

A Question of Perspective:
Opportunities for Effective Public Engagement in Watershed
Management Planning in Manitoba

by

David Huck

A Thesis submitted to the Faculty of Graduate Studies of
The University of Manitoba
in partial fulfillment of the requirements for the degree of

MASTER OF NATURAL RESOURCES MANAGEMENT

Clayton H. Riddell Faculty of Environment Earth and Resources
Natural Resources Institute
University of Manitoba
Winnipeg

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Abstract

As governments increasingly support a collaborative management approach to address complex watershed issues, there is a growing interest in understanding how successfully these processes operate. A cornerstone of collaborative management is the inclusion of public input in the decision-making process. Exactly how and to what extent the public is included in decision making is often left to planning authorities. This study set out to determine if collaborative approaches to watershed management planning have incorporated effective public engagement. The components of effective public engagement processes as identified in public engagement literature were utilized as a diagnostic tool to assess public participation in the development of two watershed management plans in Manitoba, Canada. Recommendations for improving the effectiveness of public engagement and addressing barriers to broad public participation in watershed management are presented and discussed.

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CHAPTER 1 – RESEARCH CONTEXT

1.0 Framing the Research

Issues surrounding water are complex and often bound in social conflict. Sustainable management of water resources requires action based on a significant understanding of surface/groundwater issues, water quantity and quality interactions, point and non-point source pollution, land and water interactions, ecosystem and watershed-based dynamics, and water conservation/protection requirements (de Loe and Kreutzwiser 2008; Heathcote 1998; Johns and Rasmussen 2008; Johns, Sproule-Jones, and Heinmiller 2008). Addressing the issues that affect sustainable watershed management while satisfying the public's escalating expectations for water quality is well beyond the capacity of any single government agency. As a result, today's water agencies are being increasingly challenged to identify new forms of management that will address the multiple facets of contemporary water issues. Emerging management models often call for a collaborative approach which incorporates effective public engagement, partnership and integration in order to sustainably manage our watersheds.

In the past few decades, a general consensus has emerged among researchers that conventional top-down, technical and expert-driven approaches to decision making are no longer capable of adequately addressing contemporary water management issues (Mitchell and Shrubsole 1994; Ramin 2004). Many argue that opportunities for effective public engagement in decision making are of critical importance when addressing complex environmental problems such as those surrounding water management (Heathcote 1998).

Essentially, integrated watershed management planning is a means of discussing and achieving social change to improve environmental conditions. This social change will not occur

unless affected individuals believe that some form of improvement to the health of watersheds is necessary. Important tradeoffs and considerations that impact social and economic values will need to be part of the discussion if real environmental improvements are to be achieved (Cervoni, Biro, Beazley 2008; Coughlin 2010; Heathcote 1998). Therefore, a watershed plan is not a final product, but a negotiated process for moving the watershed community from a current unacceptable state to a desirable condition in the future (Heathcote 1998).

Members of the public who might have a stake in how watershed management decisions are made include local residents, aboriginal people and communities, media, business or professional associations, education institutions, public interest groups and community organizations. The term “public” for the purposes of this research does not only refer to individual citizens, but rather to the involvement of a cross section of all non-government interests in a decision.

Public engagement refers to the variety of processes and procedures used by a decision maker to engage the public in establishing policy options, voicing opinions and in some cases influencing decisions (Haque et al. 2002; McCool and Guthrie, 2001; Webler and Tuler 2001). Involving the public in decisions that affect them can lead to the identification of potential management alternatives, resolve inequities in resource allocation, increase fairness in decision making, reduce conflict and ultimately lead to a better decision and improved environmental management (Jackson, 2001; Ramin 2004).

Simply notifying citizens of planning outcomes or canvassing public opinion on watershed issues, however, does not automatically strengthen decision making processes. In fact, a failure to adequately engage the public in water management decisions has often lead to conflict, negative

project outcomes, public distrust of institutions, court challenges and costly delays (Morley 1975). In order for project proponents or planners to recognize the benefits of public engagement, citizens must be given an opportunity to participate effectively (CEAA 2006; Stewart and Sinclair 2007). Effective public engagement processes are open to all, transparent, encourage dialogue amongst all participants and integrate participation as a critical component of the decision making process.

Watershed management planning is complex, multi-disciplinary and inseparable from issues of values, equity and social justice. A key challenge for watershed planning authorities is to reconcile the conflicting needs, values and interests of all watershed stakeholders without leading to further declines in environmental quality. As a result, processes that engage the public at an effective level are viewed by many as essential to the success of watershed management (Cervoni, Biro, Beazley 2008). It has become increasingly clear that a unilateral planning process that excludes effective public engagement will ultimately fail, if not during the process itself, then during implementation (Heathcote 1998; McCool and Guthrie 2001; Parenteau 1988; Pearse, Bertrand, and Maclean 1985). This has led to a growing interest in research that enhances understanding of the processes and perspectives surrounding public engagement in watershed management (Koehler and Koontz 2008).

1.1 Research Purpose and Objectives

The purpose of this research project was to determine if the emergence of collaborative approaches to watershed management planning has increased opportunities for effective public engagement. Within this context, my research objectives were to:

- 1) Understand how the public is being engaged in watershed management planning.

- 2) Identify the challenges, barriers and drivers of effective public engagement in watershed management.
- 3) Determine the extent to which public engagement occurring within Manitoba's watershed management planning process satisfies the components of effective public engagement.
- 4) Provide recommendations on improving opportunities for effective public engagement in future watershed planning projects.

1.2 Methods Overview

Following a qualitative research methodology, this project involved a detailed review of public engagement processes occurring within watershed management planning. Data collection and analysis involved a review of related literature, watershed planning document examination, watershed plan participant interviews and case study analysis.

The initial literature review began with an extensive consideration of published works in the field of public engagement processes with an emphasis on watershed management. Items reviewed included numerous journal articles, books, government documents and conservation district materials regarding integrated watershed planning and the role of public engagement in water resources management. The literature review process was fundamental in highlighting the critical concepts surrounding public engagement and integrated water resources management, understanding the current state of watershed management and developing a theoretical framework for exploring public involvement processes by reviewing the key components of effective public engagement.

In order to review the effectiveness of public engagement in watershed management planning a comparative case study method following two separate watershed management

planning processes in Manitoba, Canada was utilized. Watershed management planning in Manitoba was formalized in 2006, following the proclamation of the Water Protection Act (Osborne, Venema, and Tyrchniewicz 2007). The Water Protection Act establishes a legislated framework for the development of locally led watershed management plans to guide water management decisions. A critical requirement for the development of any watershed plan developed under the auspices of the Water Protection Act is the provision of opportunities for public consultation.

Since 2006, 22 watershed management plans led by Manitoba conservation districts have been initiated under the framework of the Water Protection Act. Ten of these plans have been completed and approved by the Manitoba Government (Manitoba Water Stewardship 2011). The remainder are at various stages of completion ranging from the early organizational stage to the preparation of draft plans.

Following a predetermined case selection criteria (outlined in Chapter 3), a case study research strategy was implemented for the Pembina River and Netley-Grassmere Watershed Planning processes. Case study data collection involved the use of semi-structured interviews with 40 watershed planning participants and a review of documents generated during the watershed planning process. Watershed planning documents added valuable information for case development and included Project Management Team (PMT) member notes, advertisements, websites, newspaper articles, planning documents, committee meeting minutes, draft and final watershed plans and public comment summary documents.

To ensure that a wide spectrum of opinions were reflected in case development, interviews were conducted with conservation district representatives (board and staff), municipal councillors, Manitoba Water Stewardship staff, stakeholder representatives, and public meeting participants. Interviews began with members of each watershed's PMT or plan organizing committee.

Subsequent interviews with public meeting participants and stakeholder representatives were identified through public event signup sheets posted during watershed planning events. To ensure accuracy in collecting interview perspectives on public engagement, all interviews were digitally recorded and transcribed verbatim.

Data collected throughout the research process was digitized and organized for computer software analysis. *Nvivo 9.1* qualitative data analysis software was used to organize and thematically code pertinent information to allow for thorough analysis of any emergent trends or themes. Computer analysis allowed for a rapid evaluation of public engagement processes and emergent themes provided a critical understanding of the nature of public engagement in the watershed management planning process. The conclusions and recommendations presented in this thesis were developed from the results of this analysis.

1.3 Thesis Organization

The format of this thesis has been divided into 7 chapters. Chapters 1 to 3 include an overview of the research project, a synthesis and review of related literature, and an explanation of the methodology utilized for this research project. Chapter 4 discusses watershed management planning specific to the Manitoba cases and highlights the nature of public engagement in watershed management. Chapter 5 contains case studies regarding the development of the Pembina River and Netley-Grassmere Watershed management plans. Chapter 6 presents a synthesis of contrasts and similarities in public engagement processes between the two case studies and discusses participant perspectives surrounding the components of effective public engagement. In chapter 7, conclusions and recommendations for improving opportunities for

effective public engagement in watershed management planning in Manitoba are presented and discussed.

CHAPTER 2 – PUBLIC ENGAGEMENT IN WATERSHED MANAGEMENT

2.0 Introduction

The following chapter presents a synthesis of literature related to public engagement in water resources management in North America. This review establishes that due to increasing complexity and conflict in the field of contemporary water resources management, the effective inclusion of multiple opinions and values held by those affected by the decisions made is critical to the ultimate success of water management at the watershed level. However, simply providing a venue for public comment on watershed plans does not constitute effective citizen engagement. This chapter explores the nature of public participation in watershed management by identifying the components of effective public engagement processes, highlighting the benefits derived from effectively engaging the public and discussing common challenges to incorporating public engagement experienced in water resources management.

2.1 Challenges Facing Water Management in Canada

Water plays a momentous role in many aspects of everyday Canadian life. Water resources were critical in the development of Canada as a nation and are today recognized as essential to the proper functioning of our economy, ecosystems and social well being (Ramin 2004). In fact, water resources are integrated with Canadian society to such a high degree that many consider water a part of our national identity (Johns, Sproule-Jones, and Heinmiller 2008).

With an estimated 25% of global freshwater found within the nation's borders, Canada is often recognized for its vast abundance of freshwater resources (Foster and Sewell 1981; Sprague 2006; Sproule-Jones, Johns, Heinmiller 2008). As a result of this abundance, Canadians have developed a broad spectrum of uses for water supplies (see Table 2.1).

Table 2.1. Various Uses of Water in Canada	
Type of Use	Examples of End Use
Consumptive Use – <i>water withdrawn from source, used then not returned for other uses</i>	Agricultural Irrigation, Some Manufacturing (food/beverage industry)
Withdrawal Use - <i>water is utilized and returned to the source but usually with diminished quality</i>	Domestic, Municipal, Industrial, Manufacturing and Thermal Energy Production
In stream Use – <i>use of water at source, use may degrade quality</i>	Transportation, Hydroelectricity Generation, Waste Disposal, Some Recreation
Non-exploitive Use – <i>service provided by water source without degradation or alteration</i>	Some Recreational Opportunities, Ecosystem Services, Aesthetics, Spiritual Components

Unfortunately, the wide variety of water uses and the perception of Canada’s abundant supply, have led many Canadian’s to take water resources for granted. This perception coupled with a general lack of awareness and poor understanding of the increasing pressures and physical limitations of Canada’s water supplies has led to Canadians consuming water at one of the highest rates globally (Shrubsole and Draper 2006; Sproule-Jones, Johns, Heinmiller 2008).

Canada’s water resources are not as abundant as most Canadians believe and water intensive practices have led to serious threats on the sustainability of the nation’s water resources. While Canada does contain 25% of global freshwater supplies, only 9% is readily accessible to populated areas. Access to water resources is limited due to 60% of Canada’s freshwater resources drain to the North while nearly 85% of Canadians live within 300km of the Canada-US border (Foster and Sewell 1981; Ramin 2004; Schindler and Donahue 2006).

To further compound matters, recent studies on climate change suggest that water scarcity is likely to intensify in coming years (Schindler and Donahue 2006; Sproule-Jones, Johns, Heinmiller 2008). Potential for water scarcity in some regions such as large portions of the Prairie Provinces is further increased by hot summer temperatures that evaporate more water than is replenished by precipitation throughout the year (Boan 1961; Schindler and Donahue 2006). In some areas water consumption now often exceeds what is available on an annual basis (Senate of Canada 2005). From 1994 – 1999, Baker (2006) estimated that 25% of Western Canadian municipalities suffered water shortages due to consumption increases, drought conditions or crumbling water infrastructure. Despite these limitations, many Canadians continue to believe that there is a surplus of water supplies (Sprague 2006).

In Canada, the traditional management response to instability in water supplies has been to increase water storage and diversion from other water sources to meet the increasing demands of agriculture, industry and communities. Canadians have been masters of this approach for over 100 years. While the result of this type of management has been some success and failure in regional development, these projects often come at considerable social, environmental and economic costs external to the project itself (de Loe and Kreutzwiser 2006). As a result of the external costs experienced on water management projects such as Manitoba's Churchill River Diversion (Morley 1975) or Alberta's Oldman River Dam (Schmidt 2007), many governments have become extremely cautious towards large storage or diversion projects. Consequently new management approaches are being sought to sustainably address the issues facing water resources.

Managing freshwater resources sustainably can be exceedingly difficult and complex. The physical traits of water make its management inherently unique from other natural resources.

Water is a highly mobile resource that flows between many different jurisdictions where it used for variety of competing purposes (Elton 1983). Improper upstream uses and the introduction of contaminants to water can have devastating consequences further downstream. The quantity and quality of water resources can be highly variable among different regions. Too much surface water can lead to flooding while insufficient supplies can result in water shortages (Elton 1983). Due to these unique characteristics, water is seen as highly vulnerable to degradation through system alterations, overconsumption and pollution.

There are many serious threats to water resources which present significant implications to community economic development, human health and ecosystem services. Environment Canada has determined many water supplies to be threatened by poor water quality, diminishing supply and inappropriate use (Environment Canada 2005). Although water is essential for survival and is recognized as a valuable resource, many users continue exploit it to such a degree that water supplies and water quality are decreasing (Johns, Sproule-Jones, and Heinmiller 2008).

When water resources begin to show signs of stress, ecological and financial consequences are typically not far behind (Shrubsole and Draper 2006). To compensate for threats associated with restricted supplies and increasing pollution, water treatment facilities continually require major capital improvements to provide necessary reliability and safety of supply. In 2005 the Federation of Canadian Municipalities estimated a water infrastructure deficit of \$40 billion by 2016 to meet increasing water service need of Canadians (Environment Canada 2005).

Other major threats to water resources include contamination of water supplies through sewage, industrial waste, agricultural and urban runoff (Environment Canada 2005; Heathcote 1998). The threats facing water and the increasing cost of supply and waste services often lead to

intense conflict among water users (Environment Canada 2005; Heathcote 1998). Given the wide variety of water uses it is not surprising that conflicts over who, what, where, when and how water is used by different groups and individuals have occurred.

Very few other natural resources are surrounded by such strong public opinions and conflict. Many of the prevailing conflicts surrounding water are based on two opposing theoretical views. First, access to clean water is seen as a basic human right due to its life sustaining properties (Elton 1983). In reality this view is contradicted by the common practice of utilizing water as a waste disposal system. Secondly, society recognizes water as a scarce and valuable resource. However, water is consistently undervalued and wasted by society (Thompson 1983).

The differing values held about water underlie the key issues of water use conflict in Canada today. These include, large scale, industrial, commercial and agricultural uses, the high and increasing use by urban areas, the decay of water management infrastructure, the degradation of water sources, the decline of aquatic ecosystems and the general lack of knowledge about the current state of water resources (Sproule-Jones, Johns, Heinmiller 2008).

2.2 Understanding the Concept of Water Governance

The concept of governance can be described as the process of decision-making and the means by which decisions are implemented (UN-ESCAP 2010). In the area of water management, good governance depends upon participation by all stakeholders, transparency, equity, accountability, coherence, responsiveness, integration of resource sectors and issues, and attention to ethical concerns (UNESCO-WWAP 2003).

Governance occurs at multiple scales and contexts including global governance, national governance, local governance and resource governance. Formats of water governance can be

highly variable ranging from simple single level, single use governance designs to very complex multi level, multiuse forms (Johns, Sproule-Jones, and Heinmiller 2008). Water governance consists of structures, mechanisms, relationships and organizations known as institutions that are created and influenced by communities, stakeholders, and governments in order to govern the use water on the landscape (Louka 2008). These institutions have developed and adapted overtime to address social conflicts that occur within water management.

As with other common property resources, water resources are highly susceptible to overexploitation, degradation and potentially destruction due to a lack of effective management. Some researchers argue that with good governance institutions, locally led resource management can overcome many concerns associated with common property resources (Thompson 2000). In the case of water, governance institutions can range from informal practices and routine behaviours to formalized instruments such as property rights, regulations, and statutory laws designed by governments. Good water governance depends on these institutions to respond effectively to problems and achieve social consensus through agreements, compromise and coordination (Borinni-Feyerabend et al. 2000).

In recent decades, the priorities of society have changed and understanding about water resources management has increased in complexity. Most Canadian watersheds now feature numerous uses of water by a diverse group of users and several water institutions to manage increasing conflict. These actors represent an assortment of institutional arrangements including Federal government departments, agencies and authorities, multiple Provincial and Territorial departments and agencies, local governments and authorities, NGOs, interest groups such as farm organizations or recreation clubs and aboriginal government bands (Johns and Rasmussen 2008). Decisions to protect and manage water resources are made by a wide variety of authorities with

differing priorities and often with limited interaction with other water management institutions (Johns, Sproule-Jones, and Heinmiller 2008).

This intricate web of institutions and authorities inherently leads to increased complexity, confusion and conflicts over water management (Bakker 2006). Most of these conflicts take place within an institutional structure that was established with a different purpose in mind. Emerging institutions such as new bureaucratic agencies, additional regulations/legislation or new water management policies must compete with these existing and often powerfully entrenched institutions (Johns and Rasmussen 2008). Fragmentation of water governance institutions is often at the root of mismanagement of water resources (Louka 2008).

2.2.1 Managing Conflict and Complexity in Water Resources

Increasing demand for finite water resources has heightened public awareness of the impacts of growth on water resources and increased the public's expectation for sustainable management (Ramin 2004). The sustainable management of water resources requires trust and cooperation between those who share the resource. However, given the variety of uses, complexity of institutions and conflicts involved with water management, trust and cooperation can be difficult to achieve (Sproule-Jones, Johns, Heinmiller 2008).

As with most environmental problems, water related issues are not readily addressed through the traditional elite based approach of expert driven problem analysis and decision making. While it is often difficult for technocrats and bureaucrats to understand, emotional public concern should be considered as valid in any watershed planning exercise as scientific knowledge or engineering evidence (Heathcote 1998). Complex environmental problems such as water conflicts are often too hindered by uncertainty, constantly shifting targets and contradictory solutions for an

expert driven process to deliver appropriate results (Berkes 2004). Today's water institutions are being increasingly challenged to identify new forms of management that will address surface/groundwater issues, water quantity and quality interactions, point source and nonpoint source pollution, land and water interactions, ecosystem and watershed based dynamics, and water conservation/protection (de Loe and Kreutzwiser 2006; Heathcote 1998; Johns and Rasmussen 2008; Johns, Sproule-Jones, and Heinmiller 2008).

Good governance and coordination mechanisms are critical, particularly at the watershed level for fostering transparency, accountability, and stakeholder involvement and collaboration (Environment Canada 2005). If fragmentation of water governance institutions is one of the key problems facing water management then integration and collaboration must be the answer (Louka 2008).

2.2.2 Integrated Water Resources Management

Global Water Partnership describes integrated water resources management (IWRM) as a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (Global Water Partnership 2000; Mitchell 2004). Effectively addressing complex water issues will require increased integration of water policy frameworks, comprehensive planning efforts, increased networking of multiple water management institutions, a heightened role for decentralized public engagement in water governance, and a redefining of state authority for water resources (Brandes and Nowlan 2009; Cervoni, Biro, Beazley 2008; Johns, Sproule-Jones, and Heinmiller 2008). These are the key challenges and goals for integrated water resources management. IWRM is a scalable approach

to water resources management that can simultaneously respect national and international priorities for water while locally managing resources at the watershed scale (Cervoni, Biro, Beazley 2008).

2.2.3 Integrated Watershed Management

Integrated watershed management is essentially the concept of integrated water resources management applied at the watershed scale. A watershed is a dividing line on the landscape that drains all precipitation received within a catchment area into a particular river or receiving body of water (Heathcote 1998; Sproule-Jones, Johns, and Heinmiller 2008). Watersheds are a naturally defined system that inherently integrates water quality and quantity, land-water-air interactions, and upstream-downstream effects (Cervoni, Biro, Beazley 2008; Ramin 2004). Due to the natural hierarchy of watersheds on the landscape, management at the watershed level allows for the examination of cumulative impacts over time and space (Ramin 2004). As a result of these salient features, watersheds are often referred to as the most appropriate unit for the management of water resources (Cervoni, Biro, Beazley 2008; Heathcote 1998; Plummer et al. 2005).

In principle, an effective water resources management plan is holistic and utilizes a systems based approach, is inclusive of diverse stakeholders and opinions, and is built upon a premise of partnerships (Ramin 2004). An effective planning process must be focused on the important factors that impact water while orienting management goals on long term rather than short term improvements (Brandes and Nowlan 2009; Ramin 2004).

The idea of using river basins or watersheds as units for the management of water dates back to the 1800's (Blomquist and Schlager 2005). Today's model of collaborative watershed governance led by local agencies is based on several successful examples including the

Tennessee Valley Authority in the United States, Ontario's Conservation Authorities, the Murray-Darling Basin Commission in Australia and Spain's watershed based Confederaciones Hidrograficas which started as early as 1926 (Heathcote 1998; Louka 2008). Collaborative watershed planning initiatives have seen a rapid rise in popularity in North America since the early 1990's. By 2000, there were more than 400 watershed organizations operating in the Western United States (Bidwell and Ryan 2006) and as of 2012, the US EPA recognizes more than 2,600 organizations collaborating in activities and planning initiatives to protect and restore watersheds nationwide (US EPA 2012). Initially, most watershed initiatives were led by community based or grassroots organizations but planning efforts are increasingly being supported by new legislation and overseen by government agencies (Bidwell and Ryan 2006, Koehler and Koontz 2008).

Canada has similarly experienced a surge in the number of watershed based management and planning initiatives in the past decade. In most areas of Canada, watershed planning is supported by Provincial Government policy and in some cases legislation that establishes a framework for watershed management (Unger 2009). While the majority of watershed management efforts in the United States have evolved as a mechanism to address hard to regulate watershed issues such as non-point source pollution, habitat restoration or protection of threatened species, recent efforts in Canadian watershed management have tended to focus on source water protection for domestic drinking water resources (Unger 2009). A brief outline of the various watershed management initiatives currently operating by Canadian province can be found in Table 2.2.

Table 2.2. Overview of Watershed Management Planning Initiatives by Canadian Province.

Province	Supporting Provincial Legislation, Policy or Strategy	Authority to Implement	Management Approach	Public Engagement	Status
Alberta	Water for Life Strategy	Advisory to decision making authorities – attempt to have outcomes adopted by authorities	Collaborative – led by stakeholder based Watershed Planning and Advisory Councils (WPAC)	Stakeholder involvement on planning committees and public engagement events during plan development	11 watershed based WPAC's leading watershed management planning at different stages of completion
British Columbia	Several initiatives encourage watershed management (Water Sustainability Action Plan, Living Water Smart B.C.) formal initiative in development – Collaborative Watershed Governance Initiative	Voluntary adoption of planning outcomes by water authorities	“Watershed lens” incorporated into existing collaborative land management programs	Stakeholder involvement on planning committees and public engagement events during plan development	Several watershed initiatives underway – most notable is Fraser Basin Council
Manitoba	Manitoba Water Strategy, Water Protection Act	Legislated planning framework, enables development of watershed regulations by government	Collaborative led by Conservation Districts as Water Planning Authorities	Stakeholder involvement on planning committees and public engagement events during plan development	10 watershed plans completed by Water Planning Authorities, 12 in development
New Brunswick	No formal watershed management planning initiatives, Provincial surface water protection program	regulatory watershed protection measures – setbacks and allowable activities enforced by government agency	Regulation and enforcement	Highly administrative – formal appeal process for affected landowners	Regulations developed for 30 drinking water source watersheds
Newfoundland and Labrador	Water Resources Act includes provisions for the	Municipally led – adoption of planning	Collaborative stakeholder process to	Recommended that public participation	Steady Brook watershed plan completed as

	development of watershed management plans led by municipalities	outcomes by authorities	advise council on watershed improvements	events occur during plan development	pilot in 2005
Nova Scotia	No Provincial watershed management strategy. Atlantic Coastal Action Program – ACAP (Fed.)	Compliance with ACAP outcomes is voluntary for applicable agencies	ACAP – voluntary local directors	ACAP - Volunteers and stakeholders involved in watershed programs	Most notable ACAP project is Clean Annapolis River Project ongoing since 1990. 13 other ACAP projects in all 4 Atlantic Provinces
Ontario	Clean Water Act (CWA), Lake Simcoe Protection Act and Conservation Authorities	Enforceable regulations through source water protection plans with CWA and Lake Simcoe Protection Act and voluntary measures with Conservation Authorities	Collaborative watershed management approach with Conservation Authorities	Stakeholders involved in developing watershed plans with Conservation Authorities. Public engagement periodically throughout planning	Possibly the most productive area in Canada with regards to watershed management. 129 watershed management projects are listed as complete or in progress by Conservation Ontario
Prince Edward Island	Watershed Planning Initiative	Planning outcomes are advisory to decision making authorities	Collaborative approach to watershed management	Locally led watershed planning involves stakeholders and public participation	Over 30 watershed management organizations have been active since the 1970's
Quebec	Quebec Water Policy	Currently Planning outcomes are advisory to decision making authorities	Collaborative approach to watershed management	Planning is led by local watershed organizations or "Organisations de Bassin Verdant" (OBV)	33 provincially funded OBV's are leading local watershed management in several Quebec watersheds
Saskatchewan	Safe Drinking Water Strategy	Planning outcomes are advisory to decision making authorities	Collaborative approach to watershed management for source water protection	Planning is led by Saskatchewan Watershed Authority in cooperation with water management associations	Source water protection plans have been developed for 9 Saskatchewan watersheds

In the US and Canada watershed planning initiatives are predominantly based on collaborative management approaches that promote the devolution of water management authority to the most appropriate lower level (Roy et al. 2009). A significant feature to the majority of these collaborative approaches has been the involvement of a wide variety of stakeholders in the decision making process (Unger 2009). Typically stakeholder engagement in watershed management involves formal face to face negotiations amongst participants through the use of public meetings (Irvin and Stansbury 2004). Most watershed planning initiatives also incorporate a variety of informal public engagement methods to foster wide spread public participation (e.g., distributed brochures, websites, advertisements, community awareness booths, dinners etc.) (Brooke 2010).

Implementation of planning outcomes from watershed plans in North America has been found to range from voluntary compliance by watershed residents and organizations to binding regulations that dictate acceptable watershed activities (Unger 2009). In most cases, the outcomes of the watershed planning process include goals and objectives presented in an advisory manner that intend to guide future watershed decisions. However, implementation of planning outcomes remains largely at the discretion of water management agencies (Unger 2009).

While integrated water resource management does address many of the challenges associated with current water management issues, the approach does present a new set of barriers that must be addressed. In practice, IWRM has been as difficult to implement as many other regional approaches to public issues.

2.2.4 Social Challenges for Integrated Watershed Management Planning

There are three significant social conflicts that challenge the effectiveness of watershed based governance. These include the concept of utilizing watershed boundaries for the management of water resources, establishing an effective decision making authority and maintaining accountability for watershed actions (Blomquist and Schlager 2005). Even though watershed boundaries are naturally defined, they have often been altered through human activities (e.g. roadway or drainage channel construction) making true natural boundaries difficult to define. In the end a political decision must be made as to what to include and exclude within a watershed planning area. These boundaries rarely coincide with existing administrative boundaries (such as municipal, government agency territories, Provincial and even international boundaries) which can lead to problems with public support for the planning process and difficulty in coordinating activities during implementation (Cervoni, Biro, Beazley 2008). The size of watershed selected for planning is also critical. Too small an area can discourage integration while large watersheds may ignore important local issues (Blomquist and Schlager 2005).

The second social conflict challenging watershed planning activities is the difficulty of establishing an effective decision making framework and authority. To ensure adequate consideration of local priorities, minority concerns and protection of under-represented interests, many planning efforts are consensus and collaborative based. The potential downside to this approach is that beneficial watershed actions can be impeded by individual interests or lead to ineffective, something for everyone solutions to watershed issues (Blomquist and Schlager 2005; Louka 2008). Others have expressed concern that collaborative watershed processes may be inappropriately used by traditional government and political authorities as a means to avoid making unpopular decisions surrounding thorny water management issues (Unger 2009). Some even

question if decision making processes convened by “hand-picked” dominant watershed stakeholders are less democratic than those made by publicly elected officials. In some collaborative decision making processes, “stakeholder politics” has been observed to be quite similar to “shareholder politics” (Perkins 2011). Issues of power and power-sharing are particularly important in integrated watershed management.

The third significant social conflict facing watershed planning initiatives is maintaining accountability for watershed management actions and inactions after the planning process. Due to the presence of boundary issues and the distributed responsibility for plan implementation, holding institutions, agencies or individuals responsible can be problematic (Blomquist and Schlager 2005).

In light of the social conflicts facing a watershed based approach to water management, it is apparent that effective management has as much to do with economic and social considerations as with environmental issues. At its roots, the institution of watershed management is a means of discussing and achieving social change, this social change will not occur unless affected individuals believe that change is necessary. A watershed plan is not a finished product but rather a process for moving society from a current unacceptable state to a desirable condition in the future (Heathcote 1998). As a result, important tradeoffs and considerations must be made that will impact social and economic values if environmental improvements are to be realized (Cervoni, Biro, Beazley 2008; Coughlin 2010; Heathcote 1998).

The success of the individual planning process is highly context dependent and will be largely impacted by the individual characteristics of the planning area, the type and severity of water management issues in the region, and the interests and needs of the watershed community (Heathcote 1998). The key challenges for integrated watershed management and public

engagement processes are to reconcile the conflicting needs, values and interests of all stakeholders without leading to further declines in environmental quality. Watershed management is complex, multi-disciplinary and inseparable from issues of values, equity and social justice. A participatory approach to management is essential to success (Cervoni, Biro, Beazley 2008).

2.3 Engaging the Public in Watershed Management Decision Making

The right of the governed to participate in their government is a cornerstone of democracy (Arnstein 1967; Haque et al. 2002; Morley 1975). A truly democratic decision making process improves the public's awareness of the decision but also incorporates public values, needs and preferences (Gauvin and Abelson 2006; Parenteau 1988). Within the past thirty years, the concept of a legitimate democracy has been increasingly linked with the provision of a genuine opportunity for public engagement or deliberation (Dryzek 2000).

Involving those affected by a decision can lead to the identification of potential management alternatives, resolve inequities in resource allocation, increase fairness in decision making, reduce conflict and ultimately lead to a better decision and improved environmental management (Jackson 2001; Ramin 2004). In order to achieve the benefits of public involvement, planners must implement appropriate and effective public engagement processes.

2.3.1 Understanding Public Engagement

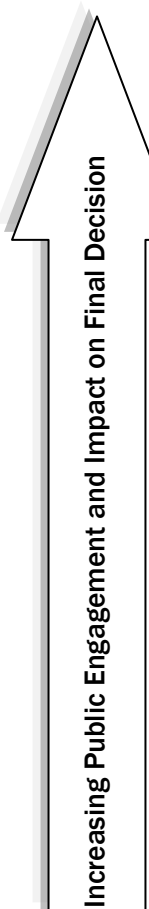
To better understand the significance of public engagement in water resources decision making, one has to sort through a wide range of definitions and meanings. Without clarification of terms, analysis of public engagement's significance in improving decision making is difficult (Rowe and Frewer 2005). For most, public engagement or involvement refers to the use of a variety of processes and procedures organized by a decision maker to enable members of the public to

become actively involved in establishing policy options, voicing opinions or in some cases influencing final decisions (Haque et al. 2002; McCool and Guthrie 2001; Webler and Tuler 2001).

The public in this case does not refer to a single body but rather a cross section of all interests in a decision (Haque et al. 2002). Members of the public who might have a stake in a decision being made could include local residents, aboriginal people and communities, media, business or professional associations, education institutions, government organizations, public interest groups and community organizations (Haque et al. 2002).

Ideally all participatory processes would include forums allowing for a high level of public involvement. However, not all processes are created nor implemented equally. Arnstein (1967) critically addressed public engagement methods used by decision makers in her ladder of citizen participation. The concept of Arnstein's ladder represents the power dynamic that exists within public engagement, between those empowered with making a decision and with those affected by the decision (see Table 2.3). At the lower rungs of the theoretical ladder, decision makers retain all power and misuse public engagement as a means to an end. At the mid rungs of the ladder, power is split between decision makers and public participants. At the upper rungs, power is increasingly in the hands of the public with the top rung representing complete control of decision making by the public participants. Arnstein argues that for citizen participation to be effective there must be a redistribution of power allowing for citizens to be included in the economic and political decision making process. Without this redistribution of power or equalization among all participants in the decision making process, the true benefit of public engagement will not be realized (Arnstein 1967).

Table 2.3. Degrees of Public Engagement (adapted from Arnstein 1967, Dorcey et al. 1994 and IAPP 2000).



Degrees of Engagement	Characteristics
Citizen Control	<ul style="list-style-type: none"> – Public has complete authority or power over decision making process – Public is accountable for final outcome
Public Participation	<ul style="list-style-type: none"> – Information is exchanged between both process sponsors and members of the public – Dialogue based on informed engagement and negotiation of decision outcomes – Public involvement influences decision outcomes but final decision is not made by public.
Public Consultation	<ul style="list-style-type: none"> – Purpose is to identify potential public concerns or level of consent for a proposed decision. – Public provides opinions, comments or other feedback to the process sponsors regarding a final decision. – Flow of information is primarily to the process sponsors by the public.
Public Communication	<ul style="list-style-type: none"> – Intent is to inform the public of a decision and provide an explanation for the decision – Information is provided from the process sponsors to the public – No active dialogue or feedback requested from the public
Non-Participation	<ul style="list-style-type: none"> – Public is not included in nor made aware of the decision making process.

Others have built upon Arnstein's ladder of citizen participation and developed more optimistic continuums such as Dorcey, Doney and Rueggeberg's (1994) spectrum of public involvement or the International Association for Public Participation's (2000) participation spectrum. Both are based on the premise that the level of public interaction is positively related to the impact of a given public engagement process.

Recognizing that not all public engagement has similar aims, a multitude of terms have been coined to describe different outcomes of a participatory process. Terms such as public participation, public communication and public consultation though actually referring to different

forms of engagement are often used interchangeably. This makes understanding the differences in public engagement processes difficult.

To battle this ambiguity, Rowe and Frewer (2005), describe public participation, public communication and public consultation as distinct processes of public engagement. These terms are defined by the flow of information within a specific public engagement context (Gauvin and Abelson 2006; McMillan and Murgatroyd 1994; Rowe and Frewer 2005). During a public communication process information is provided from the process sponsors to the public. There is no active dialogue or feedback requested from the public with this form of public engagement. The purpose of this exercise is only to inform the public of a decision and provide an explanation for the decision (Gauvin and Abelson 2006; Rowe and Frewer 2005).

Public consultation refers to a procedure where the public provides opinions, comments or other feedback to the process sponsors. In this case there is little opportunity for idea exchange between the parties and the flow of information is primarily to the process sponsors by the public (Gauvin and Abelson 2006; McMillan and Murgatroyd 1994; Rowe and Frewer 2005).

Public participation occurs when information is exchanged between both the process sponsors and members of the public. Formal dialogue between the parties occurs in this context which provides negotiated information rather than only raw opinions as expressed in the other public engagement processes (Gauvin and Abelson 2006; McMillan and Murgatroyd 1994; Rowe and Frewer 2005).

Deciding which level of public engagement is most effective will differ for each watershed decision making process and will be highly dependent on the perceived problem, the community and its values and the willingness of decision makers to delegate authority (Heathcote 1998). If

concern for watershed conditions is not a high priority for the local community or there is a high level of confidence in existing water management institutions, public communication or consultation processes may be more appropriate than public participation (Irvin and Stansbury 2004).

However, if watershed concerns are of high importance to the local community, there is a level of distrust amongst stakeholders, or a high level of conflict over proposed actions is anticipated, than public participation processes with a distributed approach to decision making may be most appropriate (Irvin and Stansbury 2004).

The success of a distributed governance approach to watershed management decision making is highly dependent on true letting go of authority by the state (de Loe and Kreutzwiser 2006). A locally led process such as integrated watershed management is more likely to fail if public participants believe they do not have the authority to develop and implement solutions at the local level. However, great care must be taken when distributing authority for water resources management to ensure that local communities and organizations have the capacity to effectively manage complex local water issues (de Loe and Kreutzwiser 2006). Distributed water governance should not lead to weaker water management nor should it be a means for the state to simply dissociate themselves from responsibility for the protection of water resources. Therefore an appropriate balance of interaction and authority between state and public actors must be determined before water governance can occur effectively at the local level (de Loe and Kreutzwiser 2006).

2.3.2 The Public Engagement Lifecycle

Public engagement is a process initiated and organized by decision making authorities to involve the public in some aspect of decision making. In ideal circumstances, as the decision

making lifecycle progresses the level of public engagement increases amongst participants and planners. As a result public engagement changes from public consultation and communication processes to true participation (Jackson 2001; Rowe and Frewer 2005).

Most participatory processes in environmental decision making have a 5 stage lifecycle (Jackson 2001, McMillan and Murgatroyd 1994). The first stage in an engagement lifecycle is to prepare for the process (McMillan and Murgatroyd 1994). At this level potential stakeholders are identified and contacted. Ensuring that all potential participants are made aware of the process is critical at this stage (Jackson 2001). Objectives for the participatory process are outlined and initial information is disseminated to the participants. At this level information flows from planners to the participants only and usually involves some details about the process and need for public involvement in decision making (Jackson 2001).

The second stage of the engagement lifecycle is to provide an avenue for public education, ongoing communication and preliminary stages of information exchange (Jackson 2001; McMillan and Murgatroyd 1994). At this level of the process information mostly comes from the planners to the participants with a minor amount of feedback provided to the planner from the participants (Jackson 2001).

The third stage involves the negotiation of process goals and criteria (McMillan and Murgatroyd 1994). During this period ideas are exchanged among participants and initial reactions to draft issues and options are considered (Jackson 2001). At this level there is a medium degree of dialogue among the players involved (Jackson 2001).

At the fourth stage of the engagement process, members propose an acceptable range of options to address concerns identified at previous levels (Jackson 2001; McMillan and Murgatroyd

1994). Options are carefully evaluated for potential risks and the best all round solutions are negotiated for implementation (McMillan and Murgatroyd 1994). At this level there is high degree of deliberation amongst all the players (Jackson 2001).

At the fifth and final stage of the participatory process a decision is made and implemented (Jackson 2001; McMillan and Murgatroyd 1994). Consensus of all members at this level is often desirable but not always possible (Jackson 2001). Communication and deliberation among the participants and planners is highest at this level (Jackson 2001).

Similar opportunities for public involvement can occur within the watershed planning process. Ideally, all stages of the watershed planning process are open to public review and input. However, in common practice public access to the watershed planning process is been traditionally limited to a few opportunities at the end of the plan development, primarily during the implementation of alternatives and maintenance/monitoring (Heathcote 1998).

2.3.2 Methods of Public Engagement

Methods or mechanisms of public engagement are defined as processes, techniques or instruments used to illicit public involvement (Rowe and Frewer 2005). Different engagement methods will provide different forms of valuable information (Coenen 2009). Not all public engagement methods involve the public to the same degree nor have similar impacts on the decision making process (Konisky and Beirle 2001). The degree of citizen engagement in decision making should be based upon the requirements of the problem at issue (Konisky and Beirle 2001). For instance, if there is strong public concern for current watershed conditions, local distrust of water management agencies or potential for community backlash during plan implementation, a

higher level of public involvement at multiple points in the planning process may be necessary (Irvin and Stansbury 2004).

Traditional citizen engagement tools have involved highly formalized methods such as public inquiries, royal commissions, legislative or advisory bodies often used by Canadian Governments (Smith 1982). In some cases these methods have become rigidly structured such as the public hearings of the Clean Environment Commission in Manitoba (Manitoba Clean Environment Commission 2007) and even a legislated requirement as in the case of public participation in environmental impact assessments (Parenteau 1988). However, even in cases where public involvement is required by legislation, the format and therefore, degree and nature of public engagement is often left to the organizing agency (Morley 1975).

Other common highly formalized methods include referenda, negotiation, mediation, consensus conferences, citizen panels/juries, citizen advisory committees, and focus groups (Rowe and Frewer 2000). Each of these methods is designed to provide a specific response from the public and reflect different levels of public engagement. Some methods are intended to inform citizens or illicit input while others require engaged citizens to deliver a judgment (Rowe and Frewer 2005).

Traditional formalized approaches to public engagement (e.g. public hearings) are often criticized by participants as stifling the exchange of information and offering only a consultation means of engagement (Coenen 2009). Participants are also often too intimidated by the process to feel secure enough to present new ideas. With little flexibility in the agenda of traditional methods there is a perception that these approaches are biased towards certain dominant opinions and interests (Coenen 2009).

As a result of these shortcomings, public engagement methods have evolved to improve opportunities for public engagement. New mechanisms have often developed as a result of the failure of more traditional methods to effectively engage all members affected by or interested in participating in the decision making process (Gauvin and Abelson 2006; Rowe and Frewer 2005). Rowe and Frewer (2005) identified over 100 public engagement methods used throughout North America and the United Kingdom to inform or acquire public input into a decision. Continual improvements of participatory methods are essential to assure that public engagement is achieving the goals of the sponsoring agency and meeting public expectations (Konisky and Beirle 2001).

Certain forms of engagement have also been designed to facilitate a specific public engagement outcome. Researchers have even developed a typology classifying several public engagement mechanisms and processes according to the flow of communication or level of public engagement desired. For instance, with public communication the flow of information is from the sponsor to the public. Public engagement methods designed to facilitate this form of communication include, information broadcasts, brochures, flyers, internet sites, public hearings and public meetings (Rowe and Frewer 2005). When project sponsors are looking for feedback from the public on information disseminated using public communication techniques, engagement options may include, focus groups, referendums, surveys, opinion polls or citizens panels (Rowe and Frewer 2005; Webler and Tuler 2001). Public participation involves two way communication and deliberation. Possible options for public participation include negotiation, mediation, task forces, citizen juries or action planning conferences (Rowe and Frewer 2005; Susskind and Cruikshank 1987).

Each engagement method presents its own characteristic strengths and shortcomings for public engagement (Gauvin and Abelson 2006; Smith 1982). Planners must exercise special care

when selecting appropriate methods for specific participants and issues (Chess and Purcell 1998). Participation needs to move beyond traditional methods of public engagement. Effective public engagement requires adaptive processes that can be modified to suit local needs based on public reactions and priorities (Foster and Sewell 1981; Sewell 1977). In most instances in order to satisfy objectives of the public and sponsoring agency, public engagement methods need to be used in combination or as a compliment to other participatory tools (Konisky and Beirle 2001). A well informed public with properly designed engagement methods will provide the best assurance that management decisions will take into account the full spectrum of public values (Pearse, Bertrand, and Maclean 1985).

2.3.3 The Benefits of Public Engagement in Watershed Decision Making

Why should the public be involved in watershed management planning? What possible value can come from opening the door to multiple opinions on highly complex water resource issues? Common perceptions among industry and government institutions are that it is quicker and less expensive to avoid participatory processes (Shepard and Bowler 1997; Stewart and Sinclair 2007). Engaging the public can take a large investment of time and resources (Duram and Brown 1999; Gauvin and Abelson 2006). In situations where time sensitive decisions are required, as in a crisis situation such as widespread flooding, there is a disincentive to take the time to effectively engage the public (Haque et al. 2002). In many cases, public engagement processes that result in lengthy decision making time frames have encouraged decision makers to avoid future public engagement processes in order to fast track decisions (Perkins 2011).

Another common perception is that many decisions require a high level of understanding and technical knowledge. Members of the public may be ill equipped to contribute significantly to

highly complex issues or policy decisions (Chess and Purcell 1998; Duram and Brown 1999; Gauvin and Abelson 2006; Shepard and Bowler 1997). There is also scepticism about the wisdom of opening the door to “at-large” members of the public. Is the greater good not better served by involving only knowledgeable stakeholders? There is a difference between who “should” versus who is “likely” to participate (Duram and Brown 1999).

The industrial community may also be reluctant to engage the public in decisions in order to maintain competitive advantage (Shepard and Bowler 1997). Concern over the ramifications of open debate of a company’s activities and policies force many companies to engage the public at lower levels of involvement such as public communication or consultation (Duram and Brown 1999; McMillan and Murgatroyd 1994).

Government institutions are also wary of the impacts of public engagement in decision making. There is a concern that involving the public in decisions may lead to outcomes which are too costly or unfeasible to implement (Gauvin and Abelson 2006). Elected leaders may also be swayed to decisions based primarily on public opinion versus exercising strong leadership (Gauvin and Abelson 2006). Many institutions are reluctant to change traditional decision making practices to include public involvement (Gauvin and Abelson 2006). Some view elected officials as already representing the needs of the public (Parenteau 1988) and incorporating more public involvement may erode the autonomy of elected representatives (Gauvin and Abelson 2006; Parenteau 1988).

Engagement processes can have serious political pitfalls for government agencies and result in further division within a community as opposed to beneficial partnership and collaboration. Some fear that open processes may lead to watered down solutions and priorities addressing those of dominant stakeholders that don’t reflect the values of the wider community (Louka 2008).

It can also be a challenge to effectively engage the public in activities they do not deem a high priority. Issues such as water quality and water management are often taken for granted by the public and do not typically impact the outcome of elections (Louka 2008).

Even members of the public are hesitant to participate in engagement exercises. Public engagement processes are often used by industry and governments as a political device in order to gain popular support for an unpopular decision or policy (Parenteau 1988). Or worse, if the public is engaged at levels of non-participation or tokenism, there is concern that their views will be marginalized by decision makers (Arnstein 1967; Parenteau 1988). There is often a perception that public input is only sought after a decision has been made (Ramin 2004). Those that do choose to participate are often viewed by government agencies as “radicals” or “activists” even if special interest groups usually represent only a small portion of participants (Williams et al. 2001)

However, even with all the trepidations against engaging the public in decision making processes, there are a number of important reasons for collaborating on watershed management decision making. Most fundamentally, engaging those affected in making decisions satisfies the principles of democracy (Fitzpatrick and Sinclair 2003; Gauvin and Abelson 2006; Hayward 2006; McMillan and Murgatroyd 1994; Parenteau 1988; Shepard and Bowler 1997; Stewart and Sinclair 2007). Public engagement provides a practical venue for dispute resolution and encourages public debate about complex issues (Fitzpatrick and Sinclair 2003; Gauvin and Abelson 2006; Hayward 2006; Ramin 2004; Shepard and Bowler 1997). An open planning process can lead to the negotiation of reasonable tradeoffs and the creation of new approaches to accomplish watershed goals (Heathcote 1998). Public engagement is a major component of fair and effective decision making (Fitzpatrick and Sinclair 2003; Gauvin and Abelson 2006; Schwass 1985; Stewart and Sinclair 2007).

The process of citizen engagement itself facilitates transparency in decision making (de Loe and Kreutzwiser 2006; Hayward 2006). Providing a venue for dialogue amongst all parties leads to more legitimate outcomes and reduces the hostility in which decisions are made (Shepard and Bowler 1997). The process also provides a valuable forum for individual and social learning leading to critical education (Duram and Brown 1999; Gauvin and Abelson 2006; Stewart and Sinclair 2007). Critical education is considered a key factor to making sustainable decisions (Fitzpatrick and Sinclair 2003; Hayward 2006). Effective engagement processes also allow participants to present information that would otherwise not be available to decision makers (Coenen 2009).

An investment by the sponsor in a strong engagement process will pay dividends in the long-term through potential partnerships with stakeholders and alternative solutions to issues (McMillan and Murgatroyd 1994). This initial investment can lead to efficiencies for the proponent by avoiding potential planning pitfalls and future legal action from disappointed members of the public (Gauvin and Abelson 2006; Manikutty 1997; Shepard and Bowler 1997; Stewart and Sinclair 2007). Major public concerns overlooked by planners can also lead to long delays in project implementation (Parenteau 1988). Public events provide a venue to justify a sponsor's proposal and educate members of the public (Parenteau 1988). Sponsors can also benefit from public review by testing the acceptability of a projects design and establishing the need for mitigation (Haque et al. 2002; Parenteau 1988). Effectively engaging the public in watershed decision making can even lead to partnership and co-implementation (Coenen 2009). As the public is often the dominant landowner within any watershed, their support for watershed improvements is vital to the success of watershed management efforts (Ferreyra and Beard 2007).

Government institutions also benefit from incorporating the public in decision making and establishing policies. Involving the public ensures civic accountability for government processes and outcomes of decisions (de Loe and Kreutzwiser 2006; Gauvin and Abelson 2006, Pearse, Bertrand, and Maclean 1985; Schwass 1985). Citizen engagement improves the quality of government understanding of its citizen's values and preferences (Coenen 2009; Gauvin and Abelson 2006) and is likely to contribute to superior decisions (Louka 2008). Decision makers and elected officials are better equipped to make the right decision once they have heard from all perspectives. Public engagement is an important government instrument to maintain social order where conflicting opinions can negotiate a solution as opposed to acting out more extreme forms of civil action (Coenen 2009; Parenteau 1988; Pearse, Bertrand, and Maclean 1985). Individuals who have a responsibility and authority for decisions being made are more likely to implement outcomes thereby reducing enforcement costs for government agencies (Coenen 2009; Louka 2008). Without significant public support for implementing watershed improvements, the costs of alternative regulatory, monitoring and enforcement efforts would make many watershed improvements unfeasible (Jonsson 2005).

The public interest can be served through citizen involvement in decision making. Decision outcomes with public involvement, better reflect the needs of the citizenry (Hayward 2006; Shepard and Bowler 1997; Stewart and Sinclair 2007) and provide a venue for the incorporation of local and traditional knowledge in decision making (Hayward 2006; Louka 2008; Manikutty 1997; Stewart and Sinclair 2007). Effective engagement processes can lead to a reorganization of power structures allowing individuals or organizations the ability to negotiate meaningfully with large government institutions and corporations (Parenteau 1988).

Public engagement is not a panacea of planning (Stewart and Sinclair 2007) and not all benefits of a process are universal. Sponsors can utilize public events as an opportunity to achieve a specific outcome (Gauvin and Abelson 2006). Engagement processes may be used as a stalling tactic to avoid making difficult decisions. Events may also be used by sponsors to neutralize and discredit opponents or shift blame for a delay of action onto an opponent's shoulders (Parenteau 1988).

This is the nature of citizen engagement. Parenteau (1988) describes public engagement as a non-neutral social operator where the influence of all participants is under constant negotiation. However, in order for all participants to negotiate equitably barriers to engagement must be overcome.

2.3.4 Barriers to the Participatory Process

Members of the public wishing to engage in decision making exercises are often prone to a wide range of barriers. While perhaps not entirely excluding members of the public these barriers can compromise an individual's or organization's abilities to participate effectively. Diduck and Sinclair (2002) categorize barriers to public engagement as either structural or individual barriers. A structural barrier is defined as constraints to public involvement stemming from social structures, institutional settings, economic arrangements and legislative frameworks. Individual barriers relate to a person's perceptions on the concept being discussed and their ability to participate in the decision making process (Diduck and Sinclair 2002).

Barriers may also be described by hierarchy principles within systems theory. Systems theory is based on understanding interactions between individuals, systems and the wider environment (Kirst-Ashman and Hull 1993). These interactions are critical to understanding an

individual's perceptions on how they view the world and their place in it. Social transactions, in this case barriers to public engagement can be described as micro, meso or macro in scale (Kirst-Ashman and Hull 1993). Micro issues include aspects of the individual, personal traits and experiences. Meso events involve interactions with other people and the immediate environment. Macro events involve an individual's transactions with the larger world (Kirst-Ashman and Hull 1993).

Systems theory allows for framing the scale and interconnectivity of barriers for public engagement in a decision making process (see Table 2.4). Micro-level barriers would include personal obstacles such as lack of knowledge about the process and issues (Arnstein 1967), lack of communication skills to participate, and personal traits such as shyness or apathy about the process (Diduck and Sinclair 2002).

Meso-level barriers would include obstacles based on an individual's relationship with their immediate environment and other individuals. Examples here include the complexities of life such as work and family pressures, issues with other participants in the process such as a proponent dominated discourse, concerns with the process itself (Diduck and Sinclair 2002) and distrust of participants and/or proponents (Arnstein 1967). Process barriers include lack of opportunity to participate, lack of funding to effectively participate, overly technical information, inadequate notice and concern that a final decision is a foregone conclusion (Diduck and Sinclair 2002). Planning at a strategic or operational level rather than a normative level (Smith 1982) would also constitute a meso-level barrier to engagement.

Table 2.4. Barriers to Public Engagement in Watershed Management.		
Micro-Level Barriers	Meso-Level Barriers	Macro-Level Barriers
level of knowledge of the individual (technical understanding of watershed processes or concerns, understanding of process, ramifications of decision)	Complexities of life (work and family commitments, community ethic, obligation to participate, consultation fatigue)	Issues of power (racism, paternalism, resistance to power sharing, social status, distrust, alienation, and marginalization of opponents)
Personal communication skills (verbal and written)	Process problems (inadequate notice, lack of participant funding, inaccessible or incomplete information, lack of opportunity to participate, foregone conclusion, unresponsive to participant input, nature of the watershed concerns)	Distrust of Government institutions and process sponsors
Individual characteristics (shyness, apathetic, lazy, no obligation to participate, lack of concern for watershed issues, feel adequately represented)	Unconstructive dialogue (extremism, technocratic focus, planner/stakeholder dominated discourse)	---
---	Planning at strategic or operational level of decision making	---

Macro-level issues are large scale concerns with the process and social attitudes towards public participation itself. Macro-level barriers to public engagement include issues of racism, paternalism, social status, marginalization of opposing views by power holders and resistance to democratic change by decision makers (Arnstein 1967; Parenteau 1988). Public engagement without some degree of power sharing (Arnstein 1967) and distrust of government institutions

and/or the process sponsors would also constitute a macro-level barrier (Parkins and Mitchell 2005). Factors at the macro-level significantly bias engagement processes in the direction of the powerful or elites. This occurs even when no one has been physically excluded (Perkins 2011).

By organizing barriers in hierarchical fashion a grasp of the interconnection of these barriers is possible. People and processes are to some extent a product of the environment in which they occur. Barriers cannot simply be addressed at the meso-level without a better understanding of issues at the micro and macro scales. For example by improving the number of opportunities for individuals to participate in watershed planning without addressing concerns of power sharing or participant education would not amount to a substantial improvement in the engagement exercise. Barriers have to be addressed across multiple levels in order to be overcome.

2.3.5 Defining Effective Public Engagement

In order to realize the potential benefits of public engagement in decision making opportunities for participation must be meaningful and effective. To be considered effective, shortcomings of processes and barriers to engagement must be overcome. Effective public engagement requires that the debate or exchange of ideas that occurs is defined by the mutual respect of participants, takes place in a public forum with accessible information, produces a binding decision for some period of time and incorporates a dynamic process that suits the issue and environment in which the debate occurs (Gutmann and Thompson 2004).

Many practitioners, researchers and government agencies have attempted to describe the components of effective public engagement processes (CEAA 2006; Chess 2000; Coenen 2009; Louka 2008; McMillan and Murgatroyd 1994; Stewart and Sinclair 2007; Webler, Tuler and Kruger

2001). While consensus has not been reached on the definitive traits of effective engagement several key components have been emerged as being essential to an effective engagement processes:

1. The public is engaged early in the process and provided with on-going opportunities to participate throughout the decision making process.

Engagement of the public early on and at multiple points within the decision making process increases transparency in decision making and encourages the development of trust between decision makers and the public.

2. A process must have integrity and there is accountability for the decisions made.

For effective public engagement, participation processes must demonstrate respect amongst all parties and hold decision makers accountable for implementing decisions.

3. The public input has a genuine opportunity to influence the final decision.

The public needs to be made aware at the onset of the decision making process how their involvement will be incorporated into the final decision. Public opinion and values must have a valid opportunity to impact any decision outcomes.

4. Decision makers provide adequate public notice and time to prepare for engagement events.

In order to participate effectively, appropriate means of notice and adequate lead time is essential for interested publics to properly develop materials and informed opinions.

5. There are opportunities for fair and open dialogue throughout the decision making process.

Engagement processes selected must promote a positive communication environment where participants can freely discuss opinions with impartiality.

6. Public engagement events include the use of multiple and appropriate engagement methods.

Not all members of the public are able to participate effectively in all engagement formats. Through the use of multiple and situation appropriate methods, individuals who may be intimidated by highly formalized engagement events are given an opportunity to participate.

7. The information used for decision making is adequate and accessible to all.

Information used during public engagement processes should be complete, readily available and in a format that is understandable by all participants.

8. Public engagement leads to opportunities for learning and informed participants.

Providing opportunities for participant education and social learning leads to informed decision making.

At face value, satisfying any single component will not result in a more effective engagement process, rather the true benefit of effective engagement occurs through the application of all listed components (Stewart 2005). An effective engagement process has integrity and is accountable to all interests. The lead agency has a sincere interest in engaging the public (McCool and Guthrie 2001; Stewart and Sinclair 2007) and will actively communicate with members of the public before, during and after the engagement process (CEAA 2006; Chess 2000; Stewart and Sinclair 2007).

Sincerity and open communication will lead to sponsors and participants developing trust and mutual respect for one another (McCool and Guthrie 2001; McMillan and Murgatroyd 1994). An effective process is transparent (McCool and Guthrie 2001; Smith 1982; Stewart and Sinclair 2007; Webler, Tuler and Kruger 2001) and the intentions of how public input will be incorporated in the decision are clearly defined from the outset, leading to structured decision making (Chess 2000; Gauvin and Abelson 2006; McMillan and Murgatroyd 1994; Rowe and Frewer 2000; Stewart and Sinclair 2007). The absence of transparency can corrupt the entire process (Louka 2008). Sponsors must ensure that the final decision is communicated to the participants with a clear

description of how or why their input was or was not incorporated into the final plan (CEAA 2006; International Association for Public Participation 2000).

Participants must have the ability to influence the process and final outcome (Gauvin and Abelson 2006; International Association for Public Participation 2000; Rowe and Frewer 2000; Stewart and Sinclair 2007). The final plan needs to be implemented as approved to sustain the integrity and accountability of the process and ensure participant influence on the decision (Duram and Brown 1999).

Fair notice and time for participation needs to be provided to allow participants to effectively engage in the decision making process (Gauvin and Abelson 2006; International Association for Public Participation 2000; Rowe and Frewer 2000; Stewart and Sinclair 2007). Public engagement must also be incorporated early on, be continuous throughout the entire planning process, with several opportunities for involvement (Chess and Purcell 1998; Gauvin and Abelson 2006; Heathcote 1998; McMillan and Murgatroyd 1994; Rowe and Frewer 2000; Smith 1982; Shepard and Bowler 1997; Stewart and Sinclair 2007). Public engagement must be incorporated before the planning process has progressed too far to influence the final decision (Shepard and Bowler 1997). Involving the public at strategic or operational planning levels when they have had no input previously will not lead to effective engagement (Smith 1982).

A process must be inclusive with adequate representation (Stewart and Sinclair 2007). Those interested in and affected by the decision must be allowed to participate (Gauvin and Abelson 2006; Haque et al. 2002; International Association for Public Participation 2000; McCool and Guthrie 2001; McMillan and Murgatroyd 1994; Rowe and Frewer 2000; Stewart and Sinclair 2007). Participants should also be engaged in deciding how they should participate (International

Association for Public Participation 2000). The process should be sensitive to community values and combine shared knowledge of scientific/technical information with community/local knowledge (CEAA 2006).

Fair and open dialogue is another requirement of effective engagement (Stewart and Sinclair 2007). The process should create a positive communicative environment (International Association for Public Participation 2000; Smith 1982; Stewart and Sinclair 2007; Webler and Tuler 2000) where participants may freely discuss opinions with impartiality (Gauvin and Abelson 2006; Rowe and Frewer 2000). Utilizing interactive formats of engagement and building capacity among the public improves the quality of dialogue during the process (Stewart and Sinclair 2007). Public involvement does not automatically resolve conflicts, allowing for fair and open dialogue during decision making processes can address outstanding disputes (Curtis and Lockwood 2000).

Incorporating multiple and appropriate methods for public involvement improves the opportunity for effective engagement (CEAA 2006; Chess 2000; Haque et al. 2002; International Association for Public Participation 2000; Stewart and Sinclair 2007). Members of the public not able to participate in more formal forms of engagement are provided with the increased opportunity to influence the final decision. Participants should be consulted on appropriate methods of engagement and included at varying degrees of involvement (Stewart and Sinclair 2007). Planners should not be afraid to modify traditional public engagement methods to best suit the needs of a given situation (Chess 2000).

Information provided during the engagement process must be adequate and accessible to all participants (Gauvin and Abelson 2006; Haque et al. 2002; Rowe and Frewer 2000; Smith 1982; Stewart and Sinclair 2007; Webler and Tuler 2001). Information should be complete, readily

available and in a format understandable by all participants. In order to ensure adequate engagement, some practitioners and researchers advocate for participant funding to research opinions or options (CEAA 2006; Diduck and Sinclair 2002; Haque et al. 2002; Shrubsole and Draper 2006; Stewart and Sinclair 2007).

Participant education or social learning is imperative to an effective engagement process (Fitzpatrick and Sinclair 2003). Providing the opportunity for participant education and social learning leads to informed decision making (CEAA 2006; International Association for Public Participation 2000; McCool and Guthrie 2001; Smith 1982; Stewart and Sinclair 2007; Webler and Tuler 2001). Planners need to make every effort to ensure a high level of understanding by all participants and provide an opportunity for education. Participant education is of critical significance in water resources decision making where potential impacts on social and ecosystem values are complex and not well understood (Parkins and Mitchell 2005).

Shortcomings of an engagement process can be overcome and barriers to citizen engagement can be addressed across all levels from personal to social and environmental barriers (Table 3). Susskind (1987), describes the attributes of good negotiated outcomes as fair to all, efficient in time and resources, wise (best course of action selected) and sustainable in the long term. Ultimately, effective engagement leads to improved outcomes. By incorporating the components of effective engagement into water resources decision making, the full benefits of public engagement can be realized.

2.5 Summary

Fundamentally democracy is based on the right of the governed to participate in making decisions that affect some aspect of their livelihood (Parenteau 1988; Pratchett 1999). Democracy

is a process, not an endpoint and as such is subject to constant evolution and redefinition.

Therefore, encouraging the public to participate in water resources management may have less to do with efficient decision making and more about improving participatory democratic norms (Louka 2008).

Public engagement refers to the use of a variety of processes and procedures organized by a decision maker to enable members of the public to become active in establishing policy options, voicing opinions or in some cases influencing final decisions (Webler and Tuler 2001). As issues surrounding water increase in complexity, engaging the public in decisions that affect them has become critically important (Jackson 2001). Involving those affected by a decision can lead to the identification of potential management alternatives, resolve inequities in resource allocation, increase fairness in decision making, reduce conflict and ultimately lead to a better decision and improved management (Jackson 2001).

The purpose of effective public engagement in watershed management is not to strip the power of elected officials or undermine the authority of public and private agencies. Rather it is to strengthen decisions by ensuring thorough evaluation of diverse issues given the inherent complexities facing contemporary watershed management. Only through the use of public participation which incorporates the components of effective engagement can the barriers and shortcomings of public involvement be overcome. Public engagement is a dynamic process subject to constant negotiation by all participants. Sponsors must be committed to the components of effective engagement and be open to all forms of public input and modification of methods to realize the full potential of involving the public in decision making. As watershed management moves forward in Manitoba, a key challenge for watershed planning authorities will be to effectively

engage the public while meeting Provincial priorities and maintaining ecosystem services of watersheds.

CHAPTER 3 – RESEARCH METHODS

3.0 Introduction

This research project followed a qualitative design. Qualitative research is about developing an understanding of the social world (Snape and Spencer 2003). As such, it is the role of a qualitative researcher to observe and interpret meaning from natural phenomena (Snape and Spencer 2003). By following a naturalistic paradigm for this research, I was able evaluate public engagement in a real world setting while maintaining context within my acquired understanding (Hammersly and Atkinson 1995). Evaluating the perspectives of public participants and decision makers is not a topic which can be explored in a laboratory setting and the context in which these exchanges occur is important to identifying their meaning.

For the purposes of this project, my intended role as a researcher was that of an unobtrusive observer. This role allowed me to implement a reflexive research approach that incorporated my preconceptions about public engagement in watershed management while simultaneously exploring my understanding of social interactions in a real world watershed management planning process (Hammersly and Atkinson 1995).

3.1 Research Methods Overview

This project involved the use of a case study strategy. Case studies were created for two specific integrated watershed management plans being developed under the framework of Manitoba's Water Protection Act. Each case was supported with plan specific documentation and evidence collected from semi-structured interviews with 40 participants in the two water management planning processes. Interviews were conducted with watershed PMT members,

public individuals and stakeholder representatives that attended public meetings held during the watershed planning process.

Both watershed planning cases featured public meetings held at two points during the watershed planning process. The initial public meetings were held by Watershed Planning Authorities near the beginning of the watershed planning cycle to the community to establish planning priorities for the watershed. A second round of public meetings was then held later in the process to review draft watershed plans. Stakeholder agency and organization representatives were also engaged by watershed planners between the first and second round of public meetings to assist in developing the overall watershed goals and strategic action plans.

Watershed planning documents and other written records provided further valuable information for completing the specific watershed plan cases and formed the basis of many questions posed to the interview participants. Once all document evidence was collected and interviews completed and transcribed, a computer assisted qualitative data analysis software package (Nvivo 9.1) was utilized to structure, organize and thematically code all collected information. Nvivo's information query and classification features allowed for rapid and thorough analysis of the key constructs surrounding effective public engagement and the major objectives of this research project.

Information that emerged from this analysis was then compared with the components of effective engagement to evaluate if opportunities for effective public engagement were occurring within watershed management planning in Manitoba. These findings coupled with other critical evidence collected throughout the research process and supported by literature on public

engagement in watershed management then formed the basis for this projects final conclusions and recommendations for improving effective public engagement in watershed planning.

3.2 Case Study Strategy

A case study is an empirical strategy of inquiry used to investigate a contemporary phenomenon or situation within its real world context. As a comprehensive research strategy, case study allows the researcher to incorporate multiple forms of data including interviews and document records. It also illuminates meaning from an event or phenomenon helping to answer questions such as why were certain steps taken, how were they implemented, and what was the result (Yin 1994).

There is a common-held belief that case studies provide nothing of scientific merit due to their inability to generalize information from a single case (Berg 2003; Yin 1994). However, case studies are not intended to generalize to populations but rather to develop insight and to test theoretical propositions (Berg 2003). Case studies were utilized for this research project not to generate statistical support for public engagement in watershed management but to refine and develop a theory surrounding the components of effective public engagement.

As research and data collection for this project unfolded, case study proved to be the most appropriate strategy for collecting and presenting data on watershed planning. The roles, shapes and outcomes of collaborative watershed planning are impacted by the interplay between ecological, social, economic, institutional and political processes that occur within a specific watershed (Ferreyra and Beard 2007). Therefore, identifying the context in which public engagement occurred was critical to developing an understanding of why decision makers have engaged the public in watershed planning or how the public was involved in influencing the final

decision. The use of a case study strategy allowed effective incorporation and thorough description of information collected during interviews with participants in the watershed planning process. Of the common strategies of inquiry used in qualitative research, the case study is the most suited to answering “how and why” questions about a contemporary issues (Yin 1994). Following a case study strategy, I was able to develop insight into the implementation of watershed planning at the local level, present rich and significant contextual information and identify the implications of effective public engagement in watershed planning. Research literature on public participation clearly demonstrates that context matters to how people define a "good" process (Webler and Tuler 2001). A significant aspect of this study was to identify how multiple perspectives can exist in regard to a single process and across different watershed cases.

One specific concern associated with using a case study strategy is that the studies lack rigour (Berg 2003; Yin 1994). Lack of rigour is usually the result of sloppy data collection or the biased views of a researcher influencing findings and conclusions. This was overcome by careful planning, establishing a strong research design and developing a sound theoretical framework for pursuing the research (Yin 1994). To further enhance accuracy in the information presented within the cases, four watershed plan participants were given the opportunity to review and provide comments on the cases presented in this document. Member or participant checking is a tool commonly used by qualitative researchers to ensure validity in their results (Creswell and Miller 2000). Participant comments improved clarity surrounding the sequence of watershed planning events and were incorporated into the final cases. Other procedures utilized to ensure validity in the final results presented in this thesis included the use of rich text description of specific watershed cases and the presentation of direct quotes from interview respondents.

3.2.1 Research Design

A robust research design involves identifying the specific study questions and propositions at the outset of the case study. Study questions are the “how and why” questions that the investigator is wanting to explore within a specific case. Study propositions are theories or concepts that have already been developed by the researcher. These two elements narrowed the scope of the case study and defined what information needed to be collected and how it was to be collected.

To help define the scope of my case studies, I developed study questions based on the research objectives of this project. Identifying facts and determining the conclusions to these study questions were at the heart of meeting the research objectives and overall purpose for this project.

Objective 1: To understand how watershed resources are currently managed in Manitoba and how the public is being engaged in watershed management.

Research Questions:

- 1) How are decisions surrounding watershed management currently being made in Manitoba?
- 2) What is the role of the public in this decision making?
- 3) What are the expectations of public engagement in watershed management planning?
- 4) How is the public being involved?

Objective 2: Identify the challenges, barriers and drivers for effective public engagement in watershed management.

Research Questions:

- 1) What are the motivations for engaging the public in watershed management decision making?
- 2) What does the public perceive as barriers to engaging in watershed management?

- 3) What are the challenges involved with effectively engaging the public?

Objective 3: To determine if public engagement occurring within Manitoba's watershed management planning processes satisfies the components of effective public engagement in watershed management.

Research Questions:

- 1) When tested against the public engagement literature, do watershed management plans developed under the Water Protection Act provide opportunities for effective public engagement?
- 2) Are key components of effective engagement are being met by watershed planning?
- 3) Are the components of effective public engagement useful as a diagnostic tool for identifying effective public engagement processes?

This research project was further guided by the following propositions that are prominent in literature surrounding public engagement in watershed management:

- 1) Successful watershed management is largely dependent on achieving social commitment to change.
- 2) Social support for decisions can be enhanced through an effective public engagement process.
- 3) The incorporation of effective public engagement during the watershed management planning process is critical to successful implementation of watershed management.
- 4) Effective public engagement is contingent on the following conditions being met in the planning process:
 - 1) Early and on-going opportunities to participate throughout the decision making process.
 - 2) A process that has integrity and is accountable for the decisions made.

- 3) Opportunity for public input to influence the final decision.
 - 4) Adequate notice and time to prepare for engagement events.
 - 5) Opportunities for fair and open dialogue throughout the decision making process.
 - 6) Engagement events include the use of multiple and appropriate engagement methods.
 - 7) The information used to decision making is adequate and accessible to all.
 - 8) Engagement leads to opportunities for learning and informed participants
- 5) The provision of opportunities for effective public engagement is an important aspect of a successful public engagement process.

Once all research study questions and propositions had been identified, the next step in the research design process was to select representative cases of public engagement in watershed development.

3.2.2 Case Study Selection Process

In order to ensure adherence to the purpose and objectives of this project, I used the following the following case study selection criteria to identify to appropriate cases:

1. Watershed plans must be developed under the Water Protection Act.
2. Watershed plans must be led by a conservation district designated as Water Planning Authority.
3. Watershed cases must be geographically and demographically distinct in order to provide a broader range of perspectives on watershed management in Manitoba.

4. Both plans must be at the latter stages of development or complete in order for participants to be able to reflect back on engagement events. Working with plans at the latter stages of development also avoided the researcher influencing the course of public engagement events utilized through each process.
5. Finished watershed plans must have been completed within the past two years.
6. Watersheds must be within two hours driving distance of Portage la Prairie for accessibility to interview subjects.

After careful consideration of the case criteria and the 22 possible watershed plan case study options, the Netley-Grassmere and Pembina River watershed plans best satisfied the case study selection criteria established above. Both plans were being led by conservation districts as watershed planning authorities and followed the framework of the Water Protection Act. Plans were developed for watersheds that were geographically and demographically distinct from one another. At the outset of this research project, both watershed plans had been completed and were awaiting formal government approval before implementation. Finally, both watersheds were located in close proximity to Portage la Prairie allowing for reasonable access to plan participants.

Of the remaining 20 possible watershed plan options, two watershed plans were rejected due to excessive distance to access individuals for interviews and data collection. Another eight were completed more than two years ago, leading to concerns surrounding clarity in interview responses regarding the process and content of public engagement events. Ten watershed plans were near the beginning of the planning process. This left the Netley-Grassmere and Pembina River watersheds as the remaining two case study options.

With case study locations selected, the next step in the development of the case study design was to prepare an analytic and data collection strategy to guide the collection of appropriate data from each watershed case. The answers to the study questions were to be determined based on opinions of watershed plan participants and evidence contained within watershed planning documents.

3.2.3 Participant Interviews

For the purposes of this project, interview subjects were viewed as belonging to one of two distinct groups. The first group consisted of members of the Project Management Team (PMT) or watershed plan organizing committee. PMTs consisted of individuals who were appointed by the conservation district designated as the Water Planning Authority for the specific watershed. The PMTs included conservation district managers, board members, and Manitoba Water Stewardship staff. The second group of interest to this study were the individuals from the public and stakeholder groups that participated during the public events held during the watershed planning cycle.

Following an extensive literature review process and the definition of research purpose, objectives and strategy, semi-structured interview schedules were developed for the PMT, other Manitoba Water Stewardship staff and individuals from the public. A complete listing of all interview schedules can be found in Appendix 1 of this document.

The identification of interview subjects began with the managers from the conservation districts designated as the Watershed Planning Authority for each watershed plan. These individuals were members of the PMT and acted as the watershed plan's administrator. Along with a watershed planner from Manitoba Water Stewardship, the conservation district manager was

responsible for all record keeping associated with the plan. Both of these individuals were essential in developing an overall watershed planning timeline and provided access to a wealth of information pertaining to the watershed planning process. Among the information obtained from these individuals were contact lists for other members of the PMTs and stakeholder agency representatives. Also provided were public meeting sign in sheets that contained contact information for public participants from each of the public meetings held during the watershed planning process. Upon attending a public engagement event during the watershed planning process, public participants were encouraged to provide contact information on public sign in sheets located near the entrance of each public meeting location. Contact lists and public sign in sheets were extremely valuable and provided contact information for all subsequent interviews.

Following the initial interviews with conservation district managers and watershed planners, the focus shifted to other members of the PMTs. These individuals were interviewed prior to any public individual in order to first develop an accurate picture of the sequence of planning events for each watershed plan. This allowed for questions posed to individuals from the public to be further refined and based on the context of actual watershed planning events.

Following a thorough review of participant sign in sheets and contact lists provided by the PMTs, members of the public were divided into three distinct subgroups of interest to this research. The first group consisted of individuals that had participated in public meetings at two separate points during the watershed planning cycle. The second group included individuals that attended only the first round of public meetings and had not participated in subsequent public planning events. The last group of interest were individuals identified on contact lists as watershed stakeholder agency representatives that had also participated in public meeting events. It was

expected that these three subgroups would provide unique perspectives on public engagement in the watershed management planning process.

As watershed public meetings were often held in several towns throughout the watershed, interview subjects were distributed throughout the watershed as well. Prior to the actual interview, interview subjects were contacted by phone and requested to participate in an interview to discuss their experiences with the watershed planning process. In the majority of cases this first call was used to schedule a subsequent interview at a time and location that was convenient for the participant. As many individuals also provided an email address, an interview consent form outlining the scope of the project and the intended use of information they provided was submitted ahead of the interview. Immediately prior to the interview, the interview consent form was verbally reviewed with interview participants. In all cases consent to proceed with the interview was given by the respondents.

Each interview was audio recorded to support accuracy in note taking, to speed up the interview process and maintain the interview's conversational cadence. Verbal or written consent was confirmed prior to recording any conversation. Interview subjects were given clear direction that at any time during the interview they could request the recording be stopped. Interview respondents were also informed of the anonymity of their responses and assured that all recordings and transcription documents were for the sole use of the researcher and subject to destruction upon completion of this project. The letter of consent provided to interview respondents can be found in Appendix 2 of this document.

Recorded interviews were then transcribed verbatim with word processing software and prepared for analysis with qualitative data analysis software. The ability to transcribe interviews

directly from a recording greatly improved the accuracy of the information collected during the interview process and added validity to the data analysis component of this research project.

In closing each interview, members of the public were asked about their interest in participating in a subsequent workshop with other public participants in the watershed planning process. It was explained that the purpose of the workshop was to review findings presented during the interviews and assist in further refining theories and recommendations for improving effective public engagement in watershed planning. The workshop process was intended to collect information for refining findings contained in this document while providing willing participants with an opportunity to provide additional feedback on public engagement processes in watershed management.

Only a handful of respondents expressed interest in attending such an event and most preferred to review the final outcomes of this project. Due to minimal interest in attending and the limited additional research value to be gained by hosting poorly attended workshops, these additional public events were not held. In return for their involvement in the project, each interview participant that expressed interest will receive a summary of the findings of this project with information on where the complete thesis can be found.

The process of interviewing began on April 20, 2011 and continued throughout the summer finishing on August 27, 2011. In the end, 40 interviews were completed, 25 with participants from the Pembina River Watershed Plan and 15 with participants from the Netley-Grassmere Watershed Plan (see Table 3.1). Of the interviews, 28 were with public participants while the remaining 12 were conducted with members of the PMTs and Manitoba Water

Stewardship staff. The majority of the interview participants (28) were male and the remaining 12 were female.

Table 3.1. Interview Respondents by Watershed.

Interview Respondents	Netley-Grassmere	Pembina River
PMT Members	5	7
Public Participants	10	18
Female/Male	6/9	6/19

The age of the interview participants ranged from high school students through to retired individuals in their mid-eighties. Public interview participants came from diverse backgrounds including stay-at-home moms, teachers, pilots, health care professionals, commercial fishermen, small business owners, students, agricultural producers, municipal officials and research scientists. Interview length ranged from 15 to 90 minutes with a typical average of 30 minutes to complete. Initial interviews, particularly with members of the PMT and Water Stewardship were conducted face-to-face primarily due to available access to quiet office space or board rooms.

Many of the public participant interviews were conducted over the phone. Phone interviews were found to be the most convenient and preferred method of accessing public input. Many individuals seemed reluctant to invite a stranger into their home and arranging a neutral public space when given the large distances encountered within each watershed was somewhat problematic.

3.2.4 Watershed Planning Document Review

During the course of the data collection process a number of watershed-specific planning materials and documents were made available for analysis. The majority of these documents were provided by conservation district and Manitoba Water Stewardship staff. A number of documents were also found on conservation district and Manitoba Water Stewardship websites. Among these documents were the following items:

- Draft and finalized versions of watershed plans for Netley-Grassmere and Pembina River Watersheds.
 - These documents included information about the public engagement process and the specific goals and actions for each watershed.
- Meeting minutes and agendas from over 30 PMT meetings.
 - Minutes of these meetings aided in completing the timeline for each watershed planning project and included valuable details on the decision making process regarding public engagement events and content of the final watershed plans.
- Terms of Reference for each watershed plan.
 - The Terms of Reference document is established prior to the development of the plan and acts as a planning guideline identifying a planning timeline including opportunities for public engagement, roles and responsibilities of various groups, and a budget for the watershed planning process.
- Signed memorandum of understanding for each watershed plan.
 - This document is an agreement between the conservation district and Manitoba Water Stewardship designating the conservation district as the water planning authority and identifying the boundaries of the watershed plan.

- Watershed public issue statements.
 - These documents are compiled with information that was collected from public meetings held during the planning process.

As all of these documents were available in a digital format, qualitative data analysis software was again used to codify information and assist in identifying emergent themes regarding public engagement processes.

3.2.5 Computer Assisted Qualitative Data Analysis Software (CAQDAS)

During the data collection process a computer database was created to store and organize information and maintain a transparent chain of evidence for all data that was collected. A qualitative data analysis software called Nvivo 9.1 was utilized to assist with data analysis. CAQDAS is a computer based software package that allows researchers to organize and interpret qualitative data through the identification and possible coding of themes or concepts in order to create an explanation or theory, or even test or enlarge upon an existing theory (Lewins and Silver 2006).

CAQDAS is a tool to help organize, prepare reports and manage data. Fundamentally, CAQDAS is no different than the use of scissors, glue and filing cabinets in qualitative research methods in the past (St. John and Johnson 2000). The use of CAQDAS provided more flexibility and thoroughness in the use of the data that was collected (Lewins and Silver 2006). The use of CAQDAS also supports the validity of research by providing a readily auditable trail of work.

CHAPTER 4 – WATERSHED MANAGEMENT AND PUBLIC ENGAGEMENT IN MANITOBA

4.0 Introduction

Manitoba's institutional arrangements for water management have been subject to change overtime. Earlier institutional decisions and rules have established limits on what future changes to water management can occur (Johns and Rasmussen 2008). The institutions surrounding water management are continuously being negotiated and shaped by communities, stakeholders and multiple levels of government along the way. Watershed management has emerged as a means to facilitate and coordinate changes made to water management institutions. As water management institutions have progressed, so have the opportunities and formats for public engagement.

In order to draw valuable insights from public engagement occurring in watershed management planning in Manitoba, it is essential to first develop a clear understanding of the context in which planning is taking place and the role of the public in influencing key decisions. This chapter presents a synthesis of information on the current management of watershed in Manitoba and how public engagement has become critical in the water decision making process.

4.1 Drivers for Public Engagement in Manitoba Water Management

Until the 1960's, the primary concern for water management in Canada including Manitoba had been on land drainage and supply management for the purpose of regional development (Dorcey 1987; Ramin 2004; Venema, Osborne and Neudoerffer 2010). As a result, many Canadians associated the inherent environmental damages caused by these projects to be an unfortunate but necessary cost of social development and progress (Heathcote 1998). For much of this period the public held a high degree of optimism that emerging scientific and technological

progress would rectify the concerns of environmental damage caused by development activities (Parkins & Mitchell 2005).

However, advances in science and technology also played a significant role in increasing public understanding of the environmental impact of large water management projects. As improving technology enhanced environmental monitoring techniques, researchers began to conclusively link human activity and environmental degradation, particularly in the field of water resources (Dorecy 1987; Heathcote 1998). A heightened public awareness about the impacts of growth on water resources led to unprecedented civic expectations for better natural resource management. As a result, concerns about degrading water quality became an important component of water management (de Loe and Kreutzwiser 2006; Heathcote 1998, Ramin 2004). Watershed stakeholders and public individuals no longer satisfied with centralized decision making began to demand more access to decisions surrounding water.

In response to this growing public concern, politicians and government agencies began to increasingly consult members of the public prior to project implementation (de Loe and Kreutzwiser 2006; Parenteau 1988; Parkins & Mitchell 2005). Initially public involvement in water resource decision making was viewed as adversarial and anti-project which prompted policy makers to become concerned about lengthy project delays and costly public involvement exercises (Heathcote 1998). In order to retain control over the planning process, initial public participation exercises were limited to the canvassing of opinions and feedback during public hearings rather than true participation in decision making (Morley 1975; Ramin 2004). During these formalized public consultation events, standing as a public participant was often narrowly defined and ultimately granted at the discretion of event planners (Morley 1975).

As public concerns about lack of adequate access to decision making processes became more prominent and frustration with traditional political structures for capturing public opinion increased, participants turned to the law courts to resolve conflicts with decision makers (Pearse, Bertrand, and Maclean 1985). As a result adversarial positions became further fortified and progress on proposed water resource development projects ground to a halt, forcing long delays and further escalating project costs (Heathcote 1998).

The Manitoba Government has some experience with resolving public concerns over water resource management decisions within the court system, as was the case with Manitoba's Churchill River Diversion project in 1972 (Foster and Sewell 1981). Several aboriginal communities and public interest groups, directly affected by the project unsuccessfully petitioned the Provincial Government for a full public review prior to project completion. The minister responsible for the project denied the request and the project proceeded as planned. As a result, a major court case was launched on behalf of the affected public, resulting in the highly controversial Northern Flood Agreement (Morley 1975). The Churchill River Diversion resulted in significant environmental and social impacts to many northern communities and ultimately cost Manitobans millions of dollars in subsequent damages and settlement payments (Morley 1975).

In practice the use of the law courts to resolve conflicts in water resource decisions has proven very ineffective (Morley 1975). Public regulators, fed up with the inability of the courts to provide swift resolutions to outstanding conflicts increasingly began to improve public access to decision making processes. Gradually, consultation processes were institutionalized in many sectors of decision making (McMillan & Murgatroyd 1994) especially decisions that impact the environment (Parenteau 1988).

As a result of the rapid change in social expectations, many existing water management institutions were found to be ill equipped to adequately address new challenges. Existing institutions that had been created to promote the development of water resources were now expected to champion conservation as well (Blomquist and Schlager 2005; Johns and Rasmussen 2008). Water was no longer viewed solely as a “nation building” commodity and had become a policy area in its own right. Institutional focus had shifted from the development of water resources to promote economic growth to the protection of water systems from the pressures of an industrial economy (Dorcey 1987; Ramin 2004).

Higher level governments were unable to adequately govern unregulated water uses at the local level, resulting in inadequate and ineffective water resources management (Heathcote 1998). As a result there was an increased demand for distributed water management approaches that integrated local needs within the limits of natural surroundings (de Loe and Kreutzwiser 2006). The practice of resource management decisions made by the elite within upper level governments, based solely on consideration of science, technology and economic analysis slowly began to shift to a social preference for collective knowledge, action and transparency (McMillan & Murgatroyd 1994). Many natural resource decisions were now being made on the merits of potential economic growth, societal values and environmental impacts (McMillan & Murgatroyd 1994; Parkins & Mitchell 2005). It was against this political and environmental backdrop that the Conservation District Program emerged in Manitoba.

4.3 Manitoba's Conservation District Program

As senior level governments began to comprehend the issues facing water quality, many began to develop legislation, revise water management institutions and coordinate water resources

planning to support environmental protection of water resources at the local level (Heathcote 1998). This era marked a shift away from centralized authority in water management characterized by increasingly distributed decision making, integration of institutions and the devolution of power to the local level (de Loe and Kreutzwiser 2006; Plummer et al. 2005).

In Manitoba efforts to improve the coordination of water management activities in the agricultural regions of Manitoba resulted in the proclamation of the Watershed Conservation District Act in 1959 and later the revised Conservation District Act of 1976 (Thompson and Weiss 2004). These Acts, loosely based on the Conservation Authority model utilized in Ontario, allowed for the establishment of locally governed conservation districts. Each conservation district (**CD**) was authorized to promote conservation and the control of water resources through the development and implementation of plans for the purposes of conserving, controlling, developing, protecting, restoring or using water resources of the district, and land, forests, wildlife, and recreation resources as deemed necessary to achieve the above aims (Osborne, Venema, and Tyrchniewicz 2007). As of 2011, there were 18 conservation districts covering all or part of 27 watersheds in agricultural Manitoba (see fig 4.1).

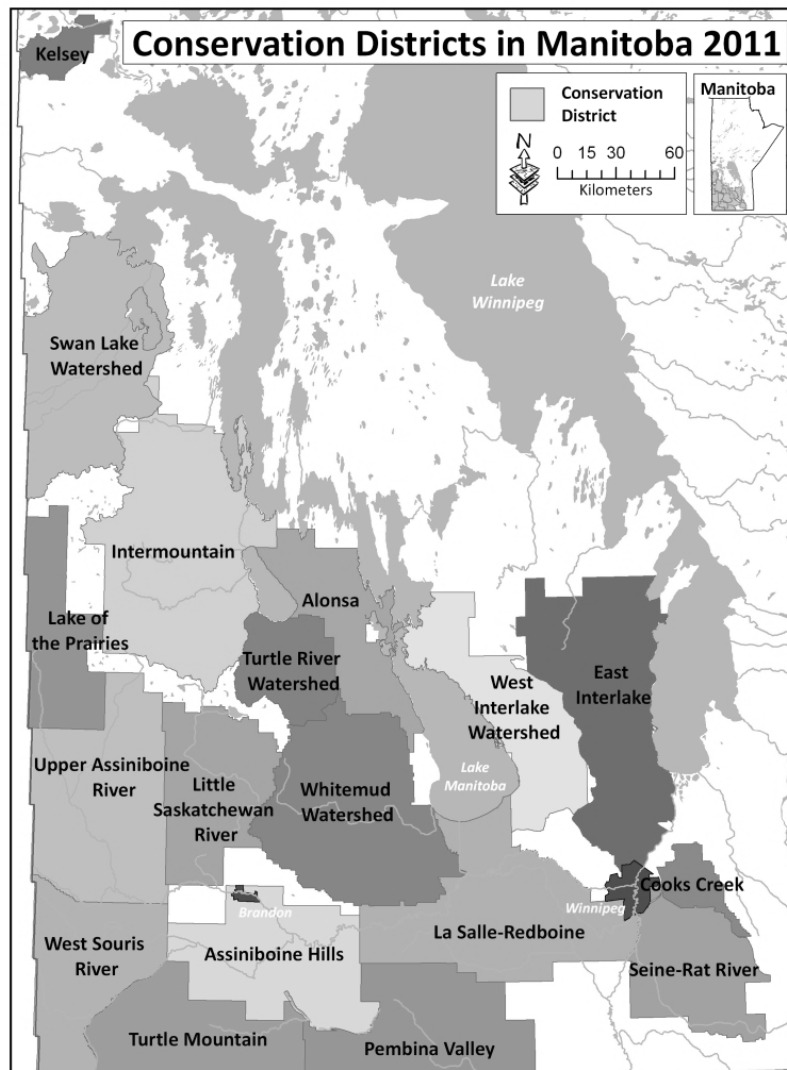


Figure 4.1. Conservation Districts in Manitoba. (data source: Manitoba Water Stewardship)

Conservation district boards are comprised of volunteer directors appointed by the member municipalities through a bylaw of the municipal council. Each municipality appoints one elected councillor and one ratepayer (tax paying) citizen to represent local conservation interests for each sub watershed or sub-district that intersects municipal boundaries. These individuals along with ratepayer and municipal representatives from other municipalities within the sub-district form a sub-district board. Each sub-district elects a sub-district chair person that represents the

sub-district at the conservation district board level. In turn a conservation district board chair is elected by the membership of the district board.

Each conservation district operates independently and boards are free to establish programs, develop policies and allocate funds towards conservation programming. Board decisions surrounding conservation district programs and initiatives are often based on deliberation with fellow sub-district committees, communication with member municipalities and watershed priorities (Manitoba Water Stewardship n.d.(b)). Many program observers view the high degree of local control and autonomy as a significant strength of the Conservation District Program (Venema, Osborne and Neudoerffer 2010).

Conservation districts typically offer programs that are targeted towards drinking water protection, waterway management, water quality protection, wetland enhancement, environmental education, soil conservation and riparian management (Manitoba Water Stewardship 2011). While all conservation districts do provide a wide array of water management programs, most CD's do not have legal authority over surface water management infrastructure. Water management structures are typically the responsibility of the Provincial Government (large drainage or regional infrastructure) or Municipal Governments (local and smaller drainage projects, typically 2nd order magnitude and down) (PVCD 2008b). Conservation districts are not regulatory agencies and do not possess enforcement responsibilities when it comes to the management of soil and water resources.

Conservation districts are lean organizations typically administrated by two permanent staff consisting of a district manager and financial administrator. Under the direction of the board of directors these individuals are responsible for managing board funds, carrying out programs and

projects, liaising with various government departments and municipalities, and keeping the public abreast of conservation district activities. Additional program staff are typically brought on seasonally or as required.

Conservation districts are supported by nine watershed planners from Manitoba Water Stewardship's Planning and Coordination Branch. The main focus for these individuals is to ensure that provincial watershed management priorities are being met while providing an advisory role to conservation district boards and staff. Key activities include administrative assistance, technical advice and watershed planning services.

Operating costs for conservation districts are cost-shared between Manitoba Water Stewardship and participating municipalities based on a general funding ratio of \$3 provincial to \$1 municipal contribution (Barg and Osborne 2006). This cost sharing arrangement allows the Manitoba Government to influence conservation district programs towards provincial objectives by approving how provincial funds are allocated. Conservation districts are able to use these funds for the development and implementation of watershed plans that support public policy objectives relating to the stewardship of Manitoba's land and water resources and administration costs relating to conservation district operations (Manitoba Water Stewardship 2010b). The provision of long term program funding and strong municipal support has been critical to the success of the Conservation Districts Program (Coughlin 2010).

Under this arrangement, during the 2009-2010 fiscal year, Manitoba Water Stewardship provided \$5.5 million in direct conservation district funding with a further \$1.8 million contributed by member municipalities. An additional \$700,000 of program funds were made available from participating landowners and program grants through other government funds, agencies and non-

governmental organizations (Manitoba Water Stewardship 2010b). Since conservation district program inception, over \$100 million dollars have been spent on conservation programming resulting in additional spin off benefits estimated at \$15 to 20 million (Manitoba Water Stewardship n.d.(b), Coughlin 2010).

At their core, conservation districts are designed as a partnership between the Provincial Government and a group of neighbouring municipalities for the purpose of implementing programs to meet both local and provincial priorities for water and soil management (Osborne, Venema and Tychniewicz 2007). Initially conservation districts were established according to natural watershed boundaries. However, this approach meant that many municipalities would be divided among several conservation districts leading to increased confusion and fragmentation on local water management issues (Barg and Osborne 2006). To abate this concern the Conservation Districts Act was revised in 1976 to allow the establishment of conservation districts along municipal boundaries with internal administrative boundaries aligned to multiple sub-watersheds. While this did increase municipal interest in the program, not having jurisdiction over entire watershed areas has been a challenge for many conservation districts to this day.

In spite of this concern, conservation districts have developed the capacity to make effective water resource decisions and possess adequate resources to address many soil and water management issues (Thompson and Weiss 2004). As a result of the emergence of the Conservation District Program, governance over many aspects of water management in Manitoba has become largely a local responsibility (Thompson and Weiss 2004).

4.4 Manitoba's Watershed Management Approach

In Canada, the Federal Government was first to develop a formalized holistic framework for planning at the watershed or basin scale. The Canada Waters Act was enacted in 1970 to ensure that water resource issues of national importance were conservatively developed and appropriately managed (Ramin 2004). A major tool to accomplish the goals of the Canada Waters Act was the provision for comprehensive and collaborative river basin planning. During the 1970's, river basin studies were completed on the Okanogan, St. John's and Qu'Appelle Rivers.

The comprehensive studies were required to incorporate all aspects of institutional, economic, environmental and social concerns experienced within the river basin (Dorcey 1987; Ramin 2004). Initially these studies were completed with a high level of optimism as governments believed this approach would produce valuable information regarding solutions to regional water issues, contribute to the development of long term programs and aid in the establishment of national pollution prevention guidelines (Ramin 2004).

In the end, the results of the comprehensive basin studies failed to deliver on the programs original intentions. Researchers argued that planning efforts which included an emphasis on regional development were too broad in scope, required excessive time and money to develop and resulted in planning oriented rather than the expected action oriented solutions to basin management issues (Ramin 2004). During this time the Federal Government's dominant role in water management activities was being increasingly challenged by some Provincial Governments that were concerned with encroaching federal involvement in provincial water resources affairs (Harrison 1996). By the 1980's a weak Canadian economy coupled with the poor results from

comprehensive planning efforts and provincial/federal jurisdictional tension resulted in reduced funding for water resources research and management at a federal level.

As a result the Federal Government shifted its mandate from providing leadership on water management initiatives to playing a supportive role in conducting research, offering technical expertise and encouraging Provincial Governments to harmonize to national water management standards. By 1981, watershed based planning efforts had effectively been abandoned for lower levels of government to pursue (Dorcey 1987). Provinces, now required to assume a frontline role in providing environmental protection for water resources looked to existing water governance institutions to satisfy watershed management needs (Harrison 1996).

By 1985, the Province began to strongly support the idea of conservation districts providing locally led, integrated water resource management and began to experiment with the development of watershed or resource management plans. While these early attempts at developing watershed based plans by conservation districts tended to be very general in nature they were holistic, recognized the interrelated nature of watershed issues and involved some opportunities for public consultation (Venema, Osborne and Neudoerffer 2010). Without significant monetary or technical support for plan implementation, early watershed planning initiatives were not highly effective (Venema, Osborne and Neudoerffer 2010). As a result, conservation districts slowly moved away from watershed plan implementation towards the delivery of soil and water improvement projects to support local communities.

By the 1990's the watershed model for water resources management appeared to be on the decline in Manitoba. However, several significant factors encouraged the Provincial Government to revisit the idea of locally led integrated watershed management. One contributing

factor was that the majority of Manitobans had become aware of the declining ecological health of Lake Winnipeg (Venema, Osborne and Neudoerffer 2010). Deteriorating lake water quality had been directly linked to nutrient enrichment caused by a variety of human activities taking place within contributing watersheds. Effective management of land use activities occurring within contributing watersheds was viewed as an important component to addressing the health of Lake Winnipeg and other Manitoba water bodies (Lake Winnipeg Stewardship Board 2005).

Another factor driving renewed interest in watershed planning in Manitoba was the gradual change in the agricultural economy during the 1990's. In order to remain viable in a shifting agricultural marketplace, many Manitoba farms moved towards more intensive forms of crop and livestock production such as confined feeding operations or vegetable production (Venema, Osborne and Neudoerffer 2010). Intensive farming operations are known to generate higher amounts of nutrients as an operational by-product than traditional agriculture practices. The presence of increased levels of nutrients on the landscape resulted in high concentrations of nutrient laden runoff into Manitoba's water ways contributing to decreasing water quality and declining aquatic health (Lake Winnipeg Stewardship Board 2005).

A third significant factor promoting watershed management was a shift from the dry hot weather of the 1980's to regular episodes of large scale flooding throughout much of agricultural Manitoba in the 1990's. Especially hard hit by flooding was the populous Red River Valley which experienced disastrous floods in 1996 and 1997 (Osborne, Venema, and Tyrchniewicz 2007). Frequent spring and summer flooding events caused considerable crop and property damage, identified the limitations of aging water management infrastructure and highlighted the need for improved, coordinated management and ongoing maintenance (Venema, Osborne and Neudoerffer 2010).

The need for improved water protection measures through integrated watershed management was also reinforced by catastrophic failures of water protection systems in many regions of Canada in the early 2000's. The tragic water borne illness outbreaks in Walkerton, North Battleford and Kwasitchevan had pushed issues surrounding water management to the top of most political agendas nationwide (de Loe and Kreutzwiser 2006; Johns and Rasmussen 2008). Proper protection and management of watershed resources was seen as a vital first barrier in the protection of drinking water system (Health Canada 2002). The above events coupled with some successful experience with watershed management planning in Manitoba's Dauphin Lake Basin and the Upper Tobacco Creek Watershed and the continued development of watershed management planning in Ontario and Saskatchewan, led to a renewed enthusiasm in Manitoba for integrated watershed planning.

In recent years, institutions of water governance across Canada have undergone rapid changes to meet the needs of increasingly complex water management requirements (Bakker 2006). Today with respect to water governance, Canada is arguably one of the most decentralized countries in the world (Hill et al. 2008). Provincial Governments across Canada have introduced a variety of new approaches to water management including Quebec's citizen run watershed organizations, Alberta's water rights markets and Ontario's legislative requirement for full price accounting for water infrastructure (Bakker 2006; Brandes and Nowlan 2009). The Government of Manitoba also responded to the demands of contemporary water management and released the Manitoba Water Strategy in 2003. This strategy includes innovative programs, additional resources, policies and legislation aimed at improving water governance throughout Manitoba.

4.5 Manitoba's Water Strategy

In 2003, after more than a decade of strategy development, white papers, interim reports, and stakeholder consultation the Manitoba Water Strategy (Manitoba Conservation 2003). This strategy outlined Manitoba's overall vision for water as "an abundance of high quality water to support and maintain our ecosystems and provide for the present and future needs of all Manitobans". To accomplish this, the strategy identified 6 priority water policy areas including preservation of water quality, increased conservation, appropriate use and allocation, enhanced water supply knowledge and management, reduction of the impacts of flooding and coordination of drainage management.

The Manitoba Government planned to implement the strategy following a three pronged approach involving: 1) the development of an integrated water planning and management system, 2) review and consolidation of water legislation and, 3) development of mechanisms for financing water management and planning (Manitoba Conservation 2003).

The Manitoba Water Strategy resulted in two significant changes to water governance in Manitoba (Venema, Osborne and Neudoerffer 2010). Firstly, after reviewing the capacity of existing water management institutions to implement the Water Strategy, the Provincial Government formed Manitoba Water Stewardship. This department consolidated all Provincial responsibilities for water management including the Conservation Districts Program into one central ministry. The development of a consolidated water authority has been a novel approach in Canada and to date Manitoba has been the only Province to create a ministry devoted solely to the management of water (Bakker 2006, Environment Canada 2005). The second significant change in water governance for Manitoba was the proclamation of the Water Protection Act in 2006.

4.5.1 Manitoba Water Stewardship

Manitoba Water Stewardship was formed in 2003 with a mission to “*provide leadership in environmental stewardship for the benefit of current and future generations of Manitobans so the social, economic and inherent environmental value of water is protected and realized*” (Manitoba Water Stewardship n.d.(a)). A key guiding principle for the activities of the department included the requirement to advance and improve democracy through: 1) inclusive, community based development; 2) providing forums for meaningful participation in decision making processes by Manitobans; 3) improving and providing access to the scientific and other information necessary to enable such participation; 4) striving to achieve consensus amongst citizens with regard to decisions affecting them and; 5) respecting the roles and jurisdictions of governments and elected officials. In 2009-2010, Manitoba Water Stewardship employed 215 individuals and delivered a total of \$34 million in programs by the managing, monitoring and planning of Manitoba’s water resources (Manitoba Water Stewardship 2010a).

Water management responsibilities at Manitoba Water Stewardship are subdivided between two main service units, Ecological Services and Regulatory and Operational Services. Regulatory and Operational Services oversee water licensing, regulatory enforcement and management of provincial water infrastructure. Key responsibilities of this group include: flood forecasting, flood monitoring and response, drainage licensing and enforcement, water rights allocation, and protection of Manitoba’s public drinking water systems through the Office of Drinking Water. Regulatory and Operational Services is also responsible for managing surface water infrastructure in coordination with the Provincial department of Manitoba Infrastructure and Transportation. Provincially owned water management infrastructure includes a network of 1,800 bridges, 2,100 large culverts, 13,000 thru-dike culverts, 4,500 km of drains, over 90 dams, 61 reservoirs, 345

water control structures, 12 diversions, 18 community ring dikes, 425 km of river dikes, and 41 pumping stations throughout the Province of Manitoba (Manitoba Infrastructure and Transportation 2010). Additional funds in the amount of \$86 million were spent by Manitoba Infrastructure and Transportation in the development, operation and maintenance of water infrastructure in 2009-2010 (Manitoba Infrastructure and Transportation 2010).

The key function of the Ecological Services unit is to manage provincial fisheries, carry out water resources research and monitoring and to coordinate water management planning. Department water planning initiatives are managed by the Planning and Coordination Branch within the Ecological Services Unit. The Planning and Coordination Branch also administers the Manitoba Conservation Districts Program and is responsible for implementing the watershed management planning provisions of the Water Protection Act.

Following widespread and in some instances devastating flooding in the spring and summer of 2011, a decision was made by the Manitoba government to dissolve the department of Water Stewardship. In a memo issued to staff in January 2012, employees were informed that streamline future flood fighting measures, water management infrastructure authority would be moved to Manitoba Infrastructure and Transportation. Remaining Water Stewardship functions including watershed planning and the Conservation Districts Program have been transferred to Manitoba Conservation now merged into a single department known as Conservation and Water Stewardship. It is unknown at this time how this administrative shuffle will ultimately impact the delivery of watershed services.

4.5.2 The Water Protection Act

The Water Protection Act was enacted as enabling legislation to allow the Province of Manitoba to establish and implement a variety of water protection measures and regulations. The Act authorizes the Manitoba Government to develop enforceable water quality standards and objectives, delineate and protect water quality management zones, take action in the event of serious water shortages, make regulations surrounding aquatic invasive species and develop and implement watershed management plans.

With regards to watershed management planning, the Act outlines the requirements of a watershed plan by identifying who can develop a watershed plan (as a designated water planning authority), defines the scope of a watershed plan, identifies items to be considered during plan development, discusses the content of a watershed plan, including provisions for public and stakeholder participation and outlines an approval process for plan implementation (Water Protection Act 2006).

Of key interest for this research project are the specific statements in the Water Protection Act pertaining to public and stakeholder consultation. The following statements are excerpts from the water protection act that relate to public engagement (Water Protection Act 2006):

- *§15 (1) Considerations in preparing a plan: In preparing a watershed management plan, a water planning authority must consider the following:*
 - (d) comments received through public consultation or public meetings held under section 17;*
- *§17 (1) Consultation: In preparing a watershed management plan, the water planning authority must consult with the following:*
 - (a) if land within the watershed is in a conservation district or planning district, the board of that district;*

(b) the council of any municipality located wholly or partly within the watershed;

(c) any band, as defined in the Indian Act (Canada), that has reserve land within the watershed; and

(d) any other person or entity specified by the minister.

- *§17 (2) Public meetings: The water planning authority must hold one or more public meetings to consult with residents of the watershed on the preparation of the plan.*

While public involvement in watershed management plans had commonly occurred in the past, inclusion of the above statements in the Water Protection Act signifies that public consultation is now a legal requirement during the development of watershed management plans.

Understanding how these provisions are being applied at the watershed level is a key objective of this research project.

4.6 The Watershed Planning Process

With the enactment of the Water Protection Act, the newly formed Planning and Coordination Branch of Manitoba Water Stewardship established a strategic plan to develop watershed management plans for all watersheds in Southern Manitoba. Integrated watershed management plans were intended to identify priority land and water-related issues, determine projects or policies targeted to address these issues and identify how land and water management programming could be implemented throughout the watershed (Manitoba Water Stewardship 2011). Based on the new departments propensity for inclusive, consensus based community led development, and the conservation districts previous experiences with watershed management and the provincial/municipal partnership within the Conservation District Program, the conservation districts were viewed as the preferred model for the effective planning and delivery of watershed planning (CDFC 2009). While the Water Protection Act allowed for other organizations to lead

watershed planning, in practice, all watershed plans developed to date under the Water Protection Act, have been lead by a conservation district.

The overall planning process or sequence of events for the development of a watershed management has been developed by Manitoba Water Stewardship Planning and Coordination Branch staff and is quite similar for all watershed plans. All planning processes begin with the designation of a Water Planning Authority (**WPA**). This is the group that is ultimately responsible to develop the watershed management plan in accordance with the requirements of the Water Protection Act. A conservation district will start the process by submitting a letter of interest to develop a watershed plan to the Planning and Coordination Branch of Manitoba Water Stewardship. Subject to the availability of staff and technical resources, the Minister of Manitoba Water Stewardship will initiate plan development by signing a memorandum of understanding with the interested organization. This memorandum of understanding officially establishes the interested district as the Water Planning Authority and outlines the physical boundaries for the watershed plan.

Once designated as a WPA, the conservation district will establish a subcommittee or Project Management Team (PMT) to organize and administrate plan development. This group consists of key decision makers who are appointed to represent the interests of all watershed stakeholders (Manitoba Water Stewardship n.d.(c)). This group is to include at least one member of the WPA, the CD manager and a watershed planner from Manitoba Water Stewardship. The PMT's first task is to develop the terms of reference that identify the purpose of the plan, a schedule of events, identification of roles and responsibilities for various team members and an estimated budget for the planning process (Manitoba Water Stewardship n.d.(c)). A funding grant

to cover the costs associated with the watershed planning process (i.e., printing, advertising, hall rentals etc.) is provided by Manitoba Water Stewardship and administrated by the WPA.

The watershed planning process is expected to take between one to two years to complete and is comprised of nine distinct planning stages (see fig. 4.2). The first step in the process is for the PMT to organize public meetings at locations throughout the watershed in order to gauge public opinions on watershed issues and identify locally acceptable solutions to these concerns. Following this initial public engagement process additional meetings are held with invited watershed stakeholder groups and technical experts from various government agencies. These events, known as “Watershed Team” meetings are intended to provide further information about watershed issues, identify concerns that may not have emerged at public meetings and propose appropriate solutions to address watershed challenges.

Based on the outcome of these public meetings and technical expert submissions, a document characterizing the unique features and challenges faced within the watershed is completed. This document along with public and expert input is used by the PMT to develop an outline of the contents of a draft watershed plan. This document is then taken back to the Watershed Team to discuss how stakeholder groups and government agencies will be able to commit to implementing the proposed action plans. Once stakeholder and government agencies commitment to plan implementation has been achieved (in principle) a draft watershed plan is prepared and presented to the Watershed Team for further review of proposed measures, budgets and timelines. Following Watershed Team review the plan is forwarded by the PMT to Manitoba Water Stewardship to conduct a branch review of the proposed watershed goals and action plans.



Figure 4.2. The Manitoba Watershed Planning Process

Following branch review, the draft plan is then introduced to the watershed community through public presentations of the plan. Following this last public review, the watershed plan is finalized by the PMT, formally approved by the local Water Planning Authority and submitted for government departmental review and approval by the Minister of Water Stewardship. Once approved by the Minister, the watershed plan is now ready for implementation and monitoring of results.

Since 2006, 22 watershed management plans led by Manitoba conservation districts have been initiated under the framework of the Water Protection Act (see fig. 4.3). Each of these plans are at different stages of completion ranging from the early organization stages, to the preparation of draft plans to plan implementation. Of the 22 watershed plans initiated, ten have been completed and approved by the Manitoba Government (Manitoba Water Stewardship 2011).



Figure 4.3. Current Watershed Planning Initiatives in Manitoba (source: Manitoba Water Stewardship).

4.7 Summary

Locally led watershed management signals a new approach to water governance resulting in a more widely distributed power and decision making responsibility (Mitchell and Shrubsole 1994). Senior governments are beginning to reflect in their actions, the understanding that water management can no longer be done alone and that some functions of water management are best

completed by others including local governments, NGO's, stakeholders, citizens or collaborative approaches (de Loe and Kreutzwiser 2006). As water governance becomes more distributed, many researchers argue that the function of senior governments has shifted to a supporting role for local bodies and organizations in managing local resources (de Loe and Kreutzwiser 2006).

Others suggest that the power of the state in matters of water management is far from diminished. As more actors become involved in water management, collaboration and partnership based approaches become essential. As a result, senior governments have had to substantially change their approaches to water management (de Loe and Kreutzwiser 2006). Even with these changes, senior governments still play a significant role in the protection and management of water resources (deLoe and Kreutzwiser).

CHAPTER 5 – WATERSHED CASE STUDY RESULTS

5.0 Case Study Locations

In this chapter, the Pembina River and Netley-Grassmere watershed management planning processes are presented as individual case studies. While the watershed planning processes shared many similarities, there were some notable differences in public engagement throughout the planning process. Each watershed case study is presented in two sections. The first section includes a description of the watershed planning area and water planning authority for the watershed. This section is intended to acquaint the reader with the watershed while identifying several key environmental, social and economic concerns that are impacted to some extent by watershed management. The second section of each case study contains a detailed description of the watershed planning process with an emphasis on events that involved public and stakeholder engagement. An overview of the timeline for each watershed plan has been provided in Table 5.1.

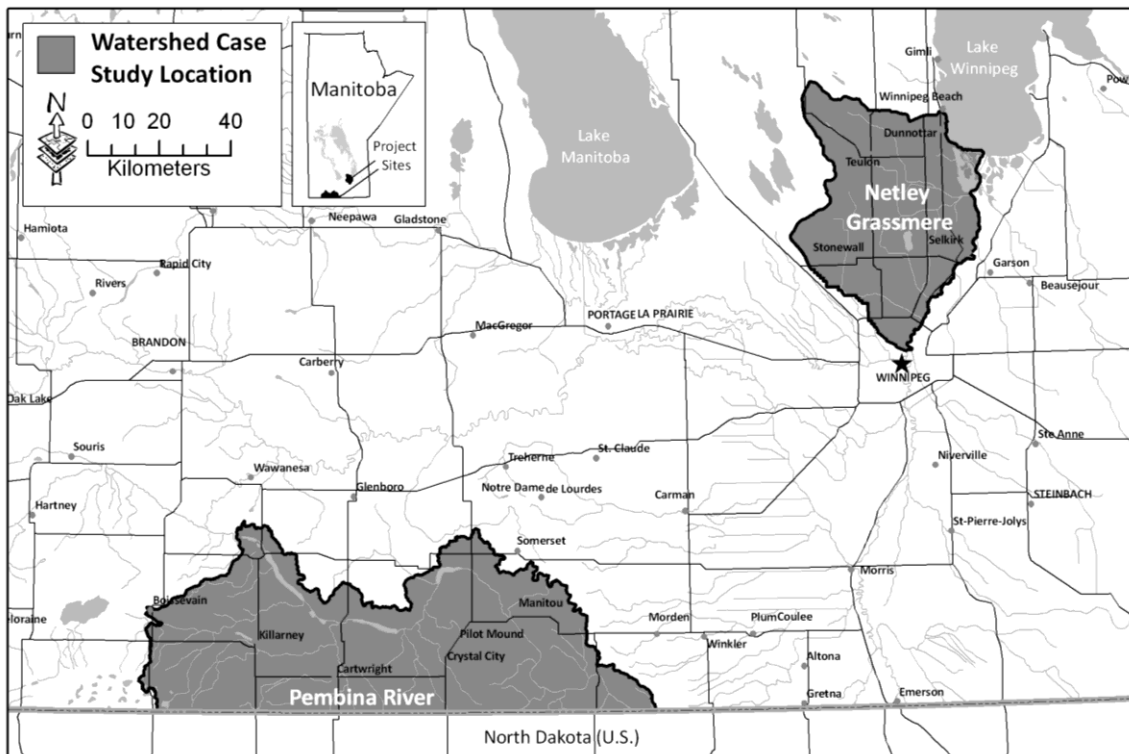


Figure 5.1 Watershed Case Study Location Map. (data source: Manitoba Land Initiative n.d.)

The two case studies have been developed based on a variety of information sources including watershed planning documents, draft and final watershed plans, public notices, technical expert submissions, written public comments, meeting minutes from the conservation district executive, the sub-district boards and PMTs, and interviews with members of each PMT and individuals that attended watershed planning events. To assist in accurately portraying each watershed case, members of the PMT from both watershed cases were given the opportunity to review the following case outlines and make recommendations for improvement. These suggested changes have been incorporated where appropriate.

5.1 Pembina River Watershed Plan

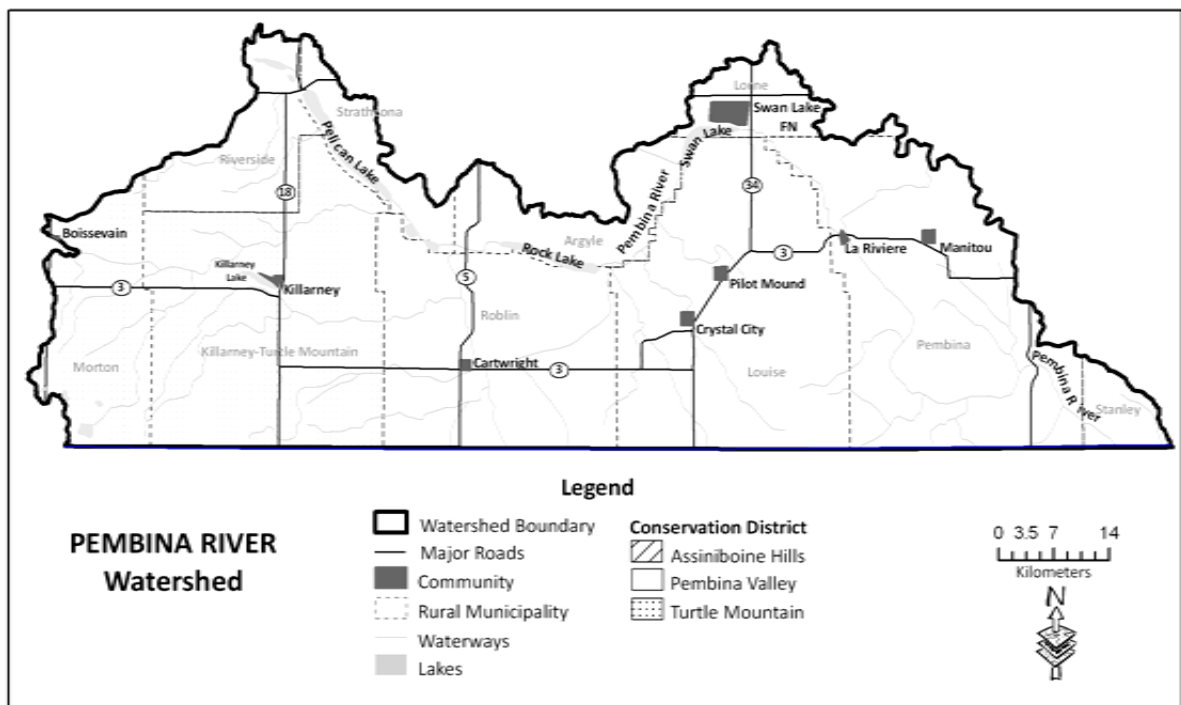


Figure 5.2. Pembina River Watershed Planning Area. (data source: Manitoba Land Initiative n.d.)

The Pembina River is an international waterway located along the Canada-U.S. border in south-central Manitoba, Canada. The total watershed area of 10,251 km², is neatly bisected by the international boundary, leaving 4,882km² in Manitoba. The Canadian area of the watershed (which

for the purposes of this research paper will be referred to as “the watershed”) is home to 15,600 permanent residents spread out among ten rural municipalities and six main urban communities including Boissevain, Killarney, Cartwright, Pilot Mound, Crystal City and Manitou. The watershed is represented by the Pembina Valley, Assiniboine Hills, and Turtle Mountain Conservation Districts (CD)’s). Pembina Valley CD located in the eastern section, is the largest covering nearly 60% of the watershed. Turtle Mountain CD lies to the west and covers close to a third of the watershed, while Assiniboine Hills CD covers the northern 10% of the area. The watershed also includes a portion of the Turtle Mountain and Pembina Valley Provincial Parks, 20 provincially controlled Wildlife Management Areas and the Swan Lake First Nation on the north shore of Swan Lake (PVCD 2008b).

As of 2006, agriculture was the primary land use in the watershed, with cropped lands accounting for 58% of the watershed area a further 24% is managed as hayland, forages or pasture for livestock. The remaining watershed area is divided amongst forested lands (10%), wetland areas (4%), lakes and rivers (3%), roads and communities (3%) (AESB-MAFRI 2009).

The Pembina River begins as a number of small creeks emerging from the Turtle Mountains in the western portion of the watershed. This area of the watershed is characterized by a rolling topography dotted by numerous wetlands or pothole areas. Most of the watershed’s remaining wetlands can be found in this area. The multifaceted impact of wetland loss through drainage and land development has been a major concern for many areas of the watershed.

The river slowly gathers in size as it meanders eastward before entering a deep river valley. Known as the Pembina River Valley this prominent watershed feature formed as a result of rushing glacial melt waters stemming from the last ice age and is approximately 1.6 kilometers

wide by 90 meters deep and 160kilometers long (PRBAB 2005). The rapid drop in elevation combined with a loosely consolidated glacial till and shale bedrock results in significant soil and river bank erosion throughout the Pembina River Valley.

Over several thousand years, the continuous pattern of upland soil erosion and deposition at the valley bottom has led to a natural damming of the Pembina River and the creation of several shallow lakes. Most notable of these lakes include the Pelican, Rock and Swan Lakes, collectively known to area residents as the Tri-Lakes. Soil and river bank erosion continues to be a problem for many areas of the Pembina Valley, resulting in significant property damage and increased flooding caused by a build up of deposits within the river channel.

The Pelican, Killarney and Rock Lakes are also home to several small cottage developments and vacation properties that add significantly to the region's population in the warmer months of the year. These lakes are an important revenue source in the region as they offer a multitude of recreational opportunities including fishing, camping, sailing and swimming (PVCD 2008b). Long-term surface water quality monitoring indicates that many of the watershed's lakes and creeks have experienced a decline in water quality over the past few decades, due to increased nutrient loading. Nutrient enrichment of waterways has largely been linked to human activities such as agricultural production and wastewater effluent and can result in increased algal growth. Widespread algae production or eutrophication creates problems for drinking water sources, harms aquatic ecosystems and decreases recreational values of waterways.

The Pembina River watershed supplies drinking water through 15 public water systems to over 5,000 watershed residents. The remaining 10,000 watershed residents rely on private wells bored into an extensive bedrock aquifer for domestic water supply. Of the public drinking water

systems, six are sourced from the watershed's lakes and reservoirs while the remaining nine depend on groundwater sources. Due to periodic concerns with unsafe water quality, two of the watershed's public drinking water systems have had to issue boil-water advisories to water users within the past five years (PVCD 2011).

Flows in the Pembina River are supported by the water from three main tributaries these include Badger Creek, Long River, Cypress Creek, and Snowflake creek (PVCD 2008). Stream flow in the Pembina River and its tributaries can be highly variable and prone to cycles of flooding followed by episodes of drought. Stream-flow monitoring records indicate that the intensity and frequency of flooding experienced in the watershed has been increasing, with more incidents of flooding in the past 20 years than in the preceding 60 years (PVCD 2011). While flooding is not a wide-spread concern for much of the watershed, there are specific regions that suffer from periodic floods. Flooding has had serious implications for several businesses and agricultural producers in the watershed, especially within the Pembina River Valley.

After crossing the international border on the east side of the watershed, the Pembina River passes into the broad and flat Red River valley, eventually entering the Red River near Pembina, North Dakota (AESB-MAFRI 2009).

5.1.2 Water Planning Authority

With the majority of the watershed's land mass contained within its boundaries, Pembina Valley CD was the natural selection as Water Planning Authority for the development of a watershed plan within the Canadian portion of the Pembina River Watershed.

As Manitoba's sixth established conservation district, Pembina Valley CD was created along municipal boundaries to address local conservation concerns surrounding soil erosion and

water shortages experienced on many area farms. Since its development in 1989, the conservation district has expanded its mandate to address a wide variety of watershed management issues including capping abandoned wells, repairing eroded stream banks, delivering education programs to school children, developing natural area interpretive parks, conducting water testing projects, constructing small water control projects and coordinating water management planning throughout the district. In 2009-2010, the conservation district invested \$690,000 in delivering soil and water management programs (CD annual report 2009-2010).

Pembina Valley CD is one Manitoba's more experienced conservation districts with regards to the development and implementation of watershed management plans. In the past 22 years, they have participated in, and in some cases led, a number of watershed, aquifer and basin planning initiatives (PVCD n.d.). These previous water planning projects include: Assiniboine Aquifer (2002-2006), Stephenfield Reservoir (2001-2005), Winkler Aquifer (1995-1997), Cypress Creek (1996-1997), Coleman Creek (2000-2001), and Goudney Reservoir (2002-2007). AS members of the Pembina River Basin Board, Pembina Valley CD along with Turtle Mountain CD as were instrumental in developing the Pembina River Basin Plan released in 2005. The Pembina River Basin plan was an international planning effort that began in 1998 and involved multiple watershed stakeholder agencies and governments. The 2008 integrated watershed management planning process, which is the focus of this case study, was intended to build upon these previous waters planning initiatives (AESB-MAFRI 2009). The latest planning initiative for the Pembina River Watershed marks Pembina Valley CD's first experience with watershed planning according to the requirements of the Water Protection Act.

5.1.3 The Pembina Planning Process

5.1.3.1 Pre-planning

On January 31, 2008 Pembina Valley Conservation District (**PVCD**) signed a memorandum of understanding (**MOU**) with Manitoba Water Stewardship designating the CD as the Watershed Planning Authority for the Pembina River Watershed (Manitoba Water Stewardship 2008a). Designation as the Water Planning Authority granted PVCD the authority to create and implement a 10-year watershed management plan for the Pembina River Watershed. The MOU defined the physical extent of the plans watershed boundaries, committed “in-kind” technical and financial resources from the provincial government for the plan’s development and due to the large size of the watershed granted \$50,000 in provincial funds to support plan expenses. The MOU further stipulated that both parties agreed to:

1. Work together to develop terms of reference for the development of the Pembina River Watershed Management Plan.
2. Strive to complete the Pembina River Watershed Management Plan within two years of signing the MOU.
3. Provide watershed stakeholders with meaningful opportunities to participate in the watershed planning process.
4. Develop the Pembina River Watershed Plan in accordance with the Water Protection Act.

The establishment of a single planning authority or accountable agency for the watershed was a departure from the usual consensus based approach that Pembina Valley had experienced in the past. However, recognizing that the boundaries of the watershed plan would impact other conservation districts, PVCD initiated a partnership with neighbouring Turtle Mountain and Assiniboine Hills CD’s to assist in the development and implementation of the watershed plan. The

partnership began with the appointment of a joint PMT to lead plan development, with representation consisting of at least one board member and the manager from each conservation district. A watershed planner from Manitoba Water Stewardship was also designated as an integral member of the PMT.

On May 21, 2008, the PMT met for the first time to develop a strategy for the watershed planning process. Initial discussions of the PMT included a review of the draft Terms of Reference for the watershed plan and a discussion on how to engage the public and watershed stakeholders in the planning process. At this meeting, PMT members stressed that the planning process needed to provide an opportunity for public education about the watershed and that all public concerns and issues identified through the process needed to be documented.

The PMT met a further three times over the course of spring and summer 2008 to finalize the terms of reference for the watershed plan, develop a list of watershed stakeholder agencies to engage in the process and consult with municipalities and Swan Lake First Nation about the planning process. Initial meetings were also spent developing a public engagement strategy that included decisions surrounding the appropriate number and timing of public meetings, selecting meeting locations, outlining content and defining a purpose for public meetings. The PMT wanted to host meetings that informed public participants about the watershed while allowing the opportunity for individuals to identify their concerns for the watershed. The PMT also developed a facilitated engagement process designed to encourage dialogue among public meeting attendees while simultaneously having community members identify which of the 2005 Pembina River Basin Plan's five key focus areas was their highest priority.

Beyond formal PMT meetings, much of the spring and summer of 2008 were used by members of the PMT to conduct source water protection assessments of public drinking water sources. These assessments involved the identification and mitigation of potential hazards to drinking water sources and were prepared for each of the 15 public drinking water sources in the watershed. Assessments were completed by a multi-disciplinary team consisting of a project team member from the area, the local CD manager, the watershed planner, a staff person from the Office of Drinking Water and a local water utility staff member or foreman. Once compiled, source water assessments and mitigation strategies were reported to the appropriate municipal council responsible for various drinking water utilities. Source water protection assessment maps were included within the final watershed plan.

The Terms of Reference for the development of a watershed plan is a critical document in the planning process. It outlines specific roles and obligations of various partners in the planning process, defines a schedule of planning events and includes a budget for the entire project. The Terms of Reference for the plan were approved by the PMT on August 6, 2008 (Manitoba Water Stewardship 2008b). For the Pembina River Integrated Watershed Management Plan (IWMP) the role of the PMT was to:

- Identify a chairperson to plan meetings, agendas, lead discussions and be the spokesperson for the group;
- Coordinate all plan related meetings and advertising;
- Establish a technical advisory group and stakeholders group;
- Facilitate and lead the public consultation and stakeholders meetings;
- Manage the budget and plan schedule;
- Record and distribute meeting minutes to the Water Planning Authority (WPA), technical advisory group and stakeholders group;

- Collect and compile all information submissions, technical reports and consultation inputs;
- Encourage participation and interest from the watershed community;
- Ensure that all aspects of the Water Protection Act are considered and incorporated into the plan;
- Provide inputs and edits to the plan (draft and final), and;
- Develop a communications strategy to inform watershed residents of the IWMP.

The Terms of Reference further defined the stakeholders group as consisting of watershed residents, and people and organizations that have an interest or stake in the current or planned activities in the watershed. Membership of this group was to be determined by the PMT. While the Terms of Reference did define who was considered a watershed stakeholder, it did not define their role or responsibility in the development of the watershed management plan.

The technical advisory group was defined as government agency representatives with a specialization in certain areas of land, water, agriculture or natural resource management. The technical advisory group was to initially provide information to facilitate discussions with the public and help improve understanding about the watershed. Later in the process the technical advisory group was to identify watershed issues, assess options, and provide recommendations for improving watershed conditions. According to the original planning schedule outlined in the Pembina River Terms of Reference, the planning process was set to begin in the winter of 2008 with the final plan to be submitted to the Minister of Water Stewardship for final authorization by June 2009.

5.1.3.2 Plan Preparation

By October 2008, the PMT had established a schedule and agenda for three public meetings to be held in communities throughout the watershed. Residents were notified of the

upcoming meetings two weeks in advance through local newspaper advertisements, submitted newspaper articles, radio station interviews with PMT members, notices on conservation district websites and a watershed management planning brochure that was mailed to every residence in the watershed.

The PMT also attempted to conduct phone interviews with 100 watershed residents to determine their concerns for the watershed. These interviews were completed by members of the PMT and the Manitoba Water Stewardship watershed planner. After a few initial interviews, PMT members became discouraged by the negative perception of many public respondents towards phone solicitation and surveys. Some PMT members indicated that the effectiveness of phone interviews may have been further impacted by a newly enacted federal government “do not call” registry targeted to diminish invasive telemarketing businesses. In light of the poor quality of survey responses collected during phone conversations, the PMT instead elected to contact 100 random watershed residents to inform them of upcoming watershed meetings.

The first public watershed meeting was held October 17th in La Riviere. According to event sign-in sheets, this meeting was attended by 25 watershed residents. The second meeting was held the next evening in Killarney and was attended by 34 individuals. The last public meeting was hosted in Cartwright on the evening of October 23rd and was attended by 28 area residents. A total of 87 watershed residents participated in the initial public consultation meetings.

All meetings were held during weekday evenings and conducted according to a similar agenda. The first round of public consultation meetings, as specified in the Terms of Reference for the watershed plan, set out to develop a list of prioritized watershed issues, along with options for improvements and measurements of success. The meetings were also used to identify goals for

the 10 year watershed plan. Meetings began at 7:00pm with a presentation by the chairperson of the PMT, who explained the purpose of the watershed plan and outlined the agenda for the public meetings. As this was essentially a second-generation of work based on the Pembina River Basin Plan completed in 2005, a presentation was made by either the CD manager or the watershed planner regarding the outcome of the previous initiative, as well as a summary of information on the watershed itself.

Members of the public were then asked to fill out a survey containing questions about the watershed. In order for this watershed plan to build upon the recently released Pembina River Basin Plan, public meeting attendees were first requested to prioritize each of the five main watershed concerns that had emerged as priorities in the 2005 basin planning process. Priorities identified in the Pembina River Basin Plan included, flooding, drinking water quality, surface water quality, soil erosion and loss, and drainage. Individuals were also asked to provide comments on the following three questions:

- 1) In addition to the five main concerns identified by the Pembina Basin plan, what other issues do you believe exist for the Pembina River Watershed?
- 2) How has the Pembina River Watershed changed in the past 30 years?
- 3) Where should we focus the majority of our efforts over the next 10 years?

Individuals were also asked to categorize themselves as a farmer/landowner, urban resident or recreationalist (i.e., cottager/camper). Approximately 70% of respondents identified themselves as farmers or landowners, 15% as cottagers or campers and 10% as urban residents (PVCD 2008a). Meeting attendees were then asked to break into groups and again prioritize each

of the five identified watershed concerns based on the group's consensus of priority for the watershed.

Groups were also asked to propose attainable solutions to each of the issues presented. Groups ranged in size from five-ten individuals (eight people on average) and included a member of the PMT to act as a discussion facilitator and note taker for each group. When group discussions were complete, each group nominated one individual to present the group's findings back to all meeting participants. The last task for each participant was to identify specific locations, on a highly detailed watershed map, with issues that needed to be addressed by the watershed plan.

Meetings were adjourned no later than 9:00pm. Individuals with a desire to discuss specific watershed concerns in more detail were encouraged to contact any member of the PMT. At the end of the initial public meetings, all responses from each meeting were collected and compiled into a public comment summary document by the watershed planner. This document categorized responses based on the level of priority indicated by individuals and groups. Responses were also categorized according to how respondents classified themselves (i.e., farmer, cottager etc.). Shortly after the initial public consultation meetings, the public comment summary document was made available for public review on the Pembina Valley Conservation District website.

At a subsequent PMT meeting in November 2008, the PMT reviewed each of the 97 individual and group comments received to determine the public's main concerns for the watershed. As a result of this review, the following problem statements emerged as priorities to be addressed by the Pembina River Watershed plan (PVCD 2008a):

- **Flooding:** The frequency and severity of spring and summer flooding is costing municipalities and landowners too much money in damaged infrastructure and loss of crops.
- **Surface Water Quality:** The rivers and lakes in the watershed are saturated with too much algae in the summer months resulting in poor recreation opportunities and unhealthy water for residents and wildlife.
- **Drinking Water Quality:** There is a lack of confidence in the drinking water quality throughout the watershed.
- **Soil Loss/Erosion:** Lakes and rivers are becoming clogged by the large amount of shale and silt eroding into the Pembina river waterways.
- **Drainage:** There is a wide range of issues surrounding drainage in this watershed. Better drainage control and planning is required. Widespread illegal drainage is creating large problems for downstream land owners. Wetlands are being lost at an alarming rate in this watershed. The value of wetlands for drought resilience and drinking water quantity/quality is being severely compromised.

With the initial public review complete, the public response summary document was submitted to several government agency technical experts and stakeholder agencies along with a request for their additional input and technical advice for improving the watershed. These individuals were also invited by the PMT to participate in two full-day “Watershed Team” meetings to discuss their concerns for the watershed and provide direction for the watershed management plan.

The list of watershed stakeholders was developed by the PMT and was intended to be inclusive of all stakeholder groups with an interest in the Pembina River Watershed. Invitations to participate in Watershed Team meetings were mailed to 48 different watershed stakeholder organizations including all municipal governments in the watershed, planning districts, producer organizations, soil and water management groups, environmental organizations, wildlife associations, cottage owners associations and the Swan Lake First Nation. In addition to the

stakeholder agencies, 12 provincial and federal government agency technical experts were invited to participate and contribute technical submissions to help guide the planning process.

The first Watershed Team meeting was held on February 3, 2009 in La Riviere, Manitoba. Attendance records were not kept for Watershed Team meetings but written submission records indicate that beyond members of the PMT, a mix of 12 stakeholder agencies and technical experts participated as Watershed Team members. Ten different government agencies submitted technical reports for consideration by the PMT. Four stakeholder groups prepared written submissions but did not attend the Watershed Team meetings and two other stakeholder groups had attended the public consultation meetings instead. Several other invited stakeholder groups chose not to formally participate in watershed plan development, though individual members of several stakeholder groups did attend public consultation meetings.

Watershed Team meetings were held during the weekday and consisted of a full day agenda. Participants were first welcomed and introduced to the process by the chairperson of the PMT. A recent history of the Pembina River and state of current watershed issues was presented by the watershed planner from Manitoba Water Stewardship. This was followed by a presentation on the summary of public concerns identified at public consultation meetings held in October 2008. In an effort to encourage discussion among stakeholders and technical experts, the PMT had arranged for participants to divide into four random groups to spend the rest of the meeting discussing how to best address each of the five problem statements identified by the public during consultation meetings.

Stakeholders were asked to review each of the publicly identified watershed issues and based on their area of expertise or interests of their organization, to contribute further ideas and

possible solutions. Participants were also asked to make recommendations on what the watershed plan should include in terms of program goals and actions. The focus of the Watershed Team meeting was to further review the five problem statements identified by the public and advise the PMT on how to move forward in addressing these concerns. However, each Watershed Team participant was also encouraged to provide further input on important watershed issues that may have been missed in the public consultation process.

At the next two PMT meetings held on April 6 and 28, 2009, PMT members were presented with a summary of public meeting and Watershed Team recommendations for watershed goals and action strategies. At these meetings, the PMT made decisions on which recommendations would be included in the draft plan and which items were to be removed or modified. Decisions were also made about how watershed plan goals and implementation strategies would be worded in the draft watershed plan. This draft plan was used to set the agenda for the second Watershed Team meeting.

The second full-day meeting was held in La Riviere on May 21, 2009, three months after the first Watershed Team meeting. Participants were again divided into groups and asked to review the PMT's draft watershed plan, including the watershed goal statements and tentative action items. Implementation of many of the goals and action items required a coordinated approach that would need the support of many of the various watershed stakeholder groups and government agencies. The PMT saw this meeting as an opportunity to collaborate with stakeholder groups and government agencies and garner agency support for implementing the action items indicated in the draft plan.

Subsequent to the second Watershed Team meeting, the PMT spent the summer and fall of 2009 acquiring more technical data about the watershed and finalizing the content and format of the draft plan. During this time individual members of the PMT held discussions with a variety of stakeholder agencies to gain support for the draft watershed plan. This process took several months to complete, resulting in PMT meetings being postponed three times before finally being able to approve a draft watershed plan. The draft plan was then forwarded to the Manitoba Water Stewardship for a review by various branches within the department.

Following the branch review process, the PMT advertised that a draft plan had been completed in local newspapers. A copy of the draft plan was forwarded to Swan Lake First Nation with an invitation to review the document and provide any further recommendations for revisions. The draft plan was also made available on the three conservation district websites and at municipal offices around the watershed for public review.

A second round of public meetings to review the draft plan was scheduled for February 10, 11 and 16, 2010. Public notices of the draft watershed plan review meetings were posted on conservation district websites and advertised in local newspapers prior to the events. Meetings were scheduled to occur during weekday evenings and were held in the same three communities as the initial public meetings.

Based on meeting sign-in sheets that were posted at the entrance to each public meeting, 22 individuals attended the second meeting in La Riviere, 29 attended in Killarney and 18 watershed residents were at the meeting in Cartwright for a total of 69 public participants. A comparison of sign-in sheets from the first round of public meetings to those in attendance at the

public draft review meetings indicated that only 19 individuals or 12% of all public participants attended both the first and second round of public consultation meetings.

The format for all three draft review meetings were similar in content and the meetings were called to order by the chairperson of the PMT at 7:00pm. Meetings began with a presentation by the CD manager outlining the purpose of the meeting, providing a brief overview the contents of the draft plan, and describing the next steps in approving the final watershed plan. Public participants were then divided into groups to review the four watershed goals and 55 action plans over the next 30 minutes. Again a member of the PMT facilitated and recorded discussions from each group. When the group review sessions were completed, public participants were given an opportunity to pose questions or provide comments about the plan to PMT members in an open forum discussion.

At the close of each meeting, public participants were given a survey with questions to evaluate their confidence that the draft watershed plan would lead to improvements in addressing the initial five problem statements identified by the public at the first round of public meetings. Participants were encouraged to review the draft plan in further detail and forward any additional comments to the PMT for consideration.

Following the second round of public consultation meetings, minor revisions were made to the draft plan by the PMT and submitted to the Manitoba Water Stewardship for distribution and review by various affected departments. Implementation of many of the watershed management plan's 55 action items required integration and support from various government departments. As government departments operate on a provincial scale, careful consideration by of each action item was required before committing limited department resources to new initiatives at a local

watershed level. This process involved lengthy discussions and negotiation between various government departments and PMT members. As a result, minor revisions of the watershed plan's action items were required to suit the mandate of various government departments while maintaining local watershed priorities.

Eleven months later, in January 2011, the PMT met to approve the final version of the Pembina River Watershed Plan. The watershed plan was then forwarded to Manitoba Water Stewardship for ministerial review and approval. The Pembina River Watershed Plan received ministerial approval on July 4, 2011. Public notice of the watershed management plan's approval was posted to conservation district websites and articles were submitted to area newspapers. A copy of the approved watershed management plan, the public comment summary document and other planning documents remained available on the Pembina Valley Conservation District website and in hard copy from conservation district offices.

By the end of the watershed planning process, the PMT had received active participation from 156 individuals or 1% of all watershed residents through the various public and stakeholder engagement events. According to financial records kept by the Water Planning Authority over the life of the project, a total of \$18,321 had been spent on engaging the public during the watershed planning process. Reported costs for public engagement included meetings expenses, advertising, web design and plan publishing costs.

Originally estimated to be concluded within a 16-month time frame, the watershed plan took 3.5 years (40 months) to complete. Much of the extra time required to finish the watershed plan was attributed to additional time needed to acquire submissions from technical experts, conduct government branch/department reviews and receive formal ministerial approval for the

final watershed plan. The Pembina River Watershed Management Plan is now being implemented on the landscape.

Table 5.1. Timeline of Pembina River and Netley-Grassmere Watershed Management Plans

Action	Pembina River Watershed	Netley-Grassmere Watershed
Water Planning Authority Established by MOU	January 2008	April 2008
Project Management Team Established	May 2008	May 2008
Initial Public Consultation Meetings	October 2008 (<i>La Riviere, Killarney, Cartwright</i>)	June 2008 (<i>Selkirk, Dunnottar, Stonewall, Teulon</i>)
PMT Identifies Public Priorities for Watershed Plan	November 2008	July 2008
Watershed Team Meeting #1	February 2009	November 2008
PMT Tour with Watershed Team	None	November 2008
Rough Plan Outline Developed by PMT	April 2009	March 2009
Watershed Team Meeting #2	May 2009	April 2009
Technical Watershed Information First Available to Public	November 2008	June 2009
<i>Proposed Planning Deadline (ToR)</i>	<i>June 2009</i>	<i>June 2009</i>
PMT Finalizes Content of Draft Plan	August 2009	April 2010
Plan Submitted to Manitoba Water Stewardship for Branch Review	August 2009	September 2010
Public Draft Plan Review Meetings	February 2010 (<i>La Riviere, Killarney and Cartwright</i>)	November 2010 (<i>Oak Hammock Marsh</i>)
PMT Finalizes Draft Plan Submits to Manitoba Water Stewardship for Department Review	March 2010	September 2010
Minister of Water Stewardship Review	January 2011	February 2011
Final Plan Approved by Minister	July 4, 2011	July 4, 2011

5.2 Netley-Grassmere Watershed Plan

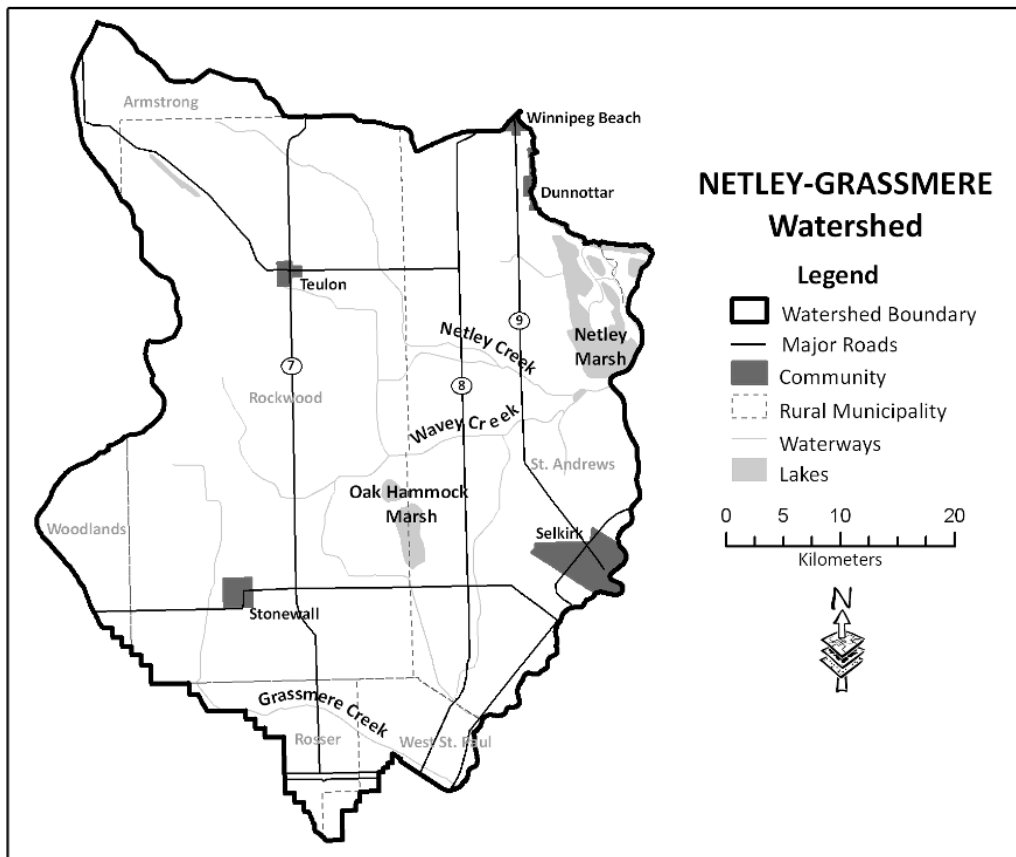


Figure 5.3. Netley-Grassmere Watershed Planning Area. (source: Manitoba Land Initiative n.d.)

5.2.1 Watershed Area

The Netley-Grassmere Watershed is located immediately north of the City of Winnipeg, Manitoba and extends towards Netley Marsh and the south-west shoreline of Lake Winnipeg. Roughly half the size of the Pembina River Watershed, the Netley-Grassmere covers a total land area of 2,362km² (EICD 2009). The watershed is comprised of four smaller sub watersheds which include the Grassmere Creek, Park Creek, Wavey Creek and Netley Creek watersheds. Each of these creeks flows towards the eastern edge of the watershed which terminates at the western bank of the Red River. The watershed is home to over 40,000 permanent residents living in six

rural municipalities and five main urban centers which include: Selkirk, Stonewall, Teulon, Dunnottar and Winnipeg Beach. The watershed also contains Peguis First Nation lands along the shorelines of the Netley Marsh and Red River. The entire watershed is located within the East Interlake Conservation District (EICD). Other notable landscape features of the watershed include Oak Hammock Marsh Wildlife Management Area and the infamous Netley-Libau Marsh complex.

In recent years, the watershed has seen a substantial increase in new residents. Many individuals move to the watershed in search of property that combines spacious country living, lower property taxes and a short commute to Winnipeg for employment. The result of this influx has seen increased subdivision development, expansion of low density rural residences, increased size of urban communities, increased stress on undersized and aging water and wastewater treatment systems, reduction in the number of farming operations and an increased number of small or hobby farms in several areas of the watershed (AESB-MAFRI 2009b). This development has been greatest in the southeast portion of the watershed, along the Red River corridor which is home to some of the area's best agricultural lands.

It is estimated that 40% of watershed residents live within eight kilometers of the Red River and Lake Winnipeg shoreline (AAFC-PFRA 2005). Warmer months of the year see a rapid rise in the watershed's population, as an abundance of seasonal residents and vacationers move into cottage developments and campgrounds located along the Lake Winnipeg beaches and Netley and Wavey Creeks. Tourism is important to the local economy as thousands annually flock to the area's beaches, rivers, and marshes (EICD 2011).

In spite of the pressures of residential development, the watershed remains mostly dominated by agricultural activities. As of 2005, 49% of the watershed was annually cropped with

another 24% dedicated to pasture, hay-land and forage production. The remainder of the watershed's landmass consists of 10% wetlands and open water, 5% urban areas and 12% forest cover found mainly in the northwest corner of the watershed (AESB-MAFRI 2009b).

Much of the watershed is characterized by a gently sloping landscape that gradually descends easterly towards the Red River. Many areas of the watershed feature poorly drained soils that required construction of a vast network drainage channels to support crop production. Many of the watershed's largest drainage channels were constructed in the 1960's by the provincial government. In the past 50 years, hundreds of kilometres of smaller drains have been added by municipalities and landowners. Today the watershed contains 1,583km of waterways almost all of which have been constructed or altered to facilitate drainage for crop production.

As the drainage network continues to expand, older large provincial drainage channels are commonly overwhelmed by high water flows leading to regular localized flooding during spring melt and after large summer rains (EICD 2011). This repeated flooding often causes significant harm to personal property, damage to water management infrastructure and devastation to the local agricultural economy. Prior to the development of drainage infrastructure, much of the watershed was covered by extensive wetland areas, including the massive St. Andrews Bog which at one time covered nearly 20% of the watershed's interior (OHMIC n.d.). Today, Oak Hammock Marsh remains the last significant vestige of this once vast marshland complex.

Drinking water for all watershed residents is supplied by a vast carbonate aquifer that lies beneath much of the watershed and Manitoba's Interlake Region. While highly productive, the lack of substantial protective overburden and the presence of sinkholes in many areas of the watershed increase the aquifer's sensitivity to contamination from above ground activities. Recent well water

testing programs indicated that nearly one quarter of all sampled wells, failed to meet drinking water quality standards for e. coli bacteria or nitrates (EICD 2011). With 13 public water systems and thousands of private wells tapped into the carbonate aquifer within the Netley-Grassmere Watershed, protection of ground water resources are a high priority for the region.

Like most watersheds in the Lake Winnipeg Basin, Netley-Grassmere has experienced a gradual decline in surface water quality in the past several years. Increasing nutrient and bacterial levels have been observed and are linked to intensive agricultural practices, increasing residential development and inadequate wastewater treatment throughout the watershed (Lake Winnipeg Stewardship Board 2005). While representing only a small fraction of the total flow into the Red River, polluted surface waters from the Netley-Grassmere watershed have contributed to increased algal blooms in marshes, rivers and lakes. Algal blooms are extremely problematic for Lake Winnipeg, creating significant problems for the aquatic ecosystem, tourism industry and one of Canada's largest inland commercial fisheries (Lake Winnipeg Stewardship Board 2005).

5.2.3 Watershed Planning Authority

The East Interlake Conservation District represents 16 rural municipalities, cities, towns and villages along the western shore of Lake Winnipeg and the Red River north of Winnipeg. Formed in 2005, East Interlake CD's boundary aligns with the natural watersheds of four Interlake region watersheds including the Fisher River, Icelandic River, Willow Creek and Netley-Grassmere watersheds. The conservation district covers a vast 7,113 km² territory and is home to more than 55,000 Manitobans.

Conservation district programming has focused on five priority areas, including water quality, surface water management, watershed planning, soil and riparian health and conservation

education. In the 2009-2010 fiscal year, East Interlake CD delivered \$578,000 in conservation programming (CD annual Report 2009-2010). The conservation district is governed by a volunteer group of local directors, consisting of half municipal councillors and half municipally appointed local residents.

While East Interlake Conservation District has not had as much watershed planning experience as the Pembina Valley Conservation District, Netley-Grassmere represents the second watershed plan completed by the conservation district under the planning framework of the Water Protection Act. The Icelandic River and Washow Bay Creek Watershed plan was initiated in 2006 and received Ministerial approval in the summer of 2010. The East Interlake CD is also in the process of developing a watershed plan for the Willow Creek and Fisher River Watersheds.

5.2.3 Netley-Grassmere Planning Process

5.2.3.1 Pre-planning

Upon signing a memorandum of understanding (MOU) with the Government of Manitoba, East Interlake Conservation District was formally designated as the Water Planning Authority for the Netley-Grassmere Watershed on April 11, 2008 (Manitoba Water Stewardship 2008c). The MOU established the planning area boundaries and outlined the principles under which the plan was to be prepared. To support the watershed planning process, the Manitoba Government agreed to provide in-kind technical and financial resources, contribute \$25,000 in funding for planning activities and assign a watershed planner to assist in plan development. Similar to the Pembina River Watershed, the principles for the development of this watershed plan were to:

1. Work together to develop Terms of Reference for the development of the Netley-Grassmere Watershed Management Plan.

2. Strive to complete the Netley-Grassmere Watershed Management Plan within two years of signing the MOU.
3. Provide watershed stakeholders with meaningful opportunities to participate in the watershed planning process.
4. Develop the Netley-Grassmere Integrated Watershed Management Plan in accordance with the Water Protect Act.

The first act of the Water Planning Authority was to delegate the development of the watershed plan to the two East Interlake CD sub-district boards responsible for the watershed planning area. To facilitate this task, each sub-district board appointed members to form a PMT for the watershed plan. The sub-districts intended for the PMT to represent each region of the watershed and the diverse perspectives of area residents. Therefore, PMT members were selected from the sub-district boards based on where they lived in the watershed (i.e., rural/urban areas), and whether or not they were municipal councillors. In the end, the six appointed PMT members consisted of an equal mix of councillors and citizen representatives who lived throughout the Grassmere and Parks Creek sub-district and the Netley and Wavey Creek sub-district. Both sub-district chairs were appointed to the PMT.

At the beginning of the planning process, the Rural Municipality of West St. Paul and City of Selkirk were considering membership in the East Interlake CD. Both areas were within the watershed and with West St. Paul weeks away from officially joining the EICD, an invitation was sent to the municipality to appoint a councillor from the community to represent the area as part of the PMT. West Paul and Selkirk became members of the East Interlake Conservation District in June and October 2008, respectively.

5.2.3.2 Plan Preparation

The PMT met for the first time in May 2008. The initial meetings of the PMT involved identifying stakeholder organizations with an interest in the Netley-Grassmere Watershed, discussing opportunities for engaging watershed residents and approving a terms of reference to guide the planning process. The Terms of Reference for the Netley-Grassmere Watershed Plan was very similar in many aspects to the terms prepared for the Pembina River Watershed Plan with some notable exceptions. In the Pembina River Plan, the roles and responsibilities of the Water Planning Authority simply refer to the Water Protection Act. In the Netley-Grassmere Plan, the defined role of the WPA is not only to develop a watershed plan as specified within the Water Protection Act but to also ensure that the plan reflects provincial priorities while addressing local issues and interests. Another departure from the Pembina Plan includes the responsibility of the WPA to implement another planning exercise once the first generation 10-year watershed plan was complete. The Terms of Reference also require the WPA to fully review, assess and evaluate the implementation of the watershed plan on an annual basis (Manitoba Water Stewardship 2008d).

The remainder of the Terms of Reference for the Netley-Grassmere Watershed Plan are similar to those of the Pembina River. In both cases the watershed planning cycles follows a consistent model of involving public consultations, stakeholder input and technical expert recommendations to advise the PMT in developing the watershed plan. Both plans had developed a similar schedule of events and budget proposal for the watershed planning project.

Once established the Netley-Grassmere PMT chose to initiate the planning process by identifying which land and water conservation issues were high priorities for local watershed residents (EICD 2011). With summer quickly approaching, the Netley-Grassmere PMT met a total

of four times to develop a schedule and agenda for a series of public consultation meetings. Similar to the Pembina River Watershed, the goals of the initial public consultation meetings aimed to develop a list of prioritized watershed issues, with options for improvements, and measurements of success. There were also to identify goals for the 10-year watershed plan and establish a prioritized list of community concerns for the watershed.

The public consultation meetings for the watershed were scheduled for June 19, 2008 in Selkirk, June 24 in Dunnottar, June 25 in Teulon, and June 26 in Stonewall. In order to inform watershed residents of the upcoming public meetings half page notices were printed in three area newspapers two weeks prior to each event, and one hundred road sign advertisements were placed on major roads near communities where public meetings were to occur. In addition, a provocative brochure questioning the health of the watershed and asking the public's help in finding a solution was mailed to all 15,000 residential addresses in the watershed. The PMT even invited Shaw TV, a local community television service provider, to film public meetings and asked the station to post meeting notices on their digital community billboard. To encourage the public to participate in the upcoming meetings, the PMT offered a free BBQ pork supper, children's activities and babysitting services so that parents with small children could attend. Door prizes, including iPods, low flow shower heads and gift certificates to area restaurants were also awarded at each meeting. Sign-in sheets posted at entrances to all public meetings indicate that 39 residents attend the public meeting in Selkirk, 27 in Dunnottar, 38 in Stonewall and 34 in Teulon for a total of 138 participants.

The PMT set out to host public meetings in order to develop a prioritized list of issues of concern to watershed residents and acquire community feedback on how best to address problems in the watershed. Concerns identified by the public at these initial meetings were to become the

key focus of the Netley-Grassmere watershed management plan. Having the local community establish which watershed concerns would be at the forefront of the watershed plan was a slight departure from what occurred with the Pembina River example. In the Pembina River case, the PMT elected to build upon the previously developed goals of the Pembina River Basin Plan and had the public prioritize which of the five existing concerns from that plan would be the most important to address locally.

Each meeting began with a presentation by a member of the PMT outlining the watershed planning process, the purpose of the watershed plan, why the PMT was hosting public meetings and what the PMT planned to do with the information they received from the public. Following the initial presentations, individual participants were given a questionnaire in which they were asked to address the following three items:

- 1) rank in order of priority your top three concerns for the watershed;
- 2) how would you suggest these concerns be addressed; and
- 3) what would you like the watershed to look like in 25 years?

Once the questionnaire was complete, individuals were asked to form into groups (which averaged five people) and develop a prioritized list of watershed issues.

Groups were asked to discuss the various responses provided by each group member, deliberate on the top three priority concerns for the watershed and make recommendations for improving the watershed. To facilitate discussion among participants, groups were provided with a variety of natural resource maps of the watershed. Each group appointed a member to take notes of their discussions and another to report their findings back to all individuals in attendance at the

end of the meeting. During the meeting, members of the PMT circulated amongst the groups answering questions and ensured that discussions remained focused on watershed related topics.

Once all public meetings were complete, individual and group responses were collected and developed into a document to assist the PMT in furthering plan development. Individual responses were compiled as written, placed into a spreadsheet and made available to anyone interested in reviewing them via the East Interlake CD website (EICD 2008a). The PMT wanted people to be able to recognize that the input they had provided during the public meetings was recorded and made available as part of the planning process. To protect participant anonymity, some of the comments received were censored if they referred to concerns on private property or listed individuals by name.

To facilitate PMT discussion on public input for the watershed plan, all comments were analyzed by the watershed planner and CD manager then summarized into a public issues document. This document categorized all public input received from individuals and groups into four main priority areas of concerns (EICD 2008b). Each priority area was intended to address specific problem sources or issues that were commonly identified by public participants. For instance, a priority concern may include the broad topic of groundwater quality based on a large number of comments recorded during the public meeting process. A specific problem source or issue relating to groundwater quality might include comments regarding contaminated wells or concerns for protecting the carbonate aquifer. By classifying issues in this manner, the PMT determined the following items as the top public priorities and problem sources for the watershed management plan:

Priority #1 - **Surface Water Quality** – commonly identified problem sources included Lake Winnipeg, sewage effluent, chemicals, infrastructure, nutrients and recreation.

Priority #2 – **Groundwater Quality** – commonly identified problem sources included effluent, chemicals, sewage, water retention infrastructure, urban development and nutrients.

Priority #3 – **Surface Water Management** – commonly identified problem sources included flooding, water retention, drain maintenance, urban development, Lake Winnipeg, recreation and infrastructure.

Priority #4 – **Natural Areas** - commonly identified problem sources included chemicals, flooding/water retention, recreation and Lake Winnipeg.

These priorities were to become the focus of the watershed plan and would be the basis for the agenda of upcoming meetings with watershed stakeholder groups and government agency technical staff. Invitations to participate as part of the “Watershed Team” were mailed out on behalf of the PMT to a wide variety of stakeholder groups and government agencies. Invited stakeholder groups which included any organization that may have an interest in the management of the Netley-Grassmere Watershed, were selected by the PMT. Over 16 stakeholder groups were invited, including local cottage associations, game and fish organizations, academics from the University of Winnipeg and University of Manitoba, school divisions, planning districts, band councillors from Peguis First Nation, local environmental organizations and Lake Winnipeg stewardship organizations.

The watershed planner from Manitoba Water Stewardship was responsible for coordinating the involvement and technical submissions from subject matter experts with various provincial and federal government agencies. Fifteen technical experts from various government agencies were invited to participate in the planning process and requested to provide a written submission with specific regard to the four watershed priority concerns identified from the public meeting process.

The first meeting of the Watershed Team was held in early November 2008 and began with a tour of several locations of the watershed. Tour stops included sites featuring issues identified during public meetings such as a municipal sewage lagoon, a new residential development site, Oak Hammock Marsh, and a farming operation. During the tour, several technical experts presented watershed information pertaining to specific tour stops and watershed issues in general. The tour gave all Watershed Team members an opportunity to interact personally prior to discussing watershed issues in a formal meeting setting. Following the tour, the watershed team and PMT members met to discuss the public priority issues for the watershed. Stakeholders and technical experts were encouraged to discuss their perspectives on each of the public priority issues and asked to identify potential solutions to issues as well as any additional watershed concerns that may have been overlooked by the public.

After the first Watershed Team meeting, the PMT began to create an outline for a draft watershed plan. The draft plan included several goal statements, action items to address watershed concerns and a proposal for which watershed stakeholders and government agencies would be responsible for carrying out each specific item. All submissions made by technical agencies contributing to the watershed team were compiled into a watershed characterization document to aid in plan development. These documents were then submitted back to all Watershed Team members for review prior to the final team meeting scheduled for May 2009.

At the second and final meeting held in Stonewall in May, 2009, Watershed Team members were presented with the following four key goal statements that had been developed by the PMT:

1. Improve **surface water quality** in all waterways within the Netley-Grassmere Watershed
2. Adopt a watershed-based approach to **surface water management**.

3. Protect and improve the quality of **drinking water**.
4. Protect and restore the quality and **integrity of natural areas** to maintain a healthy watershed.

These goal statements were ultimately included as the focus of the final watershed plan (EICD 2011). Stakeholder groups and government agency staff were asked to discuss the proposed goals and action plans and offer recommendations for improvements. As all watershed team members had been provided with the draft watershed goals and action plans prior to the actual meeting, the PMT had hoped this second watershed team meeting would be an opportunity for stakeholder groups to commit to supporting the implementation of the watershed plan.

As a result of this process and subsequent comments received from Watershed Team members, the PMT revised the number of action items in the rough draft plan down from an initial total of 117 actions to 71 actions in the draft plan. In the end five stakeholder organizations participated in the Watershed Team meetings. One other stakeholder organization made a submission for the consideration of the PMT but did not participate in the meeting. Eleven government agencies participated in and made technical submissions to the watershed team meetings. One other government agency did provide comments to the PMT for development of the watershed plan but did not participate at watershed team meetings.

Once the watershed characterization document and draft action plan had been reviewed by the Watershed Team, it was made available to the public through copies placed at municipal offices and online through the EICD website. All comments and suggestions for improving the draft watershed plan were recorded during the Watershed Team meetings and considered by the PMT in preparing the final draft watershed plan. The preparation of the final draft plan was a lengthy process taking several months and multiple PMT meetings to complete.

During this time the PMT, in partnership with Manitoba Infrastructure and Transportation and all member municipalities, developed a surface water management plan to guide the management of drainage issues in the watershed. The PMT also worked with the Office of Drinking Water, public utilities staff and a groundwater specialist from Manitoba Water Stewardship to inspect public drinking water sources and develop source water protection plans to mitigate potential threats to public water supplies. These two items became essential in the final watershed plan, touching on many of the concerns identified by the public at the outset of the planning process.

Nearly one year later, in April 2010, the PMT had finalized its draft plan which was then resubmitted to members of the Watershed Team for a final review. The PMT met again in July, 2010 to review 13 comments that had been submitted by Watershed Team members regarding the plan's content. The draft watershed plan was revised based on these comments and submitted to Manitoba Water Stewardship for a thorough branch review process. The PMT then sent the draft plan for printing and began preparations for a community consultation meeting to review the final draft watershed plan.

As opposed to the four public meetings held at the onset of the planning process, the PMT elected to host one public meeting on November 9, 2010 to review the draft watershed plan. Due to its central location within the watershed and availability of video equipment for displaying draft watershed plan content, the Oak Hammock Marsh Interpretive Center was selected as the meeting location. The PMT's decision to host only one public draft plan review meeting was based primarily on budgetary constraints. The cost associated with hosting an additional three meetings around the watershed would push total planning costs beyond the \$25,000 planning grant originally provided by Manitoba Water Stewardship for plan development. To notify watershed residents of

the draft watershed plan's release and subsequent public review meeting, the PMT sent out 16,000 brochures to watershed residences and posted notices in municipal offices and post offices. Each brochure included information on where to access copies of the draft plan and provided a survey for residents to submit comments regarding the plan back to the PMT for review. Copies of the draft plan were made available to the public through municipal offices, the East Interlake CD's website for downloading or at the public review meeting at Oak Hammock Marsh.

The public meeting to review the draft plan began with welcoming comments from the PMT chairman, who explained the purpose of the meeting and how any feedback received would be considered in preparation of the final watershed plan. Initial comments were then followed by a presentation of the goals, issues and actions of the draft plan by the watershed planner and CD manager. Following the presentations, the meeting became an open forum where those in attendance could freely pose questions to the PMT about the contents of the draft plan. Following the question and answer period, public participants were provided with a copy of the survey that had been included with the draft plan notice brochure and were asked to provide any further comments on the draft watershed plan. In the end, 27 watershed residents attended the draft review meeting at Oak Hammock Marsh. Only seven of these individuals had attended the initial round of public consultation meetings hosted by the PMT at the onset of the watershed planning process. A total of 23 feedback surveys were received by the PMT through the public meeting process and mailed-in responses from individuals in the watershed. Each comment submitted by the public was individually reviewed by the PMT at a subsequent meeting resulting in minor changes being made to the final watershed plan.

In the early spring of 2010, the final PMT approved watershed plan was forwarded to various departments of the Manitoba government for a lengthy review process. Once the

department review was complete, the watershed plan was submitted to the Minister of Water Stewardship where it received official approval a year later on July 4, 2011.

To notify area residents of the approved final plan, the WPA and PMT members hosted a public release party on August 30, 2011 in Stonewall. Invitations were sent to all watershed stakeholders, government agencies, municipal governments and the general public through articles written by area newspapers, posters placed in municipal offices and advertisements on the East Interlake CD website.

By the end of the watershed planning process, the PMT had received active participation from 158 individuals or 0.4% of all watershed residents through the various public and stakeholder engagement events. According to financial records kept by the Water Planning Authority over the life of the project, a total of \$19,311 had been spent on engaging the public during the watershed planning process with an additional \$7,200 expected to be spent on printing the final plan. Reported costs included all public engagement activities, meeting expenses, bus rental, food, supplies, brochures, advertising and printing costs.

Similar to the Pembina River Watershed, the Netley-Grassmere planning process was originally to be concluded within a 16 month time frame and instead took 40 months to complete. Again, the PMT attributed much of the extra two years to additional time needed to acquire submissions from technical experts, conduct government branch/department reviews and receive formal ministerial approval for the final watershed plan. The Netley-Grassmere Watershed Management Plan is in the beginning stages of being implemented on the landscape.

5.3 Summary

After a detailed analysis of each watershed case, it became apparent that both watershed management plans shared many similarities in how the public was engaged in the decision-making process. PMTs used a wide variety of avenues for providing public notice of engagement events including newspaper advertisements and articles, website notices, mail out brochures and meeting notices posted in public locations such as conservation district offices, rural municipality offices and community billboards.

Planning processes began with public consultation meetings held in various communities throughout the watershed. PMTs utilized similar engagement methods, providing individuals with opportunities to give personal input and to deliberate watershed issues in a group setting with fellow public participants. All public comments collected by the PMTs were subsequently categorized and summarized into broad watershed problem statements that became the primary focus of each watershed plan. Following the initial public meetings, public participants were further able to engage in the watershed planning process as a representative of a stakeholder agency.

Stakeholder representatives were invited by the PMTs to participate in the watershed plan as a member of a multidisciplinary Watershed Team. These teams consisted of PMT members, government agency technical experts, and stakeholder agency representatives. The role of the Watershed Team was to assist the PMT in identifying watershed issues, assessing available watershed information, developing options to address recognized concerns and provide recommendations for improving watershed conditions. Stakeholders participated in the planning process through two full-day workshops. The first workshop included a review of public comments received during initial public meetings along with a deliberation amongst all team members of watershed issues and potential options for improvement.

The second Watershed Team meetings included a presentation of a rough draft watershed plan prepared by the PMT based on the outcomes of public consultations and recommendations from the initial Watershed Team workshop. These meetings also provided an opportunity for discussion amongst all participants regarding the contents of the draft watershed plan. Following the second Watershed Team meeting, the PMT's presented revised draft watershed plans to watershed residents at draft plan review meetings. The draft plan review process included the opportunity for public participants to submit written comments for review or ask further questions of PMT members.

While there were many similarities, there were differences in the ways in which the public was engaged between the watershed planning cases. The most notable difference between the watershed cases was the provision of multiple opportunities to attend a draft plan review meeting offered by the Pembina River Watershed PMT. These meetings were held in several locations throughout the watershed to increase watershed resident access to meeting locations. In the Netley-Grassmere Watershed case, only one draft plan review meeting was held at a centralized location within the watershed.

Another significant difference included the overall objective for public engagement during initial public consultation meetings. In the Pembina River Watershed case, the PMT's goals for initial public meetings were to re-evaluate, validate and prioritize the goals for the watershed from the Pembina River Basin plan that was finalized in 2005. In the Netley-Grassmere case, watershed residents were encouraged to identify their own priority concerns for the watershed and deliberate possible solutions with other public participants.

Minor differences were also noted when it came to techniques used to engage the public in the watershed planning process. In the Netley-Grassmere case, additional advertising of public

consultation meetings through community television and highway signs near event locations was utilized to increase public awareness of events. Pembina River PMT members experimented with phone interviews as a means to collect additional public input and inform the community about upcoming public engagement events. To further persuade public participants to attend public consultation meetings, the Netley-Grassmere PMT offered free community dinners, babysitting and door prizes.

In the Pembina River Watershed case, PMT members actively participated in group discussions as moderators and recorders of comments made by other group members. In the Netley-Grassmere case, break-out groups featured discussion amongst public participants with PMT members moving from group to group to moderate conversations and answer questions from group members. At the end of the initial public consultation meetings, all public comments received by the Netley-Grassmere PMT were compiled as written and published to the conservation district's website. In the Pembina River case, only a summary of public comments received by the PMT during public consultations was made available to the public via conservation district websites.

The last noted difference in how the public was engaged during watershed planning was the use of a watershed tour with the Watershed Team in the Netley-Grassmere case. This tour featured stops at areas of concern in the watershed and included informal presentations by technical experts. The tour provided a context that encouraged all participants to informally discuss watershed concerns with other stakeholders, PMT members or technical experts.

CHAPTER 6 – DISCUSSION ON PUBLIC ENGAGEMENT IN WATERSHED PLANNING

6.0 Introduction

This chapter presents a synthesis and discussion of information collected from interviews with participants in the two watershed cases. The overall intention was to reveal the array of perspectives on public engagement that are held by a wide range of individuals with direct experience in watershed management planning. Identifying the similarities and differences in perspectives amongst public participants, watershed planners and PMT members proved to be a useful tool for developing insights and drawing conclusions on the effectiveness of public engagement in watershed management planning in Manitoba. Where appropriate, distinct differences between the watershed cases have been identified and discussed.

This analysis begins with a review of various participant perspectives regarding their expectations for public engagement during the planning process. The chapter then discusses the various reasons why individuals chose to participate in watershed planning. This is followed by a discussion surrounding the components of effective engagement afforded by watershed management planning in Manitoba. The chapter closes with a review of the challenges faced by PMTs in engaging the public contrasted with the identification of barriers to participation as perceived by public participants.

Throughout this chapter, direct quotes from interview respondents have been used to provide context or clarify specific points. Some direct quotes contain comments in (brackets). These additional notes have been added to ensure that quotes are conveyed accurately and maintain the respondent's original context. To assist in differentiating among interview respondents while protecting anonymity of participants, a coding structure was developed. For

clarity, all respondents from the Netley-Grassmere case were identified with the acronym **NG**, Pembina River participants as **PR** and Manitoba Water Stewardship staff as **MBWS**. To differentiate between public participants and PMT members, the public has been identified as **Public** and PMT members as **PMT**. Lastly, each participant was provided with a unique number to ensure that quotes remain auditable to their specific source. For example MBWS #2 refers to Manitoba Water Stewardship staff respondent 2 and NG PMT#5 refers to PMT member #5 from the Netley-Grassmere Watershed plan.

6.1 Expectations of Public Engagement

This section contrasts the perceptions held by interview respondents regarding the overall role and expectations of public engagement in watershed management planning in Manitoba. The key interest in this analysis was to identify similarities and differences held by Manitoba Water Stewardship watershed planning staff and PMT members in contrast with the perceptions of public participants.

To support the concept of effective public engagement, it was critical that the active role of the public in watershed management be closely linked to the public's overall objectives and expectations for participation. The degree to which citizens are engaged in decision making should be based upon the requirements of the specific problem at issue (Konisky and Beirle 2001). Therefore, given a strong public concern for current watershed conditions, local distrust of water management agencies and/or potential for community backlash during plan implementation, a higher level of public involvement at multiple points in the planning process may be necessary (Irvin and Stansbury 2004). In areas where there is little concern for watershed issues or low

public expectations for engagement in the planning process, other forms of public communication characterized by one-way forms of communication may be more appropriate.

6.1.1 Enhancing Engagement through the Planning Process

As the overall authority for watershed management, Manitoba Water Stewardship has an innate ability and responsibility to influence the watershed planning and approval process to ensure that effective public engagement is occurring at the local watershed level. To some degree, Manitoba Water Stewardship has demonstrated a commitment to enhance public engagement through periodic reviews and amendments to the planning process.

Watershed management planning within the framework of the Water Protection Act began with seven projects initiated in 2006. Collectively known by Water Stewardship staff as first generation watershed plans, these early watershed projects were characterized by a decidedly more technical-driven process. Watershed plans began with an assessment of available watershed information prepared by technical experts in order to identify the major concerns for a given watershed. This information was then presented at public meetings to facilitate discussions on community concerns for the watershed. As a result of the initial technical review process, the first public consultations were typically held in the second year of the planning cycle.

For the PMT, reviewing all technical information provided for the planning process was time consuming, often involving as many as 15 to 20 meetings with stakeholder groups and various technical experts. This meeting intensive process gradually stretched the intended two-year watershed planning cycle into three or four years. As a result, volunteer PMT members, stakeholders, public participants and technical experts often became disengaged from the watershed planning process. Manitoba Water Stewardship planning staff quickly realized that

lengthy, technically driven planning was leading to a loss of local interest for watershed planning and decreasing community buy-in.

With the first generation of plans, by the 19th meeting, people simply were not showing up. With participation by the technical group over a three year planning process, by half way through they had lost interest and many people simply weren't showing up. Too long and too many meetings to be involved in a single watershed plan. (MBWS #2)

It was felt that a shorter watershed planning cycle directed by local priorities would help keep planning practical and bolster support for implementation (Coughlin 2010). Watershed planners recognized that residents possessed a unique and rich local knowledge about the watershed and that community participation in plan development would ultimately increase support for implementation. As a result, a number of changes were made to the watershed planning process to improve PMT member, stakeholder, technical expert and public engagement.

Starting in 2008, the second generation of watershed plans, including the Netley-Grassmere and Pembina River Watersheds, featured public engagement at the beginning of the watershed planning cycle. The intended role of the public changed from validating concerns identified through a technical review process to informing the PMT as to which issues were paramount to watershed residents.

Once the PMT is formed the very first thing we do is have this first public consultation to understand what the local issues are and then we don't need to focus on all of these broad (watershed) issues, we just focus on what the people care about that live there. (MBWS #2)

With watershed plans focused towards local priorities, the role of technical experts shifted to providing information to address specific community concerns and identifying watershed issues that had been potentially overlooked by watershed residents. Other significant changes made to

the watershed planning process were to shorten the overall length of the process, reduce technical expert time requirements to two watershed team meetings, improve the relevance of technical submissions to address specific watershed concerns and increase public promotion of watershed planning events. More emphasis was also placed on ensuring that watershed plan goals included action items that were specific, measurable, attainable, realistic and time bound.

We have pulled back from presenting data to people and saying what people should care about. We tried to structure it so that they tell us what is important to them. The changes that we have made to how we engage the public have all been designed to improve the level of engagement. The process may now be a little more difficult when it comes to implementing within government structure (due to less technical agency control) but changes were made to improve public engagement and I think that they have been great. (MBWS #3)

Manitoba Water Stewardship's expectations surrounding what constitutes public consultation for a watershed management plan were also amended. PMTs were informed that public events with less than 12 public participants would no longer suffice as public consultation. Consultation methods utilized by PMTs were to be interactive in nature and ensure public engagement at the individual level. Public consultation needed to ensure that watershed issues were appropriately discussed and priority concerns established to inform the watershed planning process.

6.1.2 The Expectations of Public Engagement in Watershed Management Planning In Manitoba

Developing a clear understanding of the expectations surrounding public engagement in watershed management planning is an important factor when reviewing an engagement process. Participation processes where there are mutual expectations amongst planners and the public are mostly likely to result in engagement processes based on respect and integrity, both of which are fundamental components of effective engagement (McCool and Guthrie 2001). Significant

differences in the expectations surrounding public engagement can result in a negative engagement process, contributing to increased conflict, lack of public support for planning outcomes and distrust amongst participants (Perkins 2011). When asked about expectations for public engagement during watershed planning, public participants and PMT members from both watersheds presented an array of opinions with a significant degree of overlap.

The most commonly identified expectation for public engagement in watershed planning amongst all parties was the requirement to be consulted regarding public concerns for the watershed, to identify the priorities for the watershed plan and provide feedback on proposed watershed improvement actions. Some public participants felt the public had an obligation to identify a broad range of concerns in the watershed ensuring that plans did not simply cater to issues of the majority.

Another role commonly identified by all groups of interview respondents was the need for the public to become informed or educate themselves about local concerns for the watershed and about the watershed in general. From some public respondent's perspective, through the engagement process, public participants needed to be provided with opportunities for learning about watershed issues in order to develop knowledge to contribute effectively to the process.

Basically I think what you're looking for as a manager of anything in consultation, or the product of consultation is informed consent so that means in my opinion that the public that you're seeking input from has to be as informed about the issue as possible. (NG Public #6)

You are asking the public to be involved in a process where they might not understand, what is a watershed, what should a watershed be, what is the proper watershed, what should we expect from a watershed, how should we manage a watershed? You are asking the public who doesn't understand watersheds and the role they play in everything, right, from water recharge to everything, you are asking them to help plan them. Well you have to educate the public first. So you have to get

people who are interested and you have to increase their knowledge. (NG Public #1)

While most public responses centered on the provision of adequate opportunities to learn during the planning process, several PMT members were more concerned that following public engagement, individuals would at a minimum be able to identify basic watershed concepts and learn from the experiences of their neighbors about the variety of stressors the watershed is experiencing.

Sitting on the CD, you are working with it (watershed issues) all the time. The average person that has never been part of the whole process is maybe going to find out from the plan, the impact of everything. It may be an education or eye-opening experience to know what everybody in the area said about it. (PR PMT#4)

Other public and PMT interview respondents identified the public as having an important but limited role in the planning process. From their perspective the role of the public was solely to inform the process about watershed concerns and direct the broad policy goals for the watershed. They felt that specific watershed action plans should be supported by scientific facts or expert opinion and any planning decisions should be made by a responsible authority. In the technocratic opinion of these interview respondents, while public concerns for the watershed are important, they are only one form of evidence influencing the decision making process.

The public has to raise the concerns then you need to go to the experts to say well, is it a concern or is it not. (NG PMT #2)

If the public wants safe drinking water we have to make sure that they get it. If they want to have water for recreation and things like that, this is how things should be directed. However, I don't think that just their opinions should dictate legislation. That's where the scientific fact needs to come in. (PR Public #8)

However, not all PMT members agreed with a technocratic approach to planning indicating that necessary watershed improvements can only be driven by action at the local level. From this

perspective, the ability of public opinion to influence watershed management is even more important than expert testimony or scientific analysis.

One PMT member commented that following public engagement in watershed plan development, the public now has the added responsibility of holding government agencies, conservation districts and stakeholder organizations accountable to implementing the watershed plan. In other words once the public had engaged in the process, they had become partners in implementation and partially accountable for watershed management success. A few public participants and PMT members took public accountability a step further and emphasized the need for greater participation in civic elections, especially at the municipal and provincial levels as a critical role for the public in implementing successful watershed management.

I think our political process is sometimes taken for granted and yet the municipal leaders are very important.....I think they need to be actively engaged in who do you want for your councillor and what do you want him to do..... you know, some of our voter turnouts at municipal elections are extremely low and yet it is these municipal people that day in day out, drainage decisions, et cetera, have a big role in. (NG PMT#2)

There were two expectations for public engagement in watershed management planning identified by public respondents that were not discussed by PMT members. Some public respondents felt that providing local knowledge to improve watershed management was a critical role served by watershed residents.

Often times the public knows more about where the water is running and the damage it is doing to them locally than anybody else because many people have lived there for two or three generations (PR Public #15)

Public respondents also stressed the important role that watershed residents play in the planning process, as they are those most affected by watershed issues and planning outcomes.

We are the ones who live on the land and we are the recipients of positive or negative decisions. So they really need people to go to these meetings and find out what is going on and if it's detrimental to their life style or operation or even their beliefs then they need to speak out and try and change minds. (PR Public #6)

Most respondents, public and PMT members, indicated that an essential role for the public in watershed management planning was to become active in the watershed, talk to neighbors about watershed concerns and to make positive improvements to the watershed at home. Public participants recognized that an individual's personal decisions on how they manage their own property, whether to seal an abandoned well or repair an eroded stream bank were critical to a healthy watershed. To further stress the role for the public in plan implementation, the Netley-Grassmere Watershed case identified several action items in their plan as the responsibility of watershed residents. For these specific action items (which included sealing abandoned wells in source water protection areas), the public was to assume a lead role in implementation with financial and technical support provided by conservation districts and other water management agencies. In the Pembina River Watershed case, the PMT also encouraged public ownership of the watershed and the outcome of the watershed plan.

We say this at all the public meetings, we want all the stakeholders to take ownership in the watershed management plan. Whether you are a municipal official, a fisheries guy or a farmer on the landscape. This is your plan. These local people are the ones really writing the plan. If we didn't hear that at a meeting, we wouldn't have it in the plan. (PR PMT #5)

After thoroughly reviewing the wide array of public expectations for engagement in watershed planning as expressed by the public, PMT and Manitoba Water Stewardship, it became readily apparent that lower forms of engagement, such as public education or public communication initiatives which feature one-way forms of communication as discussed in the literature, would not support an effective engagement process. Watershed planner, PMT member

and public participant responses all expressed a desire to include the public as a full partner in the development and implementation of successful watershed management.

6.2 Effective Public Engagement

The following section presents information provided by the watershed case studies as well as interview participant responses that influenced the components of effective public engagement processes as identified in public engagement literature.

6.2.1 Early and Ongoing Engagement

A critical aspect of any effective public engagement process is the commitment of plan organizers to actively communicate with the public before, after and during plan development (Chess 2000). Watershed planners described the public's ability to participate in locally led watershed management as occurring at two distinct levels:

The public can be engaged at two levels, they can attend a public meeting or be involved with the conservation district itself as a sub-district member. That level of engagement requires a lot more time and involvement and participation. It's good in that way. We can have those that just want to show up for a one-night meeting still able to contribute their thoughts about what are the issues and concerns to them. But then you also have a space for those that want to be involved with water management in the long term through the CD program itself. (MBWS #3)

Early engagement is an important aspect of effective public engagement exercises. Public input needs to be incorporated before the planning process has progressed too far to influence the final decision (Shepard and Bowler 1997). In both watershed cases, engagement of the public during the early stages of plan development was a high priority for PMTs.

We took the approach of having the consultations right at the beginning of the planning process so we didn't have any expert team meetings until we had our initial three public meetings. We did this really early on in the process and it was important to set the ground work that we would be drawing from the public to really set the tone

of the plan. The PMT was interested in making sure that the public was involved prior to the technical review process. The (Water Protection) Act has a lot of flexibility as to how we needed to include public consultation but as the PMT we felt it was important to do it first. (MBWS #1)

Addressing public priorities for the watershed was a critical aspect of both watershed plans, and several PMT members indicated the need for early public engagement was required to inform the planning process.

The reason why we are meeting with them so early in the process is to ensure that we address the issues that they are concerned about. We value their input. We want their input throughout the planning process not just at the end. We wanted them to know that their input at the meeting is not going to go wasted the plan is going to focus on the issues that you raise throughout this public engagement process. (MBWS #2)

Watershed plans also featured opportunities for the public and stakeholders to provide input during goal setting, action plan development and draft plan review stages of the watershed planning cycle. Multiple public meetings were also held in various watershed locations to accommodate the schedules and mobility of watershed residents. To further support community awareness about the watershed plan, both watershed PMTs used a wide variety of mechanisms to disseminate information to the public throughout the watershed planning process. Commonly used communication tools included newspaper articles, radio interviews, community television stations, highway signs, newspaper advertisements, mailed brochures, bulletins posted in public spaces, websites, emails, letters of invitation to watershed stakeholders and even direct phone calls with watershed residents.

In spite of the variety of communication tools used by PMTs to disseminate information to the public during the planning process, many public participants expressed frustration with an apparent lack of information about the planning process reaching watershed residents.

We don't know if we actually had input or if the input is going to be considered.... It just, it didn't work here because there really wasn't any follow up. That was needed. (PR Public #11)

You know there was very poor communication. There was no follow up with people who were there. Like it was ridiculous, that was like let's go for a cup of coffee to discuss something and then end the topic of conversation forever. I often wonder what came out of that meeting and so that's one issue. That is the problem in watershed management and public involvement, it is all done in piece meal, it is all isolated. There is no connection, there is no continuity. (NG Public #1)

Many public participants were confused about the extent of public engagement in the watershed management plan and were unaware that watershed planning events held at the onset of the planning process were related to subsequent public draft plan review meetings.

It was sort of out of the blue. People that I went with, they were at both meetings, and when we were at Oak Hammock Marsh (draft plan review meeting for Netley-Grassmere), we were talking and we said does this have anything to do with the meeting that we were at "X" number of months ago. We were actually wondering that. (NG Public #1)

In my experience in the north anyways, with aboriginal groups, definitely one point in time (of public engagement) is not adequate. In these (watershed) communities I have a sense that's the case. (NG Public #6).

6.2.2 Process has Integrity and Accountability

For a process to demonstrate integrity and accountability, public engagement must remain transparent and open. Transparency, accountability, and fairness are all fundamental values of good water governance (UNESCO-WWAP 2003). Final decisions must be justifiable and incorporate public input in a traceable or auditable manner. The public also needs to understand, why the information they provided has or has not impacted the watershed planning process (Gauvin and Abelson 2006). To facilitate these aspects, in both watershed cases, PMTs began each public meeting with an explanation of the planning process, the purpose of the overall watershed plan and informed public participants how information they provided would guide the

watershed planning process. In both watershed cases, information collected at the initial public meetings was compiled into a watershed issue summary document. This document was provided to all watershed team members and made available to the public via conservation district websites. As an additional measure of transparency, the Netley-Grassmere watershed plan PMT made all public comments available to the public through their website.

Some public participants indicated the planning process demonstrated transparency when PMT members carefully explained the planning process and clearly identified how information contributed by the public would be used to inform the decision making process. Some participants also commented on the non-politically motivated agenda of the watershed plan as contributing to the integrity of the planning process.

Other interview respondents identified that the final watershed plan verified the integrity and accountability of the planning process and public engagement activities. After reviewing the draft watershed plans many public participants were satisfied that their concerns identified at watershed planning meetings had been adequately addressed in the final watershed plan.

Even those participants that had been particularly critical of some aspects of the planning process indicated a degree of satisfaction with the contents of the final watershed plan.

I didn't go away (from the initial public consultation meeting) thinking oh this is an ongoing process, we are making headway, someone is listening to us. I didn't come away from that initial meeting with that but the second meeting when I read their document I was happy with what I saw. (NG Public #1)

In the Pembina River Watershed, some PMT members also identified Pembina Valley Conservation District's previous experience of with watershed management and the positive community perception of the organization greatly contributed to the integrity of the planning process. Others indicated that the official designation of a conservation district as the legal Water

Planning Authority for the watershed was a step towards increasing the accountability for addressing issues in the watershed.

Not all participants were impressed with public engagement in the watershed planning process and several indicated a concern with a lack of transparency regarding how public input was to be incorporated into the final watershed plan. Some felt this aspect had not been adequately established by watershed plan organizers. Other participants indicated a certain degree of distrust for the process citing concerns for the poor implementation of previous watershed plans and questioning the provincial government's agenda for initiating the planning process.

They (PMT members) set up each table at the meetings and they had a government person at each one. It seemed to be slanted towards what they wanted to do. They kind of put words in people's mouths. I think the (watershed planning) process is good, you have to have a plan. But sometimes people really didn't know what they want to do. (PR PMT #3)

6.2.3 Opportunity to Influence Decision

Effective public engagement processes include a genuine opportunity for the public to influence the final decision outcome. It is critical for PMTs to clearly identify very early in the engagement process the extent to which public input will impact the final decision (Rowe and Frewer 2000). In both watershed cases, PMTs emphasized that watershed plans focused on addressing issues identified by watershed residents and stakeholders.

Basically the public is where we wanted to start. The thing about an integrated watershed management plan is we didn't want it to be top down. We wanted it to be grass roots up so in other words we really wanted the end product to reflect things that the public in the watershed were concerned with so that's why we approached it that way. We wanted the public to tell us what your concerns are, hopefully we can build a framework and some recommendations so we can accomplish those goals. Because I don't think it works well if we go out to the public and say this is what we

are going to teach you. It works much better if you ask the public what are your concerns and let's find some solutions. (NG PMT #2)

Overall, most public participants identified being pleased with their ability to provide input into the planning process. Many respondents recognized the specific concerns they had identified at engagement events were included in the final watershed plan.

I noticed people appeared to have a little more optimism. Hey this is real, there is something to this planning process. And I think that they came to realize that they really should state their opinions because this is going to be the plan that we follow. It is really sort of meaningless to just sit here and say what you want to see happen, it became more real. As the plan matured, enthusiasm increased. (PR PMT #1)

They explained to us that the comments were to be forwarded on and put into the plan with the most important things we came up with being the top priorities. So it was our decisions that were going to make the top of the list in this plan. It seems that when the final plan came out that it is the same points that have come up (at public meetings) are the important ones. (PR Public #8)

A particular example of how local knowledge and public input significantly impacted the final watershed plan was described by the Manitoba Water Stewardship watershed planner working with the Netley-Grassmere Watershed Plan:

There have been some solutions suggested that wouldn't have been if we didn't have local participation. For instance one of the issues involves the Grassmere Drain being used as an outlet for the Stonewall wastewater lagoons. Due to the thin layer of overburden (above the aquifer), there have been sinkholes formed in the bottom of the man-made drain. These form as a result of high ground water pressure pushing out material and (as the water table slowly lowers) making sinkholes. The local people at the meetings identified the concern that when the lagoon is discharged, sinkholes in the bottom of the drain act as a direct sink to the aquifer which is used as a water source for almost the entire watershed and beyond. So they suggested that prior to the lagoon being discharged, that Provincial staff need to survey the drain and seal any sinkholes prior to releasing the lagoon. This is probably something that the provincial people may not have been aware of. (MBWS #2)

While most public participants were generally satisfied with their ability to have direct influence on the watershed planning process, a few interview respondents did express concerns that their particular issues were overlooked by watershed plan organizers.

How can it be missed, I mean it was intentionally missed because for some reason, and I don't know whether it's money or politics or what it is, I mean we did our part. We went to the meetings, we said our piece and we listened to other guys, what problems they had, what their concerns were and what they would like to see brought forth with this money and then when you see the final plan after all that time and like all the important issues were marked on these huge maps and it wasn't in the written (plan) and it wasn't marked on the map. My blood boiled for five minutes after I got into that meeting. Hoping again, not that we haven't cried about it for a long time, but hoping that each time that you go to a meeting and you do say your piece that maybe somebody will listen to you. (PR Public #10)

A few public participants had difficulty identifying exactly how their input into the planning process impacted the final watershed plan. Some participants of the initial public meetings were simply not aware how their comments had impacted the final plan as they had not received any further information from the PMT regarding the progress of the watershed plan. Other public respondents stated that plan organizers had not clearly defined how public information collected at public meetings was to be incorporated into the decision making process by the PMTs.

6.2.4 Fair Notice and Time to Participate

Preparation for watershed planning events requires adequate notice be given to public participants in order to collect and review various watershed information to facilitate informed engagement (Webler and Tuler 2001). In both watershed cases, PMT members struggled with identifying the appropriate avenue and lead time to send notice of public meetings to watershed residents. In the end, PMT members decided that two to three weeks of notice was required to ensure that people did not forget about upcoming public meetings and to avoid scheduling conflicts

for the public. As previously discussed, the public was made aware of engagement events by a wide variety of communication tools used by PMT's.

During interviews public participants indicated learning about engagement events through highway signs, notices from rural municipalities, conservation district offices, newspaper advertisements, brochures, relatives, friends, teachers and local agricultural offices. While none of the public respondents cited concerns with the amount of lead time to prepare for watershed events, many participants did express disappointment at not knowing about all available opportunities to participate. This was particularly frustrating for participants that had attended the first round of watershed public meetings and then not heard about subsequent public events.

But I was never really kept in the loop and that second meeting at Oak Hammock where they discussed the(draft watershed) plan it was sort of by accident that I found out about it, through this circular email (from friends). (NG Public #1)

Upon closer inspection of public meeting sign in sheets from both cases, it became apparent that only a small proportion of public participants from the first round of public meetings had attended the draft plan review meetings. Only 12% of the Pembina River Watershed's first round participants and 5% of the Netley-Grassmere Watershed's first round participants went on to attend the review meetings. To identify why this had occurred, 10 interviews were conducted (five per watershed case) with public participants that had attended only the first public watershed meetings. Of the 10 interview respondents, only one individual was aware that a meeting had been held to review the draft plan for their watershed. Of the remaining nine respondents, seven indicated that they were interested in participating in further public watershed planning events but were not aware of any subsequent public engagement opportunities. Most were quite disappointed to learn that they had missed the opportunity to review draft watershed plans.

Informed public participants require adequate time at engagement events to effectively discuss and debate watershed concerns. Sufficient time needs to be allotted for the public to voice their opinions. While most public participants did not specify concerns with the amount of time available for participation, some residents did find it difficult to adequately discuss watershed concerns in the time allotted during public and stakeholder watershed meetings.

Well, if you think about it, in 40 minutes (at a public meeting) a group of folks are supposed to come up with a resolution, that is sort of... particularly if you have a group of people that aren't all necessarily up to speed on the same issue. You may have a group of people that are more interested in one (watershed) component and are ignorant of other facets and so you are really not going to be able to come up with super duper solutions because you don't have the tools or the resources or knowledge to do that. So I think there is some weakness in that approach. (PR Public #12)

Another area that some participants identified as a weakness in the process was the lack of a formal window of opportunity to submit comments to the PMT for inclusion in the decision-making process. While both PMT's did use survey instruments as a means for people that could not attend a public meeting to engage in the process, neither group specified a deadline for commenting or indicated to participants how mailed-in comments would influence decision making.

6.2.5 Opportunity for Fair and Open Dialogue

Effective public engagement includes opportunities for fair and open dialogue among all participants (Stewart and Sinclair 2007). Effective public engagement events are characterized by a respectful communication environment where participants are free to discuss watershed concerns with impartiality. Project organizers should encourage two-way forms of communication and accommodate the differing abilities of individuals to participate. PMTs in both watershed cases encouraged open dialogue in the watershed planning process through the use of public meetings characterized by opportunities for individual participation, group discussion and debate of

watershed issues. Utilizing interactive formats of engagement and building capacity among the public improves the quality of dialogue during the process (Stewart and Sinclair 2007).

To support dialogue between PMT members and watershed residents, each group at public meetings was assigned a PMT member to moderate conversations, answer questions about the process and record public opinions about the watershed. In both watershed cases, public participants were free to identify and discuss any concerns they had about the watershed or watershed management.

We wanted to ask them.... what are your issues in terms of water and land resources within this watershed? Then we gave them some maps at the meetings where they could assess land cover, groundwater, flow, soils and a bunch of other information. So here is all this information, what are your issues? We did not ask them to rank water quality, drainage, flooding etc. We left them blank and asked them to tell us what they felt were their three top issues for the watershed. Each individual filled out this first. What are the issues and what would you suggest for solutions. This was for individual feedback and then we asked them afterwards through a facilitated group process. Now as a group prioritize your top three. So there was some compromise (trade offs) that needed to be made. (MBWS #1)

Many public participants spoke highly of public meetings and how well group sessions were managed by PMT members. Some individuals that had previous experience attending town hall style meetings for other community consultation projects commented on the benefits of conducting group discussions specifically noting the ability to learn and debate watershed issues with PMT members and watershed residents alike.

It was great sitting at the round table and meetings. There were four of us that went from my area to the meeting but none of us got to sit together. We all were at different tables with guys from different areas where they have their own concerns of water issues. I thought that was great. That's how things should be done. (PR Public #10)

Many PMT members note that the use of facilitated group discussions prevented conversations from being dominated by strong personalities and provided an avenue for natural conflict resolution amongst participants and watershed organizers.

The format is not conducive to that (dominating participants). You know some people want to get up on a soap box in front of a whole crowd. So really there was none of that, it was all breakout groups. So you have groups of five or six people and we had enough (PMT members) people to go around. I was in a group leading a discussion with a recorder beside me. My job was to keep the discussion moving and if you have sort of a dominant personality, it's not like you are cutting them off, you absolutely want to get their information because that kind of person is not going to take no for an answer. You get their information but you try to move the discussion on. Definitely, when you get people involved, there is going to be some conflicts and disagreement. I don't think there was any shouting but there was some frustration sometimes you can see. But I think we gave everyone a chance to at least get what they had to say out. (PR PMT #5)

Incorporating public involvement into the planning process does not automatically resolve conflicts. Providing a venue for fair and open dialogue during the planning process can assist in addressing outstanding disputes (Curtis and Lockwood 2000). While many public participants were generally satisfied with the level of discussion at public engagement events, some individuals found group conversations to be rushed and wanted more time to adequately debate watershed concerns and proposed solutions. Others found it difficult to properly discuss watershed concerns in the time allotted and wanted more time and information before contributing to the process. Some participants also expressed concern that group sessions were focused on debating watershed concerns with other watershed residents and offered little opportunity for dialogue between watershed planners, PMT members and the general public.

There was opportunity in the small break out groups to get folks' opinions on things and then bring it forward later on into the larger group. But after that there was not a whole lot of back and forth between the groups really. And maybe that would have been the opportunity for more education. (NG Public #6)

While many interview respondents were satisfied with the PMT's responses to questions posed during meetings, some public participants expressed concern that questions were not answered satisfactorily.

I asked two questions (of PMT members) and there were a number of other people who asked questions as well. There weren't any answers to those questions that I was ever able to get anything from and I would have liked to have gotten answers to those questions. There was somebody there recording the questions and not really anybody there that was providing answers. I was hoping if they were recording the questions, tabulating the questions that at some point in time there would be answers brought for those questions. (PR Public #11)

6.2.6 Multiple and Appropriate Engagement Methods Used

Methods used to engage the public must be appropriate to the level of public concern for the watershed and consider the specific needs and expectations of participants. Not all watershed residents are capable or interested in participating at the same level within the watershed planning process (Irvin and Stansbury 2004, Konisky and Beirle 2001). Therefore, effective engagement processes are characterized by a variety of methods that include multiple opportunities for participation at various stages during the planning process. Effective engagement methods include interactive formats that are developed based on consultation with public participants. A variety of engagement methods are utilized to provide different forms of useful information and encourage participants to remain engaged throughout the decision-making process (Coenen 2009).

In both watershed cases, watershed residents were able to participate at public consultation meetings or as a member of a stakeholder organization at the Watershed Team level. While the general public was not consulted about the engagement methods used, PMT members indicated that the format for public events in both watershed plans were selected based on

previous experience with public consultation events and their expectations for public involvement in the watershed management plan.

General public engagement was incorporated through a series of two public consultations hosted at the beginning of the watershed planning process and again to review the draft watershed plan. Following all public meetings, PMT members encouraged the submission of written comments from members of the public for consideration in the watershed plan. To increase the public's access to watershed consultation events and better understand the issues faced in all areas of the watershed, public meetings were hosted in a variety of watershed communities. In the Pembina River Watershed case, the meetings were held in the same communities for both rounds of public meetings. For the Netley-Grassmere Watershed, the initial watershed meetings were held throughout the watershed while a single central location was selected for the draft review meeting. To encourage widespread participation during the first round of public consultations PMT members also experimented with offering free community dinners, child care services and door prizes.

We are going to try and engage them first on an individual basis, find out how people feel individually and then try to capture their feelings about the watershed issues as a group and then encourage a group discussion. The idea here to capture people's individual thoughts and then try to engage them in a group setting to see if we could capture the overall feeling. We made a concerted effort to accommodate the public in the meetings. Public meetings are held for a lot of different reasons these days. The PMT was aware of that a lot of the rural people that we were engaging with weren't really interested in doing a lot of interviews or having public meetings. People are really busy and it is hard to get people out to talk about some of these issues in a group. So the PMT was concerned with the flow and content of the meetings and making sure those meetings weren't any longer than 1.5 to 2 hours in length. They tried to keep them as informal as possible. They didn't want to come across as some heavy handed government agency or some sort of formal census. It was handled in a way to keep the public comfortable with the process and to keep it easy for them to participate. Not only were there opportunities for them to participate at a public

meeting but comments could be mailed-in or submitted online as well. These comments were also reviewed by the PMT for inclusion into the plan. (MBWS #1)

At the Watershed Team level, methods of engagement were similar to those used at public meetings, where stakeholders were able to contribute as an organization but also through group discussion and debate with technical experts and Project Team Members. In the Netley-Grassmere case, the PMT organized a tour of several sites throughout the watershed to allow Watershed Team participants to experience watershed concerns at the ground level.

Many public participants indicated that the engagement methods implemented by the PMTs were well designed and executed. Others voiced that engagement methods allowed people too intimidated to speak in front of the larger groups the opportunity to still express concerns.

The group I was in had two folks in it were fairly shy and reticent to say something in front of a larger group and definitely breaking up into the sub groups I think is a good way to get folks to give their opinions on things. (NG Public #6)

The use of high detail aerial photos and other watershed maps was identified as an important communication tool by PMT members and public participants alike. Many participants indicated that maps were used as an efficient visual reference to provide context for numerous discussions and debates with watershed residents. PMT members noted that the identification of problem areas on watershed maps by public participants proved particularly useful in defining high-priority areas for the application of limited funding dollars during plan implementation. Other participants found the format of public meetings allowed residents to freely identify their concerns for the watershed while providing an interactive opportunity to learn about the watershed from the perspectives of others.

Everybody contributed; we got our own time to speak. It wasn't that we were sitting in a room of forty people and waiting for our turn or where some people might be too shy

to speak up. Everybody got an opportunity to put their points down on paper and then everybody contributed after. It got everybody's opinion across and not everybody could jump on board with just one idea because they all had to come up with their own beforehand. Before we started the main discussion after (refers to individual comments completed at the beginning of meetings) so instead of being followers, they had to come up with their own ideas. I think it was really good. (PR Public #8)

Not all participants agreed that facilitated group discussions during public meetings worked well for canvassing the variety of opinions held by watershed residents. Several participants found that the format of public meetings offered limited exposure to concerns of the larger group or public concerns identified during other public consultation events. Following interviews with both PMT members and public participants for the Netley-Grassmere Watershed, it became apparent that the public engagement process would have benefitted from additional opportunities for public review of the draft watershed management plan.

I know these processes take a heck of a long time to do it right and folks, well managers, don't always have, or don't feel they always have the time to put into reiterations of the consultations. But sometimes it is very important and if people get more information from the initial consultations and if you go back to them afterwards they may have more to say after what they have learned and after discussing informally with their buddies in their community or their community leaders they may have more to say, which may change their opinions on things.(NG Public #6)

6.2.6.1 Other Opportunities to Participate

Beyond attending public meetings, public participants identified a variety of means through which they had contributed to the development of the watershed management plan. Residents had participated in other watershed improvement projects, volunteered for watershed initiatives such as community water quality testing, distributed watershed information that they had collected at public meetings or talked about watershed concerns with their neighbors. Many individuals had downloaded watershed documents and draft plans from the internet and completed thorough

reviews before attending draft plan review meetings. Some had even attended municipal council meetings to voice concerns about decisions such as approvals for hog operations or cottage lot developments they felt may impact their watershed.

It is important for watershed planners and project team members to note that the public did not consider their direct participation at watershed planning meetings as the only venue through which they participated in the watershed management plan. To many individuals, the actions they took to address watershed concerns were as important if not more so than their direct involvement at public consultation meetings.

Many individuals from both watershed cases expressed interest in higher levels of engagement than solely through formalized public meetings. However, PMT members often had difficulty identifying possible alternative public engagement methods beyond public meetings and survey instruments. Consulting the public on how they want to be involved and designing participation methods to suit public expectations will improve the effectiveness of public engagement.

6.2.7 Adequate Information and Accessible to All

Access to adequate information about the watershed is critical to participant learning and informed engagement in watershed management planning. The information provided to support watershed planning must be complete, readily available and in a format easily understood by all. Information must also be provided early in the process to provide a sufficient opportunity for individuals to review content for subsequent discussion and debate at public engagement events. Due to the changes made to the watershed planning process in 2008, PMTs hosted early public consultations to determine the course of watershed planning and direct the collection of pertinent

watershed information for the planning process. As a result watershed information made available to the public prior to initial public consultation meetings was limited to previous watershed management plans and technical documents developed by local conservation districts. In both watershed cases, following initial public consultation meetings a summary of public comments outlining watershed concerns was posted on conservation district websites. Much later in the process expert technical submissions were compiled into a watershed characterization document that was made available to the public shortly before the completion of a draft watershed plan. All technical information was publicly available through local conservation district websites and Manitoba Water Stewardship's website. Copies of draft and final watershed plans were also distributed by conservation district offices and municipal offices throughout each watershed.

Many public participants recognized the importance of accessible watershed information and were generally satisfied with the information available. Several respondents who had accessed information during the watershed planning process commented that information was readily available through conservation district websites, appeared complete and was easily understood by non-technical individuals.

I think the conservation district actually has a very nice listing of the reports and you can just basically, you know basically click on the report you want and I think they have done a very nice job actually of putting that together. (PR Public #12)

Posting watershed information on conservation district websites allowed PMTs to provide a summary of watershed information while maintaining access to detailed watershed technical reports. This gave PMT members the flexibility to provide technical information to suit the needs of all public participants.

The language there is geared to the average guy and yet if you want a detailed version of a fisheries study, we can get you that. It is on our website. Some of the people are going to dig into that fisheries document and look for very specific things

and other people are fine with that summary. (PR PMT #5)

Some public participants did identify concerns with the fact that watershed information was only made available for public review after initial public meetings prior to draft plan review meetings. Several respondents indicated that it was critical to have more time prior to watershed planning events to review technical information to allow for informed participation.

I'd like to see a little more information provided and a little more time to digest it and then an opportunity to present questions or ideas and then give the government the time to possibly make changes if they are good suggestions. You know if they're valid. At least consider them and then an examination of the final plan or the adjustments to the draft plan and then go from there. (PR Public #11)

Other participants noted concern that important watershed information appeared to be missing or incomplete. Many individuals wanted access to more information that simply may not have been available for the watershed including detailed surface water quality reports, historical changes in local water quality of watershed lakes and rivers over time, and the impacts of poor water quality on the health of watershed residents.

I know whenever we talked about nutrient loading and stuff like that, we didn't have a history on what normal levels are. We haven't been testing long enough and we start making decisions whenever we see something change but we don't know if that's a normal change or something unusual caused by something else. It always seems that there is a lot of guess work. It could go both ways on whether it is normal or not normal and I think we need to do long-term testing. Maybe we are in the infancy of that now and its going to be on record. But it does seem that there is a lot of guess work when it comes to watershed management and lake management on stuff like that. It seems like there is a lot of opinion and not a lot of facts on much of this stuff. (PR Public #8)

While not common amongst participants, some individuals did express concern with the overly technical nature of some of the information provided, indicating that a background in engineering of sciences was required to completely understand overly difficult concepts. Another

concern identified primarily by rural watershed residents was a difficulty in accessing computer reports through slow “dial-up” internet connections found in most rural areas. Some participants could not access reports indicating their computers “crashed” or “timed-out” while downloading large digital documents, draft plans or watershed maps from conservation district websites.

6.2.8 Opportunity for Learning and Informed Engagement

Effective public engagement processes increase opportunities for social and personal learning and support informed engagement by all participants. Social learning in public engagement processes encourages trust and respect amongst participants, improves the quality of dialogue and increases consensus on final decision outcomes (Stewart 2005). In both watershed cases, PMTs emphasized participant learning as a critical outcome of the watershed planning process.

By engaging the public in watershed management planning, PMT members hoped to learn about the various watershed concerns held by public participants while simultaneously educating the community about the concept of watersheds and integrated watershed management. To support their goals for public education about the watershed, PMTs presented detailed information regarding the state of the watershed at public consultation meetings, assembled various available technical reports into a summary of watershed resources document to improve public accessibility to watershed information and carefully designed final watershed plans to contain insightful information about the watershed while simultaneously presenting watershed goals and action plans.

In the end, almost all interview respondents indicated learning something significant about the watershed, watershed management or the watershed community as a result of their involvement in public engagement events. This knowledge was based primarily on informal

conversations among PMT members, participants and through facilitated meeting exercises.

Some individuals also indicated that they learned new things about the watershed from reviewing technical documents and watershed reports.

Several PMT members identified a new respect for the deep public concern surrounding the health of the watershed. Many were surprised to see that so many people connected to water issues on such a personal level.

Water is a very personal issue. People are very passionate about water. I guess I knew that but when you talk to people about water, emotions are close to the surfaces. So it's always important that you treat people with respect and to listen to everyone critically and try not to generalize when you are learning about a new issue. I have personally tried to make a point of taking to heart what people are saying. Sometimes people will come to meetings almost on the verge of tears and you can see that. In a way it is kind of a great job because you get to deal with something that is so important to people. I have learned to handle these meetings with great care and have methods of diffusing emotions at meetings. (MBWS #3)

Other PMT members indicated coming away from public engagement events with a new understanding and respect for the diversity and similarity of issues that are faced by watershed residents.

The diversity that there is in the watershed. I mean I am very involved in agriculture so I have a good handle on the diversity on that side but some of the urban stuff and things that happen with these new developments and what developers have to look at and planning boards, et cetera. I mean it sure opened my eyes, to that kind of stuff. And concerns from I would say more urban type of people. It is quite different living in West St. Paul as opposed to a hamlet. You know what I mean and what their concerns were and again versus a farmer farming a crop land in the Stonewall area. So to the diversity of the people and the diversity of their concerns. Plus on the other side how common their concerns were too, some of them. You know the farmers are the stewards of the land so they obviously have concerns about, people don't realize it but they have to drink the water too so a lot of the concerns were amazingly the same. (NG PMT #2)

PMT members and Manitoba Water Stewardship staff also learned that providing an opportunity for public education was critical to receiving informed engagement from participants in the watershed plan. Public participants require opportunities to learn about the watershed and watershed processes in order to ensure that local knowledge was properly incorporated into the decision making process.

The folks that live on the ground have a much better perspective of the local issues and problems than anyone who is a technical expert. If you really wanted to know the condition of certain stream or a sub watershed, it is critical to talk with the folks that have lived there year round and for a long period of time. A lot of experts were able to provide trend analysis and an overview of resources but specific location data and temporal data spanning decades was something that was truly effective. You can't get this type of information from a GIS. (MBWS #1)

Public participants also cited learning about watershed concerns and the perspectives of other participants as being an important part of the public engagement process.

I came away with a better understanding of the watershed and probably a better understanding of how it is perceived by those who are within it. Sometimes you are stuck in your little corner and dealing with your own problems in your own square mile there and you are not as aware of what's going on with everybody else so I think that was rather enlightening. And it was rather surprising to learn a lot about the watershed that I didn't know before. (NG Public #5)

One participant indicated being surprised by the receptive nature of the public to make changes in order to improve the health of the watershed. Prior to his involvement in the planning process, his perception of the community was one of them being resistant to any form of change when it came to water management. Other individuals also identified learning about the watershed and how vulnerable it is to human activity as being important knowledge gained from their participation in public engagement exercises.

I learned through the additional readings how shallow the (aquifer) overburden

(protective layer) is in my particular immediate area. It was very educational to find that out and to find out how easy it would be to contaminate the aquifer where I live. And since I do have currently high coli form counts I can understand now why that would happen with sink holes forming upstream of me and how easy it is for things like livestock areas to potentially be able to contaminate the aquifer because there is not a whole lot of soil and bed-rock. (NG Public #8)

Not all participants were as positive about the opportunities for learning and informed engagement in the watershed planning process. Some indicated the opportunity to provide informed opinions for the watershed plan was compromised by a lack of timely watershed information and poor dialogue with watershed planners.

It would have been best to have something like that, a little bit of lead up to stimulate thought, before you actually are there. It is difficult for people to be educated enough to just be able to throw you stuff off the top without having had a chance to think about it and ask questions in their own mind and then form a question for the presenter. (PR Public #11)

6.3 Challenges and Barriers to Public Engagement

Involving the public in watershed management can be a messy decision-making process where individuals wishing to engage in a planning process can be affected by a wide range of barriers to participation. While perhaps not entirely excluding members of the public, these barriers can compromise the ability of an individual or organization to participate effectively. PMTs and watershed planners also face significant challenges when incorporating effective public engagement into the decision making process. Overcoming the challenges and barriers to public participation is essential to an effective public engagement process.

6.3.1 Barriers to Public Engagement

During interviews with public participants, individuals were asked to identify the barriers faced by watershed residents when participating in the watershed planning process. The literature

review presented in Chapter 2 discussed barriers to participation as occurring at the micro, meso and macro levels. The barriers to public engagement that were identified by interviews with public participants have been discussed here according to this typology.

Micro-level barriers include personal obstacles such as a lack of knowledge about the process and issues (Arnstein 1967; Diduck and Sinclair 2002), lack of communication skills to participate, and personal traits such as shyness or apathy about the process (Diduck and Sinclair 2002). At the micro-level, public participants identified public apathy as a very serious threat to widespread public engagement in the watershed planning process. Apathy was described as occurring due to the lack of a galvanizing watershed issue or a low level of concern for the watershed amongst the majority of watershed residents.

I don't think there was a big up-take from a lot of the general public. Typically speaking the public only shows up when there's a huge problem. You know I think if you would have had those meetings this year with the flooding and everything that has occurred I think you would have had more public show up. (PR Public #14)

Others described a lack of personal connection to the watershed for most residents as contributing to the perception of public apathy and lack of widespread engagement.

For most people the watershed doesn't affect them. I mean there again 95% of the people don't live on Wavey Creek or Netley Creek. (NG Public #7)

One participant also identified that the public may lack adequate knowledge regarding complex watershed processes in order to communicate their concerns for the watershed as effectively as government technical experts.

Government agencies' representatives were all quite educated and spoke well which perhaps allowed them to get their points across a little better than some of the other people. (PR Public #9)

Barriers at the meso-level would include obstacles based on an individual's relationship with their immediate environment and other individuals. Some examples would be the complexities of life, process-oriented concerns, and unconstructive dialogue. Meso-level barriers identified by public participants included busy life schedules and family demands which interfere with their ability to attend public meetings and watershed events.

It was an open fall (dry conditions) so it was hard to get farmers in (to attend meetings) I would say. And then the February one (public meeting), well you are in the middle of hockey season and all that so I don't know what would be a better time of the year. (PR Public #11)

Others described a lack of notice about upcoming public consultation events as a detriment to wide-spread engagement. Several public participants commented about being informed of public meetings only through neighbours and friends. Some participants also expressed concern about a lack of ongoing information from the PMT as the planning process unfolded as a barrier to getting involved in the watershed management plan.

There is probably a lack of information to the general public that this process was going on. I don't know how much in terms of communication or media....what effort they put into trying to ensure that people within the watershed be aware that this process is going on and that they would have an opportunity to provide input. So I would think that that would probably be one aspect. I think the other thing is that the whole process of putting the plan together has really been drawn out and I understand, I've worked in government, so I know what that is like. It's a long process and so I think one of the things that they could have probably done as time went on was to provide periodic updates to stake holder groups and identifying just where things were at in the planning process. (PR Public #12)

Some participants commented that the entire watershed planning process appeared to focus on hot-topic issues such as drainage, while ignoring broader watershed concerns like aquatic ecosystem health or endangered species. Some participants also identified public contempt or "finger pointing" as a possible barrier to many watershed producers or business owners engaging

in the planning process. Individuals who perceived themselves as contributing to issues faced within the watershed were deemed highly unlikely to participate in public meetings.

It seems like farmers didn't want to come to the meetings and talk about drainage and stuff. Just because of the laws and maybe they had done a bit of drainage that they weren't (supposed to) (PR Public #9)

Barriers at the macro-level represent large-scale concerns with the process and social attitudes towards public participation itself. This level of barrier can present significant challenges to the effectiveness and positive outcome of any public engagement process. While not a commonly held opinion amongst public participants, some respondents did identify considerable concerns with the integrity of the watershed planning process. Paramount of these concerns was a distrust of municipal and provincial governments and a lack of confidence in the capacity of conservation districts to address large-scale watershed issues.

Much of the distrust towards the Manitoba Government was based on an individual's negative experience with previous water management decision making or frustration over a lack of apparent enforcement of existing water management and protection regulations.

I'm afraid that what Water Stewardship is looking at now is stopping drains and stuff but it's like closing the door after the cows get out. (PR Public #10)

You know we have the laws and I have one, as an example, one fellow on Pelican Lake that I talk to quite a lot and he is continually saying to me I wished somebody would do something about it. We pump out our (wastewater holding) tank religiously and the guy next door is running his wastes into the lake and this goes on and on. (PR Public #13)

Individuals also held negative views of the watershed planning process based on previous poor water management decisions made by municipal governments.

There was some heavy flooding around 2000....where there was 6 ½ inches fell in the area around here and we are at the bottom of the watershed. We were inundated within hours by water that flowed this way and so there was complaints by local area

farmers and they got after the R.M. (rural municipality) and the R.M. had a couple of meetings and they formed this committee. As far as I'm concerned, that was just the R.M. pretending they were interested and that was just to keep everybody quiet because it made it look like they were doing something. So that committee never went anywhere, it never did anything and there was never any formal dissolution to it, it just stopped, and no one ever talked to us again. (NG Public #1)

One individual also identified his concern that the conservation district designated as the water planning authority for the watershed did not have the capacity to implement the large-scale projects or programs that in his opinion were required to create real improvement in the watershed.

I think the conservation district was never set up to build a 30-million dollar dam or anything like that. They are more for small projects and what not so I guess that's why nobody really takes it seriously. (PR Public #7)

Several participants indicated concern that the public viewed the planning process as a foregone conclusion. One particularly frustrated farmer from the Pembina River Watershed expressed frustration that the process had been unresponsive to his particular concern for the watershed:

It was a waste of all the people's time that were there as far as I am concerned. If the plan was already decided and the money where it was going to go and how it was going to go was like I told you before, I have gone to lots of different meetings and I've always thought in a lot of cases that what they want to do is decided and then they have a meeting to appease the general public. Say "well you had your chance to say your thing" but that the plan and the government's way of doing things is we're going to do it our way no matter what anybody thinks or whether they like it or not and will expropriate or do whatever they want. And it's a poor way of thinking but I've seen it time and time again..... You can talk until you're blue in the face but if it's not what the company wants or what the government wants at the time you're not going to change their views. (PR Public #10)

While none of the identified macro-level barriers to participation relate directly to either watershed management planning case, previous negative experiences with watershed management and water management institutions can turn some individuals away from engaging in

the planning process. This can represent a significant barrier to the effectiveness of the public engagement process.

6.3.2 Challenges to Engaging the Public

Similar to barriers faced by the public when participating in the watershed planning process, Manitoba Water Stewardship watershed planners and members of the PMTs also identified a number of challenges when incorporating public engagement into the development of watershed plans. Most challenges expressed by both watershed planners and PMT members fit into one of two categories, the first was attaining substantial public involvement throughout the watershed planning process and the second, how to appropriately involve the public that did participate in public engagement events.

6.3.2.1 Achieving Significant Public Involvement

When discussing the challenges of engaging the public in watershed planning, most PMT members and Manitoba Water Stewardship staff indicated a desire to involve a greater number of watershed residents in the planning process and attributed the low number of participants observed at public engagement events to a variety of factors. First and foremost, lower than desired public involvement was identified as being directly related to the public's preconceived notions about the overall intent and validity of the watershed planning process. Common among these notions was that the public believed their input to be of no consequence in the planning process. Some PMT members simultaneously pointed out that many watershed residents are not concerned enough about the condition of the watershed to voice their opinions at public meetings.

I think it's not just about this sort of thing, I think it's almost anything that is done politically. A lot of people feel that they don't have a voice so they don't participate.

(The public assumes) They aren't going to be heard anyways they won't make a difference anyways so why bother. I think it's an attitude, a laziness really. (PR PMT #1)

Short of knocking on their doors I don't know how you are going to (get more involvement), I mean that's just the way it is out there, you know, unfortunately. Unless there is a really big issue, you know what I mean? (NG PMT #3)

Some PMT members also identified low public turn out to engagement events as common to other community-based planning processes. Many PMT members and watershed planners further recognized that apparent public apathy towards watershed planning may be related to the fact that most watershed residents lead busy lives and have little time available for commenting on watershed planning priorities.

People have a lot going on in their life....Unless there is a pressing issue, if things are going on okay. People were generally happy with what was going on and there didn't seem to be any burning issues. So we didn't seem to have a huge turnout at a couple of the meetings and we were kind of surprised. We talked to a couple of the (municipal) councilors and they said that people are doing pretty well and they are generally pretty happy and so...I guess that is a good thing. (MBWS #3)

Well I think generally how busy people are. I am sure that there are people that wanted to get to the meetings and couldn't come. And we only held three (initial) and three (draft review) public meetings. But we did say we would make ourselves available to anybody at any time. So we threw that out there. We didn't say this is your one chance and that's it. We had the door open. I think we were pretty inclusive that way, we were flexible with our timeline. (PR PMT #5)

Other PMT member's attributed a lack of significant public engagement to widely held concern amongst some watershed residents that the watershed planning process was merely a tool for justifying increased regulatory enforcement.

They were just a lot of farmers that were worried, that maybe this was moving towards some sort of crackdown on (illegal) drainage. I know a lot of farmers personally so they would tell me a lot of things that they wouldn't at a meeting. (PR PMT #3)

Some PMT members were concerned that the public saw the watershed planning process as merely a way to support proposed environmental protection regulations or legislation.

There are so many more rules, it appears endless, absolutely endless for instance the whole thing with Lake Winnipeg. We all watch the news and hear its livestock and farmers, and it's this and that and as soon as they say its farmers, farmers get offended. (PR PMT #2)

Other PMT members felt that some watershed residents may have perceived the watershed plan as targeting change within specific sectors of the watershed such as agriculture.

After you see Lake Winnipeg and how green it gets with algae and the phosphates, well you know they blame it on the hog barns but you know when you fly over it everything that comes out of that Netley Creek comes out of Winnipeg so you can't blame it on hog barns. And a city is a city, you are not going to stop that, they have programs to try to improve it but we are years away from seeing something happen there. (NG PMT #1)

6.3.2.2 Incorporating Effective Public Engagement

For PMTs and watershed planners, determining how to appropriately incorporate public input into the overall watershed planning process presented a number of unique challenges. From an administrative perspective, PMT members identified public engagement processes as costly and time consuming but absolutely essential to a successful watershed planning process.

It takes time. It's costly. But without that ground truthing (public input), it's too risky to send something (watershed plan) out. (PR PMT #5)

For all of us to be committed to this is difficult because we have other lives. It's not a job, it's kind of a volunteer thing, It's not like we were getting \$3000/month to do this. Maybe if we did it would justify going to every town, but there can never be too much (public engagement). But if you are asking people to sit on committees, there is only so much time they are willing to give. (PR PMT#2)

Many PMT members also found it difficult to define an appropriate end point or extent of the public engagement process.

You are kind of putting yourself on the line there saying we want this plan to have public opinion in it and you do the best you can to get public opinion but at the end of the day to turn around and say was it enough? I think that you will never get enough public opinion, you could always get more and more, so the disadvantage would be ensuring that once you invite the public into the process, hopefully you will get enough input from the process. (NG PMT #4)

PMT members and Manitoba Water Stewardship watershed planners further identified a number of risks associated with opening the door to public engagement in watershed planning. A commonly identified concern was that public priorities might not reflect the priorities of the Provincial Government or Water Planning Authorities.

Well there is the risk of people not wanting to talk about certain issues that the government may consider a priority. Because we have restricted our level of control, we are sort of bound to what locals consider as priority issues. So we have to trust that (our) issues of concern are going to be brought up by the PMT and public in that area and they usually are. (MBWS #3)

You talk to your coffee shop crowd and all they want to do is make money. They don't care if you are farming right up to the ditch, you don't have any riparian areas, they just want to drain the whole country and get more farm land. As soon as you talk water conservation you are not talking drainage. The average farmer wants drainage, he doesn't want conservation. (NG PMT #1)

Another challenge perceived by some PMT members was maintaining the long-term focus of watershed planning while addressing the public's expectations for short-term improvements.

If we hold meetings in the spring and flooding may be occurring in the watershed, you do kind of see spring flooding as a high priority. (NG PMT #4)

PMT members and watershed planners alike struggled to address issues of representative public participation. Watershed planners in particular identified a majority of participants at public meetings as being men.

I also think that it has been difficult to get women out to the public consultations. A lot of people feel like this is the domain of men's decision making. (MBWS #3)

A review of public meeting sign in sheets identified 15 out of a total 156 (approximately 10%) public participants in the Pembina River watershed as women and 46 out of a total 158 (approximately 30%) public participants in the Netley-Grassmere watershed as female.

You are primarily dealing with men, men that are over 40 or 50 years old. They are often involved in local politics in some way, they are either councilors or, some way involved in lots of community initiatives. Many are farmers, and that is a pretty narrow demographic when you are looking at public involvement. The challenge is to get younger people and women to participate, that was something that was lacking. (MBWS #1)

One PMT member commented that watershed residents participating in public meetings to some extent tended to be the same group of individuals that participate in all community planning initiatives.

I have (been) going to a lot of different meetings, whether it was symposiums or conventions and quite often, for a number of years, to do with issues like we're discussing and you see a lot of the same people go to the same things a lot of the time. (NG PMT #3)

A last challenge for public engagement as identified by PMT members and watershed planners was the struggle to define consensus among watershed residents regarding the most appropriate management of watershed resources.

The public doesn't have a unanimous voice on all issues. For instance, some farmers wanted increased drainage enforcement and others said no government should be out in my back yard. This is my land let me do what I want. There wasn't a consistent voice from the public on how water should be managed. There was a wide range of ideas and we did our best to capture what we could. (MBWS #1)

Beyond concerns for capturing the true voice of watershed residents, some PMT members also identified a certain amount of risk associated with poorly informed public participants or unfounded claims regarding watershed concerns.

You do get some; the public isn't always really well informed so you do get some stuff

that doesn't really have any basis in science. I did notice some of the things that came out about agriculture basically didn't have any basis in fact. But you can't blame people for that. They have no exposure now to it so their idea of what was going on in the farm and what actually goes on are two totally different things. (NG PMT #2)

Another PMT member noted that in some instances a public participant may even try to manipulate the process in order to benefit personally from the implementation of the watershed plan.

The public needs to be involved but sometimes you have two or three people that are totally negative about something because they won't raise their cottage (to prevent flooding) or whatever to a proper height and they built too low and they are trying to control the whole lake when really they have an issue that they themselves need to address. You see that happening from time to time but for the most part I think the public knows. (PR Public #15).

6.4 Deciding to Participate

In spite of all the identified challenges and barriers to public engagement, a significant number of watershed residents and public stakeholders did get involved in the watershed planning process. An important component of this research project was to identify the motives, drivers and incentives that encourage the public to get engaged in the watershed planning process.

6.4.1 Reasons to Get Involved – Public Participants

Interview respondents identified a wide variety of reasons for participating in the watershed management planning process. For some, participation was due to a personal interest in water resources management. Many possessed a desire to learn more about their own watershed and contribute to the process.

Neighbors often talk about the Pembina River getting worse so I attended the meeting to learn more for myself. (PR Public #18)

Other individuals participated due to a professional interest in watershed management. Public participants included a handful of water resource management professionals (biologists, water consultants, ecologists, wastewater operators) who had substantial work experience and were interested in contributing their knowledge to assist in protecting the watershed.

I made my living in environmental sciences so I'm concerned about the environment across the country and of course this is right in my backyard so I had some questions of my own. I felt this would also be a good learning experience for me. (NG Public #6)

For some, participation was about having general concerns for the watershed identified and addressed by the watershed management plan. Some of these concerns related to changes that residents had experienced from living in the watershed for decades.

When they start talking about water, water probably is going to be one of the most valuable resources that we have in the future and something I want to keep an eye on for the region. (PR Public #14)

We have been noticing an increasing amount of flooding and consistently wet areas throughout the region. (NG Public #4)

Any water movement has a great affect on all of us no matter what our background or our livelihood is. You know whether it's drainage, conserving water, building retention ponds, you know it all has some effect so it is very important, water is very important to us. (PR Public #6)

The businesses, farms, homes or property of some participants had been directly and negatively impacted by some aspect of the watershed and their participation was based on having these specific and personal issues addressed.

I have lived on these shale hills all my life and I have seen what happens when you take the grass and the trees off and there is a lot of bank erosion and we're concerned about that. (PR Public #1)

We are greatly impacted (by flooding) where we live by our watershed because we are at the bottom of the watershed. (NG Public #1)

Some participants that had been negatively impacted by the watershed specified their main interest in participating in the watershed planning process was to voice concerns with how government agencies, conservation districts and municipalities had made previous decisions surrounding water management.

I'm just concerned about the poorly managed watershed issue in Manitoba. I'm concerned about the willy-nillyness of the drainage. Drain one person because one person squawks more. I'm very concerned about the aquifer, that the conservation of Manitoba or water stewardship Manitoba, they don't have a handle on what is being drawn out of it. (NG Public #1)

I'm a farmer and I have never given up hope that maybe somebody would listen to you and take what you are putting forth as an honest and legitimate concern and hope that somebody would go forth with it and or look into your concern. (PR Public #10)

Living in close proximity to a dominant watershed feature such as river, lake or creek appears to enhance an individual's connection to the watershed they live in. These individuals appeared to experience their watershed in a more profound manner than those that may be further removed from watershed features. Several public participants cited a personal connection or "ownership" of the watershed as a major factor for engaging in the watershed planning process.

I have a cottage on the lake and I have always been interested in and concerned for Lake Winnipeg. I wanted more information. (NG Public #9)

Well because we live right here on Wavy Creek. I can throw a stone off my porch into the creek. (NG Public #7)

Other individuals participated in the watershed plan due to a sense of civic duty. Some felt obligated as a member of the community to participate in a process to protect the watershed. Others wanted to ensure that the voice of local communities was heard during the planning process. Many participants were also members of municipal councils, conservation district boards and stakeholder organizations that felt compelled to support watershed planning and engage in the

consultation process. One group of high school students also participated in the watershed planning process to receive class credit. This last motivation for engagement should be of particular interest to PMT members who were looking for opportunities to engage school students in the planning process.

6.4.2 Incentives for the Public to Participate – PMT and Watershed Planner Perspectives

When discussing what the public perceived as the incentives to becoming involved in the watershed planning process, PMT members and watershed planners overwhelmingly cited the ability to voice their concerns for the watershed and potentially have environmental issues addressed. PMT members indicated that the public had a genuine opportunity improve the watershed plan, shape programming and funding decisions and ultimately benefit from improved watershed conditions.

I think the biggest thing we wanted the public to walk away with was that we care about their input. We explained the process to them, we explained how the process has changed over the years, the reason why we are meeting with them so early in the process is to ensure that we address the issues that they are concerned about. We value their input. We want their input throughout the planning process, not just at the end. We wanted them to know that their input at the meeting is not going to go wasted the plan is going to focus on the issues that you raise throughout this public engagement process. (MBWS #2)

In the end, most PMT members stated that the biggest incentive for residents to participate was that the public is the most impacted by watershed management decisions. Many watershed residents' health and livelihoods are directly tied to the health of the watershed. PMT members stressed that it was essential that the public participate in order to protect the overall vitality and aesthetics of the watershed.

If they have a feeling that they are in control in part of the process that can feel good. They are the biggest stakeholder. Anyone that lives and works and plays here is the

biggest stakeholder. They want success, they want to achieve the goals that are outlined. But they might benefit from the implementation. This is one of the issues, they could be implementing something that needs to be changed. (PR PMT #5)

6.5 Summary of Participant Thoughts on Overall Public Engagement Process

Towards the end of each interview, all respondents were asked to reflect back on the opportunities for public engagement and elaborate on which aspects they found particularly successful in the watershed planning process. While five public respondents would not identify anything particularly successful about the process, upon closer scrutiny of the remaining responses received, three common highlights of the watershed management planning process emerged.

The first highlight, identified mostly by PMT members and Manitoba Water Stewardship staff, was a certain level of satisfaction with the number of individuals that did participate in the planning process. Many respondents stressed they had hoped for a greater number of watershed residents at public meetings. However, compared with their experiences in other community planning initiatives, most were encouraged by the level of participation the watershed plans did receive.

We had just over 120 people attend these meetings out of a population of 40,000. We did not consider this a good turnout. However in terms of the public meetings, 40 people at each meeting is a very good number. We are used to seeing 5 to 10 people at some of these meetings, so we figured that 40 was quite successful. We were quite happy with what we got even though it doesn't represent a good number of the population as a whole. (MBWS #2)

A few PMT members and watershed planners also stated that ultimately the success of the watershed plan would be driven by community support for implementation and it was important for public participants to clearly identify the priorities for the local watersheds.

If you start with the local residents and identify what they value, you will have much greater success in achieving any change. If you get public information and priorities

early in the process you will have more success in implementation. (MBWS #1)

A second highlight of the watershed planning process was an overall approval of the engagement and watershed planning process itself. Many public respondents commented that the public meetings allowed individuals to provide personal input into the process while simultaneously encouraging discussion of broader issues at the watershed level. Participants particularly enjoyed meeting a variety of watershed residents and having an opportunity to hear the opinions of other watershed stakeholders and residents.

The public had a really good opportunity to come out and voice their opinions. If they didn't come, I guess they don't have the right to complain later. They were given an opportunity to guide this process. Down the road they can say what didn't work or that we need to try something else, but to just sit and complain about it, I don't think would solve anything. At the end of it I found that people were very optimistic, I didn't see anyone that felt they had been left out or anything. During the meetings they (PMT members) actually took notes while people were speaking so that everyone got to see that their point was being heard and wrote down, people were listening. The optimism was there at the end of the meetings. That was a good way to run a meeting. (PR Public #8)

PMT members and watershed planners were also generally satisfied with the quality of public engagement processes during watershed management plan development.

Once we had received feedback from all of the different communities in the watershed, it became apparent that they all cared about similar things. So we walked away with a pretty clear list of the top four or five things that they were concerned about. For us that was a big highlight. Everyone is pretty well concerned about the same things. The difference being that how the issue might be addressed would differ between communities. (MBWS #2)

Lastly, many respondents identified that the development of a quality watershed management plan itself was a testament to the success of public engagement in watershed planning. Overall even individuals that were critical about certain aspects of the watershed

planning process and public engagement were generally satisfied with the content and action-oriented focus of the developed watershed management plans.

First up it's a watershed plan. That's a hell of a step in the right direction right there, you wouldn't have gotten that 20 years ago. So it's a holistic look at a whole system and its effect on society... the downstream inhabitants or the upstream inhabitants, the whole watershed is affected. (NG Public #7)

I thought the end product was pretty acceptable. You know I don't recall, there was nothing in there that really upset me. I thought they did their homework. A lot of times these things become somebody's study and it gets shelved, it doesn't get to the Minister (of water stewardship for approval or implementation). It's nice to see when it does, you know, and the Minister has a look or his Deputy Minister or whoever he has studying it up. Somebody has a look and says this looks like this could be worthwhile. (NG Public #8)

You know you are never going to get it 100% right, you have to do what you can, have to be pragmatic. But I think the issues got addressed and got into the plan. For the next ten-year period we are in good shape. (PR PMT #5)

Reflecting back on the information presented in this chapter, it becomes readily apparent that Manitoba's Water Planning Authorities, like most other areas of Canada, face significant challenges to meet the public's diverse expectations and values surrounding watershed management. Addressing diverse expectations requires that barriers to public engagement be overcome through the incorporation of opportunities for effective public engagement. Effectively managing the complex social dimensions of water while protecting watershed health and maintaining ecological integrity is essential for sustainable integrated watershed management.

CHAPTER 7 – CONCLUSIONS AND RECOMMENDATIONS

7.0 Project Overview

The purpose of this research project was to determine if the emergence of collaborative approaches to watershed management planning have increased opportunities for effective public engagement. Within this context, my research objectives were to 1) understand how the public was being engaged (nature of engagement) in watershed management planning, 2) identify the challenges, barriers and drivers for effective public engagement in watershed management, 3) determine if public engagement occurring within Manitoba's watershed management planning satisfies the components of effective public engagement, and 4) provide recommendations on how opportunities for effective public engagement in future watershed planning projects in Manitoba could be improved. To address these objectives, a qualitative research approach was followed utilizing a case study research strategy. Specific research methods included a literature and document review and semi-structured interviews with participants in two separate watershed management planning processes.

In the past 20 years, governments in North America have increasingly relied upon a collaborative approach to address complex watershed management issues. One of the biggest contributors to this success and commonly cited in participation literature, is the inclusion of wide spread public engagement (Byron and Curtis 2002). As a result the evaluation and subsequent improvement of public engagement within collaborative planning processes is viewed as essential to watershed management success.

Solving problems at the watershed scale encourages discussion, partnership and integration across political divides (Perkins 2011). Planning based on natural watersheds as

opposed to traditional political boundaries requires the creation of new institutional frameworks that incorporate public participation in decision making. However, the application of a “one size fits all” approach to engaging a diverse watershed public will not result in effective engagement processes (Environment Canada 2012).

Within the literature, incorporating effective public engagement during watershed planning is often revealed to facilitate two distinct watershed outcomes. First, effective public engagement is viewed by many researchers as supporting needed social learning leading to transformative change at the watershed level. The result of this change is often heightened public awareness/concern for the state of the watershed, deliberative negotiation of social/economic trade offs for environmental improvement and increased collaboration on problem areas. The second outcome of an effective engagement process is enhanced watershed decision making leading to successful watershed plan implementation, environmental protection measures and ecosystem improvements (Irvin and Stansbury 2004). Ultimately, linking the above outcomes of effective public engagement to successful watershed management will require an investment in extensive monitoring and research. In the near term, research that examines the function of public engagement within collaborative watershed planning processes will provide significant value for improving the sustainability of watershed management (Unger 2009).

This research project provides the first thorough review of the role of public engagement in the development of watershed management planning in Manitoba. The implementation of the Water Protection Act and the development of a formalized approach to watershed management represent a significant institutional shift in water management for Manitoba. As established throughout this document, incorporating opportunities for effective public engagement is likely to be a key factor in the overall success of watershed management in Manitoba. It is hoped that the

conclusions and recommendations for improvement contained herein may provide useful information for improving opportunities for effective public engagement to watershed planners, stakeholder agencies, senior government agencies, fellow researchers and the public at large. Improving opportunities for effective engagement in watershed management planning may ultimately prove to be a catalyst for sustainable water resources management at the local level. This chapter identifies key findings, conclusions, and offers recommendations for improving the opportunities for effective public engagement in watershed management planning in Manitoba.

7.1 Components of Effective Engagement in Watershed Planning

The previous chapters of this thesis have highlighted and discussed various participant perspectives and opinions regarding public engagement in watershed management planning. The following conclusions for each component of effective public engagement are based on the findings from this discussion and were evaluated based on the factors that influence each of the components as identified in the literature.

As this and many other research projects have demonstrated, participants and planners are not always in agreement about what constitutes an effective engagement process in watershed management (Webler and Tuler 2001). A common consequence of leading a multi-faceted planning initiative is that plan sponsors are not always aware of issues perceived by public participants. It is often the case that watershed authorities are more satisfied with planning processes and optimistic for the project's success than public participants (Brooke 2010). Therefore efforts that evaluate engagement and provide context based feedback to both plan organizers and public participants are an important aspect of improving the effectiveness of future participation processes.

Component #1 - The public is engaged early in the process and provided with on-going opportunities to participate throughout the decision making process.

Meeting the objective of this component was demonstrated by the PMT's decision to host wide spread public engagement meetings as the first step in the watershed planning process. In many watershed planning processes, public engagement is often left to the last stages of planning leading many participants to believe that it is too late in the process to influence final decisions (Heathcote 1998). In both watershed cases, PMT members viewed early engagement as a critical component of the watershed planning process, where priority watershed concerns identified by public participants would inform the overall objectives, goals and action items in the final watershed plan. Public participants were also provided with limited opportunities for ongoing engagement as a member of a stakeholder organization at Watershed Team meetings and draft plan review meetings held near the end of the planning process. But individuals were encouraged to complete opinion surveys or submit written concerns directly to PMTs for consideration in the planning process.

As presented in the literature review of this document there are 5 distinct stages for a typical public engagement process. Opportunities for higher levels of public engagement typically increase as the planning process evolves (Jackson 2001). The first three steps of the engagement lifecycle included 1) informing the public about the planning process and identifying potential stakeholders and interested publics, 2) the development of avenue for public education, communication and information exchange, and 3) the identification of planning goals and criteria. In both watershed cases, while perhaps rushed, these initial steps of the engagement life cycle were reflected in early public consultation meetings hosted by PMTs. At these early stages of

engagement communication was characterized by a medium degree of two-way dialogue amongst PMT members and public participants (McMillan and Murgatroyd 1994).

Step four of an engagement lifecycle features deliberation on an acceptable range of alternatives to address issues. This step includes one of the highest levels deliberation and engagement (Jackson 2001). While public participants were encouraged to identify potential solutions to the issues they identified at initial public meetings, this stage of engagement was mostly limited to stakeholder group involvement with little opportunity for input from public participants. Public participants were again partially engaged at the fifth and final stage of the engagement lifecycle which includes a final decision made by PMTs and plan implementation.

Despite the existence of some ongoing opportunities for public engagement participants did question their ability to contribute informed opinions regarding specific watershed concerns. Several public participants in the Manitoba cases indicated that more information and meaningful opportunities to discuss specific watershed issues with PMT members, watershed residents and technical experts were necessary to adequately contribute to the planning process. For many, initial public meetings offered their first exposure to a variety of watershed concerns. Other watershed cases have found that informed engagement requires early access to available watershed information and an opportunity for information to be properly explained (Brooke 2010). Initial engagement opportunities may have benefitted from incorporating increased watershed education opportunities.

Component #2 - A process must have integrity and include accountability for the decisions made.

In both Manitoba cases the watershed planning process was implemented in an open and transparent manner. This was evidenced by watershed plan goals being clearly based on the broad watershed priorities as established by public participants at initial public consultation

meetings. Each watershed plan established accountability for implementing specific action items to a variety of water management organizations that already operated within the watershed. Through the incorporation of public and stakeholder engagement in the planning process, PMTs were able to develop long term partnerships for plan implementation (McMillan and Murgatroyd 1994). The overall responsibility for implementing watershed plans was assigned to Water Planning Authorities.

In other watershed cases, researchers have found that less than credible management practices by established institutions have negatively impacted public perceptions of integrity and capacity to implement watershed change (Fleeger 2008). In the Pembina River Watershed case, the Pembina Valley and Turtle Mountain Conservation District's years of institutional experience with watershed management, public engagement and a general community awareness of conservation district programs added to the overall integrity of the watershed planning process.

Some public participants did express frustration with a lack of transparency in the watershed planning process. This was primarily related to a need for more information about the planning process rather than a distrust of PMTs, conservation districts or the Manitoba Government. Even individuals that were sceptical about the integrity of the watershed planning process were generally satisfied with the contents of the final watershed plan. Integrity in the watershed planning process could have been further improved by clearly outlining how individual input would inform the decision making process.

For many watershed residents, the concept of integrity is closely connected to implementation of watershed planning objectives. If conservation districts and Water Planning Authorities can continue to demonstrate success with watershed planning and implementation, the public perception of accountability and integrity in watershed management will increase. Failure to

deliver on negotiated action plans or implement the final plan as approved can compromise the integrity of future watershed management plans (Heathcote 1998). With the multitude of partnerships utilized to implement specific action items identified in both watershed plans, partnerships presents a significant challenge and potential strength for Water Planning Authorities, effective public engagement and the watershed planning process in general.

Component #3 - Public input has a genuine opportunity to influence the final decision.

The importance of public influence in collaborative decision making processes cannot be understated. A perceived lack of authority to influence the final decision appears to be a key reason for a participation process to fail and often results in an increase in public dissatisfaction (Irvin and Stansbury 2005). Satisfaction of this component requires that public input impacts final watershed decisions and that the public recognizes their ability to influence the decision making process. Final decisions must be well communicated to all participants and there is a clear understanding of how public input was or was not incorporated into the final decisions (CEAA 2006; International Association for Public Participation 2000).

In both cases, it was clearly explained to public participants that watershed plan goals and actions plans were to be developed to address broad public priority concerns for each watershed. Exactly how public consensus on which watershed concerns were identified as a priority was less clearly communicated to participants. Beyond stating that public priorities had established goals for the watershed management plans, the mechanisms for how the public actually influenced the final watershed plan was also not clearly understood by many PMT members. Some researchers have noted that when incorporating public involvement in environmental decision making processes, many agencies spend a considerable amount of resources and effort on something they have not clearly defined (Williams et al. 2001).

In spite of this disconnect, watershed plans did establish action items to address many of the broad watershed concerns discussed by public participants at initial consultation meetings. Items such as sensitive groundwater areas or locations affected by flooding were addressed through in specific action items and policy statements written in final watershed plans. Other watershed planning objectives such as protecting the aquifer from sewage lagoon effluent in the Netley-Grassmere Watershed, demonstrated plan sponsors sensitivity to community values. Combining local knowledge with scientific principles is a critical outcome of effective public engagement processes (CEAA 2006).

Upon discussing the final content of the watershed plan, most public participants recognized specific concerns they had discussed at public meetings and were generally satisfied with their ability to influence the planning process. Individuals that had expressed frustration at their limited ability to influence the final watershed plans were typically not aware of other opportunities for public engagement or that a final watershed plan had been released by PMTs. PMT's could have improved public confidence in the planning process by clearly defining and communicating the authority of the public to influence planning outcomes. In both watershed cases, public participant frustration with the planning process may have had more to do with inefficient communication on behalf of PMTs rather than a lack of transparency or openness to public involvement.

Component #4 - Decision makers provide adequate public notice and time to prepare for engagement events.

Effective participation requires appropriate notice and adequate lead time for interested publics to properly collect information and develop informed opinions (Gauvin and Abelson 2006; Rowe and Frewer 2000). To facilitate broad public participation in watershed plan development

PMTs utilized a wide array of communication and media tools. Most participants indicated that PMT's had provided a sufficient amount of time to prepare for engagement events. While some participants found various times of the year difficult to attend public meetings (primarily due to work/life demands) the weekday evening time allowed most individuals to the opportunity to participate.

In spite of the variety of communication tools used to inform the public, PMTs struggled to ensure that all watershed residents were adequately notified of all engagement opportunities. PMT members recognized that watershed residents lead busy lifestyles and given the widely distributed nature of rural communities, adequate public notice of watershed plan events can be problematic. It appeared that in both cases, significantly more effort was made to notify community members of initial public participation events (i.e., printed brochures, newspaper articles, etc.) than subsequent draft plan review meetings (notice mainly provided through newspaper advertisements prior to event). As a result many public participants were not aware of all available engagement events and expressed frustration at missing additional opportunities to provide input into the planning process. This was particularly the case for many participants that had attended initial public meetings but did not receive notice of subsequent engagement opportunities.

Many participants noted that direct or personal contact with all public participants that attend an engagement event would have improved attendance at draft plan review events. Water planning authorities could have developed contact lists or social networks where interested residents could register to receive advance notice about public engagement events or conservation programming via email or postage. Some watershed plan sponsors have had success with developing a wiki website (website where content is controlled and managed by a group of users – in this case public participants) to communicate with public participants, provide information

technical information, post updates on the planning progress, moderate/lead group discussions on watershed issues and provide notice of public planning events (Brooke 2010).

Component #5 – Provision of opportunities for fair and open dialogue throughout the decision making process.

Fair and open dialogue within public engagement is demonstrated by well facilitated events that allot adequate time for discussions in a non-critical and comfortable communicative environment (Stewart 2005). Implementing an open planning process based on effective dialogue and deliberation can lead to the negotiation of reasonable tradeoffs and the creation of new approaches to accomplish watershed goals (Heathcote 1998). In both watershed cases, public engagement involved the use of methods that promoted both individual participation and group discussion of watershed issues. Many participants indicated that public meeting formats were well planned and facilitated. PMT members were actively involved in discussions with public participants. As outlined in Chapter 6, dialogue featured two way forms of communication where all participants were able to provide information and given feedback during discussions. Two way forms of communication between plan sponsors and public participants has been noted by researchers as particularly important to watershed planning success (Jonsson 2005).

Public participants were encouraged by PMT members to freely identify and discuss any concerns for the watershed. By the end of the watershed planning process, most PMT members and public participants were satisfied with the level of dialogue during engagement events. None of the participants indicated that processes were dominated by strongly partisan participants as is often the case where participant's livelihoods or values are affected by the decisions being made (Irvin and Stansbury 2005). Effective dialogue amongst participants supported the identification of management alternatives and provided valuable local knowledge (such as identifying watershed

problems such as areas experiencing soil erosion, flooding etc.) that would otherwise not be available for decision makers (Coenen 2009). Effective discussion was also noted as reducing hostility amongst participants and supported the resolution of long standing disputes over flood water management particularly in the Pembina River case.

Conversely there were some notable concerns identified by public participants which included needing more time to discuss watershed issues, requiring more information to inform participation and wanting increased access to PMT members and various technical experts to further discuss specific concerns for the watershed. Other watershed cases have noted similar participant concerns regarding the regular absence or inaccessibility of government stakeholders and other technical experts during public engagement events (Brooke 2010).

Another important aspect identified by public participants as missing from public meetings was the ability to receive feedback about watershed concerns beyond public meetings. It was important to public participants to have follow-up on questions posed to PMT Members that could not be satisfactorily answered during meetings. These concerns could have been adequately addressed through additional opportunities for engagement throughout the watershed planning process.

Public participants would have benefitted from an opportunity to thoroughly review technical reports and proposed watershed goals and actions with PMT members and technical experts prior to the development of a draft watershed plan. Discussions at this point in the process would have been based on informed participation and resulted in a high level of engagement.

Component #6 - Public engagement events include the use of multiple and appropriate engagement methods.

Public engagement processes that incorporate multiple and appropriate methods for public involvement improve opportunities for effective engagement (CEAA 2006; Chess 2000; Haque et al. 2002; International Association for Public Participation 2000; Stewart and Sinclair 2007) Public involvement based upon the mutual expectations of planners and the public is most likely to result in engagement processes characterized by respect and integrity (McCool and Guthrie 2001). The use of interactive participation methods provides the best assurance that management decisions will take into account the full spectrum of public values (Pearse, Bertrand, and Maclean 1985). Many public participants and PMT members identified the main expectations for public participants in watershed planning was to be consulted regarding community concerns for the watershed, to learn about watershed concerns, identify planning priorities and provide feedback on proposed watershed improvements. Most also felt that the public also plays an essential role in implementing watershed improvements and identifying a broad range of watershed concerns.

Many interview respondents recognized that individuals that have a responsibility and authority for decisions being made are more likely to implement planning outcomes which is essential to the ultimate success of a watershed plan (Coenen 2009; Louka 2008). By moving away from technically driven watershed planning towards locally led watershed management, Manitoba has demonstrated initiative to improve opportunities for citizen engagement. There were high expectations of public engagement in the watershed planning process identified by both public participants and planning authorities. Lower levels of engagement featuring one way forms of communication would be inappropriate to meet the expectations surrounding engagement. Open, transparent and iterative planning processes strengthen public trust and credibility in watershed planning authorities (Fleeger and Becker 2008). As such PMTs should be encouraged to develop

engagement tools that incorporate multiple opportunities for meaningful dialogue and deliberation amongst all participants.

Through the use of multiple and community appropriate participation methods, both PMTs were able to engage many different watershed residents and accommodate the needs of individuals intimidated by highly formalized engagement events. Public engagement methods utilized promoted fair and interactive discussion amongst participants and ensured that everyone had an opportunity to participate or contribute. PMTs recognized the practical limitations of traditional and formalized public engagement methods that often stifle exchange and modified consultation techniques to suit the needs of the community and promote positive exchanges and dialogue. The use of facilitated breakout groups and a workshop based approach with watershed stakeholders also assisted in diffusing conflicts amongst participants and lead to individuals discussing concerns at the watershed scale versus individual level. Planning aids such as watershed maps and aerial photographs were identified by many participants as an instrumental tool for framing discussions surrounding watershed issues and concerns. These methods proved very effective in leading discussions on broad watershed objectives and identifying site specific concerns held by some watershed residents.

Water Planning Authorities interested in integrating detailed public perspectives and knowledge in watershed management should be encouraged to review alternatives beyond public meetings for engaging watershed residents. Some watershed organizations have noted considerable success in employing non-traditional forms of citizen engagement such as assigning public representatives to issue specific subcommittees (e.g., source water protection, flood water management etc.) and coordinating citizen juries to evaluate watershed alternatives (Brooke 2010). Much like legal juries, citizen juries are convened (usually randomly or demographically

representative) to review proposed actions and alternatives from planners and deliver a consensus based opinion. The public has also been regularly involved in assisting watershed planning authorities in reviewing complex management priorities and negotiating tradeoffs through the use of multi-criteria evaluation methods (Perkins 2011, Proctor and Dreschler 2003).

Both PMT members and public participants of the Netley-Grassmere Watershed plan recognized the need for multiple draft watershed plan review meetings as an opportunity to improve public engagement. Public participants also identified a wide variety of avenues through which they had contributed to watershed management beyond participating at public watershed meetings. PMTs need to be aware of community expectations for engagement when developing participation methods. Public engagement for both watershed plans would also have benefitted from the incorporation of additional and alternative opportunities for public engagement. In order to satisfy objectives of the public and PMTs, public engagement methods need to be used in combination or as a compliment to other participatory tools (Konisky and Beierle 2001).

Component #7 - The information used for decision making is adequate and accessible to all.

Access to adequate watershed information is a critical aspect of effective public engagement. Information should be easy to access, complete, made available in early in the planning process and in an easily comprehensible format (Brooke 2010, Stewart 2005). For most public participants, information provided to assist in the development of the watershed plan was adequate, complete, readily available and easily understood. Information that was identified as missing from the process (such as detailed water quality information for multiple areas of the watershed) was simply not available and in many cases became an action item of the final watershed plan. The main concern identified by participants regarding watershed information was that it became available too late in the planning process to be overly useful for discussions during

available public engagement events. Water Planning Authorities should note that some participants did encounter problems accessing large web based files on dial-up internet access which is likely to be a common problem in many rural areas.

The use of technical information as part of informed public engagement may have been a casualty of changes made to the watershed planning process in 2008. Due to moving public engagement to the beginning of the planning process the use of watershed information to facilitate informed public engagement may have been somewhat compromised. PMT's could have provided an additional opportunity for engagement based on a review of available technical information and prior to the development of the draft plan would have benefited public engagement in both watershed cases.

Component #8 - Public engagement leads to opportunities for learning and informed participants.

Several PMT members, watershed planners and public participants identified informed engagement as being distinct, above and beyond public input and a critical aspect of a successful watershed plan. Public education often leads engaged citizens to become "expert citizens", better equipped to understand technically difficult situations and identify holistic solutions (Irvin and Stansbury 2005). At the outset of the planning process, several PMT members stressed that opportunities for public learning about the watershed and watershed issues were an important characteristic of all public engagement events. Almost all participants identified learning about the watershed or watershed community as an important benefit from being involved in public planning events.

Most participants identified learning as a direct result of discussion and debate amongst watershed residents, PMT members and watershed planners. The process of learning from others during public engagement events supported social learning and led to a greater respect and

understanding of the diversity of issues facing watershed residents. Transformational learning through an individual's involvement in public engagement events can result when an individual's perceptions and consciousness on a specific topic have been altered as a result of being critically engaged (Fitzpatrick and Sinclair 2003). Based on many individuals revealing altered perceptions about watershed issues as a result of their engagement watershed management planning, public engagement events did support mechanisms for transformative learning.

Opportunities for learning from others engaged in the watershed process were viewed by many participants as supporting discussion of issues at a watershed scale and encouraging the integration of available water management resources towards the most practical and appropriate solutions (Heathcote 1998). These opportunities for critical education have been recognized as vital in water resources decision making where potential impacts on social and ecosystem values are complex and not well understood (Heathcote 1998). Further opportunities for public review of watershed information and proposed goals and action plans would have advanced public education and informed participation.

7.2 Challenges, Barriers and Motivations to Engaging the Public

Understanding the public's motivation for entering into a negotiated planning process is a critical consideration for planning authorities when developing effective public engagement methods. Successful watershed planning ensures that public expectations are respected and an individual's reason for participating is satisfied by the planning process. In each of the watershed cases, public participants identified a variety of reasons for engaging in the watershed planning process. Top of mind for many participants was the need to voice specific concerns about watershed conditions and to learn about the health of the watershed.

As new approaches to watershed governance continue to spread across North America, a once primarily grass roots driven collaborative approach is now increasingly being supported by legislated frameworks (such as the Water Protection Act) that include requirements for public consultation (Unger 2009). However, it is often the case that legislated directives for public engagement in watershed management fail to clarify what is meant by consultation or establish how these processes should occur. Researchers have found that legislative approaches to public engagement in watershed management often assume that both the agency and affected public have the interest, capability and resources to effectively participate in the planning process (Fleeger and Becker 2008). As both Manitoba watershed cases demonstrated, not all watershed residents were interested in participating and those individuals that did, some questioned their personal capacity and the available organizational resources to accomplish watershed goals. Opportunities for effective public engagement are best supported by a clearly defined public engagement strategy that meets each watershed's specific need and reflects an understanding of local public expectations surrounding watershed management.

The need to obtain broader public involvement throughout the watershed planning process was a topic that emerged on multiple occasions during interviews with plan participants. In both watershed cases it was noted that total public participants accounted for less than 1% of watershed population. Citizen engagement levels lower than 1% of the general watershed population has commonly been observed in other watershed planning cases (Irvin and Stansbury 2005). Though low participant attendance was commonly discussed by almost all interview participants, the difficulties associated with getting the public to actually participate in watershed engagement processes has seldom been acknowledged in the literature (Jonsson 2005, Perkins 2009).

Some researchers have noted that general citizen engagement in the planning process is likely to be lower in diverse urban areas than less populated rural watersheds (Irvin and Stansbury 2005). This observation was supported in the Manitoba cases where proportional participation by residents in watershed planning was slightly higher in the dominantly rural Pembina River Watershed (1.0%) versus the more populous and urban influenced Netley-Grassmere Watershed (0.4%). While the influence of urban versus rural issues was not a key focus of this project, exploring the factors contributing to low public engagement in watershed planning may prove important to increasing widespread public participation.

All interview participants identified a variety of challenges or barriers to public engagement during the watershed planning process as discussed in Chapter 6. In this research, barriers to public engagement have been presented as occurring at a micro, meso and macro scale as shown in Table 7.1. Issues existing at any of these levels are likely to negatively impact an individual's ability to contribute to an engagement process, however, barriers that persist at broader scales will exert greater influence on the overall effectiveness of public engagement. While often the most difficult to address, removing barriers to participation at the highest level of influence is likely to have the most profound impact on public engagement processes.

Table 7.1. Identified Barriers to Public Engagement

Scale	Barrier	Identified by
Micro-Level <i>obstacles at a personal level</i>	Apathetic public	Public, Planners
	Lack of knowledge/complexity of watershed issues	Public, Planners
Meso-Level <i>Pressures external to the individual, engagement process problems</i>	Busy life schedule, work/family demands	Public, Planners
	Representative engagement	Public, Planners
	Identifying public consensus on watershed issues	Planners
	Adequate opportunities for engagement	Public, Planners
	Poor communication as plan progressed	Public
	Lack of notice of engagement events	Public
	Socio-economic focus of watershed plan	Public
Macro-Level <i>Larger scale issues that influence the engagement process</i>	Distrust of government decision making surrounding water management	Public, Planners
	Capability of watershed planning authority to implement changes	Public, Planners
	Plan outcomes a foregone conclusion	Public, Planners

Micro-level barriers include personal obstacles such as a lack of knowledge about the process and watershed issues, lack of communication skills to participate, and personal traits such as shyness or apathy about the process. Barriers to engagement described by participants as occurring at this level included public apathy and a lack of knowledge about watershed issues. Many participants indicated that much of the watershed community appeared to be generally apathetic towards issues surrounding watershed management. As it is often noted in literature surrounding public engagement in watershed management, it can be a challenge to effectively engage the public in activities they do not deem a high priority. Issues such as water quality and

water management are often taken for granted by the public and do not typically impact the outcome of elections (Louka 2008).

Other researchers have found that public satisfaction with current watershed conditions (Jonsson 2005) or existing water management practices/institutions is strongly related to a decreased interest in participating in collaborative planning processes (Irvin and Stansbury 2004). However, in many cases public satisfaction is related to a lack of awareness of the stresses facing the watershed. In both watershed cases, those living close to water resources or who are directly impacted by watershed issues (poor well water, flooding, erosion) were more perceptive to these issues and therefore more likely to participate.

The public needs a galvanizing watershed issue that they can respond to. The failure of watershed authorities to properly identify concerns or offer an alternative future vision for the watershed has often resulted in a low level of citizen engagement (Irvin and Stansbury 2004). This particularly impacts watersheds subject to gradual ecosystem degradation or that have suffered diminished quality for longer periods of time. In both watershed cases, PMT's attempted to spark public interest in the watershed prior to the planning process through multi-media releases. However, public awareness campaigns require a significant investment in ongoing communication and watershed information well in advance of public planning events to influence participation.

A second identified micro-level barrier involved concerns amongst some participants that a lack of personal knowledge about watershed issues may have impacted the ability of some individuals to participate. People are more inclined to participate if they have pertinent knowledge about the issues at hand (Koehler and Koontz 2008). Conversely, a perceived lack of knowledge about the watershed may discourage participants from publicly divulging concerns or to speak confidently on matters at public engagement events. It is likely the case that public apathy towards

watershed issues was highly related to a lack of personal knowledge of watershed conditions and stressors.

Some PMT members were concerned that due to the complex nature of watershed issues, that the public may not have adequate technical understanding to identify critical watershed issues and potential solutions. This concern is typical of complex decision making processes where planning authorities often question the benefit of incorporating “at-large” public engagement. Many planning authorities argue that the public good may better be served by only involving knowledgeable stakeholders (Duram and Brown 1999). Others suggest that due to the increasing complexity of water resources and uncertainty of management decisions, engaging the public in decisions that affect them becomes critically important (Jackson 2001).

Complexity notwithstanding, planning authorities can significantly improve participant knowledge and to some extent minimize public apathy by increasing the availability of watershed information and offering educational sessions or further public engagement opportunities to present and discuss watershed issues alongside public participants and subject matter experts. Some public participants suggested participant knowledge about the watershed would have improved if PMT’s had offered workshops, guided watershed tours, community courses featuring watershed management topics or even internet based social media videos or tools. To have the most profound effect on the planning process, opportunities for public learning should be made available prior to the watershed planning process.

Barriers identified as existing at the meso-level consisted of obstacles that individuals face due to life, family, work or community pressures or as a result of structural issues within the planning process. Public participation in watershed planning relies on people who have the time and energy to actively engage in the process (Jonsson 2005, Perkins 2011). The busy or hectic

life schedule of community members was commonly cited by both public participants and PMT members as contributing to low public attendance during the planning process. In both watershed cases, PMT members were cognisant of these concerns and attempted to organize public engagement events to accommodate for various participant needs. Public events were scheduled around critical times of year such as harvest or holidays, held during weekday evenings to avoid common working hours or weekend commitments, and were centrally located throughout the watershed to improve public accessibility. In the Netley-Grassmere watershed food and child care services were also provided.

Other emergent meso-level barriers included concerns with public representation. The degree to which participants truly represented the broader watershed community and subsequently identifying public consensus on watershed objectives based on limited participation were concerns voiced by PMT members and the public alike. Public engagement is strongly influenced by structural factors inherent to public events such as time of day or week, language used at meetings (French, English, Cree, etc.), availability of child care, meals, stipends for time, meeting location, number of opportunities or the availability of transportation to and from events. Beyond planning logistics, the operation and formality of public events can also negatively influence public engagement. Many researchers have identified several factors of public engagement events that act as barriers to engagement for some participants. The operation of public engagement is influenced by who comes to meetings, who speaks at meetings, who is listened to and which view points are minimized. The influence of these internal social processes has also been found to vary by class, gender, age, ethnicity and race (Perkins 2011). As a result of issues surrounding plan logistics and the internal politics of engagement processes, public participants in many watershed planning initiatives do not typically reflect the demographics of the wider watershed community. It

is often the case that public engagement is over represented by dominant subclass of participants within the watershed (Irvin and Stansbury 2005).

The concept of a dominant status model is closely associated with the following observed characteristics of the majority of public participants in collaborative planning projects: male, middle aged, married, parent of school aged children, homeowner, friend of several persons, member of voluntary groups, long term area resident, high level of income and wealth, employed in paid work and possess a high level of education (Koehler and Koontz 2008). While the dominant status model was not a central focus of this research project, the model does highlight interesting parallels to public participants engaged in watershed planning in Manitoba. In both watershed cases PMTs were interested in acquiring public input from a diverse watershed audience yet several participants noted that public engagement events were predominantly attended by middle aged males. Some Project Team Members further identified a number of meeting attendees as customary participants in other community based planning initiatives. It was further noted that less than 10% and 30% of all public participants were women in the Pembina River and Netley Grassmere watersheds respectively. Upon further reflection some participants identified a lack of urban, aboriginal and youthful participants.

Improvements to the watershed planning process to incorporate under-represented participants and to address issues of inequity in public engagement are most likely to result in processes that challenge the status quo of water management (Perkins 2011). However, changes made to engagement processes in order to increase opportunities for some participants inherently result in the exclusion of others. This is the nature of public engagement and a strong argument for planning authorities to incorporate a variety of participation methods and offer multiple opportunities for public engagement. The need for additional opportunities for public engagement

throughout the planning process was also identified by both public participants and PMT members. This was especially significant in the Netley-Grassmere watershed where only one public draft plan review meeting was held prior to finalizing the plan.

The structural factors of public engagement processes affect the ability of individuals to participate in a variety of ways. In both watershed cases, public participants identified poor communication regarding the status of the planning process and a lack of notice for engagement opportunities as being one of the most significant barriers to public engagement. Less than 12% and 5% of public meeting participants attended more than one engagement event throughout the Pembina River and Netley-Grassmere planning processes respectively. In spite of PMTs using a wide array of media to notify the public about planning events, follow up interviews with individuals that had attended only one planning event indicated that 9 out of 10 were unaware of other opportunities for public participation during plan development. A further 7 out of 10 participants expressed interest in attending more watershed planning events if they had been aware of all engagement opportunities. Even some of the interview participants that had attended multiple public consultations were unaware of that a final watershed plan had been publicly released. It is quite likely that a more strategic use of communication media, direct contact with previous participants and the development of a public communication plan would have increased the level of participation in both watershed cases.

A final meso-level barrier identified by a few public participants was the appearance that watershed objectives were primarily focused on socio-economic issues such as water infrastructure (drinking water, flood management, etc.) and recreational opportunities rather than the protection of sensitive ecosystem functions or endangered species. Unfortunately, this is a common outcome in collaborative watershed management where majority concerns for economic

sustainability often drive political decisions. It is regularly the case that the protection of ecological resources is not given as high of priority as economic or social considerations in watershed management (Romaine and Romaine 2000). The dominance of social and economic considerations in watershed planning outcomes questions the wisdom of pursuing collaborative management approaches. Implementing open planning processes can potentially lead to watered down solutions and priorities that favour prevailing stakeholders and don't reflect the needs of the watershed (Louka 2008). However, it is precisely for this reason that successful watershed management incorporates public engagement processes that convey a broad range of public concerns and priorities.

Intimidating engagement methods are often identified as a barrier to participation especially in highly formalized public consultations surrounding environmental assessments or other quasi-judicial hearings. In spite of public consultation being a legislated component of the Water Protection Act, none of the interview participants indicated the engagement methods used by PMTs as a barrier to effective engagement. In fact the use of non-traditional engagement techniques modified to suit the needs of local communities was repeatedly identified as a highlight of the watershed planning process. These events provided opportunities for individuals to offer private written feedback, discuss watershed issues with other participants in a group setting, ask direct questions of planning authorities in front of the entire audience to bring further attention to a specific concern, or even discuss concerns in person with planning authorities before or after planning events. It has often been the case that established water management institutions, demonstrate a reluctance to change decision making practices to open the door to "at-large" public involvement (Gauvin and Abelson 2006). As Water Planning Authorities, conservation districts

have openly incorporated public engagement as a part of the watershed planning decision making process.

Barriers at the macro-level represent large scale concerns with the process and social attitudes towards public participation itself. This level of barrier can present significant challenges to the effectiveness and positive outcome of any public engagement process. While issues identified at this level were not common amongst participants, public respondents did identify three significant concerns that may prevent effective engagement in watershed management.

Some public participants and even one PMT member questioned the capacity of conservation districts as Water Planning Authorities to effectively implement watershed objectives. The inability of agencies to deliver on watershed plan objectives can have a negative impact on public engagement as community optimism for change are quashed by inter-jurisdictional squabbles or inactivity on watershed improvements (Perkins 2011). Key among concerns was that conservation districts lack adequate resources or authority to implement required large scale projects. Group characteristics such as effective leadership, adequate funding, community status, labour power, and technical resources highly influence an agency's ability to implement watershed goals or demonstrate capacity to would be public participants (Koehler and Koontz 2008). Groups that are new to watershed management or specifically formed to lead watershed planning are likely to find demonstrating institutional capacity or agency effectiveness to be a much larger challenge versus well established watershed organizations.

A second macro-level barrier discussed by participants related to the inability of the public to influence predetermined planning outcomes. Without a clear outline of how local input was to inform the planning process it is probable that the public perceived a lack of authority to impact the final decision which encouraged some participants to stay away (Irvin and Stansbury 2005).

The final macro-level barrier was a distrust of water management decisions by various levels of government. Some public participants expressed a concern that public input was only being sought to legitimize new Provincial water quality regulations or to justify increasing enforcement of existing water management regulations particularly enforcement of illegal drainage. Some questioned whether a collaborative approach to managing watershed resources would in fact lead to more effective decision making? Some observers caution that public participation processes are regularly misused by authorities as a means to slow down decision making in favour of maintaining the status quo (Irvin and Stansbury 2005). Others argue that devolution of decision making to local agencies by senior levels of government has been exploited as a means to transfer responsibility for unpopular decisions onto local stakeholder organizations (Perkins 2011). Ultimately the success of a distributed governance approach to watershed management based on subsidiary decision making is highly dependent on true letting go of authority by the state. This requires an appropriate balance of authority and interaction between state and public actors before water governance can occur effectively at the local level (de Loe and Kreutzwiser 2006). The conservation districts program establishes a unique framework where multi-level interaction and integration can simultaneously occur amongst the public, multiple levels of government, agencies and stakeholder organizations. As such conservation districts are a logical choice to coordinate and lead watershed management in Manitoba.

Macro-level barriers to public engagement are best overcome by implementing opportunities for effective public engagement based on good communication with public participants and transparent decision making processes. Prevailing over public cynicism and distrust of water management institutions is a long term process. Success hinges on the effective

implementation of final watershed plan objectives and an ongoing commitment to public engagement.

While many barriers to public engagement were identified by both public participants and PMT members, a number of key factors were also discussed as contributing to effective public engagement in watershed management planning in Manitoba. A description of these factors for success has been provided in Table 7.2.

Table 7.2. Main Factors Identified as Contributing to Public Engagement Success.

1	Process results in community led plan to improve watershed conditions with direct public engagement (a first for many watersheds).
2	Public is expected to contribute to decision-making process versus simply providing feedback on plan objectives (i.e., public participation not communication or consultation).
3	Planning process designed to address local priorities while incorporating provincial water management objectives (i.e., supports partnership and integration).
4	Public is engaged at outset of planning process with further opportunities for engagement during planning process and implementation.
5	Multiple engagement events were held in various locations throughout watersheds (improved public access to process).
6	Engagement methods were modified to suit community need while encouraging individual participation and two-way dialogue among participants.
7	Continuous improvement of Watershed Planning – periodic reviews of planning process by Manitoba Water Stewardship to improve planning efficiency and increase public engagement.

7.3 The Nature of Public Engagement in Watershed Management in Manitoba

The purpose of incorporating effective public engagement in watershed management planning is not to strip the power of elected officials or undermine the authority of public and private

agencies. Rather such engagement is meant to strengthen decisions by ensuring a thorough evaluation of diverse issues given the inherent complexities facing contemporary watershed management. It has been with this objective in mind that watershed authorities and governments have opened the door to public involvement in watershed management. While inclusion of the public in the development of watershed management plans is now established as a legislated requirement in many jurisdictions, the opportunities for engagement and degree of influence such engagement has on planning is largely left to the discretion of local water planning authorities.

Through the review of individual watershed management planning cases, two avenues were identified through which Manitoba's watershed residents could actively participate in watershed management. First, individuals could engage in the development of watershed plans as a participant at public watershed planning meetings or through stakeholder group involvement at Watershed Team meetings. Participating as a member of a stakeholder group required more time and dedication on behalf of the individual. However, through the incorporation of full day facilitated workshops, watershed tours, and the resulting opportunities for increased dialogue amongst PMT members and technical experts, stakeholder groups were engaged at a higher level than the general public in the decision making process.

The second opportunity identified for the public to become engaged in watershed management was through direct participation as a conservation district board member. Conservation districts are governed by of a volunteer board of directors consisting of half municipal representatives and half watershed residents. As the authority for locally led watershed management planning, members of these organizations have a tremendous ability to impact the direction of the watershed planning process and implementation. Participation as a conservation

district board member represents a substantial individual commitment but offers the greatest degree of influence over the watershed management planning process.

This study has identified that the expectations surrounding public engagement in watershed management are diverse and complex. As a result not all individuals are likely to be satisfied with the application of a uniform model for public engagement in watershed management planning. A common perception of many participants involved in watershed planning was the perpetual nature public engagement. It is difficult to determine when public engagement in the decision making process has been adequate. There is always an argument for increasing opportunities to incorporate the public in the watershed management planning process. With this in mind, a critical challenge for watershed planners is to balance increasing public expectations for engagement with the realities of a timely, democratically fair, fiscally responsible, technically competent and pragmatic watershed decision making process. Planners should not sacrifice one of these goals in favour of another (Webler and Tuler 2001).

Thus the impetus for effective public engagement. At the watershed level, there are only limited opportunities to engage a busy watershed community in long term decision making for the betterment of the watershed. Careful consideration is required by watershed planners to ensure that engagement processes are implemented based on the components of effective engagement. In practice both public participants and watershed planners were determined to have high expectations for public involvement in watershed management.

As watershed organizations move from planning to implementation, they should be encouraged to continue engaging the public for watershed improvements. There is room for public involvement in implementing projects, monitoring improvements and evaluating success. One of

the potential advantages of participatory approaches to implementation is that public learning is greatly enhanced by hands on experience (Ferreyra and Beard 2007).

Upon completion of this research project it became apparent that reviewing an engagement process against the components of effective public engagement has a useful but limited applicability as a diagnostic tool to measure the success of public involvement exercises. Every participant has unique understanding of the requirements for public involvement and to ultimately dictate or label an engagement process as effective is complex and subject to as many opinions as watershed planning participants. In a sense, effective public engagement exists as a continuum much like Arnstien's ladder of participation, effectiveness depends on the characteristics of each engagement process with higher levels of citizen engagement resulting in a more effective process. The true benefit of reviewing public involvement in watershed planning against the components of effective public engagement is to advance the level of informed engagement or for the overall improvement of engagement opportunities.

7.3 Recommendations for Improving Public Engagement in Watershed Management

Planning

After completing a thorough review of the opportunities for effective public engagement in watershed management planning in Manitoba, a number of possibilities for enhancing public involvement have emerged:

- 1) Prior to initiating the watershed planning cycle, PMTs should develop a detailed public engagement strategy to suit the expectations for public engagement in each specific watershed. This document should be publicly available throughout the watershed planning process and at a minimum include the following:
 - a. Clearly define the expectations of public engagement
 - i. PMT goals for participation – what will public engagement achieve?

- ii. What are the public's goals for engagement? How have these been evaluated?
 - iii. Identification of who watershed stakeholders and public participants are and how they can prepare for engagement in the planning process. (i.e., where to access watershed information, who to ask questions about participation, etc.)
- b. An outline of the watershed planning cycle that indicates where and when public engagement will be incorporated throughout the planning process. Ensure adequate time is made available for public engagement events.
 - c. Proposed public engagement methods to be used during the planning process – How will the public be engaged? What methods and tools will be used to incorporate public participation? Will methods include opportunities for two way forms of communication? Do engagement methods reflect the components of effective engagement? Do methods meet needs of under-represented participants? Have alternative engagement methods been considered?
 - d. Identify how public input will impact the decision making process or influence the final watershed plan. Important aspect is to identify how public input will remain traceable throughout process and how the public will be able to identify impact.
 - e. A communication plan highlighting how the public will be made aware of planning progress and opportunities for engagement before, during and after the watershed planning process. What media tools are most appropriate for the community?

The development of a public engagement strategy supports transparency and integrity in the planning process. This document would also be useful for PMT members and public participants as a guidebook to the public participation process.

- 2) Local Water Planning Authorities need to create a sense of urgency surrounding watershed issues.

It is important to enhance the public profile of watershed concerns and connect individuals to issues that exist in their watersheds. Many public participants identified a personal connection or concern for the watershed as their motive for participating in public meetings. Bridging the gap for those that do not currently identify themselves as connected to watershed management will increase public engagement in the watershed planning process. Publicly promote a specific issue to galvanize public concern or identify an alternative vision for the watershed community.

3) Engage under-represented participants in watershed management planning.

Identify and incorporate opportunities to encourage the involvement of non-typical public participants especially women, aboriginals and the young into the planning process. Processes that incorporate those that have typically stayed away from public engagement offer the best opportunity for challenging the status quo of watershed management (Perkins 2011). Engaging under-represented participants may require the use of innovative non-traditional methods. Explore the use of engagement tools such as citizen juries, focus groups, or watershed subcommittees that designate space for under-represented participants and non-dominant opinions.

4) Streamline the branch/departmental review and ministerial approval process.

To maintain adequate public engagement, watershed management planning needs to remain holistic yet timely. Watershed planning processes intended to be completed within a 16 month timeline and were ultimately extended to 3.5 years. Much of the additional time required to complete watershed plans was due to government department review and approval processes. Manitoba Water Stewardship should review opportunities for reducing the length of time required for branch/department reviews and subsequent ministerial approvals.

5) Engage the Engaged. Worry less about quantity and more about the quality of public engagement. Support and develop informed public engagement.

- a. Ensure personal communication with all individuals that enter the engagement process from start to finish. Many early participants were not aware of all opportunities for engagement.
- b. Ask public event participants to indicate the best way to keep them notified of watershed plan developments and public engagement events (e.g., email, mail, telephone, websites, social media etc.)
- c. Develop quarterly watershed planning progress reports that can be quickly disseminated to interested participants (via mail or email). This document does not need to be lengthy just a quick update of the planning process. Notices should be posted on websites and community newspapers for public review. Offer an

opportunity for residents to sign up for an automatic notification service regarding watershed events. Develop websites or wiki based websites that offer additional opportunities for discussion about watershed issues, provide notice of upcoming events, encourage public feedback on the planning process and provide a venue for sharing detailed watershed technical information.

- d. Support informed participation through opportunities for learning and critical education. Encourage participants to learn more about the watershed through personally led education. Identify available resources (e.g., websites, articles, documents, reports etc) that can assist them in becoming more informed about watershed issues. Notify the participants as technical reports and important planning documents become available for review. Make documents publicly available beyond the internet (paper, cd, etc.) to allow all individuals to access materials.
- e. Ensure the final watershed plan includes opportunities for ongoing public engagement during implementation. Public engagement is equally important during implementation as it was in plan development. Engage the public as a partner in implementation.

Many PMT members appeared quite concerned with engaging a large portion of watershed residents. However, for relatively little effort and expense public participants already interested in addressing watershed concerns could be kept informed and engaged in the watershed planning process. Some participants even identified educational opportunities such as watershed videos, workshops, seminars or evening watershed classes as possible ways to increase informed public engagement.

- 6) Add an additional opportunity for public engagement and learning once watershed technical information has been compiled and made publicly available.

The addition of opportunities for public engagement after watershed information becomes available would improve opportunities for participant learning and subsequently informed engagement. It is important that public participants be given an opportunity to review and discuss technical information with Watershed Team members prior to the draft watershed plan review meetings.

The first round of public meetings exposed many public participants to a variety of watershed concepts and concerns for the first time. Providing watershed residents with adequate time prior to the engagement event to reflect on available watershed information and the proposed goals and actions prior to a written draft plan will improve the potential for informed public engagement. The most appropriate engagement methods at this stage in the planning process would involve a high level of interaction and dialogue amongst participants, PMT members, watershed planners and other available technical experts. The use of engagement methods that support two-way forms of communication and public learning would be most successful at this point in the planning process. The provision of an additional opportunity for public engagement prior to the draft plan review addresses a number of components of effective engagement.

7.4 Closing Remarks

Through the development of legislation supporting locally led watershed management, water governance in Manitoba has been formally distributed beyond the traditional state actors and institutions. As Water Planning Authorities, conservation districts are required to work collaboratively with watershed residents, government agencies, stakeholder groups, and municipalities to establish new approaches to planning and decision-making. As a result, the implementation of locally led watershed management planning presents Water Planning Authorities with a unique challenge and opportunity to effectively engage the public in decisions involving water resources.

Based on the framework for effective public engagement and a thorough analysis of public participation in the development of watershed management plans in Manitoba, it was apparent to me that the public is being genuinely engaged by Water Planning Authorities as a true partner in identifying and addressing watershed concerns. Manitoba Water Stewardship and conservation

districts as Water Planning Authorities wholly recognize and support public engagement as fundamental to the overall success of integrated water resources management. In fact the data show that watershed management planning as implemented under the Water Protection Act has incorporated many of the components of effective public engagement.

As a result of these efforts, watershed planning in Manitoba has reduced fragmentation of authority and responsibility at the watershed scale and improved the integration of limited financial resources, expertise, local knowledge and partnerships to move forward on improving watershed conditions. Governance of water resources at the watershed scale has strengthened as a result of incorporating public involvement in watershed management decision making.

At a practical level, I believe that the participatory approach to watershed planning observed through this research has supported the case that effective public engagement is essential to successful watershed management. As such, I would encourage watershed planning authorities or practitioners to be more critical and strategic in the development of public engagement processes prior to initiating a watershed planning process. This requires a true understanding what the expectations for public engagement will be, defining exactly how public input will inform the decision-making process, incorporating the components of effective engagement and matching engagement methods to suit local needs.

Lastly, this project has provided the ground work for further inquiries into public engagement in watershed management. Research of particular interest to strengthening public engagement is a review of alternative approaches to incorporate underrepresented participants and further evaluation of public engagement during watershed plan implementation.

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Appendix 1 – Interview Schedules

Questions for Project Management Team Members

#	Question
1	What are your organizations expectations/goals for involving the public in the watershed planning process?
2	Was a public participation plan developed for the watershed planning process? (ask for copy if available)
3	Tell me about the opportunities for public involvement during the watershed management planning process?
4	<i>prompt: When and how was the public first involved in the planning process? (interested in both WPAT and public events)</i>
5	Prior to final plan did the WPA communicate how information collected from the public and Water Planning Advisory Team would be considered in decision making?
6	How did the watershed planning authority select members for the Water Planning Advisory Team and project management team?
7	How did the Watershed Planning Authority consider or prioritize information gathered from the public in decision making?
8	Did you feel that there was adequate time and resources during the planning process spent on public events to in order for the public to provide meaningful input into the watershed plan?
9	Tell me about discussions that took place during public events (WPAT meetings and public meetings)?
10	<i>prompt: were discussions dominated by certain opinions or parties, how were conflicts addressed?</i>
11	What can you tell me about the format of public engagement events, how were they conducted, what occurred?
12	How did the WPA select the type of methods used for public engagement?
13	<i>prompt: What considerations went into how public and WPAT events were designed and held? (i.e., venues, time of day, number of events, methods used to present and collect information from the public etc,)</i>
14	Were public participants and WPAT members asked by the WPA how they would like to participate in the planning process?
15	Do you feel that the methods of public engagement used were effective in encouraging broad public involvement in the watershed planning process?
16	Do you think that more opportunities and/or different types of engagement approaches would have improved public engagement in the plan?
17	What information about the watershed was provided to the public?

18	<i>follow up: How and when was this information made available?</i>
19	What were some of the constraints you faced when disseminating information to the public and WPAT?
20	Did you find a significant difference in the quality of information provided by the Water Planning Advisory Team versus the public engagement events?
21	what did you learn from the public engagement process of the watershed plan?
22	how did you come to learn this?
23	In your opinion, what is the ideal role for the public in water resources management decision making in Manitoba? Is the current role of the public adequate?
24	What do you view as the incentives for the public to participate in watershed management planning?
25	Overall do you think that public involvement in the watershed planning process was a success? How so? What stands out?
26	Did public engagement through public events and the use of a Water Planning Advisory Team lead to the development of partnerships or co-implementation of the plan?
27	Did the use of public engagement present the WPA with possible alternative approaches to watershed management not previously considered?
28	Do you believe that the goals of the Watershed Planning Authority were achieved in regards to effective public engagement?
29	Did you feel that there were any challenges or barriers to effectively engaging the public in the planning process?
30	How would you improve the level or access of public engagement in the watershed planning process?
31	Was the watershed community adequately represented at all stages of the watershed planning process? Was anyone missing?
32	In your opinion what are the disadvantages of including the public in decision making?
33	Is there anything that you think we missed talking about in regards to public involvement in watershed management?

Questions for Manitoba Water Stewardship

#	Question
1	How has the Water Protection Act impacted public engagement in watershed management?
2	Do you think that engaging the public in developing watershed management plans leads to a better final plan? How so?
3	What does the Province view as the ideal role for the public in water resources management decision making in Manitoba? Is the current role adequate?
4	What are Manitoba Water Stewardship's expectations for public engagement when developing a watershed management plan?
5	<i>prompt: in practice, how is the legal requirement for inclusion of public comments (as required in the Water Protection Act) deemed as satisfied by the Province?</i>
6	<i>Follow up: How are these expectations communicated or enforced during the planning process?</i>
7	What do you view as the incentives for the public to participate in watershed management planning?
8	<i>prompt: why would Manitoban's want to participate in the development of watershed management plans</i>
9	What have been the challenges or barriers to effectively engaging the public in the watershed planning process?
10	In your opinion what are the disadvantages or tradeoffs of including the public in decision making?
11	What changes to the watershed management planning process would you make to improve the level of public engagement?
12	In your experiences with watershed planning what have been the greatest benefits from public engagement?
13	What happens with the watershed plan after it has been approved by the WPA? (what is the approval process? What is the role of the Manitoba Water Council? How do they provide input into the individual watershed plans?)
14	I understand that you facilitated the watershed team meetings, can you tell me about how these meetings were conducted?
15	How were the methods to gather information at the watershed team meetings developed? What other methods were considered?
16	How does the development of watershed management plans impact the operations of the government of Manitoba (what impact will they have on decisions made e.g., source water protection zones, surface water management plans, emergency planning etc.)
17	What have you learned from your experiences with engaging the public in watershed management planning?

18	How did you come to learn this?
19	Did you feel that there were any challenges or barriers to effectively engaging the public in the planning process?
20	How would you improve the level or access of public engagement in the watershed planning process?
21	Is there anything that you think we missed talking about in regards to public involvement in watershed management?

Questions for Public Participants

#	Question
1	How did you first come to learn about the watershed planning process?
2	Why did you choose to participate in the watershed planning process (i.e., attend meetings, events etc.)?
3	How were you involved in the watershed management plan?
4	<i>prompt: attend meetings, discuss with others in the community, make a presentation, write a letter to WPA or newspaper etc.</i>
5	Did the Project Management Team communicate how information collected from the public would be considered in decision making?
6	Were questions asked of the WPA answered openly and adequately?
7	Do you feel that your input was appropriately considered by the Project Management Team when developing the final plan? Why or why not
8	Did you feel that there was adequate time and resources spent on public participation events to in order for the public to provide meaningful input into the watershed plan? Why or why not?
9	What can you tell me about the format of public engagement events, how were they conducted, what occurred? (watershed team and public events) asked of first few interviewees then dropped
10	Were public participants and Watershed Team members asked by the WPA how they would like to participate in the planning process?
11	Do you feel that the methods of public engagement used were effective in encouraging broad public involvement in the watershed planning process? Why or why not?
12	Would you have participated more if other opportunities for public involvement were made available? (what would you like to have seen)
13	<i>follow up: what improvements could have been made?</i>
14	What watershed information did you access during the planning process? Or what information was made available or presented during the event you attended?
15	<i>follow up: Was the information easily accessible? And clearly understood?</i>
16	Did you feel that there was sufficient information available to make informed decisions about the future of the watershed? Was any information missing?
17	Was there something in particular that you learned about the watershed or watershed management from your participation in the planning process?
18	<i>follow up: how did you come to learn about this?</i>
19	What is the ideal role for the public in water resources management decision making in Manitoba? Is the role currently adequate?

20	Overall do you think that public involvement in the watershed planning process was a success? How so? What stands out?
21	From a public engagement perspective, where do you think the planning process was least successful?
22	Did you feel that there were any challenges or barriers to effectively engaging the public in the planning process?
23	What changes would you make to improve public engagement in the watershed planning process?
24	Was the watershed community adequately represented at all stages of the watershed planning process? Was anyone missing?
25	Is there anything that you think we missed talking about in regards to public involvement in watershed management?
26	If I was to host a workshop on public engagement in the watershed would this be something you might attend?

Appendix 2 – Interview Letter of Consent

Identifying Opportunities for Effective Public Engagement in Watershed Management Planning in Manitoba

David Huck

This consent form, a copy of which will be left for you, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Dear participant,

My name is David Huck and I am a graduate student at the Natural Resources Institute (NRI), University of Manitoba. The purpose of my research is to learn from Manitobans, how the public is being engaged in decision making in the field of watershed management. To gather data for this project, I am conducting qualitative research in the form of participant interviews. The results of this interview will be used in the development of a graduate level thesis on the opportunities for effective public engagement in the management of water resources in Manitoba. Interview results may also be utilized in the development of an article submitted to the Canadian Water Resources Journal.

Our interview should take no longer than 1 hour and with your permission may be aided by the use of an audio recorder. Even if you initially give permission to be recorded, you may at any time verbally state that you would like to end the recording of the survey. Your responses will be held in strict confidence and the results of this study will be reported with no reference to specific participants.

Your mailing and email address will only be requested for the purposes of verifying my research findings and forwarding you the final results of this study. Should you be interested in reviewing the final results of this study an electronic version or hardcopy version will be made available for your review upon project completion.

Your signature on this form indicates that you understand the information regarding your participation in the research project and consent to being an interview subject. In no way does this waive your legal rights nor

release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Thank you for your time and consideration.

David Huck
Masters Student
Natural Resources Institute
70 Dysart Road, University of Manitoba,
Winnipeg, MB R3N 2T2

INTERVIEW CONSENT FORM

This research has been approved by the University of Manitoba Joint Faculty Ethics Review Board. If you have any concerns or complaints about the project you may contact my project supervisor Dr. Emdad Haque, NRI at (204) 474-8375 or haquece@cc.umanitoba.ca; or the Human Ethics Secretariat at (204) 474-7122 or Margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

Participant Name: _____

I give my consent for an interview:

Participant Signature Date

I give my consent for the interview to be tape-recorded for research purposes:

Participant Signature Date

Researcher Signature Date

I wish to receive a final copy of the thesis for review: *(please circle one)*

YES or **NO**

If you responded yes, please provide either:

Email address: _____

Mailing address: _____