

Goderich: A Case Study of Conserving Cultural Heritage Resources in a Disaster

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

A high impact Tornado (F3 on the Fujita scale of F0-5) struck Goderich, Ontario on August 21, 2011, significantly damaging the cultural heritage resources in the town. Heritage planning activities prior to the disaster had an effect on how the cultural heritage resources were treated during the tornado aftermath and recovery. This thesis aims to record any lessons learned from the Goderich tornado and share the findings with other Ontario municipalities.

A Literature Review helped form a study framework of ten best practices within Public Safety Canada's four disaster stages: 1) mitigation, 2) preparedness, 3) disaster, and 4) recovery. A Townscape Survey was completed for the two existing Heritage Conservation Districts. This type of survey was developed in the United Kingdom and is meant to be an objective way of looking at streetscapes. The process involves taking views of the streets and scoring 25 criteria in each view. The aggregated score provides an overall impression of the urban landscape. In 2008 prior to the tornado, this quantitative approach was applied in Goderich and another two Townscape Surveys were completed after the tornado in 2012 and 2013. These three surveys form a longitudinal study, measuring the physical change over time. Eleven interviews were completed with fourteen key stakeholders, including: Planners, local property and business owners, members of the Municipal Heritage Committee, heritage consultants and architects, provincial representatives from the Ministry of Tourism, Culture and Sport, and advocacy organizations such as the Architectural Conservancy of Ontario and the National Trust for Canada.

The Townscape Surveys of Goderich revealed that the character of The Square and West Street has not been irrevocably harmed by the tornado. Based on the experiences shared during key stakeholders' interviews, best practices for the conservation of cultural heritage resources in a disaster were expanded from ten (as mentioned above), to 14 within the four disaster stages. The first of four stages is Mitigation, under which the best practice is to mitigate disaster impacts. The second stage is

Preparedness, where the goals should be to: 1) educate property owners on heritage significance, guidelines and insurance; 2) prepare an inventory of cultural heritage resources; 3) designate important properties and landscapes – include emergency management of cultural heritage resources in the management guidelines; 4) prepare an Emergency Management Plan with reference to cultural heritage resources; 5) create relationships with Emergency Managers and other professional organizations who respond in a disaster; 6) create a manual on managing cultural heritage resources in a disaster to assist heritage workers and volunteers; and, 7) institute heritage-specific funding for use in a disaster. In the third stage, during a Disaster, the following actions are recommended: 1) perform a systematic damage assessment; 2) establish a conservation team; 3) establish mutual assistance agreements; 4) reach out and educate property owners; and 5) salvage material and document buildings. During Recovery, the fourth and final stage, it is suggested that planning initiatives be implemented. The initiatives should consider cultural heritage resources, some of which may include: an abbreviated HIA process; a Temporary Use By-law; Zoning By-law Amendments that encourage rebuilding that is sympathetic to the character of the impacted area; a planning undertaking that involves public input and will aid in guiding recovery (i.e., a Master Plan for the area or Heritage Conservation District guidelines).

Many of the best practices for conserving cultural heritage resources in disasters are good heritage practice in general (i.e., prepare an inventory of cultural heritage resources, reach out and educate property owners), therefore, many groups are already taking some steps to assist with protecting cultural heritage resources in the event of a disaster. However, the combined effort of municipalities, heritage organizations (i.e., Architectural Conservancy of Ontario, National Trust for Canada and the Canadian Association of Heritage Professionals), Municipal Heritage Committees, the Ministry of Tourism Culture and Sport, Ontario Heritage Trust, heritage consultants as well as homeowners of historic properties are required to prepare for and respond to any future disasters.

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This thesis is dedicated to the community of Goderich, who survived a traumatic event and found the strength to rebuild while retaining their sense of place.

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List of Abbreviations

- CDE – Character Defining Element
- EMO – Emergency Management Ontario
- EOC – Emergency Operations Centre
- HCD – Heritage Conservation District
- HIRA – Hazard Identification and Risk Assessment
- ICCROM - International Centre for the Study of the Preservation and Restoration of Cultural Property
- ICOM – International Council of Museums
- ICOMOS – International Council on Monuments and Sites
- MHC – Municipal Heritage Committee
- MTCS – Ministry of Tourism, Culture and Sport
- ODRAP – Ontario Disaster Relief Assistance Program
- OHA – Ontario Heritage Act
- OHT – Ontario Heritage Trust
- PPS – Provincial Policy Statement
- UNESCO – United Nations Educational, Scientific and Cultural Organization

Chapter 1: Introduction

A high impact Tornado (F3 on the Fujita scale of F0-5) struck the Town of Goderich, Ontario on August 21, 2011, significantly damaging the town's cultural heritage resources. Heritage planning activities prior to the disaster had an effect on how the cultural heritage resources were treated during the disaster. Decisions made during rebuilding/recovery stage impacted these assets further. Currently, all municipalities in Ontario are required to have an Emergency Management Plan in place for natural disasters, but it is not necessary for these plans to make reference to cultural heritage resources. The wide-spread devastation of historic buildings in Goderich made it clear that Ontario needs an examination of best practice emergency management policies and processes specific to cultural heritage resources. This thesis aims to record the lessons learned as a result of the Goderich tornado that can be shared with other Ontario municipalities.

1.1 Significance

Climate change is leading to an increasing number and heightened intensity of extreme weather events. Over the past few years we have seen evidence of this trend across the country: floods in Calgary and Toronto (2013); Tropical Storm Irene hitting the east coast (2011); wildfires in Slave Lake (2011), the Yukon (2014) and most recently Fort McMurray (2016). According to the Federation of Canadian Municipalities, the number of weather related disasters has increased in Canada from 30 in the 1950s to over 150 in the 1990s (FCM, 2006). Southern Ontario is considered one of the most active areas for extreme weather in Canada (Silver, 2012, p. 32). These events have the potential to result in significant loss, particularly to buildings, many of which are considered historic. In a survey completed by museums, archives and libraries in Arkansas (considered the pillars of cultural heritage resources), 40% of the organizations had experienced a disaster in the last ten years (Clareson and Long, 2006). The recent International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) 29th General Assembly held in Rome in November

2015, featured a discussion on “Climate Change, natural disasters and cultural heritage: Culture cannot wait!”. This discussion “highlighted the need to integrate cultural heritage in the global risk agenda as a vital resource for building back resilient communities” (ICCROM, 2015). The inevitability of an increased number of future events means many people believe that cultural and city planners need to start creating plans today that protect a community’s cultural heritage resources for the future.

1.1.1 Cultural Heritage Resource Significance

In the wake of potentially deadly disasters, why does cultural heritage matter? The first priority in a crisis is clearly human life. Once the people are safe, cultural resources of the affected area often feature heavily in people’s minds. In the context of Hurricane Katrina, Morgan et al. stated, “In the early days after the hurricane’s passage, however, even as the extent of the human toll was unclear, the notion that sense of place was threatened or lost began to surface in the media” (2006, p. 712). The cultural heritage resources of a community are symbols that give a sense of place, an identity and provide continuity as symbols in times of disaster (ICROM, et al., 2013; Oliver-Smith 1996; Stovel, 1998). Cultural heritage resources are also finite and non-renewable (Graham and Spennemann, 2006). The recovery and rehabilitation of significant resources following a disaster is key to restoring a community’s sense of place (Stovel, 1998). In addition, historic downtowns are often drivers of economic development. When a downtown is damaged during a disaster, the economics of a community can be seriously impacted (FEMA, 2005). At a conference held by the American Institute of Planners in the wake of Hurricane Katrina, six themes for rebuilding were reached by consensus. In the “plan and design communities that advance livability” theme, it was emphasized that the community should use “the best of the past as the core for rebuilding” (Morgan, et al., 2006, p. 714). In short, the preservation of cultural heritage resources after a disaster plays a key role in restoring and maintaining community identify as well as economic vitality.

Disasters have significant impacts on heritage resources. During Hurricane Katrina, Richard Moore, President of the National Trust for Historic Preservation, is quoted as saying the disaster was “the greatest cultural catastrophe America has ever experienced” (Morgan, et al., 2006, p. 712). According to Stovel (1998), the impacts of a disaster can outweigh the effects of daily wear on a heritage resource. The maintenance of cultural heritage resources has been addressed by the heritage community in numerous ways: hands on workshops; conservation plans; local and national grant programs; property standards By-laws, etc. However, the heritage community is passive regarding the conservation of these same resources in an emergency because they are not planning for disasters (Stovel, 1998). Since cultural heritage resources play such an important role in communities, this lack of planning for their treatment during and following disasters represents a significant gap in the conservation of these community assets. If our legislation calls on us to conserve heritage, it does not mean just when it is convenient – it is especially true when times are difficult.

1.1.2 Ontario Significance

The tornado that touched down in Goderich and its aftermath are significant as a case study because other cities in Ontario are looking to Goderich to see the impacts. For instance, in response to the establishment of a potential Heritage Conservation District in downtown St. Marys, Ontario, a city Councilor indicated that she wanted to first know how Goderich’s Heritage Conservation Districts influenced the recovery after the tornado (Salter, 2012). Many of Goderich’s heritage buildings are protected under the *Ontario Heritage Act* as individual properties (Part IV) or as part of one of the two downtown Heritage Conservation Districts (Part V). Municipalities in Ontario are examining the outcomes from Goderich to see how heritage protection could impact recovery efforts before proceeding with their own designations.

1.1.3 Planning Significance

Blanco and Alberi (2009) provide an overview of research completed in the area of emergency management and its relationship with the planning profession. According to their research, recovery is the most studied phase of disaster management but very little of the literature is directly related to planning. The majority of existing planning literature is focused on mitigation. Overall, Blanco and Alberi (2009) recognize there is insufficient data on disasters and planning. They conclude there is a need for more disaster documentation and analysis in all aspects of planning. They go on to identify two main research priorities. The first priority is to examine how the planning decisions, as well as existing planning and disaster plans and policies affect the recovery process. The second is to determine how planning factors such as land use, adapt to change in the built form. The research for this thesis focuses on Blanco and Alberi's first priority by examining Goderich's heritage plans and policies that existed prior to the disaster as well as the decisions that were made during the disaster and recovery phases.

In Ontario, the protection of heritage resources falls under the purview of planning and is guided by the *Ontario Heritage Act*. The act is promulgated by the Province of Ontario and enables municipalities to take action to protect their local resources through numerous mechanisms. As such, the responsibility for protection of heritage resources in Ontario lies almost entirely with municipalities. While much of the literature focuses on site specific emergency management in the form of World Heritage Sites (Stovel, 1998) or museums (O'Hare, 2012), it fails to address the protection of the vast majority of other sites with cultural heritage importance.

Disasters can happen at the city or community level, impacting numerous sites at once (Norris et al., 2008). In these cases, local governments are considered "first responders" (Florida Department of State, 2003, p.11). Pearce (2003) states that "it is really local-level, bottom up policy that provides the impetus for a successful hazard mitigation planning process"

(Oulahen, 2008, p. 20). Planning is also a local-level responsibility. These facts provide further justification for studying emergency management through local community planning.

1.2 Description of the Case Study

The Town of Goderich is located in the County of Huron in the Province of Ontario. The land upon which the Town sits was originally owned by the Canada Company and the Town Plan was laid out by John Galt (Town of Goderich, 2015). The Town, incorporated in 1850, is located on Lake Huron at the mouth of the Menesetung River (now called the Maitland River). Settlement and the development of industry in Goderich were facilitated by the existence of a good harbour, and further bolstered in 1858 by the arrival of the railway (Town of Goderich, 2105). The Town of Goderich has a tradition of heritage conservation. It has a Municipal Heritage Committee (MHC) that advises council on matters of heritage. The Planner for the Town is employed through Huron County, however there is no dedicated Heritage Planner. Many of the Town's cultural heritage resources are listed on the Municipal Heritage Register, which was first completed in 2009. The register included 200 properties, 32 of which were individually designated under Part IV of the *Ontario Heritage Act*. At the time of the tornado the Town had two Heritage Conservation Districts (HCDs) so that large areas of the downtown were protected under the Part IV of the *Ontario Heritage Act*. The original plan was for the entire centre of the Town to be designated as it has a unique octagonal centre with eight radiating streets. In the end, only the square (everything facing the octagonal centre) was designated in 1982 (By-law 1993-26) as "The Square" and properties along West Street between the Square and Waterloo Street were designated as "West Street HCD" in 1993 (By-law 1993-71). According to Bray (2014), these areas, with a concentration of 19th and early 20th century buildings, are key to the Town's civic and commercial activity.

It was these town-centre districts that were hit hardest by the tornado of August 21, 2011. A tornado warning was issued at 3:48pm. The tornado hit 12 minutes later and was classified an F3 on

the Fujita Scale. According to Silver (2012), the Goderich tornado was the worst experienced in southern Ontario since the 1996 Violet Hill tornados in Dufferin County. Tragically, in Goderich the tornado killed one person and 37 people were injured (McCabe, 2013). Buildings were destroyed and over 1000 trees were damaged. Following the tornado, a state of emergency was declared, which was not lifted until October 14, 2011 (McCabe, 2013). Three days following the tornado, Goderich experienced another severe storm with heavy rain. With over 300 buildings damaged, the first priority of the Chief Building Official was to assess the situation. According to “Weathering the Storm” in the *Ontario Building Officials Association Journal*, “It was a challenge balancing the desire to maintain the historical significance of these structures with the need to dismantle parts or entire buildings in order to protect the public” (2011, p. 18). The damage from the tornado was estimated at \$100 million (The Weather Network, 2013).

In the immediate aftermath of the storm, a notable study was completed by Amber Silver, a student at the University of Waterloo. Silver’s research focused on people’s perceptions of the disaster and provided insight into how the residents of the Town of Goderich communicated after the storm. Silver’s investigation found that the loss of the sense of place from the destruction of the Town’s cultural heritage resources was a key source of trauma for local citizens following the tornado. Quotes from her survey research included:

It’s heartbreaking to see these old building go...It’s really sad to see that. And it’s sad to go to Harbour Park, which had all these beautiful magnificent trees and its just...its just bare field now. It’s really sad (Amanda, 40-45 years old) (Silver, 2012, p. 71).

I just find it really angering to go around and look at these buildings that have been so severely damaged and just left to die a slow death when, [...]there could’ve been some fast action taken at the time to prevent them-to uh, prevent that amount of damage from happening (Morgan, 53 years-old) (Silver, 2012, p. 71).

The thesis also reported that “...77% of respondents worry that Goderich has permanently lost some of it historic charm, and almost half of respondents (48%) worry that new development will not be as charming or beautiful as the buildings that were lost” (Silver, 2012, p. 85).

During the immediate aftermath, the Town was subjected to intense media coverage that identified three key issues related to historic buildings affected by this disaster: 1) the worsening of the impacts of the disaster by delaying access, allowing rain to further damage buildings; 2) the removal of debris without a process for salvaging usable historic material; and 3) the demolition of two significant buildings only a few months after the disaster.

Shipley's (2012) critical view of the response to the tornado reveals the main themes related to Goderich's recovery. His article is based on interviews with local people, and examined the time immediately after the tornado. He pointed out that the disaster was compounded by restricting access to buildings, thus leaving the damaged roofs and windows open to the elements (see Image 1). This delay led to serious rain damage in the days following the tornado. Shipley then indicated that existing heritage protection that should have been legally afforded to the Town's buildings was only adhered to when it was convenient. Buildings were demolished using advice from professionals without specialized heritage knowledge. Furthermore, debris was removed from the streets without any triage process, resulting in the loss of irreplaceable building features.

In total, 55 buildings were demolished as a result of the tornado in Goderich. A brochure produced by the Municipal Heritage Committee (MHC) about the tornado damage states: "throughout the fall of 2011, the Municipal Heritage Committee sadly approved the demolition of 15 heritage buildings. Many other equally important structures with heritage value were approved for demolition by the Building Department while the Parks Department removed many century-old trees". The 15 heritage buildings that were removed included six in The Square: 56-58 Courthouse Square; 112, 116 and 120 Courthouse Square; 138 Courthouse Square; and 29-33 Kingston Street. On West Street, the demolitions included 68 West Street and 56-62 West Street. Two Part IV designated demolitions occurred outside of the commercial core: 87 St. Patrick Street and 97 St. Patrick Street. Other potentially significant sites that were demolished included: 122 West Street, 98 St. Patrick Street, 35 East Street, 64 West Street and 32 Victoria Street South (Victoria Street United Church).

As a result of the circumstances, emotions were running high, dividing the community; for example, in reaction to the demolition of two downtown buildings just a few months after the disaster (see Image 2), volunteer and heritage advocate Paul Carroll severed his ties to Goderich and Huron County. In a letter to the local newspaper, Carroll indicated that the reason for his decision was “the repugnant disregard for the protection of the built heritage treasures of the ‘Prettiest Town in Canada’” (Carroll, 2011). Carroll implied that the demolished buildings could have been saved and were not examined and documented well enough.

These issues support the need for an examination of the heritage policies and procedures that were followed during the aftermath of the tornado and during Goderich’s recovery.



**Image 1: View of Goderich’s Square (2011)
The Square was closed to business owners and the public
(September 3, 2011)**



**Image 2: Damage to 56-58 Courthouse Square (now demolished)
(September 3, 2011)**

1.3 Research Gap

A research gap exists at the intersection of planning, emergency management and heritage conservation in Ontario. This thesis focuses on the preparation for, immediate response to, as well as the short and long-term recovery of cultural heritage resources impacted by natural disasters. Decisions made in all of these stages can affect resources. Furthermore, most of the existing documents on emergency management for heritage resources were not written for use by municipalities or by Municipal Heritage Committees, but were written for independent or arms-length heritage groups (i.e., English Heritage). Since the responsibility for both emergency management and cultural heritage resources in Ontario lies with municipalities, this thesis focuses on policies and procedures at the municipal level. It also includes the Ministries and organizations that support heritage at the municipal level (i.e., Ministry of Tourism Culture and Sport, and the Architectural

Conservancy of Ontario). This approach is supported by International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) who in a 2013 study on *Heritage Resilience: Issues and Opportunities for Reducing Disaster Risks* state: “While some general tools have been tested and are readily available, there is an urgent need to develop manuals and guidelines for heritage professionals and city managers aimed at reducing risks to cultural heritage from various kinds of disasters” (2013, p. 42). They further state: “at present there is no real alignment of heritage needs in disaster risk reduction policies and plans at national and local levels and vice versa” (ICCROM et al., 2013, p. 44). The intersection of emergency management, planning, and cultural heritage resource protection is examined in this thesis. The new Heritage Conservation District Plan prepared by Bray following the tornado documents the specific need for this type of study:

...in the case of cultural heritage resources and cultural landscapes damaged in a disaster (e.g. in the tornado), documentation of the response (e.g. repair/reconstruction/replacement) and recording of lessons learned. In the case of Goderich, in addition to actions undertaken by the municipality, this would also entail an assessment of the actions of various outside agencies, such as the Ministry of Labour, and of volunteer groups and individuals, as well as the effects of adverse weather on physical settings in the crucial period immediately following the tornado (Bray, 2014, p. 29).

This thesis fills the research gap identified by ICCROM (2013) and by Bray (2014).

1.4 Approach

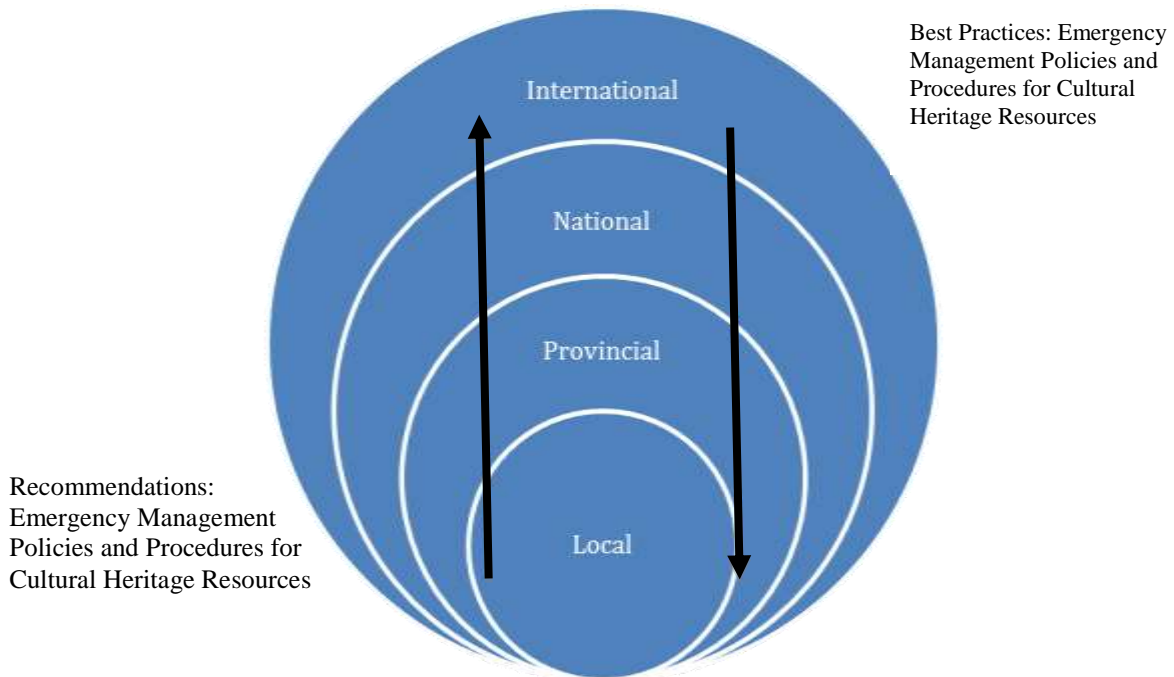


Figure 1: Conceptual Framework of Nested Policies and Procedures

This thesis addresses the research gap described above by focusing on Goderich as a case study to explore the main research question: What policies and procedures should be in place in Ontario to protect cultural heritage resources during emergencies?

In order to address this question, the literature was consulted to determine the best practices for emergency management and cultural heritage resource management in the international and Canadian contexts. This approach of examining best practices at the international level and drilling down is advocated by Inam, who states: “The principle reason for making a comparison in a global context is to shed light on how some common processes produce different kinds of results in different places, or to examine why different processes produce similar results...” (2005, p.5).

The focus on Goderich as a case study is explored using two research methods to investigate the issue deeply: key stakeholder interviews, and a Townscape Survey. The Goderich findings are compared to best practices internationally, as well as in Canadian and Ontario. These nested layers of

research mirror the structure of heritage policies, which is set at the international level with principles and policies, which in turn is implemented at the national and provincial level, then enacted at the municipal level (see Figure 1).

1.5 Objectives

The above mentioned main research question, aimed to determine what policies and procedures should be in place in Ontario to protect cultural heritage resources during emergencies can be split into several sub-questions. The literature review examined the following questions:

- What emergency management processes exist elsewhere for buildings?
- What are the specific policies and processes that relate to protecting cultural heritage resources internationally?
- What are the best practices in emergency management for cultural heritage resources internationally?
- How does Canada, both federally and provincially in Ontario, handle emergency management?

The following sub-questions were explored through the Townscape Survey and key stakeholder interviews:

- What policies were in place in Goderich, Ontario prior to the tornado?
- What practices were followed in Goderich, Ontario after the tornado?
- How successful were the policies and procedures in protecting the Town's cultural heritage resources?

Chapter 2: Literature Review

The literature review provides an examination of emergency management processes for buildings in place elsewhere; the specific policies and processes that relate to protecting cultural heritage resources internationally; the best practices in emergency management for cultural heritage resources internationally; and, Canada's and Ontario's roles in emergency management. First, definitions and terminology specific to natural disasters and cultural heritage resources are provided. Second, the scope of the literature review is examined. Third, the legislative framework for both emergency management and the protection of cultural heritage resources at the international, national and provincial level are outlined. Finally, the best practices for managing cultural heritage resources in a disaster are summarized.

2.1 Definitions

The definitions for natural disasters, the disaster cycle and cultural heritage resources differs by jurisdiction. Alexander provided a succinct statement about the complexity of the disaster field:

As befits a field in which the social is combined with the physical, and in which some 30 different academic disciplines have a hand, most concepts associated with natural disasters lack fixed definitions and are used by practitioners with very diverse objectives and perceptions" (1997, p.89)

Since terms and their definitions are not consistent across literature, an examination of these definitions and a clarification of the chosen standard terminology to be used through this thesis is warranted.

2.1.1 Natural Disasters, their Management and the Disaster Cycle

Alexander (1997) outlines four different ways that natural disasters have been historically defined. Since the 1970s there has been an effort to define disasters using quantitative factors, such as the number of deaths or the value of damage or losses (including property damage, cost of repairs and/or loss of employment). Impact on the social system, for instance the suspension of “normal organization” have also been used to define disasters (Alexander 1997; Weiser 1994; Quarantelli 1999). A fourth element used to define disaster has been the geophysical definitions that incorporate the “magnitude, frequency and special pattern” of an event. However, this type of definition has been deemed to be unreliable as it does not include human elements. Dombrowsky (1995) makes the broad categorization of disasters as being man-made or natural. This categorization specifies natural disasters such as hurricanes, tornadoes, and tsunamis as different from manmade disasters such as war. Dombrowsky (1995) then states that there are five different ways disasters can be described: using time, space and severity; a phased approach; indicating zones of destruction; using emergency management phases in a linear fashion; and, using the natural sciences term that describes a “systematic catalyst.” Like Alexander (1997) Dombrowsky (1995) points out that none of these definitions recognize both the natural and man-made aspects of any disasters; natural disasters are, in fact, a combination of the natural forces and the community’s reaction to them.. He states that there are two main contributing human factors to disasters: the lack of foresight and failing to take any precautions against possible threats. Oliver-Smith notes that disasters are now being viewed as parts of a holistic system:

Since about fifteen years ago, however, a new perspective has emerged that views hazards as basic elements of environment and as constructed features of human systems rather than as extreme and unpredictable events, as they were traditionally perceived. When hazards are viewed as integral parts of environmental and human systems, they become a formidable test of societal adaptation and sustainability” (1996, 304).

The *Managing Disaster Risks for World Heritage Resource Manual* lists seven different categories of disasters. Only one of these categories is man-made, the remaining six are natural including: meteorological, hydrological, geological, biological, astrophysical and climate change related (UNESCO, 2010). The World Heritage Centre outlines three phases of the disaster cycle: before the disaster, during the disaster and after the disaster (2010, p.13). The definition of what constitutes a disaster differs based on the organization by which it is defined. Dombrowsky (1995) uses Germany as an example, where the Red Cross defines disasters based on the ability of the population to provide necessities for itself. The event is considered a disaster if the population cannot provide these necessities. Disaster, as defined by the German government definition is centered on the breakdown of peace and order. In contrast, insurance companies determine disasters based on the monetary amount of damage. In Canada, the *Emergency Management Framework for Canada* (Public Safety Canada, 2011a) defines disasters by lives lost (ten or more people), injuries or the relocation of 100 or more citizens, an appeal by another country for national or international assistance or where there has been significant damage that results in the community's inability to recover without outside assistance. The Canadian framework also distinguishes between natural, technological, and conflict disasters, but approaches them all in a like-manner since all outcomes can be similar (Public Safety Canada, 2011a). Public Safety Canada describes a disaster in four stages: Prevention/Mitigation, Preparedness, Response, Recovery (Public Safety Canada, 2011b). A further consideration when defining a disaster is that "hazards rarely act independently and often occur as 'hybrids' or in combination or succession" (Andrey et al., 2001, p. 2). The mitigation phase focuses on identifying risks and reducing any potential impacts posed by the risks. Given these varying definitions, it is clear that the term "disasters" differs based on who is describing it. As such, it is appropriate to be clear that this thesis examines natural disasters. This thesis uses the Public Safety Canada phases of Prevention/Mitigation, Preparedness, Response and Recovery to organize the actions in Goderich before, during, and after the tornado.

In addition to differing disasters definitions and varying phases categorization, the definition for the action of emergency management also differs. Disaster Risk Reduction (DRR) is defined by the United Nations Office for Disaster Risk Reduction (UNSDR) as “the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events” (UNSDR, 2011, p. 3). The Federal Emergency Management Agency (FEMA) on the other hand, uses the term Hazard Mitigation Planning, which is defined as “the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and man-made hazards” (FEMA, 2005, Forward). Public Safety Canada uses the term “Emergency Management” (Public Safety Canada, 2011a). Therefore, the term “Emergency Management” will be used through this thesis to refer to the process of managing a disaster. The term “disaster” will be used to describe the tornado.

2.1.2 Cultural Heritage Resources

In a document called *Definition of Cultural Heritage: References to Documents in History*, the International Council on Monuments and Sites (ICOMOS) examines over 55 definitions of “cultural heritage” pulled from international charters or key historical documents ranging from the 6th century AD to 2004 (ICOMOS, 2005). The term and its definition has changed over time; gradually becoming more complex, reflecting a diversity of values. In Ontario, definitions for cultural heritage resources can be found in the *Provincial Policy Statement (PPS)*, the first of which is a Built Heritage Resource (BHR), defined as:

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 (Government of Ontario, 2014, p. 40).

The second type of cultural heritage resource, as defined in the PPS is a Cultural Heritage Landscape (CHL) as:

A defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Aboriginal community. The area may involve features such as structures, spaces, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act; villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways, viewsheds, natural areas and industrial complexes of heritage significance; and areas recognized by federal or international designation authorities (e.g., a National Historic Site or District designation, or a UNESCO World Heritage Site) (Government of Ontario, 2014, p. 40).

Together, Built Heritage Resources and Cultural Heritage Landscapes are referred to as cultural heritage resources, which is the terminology that is used throughout this thesis.

2.2 Scope

The literature that describes the definition of natural disasters and the significance of their study plays an important role in determining the boundaries of this study. Also key to determining the scope of this study is the literature on low-income countries, recovery after war, and technical literature that needs acknowledgement for its contribution to emergency management discourse, but is outside the scope of the research.

2.2.1 Low-income Countries

Climate changes and increase frequency of events has lead some, like Neil Smith (2006) to declare that “there’s no such thing as a natural disaster” stating that “whatever the political tampering with the supposed “naturalness” of disasters here becomes an ideological camouflage for the social (and therefore preventable) dimensions of such disasters, covering for quite specific and social interests” (Smith, 2006, p.1). Bankoff (2001) paints a picture of disaster furthering us vs them, as

disaster are used to depict areas of the world that are unsafe because they are disaster prone. Moreover, Bankoff explains that hazards “provide a useful rationale for blaming poverty and inequitable distribution of material goods of the people living in these regions squarely on nature” (2001, p.28). In short, there is criticism of the use of “natural disaster” as 1) it doesn’t account for climate change and 2) it does not take into account the social construction of the term which fails to acknowledge the inequitable distribution of wealth. However, until this wider disaster discourse is changed the existing framework prevails and it is within this framework (i.e., Canadian definitions of disaster and the disaster phases) that this thesis operates.

As such, although disasters may be the same everywhere, the provision of essential services differs in high and low income countries. The quality and level of such services plays a significant role in the quality of the disaster response. Satterhwaite (2011) expresses the idea that high-income nations have an easier time responding to disasters because of programs and institutions implicit in their governance. For instance, he outlines everyday health and safety components such as sewers, emergency services and health services that play critical roles in disasters but are not always found in developing countries. In addition, it is the government of the high-income countries that provides these services. A large body of literature exists which addresses the management of disasters in developing or low-income countries. However, low and high-income countries manage disaster differently as a product of their different organizational structure., this is also true for cultural heritage resources. Using the distinction between high and low income countries to frame scope this literature review is not a furthering of the paradigm that the world is divided in two: one where disaster occur regularly and those where they occur less frequently as outlined in Bankoff, but rather an acknowledgement that the planning and heritage frameworks that are the subject of this thesis best addressed through a focused literature review.

2.2.2 Technical Literature

There exists a large body of literature on the technical response to disasters. For example, Drdacky's (2010) article outlines the types of pressure that water can put on buildings (e.g., horizontal static pressure of raised water), and the types of damage (e.g., dynamic impact of floating objects). While this type of literature is key to understanding damage to historic buildings and their physical recovery, it is beyond the scope of the research. The research focuses on policies, planning and community actions.

Literature dealing exclusively with disaster plans at cultural institutions, such as museums and historic houses have not been examined in this thesis. These works typically deal with the collections within the buildings, and involve a clear chain of command as the building has a staff with assigned roles. The existing heritage and emergency management framework that operates at a neighborhood, community or city level is much more complex and thus lessons learned at a site specific level are not generally as valuable.

2.3 Legislative Framework

In order to understand and offer suggestions on improving the protection of heritage resources during times of disaster, the policy framework internationally, nationally, provincially and locally. According to Stovel (1998), "The capacity of managers of particular properties to improve risk-preparedness for cultural heritage is very much a function of the overall climate for risk-preparedness established within national, regional and local policies" (p. 104). This section examines the existing policy framework for both emergency management and heritage conservation at the international, national and provincial levels.

2.3.1 International Approaches to Heritage

It is the international level at which theories of heritage are debated and current thinking is laid out in guidelines, declarations and charters. The most well-known is the International Charter for the Conservation and Restoration of Monuments and Sites (known as the Venice Charter), which was adopted in Venice in 1964 by the International Council on Monuments and Sites (ICOMOS). The thirteen resolutions that were passed from which we can extract the following five recommendations: 1) historic buildings should be recognized; 2) these buildings should be conserved, no change of layout or decoration should happen; 3) restoration should be undertaken only when necessary, and the original materials should be respected; 4) archaeological investigations should be carried out only by professionals; and 5) all work should be documented in reports (ICOMOS, 2004). This charter had a profound impact on heritage conservation, providing principles that have guided all subsequent heritage work, legislation and guidelines. At this 2004 convention, United Nations Educational, Scientific and Cultural Organization (UNESCO) put forth a resolution for creation of the International Council on Monuments and Sites (ICOMOS). The mission of ICOMOS is to “promote the conservation, protection, use and enhancement of monuments, building complexes and sites” (ICOMOS, 2015).

The *Australian ICOMOS Charter on the Conservation of Places of Cultural Significance* often called the Burra Charter was originally adopted by ICOMOS Australia in 1979. It outlines the criteria used to evaluate the cultural heritage value of a site. Specifically, “the aesthetic, historic, scientific, or social value for past, present or future generation” (ICOMOS Australia, 1979). This document was development in Australia, and has been updated to reflect changing values, the most recent version dates to 2013. Although it is a national charter, is used as a guideline for countries around the world. *Ontario’s Regulation 9/06* issued under the authority of the *Ontario Heritage Act* for evaluating cultural heritage value or interest is rooted in the Burra Charter. The Charter also outlines principles to guide the conservation of historic places so that their value is retained.

The *Appleton Charter for the Protection and Enhancement of the Built Environment* (1983) builds on of the Burra Charter to outline principles for the management and conservation of building elements and entire sites, namely the type and degree of intervention for preservation, restoration, rehabilitation, reconstruction and redevelopment. The principles in practice include: 1) a resource should be documented and understood before any work can happen on site; 2) conjuncture regarding materials or forms should be avoided; 3) any new work on a site should be indefinable; 4) traditional materials and techniques should be employed in any work; 5) “falsification of patina” should be avoided; 6) any work done on a site should be reversible; and 7) the integrity (structural and technological) of a site must be respected (ICOMOS, 1983). Canada’s *Standards and Guidelines for the Conservation of Historic Places* (Parks Canada, 2010) and Ontario’s *Eight Guiding Principles in the Conservation of Built Heritage Properties* (MCL, 2007) draws from this Charter.

The *Convention Concerning the Protection of the World Cultural and Natural Heritage*, known as the World Heritage Convention, was adopted in 1972 by UNESCO outlines criteria and the process for nominating places of “outstanding universal value from the point of view of history, art or science” to be inscribed on a list of World Heritage Sites (UNESCO, 1972). World Heritage Sites are often looked to as models for local management of historic sites. The World Heritage Committee has requested that management plans for World Heritage Sites include a “risk management component,” however a study completed by the UNESCO World Heritage Centre shows of 60 sites reviewed, only six had included this section (ICROM, et al., 2013).

2.3.2 International Approaches to Emergency Management & Heritage Conservation

At the international level, there has been a considerable amount of academia has been dedicated to studying the nexus of emergency management and protection of cultural heritage resources. An inter-agency task force (IATF) for Cultural-Heritage-At-Risk was developed in 1992. The initial framework identified five areas of work including: 1) funding; 2) emergency response;

3) documentation; 4) training and guidelines; and 5) awareness (Stovel, 1998; Bambaru in Menegazzi, 2008). This taskforce was the catalyst for the establishment of the International Committee of the Blue Shield in July 1996. The Blue Shield coordinates the responses of UNESCO, ICOMOS and International Council of Museums (ICOM) during times of disaster (Stovel, 1998, p. 3). The group was first called onto aid Canada when they offered their services to Prime Minister Jean Chrétien after floods in Saguenay, Quebec in 1996 (Stovel, 1998, p. 134). In 2008, the Blue Shield was taken further when National Committees of the Blue Shield were adopted at the Hague (Bambaru in Menegazzi, 2008). Despite being the first to use the committee, Canada does not have an active national committee. The website lists Canada's committee as "under construction" (Blue Shield International, 2015).

The *Kobe-Tokyo Declaration for Cultural Heritage At Risk* was developed at the 1997 in Kobe, Japan which provided strategic direction aimed to link cultural heritage and disaster-preparedness professionals who make decisions during disasters (Stovel, 1998). UNESCO/ICCROM/Agency for Cultural Affairs of Japan's thematic session on *Cultural Heritage Risk Management* (2005) in Kobe Japan encouraged National Governments to ingrate policies and procedures that protect cultural heritage into disaster reduction policies and programs. It also outlines the need for cooperation between governments and non-governmental initiatives as well as encourages education. Thus the emphasis of the declaration is the integration of cultural heritage into existing emergency management frameworks, collaboration and education.

The *Hugo Framework for Action* (HFA) was passed in 2005 with the goal to:

Strengthen the protection of World Heritage and contribute to sustainable development by assisting State Parties to the Convention in integrating heritage concerns into national disaster reduction policies as well as incorporating them into concern for disaster reduction within management plans and systems for World Heritage properties in their territories (Menegazzi, 2008, p. 9).

This framework integrated earlier thinking from the *Kobe-Tokyo Declaration* and the *Declaration of Quebec* (ICROM, et al., 2013). Also passed in 2005, was the *Kyoto Declaration 2005 on Protection of Cultural Properties, Historic Areas and Their Settings from Loss in Disasters* (Menegazzi, 2008, p. 9). In 2006, a further declaration was passed, the IDRC Davos Declaration (Menegazzi, 2008). While these declarations provide a framework for discussions about heritage in times of disaster and the direction that heritage should be a consideration before, during and after a disaster, they provide very little practical advice or processes that can be applied at national or international levels.

2.3.3 Canada's Approach to Emergency Management

The Government of Canada defines an emergency as “a present or imminent incident requiring the prompt coordination of actions, persons or property in order to protect the health, safety or welfare of people or to limit damage to property or to the environment” (EMO, 2000, p. 2). The Canadian emergency response system is based on the process beginning at the individual level, where families have a plan and a “72 hour kit.” The system then extends to municipalities, the province and finally the federal government (EMO, 2000, p. 7). Thus, municipalities have a key role to play in any disaster.

At the federal level, the guiding legislation is the *Emergency Management Act* (2005). The new act brings together two older pieces of legislation. The first is the *Emergencies Act* (1988), that gives parliament authority in emergencies, and also gave the power to declare an emergency. This Act was meant to only be used in extraordinary circumstances (EMO, 2000, p. 11). The second is the *Emergency Preparedness Act* (1988) that outlined ministerial responsibilities and financial assistance guidelines.

The combined *Emergency Management Act* (2005) clarifies all of these elements and addresses: the continuity of operations should ministries be in emergency situations; the coordination across provinces as well as internationally; and names the Minister of Public Safety Canada as the

federal leader for emergency management (EMO, 2000, p. 12). Within this legislation there are four types of emergencies outlined: war, international incident, public welfare and public order. It is also stated that war and international incidents are federal responsibilities, while public order and welfare are provincial responsibilities.

There is some criticism about the lack of Emergency Management at the federal level. In his paper, *Lessons Learned or Lessons Forgotten: The Canadian Disaster Experience*, Scanlon states: “Canada is not normally subject to events that cause enormous destruction and loss of life. Therefore, Canadians believe wrongly – It can’t happen here. That makes it tempting for the Canadian government to ignore planning and [they] can be caught short when events occur” (n.d., p.1). Although Canada may have a framework in place, this assessment shows that more work is needed to prepare for disasters.

2.3.4 Canada’s Approach to Heritage Conservation

At the national level, Canada does not have any wide-ranging legislation to protect cultural heritage resources. Parks Canada’s National Historic Sites program recognizes sites of outstanding historic significance to the development of Canada, but does not recognize more localized or vernacular sites. Like World Heritage Sites, the methods employed to protect and restore these sites can provide best practice examples, but they do not represent a legal framework for the protection of sites. The Federal Heritage Building Review Office (FHBRO) is another national body that can be looked to for best practices in evaluating sites. This office is responsible for overseeing property that the federal government owns. At 40 years of age a building is reviewed by internally developed standards to determine if it is eligible for heritage status (Parks Canada, 2012). This system provides no local protection.

The Standards and Guidelines for the Conservation of Historic Places (Parks Canada, 2010), represent the first national guidance about heritage. The document is was first issued in 2003, with a

revised edition in 2010. It is a collaboration between the national government and all provinces and territories. It emphasizes understanding a historic place, planning based on this comprehensive understanding, and intervening in historic places in a manner that maintains the character-defining elements (Parks Canada 2010:3). There are nine standards that include: 1) conserving character-defining elements (CDEs); 2) including features that have become CDEs over time; 3) any changes should be made with “minimal intervention”; 4) any uses should not change the CDEs; 5) interventions should not create a false sense of history; 6) CDEs should be stabilized until interventions can take place; 7) intervention should use the gentlest means possible; 8) CDEs should be maintained; and 9) any repairs to CDEs should be compatible but readable from the existing materials (Parks Canada, 2010). The *Standards and Guidelines* provide best practice guidance, but is not legislation.

The Canadian Conservation Institute (CCI) is a federal agency involved in heritage. In their role as experts in conservation science, the institute focuses on museum treatments, but do offer assistance (primarily to museums) during times of disaster in order to assist with the conservation of artifacts (CCI, 2014). They also offer “Emergency and Disaster Preparedness for Cultural Institutions” as a workshop for museums and galleries to develop an Emergency Plan. However, these are site-specific and do not cover disasters at multiple locations or in whole communities.

The National Trust for Canada (previously called Heritage Canada) also operates at the national level. According to their website, they are “a national charity that inspires and leads action to save historic places, and promotes the care and wise use of our historic environment” (National Trust for Canada, 2016). The National Trust for Canada advocates for heritage at a national level, runs fundraising programs, hosts an annual conference and creates interest in heritage place through their magazine, media releases and annual Top 10 endangered places list.

2.3.5 Canada's Approach to Emergency Management & Heritage Conservation

Canada lead the way in the heritage conservation and emergency management field by playing host to the 1st National Summit on Heritage and Risk Preparedness in Quebec City on September 16 and 17, 1996. This summit led to the *Quebec Declaration* that had objectives in four areas: 1) awareness, 2) collaboration, 3) building local capacity, and 4) strengthening enabling frameworks for heritage protection (Stovel, 1998, p. 122). Specifically, the “awareness” section focuses on making both heritage professionals and disaster professionals aware of natural and cultural heritage assets. The objectives in “collaboration” were centered on making permanent links between heritage and disaster professionals. “Building local capacity” focused on clarifying roles of municipalities and local authorities during disasters. Lastly, “strengthening enabling frameworks” for heritage protection was about making plans, best practices and databases available at all levels (Stovel, 1998). As far as the research indicates, the recommendations have not been implemented.

2.3.6 Ontario's Approach to Emergency Management

Ontario's definition of an emergency is considerably more detailed than others: “A situation or impending situation that constitute a danger of major proportions that could result in serious harm to persons or substantial damage to property that is caused by the forces of nature, a disease or other health risk, an accident, or an act whether intentional or otherwise” (EMO, 2000, p. 2). Ontario recognizes three categories of emergencies: natural, human and technological. Within these, there are 40 recognized hazards, such as forest fires, spills, public disturbances, building collapse, nuclear accident, etc. (EMO, 2000). These emergencies can then be further categorized into gradual and sudden. Gradual represents emergencies that can be predicted, grow over time and usually have some warning, such as flooding. Sudden emergencies are unexpected, which result in little preparation time or warning (EMO, 2000). In the case study of the Town of Goderich, the emergency was a natural one, the hazard was a tornado, and the emergency category was sudden.

The Ontario Emergency Management framework has five phases: pre-emergency, warning, impact, response and recovery. The pre-emergency phase can include preparation (including emergency plans, training and exercise), public education and activating the Emergency Operations Centre (EOC). The warning phase is most common in gradual emergencies, such as floods. During this time the EOC is activated, public information is disseminated, and orders to evacuate or shelter-in-place are given. The impact phase is when the hazard affects the community. This is followed by the response phase, when the EOC is active and emergency services are responding. The last phase is recovery, which can last several years. The goal of this phase is to bring the community back to a normal state (EMO, 2000, pp. 4-6).

The Canadian federal government approaches emergency management from an all hazards perspective, meaning being prepared for all possible outcomes, whereas Ontario takes a risk-based approach. The risk-based approach is guided by the Hazard Identification and Risk Assessment Process (HIRA) systematic risk assessment tool which allows communities to identify their most probable risks and create an Emergency Plan based on these risks (EMO, 2000, p. 8).

Beyond risk identification and assessment, Emergency Management Ontario (EMO), recognizes several other components of pre-emergency management: prevention, mitigation and preparedness (EMO, 2000). The prevention and mitigation component encourages actions that prevent a disaster or mitigate its effects. Strategies for prevention and mitigation can be hard strategies, like building dikes, or soft, like strategic land use planning. If you cannot prevent something, you can prepare for it. Preparedness, the second category, represents the actions taken to ensure an effective response to an emergency.

Ontario's emergency management is guided by the *Emergency Management and Civil Protection Act* (2006), which is supplemented by *Ontario Regulation 380/04*. Together, these pieces of legislation outline municipal responsibilities including the requirement to have a municipal emergency management program. The program needs to have HIRA, a designated Emergency

Management Coordinator and program committee, an EOC and response plan, a municipal control group as well as an emergency information officer, annual training, identification of critical infrastructure, and public education (EMO, 2000).

Another supplement to the Act is *Order in Council 1157/2009*, which outlines the 13 ministries with responsibilities during emergencies and their areas of influence. The Ministry of Community Safety and Correctional Services oversees the most categories, including provincial coordination of emergency managements, and notably building structural collapse. The Ministry of Labour is cited as looking after “any emergency that affects worker health and safety” (*Ontario Regulation 380/40*). This is critical because during emergencies, all volunteers are considered workers, and health and safety standards must be met for their activities. Municipal Affairs and Housing are responsible for the any provincial financial commitments (*Ontario Regulation 380/40*). When a disaster is declared, an incident command center is activated. All town/city operations run from the command centre, and all decisions are made here, superseding the typical town governance structure. The Ministry of Tourism, Culture and Sport, which is responsible for protecting Ontario’s heritage is not listed as a ministry with any responsibility during a disaster (MTCS, 2016).

However, it is the municipalities that bare most of the responsibility for emergency management and recovery. Ontario’s *Emergency Measures Act* (Government of Ontario, 2013) requires all municipalities to have a disaster plan in place as an example of good emergency planning (Auld and McIaver, 2005). This responsibility is not directly related to the allocation of resources (FCM, 2006). The Federation of Canadian Municipalities report entitled, *Emergency: Municipalities missing from disaster planning*, recommends that “municipalities must have a voice at the national table when emergency measures are discussed” (2006, p. 25).

2.3.7 Ontario's Approach to Heritage Conservation

Within Ontario, protection of cultural heritage resources falls under the land-use planning process, which is guided by the *Planning Act* (2012). The *Provincial Policy Statement* (PPS) issued under the *Planning Act* Section 2.6.1 states that “Significant built heritage resources and significant cultural heritage landscapes shall be conserved” (2014, p. 30). The second piece of legislation that calls for the protection of heritage is the *Ontario Heritage Act* (OHA). The OHA is enabling legislation that makes heritage a municipal responsibility. The OHA lists three main approaches to conserving cultural heritage resources: 1) Municipal Heritage Register; 2) individual property designation; and 3) Heritage Conservation District designation. The goal of these types of recognition is not to freeze a resources in time, but rather to manage change to the cultural heritage resources. According to Bray, “in recognizing the inevitability of change, designation can plan for its best course” (2014, p. 3). All of these types of protection can be overseen by a Municipal Heritage Committee (MHC), which is an advisory committee to municipal council, made up of citizen volunteers (MCL, 2006a). *Ontario Regulation 9/06* sets out standard criteria used to identify the cultural heritage value or interest of heritage resources in an objective manner. These criteria are organized into three primary categories: design/physical value, historical/associative value and contextual value. Each category is further broken down by three sub-criteria. The criteria are as follows:

- Design or physical value is present when a cultural heritage resource is:
 - is a rare, unique, representative or early example of a style, type, expression, material or construction method;
 - when it displays a high degree of craftsmanship or artistic value; or
 - when it displays a high degree of technical or scientific achievement.
- Historical or associative value is present when the cultural heritage resource:

- has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to the community;
 - yields or has the potential to yield information that contributes to the understanding of a community or culture; or
 - demonstrates or reflects work or ideas of an architect, builder, artist, designer or theorist who is significant to the community.
- Contextual value if found when the cultural heritage resource:
 - is important in defining, maintaining or supporting the character of an area;
 - is physically, functionally, visually or historically linked to its surroundings; or
 - is a landmark.

(Government of Ontario, 2006)

The former Ministry of Tourism and Culture (now the Ministry of Tourism, Culture and Sport or MTCS) issued the *Ontario Heritage Toolkit* (2006) to communicate these concepts in approachable language. The toolkit outlines the necessary steps to ensure the conservation of cultural heritage resources. The toolkit also outlines the need for a Municipal Heritage Register as an inventory of cultural heritage resources in a municipality. According to the OHA, in order to be included on a Municipal Heritage Register, a property must have the following documentation: “(a) a legal description of the property; (b) the name and address of the owner; and (c) a statement explaining the cultural heritage value or interest of the property and a description of the heritage attributes of the property” (Government of Ontario, 2009). A property on this list that is not designated, but has been flagged or “listed,” has 60 days of protection if a property owner applies for a demolition permit. The municipality then has time to determine if the property is worthy of designation or if the demolition can proceed. This list is also valuable as a tool, used to flag properties for other planning purposes such as development applications, public works projects, zoning, official plans and Community Improvement Plans (CIPs) (Jonas Galvin 2015).

Designation of a cultural heritage resource can happen in two ways. The first is through individual property designation (Part IV designation). An individual designation is instigated through a By-law registered on title of the property. In order to be designated, the property must meet at least one of the *Ontario Regulation 9/06* criteria. The By-law identifies which criteria are met and how the property is valued by the community. It also lists the character defining elements (CDEs) that are required to be conserved to maintain the value of the property (MCL, 2006b). If a property owner would like to make changes to their building (typically the designation is only on the exterior elements), they must apply for a heritage building permit. The MHC and/or municipal staff responsible for heritage (i.e., heritage planner) will review the permit and determine the impact of the change on the CDEs. If there is no impact, or the change is deemed acceptable, the permit is approved. Alternatively, suggestions for alternative approaches to the proposed change can be suggested, or a permit can be denied, which happens very rarely according to Shipley et al. (2009b).

The second type of designation covers groupings of buildings that are significant to the community, known as Heritage Conservation District (HCD) (Part V designation). According to the *Ontario Heritage Toolkit*, an HCD is “a concentration of heritage resources with special character or historical association that distinguishes it from its surroundings” (MCL 2006c, p. 5). In Ontario, there are approximately 121 designated HCDs, two of which were located in Goderich at the time of the tornado (MTCS, 2015). The process to implement an HCD is more involved than an individual designation.

First, a study area must be established. The request for the study area can come from the MHC, the municipality or the local neighbourhood. A HCD Study is then undertaken to see if the area is a suitable candidate for an HCD. A study typically includes documenting the history of the study area’s development, analyzing individual heritage resources within the study area, and taking stock of the public areas (sidewalks, roadways, parks, views, etc.). A study should also seek to engage the

local community in articulating the local cultural heritage value or interest and determining the potential HCD's boundaries. The objective of a study is to determine if the area should be a HCD, to outline the significance of the area, the CDEs and the boundaries. If council approves this study, an HCD Plan is undertaken.

The goal of the plan is to outline how change within the HCD will be managed. An HCD Plan can provide design guidelines for changes to buildings, gardens and public spaces. The plan might divide buildings in the area into various categories to outline the types of changes that are possible (i.e., contributing buildings and non-contributing buildings or by architectural styles). The plan should also outline the heritage building permit process which is the primary tool used to guide change within the district.

The MTCS is the Ministry responsible for protecting Ontario's heritage. The Ontario Heritage Trust (OHT) is a provincial agency responsible for "identifying, protecting, renewing and promoting Ontario's rich and diverse built, cultural and natural heritage that has influenced and continues to shape our society for the benefit of present and future generations" (OHT, 2016). Both governmental bodies assist municipalities and MHCs carry out heritage activities under the *Ontario Heritage Act* and *Provincial Policy Statement*.

The Architectural Conservancy of Ontario "has been involved in preserving Ontario's architectural and environmental heritage since 1933 by helping communities and owners preserve buildings and structures of architectural merit, and places of natural beauty or interest" (ACO, 2016). The charitable organization has been operating since 1933 with a provincial council as well as over 27 geographically based branches across Ontario. The ACO plays an advocacy role in Ontario in the following ways: 1) make presentations or write letters to municipal councils; 2) educate property owners; 3) provide architectural expertise through their PreservationWorks! Program, 4) promote

positive heritage projects through their annual awards; and 5) educate heritage volunteers and professionals through an annual conference.

2.4 Best Practices

Although Canada may not have a strong precedent of emergency management and heritage conservation, countries around the world with experience recovering their cultural heritage resources post-disaster can provide guidance. In order to determine the successful and unsuccessful elements of the recovery was in Goderich, this thesis examines the processes employed, best practices from examples within Canada, as well as other countries. Best practices were ascertained from international-level documents such as ICOMOS, UNESCO and the manuals for World Heritage Sites. However, most of these manuals are focused on site-specific disaster planning. Further best practices were drawn from literature on recent and historic disasters in Canada, as well as from New Orleans after Hurricane Katrina, Japan after the tsunami, California after the Northridge Earthquake, and Peterborough, Ontario after the floods. Themes from these sources were identified and are summarized below. According to Allenby and Fink:

there may be a number of opportunities in the “event life cycle” to implement resiliency strategies. One might invest in avoiding any event in the first place; creating long-term plans that reduce or mitigate threat; generating a warning in time to implement or adjust plans and reduce potential costs; mitigate the event as it occurs; or planning short-term responses and recovery or longer term recovery capabilities (2005, p. 1034).

Accordingly, these best practices are divided into actions that can be taken within the four stages of a disaster: Mitigation, Preparedness, Disaster and Recovery.

2.4.1 Prevention/Mitigation

2.4.1.1 Best Practice 1 – Prevent or Mitigate Disaster Impacts

The best preparedness practice involves eliminating or mitigating the potential impacts of a disaster before it strikes. This can include improvements to the conditions of the property (e.g. adding

natural barriers that would reduce flooding) or reinforcement of the building itself (e.g. structural reinforcement to lessen the impact of an earthquake). Extensive research has been dedicated to identifying, providing guidelines and retrofitting unreinforced masonry buildings in areas of high seismic activity. Unreinforced masonry buildings are defined as “traditional brick, block and adobe construction that rely on the weight of the masonry and the bonding capacity of mortar to provide structural stability” (Look, D., Won, T and Augustus, S., 1997, p.7). The U.S. Department of the Interior, National Parks Service has completed a document on the topic called, *Preservation Brief 41, The Seismic Retrofit of Historic Buildings: Keeping Preservation at the Forefront* (Look, D., Won, T & Augustus, S., 1997). The brief outlines considerations given to “tying the building together by making a positive anchored or braced connection between walls, columns, and framing members [which] is key to the seismic retrofit of historic buildings” (Look, D., Won, T & Augustus, S., 1997, p. 4). The brief also outlines the importance of ensuring that these changes are sympathetic to the building’s architectural character. In Canada, the City of Victoria in British Columbia is one of the few jurisdictions to proactively address retrofitting to mitigate the potential impacts of disasters. The city offers tax incentives for owners of designated heritage buildings in the downtown to undertake seismic upgrading of their properties (City of Victoria, 2015).

Beyond mitigating individual buildings, land use planning can also assist with disaster mitigation at the community level. Ellis et al. states that “land use planning...is the single most important mitigation measure in preventing future disaster losses in areas of new development” (2004, p. 90). The International Strategy for Disaster Reduction and the Government of Canada distributed a poster on the *Ten Essentials for Making Cities Resilient*. They list land use planning as one of the principles. One example of successful land-use planning has been observed in Australia with subdivisions designed to mitigate the impacts of bush fires, as examined by Bond and Mercer (2013). They outline that the number of dead ends and the road layout in subdivisions should be planned to accommodate the timely evacuation and response by fire fighters in the event of a bush

fire; that wide perimeter roads can act as a fire break; and that the type of approved vegetation in the subdivision can be key to managing the spread of a bush fire. A second example successful land-use planning is the prohibition of buildings in flood plains in Ontario, guided by the determination of the extent of the plains by local Conservation Authorities. Although many sources highlight the importance of land use planning in mitigating disasters, few concrete ideas that are specific to historic buildings are described.

2.4.2 Preparedness

In their article on libraries in disasters, Clareson and Long (2006) ask, “has Katrina changed the way we look at disaster planning?” They go on to state that Katrina reinforced one of the basic lessons we know: “even a little preparedness makes a big difference.” Below are the themes from the literature that relate to preparedness for cultural heritage resources.

2.4.2.1 Best Practice 2 – Prepare an Inventory of Cultural Heritage Resources

The most common starting point cited for preparing cultural heritage resources for a disaster is the creation of an inventory of places of significance (Stovel 1998, Florida State Department 2003, Graham & Spennemann 2006, Preserve America 2008). This inventory can include National Historic Sites, designated properties, properties protected by easements, properties on a Municipal Heritage Register, as well as other sites of significance. Creating an inventory not only documents assets in case of loss, but it helps decision makers identify buildings with special considerations and prioritize what is most important to a community.

After Hurricane Katrina, those in charge of cultural heritage resources relied heavily on historic inventories. There were few monetary or human resources available and physical and political infrastructure was limited, therefore they used documents that were already available; in this case, state and federal historic registers (Morgan, et al., 2006). The cultural resource managers found this challenging as the properties on this register were not representative of the region’s history, nor

did they recognize vernacular or minority sites (Morgan, et al., 2006). This experience sheds light on an inherent risk of relying only on registers that may not be representative of the community as a whole, and/or may not be up to date.

In FEMA's guide, *Integrating Historic Property and Cultural Resources Considerations into Hazard Mitigation Planning*, they too state that the cornerstone to such planning is the creation of an inventory of cultural heritage resources in a community. They suggest that this inventory can then be overlaid with known hazards to identify areas of risk, and preservation priorities in the event of a disaster (FEMA, 2005). The World Heritage Centre's document, *Mitigating Disaster Risks for World Heritage*, states that the inventory can be used for both disaster planning and general planning (WHC, 2010).

The Florida Department of State's *Disaster Planning for Florida's Historic Resources* (2003) recommends the inventory contain at least ten pieces of information for each property, including: 1) geographic location, 2) type of resource, 3) name of resource, 4) tax roll number, 5) address, 6) condition of the resource, 7) any distinguishing features or characteristics, 8) owner, 9) person responsible for maintenance, and 10) construction date. *Preserve America* lists many of the same characteristics, but also suggests a photo of each resource, and the incorporation of information into the local GIS system (2008). Worksheet 3 in FEMA's *Integrating Historic Property and Cultural Resources Considerations into Hazard Mitigation Planning*, which is the basis for their prescribed inventory, requires the following information about each property: 1) name and address, 2) date of construction, 3) type of property, 4) square footage, 5) structural system, 6) primary materials, 7) current use, and 8) condition (2005). After a disaster, making contact with homeowners might be time sensitive, so FEMA also recommends that the inventory should be linked to the ownership records.

The suggested comprehensive inventories can be contrasted with the current requirements of Ontario's Municipal Heritage Register. Information on a property that is designated should include:

“(a) a legal description of the property; (b) the name and address of the owner; and (c) a statement explaining the cultural heritage value or interest of the property and a description of the heritage attributes of the property” (Government of Ontario, 2009). As outlined in Section 27.1.2 of the *Ontario Heritage Act*, listed properties included on a Municipal Heritage Register only need to include “a description of the property that is sufficient to readily ascertain the property” (Government of Ontario, 2009). Although this system is designed to be not be onerous for Municipal Heritage Committee volunteer or municipal staff; it lacks details that may be useful in a disaster and subsequent recovery.

Best practice dictates that once completed, the inventory should be shared in several ways. First, other levels of government (e.g., regional or provincial offices) should have receive a copy; in the event of a disaster the inventory might not be accessible locally (FEMA, 2005; Alleby and Fink 2005). Second, the inventory should be accessible electronically and in a format that can be utilized in disaster planning (e.g., on GIS) (Preserve America, 2008). Third, the inventory should also be in a format that can be shared with crews that respond in a disaster (Florida Department of State, 2003).

Overall, the literature dictates that communities should prepare an inventory of cultural heritage resources. They should ensure that the inventory is as representative as possible of the community since cultural heritage managers and emergency responders will rely on this information, not the identification of new sites of significance during a disaster. When comparing the lists of items to include, the inventory should at minimum have the following information listed for each cultural heritage resource: 1) a photograph of the resource, 2) address, 3) owner contact information, 4) maintenance contact information, 5) details about its significance and characteristics, 6) condition, and 7) use. The inventory format should be easily accessible to decision makers and ground crews during a disaster, and it should be integrated into disaster planning (i.e., can be tied into GIS). The inventory should also be shared with other levels of government so that it can be accessed in the event that a disaster impacts the whole community.

2.4.2.2 Best Practice 3 – Prepare an Emergency Plan with Reference to Cultural Heritage Resources

A goal of emergency preparedness should be that emergency-response authorities possess a strong knowledge and understanding of the community's cultural heritage resources (Stovel, 1998). This includes the fire department and other first responders as well as the municipality's Emergency Response Team (see Best Practice 4). In order for this to happen, the heritage community must first have a list of cultural heritage resources (i.e., the inventory outlined in Best Practice 2). The next step is for these concerns to be integrated into the community's disaster response plan. In times of disaster, those responsible for emergency management are not likely to seek out information not already included in the accepted plan. Claeson and Long (2006) interviewed the Director of the Louisiana Museum Association who pointed out that museums should be included in local disaster plans to ensure that emergency responders are not being told about the importance of the collections at the last minute. ICCROM (2015), ICROM (2013), FEMA (2005) and the Florida Department of State (2003) all emphasize that integration of historic preservation and disaster planning is key to ensuring the future of historic communities. Graham and Spennemann's article presents the views of State emergency service local controllers in Australia. Responses to a survey revealed that a majority of participants did not know who needed to be notified if there were heritage assets involved in a disaster, nor were they aware if heritage was the responsibility of professionals, or if volunteers should be called upon (2006, p. 752). This lack of clarity speaks to the need to define key contacts in an emergency plan. Moreover, the local controllers expressed that it would assist them if plans that explained approaches to managing cultural assets in emergency situations were prepared in advance of disasters (2006, p. 750). It is clear that there is the desire from both the emergency management professionals and the heritage community to have an integrated disaster plan.

Stovel (1998) outlined a broad view of a disaster response plan, which should provide "clarification of priorities, actions and responsibilities; [and] the action plan should be flexible and adaptable to a variety of circumstances and needs" (Stovel, 1998, p. 100). *Preparing to Preserve: An*

Action Plan to Integrate Historic Preservation into Tribal, State and Local Emergency Management Plans acknowledges that tribes, local, statewide and federal governments already have emergency plans in place, therefore cultural heritage managers must work within that framework (Preserve America, 2008, p. 3). A study by Burby (2002) examined 60 emergency plans in Washington and Florida and found that “hazard-mitigation measures proposed in plans increased 72% (from an average of 2.9 to an average of 5.0) when the number of stakeholders who participate in making the plan increased...to 10 or more” (Burby, 2003, p.39). Further, “stakeholder advocacy is the critical factor in moving ideas forward from proposals made in plans to actions undertaken by governments” (Burby, 2003, p.39). Therefore, heritage stakeholders should be included in the drafting of the plan. Preserve America outlines specific aspects of disaster plans that could impact historic sites including: 1) the location of the EOC; 2) qualifications of personnel (i.e., do they have any heritage knowledge?); 3) process for debris removal and/or salvage; 4) staging areas for response equipment; 4) temporary housing; 5) damage assessment; and 6) demolition permit process (2008).

FEMA lists several groups that can help in disaster mitigation planning, including the State Historic Preservation Office or Tribal Historic Preservation Officer, which can aid in identifying historic assets, and are also critical links to the federal government during a disaster. Canada does not have an exact equivalent for this role, but the Ontario Ministry of Tourism, Culture and Sport’s Culture Services Advisors play a similar role, acting as liaisons between local municipalities and the provincial government. Municipal Heritage Planners at the local and regional levels can be key personnel in times of disaster and help to identify resources and establish policies and procedures. The third group with the potential to assist in disasters is made up of archivists or collection managers at local museums. These people often have their own disaster plans, but they should be integrated into a community’s larger approach to historic assets in times of disaster (FEMA, 2005). Preserve America (2008) advocates for a heritage professional to be included in the EOC.

The World Heritage Centre and FEMA suggest that the identification of hazards in a municipality is cross-referenced with the location of cultural heritage resources using GIS. These resources are then considered high priority, and the risks to each one should be examined further to identify mitigation strategies (World Heritage Centre, 2010; FEMA, 2005). These mitigation strategies should be integrated into the existing community plan (FEMA, 2005). FEMA lists the potential strategies as: prevention, property and resource protection, structural diversions, education and public awareness, as well as natural resource protection for historic landscape features and archaeological sites (FEMA, 2005). The World Heritage Centre (WHC) recommends analyzing possible hazards by developing alternative scenarios; for instance, looking at the effects of each disaster, what would happen if one disaster is followed by another, or if two disasters happen at the same time (WHC, 2010). Information from these types of exercises can be integrated in the Emergency Plan to identify cultural heritage assets that would be particularly vulnerable in specific disasters. Information can also be used to implement mitigation measures to reduce the impact of the disaster (Best Practice 1).

The City of Hamilton, Ontario has a stand-alone Built Heritage Emergency Management Protocol. Prior to the development of this process in 2005, the Hamilton Emergency Plan had no statements about the conservation of heritage resources. The staff report attached to the protocol indicates that staff reviewed literature and legislation prior to drafting the protocol and found that there was “no municipal policy in Canada dealing with this issue” (City of Hamilton, 2005, p. 2). The process involves the notification of the Chief Building Official of a threat and the assembly of the Heritage Emergency Response Team on site (which includes Heritage staff, Municipal Heritage Committee members as well as OHT and Parks Canada staff). A structural engineer or contractor is also required on-site and should be chosen from a pre-qualified list. The Heritage Emergency Response Team should then assess the situation and “develop a strategy of remove the unsafe

condition while minimizing damage to the heritage resource in a reasonable, cost-effective and timely manner” (City of Hamilton, 2005, p. 6). The required principles to be followed are:

1. ensure public health and safety;
2. minimize immediate (short-term) damage to or loss of the heritage resource;
3. ensure that the proposed intervention minimizes any threat to the long-term structural integrity and survival of the resource;
4. ensure that the scope and cost of any intervention is reasonable in relationship to the threat to public health and safety presented by the situation;
5. if required, recommend suitable artifacts for documentation and recovery from the site with permission of the owner, as well as an agreement with the owner or others to cover all protection, storage and transportation costs; and,
6. ensure any action is based on appropriate professional expert advice.

(City of Hamilton, 2005, p. 6)

The City of Hamilton’s policy only focuses on those properties designated under the *Ontario Heritage Act* (individual properties and HCDs) as well as National Historic Sites and properties with easements from the Ontario Heritage Trust. It does not take into account the nearly 7000 properties listed on the City’s inventory (not yet vetted for Municipal Heritage Register status). The policy’s Appendix C lists the protocol as optional for these buildings. To date, this policy has only been used for individual properties that have experienced an emergency, such as a fire.

In summary, reference to cultural heritage resources should be incorporated into the Emergency Plan, including: 1) reference to qualified heritage professionals that could form part of the Emergency team and their role; 2) details on how to access the inventory of cultural heritage resources (Best Practice 2); 3) cultural heritage resources that might be vulnerable in specific disasters based on a risk assessment; 4) the location of the EOC; 5) any staging areas for response and

temporary housing that respects the heritage assets of the community; 6) a debris management and salvage plan; and 7) a demolition process that considers the conservation of historic fabric.

2.4.2.3 Best Practice 4 – Create Relationships with Emergency Managers and Workers

Two things are clear from the literature: 1) a disaster response plan is only as good as its responders, and 2) in emergency situations, people are not likely to use relationships that do not exist prior to the disaster. These two points are at direct odds with the current system; where the heritage community does not come into contact with emergency management personnel until the time of the disaster. Preserve America (2008) advocates that the heritage community needs to engage with emergency officials in a way that demonstrates mutual reciprocity. Preserve America states, “Preservationists need to demonstrate that they and their organizations bring important expertise and resources to the planning process and offer themselves as partners...” (Preservation America, 2008, p. 13). Stovel also criticizes the current isolation of the heritage field: “...where heritage advocates stand alone in uncompromising pursuit of their objectives and their practices, they risk being left out of key decision making process and losing support for their own work” (1998, p. 14).

The *Working with Emergency Responders: Tips for Cultural Institutions* (2009) poster that was created after Katrina, states that before an emergency you should get to know your emergency responders. One task is to explain why cultural resources are important as they: 1) contribute to a sense of place, 2) have monetary value, 3) represent the community’s history, as well as 4) can provide help during recovery as places for gathering and to serve as “icons of community identity” (Heritage Preservation Inc., 2009). Heritage Preservation Inc. also suggests that heritage advocates and workers build a relationship with the responders by having them do a walk through, provide training through the emergency management authority or participate in coordinated drills. A Memorandum of Understanding between heritage and emergency management groups that outlines the chain of command, the skills of local heritage volunteers and experts that could be useful in an

emergency, as well as information about the cultural heritage resources in the community clearly mapped and labeled is also recommended. Graham and Spennemann's (2006) survey of state emergency service local controllers revealed that there was a very low knowledge of heritage frameworks or local heritage sites. Only a handful of respondents expressed that they completed training that focused on cultural heritage, and many did not know or had not met their local heritage planner. The results of this survey reveals a knowledge gap of those who are making decisions during a time of disaster. This gap can be narrowed with education and collaboration.

One way to create a relationship between heritage and emergency workers is to capitalize on the fact that Ontario requires that Emergency Response plans are to be accompanied by an annual drill or training. Within the cultural field, there is an movement called "May Day", where every May 1st archivist (the target audience) and other heritage and cultural professionals are encouraged to take some action in making their resources safer in the event of a disaster (Society of American Archivists, 2013). The Society of American Archivists, which promotes this initiative, provides a list of suggested activities that includes everything from updating contact lists, inviting emergency responders to tour your facility, conducting drills, as well as updating or starting a disaster plan. The Blue Shield (coordinates the responses of UNESCO, ICOMOS and ICOM during times of disaster) in Australia also runs a May Day campaign with the broader cultural sector in mind and has listed specific "heritage" activities as getting to know your local emergency authorities, finding a partner heritage organization, fundraising, or attending emergency response training (Blue Shield Australia, 2013). In other places it is the commemoration of a disaster event that prompts an annual day of action, such as Japan's National Day for Prevention of Fire in Cultural Property (January 26), which commemorates a 1949 fire at the Horyu-ji temple (Bambaru in Menegazzi, 2008). One example of a way to a relationship between heritage and emergency workers is the "Disaster Control Framework" at the National Archives of Canada where meetings of the disaster committee are held every three months to ensure people are aware of their responsibilities. There are also regular drills and "table-top

planning exercises” (Stovel, 1998, p. 37). An established and ongoing relationship between the heritage and emergency fields can assist with the protection of cultural heritage resource in times of disaster.

2.4.2.4 Best Practice 5 – Educate Heritage Workers and Volunteers on Emergency Management

One key to disaster planning and recovery identified in the international guides is the training and skills of the heritage professionals and volunteers involved. *Preparing to Preserve: An Action Plan to Integrate Historic Preservation into Tribal, State and Local Emergency Management Plans* recommends the first step for cultural heritage managers is to become educated about emergency management in general, and specifically, the local government’s Emergency Plan (Preserve America, 2008). While this recommendation is sound, there is very little training readily available (Preserve America, 2008). Falkiner (2005) reviewed all the university courses across Canada that included emergency management content in six different fields: geography, sociology, psychology, planning, economics and political science. The research found that planning has the fewest available courses with any mention of disasters and notes that this statistic is disconcerting because in Canada, emergency management is administered at the local level and normally relies heavily on planning (Falkiner, 2005). The study implies that planners (those who are also responsible for heritage in many municipalities in Ontario) are ill-equipped to deal with disasters.

In the United States there are some professional development opportunities with online education courses offered through the Federal Emergency Management Agency (FEMA, 2012). These courses are open to any US citizen and there are even special courses designed for engaged citizens such as, “Are you ready? An in-depth guide to citizen preparedness” (FEMA, 2012). The Institute for Disaster Mitigation of Urban Cultural Heritage runs a yearly course on Disaster Risk Management of Cultural Heritage. However, this course has limited enrolment, and the Institute is located at Ritsumeikan University in Kyoto, Japan, therefore attending the course is cost prohibitive.

Within Canada and Ontario, there are few available educational courses. According to Alexander, the reason there is a lack of courses on disasters is there is not “a coherent academic field to emerge from the wealth of disciplines that have had a hand in the study of disasters” (1997, p. 297). He further notes, “There are few agreed standards of training for disaster specialists and there is no consensus on the body of general knowledge of disasters that the neophyte should be required to absorb” (Alexander, 1997, p. 298).

In the researcher’s own search for courses on the topic, there were limited options. In the end, the researcher attended a course run by Emergency Management Ontario (EMO) due to a request by a colleague, but only in an observatory capacity. EMO does not offer programs to those outside the emergency management field, most courses are focused on local Emergency Management Coordinators and staff within the 13 ministries that have responsibilities in a disaster. If heritage workers and volunteers dealing with emergency management are to be effective, courses aimed at this audience need to be offered to participants from a wide range of fields and particularly municipal planning staff. Further, disaster management should be integrated into planning courses in Canada.

2.4.3 Disaster

2.4.3.1 Best Practice 6 – Perform a Systematic Damage Assessment

Immediately after the disaster, resources listed on the inventory should be assessed for damage. According to Stovel (1998), “condition assessments must come from heritage professionals looking at similar situations” as “for lay observers, visible damage often appears to be of greater concern than its actual condition warrants” (p. 23). In Dubrovnik, after heavy shelling, an extensive damage inventory was completed. The inventory documented the damage and provided a rough estimate of restoration costs. The resulting publication helped to plan repairs within the town (Stovel, 1998, p. 39).

The California Preservation Foundation's *Model Ordinance: Post-Disaster Alteration, Repair, Restoration, Reconstruction and Demolition of Historic and Cultural Resources* has a section on Damage Assessment, which gives a checklist of items to investigate. The checklist includes individual parts of the building that should be examined as falling hazards such as: 1) parapet, 2) ornamentation, 3) chimney, 4) floors, 5) roof, 6) equipment and 7) trees. Parts of the building are then listed for damage observation, including: 1) walls, 2) frame, 3) roof, 4) doors, 5) windows, 6) downspouts and gutters, 7) floors, 8) stairs, 9) equipment, 10) garden, and 11) fences and walkways. The last part of the form allows for recommendations for: further inspection, immediate work/stabilization, preservation, permanent repair and additional concerns. If the building is considered unsafe, the ordinance recommends an evaluation by an engineer.

As a result of the Japan earthquake and tsunami (2011), the Japan ICOMOS National Committee compiled a report on the damage to cultural heritage (2011). The first goal of the "Seeds of Furusato – The Great East Japan Natural and Cultural Heritage Reconstruction Support Project" was to collect information about the damage. The report details the damage incurred by different types of buildings (e.g. wood, masonry structures, concrete). This involved gathering data from ongoing architectural surveys by local groups as well as a survey of property owners. Of the 194 responses, over 70% of the damage was related to building structures (Japan ICOMOS National Committee, 2011). Preserve America (2008) outlines two key actions that can be taken to prepare for a damage assessment during a disaster: 1) develop an assessment form that can be used by local teams, and 2) train professionals to serve on these local assessment teams.

2.4.3.2 Best Practice 7 – Establish a Conservation Team

Another aspect of collaboration is the establishment of a list of people who can be contacted during or following a disaster to provide assistance (Stovel, 1998). The World Heritage Centre recommends a directory of agencies that can help or be consulted during a disaster (WHC, 2010). The Florida Department of State acknowledges that "Many communities are hampered

because they have not pre-identified experts to assist in identifying historic resources, assessing the damage done to them, and determining appropriate stabilization and repair procedures” (Florida Department of State, 2003, p. 27). To overcome this obstacle, they recommend gathering a list of professionals into a database that should be shared with emergency management officers. The guide suggests that these professionals should be organized into teams that can be called on in times of disaster, and that there should be a process for activating the team, as well as thoughts given to their travel and living arrangements (Florida Department of State, 2003). Hoffman does caution against the extensive use of “outsiders” indicating that. “the aftermath of disasters bringing all sorts of outsiders to the scene: engineers, builders, agent and agencies, peddlers, experts and exploiters. Their ideas, rules and ways cannot help but wiggle into local’s lives. In the wake of wind and water, already a committee of architects is talking about how they will redesign a “new” Orleans. Nary a one of them is a prior resident” (Hoffman, 2005).

The California Preservation Foundation’s *Model Ordinance: Post-Disaster Alteration, Repair, Restoration, Reconstruction and Demolition of Historic and Cultural Resources* provides a section on establishing a local repair and restoration committee that will review any permits related to repair, restoration, reconstruction or demolition of any historic resource. The suggested makeup of this committee includes: city planning director, city building official, city director of parks and recreation, two members of the local municipal heritage committee, two members of other local preservation organizations, an experienced architect, structural engineer and a historic resource consultant (CPF, n.d.) This should be the heritage point of authority. A chain of command should be established and integrated into the community’s disaster plan. Contact information of all team members should be maintained as well as the local disaster authorities, and any other professionals or organizations to contact in a disaster (Stovel, 1998).

The City of Hamilton’s *Built Heritage Emergency Management Protocol*, has set up a structure for a Heritage Emergency Response Team that will be notified by the Chief Building

Official. The team includes heritage staff, OHT, Parks Canada and Hamilton Municipal Heritage Committee members depending on the cultural heritage resource at risk (see Figure 2). The team may also include contractors, professional structural engineers and other sub-contractors that are chosen from a pre-qualified list (City of Hamilton, 2011).

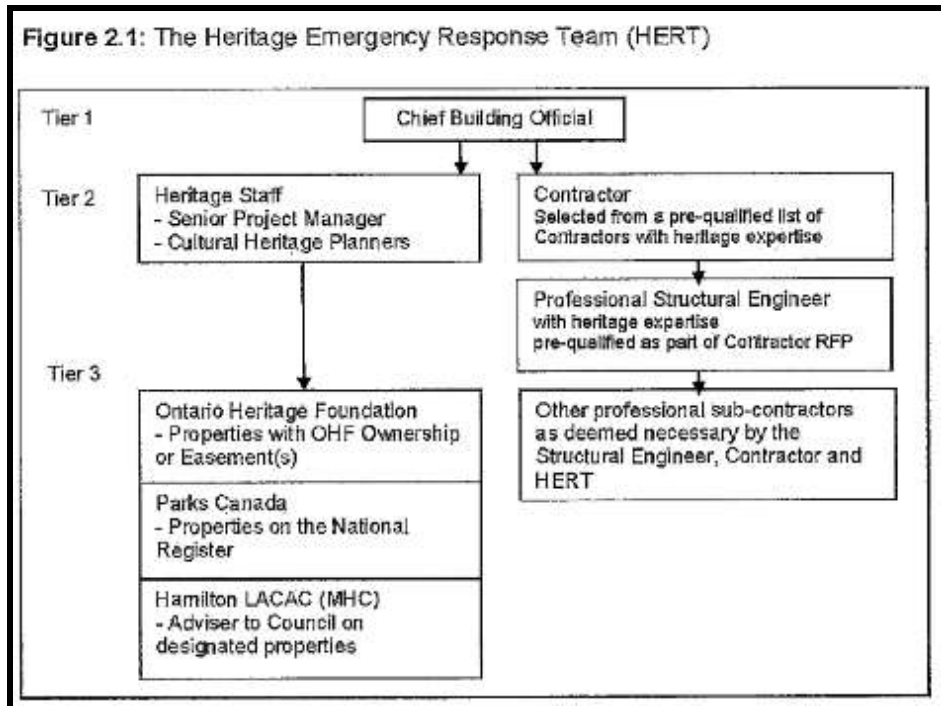


Figure 2: City of Hamilton Heritage Emergency Response Team (City of Hamilton, 2005, p. 5)

2.4.3.3 Best Practice 8 – Reach out and Educate Property Owners

During a disaster, property owners are the most important stakeholder. They are responsible for making decisions regarding their property to ensure they comply with insurance and planning requirements while also making efforts to restore stability in their lives. During and immediately following a disaster, “the homeowner does not have the time, energy, resources or knowledge to make a sound decision regarding the home” (Logan and Agicola, n.d. p. 3). Therefore, education of property owners is essential.

The International Strategy for Disaster Reduction and the Government of Canada's poster on the *Ten Essentials for Making Cities Resilient* lists public education as one of the principles and FEMA notes that "public education and awareness can be one of your most powerful tools" (FEMA 2005, p. 3-21). After Hurricane Katrina, the Preservation Trade Network and the World Monuments Fund put together a *Brief Guide to Understanding Repairs to Historic Homes Damaged by Hurricane Katrina and Other Related Floods* for property owners. The guide urges:

Your historic home is worth saving! Despite the drastic circumstances, it is built better than anything that can be built new. It is worth protecting its historic materials and working with the historic house, despite the overzealous advice you might get from well-intentioned helpers along the way (Logan and Agicola, n.d., p. 1).

The guide suggests that property owners consult heritage experts, repair historic material, use the gentlest approach possible for repairs, and use like materials. The guide goes on to outline the types of likely repairs and the best approach to foundations, repairing masonry, roofing and windows. A list of people and organizations to contact and websites to consult are also provided. The guide is short (a total of 15 pages), provides key information without being overwhelming and is written in accessible language so property owners can understand all the content. Though education of property owners should be an ongoing part of the management of a community's cultural heritage resources, it is critical to connect with owners during a disaster. Getting to property owners as soon as possible after a disaster helps to show there is support and encourages decisions to be made with the building's future in mind.

2.4.3.4 Best Practice 9 – Salvage Material and Document Buildings

After a disaster, in an effort to cleanse an affected area, the demolition of damaged buildings is often given top priority. This is primarily done for safety reasons, but it can also be cathartic, removing evidence of the disaster (Spennemann, 1999, p. 770). The fabric of historic buildings is often lost during this process.

The California Preservation Foundation's *Model Ordinance: Post-Disaster Alteration, Repair, Restoration, Reconstruction and Demolition of Historic and Cultural Resources* states that any historic properties to be demolished should be photographed and measured drawings should be produced. Another section focuses on salvage, stating that where possible material should be salvaged and reused first in the same building, and second in local repair and reconstruction. In Japan, the ICOMOS National Committee created teams that were sent to areas that had requested assistance through their Boards of Education (Japan ICOMOS National Committee, 2011). The partners in the salvage initiative included government bodies, museums, libraries and culturally related societies. The salvage of material can be guided by the *Emergency Response and Salvage Wheel* produced by Heritage Preservation. This wheel advocates documentation including photographs and videos of the condition of a building and also makes visual and written record of the salvage process (2011). During large disasters, it may be necessary to create a debris management plan. The Florida Department of State emphasizes that salvage "... is particularly important when a community has large historic districts that may warrant special treatment of debris" (2003, p. 45). According to Stovel, part of the debris management should include a provision in the Emergency Plan that identifies a dedicated salvage and storage facility (Stovel, 1998).

One way to mitigate the loss of buildings is to document them prior to any salvage or demolition (McCarthy, 2011). The City of Hamilton's Built Heritage Emergency Protocol lists demolition and salvage as a potential Post-Intervention Activity and Conservation Strategy. Prior to any action, the protocol recommends that the heritage assets and features be identified, photographed and documented. Such features can then be removed and conserved in another appropriate location (City of Hamilton, 2005, Appendix E).

2.4.4 Recovery

2.4.4.1 Best Practice 10 –Implement Planning Initiatives that Consider Cultural Heritage Resources

Time is critical in conserving cultural heritage resources during a disaster and recovery. To this end, the Florida Department of State (2003) and Preserve America (2008) advocate for expedited review procedures for cultural heritage resources in times of disaster, preferably ones that have been discussed prior to any emergency. These expedited procedures can give staff the authority to approve repairs, or allow temporary work to happen with the idea that once things are stable, the owners will return with a different permit.

Beyond the immediate aftermath, planning initiatives can provide a framework for rebuilding in a manner that creates a strong community. Executive Director of the Central Council of Governments in North Carolina pointed out that "A common regret among disaster communities is the failure to capture post-disaster planning as a once-in-a-lifetime opportunity to rebuild better and safer" (Schwab, 2011, p. 36). Grand Forks, noted to have recovered well after a major flood in 1997, approached the recovery process by having "tri-chairs," which included the Directors of Urban Development, Public Works and Finance, proving that planning is a cornerstone in redevelopment (Kewitt and Kewitt, 2003). Grand Forks published a *Flood Disaster and Recovery Lessons Learned* document in 2011. One of the key lessons they pointed out was [to] "Utilize public forums and charrettes". The City hosted a "re-imagine Downtown" charrette and acknowledged that "These visions and directions are crucial to policy makers as they make decisions and maintaining cohesive community support for actions" (City of Grand Forks, 2011, p. 5).

Diefendorf (2009) outlines the three planning initiatives that were undertaken by the City of New Orleans following Hurricane Katrina. The first was the "Bring New Orleans Back Commission." This group consisted of a committee on urban planning, which in turn had several subcommittees, including one on historic preservation. The recommendations from these groups were general and

called for neighbourhood level planning. The second was the creation of neighbourhood plans. A consultant was hired by City Council and within five months reports had been created for each area that outlined the damage, potential funding and area specific recovery plans. Subsequently, an Office of Recovery Management was established whose first task was to prepare a unified plan. The *Citywide Strategic Recovery and Rebuilding Plan* was produced with input from previous reports and with citizen participation. According to Diefendorf (2009) these plans and reports contain two specific best practices that relate to historic structures. The first is found in the report by the American Planning Association that specifies, “variance procedures of historic buildings should be included in flood mitigation and ordinances and in actual recovery plans” (Diefendorf, 2009, p. 387). “Variance procedures” refer to specific procedures that vary from the normal planning guidelines, and relate specifically to historic buildings to accommodate their unique circumstances. The second was outlined in the *Citywide Strategic Recovery and Rebuilding Plan*. The document suggests that a pattern book be created for the architectural styles found in New Orleans so that infill can complement existing styles (Diefendorf, 2009). Planning is the key to ensuring that cultural heritage resources are considered a priority during recovery following a disaster; by involving the public, these planning exercises can create a renewed vision of the community.

2.4.5 Summary of Best Practices

The best practices are summarized in Table 1. These best practices will be used as the basis for evaluating the success of the actions and approaches taken in the Town of Goderich following the 2011 tornado.

Table 1: Summary of Best Practices from Literature

Disaster Stage	Best Practice	
Prevention/ Mitigation	1	Prevent or Mitigate Disaster Impacts
Preparedness	2	Prepare an Inventory of Cultural Heritage Resources
	3	Prepare a Emergency Management Plan with Reference to Cultural Heritage Resources
	4	Create Relationships with Emergency Managers and Workers
	5	Educate Heritage Workers and Volunteers on Emergency Management

Disaster	6	Perform a Systematic Damage Assessment
	7	Establish a Conservation Team
	8	Reach out and Educate Property Owners
	9	Salvage Material and Document Buildings
Recovery	10	Implement Planning Initiatives that Consider Cultural Heritage Resources

Chapter 3: Method

Blanco and Alberi (2009) advocate for the use of multiple methods when studying disasters in order to provide a deeper understanding of the recovery processes. Dandekar (2005) promotes a qualitative approach by stating that the most influential works in planning have followed qualitative methods and include observations and anecdotal responses to interviews.

This thesis looks broadly through a provincial, national and international lens at emergency management for cultural heritage resources in order to pull out best practices to examine one case study, Goderich, in-depth. Exploring a case study is relevant within the disaster field as, “there is sufficient similarity between events to enable one to distinguish common phases of emergency, typical responses and characteristic matters of impacts” (Alexander, 1997, p.289). Further, case studies are often used within planning research to illustrate how planning works on the ground (Yin, 2003). A significant amount of information about Goderich was collected through site visits and interviews, both used to evaluate the existing emergency management policies and processes by examining the outcome. These lessons are translated into recommendations of policy and process actions that can be undertaken by heritage staff and organizations in emergencies to conserve cultural heritage resources in Ontario.

3.1 Townscape Survey

Dandekar (2005) advocates qualitative approaches to topics in planning but goes on to state that qualitative methods cannot answer all questions. To assess the success of the retention of historic fabric in the downtown core of Goderich, the researcher used a quantitative method called the Townscape Survey. This survey was originally completed in Goderich in 2008, which provided a baseline for further study (Shiple, Jonas & Kovacs, 2011).

A Townscape Survey, developed in the United Kingdom, is an objective way of looking at streetscapes (Reeve, A. Goodey, B., and Shiple, R., 2007; Shiple, et al, 2004). Views of the streets

are observed and 25 criteria such as ‘Pedestrian Friendliness’, ‘Safety’, ‘Quality of Conservation Work’ and ‘Historic Features Maintained’ are scored in each view. The scores are then aggregated, giving an overall impression of the urban landscape. This quantitative approach provided a supplement to the anecdotal data collected through the interviews. It was a longitudinal study measuring the physical change over time. This approach was more systematic than other landscape change analyses completed after disasters. Lee and Roberts (1992) examined the impact of Hurricane Hugo on the Isle of Palms landscape through aerial photography, interviews and researcher observation. They observed that Hugo adversely affected vegetation and houses differently – small cottages were demolished. Houses on stilts and new houses were more common after the hurricane, resulting in a change in architecture (Lee and Roberts, 1992).

The downtown core of Goderich included two Heritage Conservation Districts (HCDs) that were studied using the Townscape Survey method in 2008-2009 (Shipley et al. 2009a). This study was the first part of a two-part investigation that looked at established Heritage Conservation Districts in Ontario to determine the success. Between 2008 and 2012 64 districts were examined using five streams of data: 1) resident surveys, 2) key stakeholder interviews, 3) records of applications for alterations in the districts 4) real estate records of sales, and 5) Townscape Surveys.

The existing Townscape Survey data from Goderich collected during this study served as a baseline for this thesis, after which two more surveys were completed during the reconstruction of the core. The two additional Townscape Surveys were conducted on October 5, 2012, roughly one year after the tornado, and then on September 21, 2013, two years after the tornado. The Recovery Phase of Emergency Management does not have a time limit, therefore two years was chosen as an appropriate length of study by the researcher based on the Town’s own reflections of change over two years, shown in *Goderich Downtown Recovery Heritage Conservation District: Tornado Plus 2*. The photographs from these three Townscape Surveys are supplemented with photographs from

immediately after the tornado, taken between September 3, 2011 and September 24, 2011 (see Appendix A). These photographs were taken out of personal interest by the researcher before the thesis topic was chosen, therefore they were not conducted systematically. While the photographs taken immediately after the tornado show the affected buildings as a visual comparison, they were not taken from the same locations using the same angles as would have done in a formal Townscape Survey. The analysis of the visual comparison of photographs (Appendix A) and Townscape Scores (Appendix B) provide insight into how effectively the physical aspects of the cultural heritage resources have been conserved.

The objective nature of this method of viewing and documenting the landscape is advantageous. By using a prescribed method and scoring system the subjectivity of language, gender, social class, race and ethnicity that can affect a researcher's observations are minimized (Palys, 2003). Further, the physical change to buildings and landscape can be documented and quantified. Observation about features over time could be very subjective, and may miss elements; by having a standardized process, all 25 characteristics are recorded and scored. By analyzing the change over time, the successes and failures in rebuilding the landscape were highlighted.

The Townscape Survey on its own will not provide sufficient data to provide insight into the research question. It will not reveal the policies and procedures; it will however help determine if the buildings have been adequately conserved, thus revealing the success of the policies and procedures. The results of the Townscape Survey are correlated with the interviews to reveal the policies and procedures that were used to best conserve the Town's cultural heritage resources.

3.2 Interviews

Interviewing key stakeholders in heritage as well as key contacts in the Town of Goderich was the primary method of data collection. Key stakeholders were chosen for their special knowledge

about the policies and procedures used prior to the tornado, during the disaster and in the recovery phase. The general public in contrast, would only have opinions about how well the recovery was carried out, and not necessarily have supporting data about the processes used. To identify key stakeholders, the researcher started with a range of people that represent different organizations and agencies involved in emergency management and recovery. By ensuring the participation of all these groups, not just heritage groups, the researcher avoided bias. Stakeholders and target organizations included: the Planner for the Town of Goderich, local property and business owners, members of the Municipal Heritage Committee, heritage consultants and architects who had completed projects in Goderich, provincial representatives from the Ministry of Tourism, Culture and Sport, and advocacy organizations such as the Architectural Conservancy of Ontario (ACO) and the National Trust for Canada.

The Town of Goderich is small as is the heritage community, this means that answers may identify individuals based on their roles. This may have acted as a deterrent for participation. It also likely resulted in many scripted, less than candid answers, as many people being interviewed were participating in their professional roles. This is a weakness of the method, as opinions about successful and unsuccessful policy and procedures may not have been expressed as frankly by participants; which may have been different if anonymity could be guaranteed.

The interviews were semi-structured, guided by the questions in Table 2 enabling the researcher to focus on the individual's experience and their specific role in the recovery after the tornado. Notwithstanding the limitations discussed above, these stakeholders provided insight into the processes in Goderich at the time of the tornado and what steps were taken during the disaster, the immediate aftermath and during the recovery, as well as the success of the actions in protecting the Town's cultural heritage resources. The interview questions were informed by the categories of best practices identified in the literature (Section 2.4), as well as similar studies carried out on disasters in

Ontario. An example of a study of this type is Oulaben's *Citizen Participation in Post-disaster Flood Mitigation Planning: Exploring Strategic Choices in Peterborough, Ontario* (2008). Each interview began with general questions to obtain a picture of the participant's role as well as their view of the success and failure of the actions and approaches used to conserve the Town of Goderich's heritage resources.

In total, 11 interviews were completed with 14 people. Two interviews included multiple people at the request of the interviewees. The interviews were conducted both in person (9), by phone (1) and by email (1). According to Palys (2003), in-person, an interview can last an hour or more, whereas phone interviews as a general rule should have a 15 minute maximum. However, phone interviews provided a convenient way to connect to the stakeholders that were located across Ontario. Interviews were audio recorded and the main points transcribed; themes were identified and coded. Due to perceived lack of information on the subject by one organization, the National Trust for Canada, they provided a written response and included the press releases they issued following the tornado. Further, the Planner for the Town of Goderich at the time of the tornado was not available for an interview as part of this thesis. However, the researcher attended the Town Planner's address to the Heritage Planner's Network held in Goderich on June 14, 2012. This meeting is was part of a regular series held by the Heritage Planners for municipal and regional governments across Ontario. The notes from this presentation were summarized against the questions outlined in Table 2. Further insight from the Planner at the time of the tornado was gleamed from her article written in the Ontario Heritage Trust Magazine in May 2013. Staff at the MTCS were interviewed, but their responses were not integrated as their consent form did not provide permission for quotes to be included.

Interviews provided in-depth information about the exact policies and procedures that were used before, during, and after the state of disaster was declared in Goderich. Key stakeholders were asked to reveal their role in the pre-disaster, disaster and recovery phases. Interviews also allowed for

participants to give their opinion about the success of the policies and procedures, as well as what they would do the same and differently in their respective roles. These detailed descriptions and opinions were valuable in determining the successes and failures in Goderich, and were also helpful in determining which lessons can be communicated to other municipalities.

Table 2: Interview Guide

<i>Universal Introductory Question posed to all Participants: What were the overall successes and shortcomings of the recovery?</i>			
Disaster Stage	Best Practice		Questions
Prevention/ Mitigation	1	Prevent or Mitigate Disaster Impacts	<ul style="list-style-type: none"> • What approaches to mitigate disaster impacts were undertaken prior to the tornado? • Do you think Heritage Conservation District Guidelines have helped with the recovery?
Preparedness	2	Prepare an Inventory of Cultural Heritage Resources	<ul style="list-style-type: none"> • What role did Goderich’s Municipal Heritage Register play in the time immediately following the tornado?
	3	Prepare a Emergency Management Plan with Reference to Cultural Heritage Resources	<ul style="list-style-type: none"> • Were or should the area’s historic resources recognized in the plan?
	4	Create Relationships with Emergency Managers and Workers	<ul style="list-style-type: none"> • What role did you/your organization have before, during and following the disaster? Is this role formally recognized in an Emergency Management Plan? • Give your experience with the tornado and recovery, what organizations will you be creating relationship with to ensure future disasters are approached effectively for the management of cultural heritage resources?
	5	Educate Heritage Workers and Volunteers on Emergency Management	<ul style="list-style-type: none"> • Having gone through the Tornado and the recovery, what education do you think is necessary for people dealing with those types of events in the future?
Disaster	6	Perform a Systematic Damage Assessment	<ul style="list-style-type: none"> • Following the tornado, were heritage resources assessed for damage? Can you describe the method undertaken for this assessment?
	7	Establish a Conservation Team	<ul style="list-style-type: none"> • Were any internal or external heritage experts engaged following the Tornado? What role did they play?
	8	Reach out and Educate Property Owners	<ul style="list-style-type: none"> • Were property owners engaged by the heritage community? How so?
	9	Salvage Material and Document Buildings	<ul style="list-style-type: none"> • Were any materials salvaged? Was there a salvage plan? • Were any buildings documented prior to demolition?
Recovery	10	Implement Planning Initiatives that Consider Historic Buildings	<ul style="list-style-type: none"> • What planning initiatives were employed during recovery to ensure the effective management of the Town’s heritage resources (i.e., what was the process for allowing demolition of buildings)? • What planning initiatives have been put in place since the tornado to ensure the effective management of heritage resources in the future?

3.3 Limitations

The limitation of using interviews as a research method is the possibility of reactive bias. In other words, interviewees take a cue from the reactions of the interviewer to their answers, and adjust so that they can be seen as good participants (Palys, 2003). Siemiatycki outlines one of the limitations to planning research, “professional practice takes place in the spotlight of the public domain, planning scholars are forced to grapple directly with issues related to their role in the production and dissemination of research knowledge” (2012, p.148). This is particularly true for the researcher, who works as a heritage planner and has worked in Goderich extensively researching cultural heritage resources. The researcher’s previous knowledge and involvement with Goderich is part of the reason the topic was chosen, however it may have resulted in a bias during interviews, as people may already be familiar with her in a professional capacity. Another issue that may have caused bias in the interviews is that the recovery of the town is a highly charged issue, having been covered extensively in the media.

Another limitation is that the interviewees do not represent all the opinions or experiences in the Town of Goderich. However, they present a diverse cross section of those involved with the heritage aspects of the town before, during and after the tornado so that conclusions can be drawn.

Chapter 4: Findings

The findings are described below under two headings reflecting the two data collection methods: the Townscape Survey and the key stakeholder interviews. The findings of the Townscape Survey are organized by the degree of the change in score over time. The results of the key stakeholders interviews are organized by the questions outlined in Table 2.

4.1 Townscape Survey

The Townscape Survey revealed several significant changes between the conditions before and after the tornado. Some of the 25 criteria showed an increase over time and exhibited a dip in 2012 after the tornado. Some criteria scores decreased while some scores did not change significantly. The score sheets for West Street and The Square for 2013 (two years after the tornado) can be found in Figure 3 and Figure 4, respectively. All of the score sheets can be found in Appendix B. What follows is an overview of the scores organized from most significant increase, then those that decreased and finally, criteria that exhibited no change. These scores are further organized within each of these degrees of change by first looking at the West Street HCD, then The Square HCD, then both districts.

For the most part, the scores in the West Street HCD increased. For instance, over time, the ‘Pedestrian Friendliness’ of the West Street HCD increased. On West Street the score for ‘Advertising In Keeping’ went up significantly between 2008 and 2013. Within the West Street HCD, ‘Cleanliness’, ‘Edge Feature Quality’, ‘Vitality’, ‘Appropriate Resting Places’, ‘Historic Reference Seen’ and ‘Nomenclature/place Reference’ all increased. ‘Façade Quality’ on West Street increased between 2008 and 2013 (3.5 to 4.2) as did ‘Coherence’ (3.3 to 3.6).

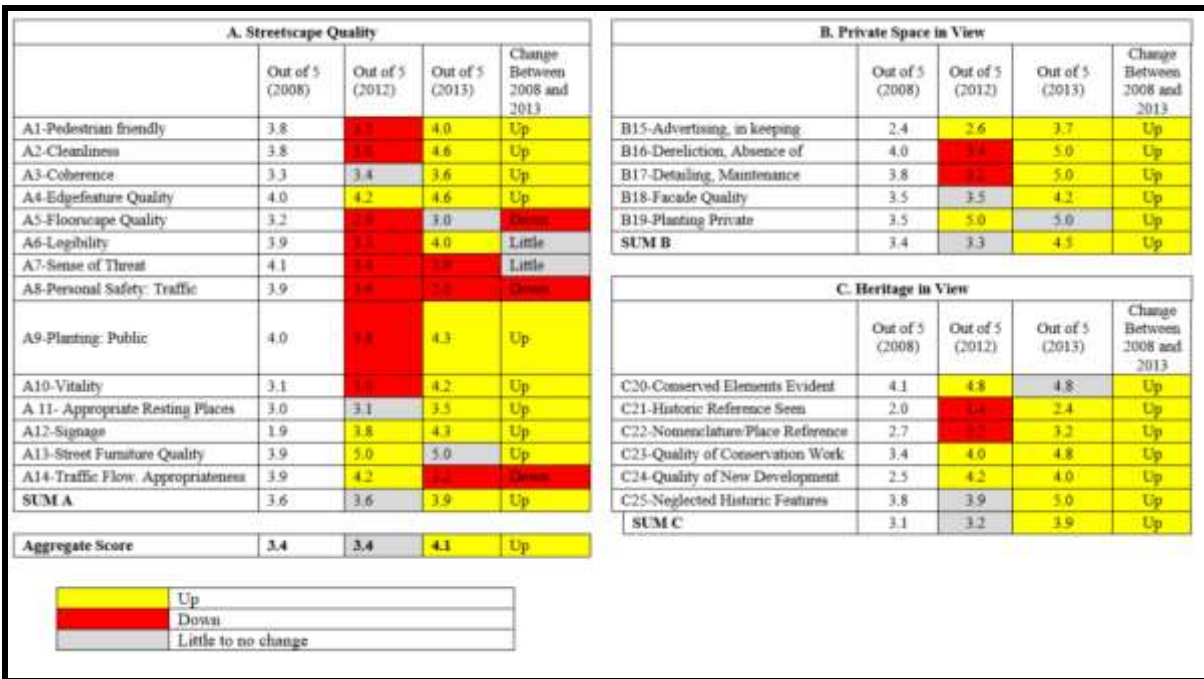


Figure 3: Townscape Scores for West Street Showing Change Over Time)



Figure 4: Townscape Scores for The Square Showing Change Over Time

'Quality of New Development' increased dramatically from 2008 to 2012, holding steady in 2013 (2.5 to 4.0). The photographs show that the one-storey buildings previously found on the north side of West Street were replaced with two-storey buildings that suit the character of the street (see Image 3). 'Absence of Dereliction', 'Detailing Maintenance', 'Neglected Historic Features' also showed an increase between 2008 and 2012, but a leveling off in 2013. On West Street 'Quality of Conservation Work' and 'Conserved Elements Evident' all showed a rise between 2008 and 2012, with a continued increase in 2013. One example of good conservation work is the Masonic Temple which had most of its façade destroyed in the tornado; it was completely restored (see Image 4). 'Planting: Public' in The Square showed a significant decrease between 2008 and 2012 (from 4.8 to 3.6). The score surpassed the 2008 score in 2013 (5.0). This may be due to the notable loss of trees in 2012 due to the tornado that were replaced with mature trees by 2013. The Square also had increases in 'Dereliction, Absence of', 'Detailing, Maintenance', 'Facade Quality', 'Planting Private' and 'Conserved Elements Evident'.

'Street Furniture Quality' improved dramatically between 2008 and 2012, and stayed the same in 2013 in both the West Street and The Square HCDs. Further, 'Signage' increased from 2008 to 2012 and again in 2013 in both districts. Increase over time can also be seen in the scores for the private and public planting categories.

The Townscape Survey showed that very few categories decreased in either districts. The Square had decreases in most of the categories over time including: 'Cleanliness', 'Coherence', 'Edge feature Quality', 'Legibility', 'Historic Reference Seen', 'Quality of New Development' and 'Neglected Historic Features'.



Image 3: West Street View 5

Of note is the one-storey buildings on the left (2008) that have been replaced with two-storey buildings on the right (2013).



Image 4: West Street View 1 in 2008 (left) and 2012 (right)

Of note is the completely restored red brick façade.



Image 5: The Square View 7

Of note is the new development of the beige building (2008) to a new red brick structure (2013)

Within The Square, several categories are still below 2008 scores, but show a rebound. ‘Pedestrian Friendliness’ was quite high in 2008 (4.6), it saw a significant drop in 2012 (2.7) but in 2013 was almost at pre-tornado levels (4.1). Similarly ‘Quality of Conservation Work’ in The Square HCD showed a marked decrease in 2012. In 2013 the scores are closer, though still slightly lower than, the 2008 baseline numbers (See image 5).

‘Personal Safety: Traffic’ ‘Traffic Flow Appropriateness’, ‘Sense of Threat’ and ‘Floorscape Quality’ are the four categories for both West Street and The Square HCDs that showed decreases between 2008 and 2013.

Several categories had little to no change over time, but do show a slight rebound. ‘Legibility’ on West Street had little change between 2008 and 2013. However, scores between 2008 and 2012 showed a marginal drop, which in 2013 rebounded to about the same as the pre-tornado score in 2008. ‘Advertising In Keeping’ and ‘Quality of Conservation Work’ in The Square showed a similar rebound. ‘Nomenclature/Place Reference’ in The Square showed little change over time.

Overall the West Street HCD had higher scores in 2013 than in 2008, showing an improvement over time. The West Street HCD is performing well with an aggregate score of 4.1 out of 5 in 2013. The Square HCD had lower scores in 2013 than 2008, which show a decline in the area over time, though several of the categories do show a rebound from 2012 scores, showing a potential improvement. Even with the lower scores in 2013 the Square HCD still performs well overall, with an aggregate score of 3.9 out of 5.

4.2 Interviews

The keys stakeholders interviewed provided insights into the questions outlined in Table 2 in the Methods Section. Direct quotes are used as much as possible to avoid taking suggestions out of context. The quotes and summarizes are organized by interview question. Not all interviewees answered all the questions, as their roles and experience differed. Some interviewees also provided

answers to multiple questions in one response. As such, the responses can be found under the question where they are most relevant to avoid repetition. What follows is the unique answers to each of the questions.

4.2.1 What were the overall successes and shortcomings of the recovery?

Interviews outlined several categories of shortcomings of the recovery that are not covered by other questions: 1) the Ministry of Labour's role; 2) inadequate insurance coverage; and 3) the lack of funding for heritage projects. Two positive outcomes were noted: 1) the upgrading of buildings; and 2) the recognition of the entire downtown as a Cultural Heritage Landscape by the public.

The Ministry of Labour's role in the disaster was pointed out by almost all interviewees as one of the major contributing factors to the loss of heritage buildings. The Planner at the time of the tornado noted at the Heritage Planner Network Meeting in 2012 that the downtown core was closed for three weeks primarily due to the Ministry of Labour concerns over potential asbestos in buildings. People were not allowed to access to their building or allowed to tarp any openings. During this time Goderich experienced a rain storm. A Town staff member explained, "the concern of the Ministry of Labour, I think it was valid from their perspective, was that everything you turn over could have ceiling tiles and be friable." One interviewee indicated, "I really do believe they caused more damage than the tornado, because of preventing the tarping and the rain that came after". ACO President at the time of the tornado noted in her interview that,

it seemed to me there was more emphasis on the emergency, and what might happen... so instead of getting someone in there right away who might have said tarp those buildings and protect them from further damage, that as I remember it, that was the key element that caused the damage.

One Town staff member corroborated this comment stating that, "the rain probably could have added another \$50 million in damages." As a result of the restriction of access during a critical period, Town staff now test for asbestos annually in public buildings, however, no other interviewees

mentioned any steps that have been taken to address this problem for privately owned buildings in the future.

One historic property owner remarked that it, “would have been great if the Ministry of Culture could have shown up the first days to pick up the gauntlet with the Ministry of Labour - just so our minimum expectation of getting gaping holes covered up before the rain could have occurred.” A heritage consultant noted that, “In reality there was [no asbestos], the biggest hazardous material was probably from bats poo, because there was no asbestos or whatever.” He outlined that the “Ministry of Labour was not educated about the value of the buildings and were keeping people from securing their buildings for far too long.” He further added, “It was a health and safety issue, but if you have experienced people going in, that shouldn’t have been an issue.”

Another issue cited by the two members of the Municipal Heritage Committee (MHC) was the lack of funds that were available for heritage specific projects. Tied to this was the issue of adequate insurance coverage. One MHC member noted that, often the case presented at the heritage committee was that the owners did not have sufficient insurance to replace their buildings or do the necessary repairs. This MHC member went on to state that, “Chris Borgal was very keen on “yes you can repair anything” but the reality is that you have to have the money to do that”. He further outlined that, “Unless the insurance or some other level of government was prepared to support heritage and make the necessary repairs, it just wasn’t there. So these buildings all went down because you know, the owners couldn’t afford to keep them up.” Another MHC member explained that one of the property owners indicated to the committee that the issues with his insurance company delayed the whole thing so that the building had to be torn down. This property owner wanted to do the best in terms of heritage, and the insurance company wanted to do the cheapest.

With regard to insurance coverage a local insurance provider noted that, “It all comes back to: do you have enough insurance?” For instance, he described the changes on West Street that were required as a result of the Tornado By-law which required all one-storey buildings in the core to be rebuilt as two-storeys: “These buildings down the block here [on West Street] all had to go, they were all one-storey, but the By-law said you had to have a two-storey building. If you didn’t have By-law’s coverage on your policy who was going to pay for the second storey?” He further described what is covered and what is not included in an insurance policy:

So in here, the apartments upstairs had wooden doors; the Building Code says they have to be steel doors in steel frames....so now to repair it the Building Inspector says you have to change those wooden doors to steel doors. From an insurance perspective point of view if the doors have been damaged, we will pay to have them replaced with a wooden door, you’re responsible for the upgrade. With By-law’s coverage, we pay the upgrade.

Specifically, with regard to insuring heritage buildings he outlined:

You want to make sure you have insurance to value, sometimes that can be a hard sell, because to rebuild this would be \$1.8 million, to sell it, \$700,000. A lot of people would say it is only worth \$700,000. Getting that value determined is where [the insurance company needs to know]: what is the designation, what are the By-laws, and that’s the tricky part. Once you get the value determined it doesn’t matter whether it’s 100 year old building or a brand new building

Beyond ensuring adequate insurance coverage, one MHC member emphasised the desire for heritage specific funding to support the recovery by remarking:

The thing that really bothered me personally was the funding, the money. Putting yourself in the owner’s position, this becomes foremost. Having a heritage building is going to be more expensive in many cases to re-establish the building as it was when you are sitting there thinking: I just want the building back, forget all these fancy little doodads. And that really bothered me that we didn’t have money to hand them.

He further noted that,

There was ODRAP [Ontario Disaster Relief Assistance Program] and there was insurance...but that was all for the basics and it wasn’t covering everything, especially when you are sitting with Heritage Impact Assessments [that outlined a projected cost] of

\$300-500,000 just to retain the façade or to repair the façade. These are just incredible amounts of money that just wasn't there.

He argued that, “If we are going to use these buildings to promote Goderich, which we do, then we need to step up and help them too.” However, he concluded, “It absolutely amazes me to think of what’s been done basically with private money.” One example is that “56-58 [Courthouse Square] is back looking almost identical to what it was. He had to have paid hundreds of thousands more than he needed to. That was the iconic building and he realized that I guess. But it just seems wrong that he had to do it himself. Yes it’s his building, but we as a community have a stake in it.”

One Town staff member noted that the Community Improvement Plan (CIP) funding was geared towards rebuilding the way buildings were and it was amended to increase money for façade improvements. Specifically that the “municipality came up with half a million dollars to be matched under CIP.”

One of the positive spin offs from the tornado that was many places that were not heavily impacted by the tornado also performed maintenance or upgraded their facilities. A local heritage property and business owner described, “The secondary people who didn’t have damage or who had lesser damage, once they saw the reconstruction going on, thought well gee my building looks a little tattered, I’m going to spruce it up too.” It was further noted that the recovery by these building owners involved, “...lots of new signage, lots of new façade work, even if it was just a coat of paint.” An MHC member added, that the upgrading of the residential facilities above the ground floor commercial store fronts was a benefit to the town overall.

Another outcome from the tornado noted by several interviewees was the recognition of the Square as a cohesive Cultural Heritage Landscape by the public, particularly the park surrounding the Court House. Several interviewees noted this was unexpected stating: “I wouldn’t have said before the tornado that the square around the Court House played such an important role” and “the tornado

made the square more of a place to come.” One interviewee sums these emotions by stating, “The Square has now become a symbol of our recovery.” One Town staff member remarked, “In the aftermath of the tornado public consultation showed residents had a very strong attachment to the trees in the Courthouse Park, street trees, and in other parks in town impacted by the tornado.” In The Square, trees with different maturity dates have been planted so there will be a canopy. A member of MHC put together an arboretum guide for the 46 different species of trees in The Square and it flew off the shelves. He noted that the second run has not sold as fast, so it was likely locals purchasing the guides. Courthouse Park also had significant infrastructure upgrades. A local business owner outlined that it:

...had horrible infrastructure, no hydro, they always had art in the park and there were extension cords running everywhere, the water mains were 100 years old and weren't big enough, didn't have enough pressure. So they ran in new water mains, they put in new hydro services, sprinkler system. So there was a lot of upgrades done. You're tearing it all apart so you might as well do it.

In sum, three of the overall shortcomings were: 1) the Ministry of Labour restricting access to buildings, which may have exasperated the damage; 2) the lack of adequate insurance coverage by property owners; and 3) the lack of funding for heritage projects. One success of the recover was that people who were not as hard hit but the damage, or as part of rebuilding, upgraded their buildings in terms of appearance (i.e., façade improvement) or services (i.e., upgrading residential units). A second success as the wide public recognition of the entire Square, including the park as a Cultural Heritage Landscape.

4.2.2 What approaches to mitigate disaster impacts were undertaken prior to the tornado?

Interviewees did not provide any examples of mitigation actions taken prior to the tornado.

4.2.3 Do you think Heritage Conservation District Guidelines have helped with the recovery?

The designation of the Heritage Conservation Districts under Part V of the OHA and their associated guidelines were described by almost all interviewees as one of the key factors that guided the recovery. One Town staff member concluded that, “HCD designation played a strong role in the protection of resources and rebuilding.” One member of the MHC noted that, “the advantage of there being the heritage districts before was that as a result of the tornado people were much more in tune with the importance of heritage... there was the general sense of wanting to keep as much as we can.” The owner of an historic property added, “We could not have promoted or experienced 'getting things done right' if the buildings had not firstly been 'identified' and had By-laws protecting historical assets”. A local insurance provider commented, “I think the designation helped. Once you got past the initial backlash from people saying: well I won’t be allowed to do what I want to do. The local heritage committee and the town were reasonably cooperative if [the proposed changes were] in any way sympathetic.” Another MHC member remarked, “The fact that [the Heritage Conservation District guidelines] existed I think was a good thing because people realized they couldn’t go and do anything, but it obviously highlighted the fact that we needed new ones and of course we have those now.” A heritage consultant noted that the HCD functioned, but it was not high on the priority list for property owners or the municipality prior to the tornado. He further commented that there was compliancy, that the buildings were taken for granted and in general that Goderich had a high architectural quality that was not well taken care of. This sentiment was also expressed by a second heritage consultant who stated, “Goderich, being one of the more established districts, never really did much with their district, it didn’t evolve well economically...and I think over time people forgot why it was important to have a Heritage Conservation District.” However, it was noted that having an “HCD educated people on the value of the place, and prevented demolitions [prior to the tornado].”

It was the spirit of the existing HCD Plans that guided the committee as pointed out by a member of the MHC: “We didn’t necessarily sit down and look at the old plans and say “oh ya we have to do this, we have to do that” in every case. But it was a mindset with people that we need to do this right, and there is a right way of doing it.”

Even those who were not part of the district followed the spirit of doing the right thing for heritage. One example outlined by an MHC member is as follows:

The Masonic building, which still isn’t part of the heritage district, they spent quite a lot of effort to restore that building and did an interesting thing in salvaging the bricks and turning them around so that you can see which part went down and which were original. When we expanded the district to include the full square they were ones that came to us and said they still didn’t want to be part of it. There is this strange dichotomy between people who will go out of their way to retain the heritage features to do stuff like that, but for some reason they haven’t really seen the necessity, or seen the importance of being part of the district.

In the Ontario Heritage Trust Magazine, the Planner at the time of the tornado shared additional details about the restoration success of the Masonic Lodge:

Found at 37-41 West Street, the Masonic Lodge has presided over West Street with a stately and impressive presence since 1913. On August 21, 2011, one-third of its three-storey Italianate façade was torn away from the building, with bricks scattered up and down the street. Interestingly, the Lodge was one of the properties that had opted out of the HCD in 1993 and yet, despite the lack of designation, the caretakers of this building applied for heritage permits, consulted with the Municipal and Marine Heritage Committee, and demonstrated a genuine commitment to the heritage review process. The restoration of this building included restoring the street façade, re-creating the corbelled brick cornice, installing a new roof, conducting significant interior renovations and making other structural repairs. The result is stunning. The masonry is perhaps my favourite detail as the owners opted to retain as much of the original brick on the façade as possible, creating a distinct line between the old and new. In doing so, they have enabled the building itself to tell the story of the destruction and resilience that occurred throughout the town (2012, pp. 13).

Another MHC member comment that he “...was really pleased with the amount of people coming to the committee asking for advice when they didn’t have to. Either they were listed

buildings, or they were just old buildings. People would come, and we would give them advice and thank them for coming, but they didn't have to." He added, "Hopefully they left us with a positive feeling of having been helped." One positive example of a building that did not have to seek advice from the MHC but did is outlined in the following story:

One building applied for demolition and we reluctantly granted it and they didn't do it, they repaired it instead, which was so pleasing to see. It was a building that I don't think was even listed, it was just an old building. We certainly made it clear to the owner that we would prefer not to have it demolished because of where it was. It wasn't a wonderfully beautiful building, but where it was sort of set the tone for an area. We discussed all that with the owner, but our decision was, if you need to demolish it, we can allow that.

It was pointed out that, "On the other hand we had lots of people that should have come but didn't, but that had always been the case, not just after the tornado."

According to the Planner at the time of the tornado, one of the outcomes of the process following the tornado was that the Town realized the HCD Plans were old and needed to be strengthened. A consultant team was hired to complete a new HCD Plan using a Creative Communities Prosperity Fund grant. One member of the MHC noted that the new HCD guidelines are better. Specifically, that they now have a list of what is maintenance and what is not, so property owners do not have to come to the MHC if their application is for maintenance activities. An additional benefit to the new HCD Plan is that when someone applies to do make a change to a building in the district the Planner will complete a staff report. According to a MHC member this helps property owners see that something is being done officially and with expertise.

On balance the key stakeholders interviewed felt that having the HCD guidelines assisted in guiding the conservation of cultural heritage resources during the recovery of Goderich,

4.2.4 What role did Goderich's Municipal Heritage Register play in the time immediately following the tornado?

At the time of the tornado, Goderich had a Municipal Heritage Register that included all their designated properties and 200 listed properties. One MHC member noted that, "In terms of the register, I don't think it was used well" and that "a lot of people didn't know it existed, even though it was made public, and that includes the councilors themselves. But for those people that knew it existed, it helped." Many people did not have access to the Municipal Heritage Register before the tornado because it was in InDesign. However, the photos included as part of the register were noted as being the most useful.

The Planner at the time explained during the Heritage Planning Network meeting that the Goderich Municipal Heritage Register stopped at 200 properties because they thought if there was too many it would be rejected by council. However, after the tornado they wish there were more because the listed properties had more attention. The use of photographs was also cited as being helpful for identifying buildings in the aftermath and became part of the archive for those that have been demolished.

Since the tornado a new register has been completed. This one was done in excel, so everyone at the Town could have digital access to it. One Town staff member noted that a draft of an updated register was completed prior to the tornado, but it was destroyed in the tornado and had to be redone from scratch as there was only one copy which was destroyed in the tornado.

A heritage consultant outlined the potential role of the register in a future disaster: "Obviously one of the things to do to prepare is to identify what heritage resources are worthy of protection and what extraordinary measures should be used to protect them in the event of a disaster." In short, the opinion expressed by the interviewees was that the Municipal Heritage Register was useful for providing documentation of buildings, and creating an awareness of their importance to the

community. The inclusion of photographs as part of the Municipal Heritage Register was seen as a critical piece of the document.

4.2.5 Were or should the area's cultural heritage resources recognized in the Town's Emergency Management Plan?

The Town staff member in charge of the Emergency Plan for the Town of Goderich indicated that the plan does not have reference to heritage buildings. They remarked, "That speaks to the Emergency Management Plans for a number of municipalities, I'm sure there is not a whole lot that speaks to the heritage or the designation of specific properties within the municipality." She added, "In terms of assessing risks, there is no consideration of heritage resources, its not even one of the items that is included in the Provincial framework that talks about hazard identification with specific sectors." Along the same vein, one Town staff member indicated that there was not formally a heritage representative on the emergency management group.

One MHC member suggested, "... in a town like this where the heritage is supposedly so important, it would make sense to have some reference to, after looking after all the people and after all the life is looked after, the next most important thing at some point would be the heritage buildings, and the ones in the Municipal Register." The ACO President at the time of the tornado noted in reference to heritage and emergency management that, "You can't have one take precedence, and in essence wrecking everything else." They emphasized that in a disaster, "...you don't think of buildings you think of injured people lying around, hit by debris....but in a Town that is dependent on tourism value of heritage, like I think Goderich is, that would be a key part of their planning." A heritage consultant suggested heritage be included, "maybe [in] a process under the *Municipal Act*, or some means of identifying disaster preparedness and one of the line items should be protection of heritage resources."

The Town staff member in charge of the Emergency Plan indicated that incorporating heritage resources into the plan could involve making reference to some of the documentation they already have. Another staff member commented that you could include the heritage area mapping in the Emergency Management Plan, identifying the Part IV and Part V designations or significant properties. Town staff further indicated that the Emergency Operation Centre could call in specialists, such as the MHC or heritage consultants to give advice if required.

In sum, although the immediate aftermath and recovery in the Town of Goderich cultural heritage resources were front and centre, they were not and are still not recognized in the Emergency Management Plan. A majority of interviewees believed that some sort of reference to cultural heritage resources in the Emergency Plan is necessary and could direct readers to material that the municipality already has (i.e., Municipal Heritage Register or HCD Plans) and/or include a list of people to call on for advice related to cultural heritage resources.

4.2.6 What role did you/your organization have before, during and following the disaster? Is this role formally recognized in an Emergency Management Plan?

The Town staff, ACO, National Trust for Canada and consultants outlined their roles in other questions, and did not have a defined role in the Emergency Management Plan or the recovery. The role of the MHC was also not in the Emergency Management Plan, but was a formal part of the recovery. The role of the MHC as described by one of its member was, “We met. We agreed that building has got to go, and that building has got to go, or in cases where the buildings were kept, or new buildings, then we approved new buildings.” An MHC member suggested, “We played an important role there I think in getting the permits discussed and put through.” The MHC members noted that during the recovery their meetings changed from once a month to several times a week, or whenever it was needed. One Town staff member remarked that “one thing you don’t want during a disaster is more bureaucracy. You have to streamline your bureaucracy and your approvals process.”

For instance, they described the ideal process: something comes into the MHC, goes to council the next day, there is not time for a back and forth during the critical period.

An MHC member pointed out that the committee, "...certainly had a higher profile after the tornado than we did before hand, and more positive profile." This success is attributed to two things 1) "In this whole process, we never used the 90 or 60 day timeframe we were allowed, we always did that quicker, and with the listed properties particularly"; and 2) "In most cases I think that people saw that we were being reasonable." The idea of being reasonable is further described by the MHC member as:

We tried to approach these decisions as if we were the owner, rather than being the all mighty on high dispenser of the rules. How would the owner look at this? When you put yourself in that position you realize you're sitting there with a building in shambles and money bleeding all over the place, you have to be realistic... I would say in all cases we were realistic.

The MHC played a formal role of processing heritage permit applications for all properties within the HCD as well as individually designated properties.

4.2.7 Given your experience with the Tornado and recovery, what organizations will you be creating relationship with to ensure future disasters are approached effectively for the management of cultural heritage resources?

One MHC member noted that they have "no relationship with emergency responders. If they were interested in learning about it prior to a disaster that might not be a bad thing, I don't know if I could see that happening Town by Town, but I could see that being something that a larger organization could take on, like ACO."

ACO President at the time of the tornado indicated that ACO had not reached out to Emergency Managers and suggested, "That's probably what could have been done if we worked with the Ministry, could we go over this and see what went wrong". She also suggested a setting up a

Provincial Emergency Plan that clearly outlines a process that can account for all concerns in an emergency, especially if the location of the disaster involves heritage assets.

The Town staff member in charge of the Emergency Plan noted that relationships with other municipalities in a tragedy is key, they all want to help, they all want to send resources.

One MHC member emphasized, “The more education that we can get out there about the heritage buildings, the better the response would be.” They noted:

That is part of the bigger picture, where the people coming in, the architects, the engineers, whoever, coming in to assess the damage, my impression is that so many of them were just ready to dump them, put them all in landfill, rather than having the expertise and knowledge of assessing these buildings, more than they're just old buildings. Again, this is more of an education issue ahead of time that a provincial organization could take on.

It was observed by one of the interviewees that, “If you were doing something and there was an environmental issue, you’d have an environmental expert standing right there beside you helping you assess, but if it’s a heritage issue, [its seen as] as frill we don’t need you. I think that’s an attitude that’s still prevalent.”

One heritage consultant emphasised that education of other professionals is key, stating: “People that come in after the disaster need to be competent in the work that they are doing, cannot just have a structural person come in, they should specialize in heritage buildings. They need to understand what the heritage building condition is as well as its importance”. He further noted that, “We are way behind the eight ball with engineers here, there are even architects who don’t understand heritage buildings and are applying new building standards or criteria to something they don’t understand, because they aren’t educated in it, so they just say, there is a crack in the wall, tear it down, when in fact a crack in the wall may be normal.” One professional organization did reach out; a MHC member was engaged by the Building Officials Association to share their lessons what went wrong or right and the responses were published in their journal.

In order to overcome this deficiency in education it was suggested that we “need broader training, or a system of training within the province that would help present these issues to the first responders or the people that are going to deal with a disaster” as well as “education of key decision makers.” It was put forth by several interviewees that the Canadian Association of Heritage Professional (CAHP) or the Ontario Association of Heritage Professionals (OAHP) should be going to other professional associations to offer educational opportunities. The National Trust for Canada and the ACO were as suggested as possible organizations to spearhead reaching out to provincial and national organizations.

Most interviewees agree that creating a relationship with Emergency Managers and Responders would be beneficial. However, it was indicated that this might be something that should be done at a provincial level. Education of professionals who many respond in a disaster was also outlined as another provincial level task.

4.2.8 Having gone through the tornado and the recovery, what education do you think is necessary for people dealing with those types of events in the future?

Many interviewees outlined education of other professional groups as a key target group for education (see Section 4.2.7). Only one interview outlined the need for education within the heritage field. To assist volunteers and staff working in the heritage field ACO President at the time of the tornado suggested a type of manual, “If Rollo [ACO’s Manager] or I at the first panic phone call could have said: check our website, here is what you need, here it what you have to do.” She indicated it would have been nice to “Have a checklist all ready and procedures for what you have to do to protect the heritage.” This type of manual would be helpful, “If you have volunteers in there you can send them that kind of support, because they are the local people.” She noted that, “That first

24 or 48 hours made or in this case broke what was threatened. They don't have time to think, you have to have that manual that's relevant right there."

4.2.9 Following the tornado, were heritage resources assessed for damage? Can you describe the method undertaken for this assessment?

Regarding completing a survey of the damage, one MHC member described the process, "we did a survey very quickly...with the [Municipal] Register, looking at everything that was in the register and made a summary of, you know damaged, not damaged and what was damaged. That helped a lot because we already had certain things to focus on, rather than being overwhelmed." Further, the MHC member described, "The weekend following the tornado I walked the Square with Chris Borgal as he made his visual assessments. Personally that was very enlightening for me, because it gave me hope, because he was saying 80 or 90% of these facades can be saved...now it didn't happen that way... for the right reasons, but it really helped me personally at that point." The photographs of the damage went on to be used in a book called "In the Path" that it turned out to be a fundraiser. The sale of the book raised about \$5000.00 for ODRAP.

ACO President at the time of the tornado suggested that volunteers could assist with assessing the damage. The suggested a type of checklist, "Ok, so this house is missing its top floor...so you could easily do that kind of assessment...if you had a sketch almost like a rental car damage page, if your volunteers could do that kind of work."

In Goderich, the damage assessment was carried out by volunteers and helped focus attention on specific buildings.

4.2.10 Were any internal or external heritage experts engaged following the tornado? What role did they play?

One of the heritage consultants who went in after the disaster expressed, “Its amazing when you have all the contacts and the ability to put people there, and I actually had contractors lined up to put up scaffolding at no cost, its amazing how much resistance there is to any kind of assistance.”

One member of the MHC described the help offered by Chris Borgal and Heritage Canada now the National Trust for Canada, “From our point for view, Chris coming ... even if he had been representing Heritage Canada, would have been great to have someone nationally at our situation here.”

Heritage Canada indicated that they, “... sent a formal letters to Minister Michael Chan and the Mayor, and in partnership with ACO, we sent Chris Borgal as our representative and offered our services to help with the recovery, which Goderich never took us up on.” In October 2011 they drafted a Press Release that expressed concern for the local heritage buildings and urged the Minister of Culture (now Minister of Tourism, Culture and Sport) to intervene. One MHC member remembered, “We all felt we it was unfair to be criticised at that point, and of course we were super sensitive at that point.”

The ACO empathized, “Our concern immediately was with what was happening with the heritage buildings and we also wanted to our show support.” The ACO “wanted to hold our Provincial council meeting there to support them and be there in person to look at the damage and see what else we could do”. They also put a donate button on their website. Further, the ACO “...worked with Heritage Canada to get Chris Borgal to go in, so there could be a heritage professional that could assess the damage...so they could see what could be done to preserve the heritage area.” ACO’s role

can be summarized as, “support and starting the fundraising and arranging for wise help, not just a regular engineer (with no heritage expertise) who would come in and say: knock it down.”

ACO noted that “...the key in these catastrophes is knowing who to call on, who could be your expert in that aspect of it”. A heritage consultant suggested, “If we value or believe we value the content and character of our communities then there has to be a better over riding organization or structure that can immediately respond and start coordinating and basically they are going to have to look at all the overall issues like health and safety.” He further described:

I think provincially there has to be a trained group, a small group of people, or a trained group of highly experienced professionals of various disciplines that can be mobilized within a few hours of an event, who can then go into a community and then have the power to suspend the normal processes, so that the right decisions that can be made. Heritage isn't the only thing in these situations that needs to be protected, but heritage is a major issue, it is a significant part of the fabric of the province.

With regard to who should be on the team, he outlined:

We are limited in the resources we can apply, in the people that can work towards this, you need people who are polymaths, people who know a whole broad verity of things, design, ethics, philosophy, how things are built historically, why they are important and there are a small group of people like that. The province needs to identify these people and ask people to assist.

One suggestion from the local MHC was that that roles of external organizations be focused lobbying provincial and federal government. For outside organizations, they should examine their role in terms of “Are we interfering, are we seen to been interfering?”

One of the members of the MHC gave credit to Allan Avis, a local architect, for doing a thorough job of examining the buildings to show what was wrong and what needed to be done on each to restore and costing that out . He noted “we relied very much on his professional expertise that way.” One Town staff member pointed out that there was help from a local law firm to help rewrite By-laws. There was also help on the applicant side, where there were groups who had experience

with planning applications, people were volunteering their time or offering discounts, and that happened organically.

It is clear from the interviews that there is a need for external help from consultants and heritage organizations, however, these roles need to be clearly defined so that help can be directed in a meaningful manner.

4.2.11 Were property owners engaged by the heritage community? How so?

Members of the MHC described several ways that they engaged property owners. After the tornado the MHC, "... put an ad in the paper explaining the categories of designation and what that meant [property owners] were required to do. That was to clarify because people were confused; do I have to come or not? Or what do I have to do". One MHC member also described a second engagement technique:

Right after the tornado myself and another member went down to the files and we pulled from our files and made photocopies of anything we thought might help the owner refurbish or at least get him thinking about: this isn't just rubble, we can do this and if we do something that is what it should look like. That was sort of an outreach too to help the owners that way .This was positive in the sense that we were trying to help them and not lay down the rules and hopefully some of them said, oh ya, let's do it this way.

A local insurance provider expressed that the heritage building property owners have a knowledge gap regarding their buildings and the local rules:

I think the biggest gap that I saw was is the actual property owners of heritage buildings, don't know what that means. When you don't know what it means everyone is an expert: my friend says..., or he knows a guy who knows a guy. So you have to overcome that. Usually it's negative: The world is against me, I won't even be able to paint it the colour I want. But that information should be more easily accessible to the property owner and that information should be more readily accessible to the municipal people, because they don't know either. You need to have that more accessible and more clearly explained so everyone knows what the real rules of the game are.

One of the historic property owners indicated a specific gap in knowledge regarding insurance coverage:

... so lucky [we] had looked at our own insurance policy about two months before that storm! [we] added an endorsement they sell everybody else - on to our property insurance policy renewal. It was an 'extra endorsement' of \$500,000 rider for 'bringing up to code' Doesn't really matter how old the property is - everyone should have it. As we know, codes change! This was critical for properties such as ours...where fire walls had to be added between apts...at reconstruction where 'new additional work' over and above replacing just what had been there at time of the loss. It elevated the costs and may have exceeded the policy limits! Knob and tube wiring best example...although we and many other commercial places had already done that in previous renos. Ours had differences in the way roof construction must be done (100 years later) as well.....and tiles had to be removed where the new flooring was to be installed because they had asbestos in them - so could not simply 'cover over.

A third method for engaging property owners as described by a member of the MHC was, “A workshop was held in September “what do we do now, what do we want” and it was well attended. And very positive in terms of we want the trees back and we want the buildings back.”

The response of the MHC and their engagement with property owners as part of the recovery after the tornado has positive outcomes for the committee as described by one of its members:

When I joined the committee back in 2004 I always had the feeling that we were not well received by the Town's people themselves and even to some degree by the Town Hall. I always had a feeling there was some tension between us and Town Hall, and certainly us and the people. But since the tornado that has changed quite a bit the Town's people seem to accept us and are willing to work with us quite well.

In short, property owners had some gaps in knowledge, specifically regarding what they were required to do to rebuild and insurance coverage. However, the MHC reached out in several ways including an ad in the newspaper, providing property owners with material specific to their buildings and taking part in a Town-wide workshop.

4.2.12 Were any materials salvaged? Was there a salvage plan?

A heritage consultant summarized the issue of salvaging material after the disaster by stating, “if you are going to salvage [material] or store it you need to have the right protocols in place.” One MHC member suggested, “maybe some reference [in the Emergency Plan] to if a building is [destroyed], don't just put it in the landfill, look through that rubble and see if there are salvageable

keystones or something like that.” It was pointed out that the keystones for 56-58 Courthouse Square were salvaged, but they were not useable. A local insurance provider noted that they, “...cover for debris removal as part of the policy, and usually they won’t salvage anything.” To salvage items, the action is up to the property owner, specifically, “unless the property owner themselves says: I want to save those shutters and put them back up [they don’t get salvaged].”

Interviewees made it clear that not much salvage was completed in Goderich. Most interviewees agrees that a plan at a municipal level is needed if salvage should occur. Property owners are also key to salvaging materials at the individual property level.

4.2.13 Were any buildings documented prior to demolition?

There was not a requirement to document the buildings prior to demolition. One MHC member remarked that “The buildings coming down...there was nothing to document in terms of the beautiful building, because it was mostly gone.” No other interviewees provided an answer to this question.

4.2.14 What planning initiatives were employed during recovery to ensure the effective management of the Town’s heritage resources?

The planning initiatives used by the Town of Goderich to protect the cultural heritage resources were diverse and most policies that had a significant benefit for the heritage character, were not strictly heritage focused. One Town staff member described the process of recovery for cultural heritage resources:

...from a heritage point of view it was a dilemma for a few days, because we knew we wanted things down the road rebuilt the way they were, but you could not leave, nor could you reuse nor stock pile things. So we realized very quickly that we had to have a strong heritage component in the form of the committee. We realized we had to have some By-laws in place and move very quickly on allowing people to back to normal.

The Planner at the time of the tornado noted at the Heritage Planners Network Meeting in 2012 that the goal of the rebuilding was to improve, she felt if you put the community back to the same way, it would be a failure. For instance in the core where the character was predominantly two-storey buildings with one-storey infill buildings, the Tornado By-law required everything to be rebuilt in two-storeys. The tornado provided a unique opportunity to do for the community in five years things that would not have happened in 20 to 100 years.

One of the approaches that was undertaken was outlined by a Town staff member as follows: “There was a streamlining of forms for the heritage committee; the previous ones were quite extensive. The current form is one page front and back. Before the tornado I don’t think we would have thought that streamlining a heritage application would have been related to emergency management.” According to the Planner at the time of the tornado, these reports were covered by insurance, because they were made a requirement. The abbreviated Heritage Impact Assessment (HIA) report that went to the MHC was noted by both members of the MHC interviewed as being one of the most useful processes implemented following the tornado. One committee member remarked: “In terms of some of our decisions, personally the biggest thing that helped me were the abbreviated Heritage Impact Assessments that were done, mostly by Allan Avis. Without those, I don’t know how we would have ever decided to allow demolitions. But it was so obvious from them that was had to let those buildings go.”

At the Ontario Small Urban Municipalities (OSUM) conference in Huntsville in 2012, the Mayor at the time of the tornado and the Chief Administrative Officer (CAO) of the Town of Goderich presented *So You Think You’re Prepared – Lessons from the Goderich Tornado Experience*. They indicated that September 24, 2011 was the first Public Meeting regarding the rebuilding and by November 2011 the Planning Partnership was hired to do the Downtown Master Plan. It was hypothesized by one interviewee that, “I think part of the reason that the downtown Master Plan went

first, was because there was already the Heritage Conservation Districts in place.” A Town staff member emphasised, “We wanted very quickly, because of what happened in the downtown core of the park, we had to do something that people saw something was coming because it was very emotional.” A charrette was held in February in 2012 and over 300 people attended. The first thing the public wanted back was the trees. One staff member remarked that they, “had to move quickly to restore what is probably the most important part of the community.”

A third planning initiative was pointed out by a Town staff member who explained, “I think there was a lot of good work done on keeping business open, the Temporary Use By-law that allowed business to relocate; I think that was very helpful. Because of the large number of business, and small business that were impacted by the tornado, I think that was essential.” Another Town staff member described the process for implementing the By-law describing they, “Very quickly put together two lawyers – our lawyer and another lawyer and the county Planner and set them aside within a day or two after the tornado, and said we want the necessary By-laws to allow business to relocate and to guide rebuilding to the way things were.” It was noted that these were under the *Planning Act* process, so they required 20 days notice, then time for objections. These were done right away and the public process was done at the end of November. For businesses a Temporary Use By-law was put in place.

The fourth planning initiative was the Tornado By-law (now part of the Zoning By-law) described above as guiding rebuilding to the way it was. In her article in the Ontario Heritage Trust magazine, the Planner noted:

A further highlight of the transformation is that of the north streetscape of West Street, where, prior to the storm, four one-storey buildings lined a section of the street. These buildings predated the HCD District Plan for West Street, which supports two-storey development for the traditional commercial district, as does the town’s zoning bylaw. Three of the four one-storey buildings were demolished as a result of the tornado and, while there was certainly a will to put everything back as it was before, an opportunity was recognized and town council and property owners stood together behind a

recommendation for buildings along West Street to be rebuilt at two storeys, not one. Today, two of the three sites are home to new, two-storey buildings and the owners of the fourth building, which was not demolished, have opted to add a second storey to their building. The skyline of West Street has been transformed and the heritage character enhanced despite the massive loss (Amersfoort, 2013, p.13).

One MHC member stated their appreciation of this initiative in saying, “The fact that the planning department has already required a second storey on rebuilds; that was wonderful because we would have wanted that anyway.” One Town staff member observed, “I think it was difficult for council and town to make people built back in two storeys in conformity with the policies, I think that a lot of people just wanted to build back [to one storey] and get going...but I think we have a stronger built form now.” They further noted that the two storey buildings are great and they seem to be very functional buildings. A heritage consultant observed that rebuilding two storey buildings on West Street was “unlocking value they didn’t know they had.” He further complement the Alan Avis building (one of the new two-storey buildings) for being an unusual modern and functional building, not just a “throw away” building. One local property and business owner stated, “I give credit to Goderich for saying we are going to rescind or suspend those By-laws, so that if you had a non-conforming building you could build a non-conforming building.” With regard to the rebuilding, a Town staff member concluded, “I think overall when you look at the downtown core it has been rebuilt to equal or better.”

Another planning related initiative relayed as a factor in the success of the rebuilding was that the County was able to redistribute their Planning resources. Specifically, the County typically had Planners with geographic regions, so Goderich had one Planner, and during recovery the other Planners in the County were reallocated to help with the planning tasks for rebuilding Goderich, as well as to process the normal planning applications for non-impacted areas. The department typically cycles Planners through the different communities so all the Planners brought in following the tornado either lived or had previous work experience in Goderich. One Town staff member suggested

that, “Having a lot of equally experienced Planners, I think helped, and the ability to reassign them to help out with the workload.”

Succinctly, the Town of Goderich implemented five planning measures to guide rebuilding and conserve cultural heritage resources including: 1) abbreviated HIAs; 2) a Downtown Master Plan; 3) a Temporary Use By-law; 4) a Tornado By-law that required two-storey buildings in the core, and allowed non-conforming buildings to be rebuilt; and 5) reallocating Planners in the County to assist in Goderich.

4.2.15 What planning initiatives have been put in place since the tornado to ensure the effective management of heritage resources in the future?

The most referenced planning initiative that has happened since the tornado is the new HCD Plan. According to the Town Planner, “In March 2013, Town Council – with the help of a Creative Communities through Prosperity Fund grant from the provincial government – initiated a new HCD District Plan and Study project for downtown Goderich that proposes to encompass the two existing districts and potentially expand into other areas of the downtown core” (Amersfoort, 2013 p.13). One Town staff member emphasized,

I think the policy work that was done following the tornado was great, we have a strong Heritage Conservation District Plan, now; it’s very helpful when we have development applications. We have had a number of redevelopments in the Square and the downtown to the point that everything the courthouse square portion is filled in now. West Street is filled in now.

Another Town staff member noted the following about the new HCD plan, “I don’t think it was so much a part of the tornado, but part of the fact that you have a very heritage minded community and strong support from council and staff point of view on the heritage aspects. When you look at the configuration of the four streets we call the square, or octagon, it just makes sense to have that whole area under the context of a part five designation.”

The HCD plan now includes a section on disaster management. According to the heritage consultant who drafted the plan he “used Herb Stovel as the basis for the information on disasters outlined in the new HCD Plan. This is the gold standard.” He noted that there was a disaster and people had to react without a framework for doing so – that is why the section was included. He hopes that now there are tested protocols should there be any emergencies in the future.

The Planner at the time of the tornado commented at the Heritage Planners Network meeting that despite the losses, the public planning process had infused energy into the Town and brought more harmony between business and heritage preservation.

4.2.16 What would you recommend to other municipalities so they could be prepared for a disaster?

Beyond the topics covered in their interviews, several participants added recommendations for other municipalities. The ACO President at the time of the tornado suggested that, “You have to emphasize, this could happen, you may not expect it. But if you have all things in place and you know what to do in one place [that will help].” Having a manual, or thinking about policies for the conservation of cultural heritage resources in advance of a disaster was emphasized by most interviewees.

A heritage consultant advised that, “Heritage considerations are an ongoing process.” Specifically, “Don’t be complacent, make sure it doesn’t take a disaster to realize what you have.” A second heritage consultant expressed the same idea: “There has to be a continued renewal of people’s understanding of what they got, and that’s a hard thing to do, it has to be a process of education or public information. In many cases it’s buried in the Planning Department, they have a few walking tours, some enthusiasts are interested but most people aren’t, somehow it has to be infused through the Business Improvement Areas and the Chambers of Commerce.” In short, it is advised that a general ongoing education process regarding heritage is necessary.

4.3 Findings Summary

The Townscape Survey and the key stakeholder interviews provided valuable insight into the conservation of cultural heritage resources before, during and after the tornado in Goderich.

Chapter 5: Analysis

The literature review examined what emergency management processes exist elsewhere for buildings; what are the specific policies and processes that relate to protecting cultural heritage resources internationally; what are the best practices in emergency management for cultural heritage resources internationally; and how Canada and Ontario, handle Emergency Management. The Townscape Survey and key stakeholder interviews answered: what policies were in place in Goderich, Ontario prior to the tornado; what practices were followed in Goderich, Ontario after the tornado; and how successful the policies and procedures were in protecting the Town's cultural heritage resources.

Together the results of this research answers the main research question: what policies and procedures should be in place in Ontario to protect cultural heritage resources during emergencies? The answers are presented below by best practice. Finally, actions that can be taken by each key group involved in heritage in Ontario are outlined to move beyond the academic realm by providing concrete ways to conserve cultural heritage resources in emergencies.

5.1 Best Practices

Using the data collected through the Townscape Survey, it is clear that while some historic fabric was lost through the demolition of buildings, the sense of place has remained.

On the historic conservation front, the West Street HCD showed an increase in the 'Conservation and Maintenance of Historic Elements'. The 'Quality of New Development' on this street also exhibited an increase since the new two storey buildings fit in with the streetscape better than the previous one-storey buildings. West Street seemed to recover fast, with most of the changes taking place between 2008 and 2012, and leveling off in 2013. The Townscape Survey scores suggest that West Street is better in 2013 than it was before the tornado, likely due to the new two-storey

building that fit with the character of the core. The Square is not doing as well as West Street in terms of recovery, but it is rebounding in most categories judging by the 2012 scores. This is a reasonable conclusion since The Square was hit harder by the Tornado, so its recovery will likely take longer. In addition, the upwards trajectory of the scores hold promise for future conservation. These qualities may continue to increase, and eventually surpass the pre-tornado levels once projects under development as of 2013 in The Square have been completed.

Superficial items such as ‘Street Furniture Quality’ and ‘Signage’ increased. Although these items are not critical to the conservation of the fabric of cultural heritage resources, they contribute to the overall feel of the landscape. Like the Townscape Survey which takes a holistic view of the landscape, not just the heritage elements, the *Downtown Master Plan* puts heritage in a wider context of development/redevelopment/planning and sees it as just one element of revitalization. In this way, heritage is weaved through all the other elements. For instance, in addition to considering the existing built-form, the Plan provides guidance on signage, public realm, making pedestrians a priority, enhancing wayfinding, enhancing the tree canopy in Courthouse Park, and designing new buildings to become future heritage (Planning Partnership 2012). The implementation of many of the suggestions in the *Downtown Master Plan* may account for the success and improvement in many of the Townscape scores.

The scores in the Townscape Survey show that the character of The Square and West Street has not been irrevocably harmed by the tornado. In the case of West Street, the numbers indicate that street has improved due to the new construction along the street that is more sympathetic to the streetscape. Although The Square HCD had lower scores in 2013 than in 2008, many are showing a rebound and the district is still performing well overall, with an above average score of 3.9 out of 5.

Given the experience in Goderich what lessons can be learned? What steps did the Town of Goderich use to conserve its cultural heritage resources success? Just as importantly, what steps were

not taken that should have been? The following section examines how the recovery in Goderich measures up against the ten best practices outlined in the literature review. In some cases, the best practices were followed and in other cases the interviews provided an argument that the best practices need to be refined. Interviews provided details that several of the best practices were not implemented or used in Goderich. However, many interviewees provided feedback based on their experience indicating that the best practice should be considered by other municipalities in preparation for future disasters.

5.1.1 Prevention/Mitigation

5.1.1.1 Best Practice 1 – Prevent or Mitigate Disaster Impacts

Interestingly, mitigation measures were not highlighted in any of the interviews. Perhaps this is directly related to the nature of the disaster, a tornado is harder to mitigate against than a flood. The interviews only revealed one specific action taken to mitigate disaster impacts in the future: now the Town-owned buildings are checked annually for asbestos. No upgrades to public or private buildings were mentioned as specific mitigation measures.

5.1.2 Preparedness

5.1.2.1 Best Practice 2 - Prepare an Inventory of Cultural Heritage Resources

The primary role of the Municipal Heritage Register in Goderich following the tornado was as documentation. During the disaster the register was not used to enforce the 60 days' notice of intention to demolish. The Planner indicated that following the tornado they wished there were more properties on the register because they got more attention. The register included photographs, which was universally cited by interviewees as the most beneficial element of the Register. However, the

register was not in an easily accessible format, an issue which has been rectified with an updated register that is in Excel so it can be accessed by everyone at the Town.

The existence of HCD Plans was described by almost all interviewees as one of the key factors that guided the recovery. Although protection of cultural heritage resources through legislation such as the *Ontario Heritage Act* was not outlined in the literature as a key factor of success, it played a key role and should be considered as an additional best practice under the Preparedness phase. The spirit of the HCD designation, not necessarily the associated rules, was what guided the decisions by the MHC and the recovery effort. The general sense of “doing the right heritage thing” was a common sentiment felt by not only the owners within the HCDs, but extended to those not included in the district. Property owners such as those who owned the Masonic Temple on West Street, who were not part of the HCD, provided one of the best examples of restoration. The MHC noted that they had many applications from people with non-designated buildings who still wanted their advice and guidance.

Beyond the spirit of “doing the right heritage thing”, a feeling inspired by the HCD Plans, another reason many people may have come to the committee to seek advice may be the way in which the MHC handled the process. The committee provided a speedy and consistent process. This dedicated group of volunteers went from meeting once a month to meeting several times a week to accommodate the process and number of applications. Further, the committee made decisions to let some buildings be demolished. The committee aimed to balance the HCD goals with helping people get on with their lives and move forward. In many cases the opinions of heritage professionals and advocates are seen to be more valid if they can be seen as judicious in their decisions to save buildings. The opinion of the MHC may have been perceived as more valid since they employed a balanced approach to reviewing applications following the disaster and did not require every building to be saved. Although some buildings were lost, a sad fact that cannot be overlooked, the committee

ensured that their replacements were worthy of inclusion in the Goderich landscape. It is hard to know, but it can be suggested that a more rigid approach by the MHC may have caused property owners to rebuff the advice of the committee.

5.1.2.2 Best Practice 3 - Prepare a Emergency Management Plan with Reference to Cultural Heritage Resources

At the time of the disaster, Goderich had an Emergency Plan that had no reference to cultural heritage resources. Since the tornado, cultural heritage resources have not been added to the Plan. Many interviewees agreed that the Town's heritage buildings should have been considered critical infrastructure due to the fact that tourism based on being the "Prettiest Town in Canada" is a key economic driver for the Town.

As a result of the interview with a Town staff member in charge of the Emergency Plan, an awareness was created about this omission which may result in the cultural heritage resources being mentioned in the Plan. Instances where cultural heritage resources could be incorporated were suggested, including: making reference to some of the documentation about heritage that already exists including the Municipal Heritage Register and HCD Plan; including a map of the Part IV and Part V designations and/or significant properties; and listing the MHC or local heritage consultants as a specialty group that the Emergency Operation Centre staff could call on for advice if required.

5.1.2.3 Best Practice 4 - Create Relationships with Emergency Managers and Workers

The issue with the Ministry of Labour restricting access to the buildings in the core still needs to be examined and understood, this is beyond the sphere of the planning decisions that were made before, during and after the tornado, and something that may be better done on a Ministry to Ministry level. Specifically, although asbestos was a health and safety issue if there are people that are trained

to deal with these hazards, then they should be allowed to secure the buildings. The process and rules for this situation should be clarified.

The interviews revealed that relationship building should not be limited to “emergency workers” but rather extended to all professionals that may respond in a disaster. The theme of breaking down silos came across in the interviews as one of the key ways to prepare for future disasters. Suggestions were made to educate professionals about heritage buildings and landscapes. These professionals may be involved in a disaster both at the local and provincial levels (i.e., Building Officials, engineers and architects), or those in charge during a disaster (i.e., Ministries and town staff). These groups should be educated about cultural heritage resources so they can: 1) be better informed and/or 2) know who to contact for expertise in heritage if required. Education can happen at a Ministry to Ministry level, and at the internal municipal level as well as provincial and national heritage organizations to professional organizations (i.e., ACO, National Trust for Canada, and CHAP to the Ontario Associations of Engineers or Architects). It was clear from the interviews that the heritage community should be reaching out to professional organizations and providing education and training at all levels of government so the overall response to disasters that involve cultural heritage resources can be improved.

5.1.2.4 Best Practice 5 - Educate Heritage Workers and Volunteers on Emergency Management

It was suggested that a manual be created that lists all the key tasks that can or should be completed following a disaster to assist heritage workers and volunteers. It was further proposed that the manual include a fillable damage assessment form.

5.1.3 Disaster

5.1.3.1 Best Practice 6 - Perform a Systematic Damage Assessment

In Goderich, a damage assessment was performed by members of the MHC. It was used by the MHC to focus their attention and help keep the members from feeling overwhelmed by the damage. The photographs taken were used to create a book about the tornado, the sale of which raised funds for the recovery efforts. A damage assessment was also performed with a member of the committee and a heritage expert sent by Heritage Canada and the ACO. Though this information was not used in any way to guide the recovery, members of the MHC indicated that having an expert opinion early in the process gave them hope.

5.1.3.2 Best Practice 7 - Establish a Conservation Team

An issue that was identified during the interviews was the lack of support from outside organizations. Conversely, ACO and the National Trust for Canada felt that they offered help and it was refused. Perhaps this misunderstanding is a result of a non-existent relationship prior to the disaster. Roles were not defined, leaving local staff and the MHC not knowing to whom they could turn for resources. Similarly, the organizations wanted to help but did not know in what capacity they could lend their support and resources. It was a general feeling that everyone just wanted to help to conserve the cultural heritage resources in the best way possible, but without established and defined roles, there appears to have been misunderstandings and hurt feelings. Even now, there seems to be confusion and miscommunication about what roles each organization played, who did what and how it happened. The experience in Goderich has highlighted the need for these organizations (i.e., ACO and the National Trust for Canada) to think about their role prior to another disaster, and also discuss their ability to assist with other outside organizations, then communicate their abilities and resources to municipalities clearly in advance of another disaster. As outlined in the interviews, one role within

the Preparedness phase for provincial/federal level heritage organizations is in appeals to the provincial and federal governments for attention to be paid to heritage in Emergency Plans, secure funding, and educate members of professional organizations that may respond in a disaster (i.e., engineers, architects, Building Officials).

Heritage consultants involved in Goderich suggested an additional role for interested heritage organizations, the establishment of a team of provincial level experts from various heritage organizations and professionals (i.e., consultants), thus coordinating the support system. A lead organization could be established, and a list of individual team members identified, as well as a list of the services or resources that could be provided to municipalities. If a disaster were to happen, this group could call on other experts as needed, and would provide a central location for coordination of resources and heritage expertise.

In Goderich one of the key factors that contributed to the successful management of cultural heritage resources was the redirection of planning staff to Goderich from other parts of the County. At a municipal level this may not always be possible, but the same outcome could be achieved through Mutual Assistance Agreements that could be drafted between municipal staff in specific areas or between MHCs. The roles in a disaster would need to be defined and some education regarding process and heritage resources in the reciprocal area would need to take place at regular intervals. This mutual assistance could also include enlisting the help of local professionals including trades and consultants. In Goderich, architect Allan Avis was cited as a key local professional who wrote many of the HIAs and upon whom the MHC relied on for advice. Again, the role of any local consultants or trades should be defined prior to a disaster.

5.1.3.3 Best Practice 8 - Reach out and Educate Property Owners

The Town and MHC published an advertisement in the local newspaper that outlined the different categories of designation (i.e., listed, Part IV and Part V) and what each of those categories

required property owners to do. A copy of the advertisement can be found in Appendix C. Members of the MHC photocopied all available documentation about each historic building from their files at Town Hall and provided the package to each property owner. This additional task could have been negated had educating property owners about the significance of their building and heritage process been implemented prior to the disaster. This action can be considered its own best practice.

The issue of insurance was raised by several interviewees. This would not have been an issue had the property owners been properly educated before the disaster, in the aftermath and during recovery. Before a disaster, property owners should be “insured to value”. It was suggested that if they can provide the relevant information on the protection of their property (i.e., designation By-laws and an outline of the municipal heritage application process) to their insurance company. This would aid the insurance company in estimating heritage properties accurately. Property owners should also ensure they have By-laws coverage which ensures that any rebuilding to code or zoning following a disaster is covered by their policy. During recovery, it is up to the property owners to hire a heritage minded contractor and it is their responsibility to dictate any salvage that happens.

5.1.3.4 Best Practice 9 - Salvage Material and Document Buildings

Little to no salvage happened in Goderich. This failure may have been caused by the perception that the salvaged materials may be contaminated with asbestos or other harmful substances. One case where salvage did happen was at the Masonic Temple where bricks were reused (by turning them around) to show where the damage happened. The keystones for 56-58 Courthouse Square were also salvaged, but in the end they were not used in the reconstructed building. As noted in the section above; salvage decisions made during a disaster are primarily the responsibility of the property owners. Any other large scale salvage would need to have a plan at a municipal level. In a similar manner, no buildings were thoroughly documented prior to demolition because it was

thought there was not much left to document. However, documentation of material and building techniques that were revealed with the exposed walls may have been useful. Bray (2015) in the new HCD Plan outlines two actions if a building should be demolished, including the salvage of material and photo documentation.

5.1.4 Recovery

5.1.4.1 Best Practice 10 - Implement Planning Initiatives that Consider Cultural Heritage Resources

There were six major planning initiatives implemented during recovery that helped to conserve cultural heritage resources including: 1) an abbreviated HIA process; 2) a Temporary Use By-law; 3) a Tornado By-law that addressed non-confirming buildings and building height in the commercial core; 4) sharing Planning staff at the county level; 5) the completion of a Downtown Master Plan; and 6) a revised HCD Plan.

The MHC Meeting Minutes from September 6, 2011 lists the following process for abbreviated HIAs:

- 1. "For listed properties wishing demolition, the Notice of Intention to Demolish under S.27(3) be accompanied by an Architects Report;*
- 2. For Part IV buildings applying for a demolition permit under S.34(1), applications be accompanied by an Architects Report;*
- 3. For Part IV buildings wishing to alter or repair under S.33(1), applications be accompanied by the existing form of Heritage questionnaire;*
- 4. For Part V buildings wishing to alter, repair or demolish under S.42(1), applications be accompanied by an Architects Report;*
- 5. Any building permit application for a replacement building within the Heritage Precinct (boarded by Nelson, Elgin, Waterloo and Victoria) be accompanied by an Architects Report.*
- 6. The Architects Report shall be prepared and certified by a professional certified by the Canadian Association of Heritage Professionals (or a professional otherwise qualified by 10 years' experience in heritage restoration or assessment), and shall contain the following information:*
 - (a) Photos of the damage;*

- (b) Description of the damage;*
- (c) Summary of the significance of the building;*
- (d) Relation to overall streetscape;*
- (e) Anticipated cost of repairs;*
- (f) Impact on adjoining properties including services;*
- (g) Proposed nature of repairs, or planned reconstruction; and*
- (h) Overview of materials that can be re-used.*

At about the same time, shortly after the tornado, a Temporary Use By-law was also passed. Although it may not be seen to have direct impacts on saving the fabric of cultural heritage resources, this By-law likely ensured that business stayed open and were able to come back into The Square and occupy the restored buildings.

In conjunction with this By-law, the Town of Goderich enacted a Tornado By-law (now part of the Zoning By-law) which allowed non-complying structures to be rebuilt and required buildings in the commercial core to be reconstructed as two-storeys. The Town's Zoning By-law states:

6.4.5 TORNADO REBUILDING SPECIAL PROVISIONS

Notwithstanding any provision of this by-law to the contrary, where a non-complying building or structure was damaged or destroyed by the Goderich tornado of August 21, 2011 to the extent that reconstruction or replacement is required, the provisions of sections 6.4 through 6.4.4 shall apply to the reconstruction or replacement of such building or structure, provided: (i) no building or structure or part thereof being reconstructed or replaced extends beyond the limits of the lot; and

(ii) in the Core Area Commercial (C4) and Restricted Core Area Commercial Zone (C5), any reconstructed or replacement building or structure shall comply with the height requirements of section 13.2.1.9 with the exception of the property legally described as PLAN 457 PT LOT 71 PT LOT 72; SUBJT TO ROW (37 Kingston Street). (Amended by By-law 103-2011) (Town of Goderich, 2012, pp.23-24).

This By-law aligned with the spirit of the HCD Plan by ensuring that buildings could be reconstructed as they were, and was instrumental in creating consistent two-storey character along West Street.

The Downtown Master Plan was initiated as a result of the Tornado, not as a proactive plan. The plan itself-described as:

The Guiding Principles and Policies that have been described for the Master Plan are premised on using the situation presented by the tornado as an opportunity for improvement. This means that planning and design should focus on creating a safe, more animated and aesthetically pleasing pedestrian environment, and creating the best possible ecological environment that promotes the greening of the Downtown. Guidelines should also be provided to facilitate and encourage built form (development) that preserves or enhances the unique character of downtown (Planning Partnership, 2012, p.33).

The plan is the result of a high amount of community involvement – over 100 members of the public in addition to the key stakeholders, attended the three day community workshop that was run by the consultant team to solicit input (Planning Partnership, 2012, p. 13). The Downtown Master Plan served three purposes: 1) the opportunity to involve the community; 2) the ability to show the public that progress was being made; and 3) provide a well thought out plan for major infrastructure upgrades that may have not otherwise taken place, certainly not at the rate they happened.

The revised HCD Plan prepared by Bray Consulting was completed when the majority of the recovery was finished. It is a consolidated plan that covers The Square and West Street districts and expands the district to include the full Square, not just those buildings facing the Court House. By-Laws 58, 59 and 60 of 2014 were passed on June 23, 2014 and the three continuous districts are designated under Part V (Section 41) of the *Ontario Heritage Act*.

The HCD Plan acknowledges the Downtown Master Plan by stating, “Luckily, the HCD Plan follows the Downtown Master Plan which describes in detail the elements required for the physical revitalization of the downtown core. The two documents can thus work together to achieve many of the Town’s revitalization goals” (Bray, 2014, 7).

The tornado is placed front and centre of the HCD Plan, appearing on the first page of the executive summary:

...in response to the loss of properties in the downtown due to demolition or natural disaster, and understanding the great potential that historic downtowns have for community economic regeneration, the main goal of designation is to conserve what remains and thus capitalize on the unique elements of Goderich's downtown (Bray, 2014, Executive Summary).

Beyond expanding the districts to include the entire Square and its radiating streets as well as providing clearer guidelines for managing change, the HCD Plan now includes processes for managing cultural heritage resources in a disaster. This section is based on work done by Herb Stovel which is outlined in the Literature Review section of this thesis. The new Goderich HCD Plan provides an example that can be followed in terms of HCD plans with a section on “Managing Risk” which includes a section on “Documentation of Existing Heritage Resources” comprising the need to identify heritage attributes, buildings or landscapes that would require special attention during a disaster, evaluation of resources, and as-built documentation (Bray 2014). Bray (2014) further recommends analysing potential risks, including what the potential threats area, and what heritage attributes, structures and buildings deemed particular vulnerable during a disaster. He goes on to suggest that the Town create an emergency response team of conservation professionals who can be called upon during a disaster, and keep a current list of practitioners that can be used in recovery as well as to retrofit buildings so they could deal with potential stresses (Bray 2014). A copy of these specific sections from the HCD Plan can be found in Appendix D.

Many of these planning initiatives could be discussed prior to a disaster and could be included in the Emergency Plan or a plan by the local MHC on how to approach the management of cultural heritage resources in a disaster (as is found in Hamilton). For instance, the MHC could discuss and have an approved abbreviated HIA process that could be triggered

if specific conditions are met (e.g., a community wide disaster). Any newly implemented or updated HCD Plans could examine and recommend specific mitigation measures (i.e., building retrofitting) as well as processes to follow in the event of a disaster.

5.1.5 Best Practice Conclusions

One additional best practice that came out in the interviews but does not fit into the list of best practices outlined in the literature is the need for funding. In Goderich, there was no specific funding that was directed toward heritage projects following the tornado. The CIP funding was used for many restoration projects, however, the funding was not earmarked specifically for heritage, nor was it substantial enough to impact property owner decisions regarding their heritage buildings. Funding set up at the provincial level or through existing municipal heritage grant programs could be used to encourage the conservation of heritage buildings in future disasters.

When examining the experience of Goderich, it is found that four of the best practices were followed closely and can be used by other municipalities; three best practices require refinement to be relevant; and four additional best practices are warranted. Four best practices were not followed, however, the experience in Goderich provides guidance on how other municipalities can implement these practices. Accordingly, the best practices for the conservation of cultural heritage resources in a disaster can be refined as outlined in Table 3.

Table 3: Summary of Best Practices for Conservation of Cultural Heritage Resources in a Disaster

Disaster Stage	Best Practice	
Prevention/ Mitigation	1	Prevent or Mitigate Disaster Impacts
Preparedness	2	Educate Property Owners on Heritage Significance, Guidelines and Insurance
	3	Prepare an Inventory of Cultural Heritage Resources
	4	Designate Important Properties and Landscapes (include disaster management of cultural heritage resources in the management guidelines)
	5	Prepare a Emergency Management Plan with Reference to Cultural Heritage Resources
	6	Create Relationships with Emergency Managers and Other Professional Organizations Who Respond in a Disaster
	7	Create a Manual to Assist Heritage Workers and Volunteers on Managing

		Heritage Resources in a Disaster
	8	Institute Heritage Specific Funding For Use in A Disaster
Disaster	9	Perform a Systematic Damage Assessment
	10	Establish a Conservation Team
	11	Establish Mutual Assistance Agreements
	12	Reach out and Educate Property Owners
	13	Salvage Material and Document Buildings
Recovery	14	Implement Planning Initiatives that Consider Cultural Heritage Resources (e.g., abbreviated HIA process, a Temporary Use By-law, Zoning By-law Amendments that encourage rebuilding in the character of the impacted area, a planning undertaking the involves public input and guides recovery such as a Master Plan for the area, new or updated HCD Guidelines that include a section on emergency management)

5.2 Recommendations

Since the responsibility for both emergency management and cultural heritage resources in Ontario lies with municipalities, this thesis focused on policies and procedures at the municipal level, while also examining the Ministries and organizations (i.e., ACO and National Trust for Canada) that support heritage at the municipal level. Based on the analysis contained in this thesis, the following recommended actions to prepare for and respond to any future disasters by other municipalities, heritage not-for-profits, Municipal Heritage Committees, the MTCS and OHT as well as historic property homeowners. A large portion of these recommendations are already considered good heritage practice in general and are thus a reiteration of activities are typically undertaken as part of these groups' normal responsibilities (i.e., prepare an inventory of cultural heritage resources and reach out and educate property owners). These types of actions are referred to as "dual use options" according to Allenby and Fink (2005). Heritage best practices that can also be used in a disaster means that many groups are already taking some steps to assist with protecting cultural heritage resources in the event of a disaster. It should be noted that these activities also contribute to the management of cultural heritage resources in a disaster and should be viewed through an Emergency Management lens when implemented.

Table 4 outlines the recommended policies and procedures for each group responsible for cultural heritage resources can undertake to mitigate, prepare for, react to, and recovery from future disasters. Undertaking the actions related to each of the 14 best practices identified as a result of this thesis will assist with conserving cultural heritage resources in a disaster.

Table 4: Summary of Best Practices and Actions to Undertake to Conserve Cultural Heritage Resources in Disaster

Disaster Stage	Best Practice	Ministry of Tourism, Culture and Sport (MTCS) and Ontario Heritage Trust (OHT)	Heritage Organizations (i.e., National Trust for Canada, ACO, CAHP)	Heritage Consultants	Municipal Staff Responsible for Heritage	Municipal Heritage Committee	Heritage Property Owners
Prevention/ Mitigation	1 Prevent or Mitigate Disaster Impacts	Promote prevention and mitigation of disaster impacts as part of Planning activities.			Implement prevention and mitigation of disaster impacts as part of Planning activities. Encourage property owners to upgrade their buildings to prepare for disasters.	Encourage property owners to upgrade their buildings to prepare for disasters.	Upgrade your building to prepare for disasters.
	2 Educate Property Owners on Heritage Significance, Guidelines and Insurance		Educate property owners on heritage on an ongoing basis.		Educate property owners on heritage on an ongoing basis.	Educate property owners on heritage on an ongoing basis.	Ensure you have insurance to value and By-laws coverage.
Preparedness	3 Prepare an Inventory of Cultural Heritage Resources	Encourage the establishment of Municipal Heritage Registers. Ensure all the municipality's cultural heritage resources are recognized. Encourage photographs in Municipal Heritage Registers and that it is in an accessible format.		Include photographs in Municipal Heritage Registers and ensure it is in an accessible format.	Establish a Municipal Heritage Register Ensure all the municipality's cultural heritage resources are recognized. Include photographs in the Municipal Heritage Register and ensure it is in an accessible format.	Establish a Municipal Heritage Register Ensure all the municipality's cultural heritage resources are recognized. Include photographs in Municipal Heritage Registers and ensure it is in an accessible format.	
	4 Designate Important Properties and Landscapes (include emergency management in the guidelines and have a balanced approach to implementation)	Encourage the inclusion of emergency management in any new or revised HCD Guidelines.		Consider emergency management in any new or revised HCD Guidelines.	Consider emergency management in any new or revised HCD Guidelines.	Have a balanced approach to implementation of any heritage guidelines.	
	5 Prepare a Emergency Management Plan with Reference to Cultural Heritage Resources	Encourage municipalities to include cultural heritage resources in their Emergency Management Plan or create an Emergency Management Plan specific to cultural heritage resources.	Encourage the Province to require cultural heritage resources be included in municipal Emergency Management Plan or create an Emergency Management Plan specific to cultural heritage resources.		Work with staff in charge of Emergency Management to get cultural heritage resources included in the Emergency Management Plan or create an Emergency Management Plan specific to cultural heritage resources.	Work with staff in charge of Emergency Management to get cultural heritage resources included in the Emergency Management Plan or create an Emergency Management Plan specific to cultural heritage resources.	
	6 Create Relationships with Emergency Managers and Other Professional Organizations Who Respond in a Disaster	Work with the Ministry of Labour to clarify roles and find solutions to avoid a similar situation in the future. Work with other organizations to educate members on heritage buildings (e.g., architects, engineers and Building Officials).	Work with other organizations to educate members on heritage buildings (e.g., architects, engineers and Building Officials).		Work to educate local professionals and municipal staff from other departments on heritage buildings (e.g., architects, engineers and Building Officials).	Work to educate local professionals and municipal staff from other departments on heritage buildings (e.g., architects, engineers and Building Officials).	

Disaster Stage	Best Practice	Ministry of Tourism, Culture and Sport (MTCS) and Ontario Heritage Trust (OHT)	Heritage Organizations (i.e., National Trust for Canada, ACO, CAHP)	Heritage Consultants	Municipal Staff Responsible for Heritage	Municipal Heritage Committee	Heritage Property Owners
	7	Create a Manual to Assist Heritage Workers and Volunteers on Managing Heritage Resources in a Disaster	Produce an Information Sheet or guidance document for MHCs and Planners. Work with provincial/federal organizations to create a manual for conserving cultural heritage resources in disasters.	Coordinate the creation of a manual for the conservation of cultural heritage resources in disasters.	Share your experiences for the creation of a manual for the conservation of cultural heritage resources in disasters.	Share your experience for the creation of a manual for the conservation of cultural heritage resources in disasters.	Share your experience for the creation of a manual for the conservation of cultural heritage resources in disasters.
	8	Institute Heritage Specific Funding For Use in A Disaster	Advocate for provincial heritage funding for cultural heritage resources in disasters.	Advocate for provincial/federal heritage funding for cultural heritage resources in disasters. Fundraise in the event of a disaster.		Advocate for local heritage funding for cultural heritage resources in disasters.	Advocate for local heritage funding for cultural heritage resources in disasters.
Disaster	9	Perform a Systematic Damage Assessment	Incorporate a systematic damage assessment checklist into the manual.	Incorporate a systematic damage assessment checklist into the manual.		Perform a systematic damage assessment to clarify priorities.	Perform a systematic damage assessment to clarify priorities.
	10	Establish a Conservation Team	Work with other heritage organizations to establish a provincial conservation team. Work with other heritage organizations to establish a list of resources and services that the provincial conservation team can offer.	Work with the other heritage organizations the MTCS and OHT to establish a provincial conservation team. Work with the other heritage organizations, the MTCS and OHT to establish a list of resources and services that the provincial conservation team can offer.	Offer services to the provincial conservation team.	Offer services to the provincial conservation team.	
	11	Establish Mutual Assistance Agreements				Cross-train employees for deployment in a disaster or establish Mutual Assistance Agreements to ensure adequate planning resources in the event of a disaster.	
	12	Reach out and Educate Property Owners				Prepare materials for property owners on their responsibilities and on the history of their building.	Prepare materials for property owners on their responsibilities and on the history of their building.
	13	Salvage Material and Document Buildings				Include salvage and documentation in the Emergency Management Plan or local heritage permit process.	Include salvage and documentation in the Emergency Management Plan or local heritage permit process.
Recovery	14	Implement Planning Initiatives that Consider Cultural Heritage Resources (i.e., abbreviated HIA process, a Temporary Use By-law, Zoning By-law Amendments that encourage rebuilding in the character of the impacted area, a			Consider disasters in any policy framework as a proactive step (i.e., in Official Plan reviews or new and revised HCD Plans).	Consider disasters in any policy framework as a proactive step (i.e. Official Plan reviews or new and revised HCD Plans). Discuss and have an approved abbreviated HIA process that could be triggered if specific conditions are met (i.e., a community wide	Discuss and have an approved abbreviated HIA process that could be triggered if specific conditions are met (i.e., a community wide disaster).

Disaster Stage	Best Practice	Ministry of Tourism, Culture and Sport (MTCS) and Ontario Heritage Trust (OHT)	Heritage Organizations (i.e., National Trust for Canada, ACO, CAHP)	Heritage Consultants	Municipal Staff Responsible for Heritage	Municipal Heritage Committee	Heritage Property Owners
	<p>planning undertaking the involves public input and guides recovery such as a Master Plan for the area, new or updated HCD Guidelines that include a section on emergency management)</p>				<p>disaster). In the event of a disaster consider the following planning initiatives: an abbreviated HIA process, a Temporary Use By-law, Zoning By-law Amendments that encourage rebuilding in the character of the impacted area, a planning undertaking the involves public input and guides recovery such as a Master Plan for the area or HCD Guidelines.</p>		

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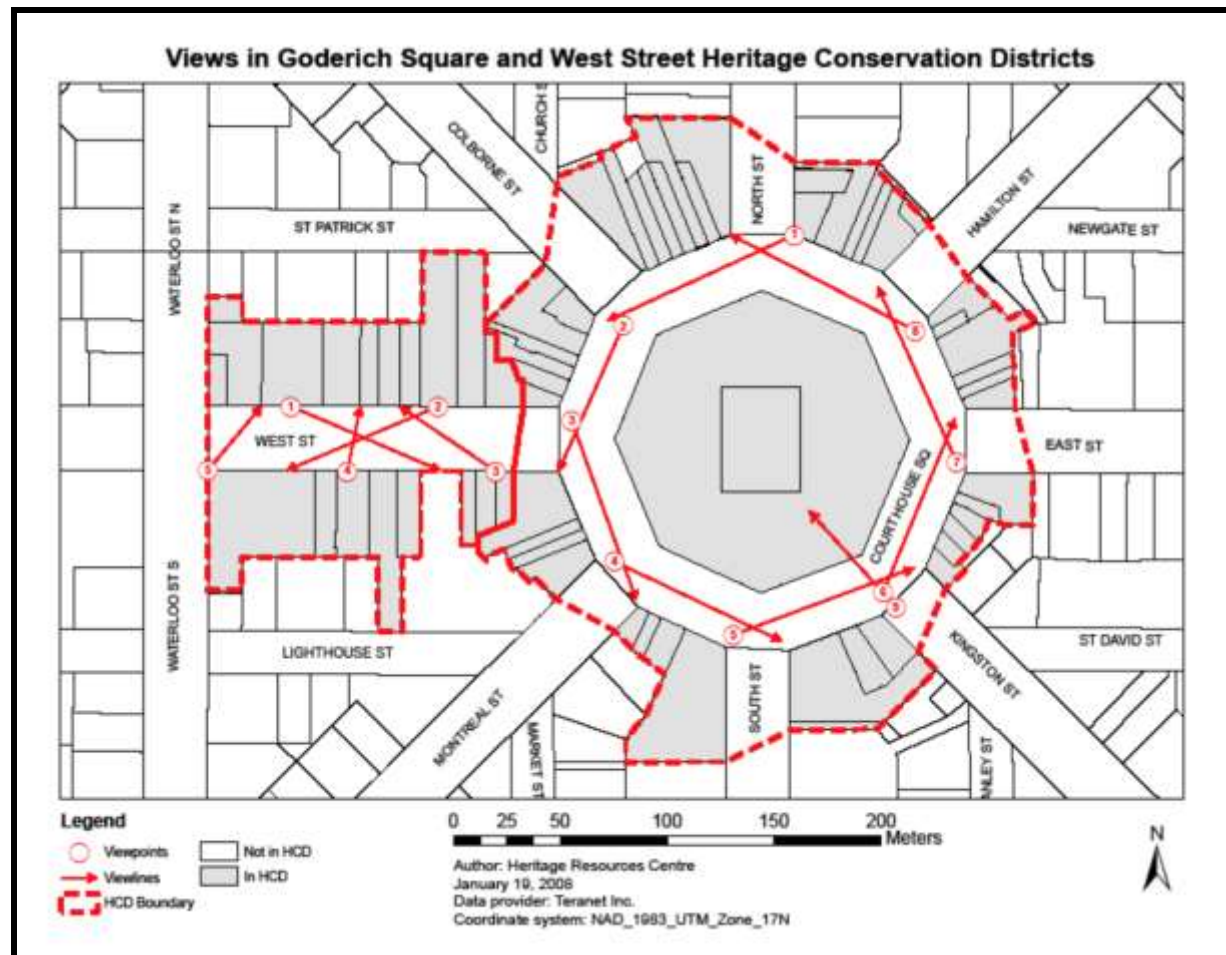
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Appendix A: Views in West Street and The Square Heritage Conservation Districts



(Shiple et al., 2009b, p. 39)

West Street HCD - View 1



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 3, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

West Street HCD - View 2



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 3, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

West Street HCD - View 3



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

West Street HCD - View 4



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 3, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

West Street HCD - View 5



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 3, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 1



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 2



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 3



Pre- Tornado (June 24, 2008)
Note: Miss labeled as View 4 in 2008 Study



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 4



Pre- Tornado (June 24, 2008)
Note: mislabelled as View 3 in 2008 Study



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 5



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 6



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 7



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

The Square HCD - View 8



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)

Missing

2 Years After Tornado (August 21, 2013)

The Square HCD - View 9



Pre- Tornado (June 24, 2008)



Immediately After Tornado (September 24, 2011)



1 Year After Tornado (October 5, 2012)



2 Years After Tornado (August 21, 2013)

Appendix B: Townscape Scores for West Street and The Square Heritage Conservation Districts

West Street HCD

July 24, 2008 (Pre-Tornado)

A. Streetscape Quality				
	Score	Out of	%	Out of 5
A1-Pedestrian friendly	19	25	76.00	3.8
A2-Cleanliness	19	25	76.00	3.8
A3-Coherence	16.5	25	66.00	3.3
A4-Edgefeature Quality	20	25	80.00	4.0
A5-Floorscape Quality	16	25	64.00	3.2
A6-Legibility	19.5	25	78.00	3.9
A7-Sense of Threat	20.5	25	82.00	4.1
A8-Personal Safety: Traffic	19.5	25	78.00	3.9
A9-Planting: Public	20	25	80.00	4.0
A10-Vitality	15.5	25	62.00	3.1
A 11- Appropriate Resting Places	15	25	60.00	3.0
A12-Signage	7.5	20	37.50	1.9
A13-Street Furniture Quality	19.5	25	78.00	3.9
A14-Traffic Flow. Appropriateness	19.5	25	78.00	3.9
SUM A	247	345	71.59	3.6

B. Private Space in View				
	Score	Out of	%	Out of 5
B15-Advertising, in keeping	12	25	48.00	2.4
B16-Dereliction, Absence of	20	25	80.00	4.0
B17-Detailing, Maintenance	19	25	76.00	3.8
B18-Facade Quality	17.5	25	70.00	3.5
B19-Planting Private	3.5	5	70.00	3.5
SUM B	72	105	68.57	3.4

C. Heritage in View				
	Score	Out of	%	Out of 5
C20-Conserved Elements Evident	16.5	20	82.50	4.1
C21-Historic Reference Seen	8	20	40.00	2.0
C22-Nomenclature/Place Reference	13.5	25	54.00	2.7
C23-Quality of Conservation Work	17	25	68.00	3.4
C24-Quality of New Development	7.5	15	50.00	2.5
C25-Neglected Historic Features	15	20	75.00	3.8
SUM C	77.5	125	62.00	3.1

Aggregate Score	396.5	575	67.38854382	3.4
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West Street HCD

October 5, 2012 (1 Year after the Tornado)

A. Streetscape Quality				
	Score	Out of	%	Out of 5
A1-Pedestrian friendly	16.5	25	66.00	3.3
A2-Cleanliness	18	25	72.00	3.6
A3-Coherence	17	25	68.00	3.4
A4-Edgefeature Quality	21	25	84.00	4.2
A5-Floorscape Quality	14.5	25	58.00	2.9
A6-Legibility	16.5	25	66.00	3.3
A7-Sense of Threat	17	25	68.00	3.4
A8-Personal Safety: Traffic	18	25	72.00	3.6
A9-Planting: Public	11.5	15	76.67	3.8
A10-Vitality	15	25	60.00	3.0
A 11- Appropriate Resting Places	15.5	25	62.00	3.1
A12-Signage	15	20	75.00	3.8
A13-Street Furniture Quality	20	20	100.00	5.0
A14-Traffic Flow. Appropriateness	21	25	84.00	4.2
SUM A	236.5	330	71.67	3.6

B. Private Space in View				
	Score	Out of	%	Out of 5
B15-Advertising, in keeping	13	25	52.00	2.6
B16-Dereliction, Absence of	17	25	68.00	3.4
B17-Detailing, Maintenance	16	25	64.00	3.2
B18-Facade Quality	17.5	25	70.00	3.5
B19-Planting Private	10	10	100.00	5.0
SUM B	73.5	110	66.82	3.3

C. Heritage in View				
	Score	Out of	%	Out of 5
C20-Conserved Elements Evident	19	20	95.00	4.8
C21-Historic Reference Seen	7	25	28.00	1.4
C22-Nomenclature/Place Reference	11	25	44.00	2.2
C23-Quality of Conservation Work	16	20	80.00	4.0
C24-Quality of New Development	12.5	15	83.33	4.2
C25-Neglected Historic Features	15.5	20	77.50	3.9
SUM C	81	125	64.80	3.2

Aggregate Score	391	565	67.76161616	3.4
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West Street HCD

August 21, 2013 (2 Years After the Tornado)

A. Streetscape Quality				
	Score	Out of	%	Out of 5
A1-Pedestrian friendly	20	25	80.00	4.0
A2-Cleanliness	23	25	92.00	4.6
A3-Coherence	18	25	72.00	3.6
A4-Edgefeature Quality	23	25	92.00	4.6
A5-Floorscape Quality	15	25	60.00	3.0
A6-Legibility	20	25	80.00	4.0
A7-Sense of Threat	19.5	25	78.00	3.9
A8-Personal Safety: Traffic	13	25	52.00	2.6
A9-Planting: Public	21.5	25	86.00	4.3
A10-Vitality	21	25	84.00	4.2
A 11- Appropriate Resting Places	17.5	25	70.00	3.5
A12-Signage	17	20	85.00	4.3
A13-Street Furniture Quality	25	25	100.00	5.0
A14-Traffic Flow. Appropriateness	16	25	64.00	3.2
SUM A	269.5	345	78.12	3.9

Aggregate Score	467	580	82.32349583	4.1
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B. Private Space in View				
	Score	Out of	%	Out of 5
B15-Advertising, in keeping	18.5	25	74.00	3.7
B16-Dereliction, Absence of	25	25	100.00	5.0
B17-Detailing, Maintenance	25	25	100.00	5.0
B18-Facade Quality	21	25	84.00	4.2
B19-Planting Private	10	10	100.00	5.0
SUM B	99.5	110	90.45	4.5

C. Heritage in View				
	Score	Out of	%	Out of 5
C20-Conserved Elements Evident	19	20	95.00	4.8
C21-Historic Reference Seen	12	25	48.00	2.4
C22-Nomenclature/Place Reference	16	25	64.00	3.2
C23-Quality of Conservation Work	19	20	95.00	4.8
C24-Quality of New Development	12	15	80.00	4.0
C25-Neglected Historic Features	20	20	100.00	5.0
SUM C	98	125	78.40	3.9

The Square HCD

June 24, 2008

A. Streetscape Quality				
	Score	Out of	%	Out of 5
A1-Pedestrian friendly	37	40	92.50	4.6
A2-Cleanliness	36.5	40	91.25	4.6
A3-Coherence	34.5	40	86.25	4.3
A4-Edgefeature Quality	38.5	40	96.25	4.8
A5-Floorscape Quality	36.5	40	91.25	4.6
A6-Legibility	38	40	95.00	4.8
A7-Sense of Threat	38.5	40	96.25	4.8
A8-Personal Safety: Traffic	35.5	40	88.75	4.4
A9-Planting: Public	38	40	95.00	4.8
A10-Vitality	36	40	90.00	4.5
A 11- Appropriate Resting Places	39	40	97.50	4.9
A12-Signage	29.5	40	73.75	3.7
A13-Street Furniture Quality	36	40	90.00	4.5
A14-Traffic Flow. Appropriateness	35.5	40	88.75	4.4
SUM A	509	560	90.89	4.5

B. Private Space in View				
	Score	Out of	%	Out of 5
B15-Advertising, in keeping	26.5	40	66.25	3.3
B16-Dereliction, Absence of	38	40	95.00	4.8
B17-Detailing, Maintenance	36.5	40	91.25	4.6
B18-Facade Quality	33.5	40	83.75	4.2
B19-Planting Private	8	10	80.00	4.0
SUM B	142.5	170	83.82	4.2

C. Heritage in View				
	Score	Out of	%	Out of 5
C20-Conserved Elements Evident	33	40	82.50	4.1
C21-Historic Reference Seen	29.5	35	84.29	4.2
C22-Nomenclature/Place Reference	32	40	80.00	4.0
C23-Quality of Conservation Work	34.5	40	86.25	4.3
C24-Quality of New Development	18.5	25	74.00	3.7
C25-Neglected Historic Features	37.5	40	93.75	4.7
SUM C	185	220	84.09	4.2

Aggregate Score	836.5	950	86.26909855	4.4
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The Square HCD

October 5, 2012 (1 Year after the Tornado)

A. Streetscape Quality				
	Score	Out of	%	Out of 5
A1-Pedestrian friendly	24.5	45	54.44	2.7
A2-Cleanliness	20.5	45	45.56	2.3
A3-Coherence	26	45	57.78	2.9
A4-Edgefeature Quality	24.5	45	54.44	2.7
A5-Floorscape Quality	20.5	45	45.56	2.3
A6-Legibility	23.5	45	52.22	2.6
A7-Sense of Threat	20.5	45	45.56	2.3
A8-Personal Safety: Traffic	27	40	67.50	3.4
A9-Planting: Public	32	45	71.11	3.6
A10-Vitality	28	45	62.22	3.1
A 11- Appropriate Resting Places	28	45	62.22	3.1
A12-Signage	32	45	71.11	3.6
A13-Street Furniture Quality	38	40	95.00	4.8
A14-Traffic Flow. Appropriateness	21.5	35	61.43	3.1
SUM A	366.5	610	60.08	3.0

B. Private Space in View				
	Score	Out of	%	Out of 5
B15-Advertising, in keeping	21.5	45	47.78	2.4
B16-Dereliction, Absence of	23.5	45	52.22	2.6
B17-Detailing, Maintenance	29	45	64.44	3.2
B18-Facade Quality	32	45	71.11	3.6
B19-Planting Private	13	15	0.00	0.0
SUM B	119	195	61.03	3.1

C. Heritage in View				
	Score	Out of	%	Out of 5
C20-Conserved Elements Evident	28.5	40	71.25	3.6
C21-Historic Reference Seen	4.5	45	10.00	0.5
C22-Nomenclature/Place Reference	36	45	80.00	4.0
C23-Quality of Conservation Work	27	40	67.50	3.4
C24-Quality of New Development	8	15	53.33	2.7
C25-Neglected Historic Features	27	40	67.50	3.4
SUM C	131	225	58.22	2.9

Aggregate Score	616.5	1030	59.77661015	3.0
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The Square HCD

August 21, 2013 (2 Years After the Tornado)

A. Streetscape Quality				
	Score	Out of	%	Out of 5
A1-Pedestrian friendly	37	45	82.22	4.1
A2-Cleanliness	40	45	88.89	4.4
A3-Coherence	32.5	45	72.22	3.6
A4-Edgefeature Quality	37.5	45	83.33	4.2
A5-Floorscape Quality	34	45	75.56	3.8
A6-Legibility	35	45	77.78	3.9
A7-Sense of Threat	33	45	73.33	3.7
A8-Personal Safety: Traffic	35	45	77.78	3.9
A9-Planting: Public	45	45	100.00	5.0
A10-Vitality	35	45	77.78	3.9
A 11- Appropriate Resting Places	41	45	91.11	4.6
A12-Signage	35	40	87.50	4.4
A13-Street Furniture Quality	45	45	100.00	5.0
A14-Traffic Flow. Appropriateness	33.5	45	74.44	3.7
SUM A	518.5	625	82.96	4.1

Aggregate Score	825.5	1035	77.74190016	3.9
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B. Private Space in View				
	Score	Out of	%	Out of 5
B15-Advertising, in keeping	31	45	68.89	3.4
B16-Dereliction, Absence of	34	45	75.56	3.8
B17-Detailing, Maintenance	38	45	84.44	4.2
B18-Facade Quality	36	45	80.00	4.0
B19-Planting Private	0	0	0.00	0.0
SUM B	139	180	77.22	3.9

C. Heritage in View				
	Score	Out of	%	Out of 5
C20-Conserved Elements Evident	34	40	85.00	4.3
C21-Historic Reference Seen	13	45	28.89	1.4
C22-Nomenclature/Place Reference	36	45	80.00	4.0
C23-Quality of Conservation Work	35	40	87.50	4.4
C24-Quality of New Development	14	20	70.00	3.5
C25-Neglected Historic Features	36	40	90.00	4.5
SUM C	168	230	73.04	3.7

Appendix C: Advertisement in the Newspaper by the Municipal Heritage Committee



PORT OF GODERICH
MUNICIPAL AND MARINE
HERITAGE COMMITTEE
IDENTIFY PROTECT PROMOTE

LET'S MAKE THIS CLEAR

The Municipal and Marine Heritage Committee offers its support and understanding to all residents in this time of loss. We are dealing with applications as quickly as they are presented to us.

We would like to clarify the heritage status of properties and the regulations involving changes.

Categories of Heritage Structures

Properties in these categories have been published in the Municipal Register which the province requires the town to create and maintain.

DEMOLITION

REPAIR, ALTER, REBUILD

I Individually Designated Properties of which there are **40** in Goderich

Cat. I and II properties may not be demolished without a **Demolition Permit** from the Building Dept. and a **Heritage Permit (accompanied by an architect's report)**, recommended by the Heritage Committee and issued by Council. Application for both these permits is made through the Building Department at Town Hall. Council has 90 days to make a decision about demolition but *in practice decisions are much quicker.*

Cat. I properties, in order to alter, repair or rebuild, need a **Building Permit** and a **Heritage Permit**.

Application is to be made on the customary forms. Council normally has 90 days to make a decision about applications but *in practice decisions are much quicker.*

II Heritage Conservation Districts of which there are **two** districts made up of about **70** street addresses.

Cat. II properties must comply to the above plus applications must be accompanied by an **architect's report** due to the interconnectedness with neighbouring properties.

III Potentially Significant or Listed Properties of which there are approximately **200** addresses. These are properties with possible architectural, cultural or historic value but have not been formally designated.

Cat. III properties must apply for a **Demolition Permit** from the Building Dept. (accompanied by an architect's report) and the owner must give Council **60 days notice** of intent to demolish in order to give the Heritage Committee and Council time to evaluate the property and decide on its heritage value. *In the current situation it is very unlikely that the full allotted time would be used, if at all.*

Cat. III properties, in order to alter, repair or rebuild need a **Building Permit**.

If you have questions or concerns, please contact:

The Building Department, 519-524-8344 ext. 222 or Kevin Morrison, MMHC Chair, 519-524-8344

Committee Members: Jim Rutledge, Co-Chair; Ken Crawford; Bob Davis; Nancy Hughes; Bill Menzel; Krissy Nickle; Dennis Somerville; Roy Straughan.

Appendix D: Excerpt on Disasters from HCD Plan (Bray 2014)

2.7 Managing Risk

Goderich is especially sensitive to the possibility of catastrophic change since its downtown was devastated by a tornado in August, 2011. Whereas, in the past, the town lost groups of buildings to fire or demolition, the scale and severity of the tornado damage has made the municipality conscious of the need to have in place policies and procedures that will assist it preparing for potential disasters and in organizing and expediting the recovery process. Rebuilding after loss is important not only to restore morale and economic vitality: it is also essential in restoring the heritage character of the damaged area. Using the policies and guidelines of the District Plan, the rebuilding process can be assured of doing so.

The process for preparing for, and dealing with, both natural and human-made disasters has been addressed at an international level. The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) published a document that provides a framework for producing a local emergency response process. Even though directed at World Heritage Sites, the 1998 publication entitled "Risk Preparedness: A Management Manual for World Cultural Heritage" has principles and practices that are applicable to municipalities. General guidelines applicable to Goderich are found in Chapter 10 and include those for advance planning, for responses during an emergency, and for the recovery period afterwards.

Guidelines for advance planning include the following:

Documentation of Existing Heritage Resources

- Identification of cultural resources within the HCDs that would require special care in an emergency (e.g. architectural details, cultural landscape elements);
- Evaluation of cultural resources to determine heritage attributes (if not already undertaken);
- As-found documentation of cultural resources (buildings, landscapes, archaeological sites) sufficient to allow reconstruction or replacement;
- For built heritage resources, ongoing provision of information to technical professionals (e.g. architects, engineers, skilled trades) in traditional techniques of construction useful in reconstruction or replacement; and
- In the case of built heritage resources and cultural landscapes damaged in a disaster (e.g. in the tornado), documentation of the response (e.g. repair/reconstruction/replacement) and recording of lessons learned. In the case of Goderich, in addition to actions undertaken by the municipality, this would also entail an assessment of the actions of various outside agencies, such as the

Ministry of Labour, and of volunteer groups and individuals, as well as the effects of adverse weather on physical settings in the crucial period immediately following the tornado.

Risk Analysis

- Determination of the types of threats most likely to affect the cultural heritage resources within the HCDs (hazards), the degree of threat (vulnerability) and the resulting level of risk (hazard vulnerability);
- Identification of the portions of properties that would be most vulnerable to damage, and making recommendations for reducing potential damage;
- Assessment of municipal services, including public and private building substructures, that could be vulnerable, and making recommendations for their protection;
- Identification of the most common emergencies that could be expected on properties within the HCDs, and mapping of areas having the most risk; and
- Acquisition of insurance to cover risk (public and private property), to cover all hazards to address liability for emergency response activities and post-emergency reconstruction work.

Emergency Response Plans

- Compilation of a list of qualified emergency response specialists, available for various aspects of response, including salvage/conservation rescue (e.g. heritage architects and landscape architects, skilled tradespeople, project managers, materials suppliers) and keeping the list current.

Mitigation in Advance of Disasters

- Retrofitting of vulnerable built heritage resources (and, where possible, cultural landscapes) to add strength/cover to resist stresses (e.g. structural reinforcement, flood-proofing);
- Provision of storage space and conservation measures for moveable heritage resources in the event of an emergency (e.g. archival storage); and
- Provision of information on mitigation techniques and measures.

Financial Measures

- Provision, in the municipal budget and budgets of private property owners, of emergency funds for immediate response and for long-term repair and restoration of cultural heritage resources.

The report includes guidelines for responses that will be needed during an emergency. These include:

- Creation of an emergency response team of conservation professionals whose job it is to assess and document the impacts of the disaster and to recommend/provide:
 - Short-term measures for stabilization security and safety;
 - Priorities for long-term repair and restoration;
 - Assessments of instances of imminent loss and loss; and
 - Identification of needs for further survey.

The report ends with guidelines for responses that would be suitable in the period following the disaster. These include:

- Rebuilding and reconstruction activities:
 - Understanding and application of appropriate conservation principles standards (i.e. the Parks Canada “Standards and Guidelines for the Conservation of Historic Places in Canada” and the policies and guidelines of the District Plan);
 - Implementation of the heritage permit application process found in the District Plan;
 - Ongoing information programs for those undertaking repair and restoration activity, based on the guidelines of the District Plan;
 - Identifying and confirming suitable suppliers of materials and skills, using the list compiled in the emergency response plan;
 - Identifying components of damaged properties that continue to be safe to use, based on the report of the emergency response team, and including inspection of municipal serving infrastructure; and
 - Post-disaster monitoring of the effectiveness of the response measures, and recommendations for improvements to existing emergency response guidelines.