

The Adaptive Reuse of Industrial Heritage Buildings:

A Multiple-Case Studies Approach

by

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### **Author's Declaration**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

## **Abstract**

The adaptive reuse of industrial heritage buildings is a technique that can be used to help reduce the number of abandoned or unused industrial buildings and/or prevent demolition of cultural heritage assets; thereby, introducing new programs and functions into a structure and contributing to the maintenance, rehabilitation, development and redevelopment of targeted areas within a community. This thesis aimed to understand ways to approach adaptive reuse through the lens of land-use planning, by answering three (3) primary questions:

1. In the cases where the adaptive reuse of industrial heritage buildings was successful, how and why did these successes occur?
2. What are the factors/criteria that impacted the outcome of adaptive reuse and how did those factors/criteria impact adaptive reuse?
3. How can these criteria be transformed into tools that can be generalizable and be applied in various contexts with modifications to suit new contexts?

A multiple-case studies research approach was adopted. Five (5) Ontario-based cases of adaptive reuse were selected: 1) Artscape Wychwood Barns – Toronto, ON; 2) Evergreen Brick Works – Toronto, ON; 3) Kaufman Lofts – Kitchener, ON; 4) The Tannery District – Kitchener, ON; and, 5) Tudhope Building – Orillia, ON. The a priori assumption was that the feasibility, and to a certain extent, the outcomes of adaptive reuse projects are primarily influenced by cultural, economic, environmental, legislative, locational, “new-use” and/or social factors.

The undertaking of a literature review verified that the seven (7) a priori factors were, indeed, themes amongst similar findings by accredited scholars and researchers. Original research was conducted by: undertaking site visits to each of the five properties; preparing brief histories on each of the cases; and, undertaking thirty (30) key informant interviews. The interview data was analyzed using a digital content analysis.

Ultimately, ten (10) criteria were identified that may help in assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. Ideally, the findings from this study will help prepare those who are hesitant about adaptive reuse by providing tools that will enable them to undertake an adaptive reuse project with full knowledge on how to objectively investigate the situation.

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## **CHAPTER 1: Introduction**

### **Primer**

“We have entered an era of disposable buildings without even knowing it. Businesses come and go, spatial requirements change, and it is cheaper and easier to finance a new building than to rehabilitate an existing building. The social aspect of “newness is goodness” is more a part of the society than ever before, as is the dislike and distrust of something old” (Rabun, 2000 p. 491).

### **Introduction**

The industrial revolution, and the mass manufacturing associated with that period, helped support many working-class families for decades and contributed to the Canadian economy as it is today (Balakrishnan, 2007 and Wyatt, 2009). A by-product of the industrial revolution was the built form<sup>1</sup> that emerged to support it (i.e., the industrial buildings) whose robustness, sheer size and aesthetic impact have had a profound impact on both landscapes and people.

Following the industrial revolution, rapid deindustrialization has led to a surplus of abandoned and unused industrial buildings throughout Canadian cities (Alfrey and Putnam, 1992; Liscombe, 2011; Mah, 2012; Sands, 2010; and Stanford, 2008). Within previously industrial cities, conglomerations of these abandoned and unused industrial buildings have created an aesthetic, cultural and built phenomenon, known to many, as industrial ruination<sup>2</sup> (Mah, 2012). For many, this surplus and subsequent industrial ruination, has contributed to a form of post-industrial blight that can adversely impact a city’s

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<sup>1</sup> Built form is the physical layout and design of a community. It is the arrangement, appearance and functions of communities and includes, infrastructure designed to support human activity, such as buildings, roads, parks, and other amenities. It addresses the natural and built environments and influences the processes that lead to successful communities. Simply, it’s how compilations of buildings fit together in a space and is a demonstration of the balancing of height, breadth, setbacks, vistas, building materials, ratio of open space to structure per lot, etc. The point of referencing built form is to focus on the total effect that a collection of buildings has had on an area.

<sup>2</sup> Industrial buildings and properties in a state of decline or disuse, that often include derelict and abandoned factories, shipyards, warehouses, and refineries; but, despite their state of decline, remain vitally connected with the urban landscapes that surround them, as they capture a certain aesthetic and outcome of the progress of history, modernity and capitalism. They represent the relationship between deindustrialization and industrial ruins; which, are never static objects. Rather, they are constantly changing over time. Thus, knowledge surrounding industrial ruins can be “framed around “ruination” rather than “ruins”, because the word “ruination” captures a process as well as a form” at different times (Mah, 2012 p 3).

community capital<sup>3</sup> (Breger, 1967; Mah, 2012; and Roseland, 2012).

However, these former industrial buildings also represent a form of heritage in which people view these buildings as valuable cultural assets – a form of community capital. As a result, many of these properties have been bestowed with a heritage designation in an effort to conserve the buildings, the property and their cultural values (Alfrey and Putnam, 1992; Bartsch and Collaton, 1996 and Mah, 2012). From their architectural styles to their sentimental value, these abandoned and unused buildings are important landmarks on the Canadian landscape. In order to formally and publicly acknowledge a property's value to a community, municipalities in Ontario can pass by-laws to designate properties under the Ontario Heritage Act, R.S.O. 1990, c. 0.18 which demonstrate cultural heritage value of interest. According to the Ontario Ministry of Tourism, Culture and Sport (OMTCS) (2007 p. 1), the Ontario Heritage Act (OHA) gives municipalities and the provincial government powers to preserve Ontario's heritage; whereby, "designation helps to ensure the conservation of these important places for the benefit and enjoyment of present and future generations". The Ontario Heritage Act, is the guiding legislation for the conservation of significant cultural heritage resources in Ontario. However, in Ontario, a heritage designation merely encourages good stewardship and conservation by protecting a property's cultural heritage value but, doesn't unconditionally prevent demolition from occurring. If a property is designated by by-law pursuant to the Ontario Heritage Act, a municipal Council can approve demolition if the usefulness of a building or property is ostensibly perceived to have come to an end.

The option available to both reduce the number of abandoned/unused industrial buildings (i.e., modifying a place) and/or prevent demolition of these cultural heritage assets (retaining cultural heritage value), is to reuse them for new programs and functions by recycling their usable components (Wong, 2017 p. 13). This is what is known as adaptive reuse. When undertaken on former industrial buildings,

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<sup>3</sup> Community Capital is a number or collection of local assets, community resources that can produce other benefits through investment, of which there are six (6) forms: Natural Capital, Physical Capital, Economic Capital, Human Capital, Social Capital and Cultural Capital. The notion of community capital is used as a foundation for sustainable community development. (Roseland, 2012).

adaptive reuse is a viable strategy for both neighbourhood revitalization and heritage conservation<sup>4</sup> (Burchell and Listokin, 1981 and Wong, 2017 p. 13). This strategy is optimized when, the industrial buildings requiring reuse demonstrate heritage significance. This is because cultural heritage and archaeological resources conservation provide important environmental, economic and social benefits and because adaptation provides a link to past cultures through built form (Ontario Provincial Policy Statement, 2014 and Wong, 2017 p. 30). Industrial heritage buildings present a built-form that is unique both aesthetically and because their construction, during the industrial revolution, “transformed familiar landscapes, disrupted habits and challenged established values” of the times (Alfrey and Putnam, 1992). Further, adaptive reuse can help a community recognise itself in terms of its character, its past problems, its achievements and its direction for the future (Alfrey and Putnam, 1992).

However, adaptive reuse presents a unique set of challenges that make adaptation of industrial heritage buildings difficult. Wong (2017 p. 34) refers to an issue tilted the “Frankenstein Syndrome”; whereby, adaptive reuse can sometimes fail because of the introduction of a new and incompatible order within an existing one. Where order is referring to the spirit and will of the nature<sup>5</sup> of a space to exist in a certain way. A simple way to understand the “Frankenstein Syndrome” is to ask the rhetorical question of, can all buildings/structures be used for a completely new and different purpose/use than their original? For example, Wong (2017 p. 30) uses the example, “could the Lincoln Memorial in Washington, DC, commemorating the 16<sup>th</sup> president of the USA, be used as a residence, or vice versa? While all examples may not be as obvious as the above, the “Frankenstein Syndrome” speaks to the basics of design foundations of adaptation. As such, owners sometimes opt for demolition because the inherent risks and difficulties associated with adaptive reuse often outweigh the projected benefits. Simply, the risks of adaptive reuse are often presumed to outweigh the rewards.

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<sup>4</sup> Conservation means measures taken to extend the life of cultural heritage while strengthening transmission of its significant heritage messages and values. The aim of conservation is to maintain the physical and cultural characteristics of the object to ensure that its value is not diminished and that it will outlive our limited time span (Stovel, 1998 and Vifias and Vifias, 1988).

<sup>5</sup> The basic or inherent features of something, especially when seen as characteristic of it (Nature, n.d.).

## **Purpose**

The purpose of this study is to identify criteria for assessing the outcomes (whether in terms of successful outcomes or challenges) facing the adaptive reuse of industrial heritage buildings and then to test these criteria across five case studies in Ontario, Canada. The deduction and testing of these assessment criteria will provide and/or contribute to the knowledge of adaptively reusing industrial heritage buildings. The deduced criteria could then be modified and adjusted for application in other contexts. Future research may build on these criteria by adding to them or modifying them. Knowledge of adaptively reusing industrial heritage buildings, could help owners realize the end-value in adaptation; ultimately, increasing both the likelihood that these projects succeed and conserving more culturally significant buildings. If more abandoned and unused industrial buildings come to be reused, then their contribution to post-industrial blight within Canadian cities could be reduced.

Simply, this thesis contributes to existing knowledge by proposing an approach to objectively assess the challenges and the advantages of adaptive reuse by investigating examples of adaptively reused industrial heritage buildings in Ontario, Canada.

## **Objectives**

The objective of this thesis is to explain how certain indicators affect the adaptive reuse of industrial heritage buildings. Ultimately, the role will be to identify “indicators” of success and/or failure that enable developers, planners and communities to identify the challenges, disadvantages and advantages associated with adaptive reuse projects and then weigh those against each other. The final objective is to explore how these challenges/disadvantages may be alleviated. The study will consist of case study research on 5 Ontario-based and adaptively reused industrial heritage buildings and utilizes key-stakeholder interviews as the data collection method.

## **Research Questions**

In the cases where the adaptive reuse of industrial heritage buildings was successful, how and why did these successes occur? What are the factors/criteria that impacted the outcome of adaptive reuse?

How can these criteria be identified for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings? How can these criteria be transformed into tools that can be generalizable and be applied in various contexts with modifications to suit new contexts? How did those factors/criteria impact adaptive reuse?

### **Thesis Statement/ A Priori Assumption**

The feasibility, and to a certain extent, the outcome of adaptive reuse projects is primarily influenced by cultural, economic, environmental, legislative, locational, “new-use” and/or social factors. Based on these seven (7) factors, it is possible to identify criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings.

Ideally, this research will prepare those who are hesitant about adaptive reuse by providing tools that will enable them to undertake an adaptive reuse project with full knowledge on how to objectively assess the situation. This thesis is not about identifying “guidelines”, but rather, processes. Every place is unique; therefore, this research aims to identify processes/methods that can be generalizable and be applied in various contexts with modifications to suit new contexts.

Any indicators identified will contribute to the development of assessment criteria and will constitute part an approach to adaptive reuse including acting as a tool that stresses the importance of including these indicators in assessing the viability of adaptive reuse projects in the future. Including, ways to overcome the challenges facing such projects.

### **Thesis Outline**

This thesis is divided into six (6) chapters as follows:

**CHAPTER 1 - Introduction** (above), introduces the problem, the topics of heritage conservation and adaptive reuse and provides a statement of goals and objectives together with the research questions proposed and the a priori assumed outcome.

**CHAPTER 2 – Literature Review**, utilizes peer-reviewed works published by accredited scholars and researchers to provide a brief contextual and historical background of the themes related to this study. In

addition, this chapter provides an account of the knowledge and ideas that have been established by conducting a deductive analysis of the literature, in order to identify criteria for assessing the outcomes facing the adaptive reuse of industrial heritage buildings.

**CHAPTER 3 – Research Methodology**, describes the specific steps that were taken to address the above a priori assumption and research questions.

**CHAPTER 4 – A Historic Background**, presents a brief history of each of the five (5) Ontario-based case studies to provide context and a brief impression of the cultural heritage value demonstrated by each case. It covers the initial uses of each building, their diminishment in purpose, their process and assessment of this adaptation, and in the case this adaptation was successful, the impacts that their adaptation had on their respective communities.

**CHAPTER 5 – Findings**, outlines, compiles, and summarizes the findings from the key-informant interviews. It is organized based on the methods specified in Chapter 3 and includes both the results of the study and the analysis used. The criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings will be identified here. This chapter tests the identified criteria across the five case studies using the methods specified in Chapter 3.

**CHAPTER 6 – Discussion and Conclusions**, provides a summary and interpretation of the results as they attempt to answer the primary research questions. Following the findings from Chapter Five's conclusions, in conjunction with evidence from the literature review, this chapter also presents the contributions made to the realm of professional land-use planning. In addition, this section offers recommendations as to how the deduced criteria could be modified and adjusted for application in other contexts. It provides a tool and approach to adaptive reuse that future proponents may use to undertake an adaptive reuse project with full knowledge on how to investigate the situation. Finally, this chapter concludes with a brief breakdown of the limitations of the study, potential future research and final closing statements.

## **CHAPTER 2: Literature Review**

### **General Introduction**

The following is a literature review on the adaptive reuse of industrial heritage buildings. The purpose of this chapter is to provide an account of the knowledge and ideas that have been established by peer-reviewed works published by scholars and researchers by conducting a deductive analysis of the literature in order to identify criteria for assessing the outcomes of the adaptive reuse of industrial heritage buildings.

The overarching goal of this chapter is to identify criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. The goal of this chapter will be achieved by completing the following four (4) objectives:

1. Discuss and analyze theoretical and empirical sources related to the adaptation of industrial heritage buildings;
2. Address how other scholars have discussed the seven (7) influential factors (above) pertaining to the adaptive reuse of industrial heritage buildings;
3. Situate/contextualize this thesis' inquiry within the wider body of research on the topic; and,
4. Establish theoretical and empirical connections among the various sources consulted for this study, and accordingly, devise a theoretical framework for this thesis.

### **A Brief History of Deindustrialization in Canada**

The advanced industrial economy in developed countries (Canada included) has shifted from a manufacturing-based economy to a service-based economy (Mah, 2012 and Bluestone and Harrison, 1982).

This shift took place in what is known as the post-industrial period (mid-1960s to mid-1980s) and has had several profound impacts on Canadian landscapes (High, 2003). One of these impacts is the surplus of abandoned or unused industrial properties and their respective buildings. Many of these buildings have transitioned into industrial ruins while some demonstrate cultural heritage value or interest

to a community. Often this interest is based on a connectedness to surrounding urban landscapes, or the capturing of a certain aesthetic, or a demonstration of the outcome of the progress of history, modernity and capitalism (Alfrey and Putnam, 1992 p. 208; and Mah, 2012).

Frequently, these properties face challenges when it comes to their continued use. Some properties may face environmental issues such as ground and water contamination (Hula et al., 2012). Sometimes, the buildings on these properties contribute to a poor community aesthetic, as many are subjected to vandalism, poor up-keep, and the elements (Alfrey and Putnam, 1992). Since many of the buildings feature exposed materials (e.g. asbestos, rusted metals, sharp protrusions or unstable structures), health concerns may also be present (Alfrey and Putnam, 1992; Burchell and Listokin, 1981 and Stratton, 2000). In other instances, the structural integrity of these buildings may have degraded due to neglect, stress-induced decay from the original industrial uses, or a variety of other reasons (Rabun, 2000 p. 1, 9, 53, 458). Still, the structural integrity of these former industrial buildings will be sound if the buildings are of a certain type of architectural design (e.g. daylight factories) (Banham, 1983, 1986 and 1989; Rabun, 2000 p. 460; and Ransome, 1912).

While there are architectural and morphological differences between industrial buildings across generations (namely the architectural design styles), there are often common elements in building construction, design, materials and methods as well (Rabun, 2000). Specifically, historic industrial buildings constructed during the 19<sup>th</sup> to mid-20<sup>th</sup> centuries (including those of this thesis' case studies) share common architectural and morphological features such as steel or iron and reinforced concrete foundations and skeletons with iron/steel-, brick- and glass-based exterior façades (Liscombe, 2011; Rabun, 2000; and, Llorens and Zanelli, 2016). Typical industrial architectural styles of this period are the “Daylight Factories” which proliferated in the built environment in the early twentieth century (Banham, 1989 p. 20, 23, 26). Daylight factories are multi-storey reinforced concrete frame buildings with large window spans enclosing a spacious grid of exposed concrete columns on each floor of the interior (Banham, 1989 p. 20, 23, 26). Since then, Daylight Factories have become obsolete in new industrial

construction; however, many of these buildings are still scattered throughout Canada’s built environment (Mortensen, J.L., 2015 and Stojkovic et al, 2016). “The historic building is unique because of its place in history, its architectural style, its craftsmanship, or special circumstances such as the structural system, material innovation, or one-of-a-kind features” (Rabun, 2000 p. 488).

*Figure 1: Daylight Building designed by Albert Kahn*



## **Defining Heritage**

How do we define heritage? An adequate understanding of what constitutes “heritage” as a subject is important because it helps demonstrate the fundamental importance of a property/building with a heritage designation. Simply put, there is value in our culture’s past. As per AlSayyad (2001), “‘heritage’ derives from the Old French eritage, meaning property which devolves by right of inheritance in a process involving a series of linked hereditary successions”. Almost every community and culture defines heritage a little differently; therefore, it is important to take on an internationally recognized definition of what defines heritage.

According to The United Nations Educational, Scientific and Cultural Organization (UNESCO) (1972 and 2016), heritage is defined and divided into two unique types – Cultural Heritage and Natural

Heritage – where cultural heritage is further broken into tangible and intangible cultural heritage typologies:

- **Cultural heritage**, includes artefacts, monuments, a group of buildings and sites that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance and which includes:
  - **Tangible cultural heritage**: movable cultural heritage (paintings, sculptures, coins, manuscripts) immovable cultural heritage (monuments, archaeological sites, and so on) underwater cultural heritage (shipwrecks, underwater ruins and cities)
  - **Intangible cultural heritage**: oral traditions, performing arts, rituals
- **Natural heritage**, features, geological and physiographical formations and delineated areas that constitute the habitat of threatened species of animals and plants and natural sites of value from the point of view of science, conservation or natural beauty. It includes nature parks and reserves, zoos, aquaria and botanical gardens; and, natural sites with cultural aspects such as cultural landscapes, physical, biological or geological formations.

Following the UNESCO definition above, industrial heritage buildings are a type of tangible cultural heritage. In Ontario, “tangible” heritage buildings can be further classified as a form of built heritage. According the Ontario Provincial Policy Statement (2014), a “built heritage resource means a building, structure, monument, installation or any manufactured remnant that contributes to a property’s cultural heritage value or interest as identified by a community, including an Aboriginal community”. “Built heritage resources are generally located on property that has been designated under Parts IV or V of the Ontario Heritage Act, or included on local, provincial and/or federal registers”.

This then raises the question of, what attributes constitute heritage? According to the Ontario Provincial Policy Statement (2014) heritage attributes are, “the principal features or elements that contribute to a protected heritage property’s cultural heritage value or interest, and may include the property’s built or manufactured elements, as well as natural landforms, vegetation, water features, and its visual setting (including significant views or vistas to or from a protected heritage property)”.

However, there are many forms of built heritage. Just as zoning by-laws determine types of land uses, built heritage can also be typified by use. For example, industrial buildings, residential buildings and places of worship are/were all used for different purposes; therefore, their inherent cultural value will be representative of their use. A former industrial building with heritage significance would, for example, represent a form of industrial heritage (Alfrey and Putnam, 1992 p. 9).

ICOMOS or, the International Council on Monuments and Sites, is non-governmental international organisation dedicated to the conservation of the world's monuments and sites and is an advisory body to UNESCO. According to ICOMOS (2003), industrial heritage is defined as the “remains of industrial cultures which are of historical, technological, social, architectural or scientific value”. These “remains” can consist of: buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transportation and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education (ICOMOS, 2003).

### **Heritage - Planning for the Future**

As modernization progresses, the built environment changes. Former industrial buildings represent memories of our past industrial heritage and are part of our culture (Wong, 2017 p. 32). Thus, conservation of these densely-woven memories into the progressing built environment is crucial.

Heritage conservation is an intervention strategy that can take several forms. Following the ICOMOS Burra Charter of 1981 and 2013 for conservation, intervention strategies for conservation typically include five (5) broad categories: 1) Maintenance, 2) Preservation, 3) Restoration, 4) Reconstruction and 5) Adaptive Reuse – with maintenance happening as a continuous cycle (Burra Charter, 2013). Among other areas of interest, Dr. Luna Khirfan is an expert on historic preservation and cultural resource management, and has written a book on world heritage, urban design and tourism. This study adopts, the Burra Charter (2013) and Khirfan's (2014) use of the international terminology for historic conservation and refers to the above five conservation procedures. However, conservation is preceded by a

demonstration of the values of the cultural heritage through, for example, the bestowing of a heritage designation as is the case in municipalities in Ontario. Indeed, a heritage designation “is a way of publically acknowledging a property’s value to a community. At the same time, designation helps to ensure the conservation of these important places for the benefit and enjoyment of present and future generations” (OMTCS, 2007 p. 1). Through legislation and regulations, a heritage designation can help protect a property and its buildings from being demolished.

### **Heritage Significance**

What do we conserve? How do we determine cultural heritage value? What is the relationship between a property or building and history? The answers to these questions have varied responses. Around the world, heritage conservation is often preceded by designating a site, monument, building, etc. with what is known as a “heritage status”. More specifically, a heritage “designation” is a binding protective measure given by heritage advocates to these sites, monuments, buildings, etc. and enforced by various agencies such as non-profit organizations, planning agencies, or governments (AlSayyad, 2001 and UNESCO, 2008). What constitutes a heritage designation? How are heritage property evaluations performed? How does the heritage designation process work in Municipalities? In Ontario? In Canada? Around the world? These important questions need to be answered to help establish the theoretical and empirical framework from which an understanding of the significance of heritage can be gleaned.

Canada is a Member State of UNESCO and through ICOMOS Canada, Canada is committed to the ICOMOS and UNESCO charters, and thus, Canada and its provinces, devise their heritage policies under the umbrella of these international charters (ICOMOS Canada, 2017). Besides an international designation, a heritage designation within Canada can be granted by the federal government (National), the provincial governments (Provincial), or a municipal government (Local). Determining whether a property and/or a building should be bestowed with some form of heritage designation requires recognition of cultural heritage value or interest. How does this value or interest come about? Do individuals and/or organizations always agree on what constitutes cultural heritage value or interest? The answer to the latter is no; according to de la Torre and Mason (2002), “heritage values are, by nature,

varied, and they are often in conflict”. However, de la Torre and Mason (2002 p. 3) also state that, “value has always been the reason underlying heritage conservation. It is self-evident that no society makes an effort to conserve what it does not value”. Cultural heritage value or interest can take many forms. Table 1 below provides de la Torre and Mason’s (2002 p. 10) analysis of the two most common types of heritage values and respective parts. The table is relevant, because it showcases neither an exhaustive nor exclusive list of heritage value typologies and is offered as a point of departure and discussion when it comes to understanding how the five Ontario-based case studies (chosen for this thesis) demonstrated significant cultural heritage value or interest to their respective communities. According to Bullen and Love (2011 a p. 1), “there is growing acceptance that heritage buildings are an important element of social capital and that heritage conservation provides economic, cultural and social benefits to urban communities”.

*Table 1: Provisional Typology of Heritage Values*

<b>Sociocultural/Values</b>	<b>Economic Values</b>
Historical	Use (Market) Value: Tangible heritage value referring to the goods and services that flow from it that are tradable and priceable in existing markets.
Cultural/Symbolic	Non-use (Non-market) Values <ul style="list-style-type: none"> <li>• Existence Value: Individuals value a heritage item for its mere existence, even though they themselves may not experience it or “consume its services” directly.</li> <li>• Option Value: Someone’s wish to preserve the possibility (the option) that they might consume the heritage’s services at some future time.</li> <li>• Bequest Value: To bequeath a heritage value asset to future generations.</li> </ul>
Social	
Spiritual/Religious	
Aesthetic	

Source: (de la Torre and Mason, 2002).

As this thesis aims to answer research questions regarding the adaptive reuse of designated heritage properties in Ontario, a more specific examination of the Ontario-based heritage designation processes, and determination of heritage value/significance is provided.

In Ontario, municipalities can pass by-laws to designate real properties of cultural heritage value or interest under the Ontario Heritage Act, R.S.O. 1990, c. 0.18 (OHA). Specifically, a heritage designation is bestowed to a property and not a building alone. However, the designation under the OHA extends to more than just the property parcel itself to include culturally significant features such as

buildings, for example. According to the OMTCS (2017), the Ontario Heritage Act came into force in 1975 and its purpose is to give municipalities and the provincial government powers to preserve the heritage of Ontario by protecting heritage properties and archaeological sites and by mandating a Crown agency (the Ontario Heritage Trust and the Conservation Review Board<sup>6</sup>).

Under Part IV of the OHA, municipalities in Ontario can designate properties they deem to be of cultural heritage value or interest. For a designation to occur, a property must meet one or more of Ontario Regulation No. 9/06's Criteria for Determining Cultural Heritage Value or Interest, relating to features such as a property's buildings; including, their physical, historical and contextual value. In most municipalities across Ontario, the Council of a municipality establishes a Municipal Heritage Committee (MHC) to advise and assist Council on matters relating to heritage. The public and/or municipal staff can advocate for a property or building to be either "designated" under Part IV of the OHA or "listed" within a municipality's Inventory of Heritage Properties (IHP). A recommendation is then put to a vote by municipal Council. If approved by Council, the property (and its assets such as a building) will be included within the municipality's IHP (Mitani, 2015; Ontario Heritage Act, 1990; and OMTCS, 2007).

The difference between listing a property and designating a property under the OHA is simple. A listed property, like a designated property, demonstrates cultural heritage value or interest but is merely an indication of a municipality's intention to conserve, and does not give the property any legal protection. The listing is sometimes done as a safeguard should a property owner wish to demolish or make alterations to a building on a listed heritage property. In these cases, municipalities usually implement policies that require owners of listed heritage properties to provide a certain amount of notice with their intention to demolish. The notice gives a municipality time to seek a "designation" under Part IV of the OHA – if desired (Mitani, 2015; Ontario Heritage Act, 1990; and OMTCS, 2007).

A "designation" takes heritage conservation a step further by providing legal protection (via by-laws) that helps to ensure conservation of the heritage asset. Should a property owner wish to demolish or

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<sup>6</sup> The Ontario Heritage Trust and the Conservation Review Board are tribunals that hear objections to municipal and provincial decisions under the Ontario Heritage Act, R.S.O. 1990, c. 0.18.

make alterations to a building on a designated heritage property, they would need the approval of a municipality's Council. With a designation, a municipal Council can legally refuse to grant a demolition permit. In either instance, however, if a property owner is not happy with the decision of a municipal Council, they can appeal that decision to the Ontario Municipal Board<sup>7</sup> (OMB) (Mitani, 2015; Ontario Heritage Act, 1990; and OMTCS, 2007).

What is interesting about this process are the implications it may have on the adaptive reuse process; not just for adaptation of industrial heritage buildings, but for the adaptation of any building residing on a "listed" or "designated" heritage property. For example, if a property owner wishes to adaptively reuse a former industrial building that has been designated under Part IV of the OHA, they would require the approval of municipal Council, as adaptive reuse constitutes an alteration. Should Council have any reason to refuse a proponent's application, the adaptive reuse of said building comes to a standstill.

To help Council make an informed decision regarding the cultural heritage value or interest of a property, municipalities will often retain an independent planning firm to undertake an evaluation, usually referred to as a Heritage Impact Assessment (HIA) (OMCTS, 2006). A HIA will evaluate the impact the proposed development or site alteration (e.g., adaptive reuse) will have on the cultural heritage resource(s) and will often recommend an approach to the conservation of the resource(s) (City of Toronto 2010 and OMCTS, 2006) .. However, this process takes time and money for both the property owners/investors and the municipality. Regardless, since it is considered a form of alteration, the adaptive reuse of buildings on heritage properties requires proponents who are prepared to invest significant time and money into contingencies.

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<sup>7</sup> The Ontario Municipal Board (OMB) is an independent, quasi-judicial, administrative tribunal responsible for handling appeals of land-use planning disputes and municipal matters. For example, appeals to the OMB could involve official plans, zoning bylaws, plans of subdivision or minor variances. When people are unable to resolve their differences on these types of community land-use planning issues, the OMB provides a public forum for appeals. (Ontario Ministry of Municipal Affairs and Housing, 2016b).

## **Defining Adaptive Reuse**

There are various definitions of adaptive reuse. Authors Shen and Langston (2010) who have extensively researched adaptive reuse, define it as a way of breathing new life into existing buildings by leaving the basic structure and fabric of the building intact, and changing its use. However, it is important to understand the definition of “adaptive reuse” within a broader context in order to provide a more holistic understanding of the term. Therefore, several additional definitions have been provided.

The epistemological foundation for understanding adaptive reuse as a concept can be divided into two categories: 1) professional; and, 2) theoretical and empirical research. The professional approach can start with the Burra Charter (2013), which provided guidelines for cultural heritage management, and defines adaptive reuse as additions to a place, the introduction of new services, or a new use, or changes to safeguard a place, all of which should have a compatible use. Further, UNESCO (2015) describes adaptive reuse as finding new use(s) suitable for a place which respects form, character, structure and historic integrity and often requires some careful changes to a place. Additionally, the City of Kitchener (2017b) – which is the location for two of the selected case studies – defines adaptive reuse as, “projects that involve the sensitive adaptation of a cultural heritage resource or of an individual heritage attribute for a continuing or compatible contemporary use, while protecting its heritage value. This may be achieved through repairs, replacements, alterations and/or additions”.

The theoretical and empirical understanding can begin with Burchell and Listokin (1981), who had a similar focus to this thesis, in that they wanted to bridge the gap between cities and neighbourhoods of the past and the potentials they hold when planning for the future. They contributed to this goal by providing a better understanding of adaptive reuse and how it can be used as a tool to capitalize on the many requirements of legal, physical and strategic planning in a book titled “The Adaptive Reuse Handbook”. Their definition of adaptive reuse is, therefore, the most fundamental to this study. According to Burchell and Listokin (1981) adaptive reuse is, “a neighbourhood revitalization strategy which employs a series of linked procedures to: plan for, inventory, acquire, manage and reuse surplus or abandoned real

estate...The underlying concept of adaptive reuse is its attempt to maximize the often-hidden value of real property and provide a process for the reemployment of this property. Adaptive reuse is thus the embodiment of preservation, conservation and recycling objectives for previously used, now-surplus, real property”.

### **Defining Successful Adaptive Reuse**

Understanding what exemplifies a successful adaptive reuse project is critical to this research, as it will provide a rationale for case study selections as well as a base from which to help identify assessment criteria. Determining what constitutes a “successful adaptive reuse project” is not simply achieved through a singular definition, but rather, an examination of a variety of factors that, culminate to create a realized success (Burchell and Listokin, 1981). Understanding what comprises successful adaptive reuse projects are rooted in theoretical literature and empirical examples, and defining them can be difficult.

According to ICOMOS (2010), successful built heritage adaptive reuse projects are those that “modify a place for a compatible use while retaining its cultural heritage value”. Successful adaptive reuse can be defined further by Zushi (2005), who explains how “successful adaptive reuse projects require not only good design for the building, but also careful planning that considers its surrounding environment”. According to Conejos et al. (2013) elements and/or criteria that help define an adaptive reuse project as successful often include the following:

- makes a positive aesthetic contribution to the streetscape;
- maintains the appearance and feel of the old building;
- preserves the structural clarity of the old building and space;
- conserves and incorporates several significant artefacts;
- provides a rewarding and unique environment;
- creates and/or provides a unique visitor experience;

- designed using carefully modulated scale and proportion, juxtapositions of materials, light and shade and old and new elements – inside and out;
- resides in an ideal location; and,
- contributes to a sustainable future.

Further, Larkham, 1996; Murtagh, 2006 and UNESCO, 2007, found that successful adaptive reuse should:

- maintain the economic viability of the heritage place;
- achieve economic efficiency;
- account for the capital costs of the building works;
- account for the future running costs of the proposed use, including maintenance costs;
- account for the potential market for the proposed reuse;
- account for the location of the property; and,
- account for the financial sources required to undertake the project.

For the purposes of this thesis, a combined view of the above definitions of successful adaptation has been adopted. Therefore, the selection of case studies for this research, was based on the criteria for successful adaptive reuse above.

### **Factors Influencing Adaptive Reuse**

There are challenges associated with the adaptive reuse of buildings which can make the process difficult for its proponents. Factors influencing the outcome of adaptive reuse are not all challenges, some are drivers. According to Bullen and Love (2011b), the major positive influential factors for adaptive reuse are lifecycle issues (the “new use”), changing perceptions of buildings (cultural and social), and governmental incentives (economic-based and legislation-based factors). The challenges to adaptively reuse, on the other hand, include the perception of increased costs (economic-based factors), building regulations (the “new use”), inertia of development criteria and the inherent risk and uncertainty associated with older building stock.

Further, trials with a building's location, incompatibilities with the pre-existing structure's original use and the proposed new use, as well as environmental issues (such is the case with many old industrial facilities) present additional challenges to the proponents of adaptive reuse (Burchell and Listokin, 1981; Florentina-Cristina et al., 2014 and Wong, 2017).

In developing adaptive reuse strategies for heritage buildings, Mısırlısoy and Günçe (2016) found that, there are seven factors that contribute to the success of adaptation. Those factors include physical, economic, functional, environmental, political, social, and cultural as factors as influencers of adaptive reuse strategies for heritage buildings – something they term “Adaptive Reuse Potentials” (ARPs).

The following sections contribute to the identification of criteria for assessing the outcomes (whether the success of or challenges) facing the adaptive reuse of industrial heritage buildings. This is done within the framework of the primary research questions by utilizing the seven (7) posited influential factors and will focus on theoretical and empirical sources significant and relevant to this study. Ultimately, the following establishes these factors from the literature, which is deductive research and a contribution to answering this thesis' research questions.

### **Cultural Factors**

The notion of “cultural capital” represents one of the six forms of community capital – assets of which are often blighted by the existence of abandoned or unused industrial buildings (Mah, 2012 and Roseland, 2012). This study adopts Roseland's (2012 p. 16) notion of “cultural capital” as, “the product of shared experience through traditions, customs, values heritage, identity and history which represent the cultural and traditional resources of a community”. This definition is relevant to this study because industrial heritage buildings represent part of a community's cultural capital; and, to adaptively reuse one of these buildings entails the alteration of this capital. Mısırlısoy and Günçe (2016 p. 1) reflect this view in that they found heritage buildings to be “crucial in terms of transferring cultural identity for further generations”. Wong (2017) adds to this finding in that adaptive reuse doesn't just extend the lives of buildings, it helps to transfer cultural identify from one period to the next through design foundations;

ultimately, either conserving past cultures or contributing to cultural regeneration. However, Wong (2017 p. 30) also poses rhetorical questions pertaining to both built and cultural compatibilities/incompatibilities. As an example, Wong asks: Could the Lincoln Memorial in Washington, DC, commemorating the 16<sup>th</sup> president of the USA, be used as a residence? While the answer here is an obvious, no, perhaps one reason for a successful adaptation, is because the proposed new use of a building is compatible with not just the surrounding land uses, but with the former and current cultures as well. For example, a former factory building that is converted into loft apartments in an area that both 1) has a demand for new urban loft condos, and 2) houses the grown-up children of workers who used to work in the former factory. While the building may no longer be a factory, the design foundations of the adaptation may have captured the essence of the building's former use, thereby helping to transfer its cultural identity to the next generation.

To understand how the adaptive reuse of industrial heritage buildings helped contribute to cultural regeneration, Florentina-Cristina et al. (2014) utilized a case-study approach (similar to this study) to highlight the evolution from a building's previous industrial use to the stage of adaptation. It was found that, "industrial heritage is part of a community's culture and it reflects the degree of civilization reached at a certain point in time". The longer the period between the dominantly industrialized and the deindustrialized, the more that industry becomes a symbol, and the more it identifies with the community's cultural image. They also found that the adaptation of former industrial buildings into cultural tourist attractions "is a superior form of capitalizing on formerly industrial regions whose economy is on a decline" (Florentina-Cristina et al., 2014). What is interesting here is that, as a form of culture, industrial heritage and adaptive reuse seem to form a mutualistic relationship. Through adaptation, a community's industrial heritage can be conserved, but without the transfer and/or maintenance of that industrial heritage's essence into the new use, adaptation fails to capitalize on that transfer or regeneration of culture. This finding backs up the aforementioned definition of what constitutes successful adaptive reuse. The retention of cultural heritage value through adaptation, therefore, is an indicator of a successful adaptation.

This mutualistic relationship between adaptive reuse and culture was further examined by Xie (2015), who found that, if the location, building and community are idyllic for a cultural use, derelict industrial buildings can be adaptively reused into an into cultural spaces, in which this “cultural valorization of obsolete spaces offers diverse strategies for the role that industrial heritage may play in repairing the negative effects of deindustrialization”. The relevance here is that, for adaptation to be successful as a new cultural space, there are certain idyllic factors that must be present, such as the right location, building or community. As Xie (2015) puts it, not every abandoned industrial building is “sprouting artists” and certain factors must align just right for a cultural valorization to occur.

What is interesting between Florentina-Cristina et al. (2014) and Xie (2015) is that there was a parallel between the two studies. Both found that industrial heritage sites can be “parlayed” into a “landscape of nostalgia”, attracting tourists; and ultimately, making them an ideal site to reuse and preserve. According to Xie (2015 p. 141), “industrial heritage has long been viewed as Les Lieux de Mémoire, or sites of memory”, that holds with it, the potential to become valuable assets for rejuvenation through reuse. These industrial heritage sites “represent spatial landmarks of affective and collective memory in contemporary society” (Xie, 2015 p. 142).

Strangleman et al. (2013) wanted to take the understanding of culture and deindustrialization further by utilizing a review of academic literature to understand how communities “reinterpret” deindustrialization through the lens of memory. According to Strangleman et al. (2013), the process of deindustrialization crafts a powerful set of responses from people in relation to the past, present, and future. These former industrial buildings create a cultural phenomenon amongst members of a community who used to work within their walls. As these workers witnessed the deindustrialization process, they reflected on what work meant, the values that were created by industrial labour, the bonds and friendships that developed amongst coworkers, and the way in which being embedded in work “allowed one to mature and grow” (Strangleman et al., 2013 p. 19).

What was particularly relevant to this study’s research was that symbols of deindustrialization demonstrated a similar process of reinterpretation for those who “inherit the economic landscapes of

deindustrialization as well as those who are not directly affected but who examine it as outsiders” (Strangleman et al., 2013 p. 19). This is important because, in many cases, the deindustrialization process occurred so long ago, that most of the original workers or inhabitants of those industrial buildings have long since passed away; yet, the individuals and communities who have inherited “the economic landscapes of deindustrialization” still recognise cultural value in them. What this shows is that industrial heritage buildings have a definitive cultural impact on their communities, and that the new use which results from their adaptation is guaranteed to impact that cultural “lens of memory” (Strangleman et al., 2013 p. 7).

The transmission or regeneration of culture is, therefore, one criterion that must be considered when assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings.

### **Economic Factors**

Economic-based factors, such as financing or returns on investment for example, have been identified as influencers to the success of and challenges facing the adaptive reuse of industrial heritage buildings (Burchell and Listokin, 1981; Shipley et al., 2006a and Shipley et al., 2006b). Analyzing interview responses relating to the decision process for adaptively reusing heritage buildings is a way to explore whether heritage buildings contribute to the three tenets of sustainability (i.e., economic, environmental and social); and ultimately, helps to assess the feasibility of a potential adaptive reuse project (Bullen and Love, 2011c).

According to Bullen and Love (2011a), the adaptive reuse of heritage buildings can contribute to urban regeneration. However, while adaptive reuse is supported as a strategy for urban regeneration, it was found that key stakeholders have doubts about viability, particularly regarding economic matters (Bullen and Love, 2011c). One criterion identified for encouraging the adaptive reuse of heritage buildings was the provision of financial incentives (Bullen and Love, 2011c). They found that monetary contributions to construction works was an incentive that was most persuasive to building owners and developers when it came to deciding whether to adaptively reuse. If an investment was intended to be

short-term, then buildings were typically demolished and larger newly-constructed buildings with higher densities were erected in their places. The decision to adaptively reuse or demolish a building was partially driven by economic considerations and a desire for short-term profits (Bullen and Love, 2011c). The relevance here is that economic-based factors, specifically financial incentives, affect the decision to adaptively reuse industrial heritage buildings.

Similarly, Shipley et al. (2006a) found that some adaptive reuse projects cost more than it would to demolish and build new; however, not all cost more, and the return on investment for heritage development is almost always higher. Shipley et al. (2006a) utilized a multiple-case studies research design and key stakeholder interviews to examine the business of heritage development and found that one of the problems with adaptively reusing heritage buildings is that the costs are ostensibly presumed to be higher than it would be to construct new (Shipley et al., 2006a).

“When development projects are presented to decision makers, generally only the developer/lender’s cost analyses are presented and, therefore, they are unable to make truly informed judgments” (Shipley et al., 2006a p. 1).

Similar to this thesis’ exploration on economic factors, Shipley et al. (2006a), decided to look at the costs of adaptive reuse projects that had renovated historic and/or heritage buildings. In many instances, it was cheaper to do new construction rather than adaptation (Shipley et al., 2006a). However, two types of buildings were identified that were cheaper to adaptively reuse than to build new: medium residential buildings (18,000 – 50,000 ft<sup>2</sup>) and large commercial buildings (50,000 ft<sup>2</sup> >) (Shipley et al., 2006a p. 8).

According to Bullen and Love (2011a, b and c), most buildings considered for adaptive reuse demonstrate some sort of heritage value. Often, stringent heritage and conservation requirements, which must be adhered to, can increase the costs of adaptation. One cost associated with adaptation is the delays that inclement weather can have on the construction process. Depending on the condition of a structure, Bullen and Love (2011a, b and c) found that, interior conversions are often protected by the existing

building structure, creating a convenient protection measure from inclement weather which may have otherwise delayed the construction process; ultimately, saving money.

Adding to that, Shipley et al. (2006a) and Cantell (2005) found that, when considering adaptive reuse from an investment standpoint, there is no common ground. Some developers have a much higher return on investment predicted from the beginning of the project compared to what they ended up getting, while others were rewarded with a good return within a short time frame (Shipley et al., 2006a). Every situation, every site and every building produces different results (Shipley et al., 2006a).

The key points from these studies are that financial characteristics of certain buildings affect whether they are chosen for adaptive reuse. As finances are part of the broader theme of economics, the findings from these studies confirm the a priori assumption that the feasibility, and to a certain extent, the outcome of adaptive reuse projects is influenced by economic factors.

Government assistance is also a key contributor to the feasibility, and to a certain extent, the outcome of adaptive reuse projects (Shipley et al., 2006a and b). Incentives for heritage development such as waiving or reducing application fees and development charges, for example, can provide a financial means to justify an adaptive reuse project for a developer. For a municipality, these incentives are a means to promote economic development and make money back from property taxes on a newly valuable land assets (Shipley et al., 2006a). Bank loans were also found to be important for the developer on an economic level. However, obtaining bank loans for adaptive reuse projects seemed to be harder to come by. According to Shipley et al. (2006a), banks tend to evaluate adaptive reuse projects as having a higher level of risk. To compensate for the higher level of risk, developers were required to budget for potential remediation costs (environmental issues, contamination etc.) before a bank loan was issued (Shipley et al., 2006a). Again, these findings address how other scholars have discussed the seven (7) influential factors in that economic-based factors may influence the feasibility, and to a certain extent, the outcome of adaptive reuse projects. As such, economic factors should be considered as criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings.

Stas (2007) used a cost-benefit analysis and a Pro Forma to evaluate the financial feasibility of adaptive reuse. Stas (2007) found that it is common place for investors and owners to show slight interest when it comes to investing in the rehabilitation and reuse of “old” buildings. In agreement with Shipley et al. (2006a), Stas (2007 p. 155) concluded that “there is no magic formula to determine if the adaptive reuse of a certain structure is more profitable than to tear it down and rebuild a new one”. Three major factors were identified that affect the outcome of the adaptive reuse from an economic perspective:

1. “construction costs;
2. the total area of the building which determines the lease-able or sell-able space of the structure; and,
3. the appraised value of the property” (Stas, 2007 p. 144-145).

The more recent research by Wong (2017 p. 101) compliments the previous research by Stas in that adaptive reuse is an instrument of conservation in a world of shifting values. Wong’s assertion was previously composed by Wigle (1998), who found that former industrial properties frequently present an essential resource for stimulating local economic development, creating new residential opportunities, reviving inner-city regions, and decreasing suburban sprawl and the loss of rural areas. By adaptively reusing these buildings, it is possible to capitalize on those resources. Similarly, Alfrey and Putnam (1992) and Burchell and Listokin (1981) agree that the adaptive reuse of industrial heritage buildings presents an essential resource for stimulating local economic development, but that various economic factors play a determining role in the outcome of these projects. However, Petković-Grozdanovića et al. (2016) argue that before determining whether a building should be adaptively reused, some general requirements of the proposed new function need to be identified and examined to determine feasibility. If approached correctly, adaptive reuse projects have a greater chance to be cost-effective and successful (Petković-Grozdanovića et al., 2016).

The key point from these findings is that they further identify a variety of economic-based factors that should be considered as criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings.

## Environmental Factors

It is commonplace for properties formerly containing industrial uses to have environmental complications (High, 2003; Hula et al., 2012 p. 1 and Mah, 2012 p. 53-53). Often, these properties are referred to as brownfields<sup>8</sup>. Brownfield complications, the management of plants and animals at risk or Environmental Impact Studies or Assessments, are just a few of the environmental challenges many adaptive reuse projects face (Canadian Environmental Assessment Agency, 2016; Langston, 2008 and Roseland, 2012). According to the Government of Ontario (2017), if a brownfield property is being redeveloped for a new use, property owners and redevelopers must meet a set of stringent requirements pertaining to site assessment and remediation before the new use and any applications are approved. Due to the challenging nature of these requirements, Hula et al. (2012) found that, “both public and private sector actors are often reluctant to make significant investments in properties that simultaneously pose significant potential human health issues, and may demand complex and very expensive clean-ups”. This finding provides additional reasoning as to why there are so many abandoned or unused former industrial buildings scattered throughout Canadian communities.

However, if most industrial heritage properties contain contamination, how does the adaptive reuse of their heritage buildings successfully navigate through the environmental challenges associated with the required remediation? One reason the adaptive reuse of industrial heritage buildings has persevered through its environmental challenges in the past, is due to the resolve of both public and private sector actors to support and integrate the principles of a clean and healthy environment (Horsch et al., 1996 and Hula et al., 2012). An example of this resolve is the Government of Ontario’s Brownfields Financial Tax Incentive Program<sup>9</sup> (BFTIP), which is an example of a public initiative to provide support

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<sup>8</sup> Brownfield properties are vacant or underutilized places where past industrial or commercial activities may have left contamination (chemical pollution) behind, including: factories, gas stations, or waterfront properties (port lands) formerly used for industrial or commercial activities. Brownfields can: pose health and safety risks, be costly for the communities where they are located, and be redeveloped to meet health, safety and environmental standards (Government of Ontario, 2017).

<sup>9</sup> The Brownfields Financial Tax Incentive Program (BFTIP) is an initiative of the government of Ontario to encourage the cleanup and redevelopment of brownfield properties. BFTIP provides provincial education property tax assistance to match municipal property tax assistance for cleanup of eligible brownfield properties. Under the program, the province can cancel all, or a portion of the education property taxes of a property for up to three years (OMMAH, 2016a).

towards the integration of the principles of a clean and healthy environment. Private sector proponents of adaptive reuse also value this direction towards a clean and healthy environment.

According to Conejos et al. (2013) “building adaptive reuse plays a critical role in emissions reduction and supports global climate protection”; which demonstrates consistency to Section 1.1.1.h of the Ontario Provincial Policy Statement (2014) in that, “healthy, liveable and safe communities are sustained by promoting development and land use patterns that conserve biodiversity and consider the impacts of a changing climate”. Xie (2015) utilized a case study research design accompanied by interviews of key stakeholders to study a former factory which had been adaptively reused. In doing so, Xie (2015) created a life cycle model of industrial heritage development. It was found that, demolition of an old building can increase the disturbance to hazardous materials, contaminated ground and add the risk of falling materials and dust (Xie, 2015). When these former industrial buildings were demolished, this disturbance was further exacerbated, as their structures and the lands beneath them often contained more contaminants than other structure types. This finding holds importance to this study because it demonstrates how, additional environmental contamination and disturbance caused by demolition, can be avoided through adaptive reuse. If public and private sector actors can avoid posing significant potential human health impacts, and/or complex and costly clean-ups through adaptive reuse, the resolve to undertake adaptation becomes reinforced; consequently, adaptation becomes more likely to succeed.

Goldsmith Borgal and Co. Ltd. (2012), found that in the event of building demolition, various environmental issues related to the loss of structures and a consequent loss of embodied energy are a significant issue. “One square foot of brick in a wall is the equivalent of 1 gallon of gasoline in terms of the energy required to make the brick, bring it to a site and erect it” (Goldsmith Borgal and Co. Ltd., 2012). Similarly, Conejos et al. (2016) found that, “adaptively reusing existing buildings provides a significant opportunity to address climate change by reducing energy use while simultaneously improving the building’s environmental performance over their entire life cycles” ... as “these buildings have

embodied energy and original qualities that cannot be surpassed by demolition and new construction in terms of their environmental, social and cultural contributions”

This reaffirms the understanding that the conservation of a building (especially a large building) is inherently an environmentally-friendly and sustainable process given that “it preserves the potential energy stored within the structure itself” (Goldsmith Borgal and Co. Ltd., 2012). Not only do these findings identify environmental factors as criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings, they also establish reasoning as to why actors may opt for adaptation as opposed to new construction.

Langston et al. (2008) explored the relationships between financial, environmental and social parameters associated with the adaptive reuse of building in Hong Kong, China by utilizing and building on an existing Adaptive Reuse Model (ARP) and by undertaking case study research similar to this study. They found that adaptive reuse is beneficial to both the environment and society while also contributing to the retention of national heritage (Langston et al., 2008). Environmental benefits included the recycling of materials, the reuse of structural elements, and the reduction in generated landfill waste (Langston et al., 2008). In addition, Langston et al. (2008) noted that older buildings were sometimes preferred, as they were often constructed using a range of higher quality materials that predictably demonstrated a “useful life well in excess of their modern counterparts (e.g. use of solid stone walls, slated roofs, marble floors, etc.)”. Due to their robust structures, the adaptive reuse of industrial buildings was also found to be energy efficient, as the buildings hold the potential to reduce energy consumption in heating and cooling and deliver long-term operational efficiencies, (Langston et al., 2008). These findings contribute to the knowledge required to adaptively reuse industrial heritage buildings. Consequently, the findings also reiterate the fact that certain environmental factors can be “indicators” of success that enable developers, planners and communities to identify the challenges, disadvantages and advantages associated with adaptive reuse projects.

## **Legislative Factors**

Providing policy direction on matters of national, provincial or municipal interest, related to land use planning and development, can help set the legal foundation for regulating the development and use of land by supporting the goals of those invested (Ontario Provincial Policy Statement, 2014). The ground rules for land use planning in Ontario is governed by the Province of Ontario and under the Ontario Planning Act, R.S.O. 1990, c. P.13. The Ontario Planning Act describes how land uses may be controlled, and who may control them. From the Planning Act, municipalities prepare planning documents (e.g. Official Plans and Zoning By-laws) and make local planning decisions that will determine the future of communities. Other provincial-, regional-, and municipal-level planning policy documents also exist which provide direction on matters related to the achievement of specific land use planning goals (e.g. the Ontario Provincial Policy Statement, 2014 or the Growth Plan for the Greater Golden Horseshoe, 2017). Land use functions, operations and decisions must look to the Planning Act and any other applicable provincial-, regional-, and municipal-level planning policy documents for direction. It is not necessary by law, to conform to all of the provincial, regional and municipal policies. Indeed, in some instances, the requirements are merely for the plans to be consistent with, or to have regard to these policies. This direction can be manipulated strategically. For example, should the Province of Ontario wish to provide a policy framework aimed at protecting cultural heritage resources, they could, by written ordinance, direct planning authorities to comply with specific policies.

If so desired, the Province of Ontario, its regions or municipalities can encourage and promote the use of adaptive reuse as a strategy to minimize energy consumption through public policy. For example, in the City of Kitchener's Official Plan - A Complete and Healthy Kitchener (2014 p. 104), section 7.C.6.1 states that: "The City will seek to minimize energy consumption by: d) encouraging the adaptive reuse of existing buildings". In the same sense, a lack of leadership and encouragement by governments, can otherwise, be detrimental to the outcome of an adaptive reuse project (Bullen and Love, 2011c).

For example, municipal zoning by-laws regulate the use, size, height, density, and location of buildings on properties within municipal boundaries and determine what, where, and how much someone can build on a property (City of Orillia, 2011). In Xie's (2015) study, proponents who adaptively reused an old factory originally had the intention for the building to be reused into something different from what it became. This occurred, because the initial idea required a zoning by-law amendment (ZBA) (as the proposed use wasn't one of the permitted uses listed in the zoning by-law). Ultimately, the process of undertaking a ZBA would have taken more time than the developer wanted to invest, so, the proposed new use changed. Conversely, planning policy can also have a supportive effect on the outcome of adaptive reuse. For example, in 2007, the City of Kitchener adopted an Economic Development Strategy (EDS) designed to encourage investment in their downtown core and support the establishment of the "Education and Knowledge Cluster" (Region of Waterloo, 2012). Since the adoption of that EDS, many projects were completed, including the adaptation of the Kaufman Lofts and the Tannery District – two of this thesis' case studies on adaptive reuse. Included within that EDS, were explicit policies encouraging the use of adaptive reuse of former industrial buildings. Some of the policies even provided specifics on how to conserve historic elements of a building's architecture.

Like the basis of this study, Conejos et al. (2016) examined the challenges/barriers to successful adaptive reuse projects in Australia. Interestingly, Conejos et al. (2016) found that there were tensions between "the retention of heritage buildings and conformance with regulatory requirements (e.g. energy efficiency to reduce greenhouse gas emissions, disability access, etc.)". This finding raises a question applicable to this study. Specifically, whether current Federal, Provincial or Municipal legislation can embrace both the goals for sustainable building technologies and heritage conservation directives? Conejos et al. (2016) found that compliance to codes/regulations and current design requirements were the major legislative challenges encountered with adaptive reuse projects. Specific barriers included:

- Compliance with current building codes, regulations, conservation guidelines, licensing and planning requirements.

- Scope and classification changes of buildings that need building code and zoning compliance/amendments.
- Different production and developmental criteria of cities pose challenges to urban regeneration or redevelopment approaches.

To help proponents overcome the legislative challenges accompanied with adaptive reuse, Bullen and Love (2011c) recommended that responsible authorities: relax the building requirements for heritage listed buildings; provide development bonuses such as density and plot ratio bonuses; permit flexibility in meeting current construction regulations; and where applicable, speed up the planning process.

Although there are obvious legislative challenges impacting adaptive reuse, Conejos et al., (2016) found that those challenges can be resolved through the application of improved, more innovative and explicit policy writing.

What is key from these findings is that legislative factors, such as planning policies, can have a profound impact on the success of an adaptive reuse project. If policy explicitly supports adaptation, then municipal planning staff and/or other decision bodies can justify the planning merit in a proposed adaptation project. In addition, due to their legal implications to a proposal, all applicable legislative factors, such as planning policy, must be fully considered when assessing the planning merit of an adaptive reuse project. Ultimately, legislative factors are indicators of success and/or failure when it comes to any adaptive reuse project, heritage designation or not.

### **Locational Factors**

Location, location, location! This cliché phrase is referring to one of the most basic determinants of real estate value, namely, the desirable location of a property. As described above by Larkham, 1996; Murtagh, 2006 and UNESCO, 2007, successful adaptive reuse should account for the location of the property. According to Schiller (2001) and Dent et al. (2012) a property's location can heavily impact various components of the property itself. Specifically:

- Desirability

- Property value
- Function of the property (both for the current and/or future use)
- Safety
- Accessibility
- Appreciation

In assessing the feasibility of adaptive reuse for an industrial heritage building location is important.

In fact, the location of a building is not just a determining factor in the feasibility of adaptive reuse, but also contributes to a project's outcome (Florentina-Cristina et al., 2014). Florentina-Cristina et al. (2014) utilized a structural and typological analysis of building forms to assess the feasibility for adaptive reuse into cultural resources. One of their findings was that:

“The location of industrial facilities is an element that may be put to best use in the course of reusing them, especially those located close to the central areas of towns. Even if their location is not central, an adapted industrial building can attract both the local population and tourists, by means of the cultural services it can offer” (Florentina-Cristina et al., 2014).

What was interesting to see here was that, by adaptively reusing a building, it was possible to fabricate a desirable location, in part, simply by providing a desirable use. Part of the reason for this phenomenon is the fact that the adaptive reuse created a new use which became compatible with the surrounding land (Xie, 2015). It was also found that adaptive reuse can promote the preservation and enhancement of an old building by providing a compatible use with the surrounding area (Xie, 2015). Further, Shipley et al. (2006a) found that the location of a building to and from points of interest, the neighbourhood itself and site-specific advantages such as availability of parking (for example) also contributed to the success of adaptive reuse projects. “As is the case with other real estate ventures, the old adage of ‘location, location, location’ often applies to heritage development” (Shipley et al., 2006a p. 510).

A study by Heath (2001) examined the adaptive reuse of obsolete office buildings to residential uses between projects undertaken in Toronto, Canada and London, England. Heath's (2001) found that adaptive reuse is a strategy cities can use to maintain a competitive edge while continuing to be a good locational choice for a variety of land uses. With respect to this study, Heath's (2001) findings demonstrate how adaptive reuse projects can positively impact their surrounding locations and not always the other way around. What the above studies also demonstrate, is how location-based criteria can be used as indicators of success and/or failure when it comes to identifying the challenges, disadvantages and advantages associated with adaptive reuse projects.

### **New-Use**

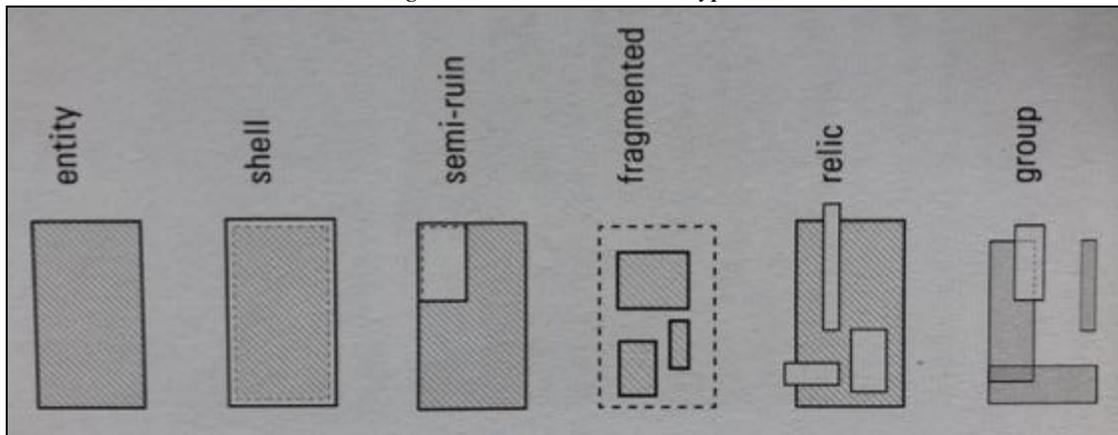
The previous function of a building can determine the feasibility of an adaptive reuse project (Burchell and Listokin, 1981 p. 20-23; Shen and Langston, 2010 and Wong, 2017 p. 102-121). For example, prisons are often too compartmentalized, low-rises typically do not fully utilize the available plot ratio allowed by zoning by-laws, and large steel sheds or factory units are spacious but may require professionals that are too specialized/non-existent (Bullen and Love, 2011c).

According to Wong (2017 p. 102-121), the adaptation of heritage buildings requires different types of interventions depending on the type of "host structure<sup>10</sup>" available, of which, there are six (6) structure types (Figure 2 and Table 2). Although a technical understanding of building structures is rooted in the realm of architecture, a basic understanding of a community's building stock is useful for professional planners, as it helps provide a holistic understanding of how to appropriately allocate different land uses to different properties. This is especially important to planning for the adaptation of heritage buildings, as heritage conservation is partially determined by the host structure.

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<sup>10</sup> "In the built environment, a host building is a structure that receives a new use for a defined period or undefined period of time. All host structures are in many ways found objects, whole existing structures that have lost their relevance and are unused or underused. Host structures in adaptive reuse are characterized by alteration and transformation in the form of design interventions" (Wong, 2017 p. 104-105).

Figure 2 - Host Structure Types



Source: Wong, 2017 p. 106

Table 2: Host Structure Information

Host Structure Type	Description	Types of Adaptation Possible	Example
Entity	Existing whole and intact buildings available for conversion to a new use.	Design interventions can occur on both the exterior and the interior of the structure and can include renovations, subtractions or additions.	Castelvecchio Museum - Verona, Italy
Shell	Often, though not exclusively a heritage building with a designated protected exterior (i.e., a shell for interior conversion to contain new and different activities).	Adaptation does not intervene on the exterior of the buildings but interior conversions can engage the structural system within.	Selexyz Dominicanen Bookstore – Maastricht, Netherlands
Semi-ruin	Buildings that are not entirely intact and are missing elements of either the structure, the infrastructure or both.	Design interventions include interior insertions and additions with the purpose of bringing the existing ruined structure back to a whole state and, second, to extend, if desired, the extent and the capacity of the host building in its new use.	Moritzburg Museum – Halle, Germany
Fragmented	Buildings that are characterized by an extent of incompleteness rendering it uninhabitable and range from a fragment of a building to its infrastructure, façade or structure.	Adaptation includes additions to the fragments to achieve a new state of completion. Adaptation must be justified by the importance of the fragment itself and includes historic significance and economy.	The Urban Plaza of Chiesa Madre – Salemi, Italy
Relic	Simply a relic of the past that is not transformed but serves as the catalyst for new construction. Its significance is in the recall of a memory: an event, history, a period of time.	The spirit of these relics pervades the detailing of the new building, guiding spatial experience that recalls the old one.	The Long Museum – West Bund, Shanghai, China
Group	Host structures that are grouped together and not necessarily bound to one building and which are differentiated by whether the buildings are elements that comprise part of one single complex or individual elements in an overall urban environment.	Adaptation usually includes the preservation of a historic event, community or moment in time, such as the sites protected by UNESCO.	Zollverein Coal Mine and Coking Plant – Essen, Germany

Source: Wong, 2017 p. 102-121

Further, Bullen and Love (2011a, b and c) found that, failing to optimize a building's life cycle expectancy is a fundamental problem in adopting a more sustainable use of a community's built stock – something also expressed by Shen and Langston (2010). The increased popularity and push for energy efficiency and sustainable building designs (e.g. Leadership in Energy and Environmental Design (LEED) certification) is making adaptive reuse more difficult and even more expensive (Bullen and Love, 2011c). Like the Frankenstein Syndrome described by Wong (2017 p. 34) earlier, the outcome of adaptive reuse projects is, in part, successful only if the new and old uses of the building can find a compatible order.

Shen and Langston (2010) created a formula and model that helps predict the feasibility of adaptive reuse for a building – what they labelled as a “building's adaptive reuse potential (ARP)”. Their ARP model helped to discover that the prospect for adaptive reuse is linked to a building's physical life expectancy. The key finding here, is the relationship between Wong's Host Structure Types and the potential for adaptive reuse as time goes by. With time, will a host structure start as an entity and regress to a ruin or a fragment?

A study by Petković-Grozdanovića et al. (2016) assessed different aspects of derelict industrial buildings to identify which buildings had the qualities to be turned into residential buildings through adaptive reuse processes. It was determined that, if derelict industrial buildings were to be adaptively reused into residential dwellings, it's essential that industrial facilities have certain architectural features – either before or after adaptive reuse, including:

- Existing occupancy levels on-par with the occupancy levels mandated by local planning policies;
- Adequate vertical and horizontal communication areas;
- Naturally lit and ventilated living spaces;
- Traditional floorplan layouts, such as “open space” layouts;
- In larger industrial buildings, adequately located elevators; and,
- Large proportions of the original structure and attributes retained.

What the findings above demonstrate is how the adaptive reuse of heritage buildings forces actors to assess a building as the sum of different juxtaposed parts, in which the new use is another part of its history. Failure in adaptive reuse, therefore, stems in part, from the introduction of a new and incompatible use with the existing one (Wong, 2017 p. 34,121). Ultimately, the new use of a building and its compatibility with the old structure and use, can be used as an indicator of success and/or failure when it comes to identifying the challenges, disadvantages and advantages associated with adaptive reuse projects.

### **Social Factors**

The Ontario Planning Act R.S.O. 1990, c. P.13 maintains that the Province of Ontario, its municipalities and other agencies and actors (e.g. Planners) involved in land use planning have a certain “Duty to Consult” when it comes to land use planning in Ontario. This “Duty to Consult” has been reinforced by the Provincial Policy Statement (2014). Public consultation in Ontario, is a way of providing an opportunity for the public to get involved in a variety of diverse subjects and projects. Adequate consultation can contribute to a better understanding of the nuances of local context and conditions.

These nuances, such as social values and norms, play a crucial role when it comes to addressing and managing post-industrialism and its various derivatives, such as industrial heritage (Neumann, 2016). Neumann (2016) discusses how there has been a recent re-emergence of Lefebvre’s (1968) notion of “Le Droit À La Ville”, or “The Right to the City” – which is an understanding that every person has an equal right to their own city including the ability to collectively shape their environments. When applying this notion to examples of adaptive reuse, it can be understood that the support of residents will collectively impact the success of a building’s adaptation. After all, when assessing the feasibility of an adaptive reuse project, proponents must ask themselves, “for whom are we doing this for”?

The notion of “social capital<sup>11</sup>” represents one of the six forms of community capital – assets of which are often blighted by the existence of abandoned or unused industrial buildings (Mah, 2012 and Roseland, 2012). Understanding industrial heritage as a derivative of social capital is important, because doing so, will help identify whether social factors are criteria that can be used for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings.

Cho and Shin (2014) examined industrial heritage conservation by means of adaptive reuse in Incheon, South Korea (Republic of Korea). They emphasized how the conservation of industrial heritage involves not only adaptive reuse but also the creation of cultural values of obsolete spaces. It was determined that the creation of cultural values in obsolete spaces is a “prerequisite to establishing and retaining heritage values and sites”. According to Cho and Shin (2014 p.73):

“Industrial built forms, like other historical buildings, lose their function due to their obsolescence and thus, adaptive re-use can be a suitable conservation option. Yet, adaptive re-use for industrial heritage conservation has to be concerned with creating and establishing cultural values of obsolete spaces and their social recognition as heritage sites”.

The fact that actors involved in the conservation of industrial heritage buildings must strive to create and establish social recognition is a suggestion that social factors are indicators of success and/or failure with adaptive reuse projects. The common realization that there is heritage value within an obsolete space can contribute to the creation of community of champions<sup>12</sup> who support adaptive reuse because they believe it will contribute to the improvement of their environment (i.e., the right to the city). According to Cho and Shin (2014), “local participation and initiatives are crucial in keeping balance between endorsing the cultural content and financial returns of the heritage”. In addition, Xie (2015) found that these industrial adaptations become assets that exemplify a "place identity" which shapes the

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<sup>11</sup> “Social capital is the glue that holds our communities together – comprised of community cohesion, connectedness, reciprocity, tolerance, compassion, patience, forbearance, fellowship, love, commonly accepted standards of honesty, discipline and ethics and commonly shared rules, laws and information” (Roseland, 2012).

<sup>12</sup> A Champion is person or group who fights or argues for a cause or on behalf of someone else.

character of previous focuses of industry; and consequently, create a source of pride for communities (i.e., champions) (Xie, 2015).

When referring to “social” adaptive reuse potentials (ARP), Mısırlısoy and Günçe (2016) infer that there are three (3) key ARPs which help garner social support and include:

- social meaning for the local community;
- spirit of the building; and,
- public interest to the building.

The success of adaptively reusing heritage buildings, isn't just a by-product of conservation principles, but also, a compilation of influential factors working together to assist in overcoming the challenges presented with adaptation projects; of which, social support is a part (Blagojević and Tufegdžić, 2016; Cho and Shin, 2014; McIntyre and Russell, 2016; Mısırlısoy and Günçe, 2016 and Xie, 2015). Therefore, social nuances should be used as an indicator of success and/or failure when it comes to identifying the challenges, disadvantages and advantages associated with adaptive reuse projects.

## **Summary**

The goal of this literature review was to identify criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. The a priori assumption was that, the feasibility, and to a certain extent, the outcome of adaptive reuse projects is primarily influenced by cultural, economic, environmental, legislative, locational, “new-use” and/or social factors. The literature review deduced that, based on those seven (7) factors, it is possible to identify criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. Several unanswered questions on this topic remain such as: in the cases where the adaptive reuse of industrial heritage buildings was successful, how and why did these successes occur? How can these criteria be transformed into tools that can be generalizable and be applied in various contexts with modifications to suit new contexts? Therefore, additional original research needs to be undertaken.

In summary, this chapter contributed to the knowledge of adaptively reusing industrial heritage buildings; however, the remainder of this study will focus on identifying specific criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings through original research. Table 3 (below) provides a description and examples of each of the influential factors based on the findings from the literature review. These influential factors will be tested across five case studies in Ontario, Canada.

*Table 3: Influential Factors for Adaptive Reuse of Industrial Heritage Buildings*

<b>Influential Factor</b>	<b>Description</b>
Cultural Factors	Factors which refers to those shared meanings associated with arts and other manifestations of human intellectual achievement regarded collectively that are not, strictly speaking, historic which may impact adaptive reuse, both positively and negatively (de la Torre and Mason, 2002; and Culture, n.d.). <ul style="list-style-type: none"> <li>• <b>Positive Impact Example:</b> Proposed project embodies and implements a community’s culture and diversity within project’s proposal.</li> <li>• <b>Negative Impact Example:</b> Archaeological assessments that halt and/or hinder process.</li> </ul>
Economic Factors	Factors that may impact the outcome of adaptive reuse which stem from economic circumstances pertaining to value, financing, market characteristics, investments, etc. which can affect adaptation projects both positively and negatively. <ul style="list-style-type: none"> <li>• <b>Positive Impact Example:</b> Angel Investors/Donors, Government Grants, significant return on investment, etc.</li> <li>• <b>Negative Impact Example:</b> Poor markets, insufficient contingency funds coupled with unexpected costs, undesirable Pro Forma, etc.</li> </ul>
Environmental Factors	Any potential effects or impacts that the existing structure, its surrounding lands, its former industrial use(s), and its proposed new use(s) could have on the environment, or vice versa, which may impact adaptive reuse, both positively and negatively. <ul style="list-style-type: none"> <li>• <b>Positive Impact Example:</b> Government Grants for brownfield remediation.</li> <li>• <b>Negative Impact Example:</b> Brownfield complications, adverse impacts to Species at Risk, etc.</li> </ul>
Legislative Factors	Policy direction on matters of stakeholder interest related to land use planning and development which may impact adaptive reuse, both positively and negatively. <ul style="list-style-type: none"> <li>• <b>Positive Impact Example:</b> Section 1.1.2 of the PPS (2014) promoting redevelopment.</li> <li>• <b>Negative Impact Example:</b> Adaptive Reuse not explicitly listed or encouraged through policy; therefore, no specific legal backing.</li> </ul>
Locational Factors	Any potential effects or impacts that stem from the location of an industrial heritage building which may impact adaptive reuse, both positively and negatively. <ul style="list-style-type: none"> <li>• <b>Positive Impact Example:</b> Proximity to transit, core areas, shopping, or located in a preferred/safe neighbourhood, etc.</li> <li>• <b>Negative Impact Example:</b> Far from core areas, inaccessible by public transit, dangerous neighbourhood, etc.</li> </ul>
New-Use Factors	Any potential effects or impacts that the existing structure, its surrounding lands, its former industrial use(s), and its proposed new use(s) could have on the proposed new use, or vice versa, which may impact adaptive reuse, both positively and negatively. <ul style="list-style-type: none"> <li>• <b>Positive Impact Example:</b> Robust and flexible building structure, proportion of new construction to reuse, etc.</li> <li>• <b>Negative Impact Example:</b> Foundation and structure issues, incompatibility of new use, etc.</li> </ul>
Social Factors	Factors or “values attached to an object, building, or place because it holds meaning for people or social groups due to its age, beauty, artistry, or association with a significant person or event or (otherwise) contributes to processes of cultural affiliation”, which may impact adaptive reuse, both positively and negatively (de la Torre and Mason, 2002). <ul style="list-style-type: none"> <li>• <b>Positive Impact Example:</b> Nostalgia, adequate consultation, community champions, etc.</li> <li>• <b>Negative Impact Example:</b> Tragic event within a building that creates community dislike of a building or area, insufficient consultation, or bad media/political representation.</li> </ul>

## **CHAPTER 3: Research Methodology**

### **Primer**

Selecting the appropriate methods is required of any scientific research and in doing so, will contribute to accurate and reproducible answers to the primary research questions; and ultimately, the identification of criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. The purpose of this chapter is to: explain the processes that were chosen to answer the research questions outlined in Chapter 1; provide the rationale and methodological detail for the study; and, provide enough information so that others can fully replicate the study.

The literature review has provided an account of the knowledge and ideas that have been established by peer-reviewed works by conducting a deductive analysis, and has identified influential factors that form the basis from which to identify specific criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings.

The methods chosen to address the primary research questions of this study will attempt to fill the gaps in the existing literature by building off what has already been studied and their methods used and undertaking original research. The following presents the methods that were used to carry out this study. This chapter is broken up into eight (8) main headings including: Paradigm; Research Design; Case Study Selection; Data Collection; Trustworthiness of Data; Data Analysis; Ethics; and, Discussion and Reporting. These headings comprise stages of the scientific method of research. This chapter culminates with a conclusion on the methods and will include a summary of the key points and arguments, a reiteration and emphasis on the key message of the chapter and a transition to Chapter 4 – Case Studies.

### **Paradigm**

Amongst other subjects such as architecture and building sciences, the adaptive reuse of industrial heritage buildings, is placed partially within the subject of urban and regional planning. Studies examining professional practices such as land-use planning, architecture, land development, and

government are all rooted in the social sciences. It is common for studies in the social sciences to involve the collection and analysis of qualitative data (i.e., descriptive data) (Yin, 2014). Per Marshall and Rossman (2006 p. 154), “qualitative data analysis is a search for general statements about relationships and underlying themes”.

For the purposes of this study, a qualitative research method was adopted. Qualitative methods were necessary because answers to the primary research questions required some variation of complex textual descriptions collected from people’s experiences with the selected topic (i.e., the “human” side of things) (Berg and Lune, 2012). As a paradigm, qualitative research is a base from which to select: the appropriate research design; the appropriate data collection method; and the appropriate method for data analysis (Kumar, 2011 and Yin, 2014). Often, the human side of things can be contradictory when it comes to behaviors, beliefs, emotions, opinions or relationships (Berg and Lune, 2012). Therefore, in asking the primary research questions (Chapter 1), the only possible answers could be descriptive (i.e., qualitative in nature); therefore, a qualitative research method was adopted.

## **Research Design**

This study adopted a multiple-case studies research design<sup>13</sup>. Strong designs are required to strengthen the validity of studies, including their accuracy, and to ensure that the data to be collected properly addresses the research topic being studied (Yin, 2011).

The selection of an appropriate research design was guided via the following research questions (restated from Chapter 1):

1. In the cases where the adaptive reuse of industrial heritage buildings were successful, how and why did these successes occur?
2. What are the factors that impacted the outcome of adaptive reuse?
3. How can these criteria be identified for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings?

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<sup>13</sup> “Research designs are logical blueprints that involve the links among the research questions, the data to be collected, and the strategies for analyzing the data—so that a study’s findings will address the intended research questions” (Yin, 2011 p. 28).

4. How can these criteria be transformed into tools that can be generalizable and be applied in various contexts with modifications to suit new contexts?
5. How did those factors/criteria impact adaptive reuse?

## **Rationale**

Part of performing rigorous research is selecting the appropriate research design. Understanding the type of data being dealt with and the type of research required of that data helps a researcher to develop a base from which to begin designing their research approach.

The research design selected for this study utilized the multiple-case studies approach. A multiple-case studies approach was selected to develop an in-depth understanding of successful industrial heritage adaptation projects; and in a general sense, adopts the holistic multiple-case study design as demonstrated by Mısırlısoy and Günçe (2016) and Yin (2014). In addition, it was important to understand the type of research that would result from this study's purpose and research questions. Therefore, the nature of this study's multiple-case study design was a combination of both explanatory and descriptive research. According to Kumar (2011 p. 335) "in an explanatory study, the main emphasis is to clarify why and how there is a relationship between two aspects of a situation or phenomenon", and according to Yin (2014), "how" and "why" questions are more explanatory". In relation, Kumar (2011) defines descriptive studies as studies in which the focus is on description, rather than examining relationships or associations. According to Yin (2014), understanding when and why a case study research design is used, is critical to obtaining complete and accurate answers to research questions. In a simple sense, it is important to understand why the case study approach is the best approach for a selected topic, rather than, for example an experiment, a survey, a history or an analysis of archival records. According to Kumar (2011) case study research "is a very useful design when exploring an area where little is known or where you want to have a holistic understanding of a situation, phenomenon, episode, site, group or community". Understanding why and how the adaptive reuse of certain industrial heritage buildings was successful required a holistic understanding; therefore, the case study research design was adopted.

Following Yin’s (2011) approach, final selection on whether to do case study research as the preferred method, was rationalized by examining certain situational factors and/or traits. According to Yin (2014), “doing case study research would be the preferred method, compared to the others, in situations when:

1. the main research questions are “how” or “why” questions;
2. a researcher has little or no control over behavioral events; and,
3. the focus of study is a contemporary”.

In addition, Table 4 (below) was used as a simple tool to help justify the use of case study research (Yin, 2014). If the answer to each one of the three situational questions was “yes”, then the corresponding preferred method could be assumed.

*Table 4: Research Method Rationale*

<b>Method</b>	<b>(1) Form of Research Questions</b>	<b>(2) Requires Control of Behavioral Events?</b>	<b>(3) Focuses on Contemporary Events?</b>
Experiment	How, Why?	Yes	Yes
Survey	Who, What, Where, How many, How much?	No	Yes
Archival Analysis	Who, What, Where, How many, How much?	No	Yes / No
History	How, Why?	No	No
Case Study	How Why?	No	Yes

Source: Yin, 2011 p. 9

The main research questions for this study were how and why questions. In addition, as the study examined the outcome of previously completed adaptive reuse projects, control over behavioral events was not required. Finally, since the focus of this study was on the adaptive reuse of industrial heritage buildings (i.e., an on-going phenomenon), the subject was identified as contemporary in nature. Therefore, the case study method was adopted.

The main purpose of this study was to clarify why and how there is a relationship between certain factors and the success of adaptively reusing industrial heritage buildings. In addition, an attempt was made to systematically describe why certain adaptive reuse projects succeeded (i.e., the situation, problem and/or phenomenon).

## **Benefits of the Multiple-Case Studies Approach**

There are several benefits of utilizing a multiple-case studies approach to research. According to Yin (2014), case study research is a valid and rigorous approach to research (especially in the social sciences) and especially if the researcher follows the correct series of methodical steps.

Based on an understanding of Easton (2010), Hodkinson and Hodkinson (2001), Kumar (2011), Woodside (2010), and Yin (2014), the multiple-case studies approach was chosen for three (3) elemental reasons: 1) it contributed to a holistic view of the adaptive reuse of industrial heritage buildings as a phenomenon; 2) it helped to provide an understanding of complex inter-relationships in technically distinctive situations in which there were many variables; and 3) multiple cases provided a set of “grounded-in-lived-reality” exemplary outcomes which contributed to the answers of this study’s main questions. Additionally, the multiple-case studies design allowed for a lot of information/data to be collected on a large variety of subject criteria in a relatively short amount of time.

## **Case Study Selection**

Case study selection was based on Yin’s (2014 p. 28) framework for identifying cases and establishing the logic of the case studies. According to Yin (2014), selection of the cases for a multiple-case studies research project should be based on the following criteria:

1. There must be sufficient access to the data for the potential case and that data should complement the chosen data collection method; and,
2. The case must be likely to illuminate the posed research questions.

In selecting the case studies for this research project, the above criteria were considered and met. In addition, and to synthesize with the overall foundation of the study, the case selection rationale included three (3) additional criteria which cases had to conform to, to be an appropriate selection. The three (3) additional case study selection criteria are presented below:

3. The case must be an example of a successful adaptive reuse project (as defined in the literature review);

4. The original use and purpose of the building had to have been industrial in nature; and,
5. The building and/or property had to have some form of official heritage designation or listing.

Ultimately, five case studies were chosen that met the above specified criteria. The case study selections are as follows:

*Table 5: Case Study Selection*

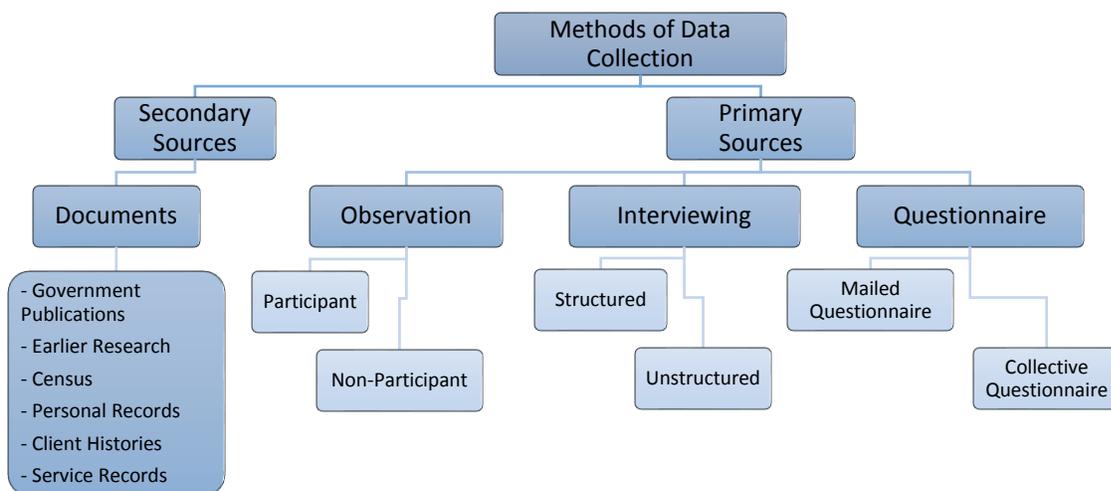
Case #	Title	Location	Image
1	Artscape Wychwood Barns	601 Christie Street, Toronto, ON	
2	Evergreen Brick Works	550 Bayview Avenue #300, Toronto, ON	
3	The Kaufman Lofts	410 King Street West, Kitchener, ON	

4	The Tannery District	151 Charles Street West, Kitchener, ON	
5	The Tudhope Building	50 Andrew Street South & 1 Colborne Street West, Orillia, ON	

## Data Collection

Data collection tactics for this study utilized both primary and secondary data sources and adopted several methods of data collection as presented by Kumar (2011 p. 132) in Figure 3 below.

*Figure 3: Kumar's Methods of Data Collection*



Source: Kumar (2014 p. 132)

Secondary data sources that specifically addressed/discussed the case studies were reviewed and included a variety of peer-reviewed academic journal articles, books, newspaper articles, and government and organization publications. A deductive content analysis, similar to Bullen and Love (2011c) and Khirfan (2014 p. 33) was undertaken on the secondary data, which contributed to the preparation of Chapter 4: An Historic Background. Primary data was collected by means of interviewing and observation. Specifically, semi-structured key stakeholder interviews and site visits (as a non-participant) were undertaken. According to Kumar (2011) observation, in this case basic site visits, is one way to collect primary data. The observation tactic was used because it is “a purposeful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place” (Kumar, 2011). However, the data collected from the observations was not typical of the traditional passive observer data collection as described by Kumar (2011). For this study, site visits acted in more of a supportive capacity to the interviews rather than the primary data collection method. Specifically, observations consisted of witnessing the five (5) adaptive reuse cases in action. This included observing:

1. the new use of the building and property in action;
2. taking photographs of the building and property; and,
3. touring around the property and throughout the building.

Key stakeholder interviews were the main tactic used in gathering primary data. According to Kumar (2011), interviewing is a commonly used method of collecting information from people. Semi-structured interviews were used when interviewing the key informants. Typically, there are two types of interviews used for primary data collection: structured and non-structured<sup>14</sup>, with some middle ground. Semi-structured interviews were chosen for this study because of their ability to combine a set of pre-determined questions with the flexibility to re-order and/or slightly re-word them depending on what was occurring during the context of discussion. The strength of structured interviews is that is they provide

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<sup>14</sup> Structured interviews as those that utilize a predetermined set of questions, and use the same wording and order of questions as specified in an interview schedule. At the other end of the spectrum, non-structured interviews are free to have their questions ordered in whatever sequence a researcher wishes. In addition, the researcher also has complete freedom in terms of the wording they use and the way they explain questions to respondents (Kumar, 2011).

“uniform information, which assures the comparability of data and require fewer interviewing skills from the researcher” while the strength of non-structured interviews is in the freedom to be flexible (Kumar, 2011 p. 138).

According to Yin (2014), researchers preparing for data collection must ensure that they have spent considerable effort preparing to do so, as the data collection stage is of utmost importance to the outcome of a research project. As one of the preparatory mechanisms to ensure preparedness and scrutiny during data collection, the posed interview script was submitted to a research ethics board who reviewed the questions and eventually provided approval.

Interviews were chosen as the primary data collection mechanism because they are an effective tool for learning about matters that cannot be directly observed (Yin, 2014). Key informant interview questions consisted of a series of qualitative-based queries which attempted to uncover answers to this study’s primary research questions in a holistic manner. The questions were built around the a priori assumed and deduced seven (7) influential factors that impact and/or challenge the adaptive reuse of industrial heritage buildings. Specifically, the questions surrounded: culture, the environment, economics, legislation, location, the new use of a building and social factors. A copy of the interview script is provided in Appendix A.

Key informants/stakeholders were chosen based on their role, or their organization’s role, in the success of the selected adaptive reuse projects. Often, key informant interviews can provide valuable in-depth knowledge on subjects because the informants have had first-hand experience working with or influencing the subject matter (Berg and Lune, 2012; Kumar, 2011 and Yin, 2014). Key informants/stakeholders tend to have immense knowledge surrounding their respective subjects and expertise. A variety of unique individuals and professionals, relevant to each selected case, were chosen and most often included:

- Architects,
- Financiers,
- General Contractors,

- Local Government Officials,
- Planners,
- Politicians, and
- Property Owners, and
- Real Estate Developers.

A total of 30 key informant interviews were undertaken. Data collected from both observer and key informant interviews was recorded manually in a field notebook and digitally in the form of password encrypted audio recordings. The data was then developed into various response categorisations which were then coded and quantified using the qualitative data analysis software NVivo, adopting a similar approach to Port (2013 p. 63-72). The processes involved with data analysis will be discussed in the upcoming Section: Data Analysis.

### **Trustworthiness of Data**

To ensure that the results from this study are accurate, reproducible and rigorously obtained, the collected data must be trustworthy (Berg and Lune, 2012; Kumar, 2011 and Yin, 2014). A data set's trustworthiness starts with the source. For the secondary data, only well-recognized, academic, non-academic, organization-based or government published sources were utilized. All secondary sources had listed authors, publishing dates, notable publishers and their own set of references. The most commonly utilized secondary sources were peer-reviewed academic journal articles and books (usually textbooks).

The trustworthiness of the primary data is assured in two ways: 1) the determination by which the key informants were selected (including who the individuals were in relation to the cases), and 2) by following the procedures as set out by Yin (2014) and especially with regard to avoiding biases.

To avoid biases, Yin's (2014) framework was adopted:

1. The case studies were not "aimed" selections in that they weren't chosen to substantiate a preconceived position;

2. The researcher was open to contrary evidence and data collection was reported to two or three critical colleagues; and,
3. The highest ethical standard was achieved by scrutinizing the proposed study and interview questions under the University of Waterloo's Research Ethics Board – which received clearance.

### **Data Analysis**

For qualitative studies, it is vital to plan how a researcher's data analyse will transpire (Berg and Lune, 2012; Kumar, 2011 and Yin, 2014). This study adopted a content analysis based off Bullen and Love (2011c), Khirfan (2014 p. 33) and Kumar (2011 p. 248-249), to draw meanings from the key informant responses and notes taken during site visit observations. A combination of manual and software-assisted data analysis was used for this study and consisted three (3) general steps:

1. Transcribing (audio-recorded interviews and field notes);
2. Development of various response categorisations; and,
3. Coding and quantifying the data using the qualitative data analysis software NVivo<sup>15</sup>.

The steps of the content analysis are based off Bullen and Love (2011c), Khirfan (2014 p. 33) and Kumar (2011 p. 248-249) and include:

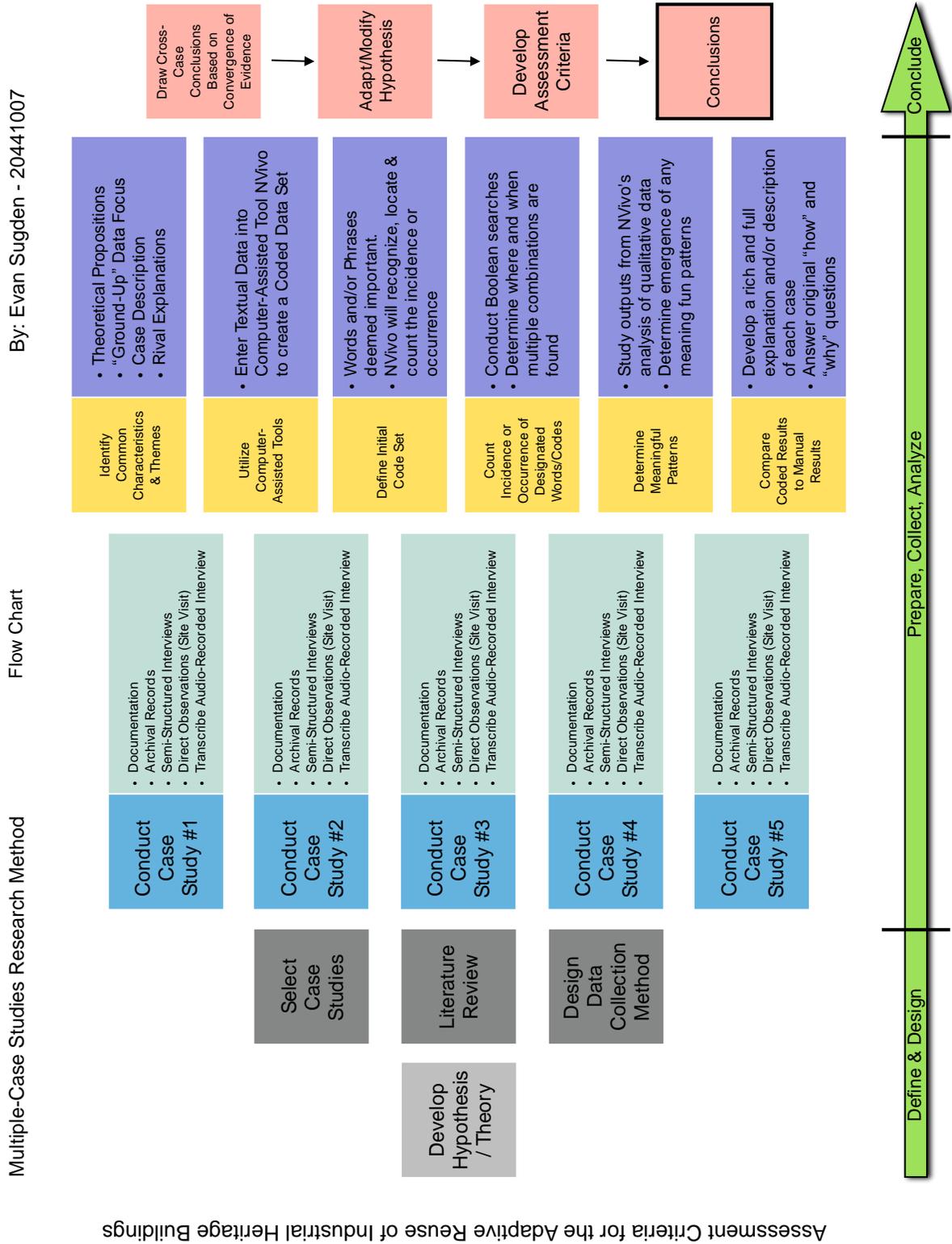
1. Identification of the main themes;
2. Assignment of codes to the main themes;
3. Classification of responses under the main themes; and,
4. Integration of themes and responses into the text of the report.

Figure 4 (below) presents a methodological flow chart of the research procedures, data collection, data preparation, and analysis utilized in this study to achieve conclusions that would contribute to answering the this thesis's research questions.

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<sup>15</sup> NVivo is a computer software that supports qualitative and mixed methods research and is specifically designed to handle large amount of descriptive data" (QSR International, n.d.). The NVivo software is based upon the principle of content analysis (Kumar, 2011 and QSR International, n.d.).

Figure 4: Methods Flow Chart for Research Procedures, Data Collection, Data Preparation & Analysis



## **Ethics**

This study involved the face-to-face interviews with human participants. As required by the Canadian Government's Panel on Research Ethics, research involving human participants requires the researcher to have ethical training through the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2) prior to conducting any research. The Ethical Conduct for Research Involving Humans (TCPS 2) was undertaken, passed and officiated by means of a completion certificate.

## **Discussion and Reporting**

The discussion and reporting of the results that emerge from this study is rigorous in nature and based off the results of the content analysis. Following Kumar's (2011) approach to data processing in qualitative studies, the main themes that emerge from the field notes and transcriptions of the in-depth interviews were identified and written out. Broad themes were then deduced to provide a discussion of their prevalence, and thus, significance regarding the primary research questions. The discussion attempts to identify criteria for assessing how and why the adaptive reuse of some industrial heritage buildings has been more successful than others. The methods of communicating and displaying analysed data in this study include:

1. Textual discussion and reporting;
2. Tables;
3. Identification of assessment criteria for the adaptive reuse of industrial heritage buildings; and
4. Guidelines within a policy recommendation framework.

## **Summary**

This chapter has presented the methods and methodology adopted by this study. A multiple case-studies research design was selected as the preferred and appropriate strategy because the subject's premise exists within the realm of the social sciences; which in turn, are rooted in the general qualitative research archetype. The nature of this research design is both explanatory and descriptive in nature and

the case studies were chosen using a rationale that reflects this. Data analysis utilizes a software-based content analysis based on similar approaches by Bullen and Love (2011c), Khirfan (2014 p. 33), Kumar (2011 p. 248-249) and Port (2013 p. 63-72). Overall, the methodology adopted was chosen because of its prevalence in the current literature surrounding adaptive reuse, heritage conservation and industrial buildings and because it attempts to take a holistic approach to solving a multi-factor problem.

The following chapter – An Historic Background – presents a brief history of each of the five (5) case studies. It covers the initial uses of each building, their diminishment in purpose, their adaptation, and the impacts that their successful adaptation had on their respective communities. This chapter also identifies the cultural heritage value demonstrated by each case.

## CHAPTER 4: An Historic Background

### Chapter Outlook

This chapter provides a brief history of each of the five (5) Ontario-based case studies. It covers the initial uses of each building, their diminishment in purpose, their adaptation, and the impacts that their successful adaptation had on their respective communities. This chapter also identifies the cultural heritage value demonstrated by each case.

### Artscape Wychwood Barns

<b>Address</b>	601 Christie Street; 76 Wychwood Avenue, Toronto, ON
<b>Current Official Plan Land-Use Designation</b> (City of Toronto Bylaw 418-2005)	Parks (As per Map 17 – Land Use Plan)
<b>Current Zoning</b> (City of Toronto Zoning By-law 419-2005, under Former Zoning By-law 438-86)	Mixed (Special)
<b>Property Area</b>	2.02 Hectares (5.0 Acres)
<b>Heritage Status</b>	Individually Designated Heritage Property under Part IV (individual) of the Ontario Heritage Act on April 16, 1998 (By-law No. 1237-2007)

*Figure 5: Wychwood Barns – In Use Pre-Adaptation*



Source: [http://artscapewychwoodbarns.ca/wp-content/uploads/2017/01/8\\_historic.jpg](http://artscapewychwoodbarns.ca/wp-content/uploads/2017/01/8_historic.jpg)

Constructed between 1913 and 1921, the property at 601 Christie Street in Toronto was originally home to five (5) streetcar sheds which were used as a repair and housing facility for the Toronto Civic Railway (TCR). At its busiest, the Barns could house 50 streetcars, with spaces for an additional 110 cars amongst the 5-Acre property surrounding the facility. The Barns were built with utilitarianism in mind and are an example of the classic revival industrial style (Artscape Inc., n.d.). According to Toronto-based Artscape Inc. (n.d.) – the developer and programmer of the facility:

“The TCR was a municipally-run service, operating in newly annexed areas where private companies refused to operate. One of the main functions of TCR was to provide a connection between the city's five privately-run railways [...] Encompassing 53,000 square feet, the complex was built in three stages, in 1913, 1916 and 1921. While each period of construction has slightly different characteristics and structural materials, all share high ceilings, peaked roofs and massive doors to accommodate the passage of streetcars through the buildings.”

In 1921, the City of Toronto, began expropriating all existing private railway companies to expand its own transit interests, including the TCR and its Wychwood Barns. This expansion would eventually form the Toronto Transit Commission (TTC) (Steiner, 2010). In 1954, the TTC took over the Wychwood Barns property completely.

Located near the major intersection of St. Clair Avenue West and Christie Street. The Wychwood, in the name Wychwood Barns, comes from that fact that the Barns are situated in Wychwood Park, “one of Toronto’s most architecturally and geographically unique neighbourhoods” (Artscape Inc., n.d.).

In the early 1900s, that area was largely residential and near the edge of the City. When the TTC began extending their transit lines west alongside the growing city, the Barns lost their purpose (Steiner, 2010). According to Steiner (2010), by 1973, the TTC used the Barns as a storage facility and in 1978 were decommissioned. Eventually, the Barns were vacated and boarded up in 1985; after which point, they began to fall into disrepair (Steiner, 2010).

Between 1996 and 1998, the Wychwood Barns were scheduled to be demolished by the City. However, a local Politician and neighbourhood residents recognized the property and Barns as having potential cultural heritage value. After the City retained an architect to undertake a heritage study, the property and structures were deemed to be of historically significant cultural heritage.

In 2000, it was agreed that the Wychwood Barns would be adaptively reused. The City, neighbourhood residents and the Politician eventually retained the help of an architect named Joe Lobko and a not-for-profit urban development organization called Artscape Inc. to work on the adaptation. Funding for the project came from a wide variety of sources, including some funding through Section 37 density bonusing (Ontario Planning Act, 1990) fees, which were retrieved from a large condominium development located six blocks away – an issue that was seen as contentious to some (Lehrer and Wieditz, 2009). Sources of funding were not the only area of contention faced by the project. There was controversy between the direction sought by the City and the desires of the neighbouring residents. However, the CEO of Artscape (Tim Jones), was able to find a creative way to bridge the conflicting needs of the developers involved, the City and the community. Mr. Jones’s experience in redeveloping neighbourhoods into arts-based communities helped the Wychwood Barns adaptation in that it provided an experienced team member who could help provide an innovative solution for the property and the area (McDonough and Wekerle, 2011).

After \$23 million in capital support and eight (8) years of arduous work, the newly named “Artscape Wychwood Barns” adaptive reuse project was completed. According to Lobko (2008), the adaptation of the Wychwood Barns represents the first heritage restoration in North America to receive a Gold Certification through the Leadership in Energy and Environmental Design (LEED) program. According to Artscape Inc. (n.d.):

“the Artscape Wychwood Barns is a community cultural hub where a dynamic mix of arts, culture, food security, urban agriculture, environmental and other community activities and initiatives come together to provide a new lease on life for a century-old former streetcar repair facility”.

The Wychwood Barns complex now houses:

- artist live/work spaces;
- programming and administrative facilities for not-for-profit organizations;
- indoor and outdoor urban-food growing areas;
- a community-run gallery; and,
- a 7,680 ft<sup>2</sup> “Covered Street” used for farmers and art markets, conferences and events.

*Figure 6: Artscape Wychwood Barns – Post-Adaptation*



Source: <http://artscapeeventvenues.ca/event-venues/artscape-wychwood-barns/>

*Figure 7: Artscape Wychwood Barns – Post-Adaptation*



Source: <http://artscapeeventvenues.ca/event-venues/artscape-wychwood-barns/>

## Evergreen Brick Works

<b>Address</b>	550 Bayview Ave #300, Toronto, ON
<b>Current Official Plan Land-Use Designation</b> (2015 - Map 17 Land Use Plan)	Natural Areas & Parks
<b>Current Zoning</b> (City of Toronto Zoning By-law No. 569-2013 and Former East York Zoning Bylaw No. 6752)	Open Space Natural (ON) and Other
<b>Property Area</b>	17.75 Hectares (43.87 Acres)
<b>Heritage Status</b>	Individually Designated Heritage Property under Part IV (individual) of the Ontario Heritage Act on Nov 28, 2002 (By-law No. 986-2002)

*Figure 8: Don Valley Brick Works – Quarry, Pit and Buildings Pre-Adaptation*



Source: <http://www.thecanadianencyclopedia.ca/en/article/evergreen-brick-works/> courtesy of Bernice Gardner

Founded in 1889 as the Don Valley Pressed Brick Works, the property at 550 Bayview Avenue in Toronto's Don Valley was originally home to one of Canada's most significant brick manufacturers for more than a century. In 1901, the original owners of the property faced financial difficulty and were

forced to sell the property. It was then that the business name changed from the Don Valley Pressed Brick Works to the more recognizable, Don Valley Brick Works (DVBW).

Since its establishment in 1889, the property was most prominently used for industrial purposes including quarrying operations and brick manufacturing. At its peak, the factory produced over 43 million bricks a year and, literally brick-by-brick, helped to shape Toronto's skyline (Irvine, 2012).

The materials required to manufacture the bricks were extracted from a quarry directly on the DVBW property. Part of the factory's notable historic architecture were four towering chimneys, each of which, "carried one word of the name spelled out in white bricks: "Don", "Valley," "Brick," and "Works" (Beaton, 2014). The DVBW saw its fortune when a great fire in 1904 destroyed a large portion of Toronto's downtown. The fire provoked the City of Toronto to pass a new by-law which changed the City's building codes and prohibited developers from constructing new buildings with wood as the primary material. Conveniently, the DVBW was available to provide a "less flammable" construction material.

After more than a century, the Don Valley Brick Works closed in 1984. Left behind was a heavy industrial footprint consisting of "42 acres of damaged ecosystem, 16 crumbling industrial heritage buildings, and a lot of contaminated soil" (Irvine, 2012). In the late 1980s, the property and its industrial buildings were expropriated by the City of Toronto and the Toronto and Region Conservation Authority (TRCA) with key support garnered by various citizen-lead groups such as "Friends of the Valley".

In the mid-1990s, the City and the TRCA raised approximately \$6 million to convert the site's quarry into a park and natural area. The funding was supported by a generous donation from an organization called The Weston Foundation. The City of Toronto applied to have the DVBW site individually designated as Property of Cultural Heritage Value or Interest under the Ontario Heritage Act of 1990. In 2002, the property was officially designated under Part IV of the Ontario Heritage Act. The Province of Ontario has also designated the former DVBW property as an Area of Natural and Scientific Interest (ANSI). According to the Province of Ontario (2015), ANSI are lands and waters with features that are important for natural heritage protection, appreciation, scientific study or education.

In 2002, a Canadian non-profit organization named Evergreen took interest in the property and the former DVBW buildings. Known for transforming public landscapes into thriving community spaces with environmental, social and economic benefits, Evergreen began the arduous, yet highly collaborative, process to adaptively reuse the site. Eight years and \$55 million later, “Evergreen officially opened “Evergreen Brick Works” as Canada’s first large-scale community environmental centre and a venue for celebrating innovation in urban greening” (Irvine, 2012 p. 2). According to Irvine (2012 p. 2), “Evergreen embedded the values of collaboration, environmental sustainability, economic viability, and change and adaptation into their design process” to successfully transform the site.

In November of 2002, the property was formally designated under Part IV (individual) of the Ontario Heritage Act for its tremendous industrial, architectural and environmental cultural heritage value to the community.

*Figure 9: Evergreen Brick Works – Post-Adaptation*

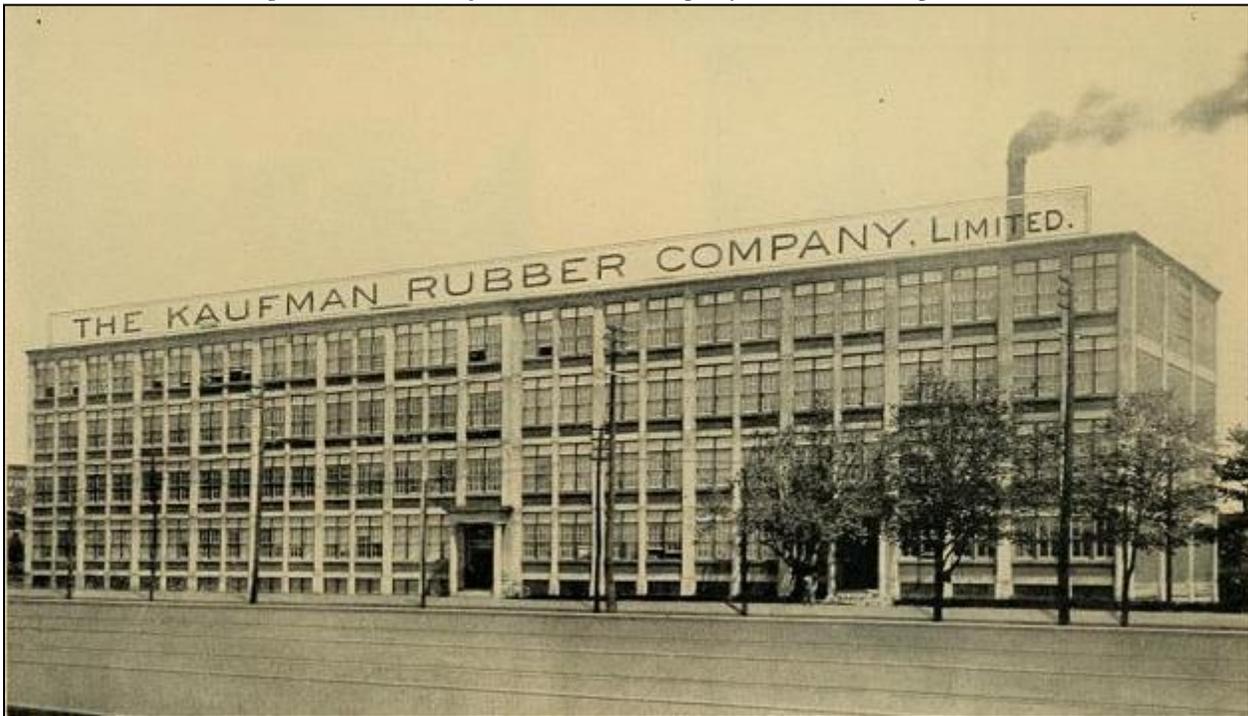


Source: <http://www.csla-aapc.ca/awards-atlas/evergreen-brick-works>

## The Kaufman Lofts

<b>Address</b>	410 King Street West, Kitchener, ON
<b>Current Official Plan Land-Use Designation</b>	Urban Growth Centre (Downtown)
<b>Current Zoning</b> (Zoning By-law No. 85-1, 92-232, 2007-137 & 2005-165 )	Warehouse District Zone (D-6) + Special Use Provisions: 343U, 423R, 138U, & 138U + Holding Provision: 9H
<b>Future Zoning</b> (Comprehensive review of the zoning by-law [CRoZBy] 2015-2018)	Urban Growth Centre (Downtown) Zone, specifically, UGC -3: Innovation District
<b>Property Area</b>	1.23 Hectares (3.04 Acres) 0.444706 Ha + 0.784174 Ha
<b>Heritage Status</b>	Individually Designated Heritage Property under Part IV (individual) of the Ontario Heritage Act on April 2, 1996 (By-law No. 96-34). The property was designated for its historic and architectural value, by the City of Kitchener

*Figure 10: The Kaufman Rubber Company Ltd. - Pre-Adaptation*



Source: <http://www.damnyak.ca/2012/01/kaufman-rubber-sorel-boots.html>

Designed by famed architect Albert Kahn and constructed in stages between 1908 and 1925, the Kaufman Lofts in Kitchener, Ontario was originally home to the Kaufman Rubber Company Ltd., a Canadian footwear manufacturer founded by Jacob Kaufman in 1907 (Walker et al., 2010). The building is a six-storey red and black brick, steel-frame building and is an excellent example of early industrial modernist architecture (MacDonald and Scott, 2012). In 1996, the property was designated, for its historic

and architectural value, by the City of Kitchener, under Part IV of the Ontario Heritage Act (By-law 96-34).

The Kaufman plant opened in 1908 with 350 employees, and over time, had a major impact on Kitchener's local economy due to its employment of thousands of workers over its years in operation, often for successive generations (Kuang et al., 2015). The Kaufman Rubber Company was also influential on Kitchener's industrial development (Walker et al., 2010). At its height, the Kaufman Rubber Company produced well-known footwear brands such as Sorel winter boots, Kingtread work boots, Foamtread slippers, and Black Diamond industrial footwear.

“In 1954, the company pioneered the slush-moulding of waterproof footwear from polyvinyl chloride (PVC) under the name Showertogs. It also entered the leather work boot market with its Kingtreads name, and eventually offered a hiking and hunting boot known as Badlanders as well” (Streicher, 2010 p. 1).

For close to a century, the Kaufman Rubber Company was a prominent industrial landmark and served as a gateway to Kitchener's downtown. Due to its increasing diversity of materials and technology used in manufacturing, the company dropped the “Rubber” from its name in 1964 and became Kaufman Footwear Ltd. In 1979, Kaufman Footwear Ltd. was absorbed by William H. Kaufman Inc., becoming a division of the larger company. Footwear manufacturing continued towards the new millennium; however, family deaths within the company and changing markets lead to the company's bankruptcy in 2000 (Kaufman family, Kaufman Rubber Company, Kaufman Footwear, and William H. Kaufman Charitable Foundation, 1907; Kaufman Footwear, 1907; Kaufman Footwear, 1922; Kaufman, W., and National Film Board of Canada, 1990; Peysar, 1961; and, Streicher, 2010). The building was eventually purchased by a private real estate investment company. As part of a public-private collaboration, the new owner and various private sector consultants worked with the City of Kitchener to develop a comprehensive adaptive reuse and heritage conservation plan to adapt the former industrial building into a landmark residential loft building. The long-term vision included, recognizing the heritage value and

designation of the property and preserving the historical and architectural significance of the building. The public-private collaboration for the project stemmed from the fact that the City was essentially “open-for-business” when it came to local economic development. According to the City of Kitchener’s Downtown Financial Incentive Review (2013), the City was willing to accept any and all development activity in the core, with very few imposed requirements. The adaptive reuse of the former Kaufman industrial building was successful in creating a new residential mid-rise condominium building. Today, the building’s Hard Loft condos are complete with polished concrete floors, 11-13’ open ceilings, and expansive windows and is a representation of the evolving construction methods of the bygone industrial era (Walker et al., 2010). “The massing of the 1908-1925 complex provides a powerful focus within Kitchener's downtown. It is uniquely significant architecturally and is representative of the history of industrial architecture in Canada” (MacDonald and Scott, 2012 p. 67).

*Figure 11: The Kaufman Lofts – Post-Adaptation*



*Figure 12: The Kaufman Lofts – Post-Adaptation*



*Figure 13: The Kaufman Lofts – Post-Adaptation*



## The Tannery District

<b>Address</b>	151 Charles Street West, Kitchener, ON
<b>Current Official Plan Land-Use Designation</b>	Urban Growth Centre (Downtown)
<b>Current Zoning</b> (Zoning By-law No. 85-1, & 92-232 )	Warehouse District Zone (D-6) + Special Use Provisions: 116U+ Holding Provision: 10H + Special Regulation Provision: 105R
<b>Future Zoning</b> (CRoZBy)	Urban Growth Centre (Downtown) Zone, specifically, UGC -3: Innovation District
<b>Property Area</b>	1.61 Hectares (3.97 Acres)
<b>Heritage Status</b>	Non-Designated Property of Cultural Heritage Value or Interest placed on Kitchener’s Municipal Heritage Register

*Figure 14: The Tannery District – Abandoned Pre-Adaptation*



Source: <https://www.therecord.com/news-story/6213890-historic-tannery-building-to-be-saved/>

The Tannery District is an adaptive reuse of approximately fifteen interconnected industrial buildings from one to five storeys in height that were built between 1896 and 1956 on the block bounded by Charles, Francis, Joseph and Victoria streets in Kitchener, Ontario. The term “District” stems from the fact that the adaptation included more than one building and an entire city block.

The buildings were originally the home to an industrial leather producer, the Lang Tanning Company (LTC), which was founded in 1848 by Rheinhold Lang in what was once the City of Berlin

(now Kitchener). The location for the LTC's factories was chosen because of the existence of an on-site natural spring that could be used as water supply for operations (Kaufman Footwear, 1907 and Kaufman Footwear, 1922). At one point, the Lang Tanning Company was the largest sole leather producer in the British Empire. According to Kaufman Footwear (1907) and Kaufman Footwear (1922), the company produced boot soles and saddle leather for Canadian and British troops during the First World War, and provided boot soles and the leather linings for aircraft fuel tanks during the Second World War (Bonoguore, 2012).

The LTC's buildings were Kitchener's first major industry, and operated for more than 100 years. In 1954, due to competition from other "synthetic materials", the LTC discontinued operations as a tannery but kept its five-acre downtown site and complex of 35 buildings until 1974 (Kaufman Footwear, 1907 and Kaufman Footwear, 1922). In 1974, the LTC wound up business.

Yet the LTC's prominence in the community never ended. According to ERA Architects (2017), "the Lang Tannery district represents is a significant landmark for the City of Kitchener". "It reflects Kitchener's industrial history of vernacular industrial design, an intimate relationship to the Lang family and the industrial development of the city of Kitchener". The City of Kitchener and several private sector companies recognized the industrial heritage value of the buildings and property, and in 2008, a Toronto-based developer bought the buildings for \$9.5 million and went on to spend upwards of \$30 million on adapting them into a mixed-use heritage precinct featuring, light industrial, commercial and office uses (Pender, 2012 and ERA Architects, 2017). According to the City of Kitchener (n.d.), adaptation of the Tannery involved:

- "the repointing of deteriorated masonry joints;
- the replacement of deteriorated bricks;
- roof repairs;

- the repair of existing windows on the buildings located on Francis Street and the installation of new windows of complementary design on all other buildings; the installation of new doors and windows on the main floor of all buildings;
- the demolition of the one storey building at the corner of Charles Street and Victoria Street;
- the selective demolition of infill buildings; and,
- the construction of compatible infill additions throughout the site.”

Eventually, a Heritage Impact Assessment was undertaken on the Tannery District. In June of 2015, City Council placed the property on the Municipal Heritage Register as a non-designated property of cultural heritage value or interest. The adaptation brought new life to the Tannery District; and, is now home to approximately 29,450 m<sup>2</sup> (316,997.16 ft<sup>2</sup>) of leasable office and commercial uses. As of 2017, the Tannery is anchored by several large corporations including Google, Desire2Learn and Communitech. In 2011, the Tannery was named in Canada’s Top Brownfields Development (Bonoguore, 2012).

*Figure 15: The Tannery District – Post-Adaptation*



Figure 16: The Tannery District – Post-Adaptation



Figure 17: The Tannery District – Post-Adaptation



## The Tudhope Building

<b>Address</b>	50 Andrew Street South & 1 Colborne Street West, Orillia, ON
<b>Current Official Plan Land-Use Designation</b>	Central Core Intensification Area
<b>Current Zoning</b> (Zoning By-law No. 2014-44 )	Downtown Area - Commercial Mixed Use Intensification (C4i)
<b>Property Area</b>	1.34 Hectares (3.31. Acres)
<b>Heritage Status</b>	Individually Designated Heritage Property under Part IV (individual) of the Ontario Heritage Act on March 19, 2001 (By-law No. 2001-34)

*Figure 18: The Tudhope Building – Employees Out-front Pre-Adaptation*



Source: Generously Donated by the Mirkopoulos Family

Constructed in 1909, the Tudhope Building in Orillia, Ontario was originally home to the Tudhope Carriage and Motor Company Ltd. The building, sometimes referred to as the “Tudhope Block”, is located along Colborne Street from the corner of Andrew Street South to West Street South in downtown Orillia (i.e., a city block). Until its adaptation, the building was always used for industrial purposes. The Tudhope Carriage and Motor Company was originally founded by J. B. Tudhope who started by selling wagons and other equipment to farmers west of Orillia. From 1908 to 1913, the building produced Canadian-made cars from its factory, including the “4-36” which is car with a four-cylinder, 36-

horsepower engine and a top speed of 40 km/h (English, 2012). The car was priced at \$550 CAD at the time (Conlin, 2001; and McIntosh, 2007).

The Tudhope Carriage and Motor Company had ties with another automobile manufacturer from the U.S.A. called McIntyre, whom were based out of Auburn, Indiana. Tudhope and McIntyre jointly produced automobiles, rightly titled “Tudhope-McIntyre”. In 1913, difficult financial times led to their bankruptcy. In 1913, the Tudhope Motor Company became the Fisher Motor Company who produced the Fisher automobile for approximately two years until the First World War forced the company to adapt. During the First World War, they produced ammunition to both support the war effort and help see them through financial turmoil. Eventually, automobile manufacturing ceased to exist in the Tudhope block.

Over the years, several different industrial uses inhabited the Tudhope building. In the 80s, three relatively large companies occupied the block: 1) an appliance maker, Vulcan-Hart Ltd.; 2) a plumbing parts manufacturer, Fiat Products Ltd.; and, 3) a heating equipment maker, Hunter Enterprises Orillia Ltd. In 1988 and 1989, respectively, Vulcan-Hart Ltd. and Fiat Products Ltd. closed shop. In the early 90s, Hunter Enterprises Orillia Ltd., would also move out. It wasn't until 1988, that a developer would see the value in the Tudhope building and property, and its arduous adaptive reuse process would begin.

There were several complications that added cost and time to the adaptation of the Tudhope Building. In December 2004, a portion of the Tudhope Building suddenly collapsed during construction which caused a temporary standstill in the project's progress (Orillia Heritage Centre, n.d.). Due to a dedicated and experienced Project Team, the challenges faced during construction were overcome and the adaptation persevered, creating a mixed-use complex of commercial, residential and institutional uses. In March of 2001, the building was officially designated under Part IV of the Ontario Heritage Act as an individual property of cultural heritage value for its historic and architectural value to the surrounding community. The building now houses the City of Orillia municipal offices (including council chambers), several private and government businesses/offices, a part of Lakehead University, and residential condominiums.

*Figure 19: The Tudhope Building – Collapse During Adaptation*



Source: <http://orilliaheritage.com/photos/tudhope-bldg-collapse>

*Figure 20: The Tudhope Building – Post-Adaptation*



*Figure 21: The Tudhope Building – Post-Adaptation*



*Figure 22: The Tudhope Building – Post-Adaptation*



## **CHAPTER 5: Findings**

### **Primer**

This chapter outlines, compiles, and summaries the findings from the key-stakeholder interviews. It is organized based on the methods specified in Chapter 3 and includes both the results of the study and the analysis used. The criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings are identified here. This chapter tests the identified criteria across the five case studies using a combination of manual and software-assisted content analysis following similar steps taken by Bullen and Love (2011c), Khirfan (2014 p. 33), Kumar (2011 p. 248-249) and Port (2013 p. 63-72). Data organization for analysis utilized the NVivo software and consisted of three (3) general steps:

1. Transcribing (audio-recorded interviews and field notes);
2. Development of various response categorisations; and,
3. Coding and quantifying the data using the qualitative data analysis software NVivo<sup>16</sup>.

From here, the content analysis included: the identification of themes using the seven (7) influential factors as starting points/themes; the assignment of codes to the main themes; the classification of responses under the main themes; and, the integration of themes and responses into the text of the report.

### **Interview Data Coding and Analysis**

The qualitative data extracted from the interviews was used to identify criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. The coding procedures used for the interview responses was done using the seven (7) influential factors as base themes – something NVivo has programmed directly into the software, called Nodes. Interpretation and identification of themes during the conception of the coding framework was, in part, based on the prior knowledge of the subject matter, knowledge gained from undertaking the literature review and knowledge

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<sup>16</sup> NVivo is a computer software that supports qualitative and mixed methods research and is specifically designed to handle large amount of descriptive data” (QSR International, n.d.). The NVivo software is based upon the principle of content analysis (Kumar, 2011 and QSR International, n.d.).

gained from undertaking the interviews with the key informants. Each of the interview transcripts was read and re-read several times to identify all the material about each of the seven (7) themes. By reading through the interview responses, observable patterns and perspectives on matters relating to the success of and challenges facing the adaptive reuse of industrial heritage buildings was formed. The nodes/themes were then organized into a hierarchy to clarify rational and to reflect on the association between the themes identified and their implications towards answering the research questions.

## **Results**

Interviewees included academics, accountants, angel donors, architects, cultural affairs officers, engineers, financiers, general contractors, heads of companies involved with the projects, not-for-profit real estate developers, municipal staff members, philanthropists, planners, politicians, property owners, and tenants. Eventually, ten (10) broad themes and subsets were identified through analysis of all thirty (30) interview responses. The original seven (7) influential factors persisted as themes while an additional three (3) “emergent themes” were identified through the content analysis. Ultimately, these ten (10) themes broadly represent criteria that influence the feasibility, and to a certain extent, the outcome of adaptive reuse projects. Having been deduced from both a literature review and original research, these criteria can be used for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. Except for their subsets, it should be noted that each of the criteria were divided two ways for coding and for content analysis: i) factors that contributed the adaptation’s success; and ii) factors that presented a challenge to the adaptation’s success. The ten (10) criteria and their subsets are as follows, listed alphabetically:

1. Adaptation/Project Team
2. Cultural
3. Economics
4. Environmental
5. Legislation

6. Location
7. Municipal/Provincial Leadership
8. New Use
  - a. Specific Building and Property Features
9. Social
  - a. Tenant Influence
10. Timing

The coding framework hierarchy is illustrated below in Figures 23, 24, and 25 and demonstrates the ten (10) criteria that emerged from undertaking the content analysis, based on the total number of coding references given for each theme (node in NVivo). The number of references is based on the number of times a theme was picked out of the interview responses and, therefore, represents the proportional influence/weight that each of the criteria have on the outcome of an adaptive reuse project.

*Figure 23: Hierarchy of Criteria for the Adaptive Reuse of Industrial Buildings*

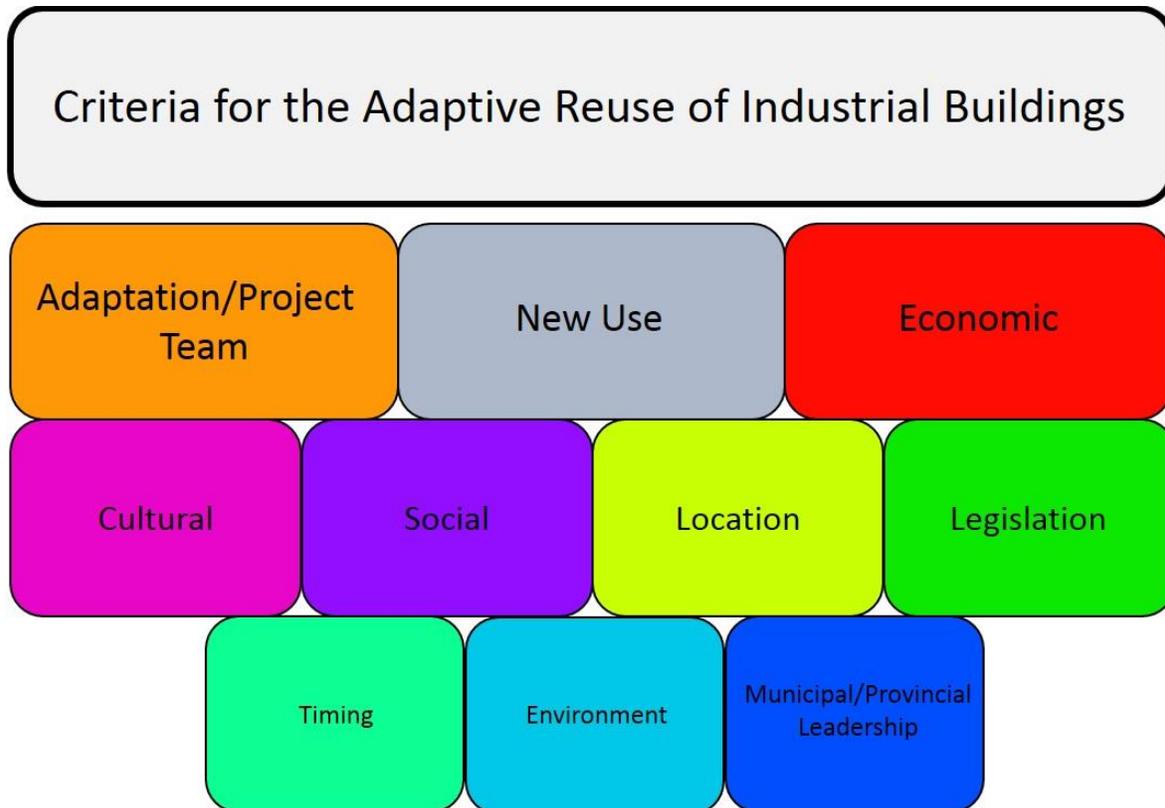
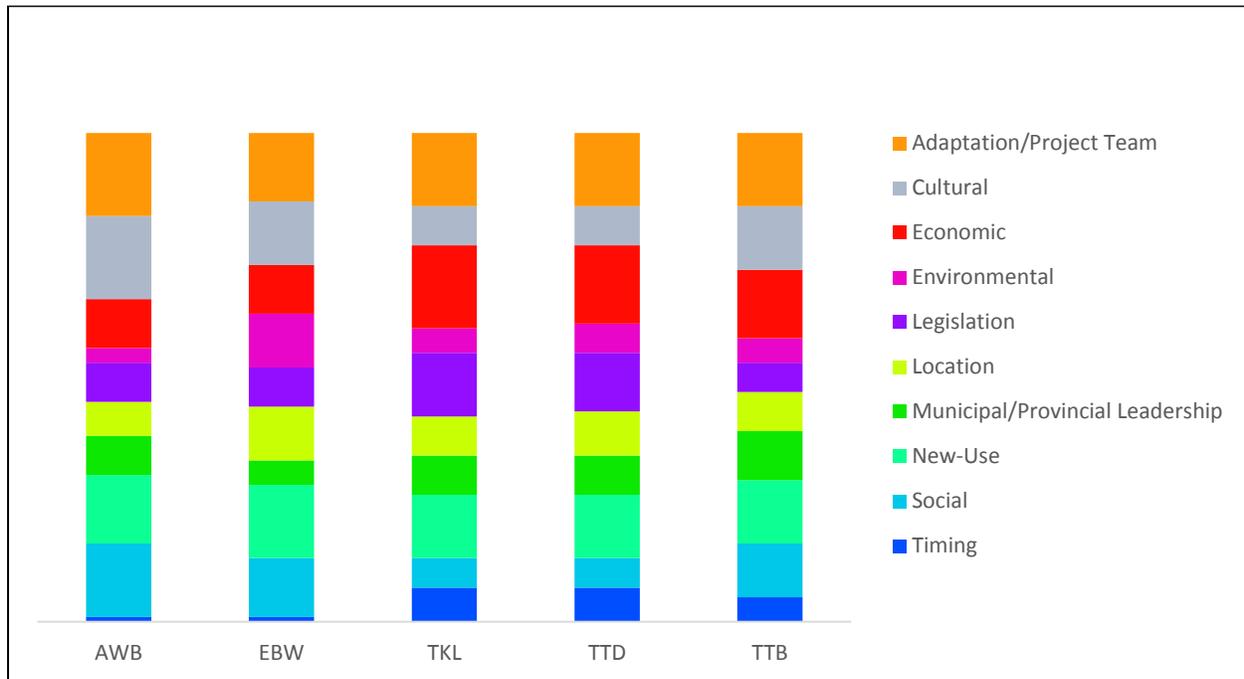


Figure 24: Proportional Influence of Criteria by Case Study



**NOTE on Figure 24:** AWB = Artscape Wychwood Barns; EBW = Evergreen Brick Works; TKL = The Kaufman Lofts; TTD = The Tannery District; TTB = The Tudhope Building

The overall impact of each criteria is best demonstrated in Figure 23. However, each of the five case studies were unique; therefore, consideration was given to the individual impact of each criterion on a case-by-case basis. Figure 24 above, demonstrates this relationship best by illustrating the number of times a criterion was referenced proportionally by individual case. The number of references made to each criteria is a good indicator of the influence that each criteria had on the outcome of the adaptive reuse, as the interviewees remembered these influential factors most, and as such, referenced them most. While the average impact of the criteria can be generalizable to suit new contexts, Figure 24's individual breakdown provides a better understanding of how each different case was influenced uniquely by each of the criteria. For example, the adaptation of the Tudhope Building was more influenced by timing-based criteria than was the adaptation of the Wychwood Barns, while the adaptation of the Wychwood Barns was more greatly impacted by cultural- and social-based factors than was the Tannery District. Figure 24 is useful in that future proponents of adaptive reuse can use these proportions, in conjunction with Figure 23, to more accurately assess other potential adaptation projects through comparisons.

Figure 25: Proportion of References Made to Each Criteria

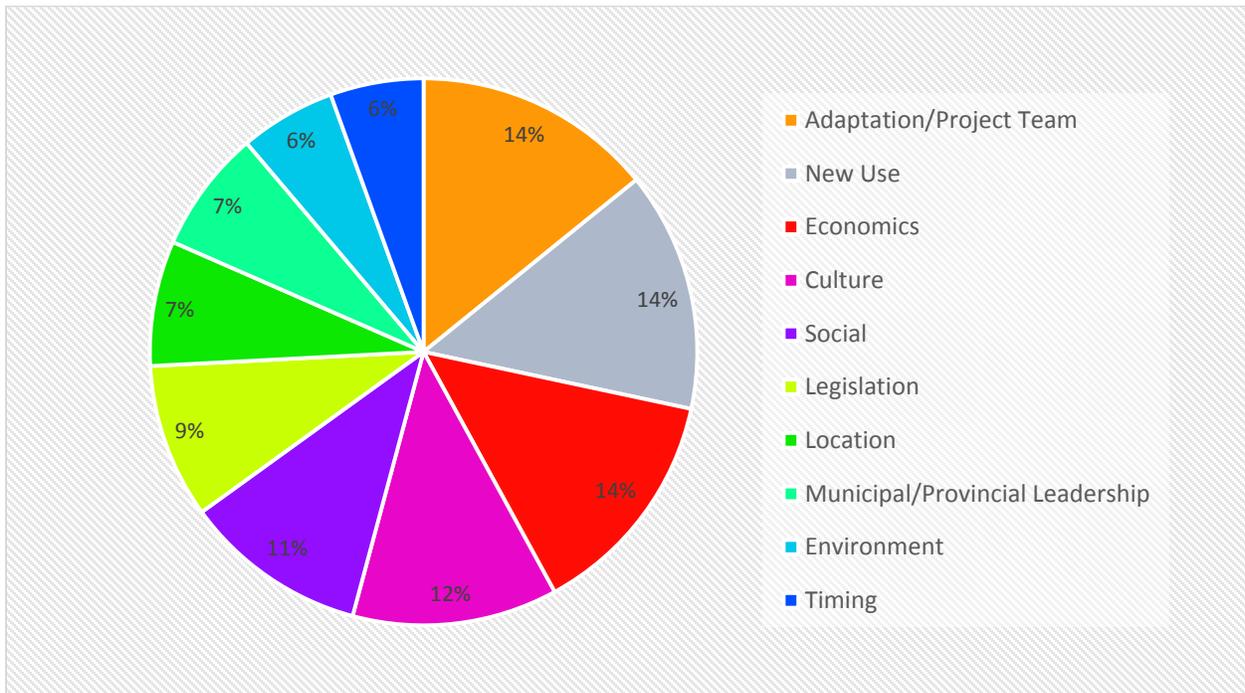


Table 6: Descriptive Statistics of the Criteria Proportions

Descriptive Statistics	
Mean (Average)	10%
Standard Error	1.09439692
Median	10
Mode	14.1732283
Standard Deviation	3.46078693
Sample Variance	11.9770462
Kurtosis	-1.7884699
Skewness	-0.0149185
Range	8.66141732
Minimum	5.51181102
Maximum	14.1732283
Sum	100
Count	10

Table 6 above, helps provide some statistical clarification as to how each of the criteria above impacted the adaptive reuse project. When it comes to the adaptive reuse of industrial heritage buildings, Figure 24 above shows us that the Adaptation/Project Team, the New Use, and Economics are the most

impactful criteria, while Municipal/Provincial Leadership, Environment and Timing are the least impactful. Yet, as the five (5) selected case studies don't represent 100% of the entire population of successful adaptation cases in Ontario, some consideration must be given to statistical normalization. By running a simple data analysis in Microsoft Office Excel on the calculated proportions, quantitative descriptive detail was calculated on the interview responses (qualitative data). As table 6 shows, the average reference made to each of the criteria is 10%. With ten (10) total identified criteria, this means that, on average, each of the criteria evenly impact the outcome of an adaptation project. However, table 6 also demonstrates that the standard deviation<sup>17</sup> is approximately 3.5. This means that, on a case-by-case basis, one criteria or another could impact the outcome of an adaptive reuse project, on average, either 3.5% more or 3.5% less. For example, on average, cultural-based criteria could have a greater impact on one project (13.5%) and a lesser impact on another project (6.5%). While this is not a rule that must be adhered by, it does provide greater insight as to how, on average, adaptive reuse projects may be impacted by the ten (10) identified assessment criteria. It would be up to the adaptation/project team to determine which criteria deserves more attention.

Table 7 below provides descriptions for the additional three (3) emergent criteria/themes as well as an example from the interview transcripts. The definitions of the original (7) a priori assumed influential factors remain unchanged as identified in Table 3 in the summary of Chapter Two: Literature Review. However, examples from the interview transcripts have been provided for each of the original seven (7) themes below (i.e., cultural, economic, environmental, legislative, locational, “new-use” and/or social factors) as these examples represent outcomes of the case studies which are part of this study’s findings.

*Table 7: Emergent Criteria and Descriptions*

Theme	Description
Adaptation/Project Team Criteria	Direct or indirect impacts to the success or challenges facing adaptive reuse that were caused by the actors comprising the project team either individually or as a team. Simply, criteria related to how the adaptation/project team impacted the outcome of adaptive reuse. <ul style="list-style-type: none"> <li data-bbox="483 1713 1409 1791">• <b>Success Example:</b> Having an experienced team familiar with brownfield remediation or, in general, adaptive reuse techniques that can assist in controlling the associated costs more effectively.</li> </ul>

<sup>17</sup> Standard deviation measures the spread of a data distribution and tells you how tightly all the various examples are clustered around the mean (average) in a set of data.

	<ul style="list-style-type: none"> <li>• <b>Challenge Example:</b> Convincing municipal staff or financiers, in terms of proving or justifying the viability of a project.</li> </ul>
Municipal/Provincial Leadership Criteria	<p>Factors relating to the championing, support of or direction provided for an adaptive reuse project by municipal or provincial staff or politicians. Generally, this is referring to the capability to translate a vision into a reality which includes: championing a project; establishing a clear vision; advocating for that vision so that others may follow more willingly; providing the information, knowledge and methods required to realize that vision; and, coordinating and balancing the conflicting interests of stakeholders.</p> <ul style="list-style-type: none"> <li>• <b>Success Example:</b> City-provided and Council-endorsed package of incentives that can be used to attract investment to an area, such as implementing a Community Improvement Plan, providing land and/or buildings, providing low-interest loans, capital loan guarantees, waiving development charges or parkland dedication fees.</li> <li>• <b>Challenge Example:</b> Over-complicating the provisions of a Part IV Heritage Designation By-law under the OHA; thereby, adding additional time and costs to a project.</li> </ul>
Timing-based Criteria	<p>Factors relating to a particular point or period of time when the adaptive reuse of a certain building may be ideal for it to be successful.</p> <ul style="list-style-type: none"> <li>• <b>Success Example:</b> Development proposals for adaptive reuse submitted during the right financial and development environment, such as when the City of Kitchener implemented tax incentives for development projects in the downtown core (e.g. the Kaufman Lofts and the Tannery District).</li> <li>• <b>Challenge Example:</b> Poor market demand, such as the 2007-2008 recession when the market demand for new offices was very weak. Office use being one of the uses in 4 out of the 5 case studies.</li> </ul>

Not every influential factor (theme) impacted the feasibility, and to a certain extent, the outcome of adaptive reuse projects to the same extent or in the same manner for each case. Therefore, to explain how certain indicators affect the adaptive reuse of industrial heritage buildings, several additional coding queries were undertaken to explore the content that was coded by reviewing the connections between themes. Using NVivo’s “Text Search” query to explore the words and phrases in the source material (i.e., interview transcripts), an understanding of how interview participants used a certain term was formed. In addition, this function allowed all the passages that contained particular words (e.g. brownfield contamination) to be gathered and further categorized into their respective themes. The most frequently used words identified from the interview transcripts was then transformed into word clouds based on each identified theme to help visualize the results.

**Interview Findings**

The following sections provide a comprehensive breakdown of the most referenced factors from the key informant interviews that contributed to the outcome of the adaptive reuse of the five (5) Ontario-based case studies. These factors are categorized into the ten (10) identified criteria/themes from the content analysis. For example, the section below, titled “Adaptation-/Project Team-based Criteria” will

include the most referenced factors pertaining to how a project team affected the outcome of the adaptation projects in the case studies. Both the challenges faced and the successes that transpired because of the specific criterion are included. Following each bullet is a quote from the interviews which provide examples of the type of feedback received for each of the criteria. Quotes have generic titles attached to them so as to help maintain the anonymity of participants. Acronyms have been provided to help shorten the project title after each quote. The acronyms are as follows: Artscape Wychwood Barns = AWB; Evergreen Brick Works = EBW; The Kaufman Lofts = TKL; The Tannery District = TTD; and The Tudhope Building = TTB.

The criteria have been removed from their alphabetical order and are presented based on the hierarchy identified above in Figure 23 and 25 (i.e., their occurrence and relevance in the adaptive reuse of industrial heritage buildings). Each of the five cases were unique and influenced differently by each of the ten (10) criteria. However, across each of the five (5) case studies, some homogeneous trends were discovered.

In addition, the word clouds produced using NVivo's "Text Search" query are presented below (Figures 26 - 35) as a visualization of each criterion. What is interesting about the word clouds was that across each of the five case studies, all ten (10) of the criteria demonstrated some homogeneity in the thematic words that were referenced. Simply, the more a specific word appeared in the textual data (transcripts), the bigger and bolder it appears in the word cloud. These word clouds help to provide an understanding of the key-informants' primary understanding of the projects they worked on, including emotional feedback and key thematic points. Additionally, these words clouds helped provide a method from which to ensure that all potential criteria had thoroughly been identified. For example, if "Timing-based Criteria" had been missed, it would have been isolated eventually using the word clouds, as "time" was one of largest bolded words to appear in each cloud; thereby, allowing for the opportunity to adjust the digital content analysis accordingly.











## **Adaptation-/Project Team-based Criteria**

*“In general, buildings with heritage and beauty must be recognized collectively. Not just by cities, municipalities, or the province. It takes special contractors or developers that specialize in adaptive reuse or heritage conservation. They need to be able to understand what's at stake, to be able to see through the money to be made, and to care. At the end, you can make a successful project out of it. I have seen that, in many cities and towns, construction companies pay more attention to historical buildings. There is always an economic interest in these types of projects, but, somebody must be there to put the package together.”*

– Owner and Real Estate Developer, Tudhope Building

The team appointed to undertake the adaptive reuse of an industrial heritage building seemed to have the greatest contribution to the success of the project over other factors. The interview script used in conducting the key informant interviews had a series of questions that were based on the results of the literature review and the seven (7) a priori assumed influential factors. Although the interview script did not ask questions pertaining to the adaptation or project team, it was a factor that nearly each of the thirty (30) participants referred to when discussing what they felt led to a successful adaptation. While each of the interviewees made unique references to the adaptation/project team and how those teams influenced the adaptive reuse project, there were several homogeneous discoveries made across the five (5) case studies and from each independent interview. Regarding the adaptation/project team, the most referenced factors from the key informant interviews were that:

- Project teams were comprised of individuals who had specific experience in both adaptive reuse and heritage conservation. Example: “Our architect was a moving library for Orillia. He knew everything about the City, about architecture and how to do adaptive reuse. We also had a perfect relationship with all of our sub-contractors. As a team we really knew how to approach the project the way it had to be approached” (Owner and Real Estate Developer, TTB).
- Project teams had an ultimate vision for the project and the ability to see that vision through from start to end – including through any challenges or required changes to the original vision. Example: “The number one criteria, in my opinion, is some kind of vision for renewal. There are

a lot of structures that are wonderful old structures. You need to bring some kind of vision to the project that will make the rest of the magic come along after that” (Architect, AWB).

- Project teams had a common goal for the finished product other than profit or recognition. The teams could understand what was at stake with the project, whom the finished project would impact and how, and for how long. Example: “They had the right team, the right client, the right heritage experts and architects, and the right sub-consultants who all worked together to establish good relationships right from the beginning” (City of Kitchener Staff Member, TTD).
- Project teams had a stake in the community in which the project was located. Example: “There was a very significant dispute in the community, as I’m sure you’d know, about whether there should be an adaptive reuse or whether the building should be simply demolished and turned into grass. The energy and the funding that went into resolving these disputes came from the stakes that people had in their own community. And, this came from both sides” (Politician, AWB).
- Project teams were comprised of individuals with independent and unique professional backgrounds, capabilities and specializations. Example: “A few of these guys, for example the heritage experts and architects we had, are working on just about every heritage restoration in town, because they are just so uniquely skilled in their capabilities” (Executive of the Ontario Cultural Attractions Fund, AWB).
- Project teams could liaise with the public, municipal staff, circulation agencies, organizations, politicians and the media in an integrative capacity. Example: “We worked quite closely together with the Kitchener planning Staff at the time. The offshoot of all that was some creative policies for what is referred to as the warehouse district as well as the policies that were ultimately put in place for the Kaufman Footwear property” (Planner TKL).

## New-Use Criteria

*“Different buildings and places have unique things going for them. It's an editing process I find of both removing some things and adding some things. There's a sense of respect you must have of what's come before, but also, I think, of the anticipated future intervention – that we aren't the last word – if you will, in the character and form of this space. That it would continue to evolve”.*

– Architect, Artscape Wychwood Barns and Evergreen Brick Works

Like Wong's (2017 p. 102-121) findings on host structures, the adaptive reuse of an industrial heritage building seemed to be largely impacted by the factors surrounding the new use of the building. Wong (2017 p. 104) states that: “Host buildings are wrappers of different kinds, manifested as physical construction into which new life is introduced. Their ability to sustain a new use depends on many specific and individual factors: their condition, their potential to sustain additional load, their spatial fit with the demands of a new use, their memory, their placement in context. These attributes often determine the type of design intervention required in an application of reuse”.

Findings from the interviews indicate that the above statement was indubitably correct. During the key informant interviews, the new use of a structure, the structure/property itself, and/or a variety of other influential factors (such as the above from Wong), were amongst the most referenced factors that either a) created challenges with an adaptation project, or b) contributed to the success of an adaptation project. Regarding the new use of a building or the building and property features specifically, the most referenced factors from the key informant interviews were:

- The new use of the former industrial building complimented both the heritage of the building and the heritage of the surrounding community. Example: “In terms of an Albert Kahn construction, the large slabs that were poured, the high ceilings, the rhythm of the windows, it was good for manufacturing, but in many respects, it's even better for residential uses, and we took advantage of that. Those features were identified in the HIA and they remain to this day.” (Planner, TKL).
- The new uses of the former industrial buildings are compatible with the surrounding land uses. Example: “The range of manufacturing processes that were permitted there would not normally

be permitted juxtaposed against residential in the vicinity. The one thing for sure that was positive was, a lot of those potential land-use incompatibilities really disappeared through the transition and repurposing of the building” (Planner, TKL).

- The adaptive reuse incorporated an anticipated future intervention into the design of the adaptation (i.e., as the above quote states, the adaptive reuse is not “the last word in the character and form of the space”).
- Buildings had a certain robustness, structural integrity and materials built-in, that were suitable for the proposed new use and which made construction simpler. Example: “It was a robust building and hence, flexible structure” (Architect, TTD).
- The robustness and structural integrity of the buildings made for a strong and resilient frame from which to build from. Example: “The building that on first appearance looked to be ready for demolition had strong bones, had a great location and just unlimited potential. It had been designed for heavy loads and we were a pretty heavy load putting our offices in” (Architect, TTB).
- In all five cases, the architectural style of the interiors of the former industrial buildings (often industrial daylight structures – e.g. Albert Kahn) complimented the popular and desired interior styles of modern office spaces and/or lofts. Simply, the building’s interior openness complimented the demand for open concept office spaces and residential lofts.
- In all five cases, the buildings and their properties presented a series of unknown challenges that had to be dealt with by the project team. For example, in Orillia, the Tudhope building caught fire at one time and a part of the building collapsed at another time. In Toronto, the discovery of lead paint and lead dust residue on the roof joists of the Artscape Wychwood Barns forced the project team to undertake expensive and timely remediation measures – maintenance of which, is ongoing to this day.

- In all five cases, the architectural style of the building's façade created a desirable aesthetic and complimented the character of their surrounding communities. Whether the new use was for a university, residential loft condominiums, office spaces or commercial purposes, the buildings were seen as "trendy" investments. For example, according to both the Planner and the Architect, the style and rhythm of the windows on the Kaufman Lofts building made for an excellent adaptation to a residential use.
- The properties on which the buildings are located were some of the largest consolidated parcels of land remaining in their cities. This saved the owners from undertaking expensive and timely lot consolidations (i.e., real property title deed merging). Example: "The other thing that it had going for it, was that it was a consolidated parcel. There was no land assembly required. It was the single largest, single-ownership parcel of land in downtown Kitchener at the time. So, no expensive land assembly, no uncertainty associated with that process, and no structural unsuitability in terms of the building that was there" (Planner, TKL).
- The heritage value in the buildings made it difficult for project teams to stay true to the original architecture while at the same time, allowing for some change. The real challenge was determining what was significant and what could change. Example: "Well, a lot of these places have great old bones. When you go back into the discussion on the layering of history, at the Brick Works for example, there was graffiti everywhere. After it was closed up, it became a great place for raves, for photographers, and also for graffiti artists. But who's to say that's not also a legitimate part of its history? [...] It's an editing process of removing some things and adding some things, and there's a sense of respect that you have to have of what's come before" (Architect, EBW).
- As driving was not as prevalent during the time the buildings were constructed, modern property amenities, such as available space for parking, was an issue across all five cases. Creative solutions were required in each case such as minor variances for reduced or waived parking, for example.

Example: “A minor variance to allow for zero parking on-site was sought and approved, with some debate” (City of Toronto Staff Member, AWB).

- Adapting the buildings to balance modern heating, ventilation, and air conditioning (HVAC) systems was difficult in each case. Example: “We incorporated extensive daylighting and natural ventilation, as well as a ground-sourced heat pump HVAC system, which was difficult to incorporate into the old buildings, but ideal for the use we wanted” (Architect, AWB).

### **Economic Criteria**

*“Usually with these kinds of big projects, transformative projects, they don't fit nicely into a box. You have to get a little bit of money from the housing division, a little bit of money from parks, a little bit from Section 37, and a little bit of money from fundraising in the community. All these things have to come together and each of them are really important. I call it Stone Soup Development. Basically, some soldiers come into a village and there's no food. All the villagers are hiding their food. So, the soldiers say “well, let's just cook a stone soup”. So, they bring a big pot out and put stones in the pot. One of them says, “mmm, wouldn't it be nice to have a few carrots”. So, someone pulls out some carrots, and someone else pulls out some onions, and eventually, there's a great meal because everybody put in a little bit. If everyone puts in a little bit then you have enough for the project, or, for the Stone Soup. No one has enough money alone, but together, we do”.*

– Toronto Politician, Artscape Wychwood Barns

As pointed out above, without financing there is no project, and with a projected return on investment (ROI), there is no proponent who will take on the project – this much is obvious. However, the role that economic-based factors play in an adaptive reuse project are unique and varied. According to all thirty (30) interviewees, economics is always a major determining factor of any project, not just adaptive reuse. However, when it came to the five case studies, economics was not always a factor that contributed to the successful outcome of these projects, but rather, their commencement. Simply, certain economic factors needed to exist before the adaptive reuse of these industrial buildings could begin.

Interestingly, this thesis reaffirms Shipley et al.'s (2006a) findings in that costs are a contributing factor to the outcome of an adaptive reuse project. Shipley et al.'s (2006a) identification of cost-benefit

analyses (e.g. Pro forma<sup>18</sup>) as criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings points to economic-based factors as playing a pivotal role.

Three commonly referenced economic-based factors that played a role in the feasibility of these projects; and consequently, their commencement was: 1) market demand, 2) financing, and 3) availability of financial incentives. For example, according to the Planner of the Kaufman Lofts adaptation, if there is a market demand, that demand will drive a project's financing; and sometimes, an indication of that demand is the availability of financial incentives. Each of the five case studies presented different results when it came to sources of financing and the ratio of actual project costs to estimated project costs.

Regarding economics, the most referenced factors from the key informant interviews were:

- There was a market demand for the adaptation of these buildings. Whether for economic development of a downtown, the chosen location for a government use, or the capitalization of a cultural asset – there was some form of market demand. Example: “There was lots of funding through grants: municipal grants, provincial grants and federal grants; and loans as well” (Architect, TTB).
- In each case, funding was acquired prior to commencement; however, the means of obtaining funding was unique to each case. Example: “Working with heritage buildings is always a bit tricky. The project went from an initial budget of \$9-million to more than \$20-million. But you know what, once you're in a little bit, you keep going. Everyone worked together to keep this project afloat. We had angel investors and angel consultants who all contributed” (City of Toronto Staff Member, AWB).
- Experienced project teams were usually able to contribute to cost savings. For example, veterans of industrial adaptive reuse projects involving heritage properties were better at their initial cost estimates. Therefore, when tasks such as brownfield remediation was required, it didn't come as a shock to the project budget. Example 1: “We did the financing ourselves. We did not go to banks.

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<sup>18</sup> A Pro Forma is a standard document, form or financial statement based on financial assumptions or projections.

The acquisition of the building and the costs of rehabilitation and remediation was funded by ourselves as equity. But, where there was a major financial factor influencing the project, we were aware that the City had a program to encourage and facilitate downtown revitalization, and we knew how to take advantage of it. Had there not been those financial incentives, we would have absolutely not participated in acquiring the building” (Real Estate Investor, TKL). Example 2: “Adaptive reuse is what we do. We’ve certainly been active in the adaptive reuse for office uses above grade and retail use at grade since about 1996. So, it’s a big part of what we do, and we certainly loved the Tannery District project” (Real Estate Investor, TTD).

- Brownfield remediation was required in each case and contributed to the costs associated with the adaptive reuse. Example: “There was contamination in the building and I think there was some fairly complicated cleanup because they were doing some remediation under the structure. Those would have added costs” (City of Kitchener Planner, TTD).
- Large ROIs were estimated for each of the five cases before the projects commenced. Example: “There is a deep underlying demand for space in those kinds of environments. [...] I’m a business person, but we’ve probably reused more heritage property in Canada than any other organization by far. Without that demand, it simply isn’t economical and can’t happen. With that demand it becomes very economical to affect the adaptive reuse. There are a lot of people who are prepared to pay a lot of money to rent space in adaptively reused heritage structures because of the internal and external attributes they provide, and we are aware of that” (Real Estate Investor, TTD).
- Each project experienced some form of financial relief. This came in several forms, but was different for each case. The most common forms of financial reliefs were:
  - City-provided tax incentives programs (e.g. Kitchener waived all development charges and parkland dedication fees and created an Economic Development Investment Fund which raised over \$100 million for development in the City's downtown – being the location of the Kaufman Lofts and the Tannery District);

- Government funding (either directly or through grants and subsidies, low-interest loans, and/or capital loan guarantees);
  - Generous donations from angel investors or angel donors (e.g. personal donations from angel consultants in some cases);
  - Philanthropic support (e.g. during the adaptive reuse of the Artscape Wychwood Barns, the Metcalf Foundation – a private family foundation, based in Toronto – donated funds to the project, as a means of contributing to their philanthropic goal of improving the health and vibrancy of communities); and,
  - Fundraising campaigns (e.g. the non-profit organization Artscape commissioned several local photographers from Toronto to photograph the Wychwood Barns, including famed Canadian industrial photographer Edward Burtynsky. The photographs were then sold at auction, and the funds were allocated to the Barn’s development).
- In each case, the industrial heritage buildings themselves helped to minimize costs. According to the interviewees, not every industrial heritage building can be reused, as the costs associated with their adaptations can surpass the available funding. The buildings in each of these five cases were ideal when it came to assessing their financial feasibility in the due diligence/research phases pre-construction. Example: “If the building wasn't in the structurally sound condition that it was, I think the fate might very well have been different” (Planner, TKL).

### **Cultural Criteria**

*“The neat thing I think of, when I think of industrial buildings, is that they are trendy. It's cool, it's where people want to be when they graduate from school. You know, you have that loft idea from New York, and it's just cool. The communities that have it, and are able to leverage it, I think, that's what people want”.*

– City of Kitchener Planner, The Tannery District

Cultural-based factors were the fourth most referenced theme in the key informant interviews, when it came to understanding the adaptive reuse of industrial heritage buildings. The key informant interviews produced detailed information that agreed with what Wong (2017) previously found, in that, adaptive

reuse doesn't just extend the lives of buildings, it helps to transfer cultural identity from one period to the next through design foundations; ultimately, either conserving past cultures or contributing to cultural regeneration. Regarding culture, the most referenced factors from the key informant interviews were:

- Whether there was an official heritage designation under the OHA or not, the adaptive reuse retained some form of cultural heritage value within the buildings. Simply, some demonstration of the former use was incorporated into the new use. For example, the Evergreen Bricks Works retained certain artifacts and art from past uses such as one of the original smokestacks, some of the original machinery, and some of the graffiti (which is a part of the property and building's more recent heritage) (Landscape Architect, EBW).
- The initial cultural heritage value demonstrated by the buildings was related to the innovative construction techniques of the time. For example, the Kaufman Lofts buildings featured a poured-concrete slab construction, glass and metal enclosed entranceways with closed transoms, limestone Doric columns, and a unique exterior façade representative of an industrial daylight building and which was designed by famed architect Albert Kahn (Architect, TKL).
- The former industrial uses contained in the buildings and the properties employed hundreds of people and supported countless families over the years that they were in operation. This factor contributed to their industrial heritage value, their heritage status, and eventually, part of the rationale to conserve them through adaptation.
- In all five cases, the industrial purpose/dynasty or the products manufactured/produced by the formal industrial operation were renowned in their communities and famous nationally, and sometimes internationally. This renown contributed to both the demonstration of heritage value and the rationale to conserve them through adaptation. Some examples referenced in the interviews included:
  - The former Kaufman Rubber Company produced Sorel winter boots;

- The Artscape Wychwood Barns was originally a complex of five streetcar sheds used for the repair and housing facility for the Toronto Civic Railway (TCR) – one of Toronto’s oldest rail-transit systems – a company which eventually became part of the award-winning transit system known today as the Toronto Transit Commission (TTC);
  - The Evergreen Brick Works, formally the Don Valley Pressed Brick Works Company, produced a wide variety of bricks and kiln-fired clay products that built many landmark buildings in Toronto and beyond, including Massey Hall and Casa Loma;
  - The Tannery District, formerly the Lang Tanning Company was, at one point, the largest sole leather producer in the British Empire, as well as a producer of saddle material for horses during the First World War and, subsequently, leather linings for aircraft gasoline tanks during the Second World War; and,
  - The Tudhope Building, which formerly housed the Tudhope Carriage Co. produced carriages and one of Canada’s last, made in-country, automobiles.
- Each case was challenged by some form of cultural incompatibility or cultural challenge. For example, some wealthy and affluent residents of Wychwood Park, the location for the Artscape Wychwood Barns and one of Toronto’s earliest planned communities and most architecturally and geographically unique neighbourhoods, were adamantly against the creation of an artist’s hub that would provide subsidized residential housing for working artists.
  - Cultural-based studies and/or assessments, such as Indigenous Knowledge Studies, Heritage Impact Assessments, or Archaeological Assessments, for example, did not influence the successful outcome of the adaptation. If one of these assessments were required, they were undertaken without issue to the adaptation.
  - The new use of the property and building proved to be beneficial to the surrounding community.
  - The determination of what was culturally significant and had to be conserved vs what wasn’t as culturally significant and could be changed was a real challenge in each case.

- The cases that had official OHA heritage designation prior to the commencement of the adaptive reuse, created a challenge for the adaptation and overall development because it made the process more cumbersome for the project team.
  - One approach that was taken, was to apply for a Part IV Heritage Designation after the adaptation was completed. Even though the properties and buildings had heritage value associated with them prior to adaptation, designating afterwards allowed the project teams to more accurately list the features that should and would be listed in the designating by-law; thereby, more accurately conserving the cultural heritage value (Planner, TKL).
- Each interviewee indicated that, one of the keys to success in the adaptive reuse of any heritage building, is the ability to marry the elements that can and should be changed with those elements that can and should be protected. Example: “Before Evergreen came in to create this centre, it already had gone through a lot of public support to protect it as a heritage property. When Evergreen came in we helped to put some real structure towards the protection work that had already happened in addition to the new use” (Evergreen Staff Member, EBW).

### **Social-based Criteria**

*“Like every project, there needs to be consultation with the neighborhood and connection made with the community to explain what it is, and what it isn’t, and to get their involvement”.*

– City of Toronto Staff Member, Artscape Wychwood Barns

As the 5<sup>th</sup> most referenced criteria, social-based factors were influential to the success of and challenges facing the adaptive reuse of industrial heritage buildings. In all five cases, the surrounding community was interested in seeing the property and its buildings revitalized. The interactions between the project teams and the people within the surrounding communities were complex and varied, but always played a role in the project’s outcome. During the content analysis of the interviews, a subset of the broader social-based factors was discovered, which had a particularly unique influence on the success of the five adaptation projects. This subset was identified as “tenant influence”, being the influence a

potential or future tenant had on the demand to adaptively reuse a building, and consequently, a contributor to the success of the adaptation. The most referenced social-based factors from the key informant interviews were:

- Each case had project champions who advocated for and supported the adaptation projects from start to end. Example: “It really has to do with, I think, the City's downtown. There is a lot of really strong political leadership, and good Staff leadership as well. There is this whole culture of everyone pitching together to make cool things happen. We are seeing that now in the tech community as well” (City of Kitchener Planner, TTD).
- The public’s interest was considered in all five cases. Example: “It had to be compatible with the surrounding community” (Architect, TTB).
- Project champions were highly influential in garnering community and municipal government and/or political support; and consequently, contributing to the overall success of the projects. Example: “When you’re dealing with a transformative project, you experience a gamut of emotions, from frustration to elation. But I think that’s the nature of transformative projects. You’re breaking through a mold. So it’s really important that you are passionate about it, that you’re thoughtful and that you fully explore everything that you need to. That’s what contributes to success. [...] We had very animated community conversations, but in the end, they were worth it” (Politician, AWB).
- Two actors had a particularly large influence on how the adaptation projects were portrayed to the public:
  - Municipal Governments/Staff.
  - The Media (e.g. newspapers, television newscasters, bloggers, etc.).
    - When project teams convinced these two actors of the merits of the project and the new use, the public process usually became significantly easier. Example: “You wouldn’t believe how much influence the media have. Correct or not, they

have it, but they don't always know how to use it. If you can somehow involve or inform the media so that they have an informed presence throughout the project, it will work wonders (Politician, AWB).

- In all five cases, extensive public consultation was undertaken. In each case, public consultation went beyond the Ontario Planning Act's mandated consultation process. Each case undertook consultation with the surrounding neighborhoods to establish a connection with the community, explain the project, and to get the public directly involved. Example: "You know, you've got people like (*Politician*) who really put in the ground work in the community. Really stepped up when it came to connecting with the community. From what I recall, (*Politician*) was up all hours of the night answering e-mails and responding to letters" (City of Toronto Staff Member, AWB).
- Potential or future tenants of the adapted buildings were highly influential on the demand to adaptively reuse a building, and consequently, a contributor to the success of the adaptation.
  - In each of the five cases, there was a tenant who had full intentions of leasing the buildings, or units within the buildings, upon completion of the project. For a couple of the cases, the adaptive reuse was undertaken, in part, because there was a demand from specific tenants. For example, the Tudhope Building in Orillia was originally adapted to house the interim headquarters for the Ontario Provincial Police (OPP). The OPP had tasked their project architect with selecting the appropriate building and location for their new headquarters, and the Tudhope Building was chosen. This also brought along funding and significant provincial/municipal championing. Example: "People like Google and ourselves came in here. As tenants, we got it. We wanted to be a bridge from the past economy to the new economy, and we knew the anchoring abilities we had" (Tenant, TTD).
  - The buildings had three attributes in common that tenants found highly attractive — they are in or near the downtown core, they are distinct inside and out, and they have lower costs for occupants (University of Waterloo Professor of Architecture, TTD).

- Each case saw some public resistance to the proposed new use; however, upon completion, most of these opponents expressed a change in opinion and felt satisfied with the adaptation. Project teams across all five cases noticed two common traits with the individuals who were openly opposed to the projects:
  - Change was feared above all else, and
  - The saying, “Hindsight is 20/20” was applicable (i.e., the perfect understanding of events only after they have happened). Example: “You know, I had one individual in particular, who was especially difficult during the process. They were determined that the best use for the property was a park, and only a park. After the project was completed and they got see and use the facility for what it designed for, that person actually approached me, apologized, and went on to tell me that they were wrong. I thought that was really big of them. But you know, hindsight is always 20/20” (City of Toronto Staff Member, AWB).

### **Legislation-based Criteria**

*“If you can marry the private objectives and needs with the public policy framework, a project will be successful 9 times out of 10. You can't be bucking the public's interest. It all has to fit together”.*

– Planner, Kaufman Lofts

The provision of clear laws and/or policy direction on land use planning can help promote the creation strong communities, a strong economy, and a clean and healthy environment (PPS, 2014).

During the adaptation of all five case studies, interviewees referred to several legislation-based factors that impacted the success of and challenges facing the adaptive reuse of industrial heritage buildings. The most referenced legislation-based factors from the key informant interviews were:

- All five cases did not have explicit policy frameworks in place to recognize the adaptive reuse of buildings and sites, especially, regarding provisions for change at the same time as respecting heritage. This presented a challenge to the project team. However, there were policies in place through provincial legislature and through municipal official plans that promoted development in general, in certain areas of the cities. In each case, projects were located within these areas. For

example, in Kitchener, the policies of the Official Plan (at the time) saw the warehouse district (designated in the City's Official Plan and the location of the Tannery District) evolving and this included the adaptive reuse of some of the existing industrial buildings.

- Each project required some variation of a site-specific land-use or development application to permit the proposed new use, such as a Zoning By-law Amendment, a Minor Variance, or an Official Plan Amendment, presenting a challenge. For example, the Artscape Wychwood Barns applied for a Minor Variance to waive the requirement for off-street dedicated parking. The Kaufman Lofts required both an Official Plan Amendment and a Zoning By-law Amendment to change the property's land-use designation and zoning from industrial to residential uses (Planner, TKL).
- In all cases, any required site-specific land-use or development application was approved by city Council.
- In all cases, the projects were mutually beneficial to the owners and the Cities. This led to a mutual relationship with project teams working closely with municipal planning Staff to move the project through the application process smoothly and to ensure that any relevant and applicable policies were conformed to. Example: "We recognized that, encouraging uses like that, sometimes we need to allow for a catalyst. I consider the Tannery to be a catalyst in the downtown that helped encourage a lot of other investment and development when people started seeing its success (City of Kitchener, Planner).
- In all cases, potential land-use incompatibilities disappeared through the transition and adaptation of the buildings (e.g. zoning issues). Example: "As a former primarily industrial City, the mixed-use aspects that the building was transformed into was good, because it complimented the direction the City was moving with its Official Plan and zoning (Planner, TTB).

### **Location-based Criteria**

*"The project has been an overwhelming success. I think a big part of that, is because it's convenient to get to. It's an ideal kind of location. Which sort of makes sense from its original purpose. You wouldn't have a*

*street-car barn right on a main street but you would have it near. So, it's been very positive, I think, due to the fact it's not quite downtown, is relatively close to an important arterial road, relatively close to transit, and just a tiny bit off the beaten path. So, there's some privacy and things".*

– Former Mayor of Toronto, Artscape Wychwood Barns

The location of the five case studies played an influential role in the success and challenges faced during adaptation. In addition, the new use of these buildings played a transformative role by contributing to the rejuvenation of the areas in which they are located. The most referenced location-based factors from the key informant interviews were:

- The properties are all located in or near to the downtown core of their cities.
- The properties are all located in highly valuable areas of the cities. City Staff, Councils and owners all wanted to capitalize on the value that redevelopment would bring. Simply put, the location itself or the proximity of the property to a desirable feature or amenity was highly valued; consequently, this also contributed to the feasibility of the adaptation, and eventually, the success of the adaptation. For example, in Orillia, the Tudhope building allowed tenants to go out to restaurants or get a haircut during a lunch hour, while the Evergreen Brick Works provides a naturalized area where people can escape to nature without leaving the city (Owner & Real Estate Developer, TTB).
- The buildings are all easily accessible by means of active transportation or public transit. The Evergreen Brick Works is unique in that it is located slightly further from the downtown core than the other properties. To guarantee access to and from the property, a free shuttle bus (the Evergreen Brick Works shuttle) departs every 30–45 minutes from a parkette located downtown Toronto.
- The buildings' original manufacturing processes became less than desirable in a downtown setting during deindustrialization, while the current new uses of the buildings capitalize off their desirability and land-use compatibility. For example, the street network in downtown Kitchener

became less desirable for manufacturing purposes over time due to the complexities of driving trucks through the downtown core. However, the urban loft-style residential condominiums that now exist in the former Kaufman Footwear Building are ideal for the current demands of Kitchener's downtown core. Simply, the phasing out of the old industrial for the new use worked better with the downtown and the surrounding area (Planner, TKL).

- The size of property worked to the benefit of the owners and adaptation teams. For example, at the time, the property where the Kaufman Lofts is now established was one of the single largest consolidated parcels of land in Kitchener's downtown core. Because of this, lot consolidation (real property title deed merging) was unnecessary (Planner, TKL).

### **Municipal/Provincial Leadership Criteria**

*“Politicians see risk as a four-letter word. Most of them have a real aversion to risk. I've yet to meet politicians who are as interested to take on risk as the private sector is. Most politicians aren't. Risk is a four-letter word for a politician”.*

– Architect, Tudhope Building

One of the emergent themes to arise from the key informant interviews was the influence that Municipal/Provincial Leadership had on the outcome of the five adaptive reuse projects. Interestingly, if a municipality or the province took the incentive to take on a leadership role in the adaptive reuse of these heritage buildings, then the project seemed to progress more efficiently than it would have without. While not the most referenced criterion in the interviews, each of the five cases had several interviewees indicate that Municipal/Provincial Leadership was a key to the success of the adaptation. The most referenced factors pertaining to Municipal/Provincial Leadership were:

- In each case, City Staff, local politicians or the provincial bureaucracy (in the case of the Tudhope building adaptation, the OPP) became a project champion and helped the project teams work through various problems, including bridging the gap between the different municipal departments (e.g. heritage, public works, planning, engineering, parks and recreation, etc.). Example: “It made sense to the City to pay for certain things and I was in the mayor's office at the

time and so one of my tasks was to try to get City divisions to help where they could, even if they didn't really want to. So, to get the parks division to do remediation and figure out how much remediation was required and then try to get them to pay for the remediation and then try to get them to help, it was work” (City of Toronto Project Manager, AWB).

- In each case, the City invested in certain areas by implementing some variation of a Community Improvement Plan<sup>19</sup> (CIP). These CIPs helped to set out a municipal framework for the rehabilitation of its existing built-up areas. In Kitchener, for example, the adaptation of the Kaufman Building and the Tannery District benefited from the City’s downtown economic development strategy, which promoted new activity and development in the downtown core using financial incentive programs, and openly marketed themselves as ready and willing to accept (nearly) all development applications.
- In four out of the five projects (i.e., the projects in Toronto and Kitchener), the City created a variety of financial incentive programs that provided monetary assistance/relief in the form of waived development charges, waived parkland dedication fees, the provision of grants, or tax breaks such as the Brownfields Financial Tax Incentive Program (BFTIP) to help with environmental contamination remediation – to name a few).
- In all five cases, interviewees stated that once they had support from the City, a local politician (e.g. mayor, councillor, Member of Provincial Parliament, etc.) or the Province, the project became much simpler in terms of efficiency, financing, and media influence.

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<sup>19</sup> Plans that focus on the maintenance, rehabilitation, development and redevelopment of targeted areas.

## Environmental Criteria

*“As an environmental organization, we wanted to create a model of green design. So, that was always a driver throughout our design process, and, it was important that we didn't just become a green design site; but, that we achieve the highest standards. That decision really drove our costs up and really affected the choices we made. At times, we talked about whether we should go for a LEED Silver or Gold certification, but we decided, no, we must be Platinum if we are going to be what we want to be, and exist in harmony within the ecological context of the valley”.*

– Evergreen Staff Member, Evergreen Brick Works

All five case studies were examples of vacant or underutilized places where past industrial uses or commercial activities left contamination behind – otherwise known as brownfields. In each case, some degree of brownfield remediation was required to ensure health and safety risks to the public and any tenants were eliminated or reduced to meet specific health, safety and environmental standards. Source law for development on brownfields in Ontario, is governed by the Environmental Protection Act, Part XV.1 – Records of Site Condition, Ontario Regulation 153/04 (O. Reg. 153, 2004) – Records of Site Condition, and the Environmental Protection Act, Part XV.2. In each case, the proposed new use of the building and property was a change to the use of the property. According to the Government of Ontario (2017), any change in land use to a new use that is more sensitive than the previous use (e.g., residential uses in an old factory) requires a record of site condition<sup>20</sup> (RSC). To prepare a record of site condition, a qualified individual must be retained to undertake one or more environmental site assessments (ESA) (Government of Ontario, 2017). The undertaking of ESAs and the preparation of RSCs all cost time and money for the proponent wishing to develop on a brownfield. In all five cases, ESAs were undertaken, RSCs were prepared and submitted, and, in some instances, extensive remediation was undertaken.

Interestingly, regardless of these environmental challenges, all the projects persevered. According to the key informant interviews, the most referenced factors pertaining to environmental criteria were:

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<sup>20</sup> A record of site condition summarizes the environmental condition of a property, based on the completion of environmental site assessments.

- There were real energy savings in adaptively reusing the structures. In terms of saving bricks (i.e., aggregate operations), fuel burned from trucking (e.g. trips to the dump or shipping in new materials) or the ability to change out the windows, thereby contributing to enhanced energy efficiencies, etc. (Planner, TKL).
- Since the previous use of the building and property was industrial, ESAs and RSCs were required by law, which presented both a time and financial challenge. However, these were understood by the project teams prior to project commencement.
- Remediation of contaminated lands was required and undertaken in each case, to some degree. Some of the cases received financial support/relief from tax incentive programs for brownfield remediation.
- There were no species at risk onsite (both plants and animals) that required further study, protection measures or mitigation.
- If they were required, ground condition and water studies/assessments, (e.g. Geotechnical Investigations, Hydrogeological Studies or Hydrology Studies) did not affect the success of the project. If they were required they were undertaken without issue. However, due to the location of high water tables in some of the cases, underground parking was not permitted.
- One unique challenge was presented in the adaptation of the Evergreen Brick Works. Due to its location in a valley and proximity to a river, the site is prone to flooding. Therefore, architects and engineers had to account for flooding in the design of the adaptation. However, the project team managed to design the buildings and site in a way that could handle a little flooding and the project was successful regardless. Example: “Did you know that the property floods? [...] We had to come up with a design that could handle flooding on a yearly basis. Even if it didn’t flood each year, we designed the buildings to handle that kind of natural intervention. And, it’s happened a couple of times already, and the design worked” (Landscape Architect, EBW).

## Timing-based Criteria

*“The timing was good for new activity downtown. It was in an urban area about to flourish, which the city had been advocating for, for a long time. It succeeded because it was the right financial environment at the time. The City had just implemented its tax incentives program and was keen to see them at work”.*

– Architect, The Tannery District

The final emergent theme that arose from the key informant interviews was timing. According all thirty (30) interviewees, timing is everything. In assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings, good timing was a factor that significantly contributed to the success of the five case studies. The most referenced factors pertaining to timing-based criteria were:

- The decision to adaptively reuse these five industrial heritage buildings happened during a time when the city was advocating for new activity in or near the downtown core – which is the location for all five properties. Example: “At the time, the project would have been development charge exempt, it was regional development charge exempt, and I believe there were parkland dedication exemptions, and building permit exemptions” (Planner, TKL). In all five cases, the right developer came along at a strategic time in the City; both of whom, wanted investment in the redevelopment of built up areas<sup>21</sup>. For example, the projects located in Kitchener were able to take advantage of Kitchener’s financial incentive programs (as mentioned earlier). Example: “The right developer came along at the right time in the City, as we wanted to make the investment in the downtown” (City of Kitchener Planner, TTD).
- In all five cases, interviewees stated that the right building was available at the right time. For example, provincial policy direction started promoting development/redevelopment within the existing built fabric (e.g. infill and intensification). Example: “It was successful for our needs and they were very urgent needs. We had to find accommodation for two of the three advanced moves

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<sup>21</sup> Built up areas are referenced by definition in the Ontario Provincial Policy Statement (2014) under the term ‘Settlement Areas’, which is defined as: urban areas and rural settlement areas within municipalities (such as cities, towns, villages and hamlets) that are: a) built up areas where development is concentrated and which have a mix of land uses; and b) lands which have been designated in an official plan for development over the long-term planning horizon provided for in policy 1.1.2. In cases where land in designated growth areas is not available, the settlement area may be no larger than the area where development is concentrated (Ontario Provincial Policy Statement, 2014).

and had to find it quickly and still have enough time to renovate the building for the OPP's needs” (Architect, TTB).

- The projects were proposed/undertaken during right economic market circumstances. For example, the adaptation of the Tudhope Building in Orillia was proposed during a brief recession when government spending was liberal in an effort to promote economic development. Alternatively, the Tannery District in Kitchener, was bought during a recession period where land values were low and the market for new offices was weak (i.e., the proposed new use). Over time, the project was completed, and the owners of the newly adapted Tannery District sold the property for immense profits in a market more suitable to ROI (i.e., buy low, sell high). Example: “In the end, it comes down to, is there a market demand? The market demand will drive the financing” (Planner & Real Estate Investor, TKL).

## **Summary**

The findings from the thirty (30) key informant interviews provides evidence to accept that, the feasibility, and to a certain extent, the outcomes of adaptive reuse projects are primarily influenced by the adaptation/project team, cultural factors, economic factors, environmental factors, legislative factors, location-based factors, municipal/provincial leadership, a building or property’s new use and associated factors (including specific building and property features), social factors (including a potential tenant’s influence, and timing. However, interviewees also made many references to three (3) additional factors, and it was discovered that project/adaptation teams, Municipal/Provincial leadership and timing, were influential impactors in the feasibility, and to a certain extent, the outcome of adaptive reuse projects. Ultimately, through the content analysis, it was discovered that some themes had more content and references than others. Using NVivo, it was determined that there is a hierarchical arrangement to the themes, indicating their prominence within the five case studies; and consequently, the weight or influence those themes had on the outcome of the adaptation. Therefore, there are ten (10) influential criteria that can help in assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. In their hierarchical order (including subsets), the criteria are as follows:

1. Adaptation/Project Team
2. New Use
  - a. Specific Building and Property Features
3. Economics
4. Culture
5. Social
  - a. Tenant Influence
6. Legislation
7. Location
8. Municipal/Provincial Leadership
9. Environment
10. Timing

Next, Chapter 6: Discussion and Conclusions, provides a summary and interpretation of the results as they attempt to answer the primary research questions. Following the findings from this chapter's conclusions, in conjunction with evidence from the literature review, Chapter 6 also presents the contributions made to the realm of professional land-use planning. In addition, this section will offer recommendations as to how the deduced criteria could be modified and adjusted for application in other contexts. It provides a tool and approach to adaptive reuse that future proponents may use to undertake an adaptive reuse project with full knowledge on how to objectively investigate the situation. Finally, Chapter 6 concludes with a brief breakdown of the limitations of the study, potential future research and final closing statements.

## **CHAPTER SIX: Discussion and Conclusions**

The purpose of this study was to identify criteria for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings and then to test those criteria across five case studies in Ontario, Canada. This chapter presents a final discussion of the key findings conveyed in Chapter Five in relation to findings and the existing knowledge of the literature review, and finalizes the responses to the research questions posed in Chapter One.

### **Summary of Key Findings**

Adaptive reuse is more than just the conversion of buildings by recycling their usable components for a new use. While the above statement is correct, it is also reductive. Adaptive reuse is a method and strategy that can be used to contribute to community revitalization. It is a method and strategy which can be used for the conservation of our cultural heritage (industrial buildings or otherwise). Most importantly, it is a method and strategy that can be used to achieve all of the above, while simultaneously acting as a catalyst for the progression of modern planning. For example, if a community's common goal (municipality + residents) is to revitalize a blighted downtown, we have seen how adaptive reuse can play a role in achieving that goal. This was demonstrated by the adaptation of Kitchener's Kaufman building and Tannery District, where the adaptation of these two former industrial buildings have become a catalyst for new, innovative, and technology-focused downtown development. Contributing to the transformation an industrial blighted downtown into an innovation district and what has become Canada's technology hub.

As a conservation technique, adaptive reuse can be used to help reduce the number of abandoned or unused industrial buildings and/or prevent demolition of cultural heritage assets; thereby, introducing fresh programs and functions into a structure and contributing to the maintenance, rehabilitation, development and redevelopment of targeted areas within a city (Wong, 2017). This thesis aimed to understand ways to approach adaptive reuse through the lenses of land-use planning, by answering three (3) primary questions:

1. In the cases where the adaptive reuse of industrial heritage buildings was successful, how and why did these successes occur?
2. What are the factors/criteria that impacted the outcome of adaptive reuse and how did those factors/criteria impact adaptive reuse?
3. How can these criteria be transformed into tools that can be generalizable and be applied in various contexts with modifications to suit new contexts?

These questions were considered by undertaking research utilizing a multiple-case studies approach on five (5) Ontario-based cases of adaptive reuse. Key informant interviews were undertaken and the data was analyzed using a digital content analysis. The answers to questions 1 and 2 were discovered in Chapter Five: Findings.

Ultimately, ten (10) criteria were identified that may help in assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings. The content analysis determined that each of the criteria had a unique proportional influence on the outcome of the adaptations. This hierarchy was discovered by examining the number of times one of the themes was referenced in the interview. For the five case studies the resulting criteria, in their hierarchical order (including subsets), are as follows:

1. Adaptation-/Project Team-based Criteria
2. New Use Criteria
  - a. Specific Building and Property Features
3. Economic-based Criteria
4. Cultural-based Criteria
5. Social-based Criteria
  - a. Tenant Influence
6. Legislation-based Criteria
7. Location-based Criteria
8. Municipal/Provincial Leadership Criteria
9. Environmental Criteria

## 10. Timing-based Criteria

Comprehensive analyses of the findings for each of the ten (10) criteria were prepared in Chapter Five: Findings. There were several outstanding and unexpected findings to emerge from the research. The first was the influence that the media has on the progress of these projects. In all five cases, the media influence was so strong that it was able to sway invested parties in one direction or another depending on how information was published. Interestingly, two of the case studies had project teams that actually involved the media directly in several of the earlier project discussions. By reaching out to explain the intended adaptation project, its potential benefits, and the process, the Project Teams created an “informed” media presence that helped when it came to publishing accurate information in newspapers, online, or on television.

The second, was that financing wasn't a major influencer in the outcome of the adaptation. Although economic-based criteria was one of the most referenced themes to emerge, its influence on the outcome of adaptation was unique. Obviously, financing is critical. When it came to financing an adaptive reuse project, money wasn't the determining factor in the success. Simply, the success of an adaptive reuse project being a consequence of financing, can be seen as an oxymoron in that, there would be no adaptation without financing, and consequently, no example of a partially-completed case. What was most interesting, was how a project managed to compensate when or if financing became a concern. In all five cases, funding was always provided in one way or another. In some instances, this even meant personal investment from members of the Project Team or creative grant/subsidy programs provided by a municipality.

Tenant influence was another outlying finding. With the exception of the Kaufman building adaptation, all of the case studies were either influenced or initiated because of the demand/intention a particular future tenant had on the project. For example, the adaptation of the Tudhope building in Orillia was initially undertaken because the Ontario Provincial Police chose the building for their new headquarters. Although particular tenant influence wasn't demonstrated in the Kaufman building

adaptation, its future use as residential lofts capitalized on the increasing demand for downtown urban living – a theoretical tenant influence that happened to be correct.

Another interesting finding was the Project Team's abilities to compensate for case-specific cultural phenomenon. For example, the Tudhope building adaptation experienced a halt in work during the month of October due to workers taking time off to go hunting – something that wasn't experienced further south in the Toronto- or Kitchener-based projects. Additionally, the Project Team involved in the adaptation of the Wychwood Barns experienced contention when it came to convincing the surrounding affluent neighbors of the Wychwood community that introducing subsidized working-artist residences into the building would be a good idea.

Finally, the last unexpected finding was the Project Team's ability to persevere in the face of adversity or opposition. In all five cases, members of the Project Team utilized clever means to maneuver around adversity, opposition, and in some case, bureaucratic problems. For example, a City of Toronto staff member was tasked with preparing a Cost/Benefit Analysis (CBA) for the Artscape Wychwood Barns Project. However, the staff member tasked with this project realized that if the Cost/Benefit Analysis were to come from them, that it may not be as seriously considered than if it had come from another department or individual. Strategically, this individual routed the CBA through the Deputy City Manager and Chief Financial Officer at the time, where the report was taken more seriously by an Executive Committee; ultimately, the project was approved.

The findings in Chapter Five included homogenous outcomes across the five case studies and any outstanding findings that impacted the outcomes of adaptation. Interestingly, since the five case studies don't represent 100% of the entire population of successful adaptation cases in Ontario, some consideration was given to statistical normalization. A simple data analysis producing descriptive statistics indicated that the average reference made to each of the criteria is 10%. With ten (10) total identified criteria, this means that, on average, each of the criteria evenly impact the outcome of an adaptation project.

However, the simple data analysis also indicated that the number of references made to each of the criteria had a standard deviation of approximately 3.5. What this indicates, is that, on a case-by-case basis, the adaptive reuse of an industrial heritage building could be impacted more or less by certain ‘case-specific’ factors (either 3.5% more or 3.5% less). If the above ten (10) criteria and their hierarchy are taken into consideration by proponents in their approach to an adaptive reuse project, then it is possible that they could utilize that hierarchy to determine which criteria may be more impactful for their specific adaptation proposal (i.e., which factors will have a 3.5% greater influence over the other, or 3.5% less, etc.).

However, the assessment criteria and their “influence hierarchy” may only be generalizable as a base from which to start. The final determination would have to come as a second part, and most likely would require the subjective exploitation of a proponent’s past experiences or knowledge with adaptive reuse. Ideally, these criteria and their “influence hierarchy” can be generalizable and be applied in various contexts with modifications to suit new contexts (i.e., a tool to approach adaptive reuse). Either way, the deduction and testing of these assessment criteria has provided and/or contributed to the knowledge of adaptively reusing industrial heritage buildings by identifying that there are ten (10) common criteria that can be used for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings.

### **Contribution to Planning**

The findings from this study contribute to the Canadian Institute of Planner’s (CIP) competency standards<sup>22</sup> for the land-use planning profession in Canada; and through CIP, the core competencies of the Ontario Professional Planners Institute (OPPI). This is accomplished by proposing a holistic approach to objectively assess the challenges and strategies used in successful examples of adaptively reused industrial heritage buildings in Ontario, Canada. Adaptive reuse is rooted within many professions: land-

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<sup>22</sup> “Competency standards attempt to capture the various dimensions that, when taken together, account for ‘competent’ performance. They describe the knowledge, skills and attitudes required for practice by individual planners. Competency standards may be used for a variety of purposes in addition to the assessment of the knowledge, expertise and capacities of the individual practitioner required for regulating entry and ongoing membership within the profession” (Canadian Institute of Planners, 2011).

use planning, architecture, engineering, construction, real estate development and urban design – to name a few.

The ten (10) criteria identified for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings provides a platform from which to build off by contributing to the knowledge, skills and attributes required for research in the social sciences and for practice by professional planners within two realms, functional and enabling competencies. Specifically, the findings from this study contribute to the following core competencies:

*Table 8: Contribution to Core Functional Competencies*

<b>Functional Competencies</b>	<b>Thesis' Contribution</b>
Developments in Planning and Policy	Contributes to the emerging trend of adaptive reuse and its issues related to the planning profession such as infill and intensification, urban design, revitalization, for example.
Government Law and Policy	Contributes to the understanding of how governments operate within the context of development applications and how planning legislation/policies impact those applications.
History and Principles of Community Planning	Contributes to the history of planning in Canada; specifically, regarding industrial location theory and concepts. Contributes to the knowledge surrounding the principles and practices of planning theory; specifically, regarding innovation and economic development in cities.
Human Settlement	Contributes to the knowledge surrounding human settlements and community by investigating the influences that these adaptive reuse project have on their communities, such as downtown revitalization or modifying a place for a compatible use.
Plan and Policy Considerations	Contributes to the knowledge surrounding environmental and sustainable development by investigating the environmental factors that influenced the outcome of adaptive reuse projects (e.g. brownfield remediation or retention of the existing building stock for energy and non-renewable resources savings). Contributed to the knowledge surrounding plan and policy considerations by examining how the functional integration of knowledge through an interdisciplinary project team can impact an adaptive reuse project. Provided for a holistic examination of how finance and economics play a significant role in the outcome of adaptation projects; and consequently, plan and policy considerations.
Plan and Policy Making	Contributes to plan and policy making by examining how planning approaches were used in situation where explicit policy wasn't yet underwritten to support a project (such as adaptive reuse) and helps direct focus to the necessity of developing visions and outcomes for large and complex planning projects such as adaptive reuse. Provides examples as

	to how planners were able to obtain input and approvals on a type project that was yet to emerge as a trend.
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Table 9: Contribution to Core Enabling Competencies

Enabling Competencies	Thesis' Contribution
Communication	Contributes to an understanding of how listening skills, and written and oral presentations can integrate and inform a community, thereby, adequately integrating the social aspects of large and complex planning processes and improving on internal and external relations (i.e., project team vs. the public).
Critical Thinking	Contributes to the knowledge surrounding decision making and risk management by providing tools that will enable proponents to undertake an adaptive reuse project with full knowledge on how to objectively investigate the situation, and manage the project.
Leadership	Contributes to the competency of leadership by proving examples of how project teams were able to implement grand visions through to completion often with the help of enabling parties such as municipal/provincial governments or politicians. Demonstrates how the right leadership can produce a “climate of excellence” when it comes to managing resources efficiently.

**Limitations of the Study**

According to Yin (2014 p. 4), “different social science research methods fill different needs and situations for investigating social science topics”, and there isn’t one perfect research method for one topic. Openly acknowledging this study’s limitations is a way demonstrating the full extent of the challenge of undertaking social science research. The limitations of this study were as follows.

**Semi-Structured Interviews**

Semi-structured interviews were informative because they provided flexibility in terms of the wording used and the way questions could be explained to respondents. However, this flexibility also allowed for some non-uniformity in the information collected, which, according to Kumar (2011 p. 137) “assures the comparability of data”. During the data preparation stage, post-interviews, any non-uniformities were corrected; thereby, helping to assure the comparability of data but also subjecting the data to user error.

In addition, as Kumar (2011 p. 142) states, “the quality of data depends upon the quality of the interaction”. There were certain respondents who seemed somewhat reluctant to be using “unpaid” time

to conduct an interview or respondents who didn't fully see the merit in the questions they were being asked. At times, this may have affected the quality of the information obtained. Also, because every respondent was unique, the interactions that were had during the interviews were also unique. As a result, the quality of the responses varied slightly from person to person.

An unanticipated limitation relating to the interviews, was the impact of the interviewer on the quality of data. According to Kumar (2011 p. 142), "in an interview situation the quality of the data generated is affected by the experience, skills and commitment of the interviewer". The first several interviews were slightly awkward and clunky and the knowledge surrounding the topics wasn't as comprehensive as it became towards the last several interviews.

Finally, in the framing of questions and the interpretation of responses during interviews, it is always possible that researcher biases were introduced. While awareness to this was always known, there may have been times when respondent opinions elicited a biased response from the researcher. However, as the interviews were recorded digitally, these biases could be identified and removed from the transcripts during the data preparation phase.

### **Case Study Design**

According to Burns (1997 p. 364), "to qualify as a case study, it must be a bounded system, an entity in itself". Further, according to Kumar (2011 p. 123), "it is important that at the time of analysis you continue to consider the case as a single entity". It is in this requirement of the case study design that a limitation was presented. As each of the five adaptive reuse examples were unique, so too were the factors that influenced the successes of and challenges faced by the adaptation. When, it came time to undertake the content analysis, it was difficult to produce findings that considered the cases as a single entity and not treat them separately.

### **Future Research**

There are many options when it comes to future research pertaining to the adaptive reuse of industrial heritage buildings. However, two comments from two different respondents have eluded to

something that, through future research, would complement the findings of this thesis and further add to the knowledge base surround adaptive reuse.

The first is a response from the owner and developer of the Tudhope Building in Orillia, who mentioned that it was easier to obtain bank loans for development projects dealing with heritage, including adaptive reuse, than it was to obtain loans for new construction. This statement was contrary to findings from peer-reviewed academic sources, for example, Shipley et al. (2006a), found that banks tend to evaluate adaptive reuse projects as having a higher level of risk. It would be interesting and valuable if a study was undertaken on the propensity of banks to distribute bank loans for a typical commercial, residential, or mixed-use development, versus an adaptive reuse development on designated heritage properties.

Second, one of the architects from both the Artscape Wychwood Barns and the Evergreen Brick Works, mentioned that “there's a sense of respect you must have of what's come before, but also, I think, of the anticipated future intervention – that we aren't the last word – if you will, in the character and form of this space”. That it will continue to evolve. In terms of a successful adaptation, it would be interesting to see how many completed adaptive reuse projects incorporated provisions for an anticipated future intervention. While the five case studies researched here, certainly did this through various design elements, it is quite possible, that not every adaptation incorporates this. The question that should be asked then is, if an anticipated future intervention is not incorporated through the design process of the new use, is the adaptation truly successful? If an anticipated future intervention is not incorporated, how can these buildings ensure that heritage conservation will continue onto the next lifecycle?

## **Final Conclusions**

This study has demonstrated how introducing fresh programs and functions into a structure through adaptive reuse can contribute to the maintenance, rehabilitation, development and redevelopment of targeted areas within a city. In addition, the ten (10) criteria identified for assessing the success of and challenges facing the adaptive reuse of industrial heritage buildings provides a platform from which to

build off by contributing to the knowledge, skills and attributes required for research in the social sciences and for practice by professional planners. The closing remarks, fittingly, should go to Wong (2017 p. 246) who so eloquently states that:

“The practice of adaptive reuse is much like playing the second violin to the melody of the host building. It is a song of redaction in which the minor keys humbly and sweetly negotiate between existing context and the new content”.

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## **APPENDIX A: Interview Script**

Interview Script for Evan Sugden's Master's Thesis

Assessment Criteria for the Adaptive Reuse of Industrial Heritage Buildings

University of Waterloo – Faculty of Environment – School of Planning

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1. Did the project commence before or after the heritage designation was bestowed on the building/property?
  - a. If before; did the heritage designation play a part in garnering support for the project?
2. What value was first realized in the old building/site? (i.e., what sparked interest?)
3. What **cultural** factors impacted this project? (e.g., archaeological assessments, past cultures phasing out, new cultures blending in, cultural mixing, incompatibilities, etc.)
4. How was this project affected by **economically**?
  - a. Was financing a major determining factor in the success of this project? Why?
  - b. Were there any outstanding contributions to the financial outcome of this project (e.g., angel investors, grants, loans, etc.)? Who footed the bill?
  - c. Were there any grants, loans, subsidies or special programs that helped contribute financially to the outcome of this project?
5. **Environmentally**, how was this project affected?
  - a. Positively? (e.g., install solar panels for sustainable energy production/grants)
  - b. Negatively? (e.g., Brownfield complications)
  - c. Why did environmental factors play a role?
  - d. How did this project overcome any of its environmental complications?
6. How was this project affected **legislatively**? (e.g., laws and/or policies that that made things harder or easier)

- a. Were there any specific planning-related policies that impacted the project? (e.g., PPS, GPGGH, Greenbelt, Heritage, etc.)
  - b. Why did legislative factors affect the project?
  - c. How did this project deal with applicable problematic legislative factors?
7. How did the site's **location** impact the project's outcome?
  - a. Why did the location affect the outcome of the project?
  - b. How were location-based factors dealt with?
8. How did the **New-Use** of the building and site contribute to the project's success?
  - a. What about the existing building specifically contributed to the project's success?
    - i. The structure itself?
    - ii. The quality of materials?
    - iii. The ease of transition from old-to-new?
    - iv. The dangers of the building and/or the site?
9. What **social** factors affected this project?
  - a. How did peoples' emotions play a part in this project? (e.g., were people in-support of the project or against it?)
  - b. Why do you think an individual's emotions or a groups' emotions affected this project?
  - c. Did council approve of it totally, or were some members against it?
  - d. Was the project supported by the residents of the area?
  - e. Who were the project champions?
10. Could you list your top 5 factors that lead to this project's success? (i.e., what factors could lead other similar projects to success in the future?)