertain future in terms of streetscape form and identity. Decision-making and discussion surrounding the city's potential built form must recognise the uniqueness of Halifax while

acknowledging the necessity of change in responding to contemporary city needs and resident preferences. New developments, namely those within the central core, offer a foundation for subsequent change and have roused interest in the Peninsula, increasing the likelihood of further alteration in coming years.

It would be advisable for those involved in city change-making processes to assess the implications of proposed developments in terms of their impacts upon citizens and the urban fabric. Redevelopment deemed beneficial requires consideration and public input as to whether projects provide enhanced liveability in terms of social, economic, and aesthetic factors. Although new buildings are generally viewed favourably in the short-term, developers and planners should be required to consider the long-term implications of such projects. Sanctioning development unsympathetic to the existent built fabric poses the risk of erasing Halifax's distinct character, accentuating the need for complementary building exteriors. Furthermore, preserving components of the city's historical fabric is essential to retaining Halifax's built diversity and could be promoted through practices which explore alternatives to demolition.

6.3 Personal Stance on Built Environment Change

The changing state of Halifax is one which many long-time residents view with a degree of ambivalence. Although recent development represents a benefit through its display of renewed interest in peninsular growth by revitalising the downtown core and contributing to economic vitality, the concurrent movement away from unique streetscape forms toward those with a globalised appearance ultimately detracts from the city's individuality – an element which remains central to the appeal of Halifax both in terms of liveability and as a tourist destination. Elements of heritage remain in contemporary Halifax, primarily through HCDs and façades

incorporated to provide historical exteriors for new development, in turn preserving pedestrian views. Nevertheless, constant development pressure and perpetuation of contemporary architecture presents a danger to future heritage maintenance.

Ideally, future city transformation will recognise the importance of preserving older structures and aim to create streetscape forms which display modernity while integrating with existent surroundings, fostering a sense of harmony retaining an element of the past. The theory of creative destruction acts as a reminder that, in moving forward, the city must lose some ties to the past in order to meet the needs of contemporary and future interests, thus leaving the built environment susceptible to indeterminate demands. Halifax's future urban form will likely continue to follow the global trajectory, incorporating homogenous contemporary development design that harnesses the allure of newness to accomplish densifying goals outlined in recent planning policy, all at the expense of local built character.

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APPENDIX

Appendix A

Table A.1. List of Study Sites

Address	Site Name
1511 Queen Street	The Doyle
2065 Robie Street	Point North Suites
5454 Kaye Street	St. Joseph's Squares
5662 Roberts Street	Q Lofts
1583 Hollis Street	The Maple
1619 Sackville Street	The Dillon
1050 Wellington Street	Gorsebrook Park
5144 Morris Street	The Vic
5659 Almon Street	Almon Suites
5732 College Street	Shannex: Parkland at the Gardens
927 South Bland Street	The Grainery Lofts
1065 Barrington Street	Southport Apartments
1212 Hollis Street	SOHO (South and Hollis) Apartments
1363 Hollis Street	Flynn Flats
1593 Barrington Street	Unnamed
1537 Brunswick Street	Grafton Park
1585 Barrington Street	The Green Lantern
1721 Lower Water Street	The Queen's Marque
1601 South Park Street	The Pavilion
1650 Granville Street	The Roy
5445 Rainnie Drive	The Pearl
1920 Brunswick Street	19Twenty Apartments
2300 Gottingen Street	The VÉLO
6140 Young Street	Monaghan Square
2761 Gladstone Street	Gladstone North
5121 Bishop Street	The Alexander
5481 Clyde Street	The Mary Ann
5677 Harris Street	Harris East
6112 Quinpool Road	The Keep

1581 South Park Street	The Curve
3330 Barnstead Lane	The Vincent Coleman
2116 Gottingen Street	Theatre Lofts
960 Tower Road	SMU Entrepreneurship Centre
6260 South Street	Dalplex (addition)
5440 Spring Garden Road	Halifax Central Library
1960 Brunswick Street	Hilton Hotels
1650 Argyle Street	Convention Centre
5777 West Street	MacGillivray Injury and Insurance Law

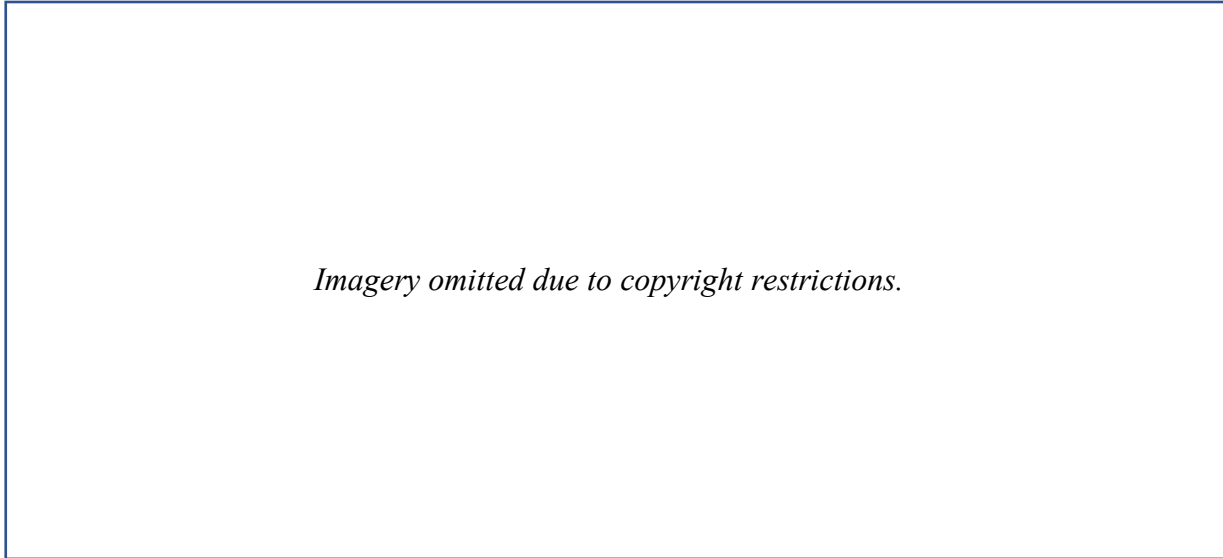
APPENDIX**Appendix B**

Figure B.1. St. Joseph's Square
Pre-redevelopment (left, 2009) and post-redevelopment (right, 2019).
Google Street View.

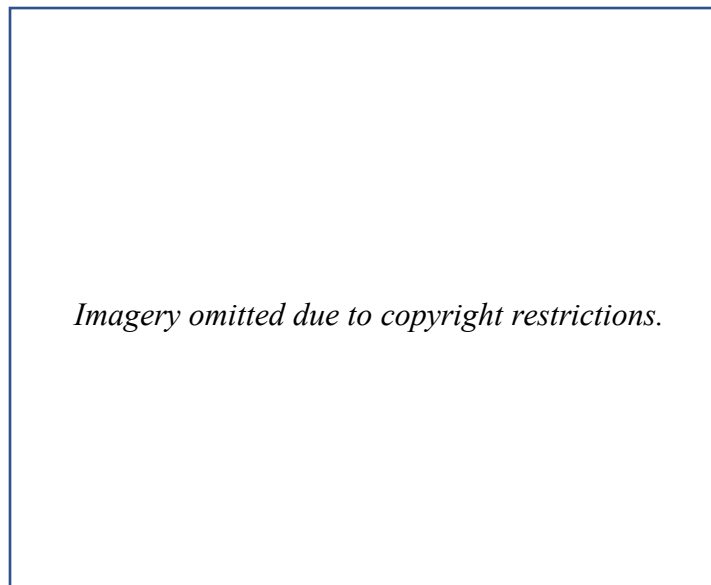


Figure B.2. St. Joseph's Square Façade Kaye Street
(2019).
Google Street View.

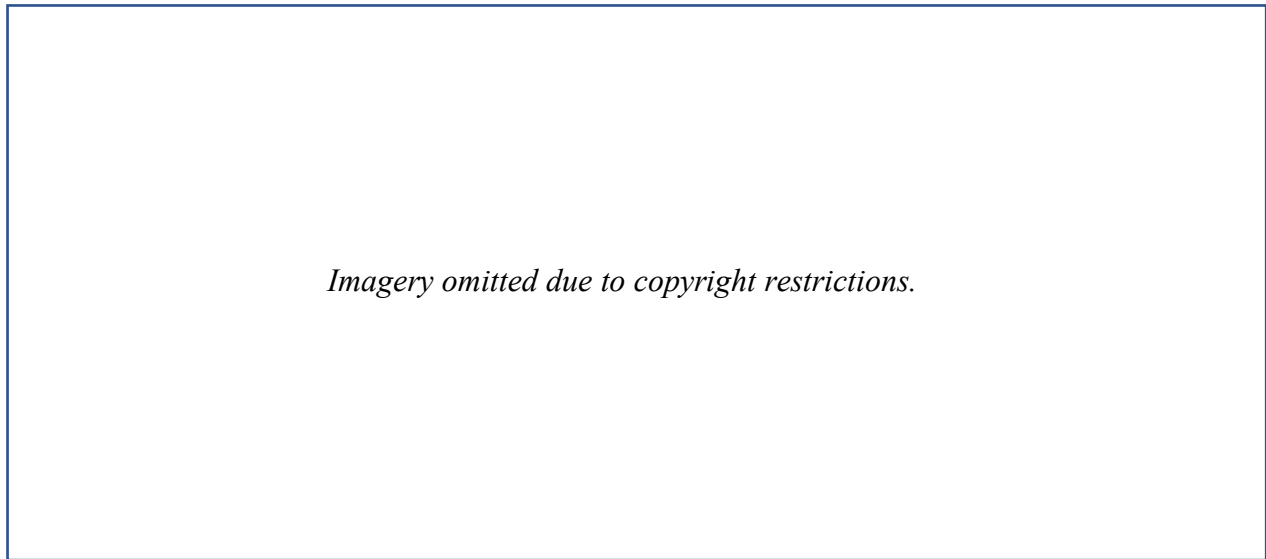


Figure B.3. The Vic
Pre-redevelopment (left, 2009) and post-redevelopment (right, 2019).
Google Street View.

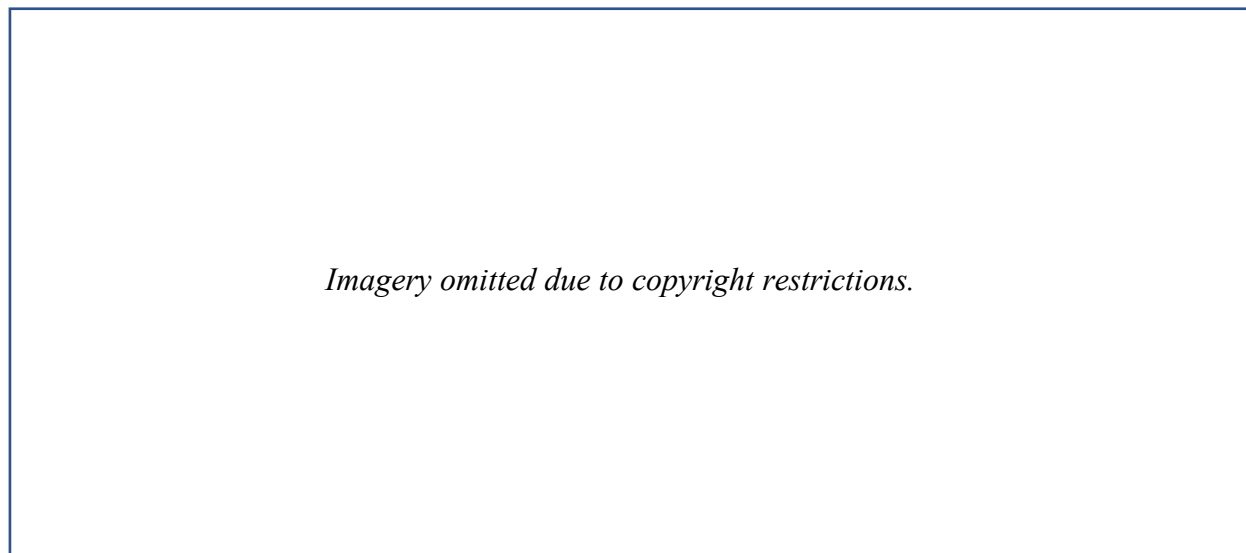


Figure B.4. The Mary Ann
Pre-redevelopment (left, 2009) and post-redevelopment (right, 2019).
Google Street View.

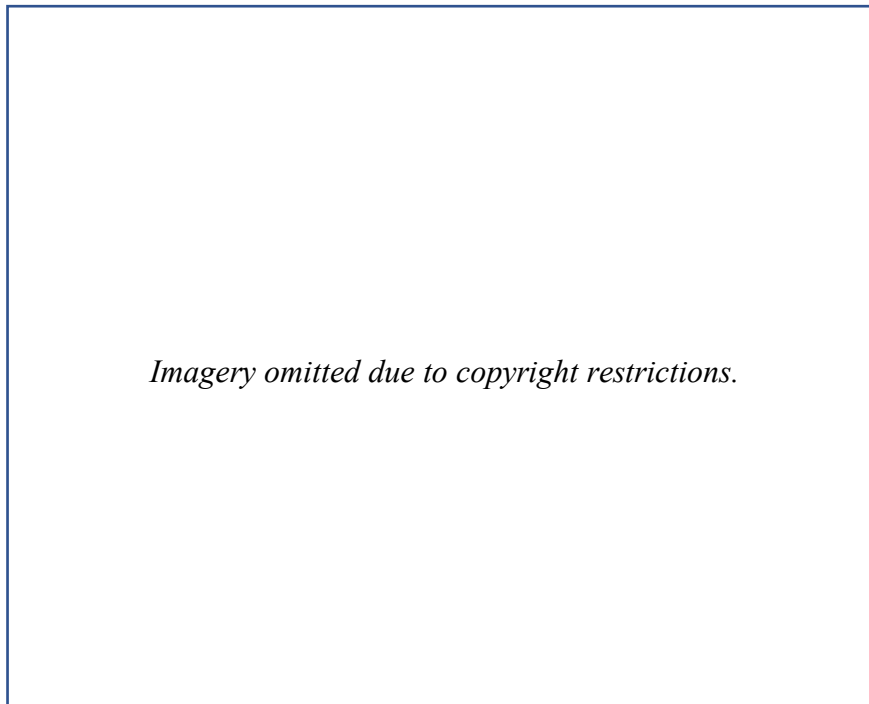


Figure B.5. Corner of Clyde and Birmingham Streets
Displaying new development adjacent to Schmidville (2019).
Google Street View.

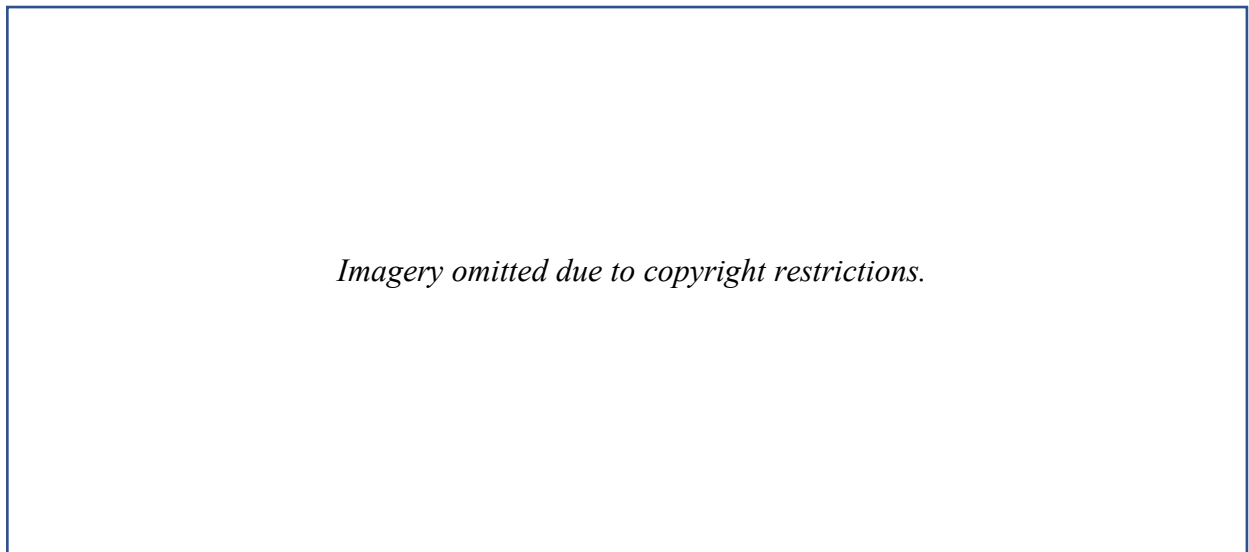


Figure B.6. The Doyle
Pre-redevelopment (left, 2009) and post-redevelopment (right, 2019).
Google Street View.

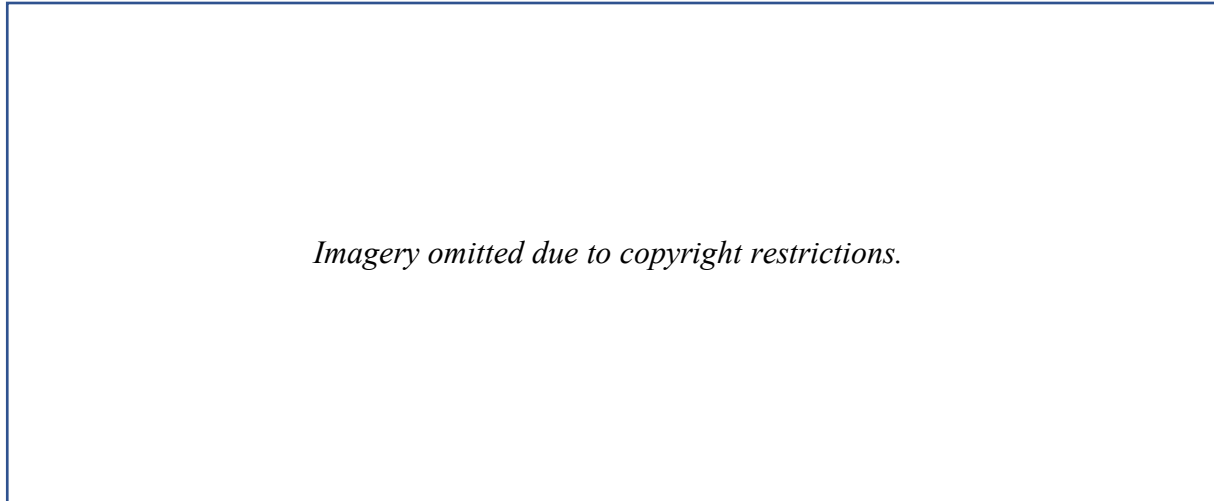


Figure B.7. The Dillon
Pre-redevelopment (left, 2009) and post-redevelopment (right, 2019).
Google Street View.

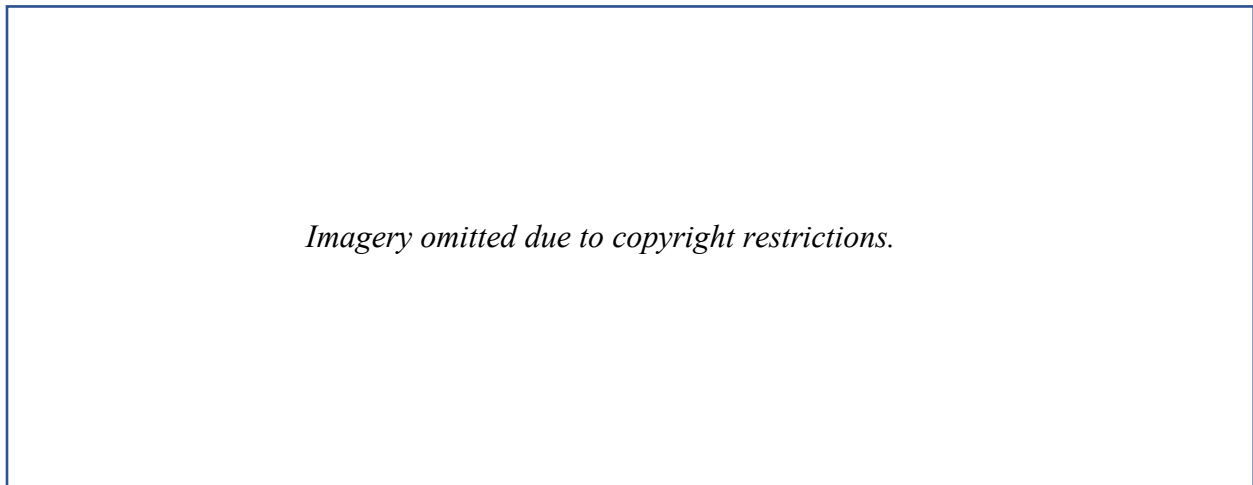


Figure B.8. SOHO (South and Hollis)
Pre-redevelopment (left, 2009) and post-redevelopment (right, 2019).
Google Street View.

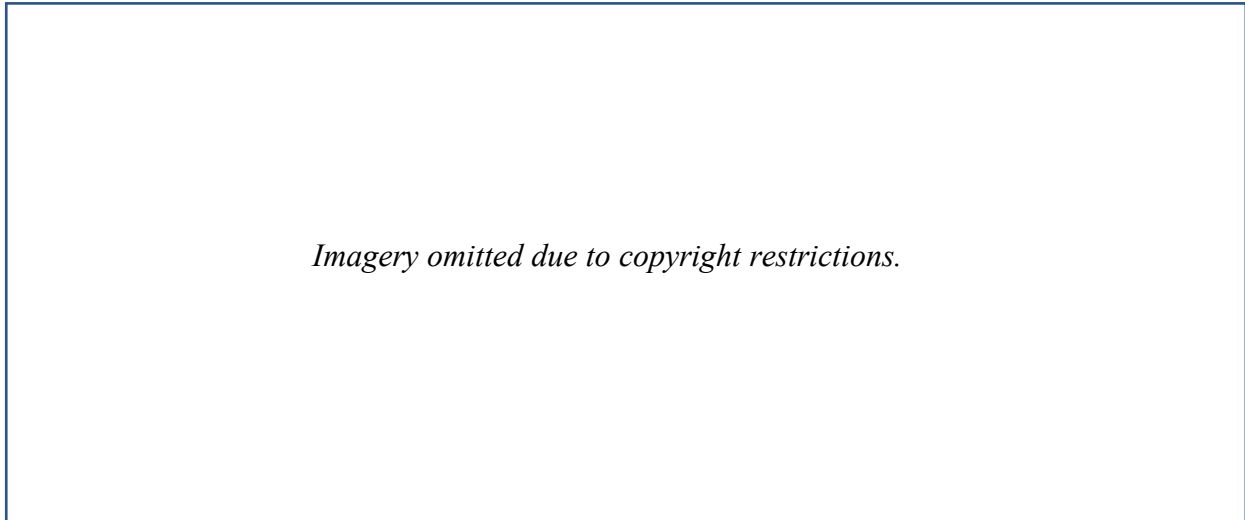


Figure B.9. Q Lofts
Pre-redevelopment (left, 2009) and post-redevelopment (right, 2019).
Google Street View.

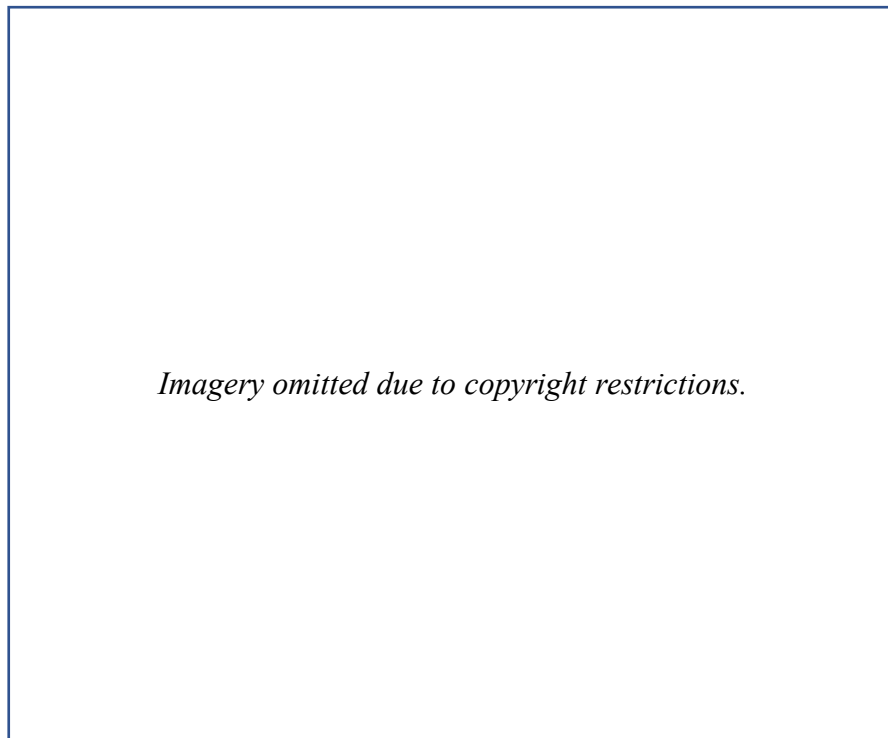


Figure B.10. The Alexander Adjacent to Alexander Keith's
Brewery (2019).
Google Street View.