Planning in small town disaster recovery

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ABSTRACT

This paper aims to understand the experience of planning in a small town in the disaster recovery phase. This is accomplished through a case study of the 2011 Goderich tornado. The methods used to collect data include a literature review, a resident satisfaction survey, and an interview with the Planner who worked for the Town before and after the tornado around the five year anniversary of the event. Overall, residents were very satisfied with the community's reconstruction after the tornado. The research finds that despite not being prepared for emergencies, the planning function was central to the disaster recovery. It encourages the integration of the planning function into local comprehensive emergency management programs.

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ACRONYMS

BMX – Federal Ministry for Economic Cooperation & Development, Germany

CRRF – Canadian Rural Revitalization Foundation

MMAH – Ministry of Municipal Affairs and Housing, Ontario

OMB – Ontario Municipal Board

PPS – Provincial Policy Statement (Ontario)

UNWCDRR – United Nations World Conference on Disaster Risk Reduction

1.0 Context

1.1 Introduction

Year after year, communities across Canada are impacted by disasters. The economic consequences and costs of these events are severe and are born by Canadians through increased insurance rates and government spending on response and recovery including, sometimes, direct assistance to those impacted. In addition to economic costs there are the social and environmental impacts that are unaccounted for and overlooked because they are more difficult to quantify. In this context, disaster scholars point to opportunities found in land use planning before and after disasters to reduce development risk. This recognizes that societies have control over where they develop, and that risk can be avoided through controls placed on the use of land. Land use control is exercised by provincial and municipal governments. At the centre of planning for small towns, is sometimes a single planner who may or may not be directly employed by the community (they may be consultants or upper tier government employees). Little is known about the experience of front-line municipal planners trying to work in challenging post-disaster conditions. Untrained for emergencies when they strike, they find themselves important players in the disaster recovery.

This research projects aims to understand how a planner in one small community was impacted by a tornado and how their work impacted the post-disaster recovery process and, by extension, future disaster events. This experience is important because it may offer lessons learned and the possibility of recommendations for other planners who end up in similar situations. The project focuses on the intersection between concepts of rural, planning, and disaster recovery. Research objectives are achieved by examining the case of the tornado that damaged the Town of Goderich in 2011. In August of 2011, a tornado travelled through the heart of the community, causing significant damage to the community's main source of industry,

their downtown core, and many homes and businesses. Nearly 200 face-to-face surveys were completed with residents of Goderich. An interview was completed with the planner who worked for the Town at the time of the tornado (referred to as “the Planner” throughout this paper). This paper begins with a literature review of concepts of planning, disaster, and rural. It is followed by an overview of the case study chosen for this project. A discussion and analysis of the case study and all of the data collected is completed next. Finally, the conclusion summarizes the paper and offers some suggestions for future research.

1.2. Problem statement

Land use planning is noted in disaster recovery literature for being well positioned to positively influence the community’s future disaster resilience, but little is known about how planning functions respond in emergencies. Presumably there is a surge in activity. What kind of work is done and what strategies are employed? What could planners consider in advance so that they are more prepared if and when the time comes? Are planners prepared for their role in disasters or involved in a comprehensive local emergency management program? Small towns are particularly interesting cases. Virtually every year, a small community somewhere in Canada is hit with a disaster that damages a large portion of the built environment. Given the opportunities noted in the disaster recovery literature with regards to land use planning, an assumed increase in land use planning activity post-disaster, and a small rural planning department, what is planning like after a disaster? What are the impacts of a disaster on planning and how does planning impact and influence the post-disaster recovery context?

1.3 Goals and objectives

This paper aims to understand the experience of planning in a small town in the disaster recovery phase. This is achieved through a literature review examining the concepts of planning, disasters and rural, and through a case study of the disaster recovery from a tornado

that impacted the Town of Goderich. The Town's planner is interviewed to understand the how the planning function was impacted by and responded to the event. A satisfaction survey of the Town's residents provides a window into their feelings on the reconstruction of the community. The goal of this paper is to illuminate the realities of the planning function in a small town post-tornado to recognize the role of planning in a post-disaster context and to highlight lessons learned through the Town's experience. There are three primary objectives of this paper:

- First, the research aims to understand the impact of the disaster on planning.
- Second, the research examines the impact of planning in the post-disaster environment.
- Third, it aims to understand how rurality impacts planning and the disaster in the case study.

1.4 Methodology

This paper aims to understand the real world connections between planning and disasters in small town contexts. The data required to achieve this aim includes background information on the concepts of planning, disasters and rural, the experience of the planner involved in the disaster, and how the residents felt about the town's reconstruction. The methods were chosen in order to undertake practical, applied, or "real world" research. As noted by Robson and McCartan,

> "(r)eal world research looks to examine personal experience, social life and social systems, as well as related policies and initiatives. It endeavors to understand the lived-in reality of people in society and its consequences" (2016, p. 3)

This research focuses mainly on better understanding the experiences of small town planners in

post-disaster contexts to bring these activities out of the dark and into the light where they can be further researched and analyzed. The purpose is to improve planning practices post-disaster rather than expanding the academic disciplines surrounding concepts of planning, disasters, or rural. In the preparation of this paper, three methods of data collection were used: a literature review, an interview with the Town's planner, and a survey of Town residents.

1.4.1 Literature review

The project began with a limited literature review. It is intended to lay a basic framework for concepts of planning, disasters, and rural to support the development of data collection tools, to inform the primary audiences at which this paper is aimed, and provide context for the discussion of rural, planning, and disaster recovery. Each of these concepts is substantial on their own and there are entire academic disciplines built around planning, disaster studies, and rural studies. It is not possible in a project of this size to explore all of the literature in an exhaustive manner, so it remains focused on those areas that are most likely to present themselves in an analysis of the Goderich case study.

These sources are generally academic sources, however, some additional sources are consulted to provide community or event specific context. For example, some council meeting minutes are referenced for precise dates of initial community activities and news articles provide additional information. The goal is to set the scene and tell a story about what it is like to do planning in Goderich after the tornado and then compare it to what the literature says. A number of sources including news articles, presentations, and interviews with the Planner are used to piece together a picture of what happened during and after the tornado. The focus on situational context recognizes that planning issues and disasters are unique in time and space and place; no two are the same. This is a place-based planning and disaster analysis. Context matters for framing the activities of the Planner and for giving greater depth to community

feedback on reconstruction.

1.4.2 Planner interview

I interviewed the planner who was responsible for planning in the Town of Goderich before and after the tornado stuck. The interviewee is referred to as “the Planner”, to differentiate between discussions with the Planner, and discussions about a planner, or some other planners more generally.

There was an initial phone call with the Planner 4 years and 7 months after the tornado, where I kept notes during the call and filled in blanks and expanded immediately after the interview. The second, more formal in-person interview took place 5 years and 5 months after the tornado. Some of the details had shifted one way or another between the call and interview, which should be expected under the circumstances. All dates and timelines, and details of names, committees and so on are presented as rough guidelines only. They are narrative memories of what happened, about five years out from the tornado.

The intention is not to hold the Planner to the precise facts, but to establish a more general understanding of what it was like to be the primary planner for a small town after a destructive (disaster) event. The disadvantage of the long passage of time is the fuzzing of details. The advantage of the timing is the Planner is more at liberty to speak about issues that might have been thought too sensitive to share years earlier (Planner phone call, 2016). Another advantage of the timing is that shaping built environments takes a long time, and it is difficult to know initially what the impact is. Five years out the planner would be able to reflect on the experience having had some distance from it. The more permanent impacts of planning’s influence on the built environment are starting to be well-established. A limitation of this method is that five plus years is a long time passed to be asked to remember things. Again, the Planner is not expected to be “truly” accurate in describing what happened.

The interview was unstructured and a general interview guide was developed to help guide the conversation. The questions and concepts in the interview guide were based in part on work done by Lindsay (2017) for a forthcoming dissertation. A copy of the interview guide is available in Appendix A.

1.4.3 Resident survey

In July 2016, I collected survey data in Goderich over a period of three weeks as a member of a research team. Surveys were completed between 4pm and 8pm Monday to Thursday. Going house-to-house the survey was completed by 195 residents. The survey was done within six weeks of the five year anniversary of the tornado. The purpose of the survey was to collect data on community engagement in a post-disaster environment for a larger project. The survey was designed by Laycock (2017) for a forthcoming paper. A single two-part question from that survey is used in this paper. The two part question was the final question on the survey. In the first part of the question residents were asked to rate (on a scale) their level of satisfaction with reconstruction. The second part of the question asked residents to elaborate on their rating. A copy of this question is available in Appendix B.

The value of community feedback on satisfaction with reconstruction is that it examines satisfaction with the impact of planning work that occurred. Most residents would not understand questions about planning. Asking a question about reconstruction gets at the re-development that occurred that was facilitated by the planning function.

Community members who participated in the survey had the opportunity to talk and reflect on their experiences during and after the tornado, and to see how far they had come as a community. It was an opportunity to check in with the community to see how they felt about reconstruction. Built environments and communities in general are very long term projects and in the context of a building's lifetime, five years is a short period of time. Post-tornado planning

put a substantial mark on the community that will shape it for decades, maybe centuries to come.

A limitation of the broad question on reconstruction is that it doesn't get into the specifics of what people are talking about when they respond to the question. Residents talked about liking (for the most part) how things looked. Not enough detail was collected to know exactly what people are talking about when they like how things look. This might have been said referring to the facades, specific works, specific streetscapes, the trees, landscaping, West St., the Square or something else. There is no way to know, in many cases, what exactly people liked.

1.4.4 Coding

The researcher used Nvivo as a source management and code management tool throughout. Major themes were identified in the literature. Then major themes were identified in the resident surveys. After reading through the transcripts a number of times, the interview with the Planner was the last to be themed.

1.4.5 Other considerations

The method followed focuses largely on qualitative data, and all analysis of it is necessarily interpretive. The study includes descriptive statistics collected from the resident survey and Statistics Canada. These numbers are used to provide data points of reference to more clearly define the experience or context. Statistics Canada data is primarily from the 2011 Census and National Household Survey. Only very limited data is currently available for the 2016 Census.

In comparing the Planner and resident data, the intention is not to suggest that the Planner is responsible for everything or anything the residents complain about. The Planner

may not have had any influence on the decisions or situations related to resident concerns. The resident concerns are presented here to give the planners and those involved in disaster recovery ideas of what kinds of things could come up post emergency.

The scope of this project was limited necessarily by finite time and resources. In reality the planning function is managed by far more than one person. Even in a small town, it may be better thought of as a planning system. Planners write policies and reports and make recommendations while councils and committees make decisions. At the highest level, it is the province that sets the rules. A true analysis of the planning function would have required interviews with people from the province, Mayor and Council. It would have taken place maybe 1 year, 3 years, and 5 years out. It would have involved many other small communities impacted by disasters to verify common themes. It would be important to consider how a different type of hazard event would have different planning considerations.

1.5 About the writer

I appreciate academic traditions that value rooting oneself in the research being done. I think it is important to be upfront about background and potential biases. This is my disclaimer. I have two undergraduate degrees, one a Bachelor of Arts in Geography, and second that is a Bachelor of Arts in Applied Disaster and Emergency Studies with a minor in Rural and Community Studies. I am doing a Masters of Science in Rural Planning & Development. I am a Certified Emergency Manager with five years' experience in Emergency Social Services. I recently started working as a planner in Ontario. I have lived in small (and large) communities across Canada. I lived in communities of less than 3000 people in Saskatchewan, Alberta, BC, Ontario, Prince Edward Island, New Brunswick and Japan. I love lots of different communities, good people, and quiet places. I am specifically interested in the link between disasters, planning, and small communities and this inclines me to see links in these concepts.

2.0 Literature Review

The literature provides an overview of each of the concepts explored in this paper. It begins with an exploration of rural, followed by planning, followed by disaster recovery. Given that planners know little about disaster studies, and people who work and study disasters know very little about what planners do, the purpose of this section is to illuminate those concepts for those who are not familiar with the fundamentals of each discipline. Theories and models are presented to understand how academics conceptualize the key issues. Other important research is presented to further develop a depth of understanding for each of the topics.

2.1 Rural

2.1.1 Conceptualizing rural

There are a few theoretical approaches to defining and identifying rural. These different approaches provide a framework for analysis and help to establish economic and social characteristics of rural and urban communities.

Heartland and hinterland represent one way of understanding relationships between rural and urban. Canadian economist Innes described a hinterland where resources were exploited and sent to heartland areas to fuel economic growth (1930/2001). The heartland produces goods and sells them back to the hinterland (Innis, 1930/2001). Canada was, he argued, a hinterland to the European heartland. In Canada, urban areas are the heartland, where resources are marshalled and goods are produced. Rural areas are the hinterland where resources are developed.

Gesellschaft and Gemeinschaft were concepts developed in 1887 in an influential work by the German philosopher Tönnies. For Tönnies the concept of Gemeinschaft or “community”

was captured by classic German villages. The people in these communities had similar lives, strong social networks, and informal non-contractual relationships with other members of the community (Tönnies, 1887/2001). Gesellschaft can be conceptualized as society, where people are more separated, different from each other, and relationships are more formalized and contractual (Tönnies, 1887/2001).

Core and periphery is another way to understand concepts of rural and urban somewhat similar to the heartland hinterland concept. It is important to note that those living in 'peripheral' areas do not necessarily define their communities in those terms (Vodden et al, 2016). For the millions of Canadians that live in relatively rural communities, these small, sometimes isolated places are at the very centre of their worlds (Vodden et al, 2016). These are the places where residents live and die and create livelihoods, families, identity, and meaning. In this way, places that are rural and peripheral are, in another sense, central (Vodden et al, 2016, p. 9).

Planners Hodge and Gordon (2008) differentiate between five types of rural areas in Canada including those areas that are completely rural, those that are used for recreation, those near cities, those in the North, and Aboriginal areas. The completely rural areas are dotted small communities that are settled primarily to support resource extraction. The rural areas used for recreation often have some other resource extraction activities, but they are also valued for the beauty of their natural features, including lakes and forests. Those rural areas closest to cities are often subject to development pressure, increasing land-costs and conflicts over incompatible land uses. Rural communities in northern regions can be geographically isolated, causing additional issues with the provision of essential public services including infrastructure, education or health.

Rural and urban areas have a symbiotic relationship. An example of this relationship is where urban people travel to rural communities for recreation and leisure, and that provides

work and livelihood to people in rural communities. It is also evident where livelihoods are supported by agriculture (growing crops and livestock) is used to feed overwhelmingly urban populations. Urban centres provide markets for improved goods to rural consumers and vendors. In addition to agriculture, rural areas are home to resource extraction industries like mining, oil and gas extraction, fishing, forestry, pits and quarries. Head offices of large resource development corporations settle in central urban communities. Rural communities are connected to the natural environment they are situated in (CRRF, 2015, p. iii).

2.1.2 Rural in Canada

While most Canadians reside in one of the country's metropolitan areas or smaller cities, almost seven million people reside in rural communities (Hodge & Gordon, 2008). There are more than 9000 rural communities in Canada, compared to fewer than 200 urban centres (Hodge & Gordon, 2008). These rural communities have fewer than 10,000 people and they include small towns, villages, hamlets, rural municipalities, residential clusters, and First Nations reserves (Hodge & Gordon, 2008). According to Statistics Canada (February 7, 2011), almost 20 percent of Canadians live in communities of less than 1,000 people. An additional 12 percent live in small population centres with between 1,000 and 29,999 people (Statistics Canada, February 7, 2011). In other words, one in five Canadians live in communities of less than a thousand, and 1 in 3 live in communities of less than 30,000.

In Ontario, more than 1.4 million people live in communities with less than 10,000 people (CRRF, 2015). The rural Ontario landscape is made up, primarily, of two regions (Caldwell et al, 2006). Northern Ontario is home to a vast boreal forest dotted with lakes and isolated communities (Caldwell et al, 2006). Outside of the areas near metropolitan areas, the rural area in Southern Ontario is dominated by agricultural landscapes and the scattered small communities which support them (Caldwell et al, 2006). For farmers, small towns are an

important source of agricultural supplies, educational and health services, off-farm employment, recreation, and shopping (Caldwell et al, 2006). Agriculture in Ontario produces more agricultural produce, and has more kinds of agricultural produce than any other province in Canada. This is because Ontario is home to more than half of Canada's Class 1 soils, and it has some of the most favourable climatic conditions for agriculture in Canada (CRRF, 2015).

Rural communities in Canada face a number of challenges. Some of them are similar to those faced by urban communities including housing, transportation, and infrastructure development. Communities large and small are threatened by climate change with more extreme weather including droughts, floods, and severe storms (Caldwell, 2006). While there are similarities in approaches to problem solving for large and small towns Hodge and Gordon (2008) point out, "because of their small size, the planning problems of towns and villages manifest themselves in ways that are different from those of cities...they differ in scale, intensity, and pace of change" (p. 251).

There are numerous economic challenges in rural Canada. Small communities have small, declining populations and small, declining tax bases (CRRF, 2015). Development in small communities is often low density and can be scattered over a relatively large area (Hodge & Gordon, 2008). Compared with urban areas, this increases the per capita costs of developing and maintaining community services and infrastructure like water and sewer systems, roads and sidewalks, recreation, and waste management (Hodge & Gordon, 2008). Additionally, levels of provincial and federal support are declining at the same time that municipalities are expected to provide increasing levels of service (e.g. housing, policing, and transportation). This becomes increasingly difficult as the tax base declines (CRRF, 2015).

Areas dominated by agriculture are seeing an overall decline in the number of farms, and an increase in the size of the farms (Caldwell, 2006). This trend points to increasing

industrialization and commercialization of agriculture which threatens the competitiveness of smaller family farms (Caldwell, 2006). Overall, it decreases the number of people whose livelihoods are directly supported by agriculture, changes the social dynamics in nearby small communities, and leads to further population declines in rural areas (CRRF, 2015). Climate change further threatens agriculture by changing climatic conditions, changing the numbers and types of pests, and increasing the costs of transportation (CRRF, 2015).

One of the primary social issues in rural communities is that of aging populations (CRRF, 2015). This is typical in small communities as young people leave for urban areas to pursue educational and employment opportunities (Hodge & Gordon, 2008). Some small communities are also magnets for retirees because of their relatively low housing costs and abundant natural amenities (Hodge & Gordon, 2008). These trends can increase the strain on local health systems (where they exist at all) and threaten the long-term wellbeing of small communities (Hodge & Gordon, 2008). At the same time, this leads to labour force shortages as community members retire, and there is a lack of young people with the skills necessary to take on the roles (CRRF, 2015). Immigration is often pointed to as a potential solution to labour force issues, but in reality, rural communities have a difficult time attracting and retaining immigrants.

2.2 Planning

The type of planning researched here is community planning generally focused on land use planning, although it overlaps with economic and social development. As noted by Hodge & Gordon, "(c)ommunity planning, regardless of the size of the community, is an integral part of the way a community governs itself and takes responsibility for its future" (2008, p. 267). In Canada, the provinces delegate responsibility for community planning to municipal governments (Hodge & Gordon, 2008). Comprehensive community plans are developed by planners in

consultation with experts, the community, and advisory bodies. These plans go by many names including official plans or development plans. Planning departments might also prepare other functional plans, including natural feature plans, transportation plans, economic development plans, and social plans (Hodge & Gordon, 2008).

2.2.1 Planning Theories

Planning theories and decision making theories provide a foundation for planning approaches in Canada. These theories offer planners a variety of approaches to analyze and approach the process of plan development. Simplified descriptions of selected theories are offered here to provide a theoretical basis for understanding the work done by planners in Canadian communities. Each of the theories should be viewed as a lens that allows a planner to understand problems in different ways. Each theory offers different approaches to moving forward. It is important to note that all theories have weaknesses and not all theories are appropriate for all problems. The theories selected include rational planning approaches, wicked problems, incrementalism, and communicative approaches.

Rational planning approaches are commonly encouraged by public administration (Lindblom, 1959). According to Banfield (1959) rational planning is comprised of four basic steps. First, the situation is analyzed. Then, goals and objectives are defined. Next, there is an analysis of all the possible solutions for achieving the goal. Finally, the solution with the preferred set of consequences is chosen and implemented. Certainly, the steps as outlined offer a logical systematic approach for making decisions. However, rational planning is a normative rather than positive approach. In other words, it is a theory of how planning (theoretically) should be done – it is not a theory of how planning is done (Devlin, 2015, Sept 14).

Critics of rational planning approaches point to a number of weaknesses with

approaches like these. One of the challenges raised relates to the process of analyzing all possible solutions when trying to achieve a goal. In fact, planners are unable to imagine all possible solutions because of limits in their knowledge and access to information (Hodge & Gordon, 2008). There are temporal and financial limits to what planners can consider (Lindblom, 1959). There are an infinite number of possible solutions; it is impossible to understand them all completely, and systematically compare them to each other (Kingdon, 2003). Recognizing the limits of this approach in the real world, planning generally follows a "bounded rationality" model that recognizes these limits (Hodge & Gordon, 2008).

Other issues with rational approaches relate to goal setting. With simple problems, it may be possible to set clearly definable goals (i.e. desired end states). With more complex problems, however, planners are now more aware that they cannot define a single "public interest" in planning. With a plurality of competing interests and values, goal setting becomes more challenging (Hodge & Gordon, 2008). Stakeholders may hold views about the problem or solution that are entirely incompatible with other valid interests. This is particularly the case with so-called "wicked problems."

Wicked problems are problems that are "highly resistant to resolution" (Briggs, 2007, p. 1) and "characterized by chronic policy failure" (Briggs, 2007, p. 2). Wicked problems are difficult to define, socially complex, have many interdependencies, and various causes (Briggs, 2007). Wicked problems do not remain static but are continually being transformed (Leung, 2013). They are difficult to define because stakeholders have competing views on the nature of the problem. How stakeholders define the problem depends on what they see as the causes of the problem. The solution to the problem lies in how it is defined. Because solutions address only part of the problem they may result in unanticipated consequences, particularly where the problem was too narrowly defined (Briggs, 2007). Wicked problems are often the responsibility of more than one government department, and may be the responsibility of multiple levels of

government (Briggs, 2007). This does not suit traditional bureaucracies well as they tend to allocate departments' responsibilities in silos – that is, they tend not to work well together on broader issues beyond the scope of their department's mandate (Briggs, 2007).

One approach to dealing with wicked problems is called incrementalism. Incrementalism is a positive theory, that describes how planning is done (rather than how it should be done). While government administration might promote rational approaches to decision making and planning, because of wicked problems, such approaches are neither feasible nor desirable. Research found that practitioners of planning and community decision making were more likely to follow a strategy of small incremental changes when faced with complex problems (Lindblom, 1959). Because the definition of the problem is embedded in competing values, incrementalism argues that the goal and the solution are not distinct from each other, rather they are closely related (Lindblom, 1959).

Using existing policy as a starting point, small adjustments are made so that the planner can see the result before making other small adjustments (Lindblom, 1959). Given the financial, time, and expertise limits with rational approaches, this is more efficient then examining every possible approach every time (Lindblom, 1959). Because the new policy is based on existing policies, administrators can claim some insight and knowledge of how it might work out (Lindblom, 1959). This approach recognizes that "(p)olicy is not made once and for all; it is made and re-made endlessly" (Lindblom, 1959, p. 86). It recognizes that policy makers cannot possibly understand all of the consequences of a policy direction (Lindblom, 1959). It allows policy makers to develop policies, and avoid the consequence of serious lasting mistakes (Lindblom, 1959). The hopeful result of this approach is that stakeholders can agree on the policy without agreeing on the problem or the solution (Lindblom, 1959). The limitations of this approach are that it fails to consider values, important objectives, and alternative policy approaches (Lindblom, 1959). Using incrementalism as an approach, a policy is not good if it is

rational, it is good if it is preferred by stakeholders (Lindblom, 1959).

The 1970s saw the rise of communicative approaches to planning and community decision making (Healey, 1997). Communicative approaches grew out of the ideas of communicative rationality advanced by Jürgen Habermas (Fainstein, 2000; Innes & Booher, 2010). Participants in communicative approaches are encouraged to practice "ideal speech." They need to be honest and sincere, and the information they share needs to be understandable and accurate (Innes & Booher, 1999). More than other approaches, communicative approaches rely on good process to produce good results. Communicative approaches are now widely practiced in planning in Canada. This is demonstrated by the common requirements for public consultation built into the various provincial planning acts. In practice, the ideals of communicative approaches are applied to greater or lesser degrees in different communities, with various degrees of success. Arnstein's (1969) ladder of citizen participation is a reminder that public participation in government decision making can vary widely, with governments using "consultation" to manipulate the public on one end of the scale, and full citizen decision making on the other end.

Communicative approaches offer planners and communities a way to move forward on wicked problems. These approaches recognize some of the social complexity of wicked problems. Stakeholders engage in face-to-face dialogue, sharing and learning (Innes & Booher, 1999). These approaches allow mediation between the values and interests of a variety of stakeholders (BMX, 2012; Innes & Booher, 1999). Working together, stakeholders are able to unpack the problem, understand it from various perspectives, and search for innovative and responsive solutions. Skilled facilitators make sure that all voices are heard and information is shared among all participants. The goal of communicative approaches is to find a path forward that stakeholders can agree on. Innes and Booher argue that decisions made using these approaches are "rational, not only in the sense of being well-informed and in the spirit of

democracy, but also in the sense that they represent a collective form of knowing and deciding" (2010, p. 7). In other words, done well, these approaches offer the prospect of rational solutions to wicked problems. These problems are unlikely to have an optimal solution, so solutions on which stakeholders can agree are preferred.

Proponents of communicative approaches note a number of benefits. First, for community planners they offer a potential strategy "for dealing with conflict where other practices have failed" (Innes & Booher, 1999, p. 412). While proponents of rational planning approaches rely on planners as technocrats who are able to identify clearly the public interest, communicative approaches offer an alternative strategy for the many issues that involve a plurality of competing interests and values. They can incorporate various interests, and may offer the possibility of finding mutual gain solutions for previously competing stakeholders (Innes & Booher, 1999). Evidence suggests that these processes can also increase levels of social capital among participants, increase levels of understanding of other stakeholders' concerns, and lower levels of hostility between competing stakeholders (Innes & Booher, 1999). These improved relationships can strengthen the resiliency of communities and make them more adaptive to future changes (Innes & Booher, 2010). Some cases may produce other spin off benefits, for example, agreements or cooperation in other areas unconnected to the original reason for coming together. Proponents argue that the quality of the agreements produced using communicative approaches is higher and the products are more likely to survive implementation because they have the buy-in of stakeholders to move it forward (Innes & Booher, 2010).

Critics of communicative approaches point to a number of issues. Various authors note that it can be difficult to get the required stakeholders to participate in the process (Quick & Feldman, 2011, Innes & Booher, 2010, Koontz & Johnson, 2004, Heckathorn, 1989, Delli Carpini et al., 2004). The benefits of participation for participants are unclear (Delli Carpini et al,

2004) and there issues with how much time it takes, and the costs of participation (Innes & Booher, 2010; Fainstein, 2000; Aleshire, 1970; Koontz & Johnson, 2004). Depending on the process, delays in action made lead to stakeholder disillusionment and withdrawl (Fainstein, 2000). Without the participation of all key stakeholders, a communicative approach is not likely to be appropriate (Innes & Booher, 2010). Fainstein points out that a focus on process in communicative approaches might be at the expense of ensuring a quality end-product and notes there can be "serious problems of implementation" (2000, p. 458).

The strongest criticisms of communicative approaches relate to issues of power in various contexts. They point to the power of planners and others to set the agenda, options, and outcomes (Innes & Booher, 2010). Within the group of participants there are different levels of power among participants. As Innes & Booher state, ideally "everyone has the right to a point of view, no one is to dominate and all are engaged in interacting" (2010, p. 110), but even where that appears to be the case, power dynamics are at play in the background. An analysis by Crosby & Bryson (2005) finds three dimensions of power that can be peeled back like layers of an onion. The first dimension of power results from differences in levels of wealth, social status, knowledge, and other socially defined sources of power. The second dimension occurs at a more unconscious level where power relates to norms that bias action towards one way of doing things and away from others. The third dimension, perhaps the most difficult for planners to respond to, refers to the "deep structure" found in the foundations of social, political, and economic systems that can shape how people perceive their needs and the possibilities.

Despite the well-documented limitations of communicative approaches, they have proved themselves to be a very useful strategy for tackling wicked problems. How, then, should success be measured for approaches like these? Innes and Booher (1999) noted that the production of an agreement is not a good measure of the success of a communicative approach. The existence of an agreement means little if it is poorly informed, impossible to

implement, or will not achieve the goals it intends to (Innes & Booher, 1999). Further, it does not matter if the process reaches a false consensus, where people claim to agree but conflict reappears (Innes & Booher, 1999). They suggest asking whether or not the goal for setting up the communicative approach was accomplished. They also believe that successful communicative approaches should "produce good answers *through* good process" (Innes & Booher, 1999, p. 415).

2.2.2 Planning in Ontario

These planning activities and the role of the planner in facilitating community decision making are legislated by the Ontario *Planning Act*. The *Planning Act* last underwent a major update in 1990, with occasional updates and amendments since then. Section 2 of the *Planning Act* provides a list of matters of provincial interest that provincial and municipal bodies must consider including the protection of natural systems, protection of agricultural lands, conservation of resources and water, water and waste water provision, waste minimization, protection of health and safety, the provision of affordable housing, and the provision of employment opportunities (Ontario, 2016). One of the primary outcomes of the Act is that authority for planning is delegated from the province to the municipalities. However, the province retains ultimate authority for planning through the requirements to conform with provincial plans and policies, and through the Ontario Municipal Board (OMB). The OMB protects the provincial interests in planning issues, and they handle appeals for planning decisions made by municipalities.

As outlined in the Planning Act, the major planning instruments, or the mechanisms by which planning systems are created are official plans, zoning bylaws, minor variances, and consents. Development applications are accepted for making amendments to the official plan or zoning bylaw, to seek relief for a minor variance, or to create new lots. Official plans provide

policy direction to land development initiative in broader terms. Official plan amendments are subject to Council approval, and the approval of a higher level of government. In the case of a lower-tier municipality, the upper-tier municipality approves their plans. For an upper-tier municipality, the province approves their plans (including amendments). Zoning bylaws are the law on the ground. Zoning bylaws must conform with Official Plans. Zoning bylaw amendments are used to make adjustments to the zoning bylaw. These can be parcel specific bylaws in some cases. Zoning bylaw amendments are used where the change is desirable, but it is too different from the zoning bylaw to be considered for a minor variance. A minor variance permits "minor" deviations from the zoning bylaw. On a lot constrained by a hazard, for example, a landowner wishing to build a garage away from the hazard and closer to the side lot line might seek relief from the zoning bylaw through a minor variance. Consents are the mechanism for changing lot lines. For example a consent to sever is used to create two lots from one lot, so that each piece can be conveyed (sold) separately.

Section 4 of the *Planning Act* allows the delegation of provincial authority over planning matters to municipal councils, with the exception of Official Plan approvals, and Official Plan amendments. As per Section 5 of the Planning Act, planning in Ontario is subject to a number of provincial plans (MMAH, 2016). Four of these plans are focused primarily on the Greater Golden Horseshoe area around Toronto. These plans are the Oak Ridges Moraine Conservation Plan, the Niagara Escarpment Plan, the Growth Plan for the Greater Golden Horseshoe, and the Greenbelt Plan. They are additional layers of plans that planners and developers in those areas have to work with.

Section 3 of the *Planning Act* requires Ontario municipalities to comply with the provincial policy statement (PPS). Of particular interest here, because of the focus on disasters in this project, is the third section of the PPS that covers the protection of public health and safety. Section 3.1 refers specifically to natural hazards and Section 3.2 refers to human-made

hazards. It states that development should “generally” be directed away from hazardous lands, and that development is not permitted in floodways (but is allowed in the flood fringe subject to flood proofing) (MMAH, 2014). It also requires remediation of contaminated lands prior to re-development MMAH, 2014. The most recent version of the PPS (from 2014) outlines three broad priority policy issues: “building strong healthy communities”, “wise use and management of resources”, and “protection of public health and safety” (MMAH, 2014). The PPS requires that communities plan to ensure the availability of various land uses (e.g. residential) for at least the next 20 years (MMAH, 2014). The PPS is intended to be interpreted as a whole (MMAH, 2014).

Section 8.1 of Ontario’s *Planning Act* requires all upper tier municipalities (i.e. Huron County) and most lower tier municipalities (i.e. Goderich) to establish a planning advisory committee. Committee members are appointed by Council. In small towns, the Planning Advisory Committees might be made up of all Councillors. Other communities have committees made up of some Councillors and some community members. Other communities council’s may delegate all authority to appointees. Section 34 allows municipalities to pass zoning by-laws. It outlines a process for establishing zoning bylaws and adjusting the bylaws including requirements for public meetings and public participation.

Sections 16 to 27 of the Ontario *Planning Act* outlines the requirements for comprehensive municipal plans which they call “official plans”. According to the Planning Act, official plans must outline the municipality’s goals as it relates to the social, economic, natural and built environments. The plans must outline the process and procedures related to zoning and subdivision of land. The *Planning Act* requires that municipalities seek input from the public in the preparation of the plans. The PPS requires the consideration of employment, housing, open space, infrastructure issues, economic development, energy conservation, resource management, natural heritage, water and agriculture. Infrastructure and public service

issues required to be addressed include water and waste water, transportation, solid waste management, and energy.

The ability of the public to participate and contribute is a key element of the Act and various sections of the Act open the door to public participation. Opportunities for public participation are mandated in very specific terms. One of the very first sections of the Act, Section 1.0.1 makes all information collected by municipalities under the *Planning Act* available to the public. Section 16(1) requires municipalities to outline how the public can share their views for proposed official plan amendments and revisions, zoning bylaw amendments, plans of subdivision and consents in their official plan. Section 17(15) requires at least one public meeting for official plan amendments, plus an open house if the amendments are related to development permit system. Section 34(12)(ii) require public meetings for zoning bylaw amendments, and Section 34(14)(1) requires at least 20 days of notice be given for the public meeting. Section 34(19) outlines a 20 day appeal period once the notice of decision has been distributed. Similar requirements exist for minor variances and consents.

2.2.3 Planning practice

Land uses in Canadian communities generally included space for residential, commercial, industrial, institutional (e.g. schools, hospitals, prisons), transportation (e.g. roads, rail, ports), utilities (e.g. power plants, water and sewer infrastructure), resource extraction, and open spaces (e.g. parks, trails) (Hodge & Gordon, 2008). Not all communities will have all land uses and a rural community, might not have industrial, commercial, or institutional uses. That said, for most Canadian communities residential uses make up a little more than half of the land used (Hodge & Gordon, 2008). Residential uses generally include single family homes, duplexes, row houses, trailers, and apartments. Transportation (dominated by roads), would make up about one quarter of the land used (Hodge & Gordon, 2008). The other uses

combined make up the other quarter of land used in communities (Hodge & Gordon, 2008).

The built environment is the focus of community planning efforts. The built environment is both a product of social, natural and economic considerations, as well as an influence on the social, natural and economic conditions of communities (Hodge & Gordon, 2008). This is echoed by Leung (2013) who argues that it is the fulfilment of social, natural, and economic priorities that should be used as the rationale for decision making on the built environment. The outcomes of planning processes are visible in the distribution and density of buildings, streets and parks (Hodge & Gordon, 2008). The built environment is never complete, as it grows, degrades, and changes over time (Hodge & Gordon, 2008).

Leung (2013) differentiates between three types of plans: long-term, medium-term, and short-term. Long-term plans are generally planning for the 20-25 year range. Leung (2013) also differentiates between comprehensive and specific plans. Comprehensive plans (known as official plans in Ontario) cover an entire town or region, while specific plans may relate to a particular planning interest (e.g. transportation planning or recreation planning). Leung (2013) notes that regardless of the type of plan, the principles and process generally remain the same. Leung (2013) suggests a process that largely follows a rational planning approach where goals are established, information is gathered and analyzed, and plans are made and implemented.

Hodge and Gordon differentiate between three interrelated components of land use: space for facilities, the activities of people using the space, and land use functions (2008, p. 142). BMZ (2012) notes there are various different land use functions. Land may provide natural habitat for plants, animals, and other organisms (BMZ, 2012). It may be used for agriculture, industrial uses, or human settlements (BMZ, 2012). It can filter pollution, absorb hazard impact, or store greenhouse gases (BMZ, 2012). It may provide surface water or store groundwater (BMZ, 2012). It can provide a livelihood for people and be a base for life and

raising a family. It may be a place of spirituality or recreation (BMZ, 2012). It is something that can be taxed and may be an object of investment (BMZ, 2012). It may be a source of power or dependency (BMZ, 2012). It can be linked to nationality and may define how people see themselves in historical and cultural context (BMZ, 2012). There can be overlap between the functions of land, and the functions themselves may change overtime (BMZ, 2012).

Land has a number of characteristics that can be measured and assessed (Hodge & Gordon, 2008). First, the land may be classified as developed or undeveloped (Hodge & Gordon, 2008). Physical characteristics of land including slope, erosion patterns, types of soils, water drainage, climate, and vegetation cover may make the land suitable for some developments but inappropriate for others (Hodge & Gordon, 2008). Performance characteristics relate to the activities the land is used for (Hodge & Gordon, 2008). Activities on the land might take place primarily during the day or night, or both (Hodge & Gordon, 2008). The activities may produce traffic, noises, or smells (Hodge & Gordon, 2008). Land use characteristics can be analyzed at various levels of resolution including: individual lots, communities, or regions (Hodge & Gordon, 2008).

Linked to the idea of land use is land-ownership (BMZ, 2012). In Canada, land that is publically held belongs to the Crown (through the federal or provincial governments). Private land exists in Canada through the transfer of particular land use rights to the property owner. Some lands in Canada are held communally, with the transfer of particular land use rights being held in common by a particular group of people. With private and communal properties, the transfer of property rights is limited, and the Crown retains underlying title to all Canadian lands.

Planners have to take a long-term view of land use because of the relative permanence of built structures. Planners need to be able to understand the components of communities, as well as understanding how the components work together as a whole (Hodge & Gordon, 2008).

They need to recognize there are multiple objectives with community planning and it needs to be approached in a holistic and comprehensive manner (Hodge & Gordon, 2008). As approaches to community planning have changed, planners have had to transition from being technicians to being facilitators of complex discussions (Hodge & Gordon, 2008). Planners now recognize that planning communities is increasingly complex. Leung (2013) argues that "the goals of the plan reflect the ideological positions and social values of its makers" and that "(a) planners job is not so much to debate these but to recognize, appreciate, interpret, and define these in terms of land use" (p. 23).

2.3 Disaster Recovery

2.3.1 Conceptualizing disasters

Over the last few decades, understandings of disasters have changed. Until the 1970s, the study of disasters was generally limited to natural scientists and engineers who focused on natural hazards as trigger events for disasters (Mileti, 1999). In the 1970s, a landmark report published by geographers in the United States suggested that rather than just being on the receiving end of disaster events, communities could reduce their risk through managing land use and better mitigating against risks (Mileti, 1999). This report opened the door for academics from a variety of disciplines including economists, sociologists, planners, and lawyers to engage in disaster research, and a multi-disciplinary "hazards community" was born (Mileti, 1999). Communities were mitigating disasters and employing land-use planning before it was broadly recognized by academics. An example is the creation of Conservation Areas and land-use regulations in Ontario in response to 1954 Hurricane Hazel (Conservation Ontario, 2009).

One of the most important results of this broader research into disasters was the realization that "environmental perils such as floods and earthquakes do not exist independent of society because these perils are defined, reshaped, and redirected by human actions (Mileti,

1999, p. 18).

Figure 1- Disaster cycle

Expanding beyond understanding disasters as the impacts and the response to the impact, social activities around disasters can be conceptualized as a cycle with various phases (see Figure 1). Different authors have different approaches to the stages of the cycle but common approaches tend to include four stages: prevention and mitigation, preparedness, response and recovery (see, for example, Mileti, 1999; Ministers Responsible for Emergency Management 2011). The disaster cycle is a simplification used to clarify understandings of the types of activities likely to occur in conjunction with a disaster event. These stages do not occur in a step-by-step fashion isolated from each other. Rather, there is considerable overlap between stages and activities from various stages may occur concurrently.

Prevention and mitigation refers to those activities that avoid risk or strengthen the capacity of systems to absorb or redirect risk. Prevention is included because avoidance of risk in the first place is preferable when possible. Mitigation can be thought of as structural or nonstructural. Nonstructural mitigation includes the use of zoning bylaws, tax incentives, property buyouts, or environmental buffers to reduce risk by directing the most vulnerable developments away from hazardous areas and strengthening the capacity of the natural environment to absorb hazard impact. There is overlap with prevention and non-structural mitigation. An example of nonstructural mitigation (that is preventative) is the relocation of properties prone to flooding. Structural mitigation refers to built defences and a hardening of the built environment to better withstand the impact of hazards. An example of structural mitigation is the use of fire retardant roofing materials or the building of dikes in areas prone to flooding.

One of the challenges of mitigation is convincing residents and politicians of its value when they are not feeling the impact of the hazard. It can be politically difficult to focus resources to reduce the risk of something that might happen when communities are dealing with a wide variety of day-to-day issues including affordable housing or economic revitalization.

Preparedness includes activities that ensure organizations, communities, households, and individuals can do before a disaster to ensure they are ready to respond to a disaster when it occurs. At an individual or household level, people may put together an emergency kit for their home or for their car. Parents may talk with their children about what to do if the community is evacuated and they are not together. They may designate a family member outside of the community that everybody is to check in with once they are out of danger. At a community level, those in charge of responding to emergencies put together kits of their own with materials they will need to conduct a response. Communities develop emergency plans that outline roles and responsibilities for emergency functions. They run emergency exercises to test plans and so that the people likely to be involved have a chance to practice and familiarize themselves with the plans before an event happens.

When a disaster occurs, response activities begin immediately. Response activities are those which address immediate threats to life and safety, and the well-being of built and natural environments. Typical response activities include closure of roads, evacuations, search and rescue, firefighting, emergency medical response, volunteer management, property protection, and the provision of basic needs for people impacted. The response period is notable because it attracts intense media and public interest, and investment of public resources. It also tends to be the phase that generates the most attention in research. The challenge with government and academic attention on the response phase is that it is expensive and inefficient. It ignores root causes and perpetuates the disaster cycle when resources spent in prevention and mitigation could avoid the need for the response in the first place.

As the threat recedes and as the acute need for response services winds down, activities transition to the recovery phase. Local governments and utility providers restore transportation routes and repair utility infrastructure; evacuation centres close down. People, organizations, and local government begin reconstructing damaged areas. Governments and non-profits may assist people to find a place to live if their homes were destroyed. The media redirects their attention to new stories. Some changes and redevelopment (or non-development) of damaged areas may occur. Some of it returns to basically "normal". Depending on the nature of impact and the scale of damage, recovery can be as short as a few weeks or can last for many years. It is a complex problem for communities to solve. Berke et al. note that, "(r)ecovery policy making is intensely political (1993, p. 95). Quarentelli echoes the importance of politics when he says "recovery assistance is strongly affected by political considerations" (1999, p. 9).

"Build back better" is a common phrase for disaster researchers and informed practitioners (see, for example, Berke et al., 2014 and UNWCDRR, 2015). It recognizes that there is an opportunity to learn from disasters, and to reduce risk post disaster. A previously Canadian example of this is the development of the Ontario Conservation Areas which grew out of Hurricane Hazel in 1954. That event was a catalyst for the creation of Ontario Conservation Areas and the development regulations "to limit and control future development and inappropriate land use activities in flood hazard areas" (Conservation ON, 2009). Conservation Areas are still important players in Ontario planning today.

2.3.2 Disaster impacts

Disasters damage built environments in Canadian communities every year. Disasters have a negative impact on quality of life (Natural Hazards Centre, 2001). The impacts to the built environment are visually obvious, and usually well documented by the media (Quarentelli,

1999), including damage to private and public facilities, housing, commercial and industrial properties, utilities, and transportation links. This physical damage can cause various safety issues including downed power lines, non-potable water, and shortages of basic supplies. Environmental damage can change soil stability and water drainage patterns. Secondary impacts like hazardous materials caught in floods, or debris toxicity after a fire may cause pollution to the water, air, or soils (Natural Hazards Centre, 2001).

Less obvious, but just as important to acknowledge, are the disruptions that disasters cause to social, economic, political and natural systems (Natural Hazards Centre, 2001; Quarentelli, 1999). People impacted by disasters maybe unable to return home for extended periods of time. The social connections they normally rely on may be stretched or severed. Community services, like medical facilities and schools, may be closed for extended periods of time. Disruption to the economic fabric of communities after disaster includes the closure of businesses temporarily or permanently. In the short-term, this can lead to shortages of supplies. It can also result in rising levels of unemployment. Levels of trauma resulting from the disaster may require increased levels of services at the same time there may be a decline in the number of services to support residents. People who work in post-disaster situations may suffer from compassion fatigue and burnout (Burnett & Wahl, 2015).

Disaster impacts can be conceptualized as direct or indirect losses. PreventionWeb (2015) defines direct impacts as those losses that can be quantified. This can include the number of buildings lost or the number of people injured or killed. Indirect losses are more difficult to quantify and they are easier to overlook (Quarentelli, 1999). People who appear otherwise unharmed may struggle with the after effects of post-traumatic stress. A heritage building will have a financial value that may not capture the social or cultural value of the space.

Disaster impacts are not felt equally by all people who are impacted (Lindsay, 2003).

Particular people are more vulnerable than others. The most marginalized, and those who have the least to lose often lose the most. The difference in the number of people who die in disasters in developing countries versus the numbers who die in disasters in developed countries demonstrates this connection. Poor and marginalized people can find themselves stuck in relatively hazardous locations. Slums established in floodplains with no fire prevention techniques are at high risk of floods and fires. In Canada, vulnerable people live in more marginal forms of housing, in older places built without current materials, techniques, and building codes.

2.3.4 Disaster myths

As noted by Drabek "(p)ublic belief about human response in disaster reflects aspects of myth, rather than scientifically based knowledge." (1986, p. 25). When the public pictures what happens after a disaster, they might reasonably assume social breakdown, panic, looting, and helplessness while disaster research shows that the opposite occurs when disasters happen. People do not panic or behave helplessly. In fact, the research shows that impacted people are active in the response when a disaster happens (Drabek,1986). Impacted people help injured people (the first responders, before the "first responders"), fight fires or floods, and when they evacuate they take the best way out they know (Drabek,1986). Concerns about looting are often reported, and official agencies often take action to secure against looting (Tierney, Bevc & Kuligowski, 2006). There is minimal evidence of anti-social behaviour in disasters (no more than in normal times, and maybe less). Certainly, when Hurricane Katrina hit New Orleans, some of what was labelled looting by media and officials, could be attributed to a lack of official support and response to the tens of thousands left stranded in the city without any resources or means of escape (Tierney et al. 2006). Other disaster myths have been covered elsewhere, including the idea that disasters are equal opportunity events (they are not). Trusted sources of public information including the media and officials perpetuate the myths and as Tierney et al state

"messages contained in the mass media and even in official discourse continue to promote ideas that have long been shown to be false in actual empirical research on disasters" (2006, p. 60). This causes real problems when it influences official governmental and organizational responses to disaster (Tierney et al., 2006).

Another common misunderstanding is that different hazard events result in drastically different societal responses. How would you know what to do it you planned for a tornado, but you had a fire? In reality there are a lot of similarities and it is impractical and unnecessary to plan for every hazard separately. Modern emergency management focuses on all-hazards approaches (for example, see Ministers Responsible for Emergency Management, 2011) that recognize that regardless of the triggering event (e.g. fire, tornado, flood, earthquake), the social responses to the hazards are common. For example, all of these hazards produce evacuees, so a common planning framework can be used to deal with evacuees. All of these hazards will produce debris, so they all require a debris removal plan. All will damage infrastructure, so there needs to be planning to quickly bring utilities back on-line. Perry and Lindell (2003) outline ten guidelines that communities can apply to any disaster, including terrorist situations. For example, they highlight the importance of built-in flexibility, inter-organizational cooperation, training and exercises, and planning as a continuous (rather than static) process.

2.3.3 Disaster recovery research

Research in the disaster recovery period offers a number of lessons useful for those who work in post-disaster situations. One interesting finding of disaster recovery research is that people in communities impacted by disasters "tend to judge not only their losses but also what they obtain in recovery efforts in relativistic rather than absolute terms" (Quarantelli, 1999, p. 5). That is, they compare their situation to that of their neighbours and friends. The research also notes that people who are on the margins of the community prior to a disaster tend to remain on

the margins during the disaster recovery period and they are likely to receive less aid (Quarentelli, 1999). Miller and Nigg differentiate between event vulnerability and consequence vulnerability. Event vulnerability, they define as "exposure to potential harm from the effects of the disaster agent on the built environment" (1994, p. 2). Through event vulnerability, someone who lives in older or substandard housing will be more vulnerable to a disaster event. It is distinct from consequence vulnerability, which is the social and economic factors that make people more vulnerable to the consequences of a disaster (Miller & Nigg, 1994). Vulnerable people will struggle to recover from the impact because they lack the resources they need to recover. Somewhat related, is that there are different levels of social knowledge among people impacted by disaster about where to go to get aid (Quarentelli, 1999).

Most people receive offers of support from family and friends, however, relationships can become strained when there are long periods of sharing housing (Quarentelli, 1999). Those who receive little or no support from families and friends are likely to be dependent on institutional assistance (Quarentelli, 1999). Bates and Peacock (1989) note that recovery activities may be understood in terms of where the resources for recovery come from, and how recovery activities are organized. They further note that these recovery activities can be viewed in terms of whether or not they improve on the pre-disaster situation, build back the same, or result in an overall decline when compared to before the disaster. Pre-disaster social-economic status is a good predictor of success in recovery. The more socio-economically secure a family is before a disaster, the more likely they are to be able to recover to a pre-disaster level. That said, not all socio-economic losses are equal even when the financial value of the loss is the same. For example, older people have a more difficult time recovering because they have less time and less future earning potential (Quarentelli, 1999). Overall, the level of individual and household recovery is closely linked to pre-disaster social and economic conditions (Quarentelli, 1999).

A simple conceptualization sees risk as a product of a hazard and vulnerability (Wisner at Al., 2004, p.49). Vulnerability can be thought of as "the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard" (Wisner et al., 2004, p. 11). The concept of vulnerability recognizes that not all people are equally impacted by disaster events. Vulnerability can be caused by social conditions such as poverty, racism, gender, age, health and so on (Lindsay, 2003). Some people may be more at risk due to occupation. This speaks to the social construction of disasters where "in general the poor suffer more from hazards then do the rich" (Wisner, 2004). Recovery is not the same for everybody. Recovery looks very different for every individual and family, and some may never recover. The most marginalized people, families and communities tend to recover the most slowly. Recovery represents the beginning of a new disaster cycle, where the decisions made with regards to reestablishment will lay the groundwork for future risks. For those who had the least to lose, they can find themselves entering the next disaster more vulnerable than they were to the first one.

Even with support, people impacted by disasters find disaster recovery an emotionally challenging process. Cox and Perry (2011) describe an overwhelming disorientation faced by impacted people. The material losses are obvious for those who have lost homes, but even for those who do not face material losses, the impact can remain. Cox and Perry (2011) note there are unsettled feelings that comes from a loss of a community's visual identity, and the dispersion of neighbours. Places that once felt safe and familiar, no longer feel that way. Discussing the feelings of people impacted by wildfire, Cox and Perry state,

> "residents' individual and collective identities, in all their fluidity and complexity, were irrevocably altered in small and sometimes enormous ways...People had been temporarily or permanently uprooted, the environmental landscape was irrevocably altered, day to day routines were disrupted, houses and

possessions were lost. Home was no longer the home they remembered" (2011, p. 401).

It is possible to argue that disaster recovery is fundamentally an economic issue (Natural Hazards Center, 2001). Reconstruction requires substantial investments of economic resources, including insurance, and public and private investments (Natural Hazards Center, 2001). According to the Natural Hazards Center, "(t)he pace and success of recovery will be determined by how well the community attracts, effectively utilizes, and sustains the flow of investment capital from a multitude of sources through the rebuilding period" (2001, 5-2). Research suggests that the availability of financial support from outside of the impacted community is one of the most influential factors in disaster recovery (Natural Hazards Center, 2001). Webb, Tierney and Dalhamer (2002) studied factors impacting businesses disaster recovery. They found that businesses were impacted by post-disaster changes to the economic climate (other organizational closures for example). Businesses that were focused primarily on local markets struggled more than businesses with more geographic diversity (Webb et al, 2002). The length of disruption caused by the disaster was also a major factor that impacted businesses reopening (Webb et al., 2002).

There are a number of unique characteristics of disaster recovery work. Quarentelli notes that it is common for responding organizations' employees to end up "working at non-regular tasks" (1999, p. 8) as they extend their services to provide recovery assistance. He also points out that those organizations or departments that do not have emergencies at the centre of their role are rarely prepared for emergencies, even though they may have important disaster recovery roles. Further, those organizations' or departments' employees are untrained for working with people in crisis. He points out that this lack of preparedness can have negative impacts on community recovery. Olshansky, Hopkins and Johnson (2012) argue that time compression is a key feature of disaster recovery. They note a time compression in terms of

the turnover of community facilities and buildings as a large number of buildings are damaged or destroyed by a disaster in advance of their normal end of life. They point to "postdisaster funding flows that involve fewer transactions and fewer approvals" (2012, p. 174) compared to non-disaster times as another feature of the recovery period. They argue that the speed of activity in disaster recovery can be accommodated by increasing a community's planning capacity so that it is better able to respond.

2.4 Conceptual linkages

There are links between ideas of disasters and rural, rural and planning, planning and disaster. Concepts of planning, disasters, and rural are interconnected and they all are impacted by and are impacting on each other (Figure 1).

2.4.1 Rural Planning

Figure 2 – Conceptual framework

Rural planning is a discipline that exists to recognize the unique concerns and conditions in rural (as opposed to urban) communities. Current approaches to rural planning focus on place-based planning that is holistic and unique to the area as opposed to generic or sectoral (e.g. agricultural) approaches (Vodden, et al., 2016). The scope of rural planning is necessarily broad, and includes activities like land use planning, economic development, community development, regional planning, environmental planning, resource management, infrastructure planning, tourism planning, and recreation planning (Hodge & Gordon, 2008, p. 257).

Hodge and Gordon (2008) note four dimensions of the built environment that make rural communities unique: the scale (smallness, scale of change), the types of development (most small communities have a limited range of developments, and may be dominated by a single industry), the intensity of development (small communities tend to be more scattered), and the pace of development (pointing out that new developments may come to a community relatively infrequently, so that some years appear to have very high growth, and others very low growth, depending on if a development went in that year). Commercial development in small towns tends to be concentrated on "Main Street" which serves as the commercial and social centre of the community (Hodge & Gordon, 2008). With rural areas generally in decline across the country, it is not uncommon to see vacant buildings on the main commercial street. There is a lack of clearly defined zones of functionally like structures, and it is not uncommon to see a main street that is home to a variety of small businesses, churches, gas stations, and houses (Hodge & Gordon, 2008). This suggests there are lower degrees of conflict between land uses in small communities, likely connected to the lower density of development (Hodge & Gordon, 2008).

Smallness has other implications for planning. Provincial planning legislation presumes that incorporated communities can support a municipal level planning function (Hodge & Gordon, 2008), however small communities can support only a limited number of staff. Communities with fewer than 2000 people typically employ less than five employees in total (Hodge & Gordon, 2008). Even in larger communities, towns of less than 5000 are unlikely to employ their own planner. Rural communities are more likely to rely on the services of consultants to provide planning support on an as-needed basis (Hodge & Gordon, 2008) or engage shared services provided by a higher level of government.

Hodge and Gordon (2008) argue that urban areas are more likely to face broad issues (e.g. traffic, affordable housing, competition for land use), while in rural areas, planning issues

tend to be conceptualized as specific problems. Depending on the size of the community, and its historical development, rural communities may have problems with things like water supplies, waste water services, waste disposal services, a lack of sidewalks, low density development, unsafe railway crossings, vacant buildings in commercial areas, and maintenance of open spaces (Hodge & Gordon, 2008).

Hodge and Gordon argue that when it comes to planning for smaller communities "(e)xperience shows that the community-planning process is essentially the same as for larger communities...but differs in the tools that are needed to make it effective" (2008, p. 262). They suggest that planners develop "small-community approaches" (2008, p. 261) and tools that are simplified so they are appropriate for the context. As it relates to data collection and analysis, they note that it is easier to compile and comprehend small community data because there is less to deal with than in urban centres. The development of a simple community profile might include a historical overview and rely on data collected in a participatory manner by a broad range of community members, including children. Other efforts of analysis and implementation should focus on easy to understand tools with a focus on flexibility and adaptability. Performance zoning, which examines developments on a case-by-case basis for compatibility with neighbouring land uses, may be more appropriate than conventional zoning. They recommend that the resulting community plans focus on the problems defined by the community, use plain language, and be shorter and more concise than plans for urban areas.

2.4.2 Planning and Disasters

As noted by Beatley, "(n)atural disasters dramatically illustrate the ways in which contemporary development is not sustainable in the long run" (1998, p. 237). He is pointing out that much of what we call "disasters" might more rightly be called "unsustainable development" because it results from development in known hazardous locations or from risky development.

Lewis goes a step further when he notes “(d)isasters are an extreme extension of events which are normal; the degree to which, for a particular person, group or community, an event becomes a disaster, being set by prevailing political, social, cultural and economic conditions” (1999, p. 41). As Foster points out,

> “Every land use decision, and indeed every social or economic policy, carries with it implications for risk. In consequence, each decision increases or decreases the potential for future disaster. It is this intimate relationship which is so frequently overlooked and, as a result, so often leads to catastrophe.” (1980, p. 4)

As noted by Berke et al., “(i)ronically, the prevailing approach of aid and recovery programs has been oriented towards short-term relief, with little linkage to long-term development” (1993, p. 94).

Godschalk and Brower (1985) note that plans and zoning bylaws can be used as disaster mitigation tools. Because plans direct where particular uses are best located, they can direct development away from areas that are hazardous (Godschalk & Brower, 1985). They can designate hazardous areas (e.g. floodplains) for uses that are compatible with the hazard (e.g. parks), and avoid growth in undesirable areas (Godschalk & Brower, 1985). Zoning bylaws are also used to limit or prohibit development in hazardous areas. They set specific standards that new construction must comply with (e.g. requiring habitable areas be above a 1 in 100 year flood level) and separate incompatible land-uses (e.g. establishing minimum separation distances between propane storage facilities and residential uses). Construction standards related to materials and design are established through building codes (Godschalk & Brower, 1985). These standards ensure that buildings are resistant to fires and collapse.

Disasters that damage heritage buildings highlight the links between planning and

disasters. Heritage buildings are a tangible manifestation of cultural heritage, and as noted earlier, it may be difficult to capture the full impact of damage to a heritage building if only finances are considered. Cultural heritage is socially constructed, and heritage buildings hold meaning beyond the value of their bricks and mortar (Spennemann & Graham, 2007). However, those involved in emergencies and those involved in heritage preservation rarely see the overlap between their vocations (Spennemann & Graham, 2007). When a disaster happens, the importance of maintaining heritage can be overlooked in the rush to achieve other priorities (Spennemann & Graham, 2007). The inclusion of heritage considerations in disaster recovery can be important to the recovery of the community, as it reflects the continuation of the cultural heritage of a community, linking the past to the present and future (Spennemann & Graham, 2007).

A 2004 study by Kweit and Kweit analyzed the connection between community engagement and resident satisfaction in the recovery outcomes of two Midwestern American cities following devastating flooding in 1997. Both communities were cited as examples of disaster recovery done right. One of the communities had extensive community participation in the disaster recovery period, and the other community relied primarily on bureaucratic expertise to guide recovery. They acknowledge the difficultly of incorporating citizens in disaster recovery because there was so much to do and so little time. They note that "the norms of efficiency and expertise were important in recovery decision making...and citizen input was seen by some as incompatible with those norms" (Kweit & Kweit, 2004, p. 361). They found community participation was important to assist in community recovery, because it allowed citizens the opportunity to have an impact beyond their individual situations. They found that perceptions of citizen participation affects how residents evaluated the success of government recovery efforts and that an increase in participation led to an increased acceptance of policies developed.

As noted earlier in the literature review, developing recovery policy is an "intensely

political" process (Berke et al, 1993). Planning is a critical function in prevention and mitigation and recovery. Emergency managers do not understand what planners do. A scan of job ads for emergency managers quickly reveals an example of a position where "response and recovery services" are listed as responsibilities of an emergency management coordinator (Regional District of Nanaimo, 2017). There is a disconnect between the planning function and emergency management. Planning is positioned to have a far greater influence in prevention and mitigation and recovery but it is not a part of their job description. If recovery was the responsibility of planning, planners could prepare themselves. They could start having discussions as a profession about how they might best approach recovery activities. Pre- and post-disaster planning approaches, processes and policies, are front and centre the most contentious files in recovery policy making.

Disasters are an example of a wicked problem. Like wicked problems, disasters themselves may be the result of chronic policy failure. Recovering from the impacts of a disaster is a process with many complexities. It requires contributions from many government departments and can involve multiple levels of government. There is often not agreement about how reconstruction should be done, and sometimes there is disagreement about the nature of the problem itself. Where a neighbourhood sits in a flood plain, some will want to build back immediately, others will advocate for increasing the height of berms, and others will think the neighbourhood should be relocated out of the floodplain. It is difficult to get all of the stakeholders working together in the absence of opportunities for them to come together and have hard conversations. There are competing views and values at work in the community in a disaster recovery context.

As noted in the section on Planning Theories, planners employ communicative approaches to find ways to move forward on complex issues or wicked problems. In this context, communicative approaches are a good fit for working with communities through the

disaster recovery process. An excellent resource prepared by students at the University of Guelph offers a series of case studies of communities who have employed communicative approaches in the recovery phase of disasters. It is intended to provide generalized advice to communities or planners who may wonder about how to best approach community engagement in disaster recovery. It stresses the importance of appropriate timing, including the community, and finding opportunities for celebration. (University of Guelph, 2011).

Although there may be opportunities for improving land-use in communities post-disaster, in reality, it is very challenging to take advantage of the opportunities. Comerio (1998) notes that communities are in a rush to return to normal, and residents and businesses do not want to have protracted discussions with local governments before they begin to make decisions about their property. Comerio notes that "(w)hile newly vacant land area may appear to planners as an opportunity to improve urban design, planning procedures are viewed by citizens and businesses as impediments to the speed of repairs (1998, p. 234). Olshansky, Johnson, and Topping note that "(s)peed is important in rebuilding...Victims will seek to rebuild quickly, with or without official help" (2006, p. 357).

2.4.3 Rural and disasters

Disasters in rural contexts are inherently different in scale. The small number of staff and organizations that serve the community means that key people wear multiple hats. What is done by a department of people in the city is done by one or two people in a small community. The response and recovery efforts including decision making mechanisms are at a level very close to the impacted community. When a hazard manifests in a small community, it is more likely that a larger proportion of the community is impacted. In a small community there is a good chance that those closest to the response will be intimately affected by the event with themselves, their family, friends, or neighbours impacted.

2.4.4. Rural Planning and Disasters

There is an absence of literature on the experience of planners in disaster, let alone rural planners in particular. This project is intended to contribute towards an understanding of the connections between rural planning and disasters. Smallness is a feature of rural communities that demands different approaches compared with urban areas (Hodge & Gordon, 2008). For example, in a small community, a new housing development will be noticeable in its impact on the overall composition of the community's housing stock. In an urban area, because there are so many homes already, the same housing development has little impact on the overall composition of the community's housing stock. It works similarly with disasters. When a fire burns through a northern community's only grocery store, it impacts everyone in the community because it may be the only commercially available source of food. If a fire burns through a grocery store in an urban centre, residents have many options, and it is much easier for them to travel to another store nearby. A community's smallness has big implications when disasters happen, because the hazard impacts (e.g. landslides, tornados, floods) tend to be localized (Lewis, 1999).

3.0 Case Study – Goderich Tornado

3.1 Background

Goderich is a picturesque community of about 7,300 people (Statistics Canada, 2013) located on the shores of Lake Huron. Rural is a relative term, and by Ontario standards (comparing it to Toronto, for example) Goderich is rural. Relative to Canada's expansive size, it is not particularly isolated located about three hours outside of Toronto. Using Hodge and Gordon's typology of rural, Goderich is best described as being relatively close to the city, and used for recreation and resources development. Goderich does not have the typical Main Street commercial area common in many rural Canadian communities. Instead, the commercial area is constructed around "the square", which faces onto a large greenspace and heritage courthouse building. The Town of Goderich is a lower-tier incorporated municipality in the County of Huron.

Goderich exhibits some of the characteristics of a hinterland community. It is too far from the Greater Toronto Area to commute there and back on a daily basis for employment purposes. Salt mining (i.e. resource extraction), is a major industry in the community. Located on the shores of Lake Huron, tourism also plays an important role in the economy. The Town is surrounded by high quality agricultural lands. While retail and health and social services are the most common sources of employment in the community, other key sources of employment are mining, manufacturing, tourism, construction, education, and local government (Statistics Canada, 2013).

The literature review noted rural communities are aging as young people migrate to cities for education and work opportunities. Goderich demonstrates this trend with a median age of 48.5 compared with the Ontario median age of 40.6 (Statistics Canada, 2012). Its growth

is stagnating and it shows lower than average population growth rates. In 2006 to 2011, Goderich lost 0.6% of its population compared to a positive overall provincial growth rate of 5.9%. In 2011 to 2016, the population of Goderich grew 1.4% compared to the provincial growth rate of 4.6% (Statistics Canada, 2017).

As noted in the literature review many rural communities face economic challenges and are declining. Prior to the tornado there was evidence of decline appearing in Goderich's downtown. Facades were fading and degrading and some buildings were vacant. The municipality had initiated a Community Improvement Program prior to the tornado, with a few years of grants distributed before the tornado hit, and the impact was just starting to be visible (Planner Interview, December, 2016). The Planner describes the pre-tornado situation as one where "the community had kind of got to that status quo point where people were just comfortable, you know, so no one really was necessarily proposing anything that radical" (Planner Interview, December, 2016).

Goderich has the standard planning documents as outlined in the Ontario Planning Act. The last major update to the Official Plan was in 2009, with occasional amendments since then (Town of Goderich, 2013). The purpose of the Plan is to guide planning towards the vision established in the Plan, to reduce land-use conflicts, and to ensure the community is involved in the planning process (Town of Goderich, 2013). The Plan includes some discussion of natural hazards. For example, in the section on the Environment, the second goal refers to protection against natural hazards (Town of Goderich, 2013). A Natural Area designation is used to recognize natural hazards (as well as other natural heritage areas). Development in these Natural Areas is avoided. The Town also has a zoning bylaw that was approved in 1985 (Town of Goderich, 2012). Since that time, much like the Official Plan, it has been subject to various amendments (Town of Goderich, 2012). As previously mentioned, while the Official Plan establishes general planning direction, the zoning bylaw outlines what is currently and

specifically permitted on particular lots. The Provincial plans that are noted in the *Planning Act* do not apply to Goderich, as it is too far from the Greater Golden Horseshoe to be included, and it does not have any of the major environmental features (Oak Ridges Morraine or Niagara Escarpment) that are protected by Provincial plans.

3.2 Tornado

On August 21, 2011 an F3 tornado originating from a storm on the lake travelled straight through Goderich (see Figure 3). It damaged the community's port and mine (primary sources of industry),residential neighbourhoods, and the community's downtown core before travelling onto neighbouring communities. The Goderich tornado demonstrates how disaster impacts can be high in small communities because the impact of the disaster is localized. When it is localized in a small area, and a small town is in that area, the resulting impact affects a large part of the community. The tornado in Goderich was not a demonstration of unsustainable development, the way that some disasters are.

In Goderich, one person died and thirty seven people were injured (CTV News, 2012). More than 400 police were deployed (McCabe, 2013). The entire town was left without power and natural gas service (McCabe, 2013). After the tornado, more than 300 buildings were damaged and more than 50 buildings, including 14 heritage buildings, had severe enough damage to need to be demolished (McCabe, 2013). The town's square lost 90 large, mature trees, Harbour Park lost 39 (Gillespie, 2012) and more than 500 trees were down in surrounding areas (McCabe, 2013). At the Salt mine the tornado destroyed office and storage buildings, as well as equipment used for loading ships (McCabe, 2013). In the harbour, grain storage facilities were damaged (McCabe, 2013). The community's two heritage districts were particularly hard hit (Van Amersfoot, 2013). One was the heritage district established on the square abutting the courthouse, and a second one was on West St. (Van Amersfoot, 2013).

Five years later, the Town of Goderich has largely recovered.

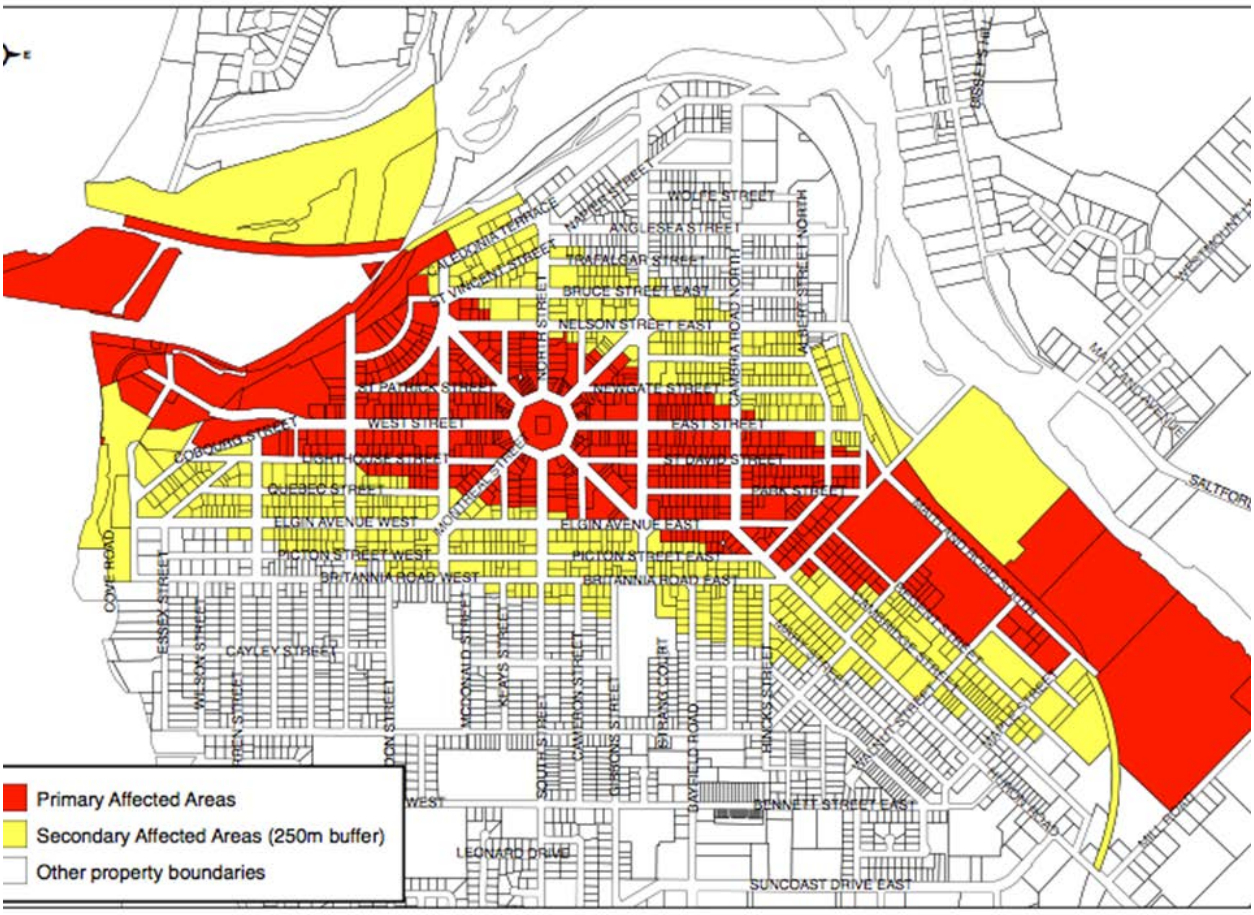

Figure 3 - Goderich tornado path (Huron County Planning Department)

4.0 Discussion & Analysis

This section begins with an overview of the satisfaction ratings collected from Goderich residents through the door-to-door community wide survey. The objectives of the paper are revisited and analyzed. First there is a discussion of the impact of rurality on planning and disaster recovery in the context of Goderich. Then, the discussion explores issues related to the impact of the disaster on the planning function. Finally, the discussion examines the impact of planning on the disaster recovery phase. It is evaluated in the context of the larger disaster cycle. The sections within this chapter are based on themes identified in the literature review, Planner interview, and resident survey.

4.1 Community Feedback

4.1.1 Community satisfaction ratings

Goderich represents a good example for planners to be aware of, demonstrated by the enviable satisfaction rating as expressed by residents in the survey (see Figure 3). Of 188 people who answered the question, 144 stated they were very satisfied with the reconstruction efforts, and only 3 people stated they were not satisfied. Five years after the tornado, nearly 95% of residents were either very satisfied or somewhat satisfied with reconstruction efforts. It is beyond the scope of this project, however, given community engagement efforts demonstrated in Goderich, it would have been interesting to explore the connection between community engagement and resident satisfaction, similar to the study by Kweit and Kweit (2004) mentioned in the literature review.

Very satisfied	72.8%
Somewhat satisfied	22.1%
Not satisfied	1.5%
No answer	3.6%

Table 1 – Community satisfaction with reconstruction

4.1.2 Community concerns

There were a few commonly mentioned concerns from the resident survey. A number of people stated that they did not like the new bandstand at the courthouse. Additionally, a number of people commented that they were concerned about how money was spent. While many residents stated they were happy with the square and trees, not all residents were happy about it. The survey did not ask any questions about any of these issues specifically, so it is not possible to determine if some residents were also satisfied with these issues. Comments from less than satisfied residents were generally similar to the following:

> "Only thing I don't like is the friggin upside boat in square"
>
> "Not happy with the money spent and the outdoor theatre on the square...looks nice but it was a lot of money fixing it up"
>
> "Funds went differently in this town...depends on who you were how it got distributed and how much "

4.2 Rurality

With a population of 7,300, a community like Goderich is relatively large for a small community and still, the Town of Goderich does not employ its own planner. The Town's Planner was hired by and worked for Huron County, providing services to the Town much like a consultant would. Before the tornado, the Planner worked on Town files about half the time, and worked on files for other communities in the County at the same time. The Town was fortunate that when the tornado happened, they were able to have the Planner focused on Goderich in a full-time capacity, while other planners in the County took on the Planner's work related to other communities. This allowed them to quickly scale up their planning support to meet the demands created by the tornado.

Being in a small town for a disaster was a unique working environment. The Planner noted that it was emotional because in a small place everyone is connected and everyone knew people who were directly impacted (Planner Interview, 2016). These strong social networks in Goderich demonstrate an aspect of Tönnies (1887) concept of Gemeinschaft. It demonstrates how a disaster impact in a small place is different compared to a more urban centre where people are more separated from their neighbours. As noted by Vodden et al, (2016), rural communities are central to the lives of those who live there, as would have been the case for the 7,300 people in Goderich.

4.3 How disaster impacted planning

4.3.1 Response phase

The Planner was on vacation when the tornado happened and was just returning when they learned of it (Planner Interview, 2016). Within a few days of the tornado (the response phase) the Planner offered to assist the Town in whatever way was needed (Planner Interview, 2016). The Planner was assigned to work on communications and working with non-profit organizations supporting the disaster (Planner Interview, 2016). In other words, the work they did immediately after the tornado changed substantially from their regular planning duties. This reflects what Quarentelli (1999) said about staff of some organizations working in non-standard roles when there is a disaster. For the first few days they worked from a community building as they could not return to town hall (Planner Interview, 2016). Despite being located on West Street, which did take substantial damage from the tornado, the town hall had minimal damage and they were able to move back in after a short period of time (Planner Interview, 2016).

4.3.2 Nature of work

Once the response phase stabilized, within a few days of the tornado, the Planner was

increasingly focused on long-term activities (Planner Interview, 2016). At the same time, it was not totally clear how best to proceed (Planner Interview, 2016). The amount of work was much greater than normal, and activities occurred with a high sense of urgency for months (Planner Interview, 2016). The Planner and the Chief Building Official would be among the last people to be working on tornado related activities. In this context, planners might benefit from spending sometime in preparedness. It would allow some time to consider how to streamline processes. Preparedness would also encourage the regular updating of Official Plans and other planning tools. In the case of Goderich, the Planner noted it would have been helpful to have had all the plans updated. At the time of the tornado, the Heritage Conservation District Plan was out of date, and it needed to be updated to comply with current legislation (Planner Interview, 2016).

The Planner had little apparent involvement in emergency management activities prior to the tornado and they were not initially included in emergency management's response. When the Planner returned from vacation, they offered to help and were assigned to communications. Communications is not a part of a planners job during non-disaster times. This demonstrates how staff end up working in "non-regular tasks" in a disaster, as was suggested by Quarentelli (1999, p. 8). The Planner had an informal role in the response phase. They stayed on in an informal way even as they transitioned out of their response role and back into planning as the emergency management committee had recognized there were planning implications to the rebuild (Planner Interview, 2016). Early on they also spent some time with the Building Department and GIS making lot by lot damage assessment maps (Planner Interview, 2016). Most of their time was spent with the building department at the municipality and working on long-term planning projects (Planner Interview, 2016).

Before the tornado, the Planner was responsible for the day-to-day development planning needs of Goderich and another community (Planner Interview, 2016). After the tornado, other County planners took on the files of the un-impacted community, and the Planner

began working for the Town of Goderich full-time (Planner Interview, 2016). In some cases, County planners assisted the Planner with Town files, including reviewing site plans (Planner Interview, 2016). The Planner worked on tornado related files as well as day-to-day files in the recovery phase (Planner Interview, 2016). For the first few months, the non-tornado related work slowed down as applicants seemed to realize the focus would be on tornado rebuilding efforts (Planner Interview, 2016). After a few months, non-tornado related work picked up again. This created a strain on the Planner's time and resources for a sustained period of time after the tornado (Planner Interview, 2016). By the following March, the Planner was no longer seconded to the Town. However, the Planner was still working full time on Goderich files (compared to half time before the tornado), and often worked in the Town office (Planner Interview, 2016).

The Planner supported the Rebuild Advisory Committee and was assigned to be a member of the red tape reduction committee (Planner Interview, 2016). This happened early in the recovery phase. The establishment of a red tape reduction committee with a Planner assigned to it suggests that Council found planning to be overly bureaucratic in the recovery phase. As a member of the red tape reduction committee, the Planner attended meetings with the BIA flanked by municipal lawyers to discuss planning issues (Planner Interview, 2016). The Rebuild Advisory Committee was made up of some councillors, members of the BIA, members of the Heritage committee and some community members (Planner Interview, 2016). The Planner noted that they became something like a steering committee for the development of the Downtown Master Plan (Planner Interview, 2016). The Planner also worked with the Heritage Committee in the recovery phase. The Planner would bring the Heritage Committee files occasionally before the tornado, but after the tornado there were many more files for them to review (Planner Interview, 2016). They were all volunteers, and it was a challenging situation for them (Planner Interview, 2016).

4.3.3 Timing

The Planner noted that it was important to consider timelines when planning to start post-tornado community engagement processes. It was difficult to tell when the community was ready (Planner Interview, 2016). There had been a death in the community, and many people knew the person who died (Planner Interview, 2016). The Planner noted this would be an important consideration for other planners in disaster situations, particularly in events where lives were lost.

There were other timeline issues as well. The Planner noted that residents were encouraged to build back, but commercial properties were necessarily slower (Planner Interview, 2016). The Planner indicated that site plan control, heritage requirements, and insurance all had an influence on the pace. Because there are zero lot lines (permitted and encouraged) in commercial areas, interior walls are shared, and it was difficult for commercial property owners to build back until they knew what their neighbour's plan was.In response to a question about navigating community pressure, the Planner said

> "How do you work against... there were those feelings of pressure and wanting to get this done, how can you, not create distractions, but buy yourself some time to allow things to be done in the right way. Plus, there is the Planning Act, and we couldn't get around it. Twenty days for appeal periods, things like that, we couldn't change that for the community."

4.3.4 Community feelings of loss

The work took on a different tone then it had pre-tornado. As it was suggested it would be by Cox and Perry (2011), the post-tornado environment the Planner was working in was emotionally charged. Community members had a lot to deal with and residents struggled to

deal with the loss and change. The Planner commented:

> "Community support forum people were in tears, and even at the next couple weeks at that public meeting we had people sitting there in tears talking about what it used to be like. I had a fellow that said I am 75, and I will never see the trees on my street ever again."

As noted by Quarentelli (1999), although the Planner ended up working with distressed community members in disaster recovery, they had no training prior to the tornado that would have helped prepare them for this role.

4.3.5 Community engagement with planning

An important finding from the literature and from the interview was the importance of community engagement for solving tough community issues in the disaster recovery period. The Planner valued the community engagement they were able to do and they commented that it had improved relationships between planning and the community. With the walk about in a damaged residential neighbourhood, the Planner commented:

> "It was maybe their first touch of this is what planning is, and this is why it's important, this is what it can do for our community, because before planning was an obscure thing... it was a very great chance for me to, to connect with people ...it created a lot of connections for me on that street, which has helped a lot afterwards."

To the Planner if felt like there was increased community support for and awareness of planning activities in the recovery phase. The Planner expressed that they felt they built on people's understanding of planning when they expanded the Heritage district. There was a sense that community members were learning more about planning through the disaster

recovery process. Overall, it was a positive experience for planning as it related to the community.

> "We had a lot of community advocates, so it wasn't just staff, it was people in the community that were saying no, this is important....So, I think it was more about the community coming together as a whole."

4.3.6 Community building

The Planner and community residents commented there was a sense of togetherness and helping each other out. The Planner spoke of positive working relationships with Council and a building reconstruction where individual owners came together and developed a condominium when their individual building footprints were too small to meet modern building requirements. The Planner spoke of people stepping up to get work done. The Planner commented,

> "You've had this experience with someone, this opportunity to create trust and work together on something that was so formative for the community that, I just think it's, yeah. It's really solidified the resiliency that the town had as a whole." (Planner Interview, 2016)

There is evidence from some residents that others also felt a sense of comradery in the recovery phase. One resident said,

> "The whole community has come together and worked to rebuild in record time. A real sense of community resulted from the tornado."

4.3.7 Gentrification

The Planner and a number of residents noted some gentrification had occurred in the

community as a result of the tornado. The Planner spoke of a loss of affordable housing options, as well as improvements in the overall functionality of buildings including accessibility. Residents who talked about it had comments like

> "Go downtown and see what they did. Much nicer on the rough streets then it used to be. They did a good job."

> "Property taxes on new buildings made it so people had to leave after the tornado within a year of rebuilding."

This demonstrates the tension that gentrification brings to a community. It is both desirable in some ways as communities tend to get face lifts, but it often comes at the expense of vulnerable and marginalized residents of the community. There are also jobs at a variety of income levels in a small community like Goderich. Before the tornado downtown, the downtown was in a somewhat declining state, and the old buildings provided a source of affordable housing to low-income residents. Not everyone can afford a new bungalow or brand new downtown apartment. It also demonstrates how marginalized people can be disproportionately impacted by disaster events (as suggested by Lindsay, 2003 and Wisner, 2004). By being priced out of the new post-tornado market, some people lost not only their home, but their neighbourhood and community.

4.3.8 Economic considerations

As noted in the literature, the importance of economic considerations in disaster recovery cannot be overstated (Natural Hazards Centre, 2001). Businesses that experience long periods of disruption are at increased risk of never reopening (Webb et al, 2002). The tornado was hard on local businesses, and some lost out on significant revenue (Planner Interview, 2016). Even though council passed a temporary use bylaw to allow relocation to

anywhere in town, many businesses could not relocate (Planner Interview, 2016). Banks and restaurants for example, could not easily set up in a house or other basic vacant spot. Restaurants are subject to Public Health regulations that control the type of kitchen that must be used in the preparation of food for the public. Some of the businesses relocated their operations to a town down the road (Planner Interview, 2016). Some of the businesses never rebuilt (Planner Interview, 2016). The Planner also commented that the age of business owners had an impact, as older people nearing retirement were less inclined to rebuild (Planner Interview, 2016). Perhaps this is linked to the aging of residents in rural communities, as the business owners would have been proportionately older than the provincial average. There was a concern at the time that the downtown might end up more depressed and empty then it was before the tornado (Planner Interview, 2016). As noted by Hodge and Gordon (2008), commercial centres in small towns across Canada are generally declining, and vacant store fronts are common. In the case of Goderich, the square came back healthier after the tornado then it was before. The Planner said

> "Some businesses closed then never reopened. But then other ones opened. So the downtown today looks pretty great."

4.3.9 Funding opportunities

As noted in the literature review, funding becomes more readily available after a disaster compared with non-disaster times (Olshansky et al., 2012) and access to external funding is a key factor in a successful recovery (Natural Hazards Centre, 2001). There were opportunities to take advantage of funding opportunities in the case of Goderich. In one case, funding allowed for second floors to be constructed where before there had been only one (Planner Interview, 2016). This increased the density of the downtown and increased the visual appeal of the street. In another case, the Planner was able to secure funding to re-write the Town's Heritage

Conservation District Plan which resulted in the expansion of the Heritage Conservation District. Money becomes available in emergencies, and planners are advised to keep an eye out for potential opportunities in the post-disaster context. It is easier to stand out in a pile of grant applications when your application relates to a disaster that everyone has heard of.

4.4 How planning impacted disaster

4.4.1 Involvement in reconstruction

The first post-tornado Town of Goderich Council Meeting was held on August 23, 2011, two days after the tornado (Town of Goderich, 2011a). The first meeting asks the province to declare a state of emergency and requests funding from the provincial and federal governments. Council holds another meeting two days later appointing an Ontario Disaster Relief Assistance Program (ODRAP) Committee and a Rebuild Planning Advisory Steering Committee (RPASC). It is not clear whether this committee was unique to Goderich or is a committee recommended by Emergency Management Ontario. Regardless of the initiating body, the establishment of this committee early in the recovery period demonstrates the importance of planning in the Town's disaster recovery. The Planner did not attend the first Special Meeting of Town Council on August 23st, but they presented at the third Special Meeting on September 1 on behalf of the Rebuild Planning Advisory Steering Committee (Town of Goderich, 2011a,b). The Planner played a support role to this committee (Planner Interview, 2016).

4.4.2 Timelines

At the September 1st Council meeting, Council passed a motion to have the committee focus on red-tape reduction. It suggests that council viewed the planning system as too bureaucratic for the situation. It is likely they were on the receiving end of community pressure

for a quick return to normal. This relates to Comerio's (1998) finding noted in the literature review that the planning process is seen by those impacted as a barrier to a speedy reconstruction.

As noted in an earlier section on planning in Ontario, the *Planning Act* has many provisions relating to specific requirements for public participation. One side effect of these provisions is that the planning process can only move so quickly. Three to four months is a fairly realistic timeline for a development application if everything is in order and it goes smoothly. *Planning Act* timelines may be a blessing in disguise. Because it takes time to move through the process, everyone has time to think about if it is a good idea. Since there are no emergency provisions for the *Planning Act* that would permit compressing process or public notice requirements, the public's right to due process in the planning system is protected. At the same time, there may be a benefit in considering provisions in the *Planning Act* so that timelines could be somewhat compressed if there is an emergency.

Momentum from the tornado recovery resulted in the development of an entirely new Downtown Master Plan. It had not been conceived of before the tornado. A year after the tornado the Master Plan existed. The speed at which things happen after a disaster is noted by Olshansky, et al. (2012). The Master Plan was put together using extensive community consultation and feedback. That is a document that benefited the rebuild and will continue to benefit the community for years to come. The recovery overall happened quite quickly. The Planner commented

> "The speed at which things were moving ...crazy... To think that things were... You're sitting with the design charrette with this whole professional team within five months."

4.4.3 Communicative approaches

Communicative approaches are apparent in the planning response to the tornado in Goderich. The Planner discussed various community engagement activities they organized and participated in (Planner Interview, 2016). The Downtown Master Plan was developed in a three day community workshop (see Figure 4). Communicative approaches are a key planning tool, and they also appear in the disaster literature. Examples noted in the literature review include work by Kweit and Kweit (2004), the University of Guelph (ND), Healey (1997), Innes and Booher (1999) and Arnstein (1969). Planners use communicative approaches to move forward on wicked problems to work towards solutions people can agree with. The community satisfaction ratings suggest that community engagement efforts were successful in meeting the interests of the community members, and it produced a largely satisfactory result. The Planner saw the major planning issues resulting from the tornado as heritage, the downtown, and the trees (Planner Interview, 2016).

The Planner told a story of how the trees were replanted in the park and how the community was involved in the process. The community needed a quick win and children were looking for ways to be involved. At the community engagement event for replanting trees in Harbour Park, local children were recruited to stand in as trees.

Figure 4. Master Plan workshop (McCabe, 2013)

> "We had these children they were standing there and they were saying I'm going to be an oak tree and I was picked for this location because I'm going to grow big and strong and I'm going to create all the shade for the children's play area ...If you have a six-year-old standing there, or sometimes a 10-year-old dressed as a tree excited to talk to you, you can't help yourself you just had to stand there and listen and get excited...It took off a bit of that pressure, because it was definitely, it was a big pressure cooker the whole thing. You felt the need to find the valve, let off a little bit of steam every now and again..."

In another case, the Planner discusses a neighbourhood walkabout with neighbourhood residents. Most of the houses on the street had been destroyed. The street had small lots and prior to the tornado, the properties had legal non-complying reduced front yard setbacks. It was important to the residents that the street be rebuilt with the reduced front yards so it would retain a part of the unique character it had before the tornado (Planner Interview, 2016).

Planning research notes that communicative approaches are weak in how they deal with power (for example see Innes & Booher 2010 and Fainstein, 2000) and it is unclear from the interview with the Planner the role of power in communicative activities. Because of the very nature of power in small communities, it would have been difficult for the Planner to speak candidly about issues that did arise. That these issues were not discussed should not be taken to mean that they did not exist. Another common critique of communicative approaches is the difficulty of getting the community to participate. Goderich demonstrated that in the recovery period, it is easier to get participation then it might be in a non-disaster situation. It is perhaps a benefit of disaster recovery that citizens will be more interested in participating in community planning efforts than normal.

4.4.4 Planning tools

As questions about reconstruction began to surface, it was apparent that the zoning bylaw was going to be an issue for some of the properties that had been damaged or destroyed (Planner Interview, 2016). There were legal nonconforming and legal noncomplying issues to deal with (Planner Interview, 2016). Some of the commercial businesses that were destroyed had always been located in residential areas but were not complying with the zoning bylaw (Planner Interview, 2016). In other cases, building back to what had been there before the tornado did not meet current requirements for minimum lot area (Planner Interview, 2016). When these buildings were destroyed it was not always possible to build them back as they had been. In other cases, as discussed just above, neighbourhoods that had been destroyed had previously existed with reduced front yard setbacks (Planner Interview, 2016). Another example of legal noncomplying situations were one-story buildings in an area zoned for two story buildings.

The zoning bylaw and Official Plan represents a rational and incremental approach to planning. Each policy is careful considered and constructed and codified. Zoning bylaws conform with lower tier Official Plans, and lower tier Plans cannot be in conflict with upper tier Official Plans. Upper tier Official Plans must comply with Provincial laws and policy documents. Small (incremental) changes are made through zoning bylaw amendments and Official Plan amendments. Rather than starting from scratch each time there is a development that is desirable that does not fit the simple rational approach outlined in the zoning bylaw or Official Plan a small change can be made to permit it. These documents change slowly over time. The Planner Interview offered evidence that the Official Plan and zoning bylaw were employed throughout the process. Where small adjustments were needed to the main documents to permit reconstruction, the Planner was responsible for moving files through the process.

The Planner noted that Council passed a bylaw that permitted businesses like the car wash, lumberyard, and autobody shop located in residential to build back on the lots they had previously been on (Planner Interview, 2016). This bylaw was necessary because the way the zoning bylaw was written, if the non-conforming use was removed, then it would not have been permitted again (Planner Interview, 2016). Without the bylaw, these businesses could not rebuild (Planner Interview, 2016). While their destruction may seem like an ideal time to relocate them to areas more appropriate for their uses, the reality is that in the post-disaster environment, these are challenging conversations to have with owners and Councils. This reflects Comerio (1998) and Olshansky et al. (2006) who find that speed is important in planning. In the end, it was easiest to quickly pass a bylaw to permit those businesses again, and focus the energies for change to those issues that were most important. The Planner worked to see the non-complying developments improve compatibility in their reconstruction, through, for example, making the buildings more visually appealing, or improving signage, or reorienting the building to minimize impact on the neighbourhood (Planner Interview, 2016).

About six months after the tornado, the Town passed an Interim Control Bylaw (Planner Interview, 2016). The Planner notes there was a realization that it was not going to be possible for the five owners of very small properties to be able to build back and meet current building standards and heritage requirements. The goal of the Interim Control Bylaw was to prevent any development on the sites for a period of one year so that the required studies and analysis could be done (Planner Interview, 2016). The public was very unhappy with the bylaw and it was repealed within two or three weeks of being passed (Planner Interview, 2016). At the time it had passed there were unanticipated consequences, such as insurance and ODRAP implications (Planner Interview, 2016). They were able to overcome this challenge as they still went ahead and did the architectural study (Planner Interview, 2016). In the end, the five property owners were able to work together to combine their land base and build a

condominium office building meeting heritage and building standards (Planner Interview, 2016). They started construction on the new building more than two years after the tornado (Cluff, 2013).

4.4.5 The square and the trees

The square and trees are recurring themes in the surveys and the interview. The issue of the loss of trees demonstrates how disaster impacts are not always adequately captured in financial terms (as discussed by Natural Hazard Centre, 2001 and Quarentelli, 1999). The square and trees were obviously two important parts of what the community valued about the community identity. In the interview, the Planner identified those two as key priorities in the reconstruction phase. The alignment between both sources of information suggests there was a high degree of agreement on those two priorities. As would be expected by the resident satisfaction ratings, there were far more positive comments then negative comments. Asked to elaborate, satisfied residents said things like

> "So pleased with the way the square looks...the town looks better, some questionable buildings that were replaced by new efficient buildings. So many nice new structures and landscaping."

> "What they've done with the square, beautifying the city, replanting trees, they've done a nice job."

Both the Planner and a resident spoke about work done with the cenotaph on the grounds of the courthouse. The planner noted that it was intentional that the soldier on courthouse square faced down East Street to the historical train station. He is waving goodbye to soldiers heading off to war (Planner Interview, 2016). There is a V for victory designed into the cement sidewalks (Planner Interview, 2016). Nothing was permitted to impair the view from

the statue to the train station (Planner Interview, 2016). This statue was important to one resident who commented

> "It was a lot of effort put into town, you wouldn't really know....at night, on east street, at the cenotaph the lighting effect on him is beautiful..."

4.4.6 Heritage

As noted in the literature review, Spennemann and Graham (2007) argued that when heritage buildings are damaged in disaster, the negative impacts go beyond the financial value of the lost structures. They note that heritage buildings provide cultural continuity for communities between their past and the present and future. Sometimes the importance of heritage is overlooked in the rush to reconstruct (Spennemann & Graham, 2007). The Goderich tornado did major damage to the Town's heritage assets. The line the tornado followed travelled straight through the Town's heritage districts. In the case of Goderich, however, heritage was front and centre in the recovery period, and the Planner was an important contributor to this effort.

The Planner was able to secure funding to create a new Heritage Conservation District Plan to replace the one they had, which was nearly 30 years old (Planner Interview, 2016). The Planner commented on the support that the new Heritage Conservation District Plan received from the community. They were able to complete a new plan, and enlarge the area that fell under the plan (Planner Interview, 2016). Goderich went from having Heritage Districts for the small square going around the court house and West Street, to an expanded district that includes almost the entire larger square – what the Planner calls John Galt's original plan.

Another big impact the Planner had on Heritage issues was the case of the one story buildings being rebuilt as two stories on West Street (Planner Interview, 2016). The Planner

noted they were part of a Heritage zone that required new buildings on the street to be rebuilt to two stories. The one story buildings had been built in the 1970s or 80s, but they were part of the Heritage District (Planner Interview, 2016). Historic Goderich had two and sometimes three story buildings and tone of the goals of the plan was to return to multi-story buildings on West Street. The Planner determined that building back at one story was not possible because of a provision in the Heritage Act that prevented Council from passing a bylaw that did not comply with the Heritage plan (Planner Interview, 2016). The effort to build back to two stories benefitted from provincial support through a policy that likely changed (Planner Interview, 2016).

As noted already, community residents appear satisfied with the reconstruction that took place in the square, where many of the heritage buildings were located. West Street, as noted, was improved by heritage conservation efforts in the recovery phase. It was apparent from resident comments that the "look" of the community was important to them, and it was important that it was included in the reconstruction of the community. Residents almost never used the word heritage, but they made comments like

> "The square, the building rebuild, the trees, live growth ...it's beautiful and better than it was before the tornado...they kept the style of the buildings"

> "Buildings replaced tastefully, decisions about square are well thought through and effective"

> "Anything that they rebuilt they did to perfection in my opinion...the square was like a war zone, the committee in charge of that was excellent...replanting mature trees was great...last building in the square was just repaired. West Street was better than ever...."

4.4.7 Navigating politics

Berke et al (1993) and Quarentelli (1999) noted disaster recovery is a political process. While planners themselves are not politicians, they still need to be skilled at working in political environments. Planners always need to be sensitive to the pressures faced by Councils. The same approach needs to apply in disasters. Although there are opportunities where more could possibly be done to address planning issues, planners must be satisfied with taking advantage of some of the opportunities. The Planner talked about working with Council.

> "You had to decide where you wanted to hold your ground. So, the Heritage piece and not allowing them to go back to one story...That was what I thought was going to make the biggest impact for the downtown, particularly on West Street."

4.4.8 Building back better

Building back better is a best practice in disaster recovery (UNWCDRR, 2015). The idea is that a stronger community is better able to withstand future disasters. This relates to the built environment but also plays out in other ways. Disasters are caused by social forces as much as natural causes and so less tangible community improvements have spin off effects that effect overall levels of resilience.

In Goderich, damaged buildings needed to rebuild according to current building codes, not the building codes that were in place when they were originally constructed (Planner Interview, 2016). The Planner commented there were improvements to the buildings' infrastructure. For example, when rebuilding, they could run all utilities into the new building in an organized fashion. This compared to the post-construction haphazard installation of utilities in heritage buildings as new technologies were developed over the decades. New buildings had

brand new wiring, safer more efficient furnaces, and improved fire suppression systems. Post-tornado, there are fewer buildings downtown now with asbestos. The Planner commented that accessibility standards in buildings downtown were improved with some of the buildings installing new elevators, for example (Planner Interview, 2016). This made some of the buildings more accessible for people with mobility issues, making the community more inclusive. A number of residents commented that they felt the town was better than before the tornado.

Building back better is an important recurring theme in the disaster recovery literature. It is commendable that despite not having given disasters any thought before the tornado, the Planner was part of a reconstruction effort that was spontaneously recognized as building back better by a number of residents. The Planner spoke about having some landscape architecture students come out to a community engagement session to mock up some different possibilities of what the community could be. It was one of the things that helped shift attitudes as before that people were looking for a quick return to normal. Also, a consultant had spoken at a community engagement session where he basically said, if you build back the same, if you improve nothing, you have failed (Planner Interview, 2016). These things got people thinking about the possibilities of what could be done (Planner Interview, 2016). When the tornado struck the downtown core, including both of the existing Heritage Districts, the Planner found funding for and supported a process that resulted in the creation of an updated Heritage Conservation District Plan, and an expanded Heritage Conservation District (Planner Interview, 2016).

4.4.9 Preparing for emergencies

Quarentlli (1999) noted that organizations and departments that do not focus on emergencies as a central part of their mandate are unlikely to be prepared for emergencies. The interview with the Planner offers no evidence of meaningful participation in disaster mitigation and prevention or preparedness pre-disaster. Before the tornado the Planner had not

considered what the impact of a disaster might look like in their communities (Planner Interview, 2016). In the response phase, the Planner offered to help and was given a non-regular informal role in communications. Because of their broad skill set and experience working with communities, there are places with in a small town response structure where a planner would be helpful. There is value in planners playing a role in communications if that is helpful to their response. There is also value in planners preparing for post-disaster recovery, the opportunities and challenges. Planners can be good in an emergency and communications role because they have some facilitation, mediation, and coordination skills.

The Planner reflected that there were things they could have done early that would have helped. Early in the recovery period, the Planner suggested putting together files of background material for each of the damaged or destroyed buildings. Before something happens, the Planner also suggested having files on heritage properties with pictures over time. Five years out the Planner encourages communities to include their planners in pre-disaster training (Planner Interview, 2016). This has important implications for the management of recovery. As much as planners are busy people, they play a very important role in emergencies and perhaps some thought can be given to how planners participate in all phases of the disaster cycle. At a provincial level, where planning policy is developed, provincial decision makers are hopefully engaged in thorough risk assessments in the development of Provincial policy direction. Planners could prepare to respond to disasters. The extent to which they do is an interesting research question, but is beyond the scope of this paper.

A challenge to overcome is that planners do not know what they do not know about disasters. Planners could think of the things they could do to be prepared, and have ideas of what to do after an emergency if they were directed to. One place they could do that where their skills and research experience would be invaluable is in Emergency Social Services (ESS). Emergency Social Services is a term commonly used in Canada to describe the social response

to evacuees. In the United States, it is called mass care. It is the system by which emergency management ensures that basic needs for shelter, food, clothing, family reunification, and health services are met. In providing for the basic needs of people impacted, ESS also has volunteer and material resources function. As noted earlier, most people rely on family and friends for support in a disaster. Those who rely on institutional support tend to be more socially and economically marginalized people. The Planning function is supposed to collect information to support the response including assessing the potential needs of evacuees (Canadian Red Cross, 2005). The Planning function is a notoriously weak aspect of ESS responses in Canada.

To be effective in disasters, planners need to be informed of common disaster myths. When it comes to knowledge of what goes on when there is a disaster, they will think like most members of the public. Armed with the knowledge that our (social) responses to disaster are mainly the same regardless of the hazard, planners could prepare themselves for virtually any disaster. For a planner, development applications are development applications regardless of the event that triggered the necessity of the development application. However, planners could be involved in the development of preparedness objectives for their functions. They could develop strategies and tactics for dealing with disasters. Further, they could be involved in the development of scenarios and run exercises to examine how their function might adapt to the circumstances a disaster could create.

5.0 Conclusion

The purpose of this major research paper was to understand the experience of planning in a small town in the disaster recovery phase. This was achieved through a literature review that explored the concepts and practice of rural, planning, and disasters recovery. The literature review found that planners use a variety of strategies in the practice of planning, including rational and communicative approaches. A simplified understanding of emergency management is presented which categorized activities into prevention and mitigation, preparedness, response and recovery phases, which may occur concurrently. The tornado that hit the Town of Goderich in 2011 was explored as a case study. Other sources of data used in this project are an interview with the Planner who worked for the Town before and after the tornado, and a resident satisfaction survey about five years after the tornado. The resident survey found high levels of satisfaction with tornado reconstruction in the community.

The first objective of this project addressed in the discussion analysis was to understand how rurality impacted planning and disaster in the case study. It found that smallness matters in the case of Goderich. It was a small place where everyone was connected, which changed the impact of the tornado on planning. The Town had only part of a planner before the disaster. The Town was fortunate to have planning services provided through their upper tier government (the County), and for that reason, they were able to quickly scale up their planning capacity to deal with the planning workload created by the tornado.

The second objective of this project addressed in the discussion was to understand the impact of the disaster. It found the Planner had not been involved in emergency management prior to the tornado. In the response phase the Planner worked in a communications and agency liaison role, unconnected to the work they do as a planner. It found workloads were heavy for the Planner for a considerable period of time after the tornado, as the Planner worked

on day-to-day development applications and tornado related work. The disaster created various issues related to timing for planning. One issue was determining when the community was ready for community engagement. Another issue was that commercial reconstruction was particularly time consuming because of issues of compliance with the zoning bylaw, new building standards, and heritage considerations. There was considerable pressure in the disaster recovery phase from the community for a quick return to normal. While the work in the disaster recovery phase was emotionally challenging, it was also rewarding as community members learned more about planning though the process of reconstruction. There was some evidence of the disaster impacting marginalizing populations due to a loss of affordable housing. The disaster impacted composition of the downtown business core, as some businesses relocated or never re-opened. There was evidence that funding became available to the Town related to the tornado, which allowed the community to build back better.

The final objective covered in the discussion seeks to understand the impact of planning on the disaster recovery phase. It found that planning was very important in the reconstruction phase. Timelines moved quickly from a planning perspective, however there was evidence that the *Planning Act* and planning processes were viewed as somewhat overly bureaucratic. A number of sites were slow to start reconstruction because of planning issues, although there were attempts to facilitate redevelopment through a temporary use bylaw that permitted impacted businesses to relocate, and a bylaw to permit non-complying structures to reconstruct in their original locations. Communicative approaches to disaster recovery were evident throughout the disaster recovery phase. There was also evidence that rational and incremental approaches to planning were important. Despite being badly damaged, many heritage assets built back better, and the community was able create an expanded heritage conservation district. While it was challenging, the community embraced concepts of building back better, and a number of residents commented they thought the community was better than before the

tornado. There was no evidence that the Planner was prepared for emergencies before the disaster. This leads to a discussion of how planners might prepare for emergencies in order to improve the functional response to the recovery phase.

This research demonstrated the importance of planning throughout the disaster cycle in one small community. Further research is required to understand how planning functions are incorporated into other community disasters, so that planning practice in emergencies can be better understood and developed. Overall, the research found that planning in disaster recovery is just planning. In the context of the disaster cycle, the planning that is done before a disaster is the planning that takes a community into recovery. And the planning that is done after is the planning that takes a community into the next disaster. If this is the role of planners, there should be more ownership among planners of the disaster issues. It does not make sense to have the work they do kept separate from the work of emergency managers, especially as emergency managers often have responsibly (through their job descriptions) for preparing for community recovery. With greater understandings of planning by emergency managers, and of emergency management by planners, there are opportunities to improve local comprehensive emergency management programs and outcomes related to disasters at all stages in the cycle.

References

Arnstein, S.R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners, 35*(4), 216-224.

Banfield, E. C. (1959). Ends and means in planning. *International Social Science Journal, 11*(3), 361–368.

Beatley, T. (1998). The vision of sustainable communities. In R.J. Burby (Ed.), *Cooperating with Nature : Confronting Natural Hazards with Land Use Planning for Sustainable Communities* (233-262). Washington, D.C.: National Academies Press.

Berke, P. R., Kartez, J., & Wenger, D. (1993). Recovery after disaster: Achieving sustainable development, mitigation and equity. *Disasters, 17*(2), 93–109.

BMZ - Federal Ministry for Economic Cooperation & Development, Germany. (2012). Land use planning concepts, tools, and applications. Retrieved from: https://www.giz.de/fachexpertise/downloads/Fachexpertise/giz2012-en-land use-planning-manual.pdf

Briggs, L. (2007). *Tackling wicked problems: A public policy perspective*. Australian Public Service Commission.

Burnett, H.J. & Wahl, K. (2015). The compassion fatigue and resilience connection: A survey of resilience, compassion fatigue, burnout, and compassion satisfaction among trauma responders. *International Journal of Emergency Mental Health and Human Resilience, 17*(1), 318-326.

Caldwell, W.,Brown, C., & Thomson, S. (2006).*The Urbanites Guides to the Countryside: Southern Ontario Edition*. Guelph, ON: University of Guelph.

Canadian Red Cross. (2005). Planning Manager position description.

Canadian Rural Revitalization Foundation (CRRF) (2015). The state of rural Canada report. Retrieved from: http://sorc.crrf.ca/wp-content/uploads/2015/10/SORC2015.pdf

Cluff, P. (2013, November 29). Kingston Block work underway*. Goderich Signal Star*. Retrieved from: http://www.goderichsignalstar.com/2013/11/29/kingston-block-work-underway

Comerio, M.C. (1998). *Disaster Hits Homes: New Policy for Urban Housing Recovery*. Berkely: University of California Press.

Conservation Ontario. (2009). Flood management. Retrieved from: http://conservationontario.ca/projects/floods_management.html

Cox, R. S., & Perry, K. M. E. (2011). Like a fish out of water: Reconsidering disaster recovery and the role of place and social capital in community disaster resilience*. American journal of community psychology, 48*(3/4), 395-411.

Crosby, B. C., & Bryson, J. (2005). *Leadership for the Common Good: Tacking Public Problems*

in a Shared-Power World (2nd ed.). San Francisco, CA: Jossey-Bass.

Delli Carpini, M. X., Cook, F.L., & Jacobs, L.R. (2004). Public deliberation, discursive participation, and citizen engagement: A review of the empirical literature. *Annual Review of Political Science, 7*(1), 315–344.

Devlin, J. (2015). *Lecture on introduction to the course*. Personal Collection of J. Devlin, University of Guelph, Guelph ON.

Drabek, T.E. (1986). *Human system responses to disaster: An inventory of sociological findings*. New York: Springer-Verlag.

Fainstein, S.S. (2000). New directions in planning theory. *Urban affairs review*, *35*(4), 451-478.

Foster, H. (1980). *Disaster Planning: The Preservation of Life and Property.* New York: Springer-Verlag.

Gillespie, I. (2012, March 19). Problems linger long after tornado. *The London Free Press*. Retrieved from: http://www.lfpress.com/news/columnists/ian_gillespie/2012/03/16/19514516.html

Heckathorn, D. D. (1989). Collective action and the second-order free-rider problem. *Rationality and Society, 1*(1), 78–100.

Hodge, G., & Gordon, D.L.A. (2008). *Planning Canadian communities* (5th ed.). United States: Thomson Canada Limited-Nelson.

Huron County Planning Depart (ND). Goderich tornado path map

Innes, J. E., & Booher, D. E. (1999). Consensus building and complex adaptive systems: A framework for evaluating collaborative planning. *Journal of the American Planning Association, 65*(4), 412-423.

Innes, J. E., & Booher, D. E. (2010). *Planning with complexity: An introduction to collaborative rationality for public policy*. New York: Routledge.

Innis, H.A. (1930/2001). *The Fur Trade in Canada.* Toronto: University of Toronto Press.

Kingdon, J. W. (2003). *Agendas, alternatives, and public policies* (2nd ed.). New York: Longman.

Koontz, T. M. (2004). One size does not fit all: Matching breadth of stakeholder participation to watershed group accomplishments. *Policy Sciences, 37*(2), 185–204.

Laycock, K. (2017). Forthcoming paper

Lindsay, J. (2003). The Determinants of Disaster Vulnerability: Achieving Sustainable Mitigation through Population Health. *Natural Hazards 28*, 291-304.

Lindsay, J (2017). Forthcoming dissertation

Leung, H. L. (2013). *Land use planning made plain* (2nd ed.). University of Toronto Press:

Toronto.

Lewis, J. (1999). *Development in Disaster-prone Places: Studies of Vulnerability*. Intermediate Technology.

Lindblom, C. (1959). The science of muddling through. *Public Administration Review, 19*(2), 79-88.

McCabe, L. (2013). Goderich tornado: Disaster to planning to rebuild. Retrieved from: http://www.goderich.ca/en/Heritage/resources/Larry-Goderich_Tornado-Spring_2013.pdf

Mileti, D. S. (1999). *Disasters by Design : A Reassessment of Natural Hazards in the United States.* Washington, D.C.: National Academies Press.

Miller, K. & Nigg, J. (1994). Event and consequence vulnerability: effects on the disaster recovery process. *University of Delaware Disaster Research Centre, Preliminary Paper #217*. Retrieved from: http://udspace.udel.edu/handle/19716/350

Ministers Responsible for Emergency Management (2011). An Emergency Management Framework for Canada (2nd Ed). Retrieved from https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/mrgnc-mngmnt-frmwrk/mrgnc-mngmnt-frmwrk-eng.pdf

Ministry of Municipal Affairs and Housing, Ontario (MMAH) (2014). Provincial Policy Statement (PPS). Retrieved from: http://www.Ontario.ca/PPS

Ministry of Municipal Affairs & Housing, Ontario (MMAH) (2016). Land use planning. Retrieved from: http://www.mah.gov.on.ca/Page186.aspx

Natural Hazards Center (NHC), University of Colorado (2001). Holistic disaster recovery guide. Retrieved from: http://www.preventionweb.net/files/1746_2206589.pdf

Olshansky, R.B., Hopkins, L.D., & Johnson, L.A. (2012). Disaster and recovery: Processes compressed in time. *Natural Hazards Review 13*(3), 173-178.

Olshansky, R. B., Johnson, L. A., & Topping, K. C. (2006). Rebuilding communities following disaster: Lessons from Kobe and Los Angeles. *Built Environment*, *32*(4), 354-374.

Ontario (2016). *Planning Act, R.S.O. 1990, c. P.13* . Retrieved from: https://www.ontario.ca/laws/statute/90p13

Perry, R.W. & Lindell, M.K. (2003) Preparedness for Emergency Response: Guidelines for the Emergency Planning Process. *Disasters, 27*(4), 336-350.

PreventionWeb (2015). Direct and indirect losses. Retrieved from: http://www.preventionweb.net/risk/direct-indirect-losses

Quarantelli, E. L. (1999) The Disaster Recovery Process: What Know and Do Not Know from Research. *University of Delaware Disaster Research Center. Preliminary Paper #286*. Retrieved from http://udspace.udel.edu/handle/19716/309

Quick, K., & Feldman, M. (2011). Distinguishing participation and inclusion. *Journal of Planning*

Education and Research, 31(3), 272–290.

Regional District of Nanaimo (2017). Manager, Emergency Services. Retrieved from http://www.rdn.bc.ca/cms/wpattachments/wpID3713atID8305.pdf

Robson, C. & McCartan, K. (2016). *Real World Research* (4th ed). Wiley: Italy.

Spennemann, D. H., & Graham, K. (2007). The importance of heritage preservation in natural disaster situations. *International Journal of Risk Assessment and Management*, *7*(6/7), 993-1001.

Statistics Canada (February 7, 2011). From urban areas to population centres. Retreived from http://www.statcan.gc.ca/eng/subjects/standard/sgc/notice/sgc-06

Statistics Canada. 2012. *Goderich, Ontario (Code 3540028) and Canada (Code 01)* (table). *Census Profile*. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012. http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E

Statistics Canada. 2013. Goderich, T, Ontario (Code 3540028) (table). National Household Survey (NHS) Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-004-XWE. Ottawa. Released September 11, 2013. https://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=3540028&Data=Count&SearchText=Goderich&SearchType=Begins&SearchPR=01&A1=All&B1=All&GeoLevel=PR&GeoCode=3540028&TABID=1

Statistics Canada. 2017. *Goderich [Population centre], Ontario and Ontario [Province]* (table). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released February 8, 2017. http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E

Tierney, K. Bevc, C., & Kugligowski, E. (2006) Metaphors Matter: Disaster Myths, Media Frames, and Their Conequences in Hurrican Katrina. *The Annals of the American Academy of Political and Social Science*, *604*, 57-81.

Tönnies (1887/2001) *Gemeinschaft und Gesellschaft* . translated into English by Harris, J & Hollis, M. as *Community and Civil Society*. Cambridge University Press

Town of Goderich. (2011a) Special Council Minutes August 23, 2011. Retrieved from: http://www.goderich.ca/en/documentuploads/minutes/doc_634521152203978840.pdf

Town of Goderich. (2011b) Special Council Minutes September 1, 2011. Retrieved from: http://www.goderich.ca/en/documentuploads/minutes/doc_634521153244330658.pdf

Town of Goderich (2012) Zoning bylaw. Retrieved from: http://www.goderich.ca/en/inc/resources/2013-06-19ConsolidatedGoderichBy-law.pdf

Town of Goderich (2013) Official Plan. Retrieved from: http://www.goderich.ca/en/townhall/resources/Goderich_OP_Feb052013.pdf

University of Guelph (2011). Guidelines for engaging the public post-disaster: Key success factors for your community. Retrieved from: http://www.waynecaldwell.ca/Students/Projects/PublicEngagement_FINAL1.pdf

United Nations World Conference on Disaster Risk Reduction (UNWCDRR). (2015). Reconstructing after disasters: Build back better (Ministerial Roundtable). Sendai, Japan. Retrieved from http://www.wcdrr.org/uploads/Reconstructing-after-disasters-Build-back-better.pdf

Van Amersfoort, D. (2013). "The Goderich Story: A lesson in Survival." in Heritage Matters. pp.13. Retrieved from: http://www.heritagetrust.on.ca/corporatesite/media/oht/pdfs/hm-may-2013-eng.pdf

Vodden et al. (2016) Development in place: A view from the periphery in Vodden, K., Gibson, R., & Baldacchino, G. (eds). *Place Peripheral: Place-based development in rural, island, and remote regions.*

Wiser, B., Blaikie, P. Cannon, T. and Davis, I. (1994) *At Risk; Natural Hazards, People's Vulnerability and Disasters*. Routledge: London and New York.

Appendix A: Planner Interview Guide

1. Background information – to determine the professional and educational background of the respondent

a) Please tell me a little about your role as it relates to the Goderich tornado.

b) How did your role change before and after the tornado?

c) What is your professional background?

d) Did your background help you in your tornado recovery work?

2. Tornado impact – to determine the impact of the tornado the respondent

a) How were you impacted by the tornado?

b) How did the tornado impact the planning office?

3. Understanding of recovery/mitigation/risk – to determine how the respondent and organization use the terms

a) The term 'recovery' is commonly used in post-disaster contexts. How was this term defined as it is applied to your work?

b) Was the term 'mitigation' used? If yes, how would it have been defined?

c) What risks were normally considered in your work? (prompt if needed e.g. workplace hazards, floods, tornado, technological hazard).

d) At the time of the tornado, did the Town have a (distinct or explicit) policy of risk reduction (mitigation)?

e) At the time of the tornado, did the Town have a (distinct or explicit) plan for disaster recovery (e.g. who would do what, which processes would be followed?)

4. Details of issues post-tornado – to assess the context that planning occurred in

a) What were the most important planning issues after the tornado?

b) What were residents' concerns?

c) How did those concerns emerge?

5. What are the factors influenced recovery – to determine what factors affected the decisions and the processes

a) What factors do you think influenced the recovery?

b) Were there resource considerations (human or material)?

c) Were there political considerations? (e.g council support or opposition to projects)

d) Were there financial/economic issues to consider?

e) Were there safety considerations?

f) Were there technical considerations? Were they related to the hazard impact or the solution?

g) Were there community considerations?

h) Were there timing issues? (pressure from community, scheduling restrictions)

i) Were any long-standing community problems solved?

j) How did the recovery activities align with the other planning activities? (were there workload, coordination, or policy issues?)

k) Did everyone know what they needed to do and how to do it?

l) After the tornado, what could have helped you do your job better?

m) Are there any other lessons from the recovery you could share?

6. Involvement in tornado recovery – to determine both the agency's involvement in recovery projects and the respondent's role in these projects.

a) Please tell me about the planning work you did after the tornado.

(For each example prompt as needed for info such location, date, type of work, work load, processes, policies, procedures, planning tools, community engagement, coordination with other departments/organizations)

7. Planning and disasters – to determine what links planners see

a) What role do you see planners having in disasters before an event?

b) What role do you see for planners in disasters after an event?

c) Who do you think has (or should have) the leadership role in disaster recovery activities?

d) From a planning perspective, how does an event like this compare to other community crises you have dealt with? (e.g. school or industry closure)

e) Did your experience change how you practice planning?

f) How do you feel about planning for recovery before something happens?

8. Other comments – so the interviewee can offer related comments.

a) Do you have any other comments about disaster recovery and planning?

b) Is there anything that was missed that you think I should know?

Appendix B: Resident survey question

Q23. Please rate your level of satisfaction with reconstruction efforts in Goderich over the past year? Briefly elaborate.

□ Not Satisfied □ Somewhat satisfied □ Very satisfied