GIVEN ITS ROLE, THE HALIFAX WATERSHED ADVISORY BOARD'S ABILITY TO INFLUENCE WATER RESOURCE PROTECTION: A CASE STUDY

by

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Dedication

This work is dedicated foremost to my family who gave me unending support and encouragement in good faith, and with tremendous patience and love since I embarked upon this field of study. This product has been a labour of love for you Wilson, Emma, Benjamin, Molly, and Logan.

This work is also dedicated to my late mother, Jessie Mae (Drysdale) McCarron, who still inspires me to keep going, especially when the going is tough. Her encouraging words echo in my head, "There is no such word as can't: You can do whatever you want if you try hard enough." As well, to my late father, Daniel Peter McCarron, who died before he could exercise his superb editing skills on this work, and for always encouraging me to find things out for myself with his words, "look it up!"

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Abstract

Stakeholders engaged in land use planning and development in Halifax County and in Halifax Regional Municipality (HRM) have recognized Waters Advisory Boards (WABs) for their expertise in water resource protection for over 35 years. During this time, WABs have played a significant role in providing informal advice to land use planning and development stakeholders, and formal advice to municipal government units, about implementing ecologically responsible land use practices designed to protect HRM water resources. Despite these efforts, water resources continue to be degraded as a result of non-ecologically responsible land use practices.

The Halifax Watershed Advisory Board (HWAB) has been formally designated, through a "Motion in Council", to provide advice to HRM about how to protect water resources with respect to land use planning and development activities under its jurisdiction defined by its Terms of Reference. Given the role of the Halifax Watershed Advisory Board (HWAB), this case study found that the HWAB's ability to influence water resource protection through the land use planning and development activity review process is constrained. Factors contributing to the HWAB's ability to influence were identified through the results of the quantitative and qualitative analyses of data collected through direct observations, documentation and policy review, archival records, and surveys and interviews with land use planning and development stakeholders. The findings were analysed based on what the literature describes as an influential natural resource advisory group process. Recommendations were made on how the HWAB could have more influence on land use planning and development activities to protect water resources in HRM.

List of Abbreviations

BWAB	Bedford Waters Advisory Board
BWAC	Bedford Waters Advisory Committee
CCC	Chebucto Community Council
DA	Development Agreement
DLAB	Dartmouth Lakes Advisory Board
DLAC	Dartmouth Lakes Advisory Committee
EPM	Environmental Policies Manager
FoFL	Friends of First Lake
HCC	Halifax County Council
HCM	Halifax County Municipality
HCMWAB	Halifax County Municipality Watershed Advisory Board
HECC	Harbour East Community Council
H/HCWAB	Halifax/Halifax County Watershed Advisory Board
HLWAC	Halifax Lakes and Watershed Advisory Committee
HRM	Halifax Regional Municipality
HRWC	Halifax Regional Water Commission
HWAB	Halifax Watershed Advisory Board
MPAC	Municipal Planning Advisory Committee
NRAB	Natural Resource Advisory Board
NSDEL	Nova Scotia Department of Environment and Labour
NSDNR	Nova Scotia Department of Natural Resources
NWCPAC	North West Community (NWC) PAC
PAC	Planning Advisory Committee
PIPOA	Petpeswick Inlet Property Owners Association
RAB	Restoration Advisory Board
RMPS	Regional Municipal Planning Strategy
SGLWAB	Shubenacadie/Grand Lake Watershed Advisory Board
SLAB	Shubenacadie Lakes Advisory Board

List of Abbreviations (con't)

SNSMR	Service Nova Scotia and Municipal Relations
SRA	Sackville Rivers Association
SRAB	Sackville Rivers Advisory Board
SSAB	Site Specific Advisory Board
SWCSMH	Soil and Water Conservation Society of Metro Halifax
SWEPS	Shubenacadie Watershed Environmental Protection Society
ToR	Terms of Reference
WAB	Waters Advisory Board
WRMS	Water Resource Management Study

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1 Case Study of the Halifax Watershed Advisory Board

> *"A land ethic of course cannot prevent the alteration, management, and use of these "resources," but it does affirm their right to continued existence, and at least in spots, their continued existence in a natural state" (Leopold, 1949).*

1.1 Study Scope

The cumulative effects of non-ecologically responsible land use practices degrade water quality, water quantity, and quality of life associated with water resources, create health risks and undesirable aesthetic effects, and render habitats unsuitable for wildlife (Scott et al., 1991; Keizer et al, 1993; Griffiths Muecke, 1994; Wilson 2000; Dillon 2002; Brandes et al., 2005; HRM RMPS, 2006). In Halifax Regional Municipality (HRM), examples of non-ecologically responsible land use practices include stream-bank erosion due to vegetation removal, non-impervious surfaces (e.g., paved driveways) adjacent to waterways, malfunctioning (or absent) septic systems allowing untreated sewage effluent to run into watercourses, and fish-kills resulting from ground-breaking activities on land containing pyritic slate. These and other development-related activities all contribute to the degradation of water quality, water quantity, and quality of life and an increase in public demand for water resource protection.

At least as early as the 1930s, governments in Canada recognized the need for natural resource management (Gillies, 1989). Throughout North America, particularly in the 1960s, the public demanded input into the decisions that affected the environment and quality of life in response to massive increases in urban development (Grant, 1994). About the same time resource management was being demanded by the public domain (Grant, 1994; Gillies, 1989; Sinclair, 2002; Brandes et al., 2005; and Webler & Tuler, 2006), citizen advisory boards were seen as a way to directly involve stakeholders in a given activity process to address concerns expressed by citizens and regulators about health, safety, and environmental issues, and to address issues concerning acceptability and legitimacy (Branch and Bradbury, 2006; Manzer, pers. comm., 2007). The public in

the Halifax County/HRM region[1] were part of this ground swell, urging governments to protect the public's health and safety with respect to local water resources. The Halifax County/HRM region government agencies recognized the value of tapping into the water resource protection expertise local citizens had to offer, to make up for what was lacking within its municipal staff (Griffiths Muecke 1988; Manzer, pers. comm. 2007). In 1971, Dartmouth City Council responded by creating the Dartmouth Lakes Advisory Committee (DLAC) through a "Motion in Council" to act as Dartmouth's water resource advisor – the first Waters[2] Advisory Board (WAB) of the Halifax County/HRM region (Manzer, pers. comm. 2007).

Since then, as many as six[3] WABs have functioned in the Halifax County/HRM region, providing advice to various agencies about how to protect the water resources within their jurisdictions from the impacts of land use planning and development activities. The Halifax Watershed Advisory Board (HWAB) was the latest HRM WAB to be created, in February 1996.

A WAB's ability to influence the protection of water resources is affected by many factors within the land use planning and development activity review process. Foremost in the process are the stakeholders, each playing a role (or multiple roles) in influencing the decision toward an outcome of his/her activity of interest. WABs are a form of public participation stakeholder. The stakeholders with the final say in the review process in this study are the Council/councillors. The scope of this study is focussed on the HWAB stakeholders who play the role of appointed water resource protection advisors to Council, within the land use planning and development activity review process, according to its Terms of Reference (ToR). The timeframe of this study is from February1996 to January 2005.

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[1] Prior to April, 1996, there were four municipal units within Halifax County; The City of Halifax, The City of Dartmouth, The Town of Bedford and Halifax County which were amalgamated to become the Halifax Regional Municipality (HRM) in April 1996.

[2] In this study the term "waters" is used as an encompassing reference to a watershed, river(s), and lake(s).

[3] Only the four waters advisory groups that had jurisdiction over Halifax County's four municipal units which existed immediately prior to amalgamation are focused on in this study.

1.2 Study Question and Definitions

To gain insight into an HRM WAB's ability to influence water resource protection in its role to provide advice to Council through the land use planning and development activity review process, the research question posed is:

"Given its role, how is the HWAB able to influence water resource protection?"

The terms "HWAB's role", "ability to influence", "water resource", and "water resource protection" are frequently used in this study and are defined below.

- The HWAB's role is defined by its ToR, which is introduced in section 1.4, and described in greater detail in Chapter 4.
- Ability to influence is defined as the capacity to have an impact upon someone or an event to achieve a desired outcome, which, in this study, is the protection of water resources.
- Water resource is derived from the Province of Nova Scotia's *Environment Act* definition, which states "all fresh and marine waters comprising all surface water, groundwater[4] and coastal water" (Province of Nova Scotia, 1994-95). Wetlands are also included as a water resource in this study.
- Water resource protection is about mitigating the impacts of land use planning and development activity on the water quality, water quantity, and quality of life associated with water resources, through ecologically responsible land use practices designed so the ecological integrity of the watershed's ecosystem is minimally affected. An ecosystem containing a healthy diversity of living and non-living organisms that interact has ecological integrity.
- Land use planning and development activity is what the reviewing stakeholders are influencing through the design/development, review and approval stages of the

[4] Groundwater sources do not necessarily follow the boundaries of a natural watershed and cannot be considered an absolute component of a particular watershed so it needs to be defined as a distinct entity.

process; and what the stewards are responsible for upholding and performing during the implementation and operational stages of the process.

1.3 RATIONALE

In a report to Environment Canada and Fisheries and Oceans entitled *Watershed Advisory Groups in Nova Scotia: An assessment of their present and possible roles in watershed management* Griffiths Muecke (1988) explain that since the "appropriate environmental expertise" was not adequately found within municipal government or provincial environment departments, advisory groups took "on the role of local environmental protectors and advisors." According to Griffiths Muecke (1988), "[t]he division of jurisdictional authority over water between three levels of government, several government departments, and a number of pieces of legislation, [sic] means that no one agency has the overall responsibility for fresh surface water." As a result of no one having overall responsibility, "[t]here are significant gaps in the major pieces of legislation when it comes to providing a legal framework for water quality management and planning" (Griffiths Muecke, 1988). This means that the WABs "are operating in a jurisdictional no-mans-land with little or no legislative back-up" Griffiths Muecke (1988). However, Griffiths Muecke (1988) argues that WABs can help to compensate for the void in jurisdictional authority with its knowledge and expertise that can influence the decision to use ecologically responsible land use practices through the land use planning and development activity review process.

The Griffiths Muecke (1988) study determined that the main strength of advisory groups is they "provide a forum for consultation and discussion between competing interests on water quality management, and a mechanism to identify preventive actions which can forestall future water management problems" (Griffiths Muecke, 1988). However, their study also found waters advisory group roles were not "well defined within any level of government," and varied depending on the structure of each group.

The Nova Scotia waters advisory groups studied by Griffiths Muecke (1988) were organized according to three general styles of operation: policy advisory, technical advisory and citizen advisory. The policy role involved "bringing about change through

new policies and legislation." The technical role involved gathering "technical information for the council" to use "as background material for decisions on developments affecting waterways." The citizen role brought "local concerns and issues to council's attention." Most WABs were found in their study to concurrently use more than one style, in that each group overlapped "some aspects of policy, technical review and public input" (Griffiths Muecke, 1988). Furthermore, as advisors rather than lobbyers, WABs have the means to incorporate environmental protection into economic development processes in their local community (Griffiths Muecke, 1988).

Since the Griffiths Muecke (1988) study, literature sources including Gillies (1989), Dockstator (1991), Bengston (1994), Mitchell (1995), Vasseur et al., (1997), Phillips & Graham (1998), Sinclair & Hutchison (1998), Ho (1999), McGinnis (1999), Branch & Bradbury, (2006), and Webler & Tuler (2006) have identified key factors of successful Natural Resource Advisory Boards (NRABs). There are also many literature sources including Keizer (1993), Vaughan (1993), Mitchel & Shrubsole (1994), Ho (1999), Michaels (1999), Wilson (2000), Dillon (2002), and Brandes et al. (2005) who discuss watershed management elements. By exploring the factors of successful NRABs, elements of watershed management, and the context within which the HWAB operates, this study develops recommendations on how the HWAB may enhance its ability to influence water resource protection in its role to provide advice to Council through the land use planning and development activity review process.

It has been almost 20 years since the study conducted by Griffiths Muecke (1988) about WABs in Nova Scotia assessed the roles WABs play in watershed management in Nova Scotia. The HWAB was not included in that study because it did not exist at that time. The literature sources who studied WABs identified the positive aspects of WABs as developing supportive relationships, providing a positive public profile, having working relationships with proponents from an economic standpoint, helping to introduce water resource protection by-laws, initiating consultation between competing interests, and creating mechanisms to identify preventive actions to mitigate future water resource problems. WABs also provide hands-on management at the municipal level, and can provide a useful mechanism for integrating economic development and environmental management.

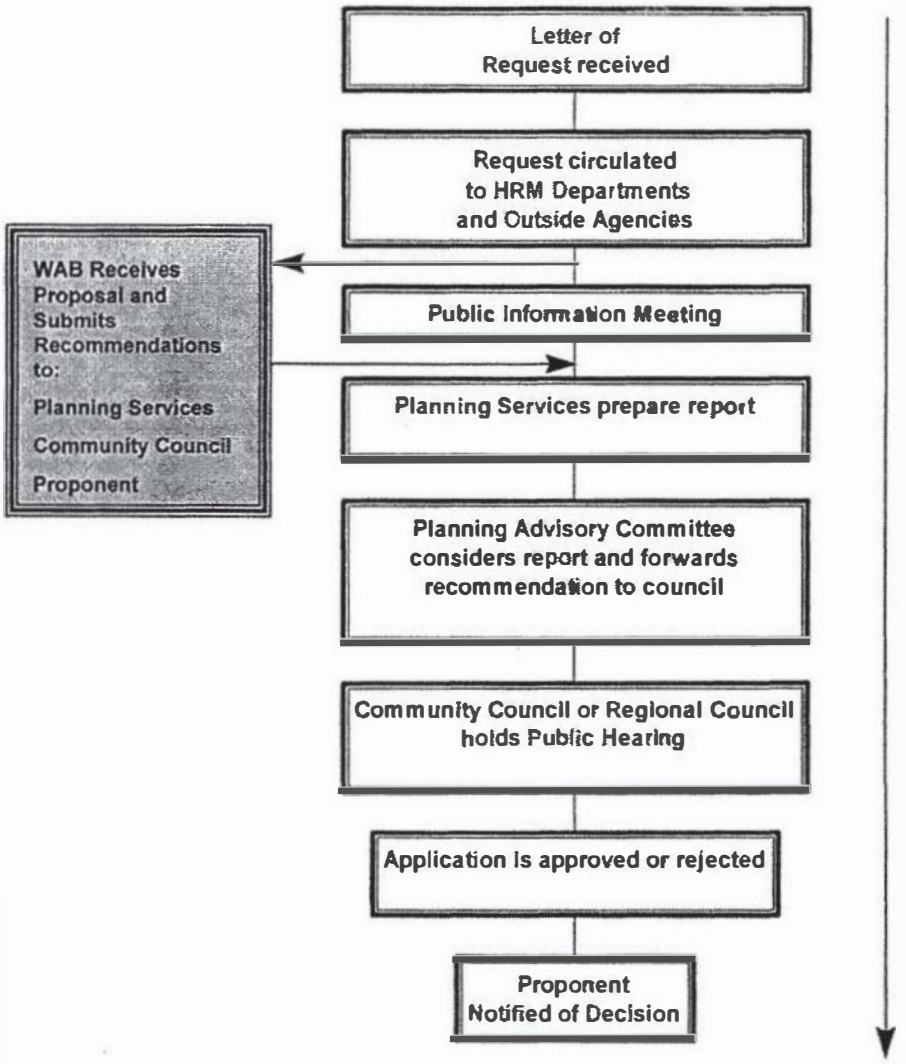
This study of the HWAB goes further than previous literature sources to show what factors contribute to an HRM WAB's ability to influence the protection of water resources according to its ToR, and to identify ways its ability to influence the protection of water resources may be enhanced.

1.4 HRM WAB ROLE

The three existing HRM WABs[5] have slightly different purposes for advising on matters related to lakes, natural waterways, and watersheds, due to their evolution within the political landscape and their ToR. The Griffiths Muecke Study (1988) found the WABs they studied, which included the Dartmouth Lakes Advisory Board (DLAB) and the Bedford Waters Advisory Board (BWAB), had a common cause in wanting "to see water quality and water quantity management criteria incorporated into development decisions." The HWAB has the same cause. Each HRM WAB provides knowledge of local water resource and community issues, and expertise on water resource protection techniques to Councils, and the other stakeholders involved with the land use planning and development activity review process. Current HRM WABs work within a cooperative land use planning and development activity review process as shown in Fig. I: *WAB Input to HRM Development Application and Rezoning Applications* on the next page.

[5] During the course of this study the three existing WABs were the DLAB, the BWAB and the HWAB.

Figure I: WAB Input to HRM Development Agreement and Rezoning



Source: HWAB

1.5 THE HWAB

The purpose of the HWAB is

> "[T]o advise Community or Regional Council on all matters related to the management and alteration of the lakes, rivers, watercourses, coastal inlets and their watersheds within Halifax Regional Municipality[6], and to act as an advisory resource in providing Community or Regional Council with recommendations for their sustainable use" (HWAB ToR).

The HWAB responsibilities associated with its purpose are listed in the ToR (Appendix A), and define the HWAB's role. The HWAB's area of jurisdiction is illustrated in *Figure II: HRM Waters Advisory Board Jurisdictions* on the next page. A colour map depicting the jurisdictions of each WAB in relation to polling districts and watershed boundaries is found in Appendix B: *HRM Watershed Boundaries, Municipal Polling Districts and WAB Jurisdictions.* Stobo et al. (undated) describe the function of the HWAB as "an example of how partnering between the public, government and proponents of industrial, residential, or recreational development can be conducted in a non-confrontational (manner) to mitigate degradation of the environment."

The majority of cases reviewed by the HWAB are by request from the HRM Planning Department regarding land use planning and development activity proposals. Occasionally, the HWAB provides recommendations on documents from agencies outside HRM or from HRM staff, and on activities brought to the HWAB's attention by the public, or by HWAB representatives. The objective of the HWAB is defined in Appendix C: *Guidelines for Protecting our Water Resources*[7] as "the protection of water quality and quantity, as well as the quality of life associated with our water resources."

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[6] According to the HWAB Terms of Reference "where the words "Halifax Regional Municipality" or "the Municipality" are stated, these shall refer to those areas as defined on the accompanying map setting out the area of jurisdiction of the Board" (Appendix B).

[7] The *Guidelines for Protecting Our Water Resources* was created by the HWAB to guide it and development proponents in making its recommendations for water resource protection.

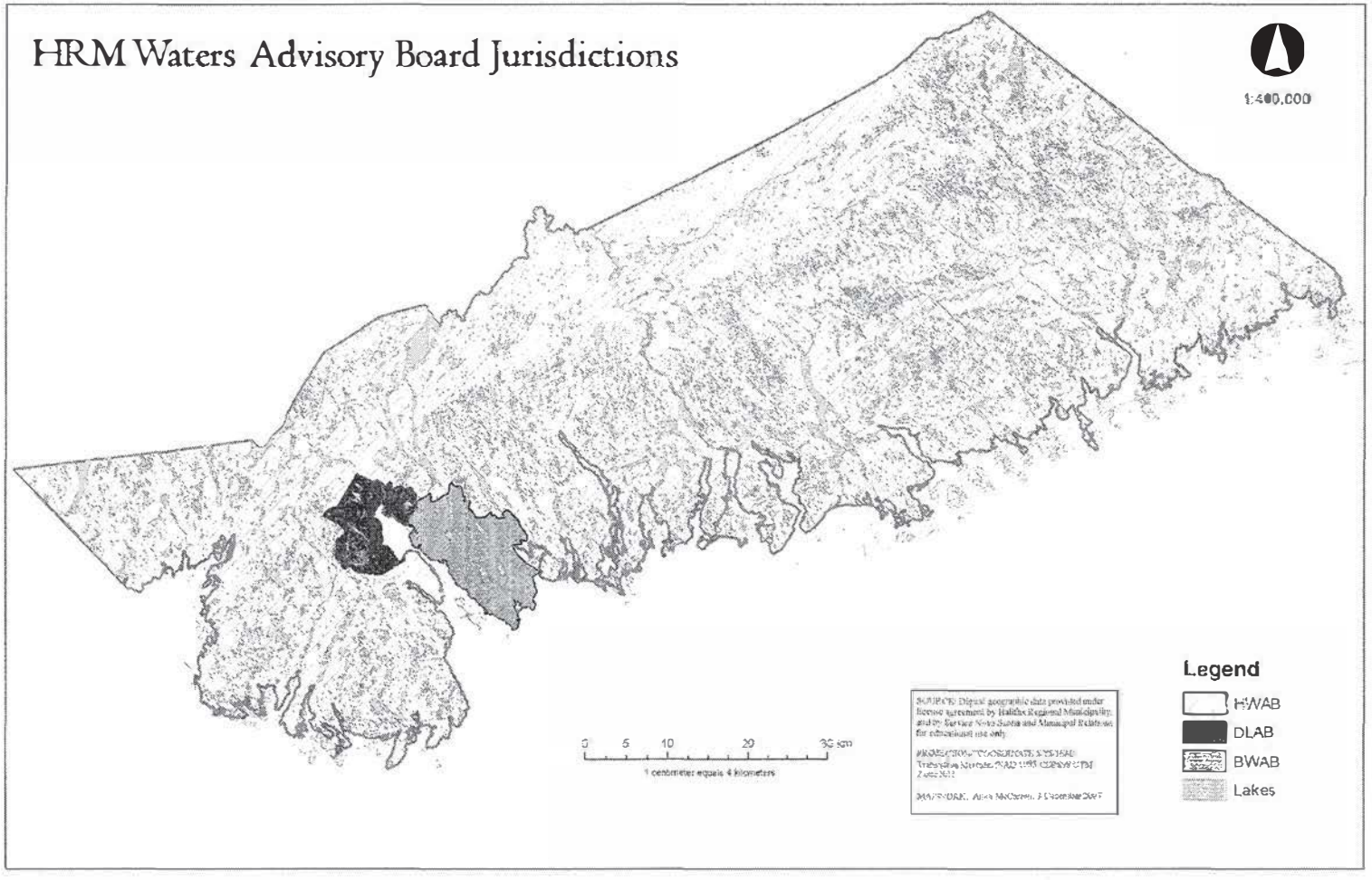


Figure II: HRM Waters Advisory Board Jurisdictions[8]

[8] HWAB jurisdiction also includes the islands off the coastline adjacent to its jurisdiction.

The HWAB was chosen as a case study subject out of all the HRM WABs because:

- the HWAB's strict focus is on protecting water quality, water quantity, and quality of life associated with water resources helps to confine this study's focus area;
- the HWAB application review process covers the broadest range of land development-related cases in HRM (*See Figure II: HRM Waters Advisory Board Jurisdictions*);
- the HWAB jurisdiction broadly covers HRM geographic and settlement types including urban, suburban and rural areas;
- the HWAB has essentially operated post-amalgamation, allowing this study to observe the evolution of the role of the HWAB within the context of a developing municipal unit while allowing this study to cover a more manageable time span of 10 years compared to 30; and
- the HWAB uses all three advisory board styles defined by Griffiths Muecke (1988) i.e., policy, technical, and citizen advisory roles.

1.6 Study Objectives

To help explain how the HWAB is able to influence water resource protection in its role to provide advice to Council through the land use planning and development activity review process, this study will concentrate on three objectives:

- to present the context of the HWAB's ability to influence water resource protection in its role to advise Council through the land use planning and development activity review process;
- to identify the factors that contribute to the HWAB's ability to influence water resource protection in its role to provide advice to Council through the land use planning and development activity review process; and
- to recommend how to enhance the HWAB's ability to influence water resource protection in its role to provide advice to Council through the land use planning and development activity review process.

1.7 Study Biases

The researcher is a member of the Shubenacadie Watershed Environmental Protection Society (SWEPS), one of the waters protection groups interviewed for this study. Some may argue that potential biases are produced when the researcher is also a participant of the research. According to Yin, (2003) in his book *Case Study Research: Design and Methods*, this position provides an opportunity to "perceive reality from the viewpoint of someone 'inside' the case study rather than external to it" and that "many have argued that such a perspective is invaluable in producing an 'accurate' portrayal of a case study phenomenon." The researcher was cognisant throughout this study of her biases and has taken steps to provide a balanced approach to the research.

1.8 Study Outline

This study explains what contributes to the HWAB's ability to influence water resource protection in the context of its role, set out by its ToR, in the land use planning and development activity review process, and recommends how the HWAB's ability to influence water resource protection may be enhanced.

This chapter outlined the rationale and objectives of this study and introduced the HWAB. Chapter 2 describes the methods used to collect and analyse the data examined in this study. Chapter 3 provides the background literature on water resources, its management and protection, how land-use processes and governance affects them, and the factors that contribute to the success of NRABs within an activity process. Chapter 4 sets up the case study within the HRM context and explains the HWAB's role in more detail. Chapter 5 shows the findings that indicated what factors contribute to the HWAB's ability to influence water resource protection in its role to advise Council through the land use planning and development activity review process. The findings came from the quantitative analysis of the data from the HWAB's advisory reports containing its recommendations, and the qualitative analysis of the data collected from the documents, archival records, surveys and interviews, and meeting observations. Chapter 6 discusses the findings, and provides recommendations on how its ability to influence may be enhanced. Chapter 7 provides an overview of the study conclusions and recommendations for future research.

2 Research Methods

This study uses a case study approach. Sources of guidance to this approach were Leedy & Ormrod (2001) and Yin (2003). The approach used in this study corresponds to the frameworks these authors describe for case studies and considers the different views each author expressed about a design. While Yin (2003) views the case study design as encompassing qualitative evidence, Leedy & Ormrod (2001) view the case study as a subset of a qualitative research design. The key characteristics each describes as components of a case study design complement each other and are used to support this study's research approach.

2.1 Research Strategy Rationale

Case studies are among five research strategies that are used to collect and analyze empirical evidence (Yin, 2003). A case study asks in its initial study question "how" and "why" questions, more than "who", "where", "what" and "when", which the other strategies pose in addition to the "how" and "why" questions. Yin (2003) explains that case studies are more appropriate to use when asking "how" and "why" questions, "because such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence." The case study should satisfy the situation when "a "how" or "why" question is being asked about a contemporary set of events, over which the investigator has little or no control" (Yin, 2003). According to Leedy & Ormrod (2001) and Yin (2003), case studies are well suited for learning more about a little known or poorly understood subject. They both also contend that it is useful for learning how a program changes over time. This study satisfies these conditions.

Using multiple sources of data is considered necessary for the case study research design strategy (Yin, 2003), and considered an important method of data collection for case studies (Leedy & Ormrod, 2001). Using the "triangulation" method of data collection for single case studies (as opposed to a multiple case study) is an important means to increase the validity of the case study findings since generalizations are difficult to assume if few sources of data are used. Comparing multiple data sources that converge

toward common facts or themes supports the validity of the research findings (Leedy & Ormrod, 2001; Yin, 2003) where "any contradictions within the data are reconciled" (Leedy & Ormrod, 2001). According to Leedy & Ormrod (2001) and Yin (2003), using multiple sources of evidence allows the researcher to "address a broader range of historical, attitudinal, and behavioural issues." Yin (2003) argues the most important advantage of this method is that it allows for "the development of converging lines of inquiry, a process of triangulation...." The design of this case study is based on constructing a generalized theory model supported by selections of interconnected themes that emerge from the analysis of triangulated data to explain how the HWAB is able to influence water resource protection in its role to provide advice to Council through the land use planning and development activity review process.

2.2 Data Collection Methods

The methods of data collection described in the following subsections are components of the method of triangulation whereby all the data collected converge to form common facts or themes which together support the generalized theory about the case study.

2.2.1 Direct Observations

The researcher attended eight HWAB meetings and two BWAB meetings. Instead of attending DLAB meetings, the researcher interviewed their Chairperson. The method used to collect observations of the WAB operations was by transcribing notes in a notebook and later reviewing them for common themes or "factors" that converged with the data that was collected using the other methods. These observations provided a sense of the Board's operations and behavioural dynamics that was not apparent by analyzing the minutes and archival documents.

2.2.2 Surveys and Interviews

The documents associated with the surveys and interviews are found in Appendix D and further described in the sections below. This study's credibility is strengthened

through comments from live participants from a broad spectrum of stakeholders which adds another data collection source to the triangulation method.

Ethical Considerations

To conduct surveys with live participants requires approval through Dalhousie University's Social Sciences and Humanities Human Research Ethics Board to ensure that what is being asked of the individual is appropriate and ethical. Participants were invited to participate by various means described in the survey distribution section, based on a letter describing the study and what was expected of the participant found in Appendix D (a): *Letter of Invitation to Survey Participants.* Those who agreed to participate were given a consent form found in Appendix D (b): *Consent Forms* to indicate whether their level of participation in the study was:

- to opt in, understanding they will not be quoted;
- to opt in, understanding they may be quoted anonymously; or
- to opt in, understanding they may be quoted.

The surveys and interview questionnaires were introduced with the consent forms. Since most participants consented to being quoted, the ability to keep the identities concealed (due to extrapolation) of those who did make comments and chose *not* to be quoted could be considered compromised. To overcome these concerns, the researcher did not include lists of names of HWAB representatives, councillors, proponents, or names of individual representatives who participated in the group meetings.

Where faxes were used as a method of returning the surveys, the fax modem receiving the surveys was contained in the personal office computer of the researcher, so their results were not seen by anyone but the researcher. When the data was transcribed into spreadsheets, responses from those who consented were labelled according to their name, and those who did not consent to being quoted were labelled with a random letter.

Survey Design

Three different questionnaires were developed to target three distinct groups of land use planning and development activity review process stakeholders. For the stakeholders who received HWAB recommendation reports, i.e., HRM planning staff, councillors, and proponents, their survey is found in Appendix D (c): *Survey for Stakeholders Receiving HWAB Recommendation Reports*. The survey for HWAB representatives (past and present) is found in Appendix D (d): *Survey for HWAB Representatives*. The survey for community waters groups is found in Appendix D (e): *Questionnaire for Community Group Interviews*. Each of these surveys was designed so they also could be used as a guide to conduct interviews with interested participants. The surveys for the community waters groups were designed with the idea that it would be used in a group meeting setting.

Using three different sets of questionnaires tailored to each stakeholder group allowed the questions to focus on each group's different role in the land use planning and development activity review process to ascertain:

- each stakeholder's perspective on land use planning and development activities;
- the importance of protecting water resources from the impacts of such activities;
- the HWAB's ability to influence water resource protection in its role within the land use planning and development activity review process; and
- the role public participation plays in the land use planning and development activity review process.

Open-ended questions, rating scales, and checklists were all used in the design of the surveys to elicit as wide a range as possible the stakeholders' perceptions about the focus of the study. The language used for the surveys was appropriate for the general public.

To assist in the discussion of the findings, the sliding-scale numbers from the survey questionnaires were assigned terms in words to describe the level of importance indicated by the respondents: a five (5) is described as "very", a four (4) as "quite", a three (3) as "somewhat", a two (2) as "not very" and a one (1) as "not at all".

The rankings from 1 to 5 (1 denoting "strongly disagree" and 5 denoting "strongly agree") asked for in the questionnaire regarding level of agreement where: a five (5) is described as "strongly agree", a four (4) as "agree", a three (3) as "neither agree nor disagree", a two (2) as "disagree" and a one (1) as "strongly disagree".

Survey Distribution and Collection

The methods of distribution and collection used to facilitate stakeholder participation are described below.

- Letters requesting current HWAB representatives to participate in the study were distributed to them at the HWAB meeting. Past HWAB representatives were telephoned to request their participation. Completed questionnaires were collected at subsequent HWAB meetings or mailed back to the researcher in the envelope provided.
- Councillors (in the HWAB jurisdiction) were invited to participate in a letter, directed to them by the Municipal Clerk. Their completed questionnaires were either mailed back to the researcher or faxed via the Municipal Clerk.
- Planners (in the HWAB jurisdiction) were invited by letter and urged to participate through the planner representative on the HWAB. These invitations to Planners were followed up by phone. The surveys were collected at the Municipal Office.
- Developers were solicited by phone and selected randomly using the Homebuilders Association of Nova Scotia membership list. Their surveys were returned by mail or by fax machine.
- Community waters groups were identified using an environmental list serve. One of the community groups filled out a survey independently of the researcher's presence, instead of participating in a group meeting (the preferred method of data collection from this sector).

Interviews

Individual interviews were guided by the respective surveys. The interview format used was via telephone or face-to-face meetings with past and present HWAB volunteer

representatives, planning staff, councillors and developers, and with community waters groups through group meeting interviews. Two interviews were conducted without using the survey as a guide – with the Chair of the DLAB and the former chair of the decommissioned Halifax Lakes and Waters Advisory Committee (HLWAC).

Group Interviews

Group interviews were conducted following a survey questionnaire consisting primarily of open-ended questions as the guiding instrument of the group interview. The questionnaire was designed for community waters groups to gather a sense of the land use planning and development activity issues in their community, water resource management issues, and their affect on these communities.

2.2.3 Documentation and Policy Review

The documents and policies that were reviewed include:

- HRM Regional Municipal Planning Strategy (HRM RMPS, 2006);
- HRM Regional Planning Study Process Fact Sheets, and Open House comments;
- HWAB meeting minutes from the HWAB's inception in February 1996 to January 2005;
- letters from the HWAB to internal and external agencies including other WABs, Councils, provincial government departments, and HRM planning staff;
- HWAB Recommendation (advisory) Reports on land use planning and development activity applications to councils, HRM planning staff, and to the development proponent; and
- newspaper clippings that provided insight into the HWAB's operational context.

2.2.4 Archival Records

To provide context to this study, the archival records reviewed included the organizational chart of the HWAB's role in the land use planning and development application review process, past and current versions of each WAB's Terms of Reference, HWAB Guidelines, and WAB jurisdiction maps.

2.3 DATA ANALYSIS METHODS

This study derives its analytic framework from the issues that surfaced through the quantitative and qualitative analysis of the data, collected from the documentation, archival records, and surveys and interviews, which were compared with the background literature describing the factors that contribute to a successful NRAB activity process.

The following methods were used to conduct the data analysis:

- a review of the archival records that define the role of the HWAB;
- a quantitative analysis of the recommendations provided in the HWAB's advisory reports, in HWAB minutes, in letters and memoranda to Council and to outside agencies regarding issues that were more broad in scope. This analysis identified the knowledge and expertise factors contributing to the HWAB's ability to influence water resource protection through the land use planning and development activity review process;
- a qualitative analysis of the documentation, direct observations, interviews and surveys, and archival records to identify the governance factors contributing to the HWAB's ability to influence water resource protection through the land use planning and development activity review process; and
- linkages to the factors contributing to an NRAB's ability to influence the outcome of activity in the background literature, with the factors that contribute to the HWAB's ability to influence the protection of water resources within its role, and how the HWAB's ability to influence may be enhanced.

Organizing and preparing the collected data initially involved transcribing it into Excel spreadsheets. The documentation data was transcribed into an Excel spreadsheet labelled "case reviews". The surveys and group interviews were transcribed into a separate Excel spreadsheet and labelled "surveys and interviews". Individual interviews conducted with some of the participants were transcribed into individual files. Direct observations were transcribed into a notebook.

Two primary categories emerged along quantitative and qualitative lines as the documentation data was being transcribed into the "case reviews" spreadsheet: recommendations, and factors that contributed to the HWAB's ability to influence water resource protection in its role to advise Council through the land use planning and development activity review process. This data was sorted into separate worksheets within the "case reviews" spreadsheet and labelled "recommendations" and "factors".

2.3.1 Quantitative Data

The "recommendations" data came from documentation containing the Board's advice on the cases they reviewed and provided to councils, the HRM planning department, and the development proponent. From the "recommendation" data spreadsheet, the data was categorized under the following headings:

- Year First Mentioned;
- Times Recommendation Mentioned;
- Recommendation Type (e.g., development specifications, buffer, erosion and sedimentation control plan);
- HWAB Recommendations as Recorded in Minutes (verbatim from reports or minutes);
- Land Use Project Type (e.g., single family dwelling, construction debris site); and
- Notes (highlighting significance to research).

Categorizing the recommendations under these headings allowed the data to be analyzed in a quantitative way to determine:

- the numbers of cases upon which the HWAB made recommendations;
- the sorts and frequencies of recommendations the HWAB made on land use application types;
- the sorts and frequencies of recommendations the HWAB made on land use project types; and

2.3.2 Qualitative Data Analysis

To analyze the qualitative "factors" data, the method of data triangulation was used. The data organization was guided by Leedy & Ormrod's (2001) methods of data convergence.

Organizing the Data

The qualitative data collected from the documents, and surveys and group interview data collection sources were sorted into spreadsheets according to which stakeholder the data came from. The "surveys and interviews" data were transcribed into their own spreadsheet to converge later with the analysis of the data transcribed into the "factors of impact" spreadsheet. Commonalities were sought within these data sources and coded under primary theme headings that emerged from the first round of data analysis.

Coding

Themes along the lines of the survey and group interview questioning were matched with the primary level categories in the "factors of impact" spreadsheet and coded by secondary theme categories that emerged from this round of data analysis.

The secondary themes found in the survey and group interview responses were grouped under the common headings with the findings from the analysis of the documentation and meeting data sources.

Interconnections

The categories and subcategories that emerged from the analysis of all the data sources were sorted according to the factors and elements determined in the literature review to contribute to an NRAB's ability to influence the outcome of activity. Data from the direct observations, individual interviews, and newspaper articles enhanced the secondary theme data and were converged with the findings to help substantiate (or refute) the "factors" data and "survey and group interview" data factors contributing to the HWAB's ability to influence the protection of water resources.

Selective Coding

Analysis of the data within the secondary themes combined to create a model theory for discussion to show what contributes to the HWAB's ability to influence the protection of water resources in its role to advise Council through the land use planning and development activity review processes.

2.3.3 Background Literature Link

Background literature provides a framework to link the factors that contribute to the HWAB's ability to influence the land use planning and development activity review process with the factors contributing to the NRAB's found in the literature. The framework used to link the background literature with the factors found to contribute to the HWAB's ability to influence the protection of water resources was derived from the Branch & Bradbury (2006) Acceptability Diamond model. This model frames elements and factors of a successful NRAB process. The conclusions of the Branch & Bradbury (2006) study pointed to the "broader value of the Acceptability Diamond as a useful approach to evaluation" as a framework for agency managers to use when developing public participation programs that enhance managers' abilities to work with local communities. Branch & Bradbury (2006) state that an important next step is to apply the Acceptability Diamond elements to other NRAB processes to come up with "a more systematic mapping of the process requirements and outcome measures identified in the public participation and deliberation literature." This would "clarify how processes contribute to outcomes" Branch & Bradbury (2006). This study applies the Acceptability Diamond elements, which are defined by Branch & Bradbury (2006) as information disclosure, substantive issues, decision-making, relationships, and accountability, in the context of the HWAB's role in the land use planning and development activity review process to gain insight into what contributes to the HWAB's ability to influence its desired outcome of activity; i.e., water resource protection.

2.3.4 Data interpretation

The factors that emerged from the quantitative and qualitative data analyses explained how the HWAB's role in the land use planning and development activity

review process contributed to its ability to influence water resource protection. From these findings, the researcher linked the HWAB contributing factors with the Acceptability Diamond factors from the background literature. From the interpretations of the findings, the researcher developed recommendations about how to enhance the HWAB's ability to influence water resource protection in its role to provide advice to Council through the land use planning and development activity review process.

3 Water, Resource Governance, and Advisory Boards

Chapter 3 reviews the literature about the importance of water as a resource, describes the impacts on healthy water ecosystems, and the techniques used to protect them. This chapter also describes what the literature says about how water resources are managed through formal and informal governance. Finally, this chapter outlines what the literature indicates are the factors that contribute to an NRAB's ability to influence the outcome of its activity of interest, which in this case study is water resource protection.

3.1 Water Resources

Water is a primary element for life. Water resources come from surface water sources flowing above ground through rivers, streams, lakes, creeks, ponds, springs, lagoons, wetlands, or other natural body of water. Water resources also come from groundwater, found almost every where underground, in the spaces between the soil and rock particles, and in rock crevices and cracks (Environment Canada, 2005f).
Water is a resource for humans to generate electricity, transport goods, supply agricultural and industrial needs, and spend leisure time. GPI *Atlantic* has estimated the total value of water to Nova Scotians at $11 billion. This figure includes drinking water supply, industrial supplies, recreational use, waste treatment, food production, nutrient cycling, erosion control, and other services (Wilson, 2000). Water is also a resource for wildlife. Considering that all life depends on water and its movement, keeping our water resources clean and unobstructed is paramount.

Water resources provided by surface and groundwater sources together play a role as ecological components within an ecosystem called a watershed (Brandes et al, 2005). This study is primarily focused on the protection of water quality, water quantity, and quality of life associated with water resources pertaining to natural watershed ecosystems as opposed to designated protected water supply areas[9]. The boundary of a natural

[9] There is a distinction between a natural watershed and a "designated" drinking water watershed or protected water area to supply water for a specific population. The former is defined by naturally occurring physical boundaries while the latter is typically defined using property lines (SNSMR, 2002-2005). "Designated" watersheds are protected under the *Environment Act*.

watershed is defined at the points where water flows to one watershed or another (SNSMR, 2000-2002). For the purposes of water resource management, it is important to consider that groundwater does not necessarily follow surface watershed boundaries (Dillon, 2002; and Environment Canada, 2005h). Whether we live next to a lake or a brook, in the middle of a forest, or on top of a mountain, everyone lives in a watershed and, therefore, has an impact on its ecological integrity.

3.1.1 Impacts on Water Resources

A healthy ecosystem, containing all sorts of living and non-living organisms that interact, can be defined as having ecological integrity. Parks Canada (cited in Brandes et al., 2005) defines ecological integrity as "[t]he condition of an ecosystem where the structure and function of the ecosystem are unimpaired by stresses induced by human activity, and the ecosystem's biological diversity and supporting processes are likely to persist." Ecosystem health and subsequently the ecological integrity of that system is put at risk and could be said to be unhealthy when organisms become imbalanced when negatively impacted upon. This case study examines the HWAB's ability to influence the protection of the ecological integrity of water quality, water quantity, and quality of life associated with water resources, with respect to negative impacts from land use planning and development activities as described below.

Water Quality

The quality of water is put at risk when the potential impacts on it are not considered. The impacts on water quality and their cumulative effects must be weighed when deliberating land use planning and development activities. According to Brandes et al., (2005), "[t]o maintain reliable future water supplies, healthy aquatic systems, adequate instream flows and groundwater balance, all actions will have to be considered for their cumulative impact on the entire watershed." Most ecosystems can withstand a certain level of "abuse", but when stress surpasses the threshold that the ecosystem is able to handle, the system deteriorates as it "reaches a point where the natural cleaning processes can no longer cope" (Environment Canada, 2005b). The cumulative effects on water resources are, however, rarely considered in individual land use planning and

development activity applications, possibly due to the challenge and cost to determine liability and issues around pollution, or simply because of uncertainties and unknowns of human impacts on ecological thresholds (Wilson, 2000).

Water Quantity

Impacts on water quantity caused by increased development are especially apparent in areas dependent on wells. In instances where wells run dry or water quantity is inadequate and/or water quality is degraded, the ecosystem is telling us that the cumulative effect of human impacts is putting unsustainable pressure on water quantity sources (Brandes et al, 2005). Piping water from one watershed supply to another may not be an ideal solution to address water resource demand, due to the potential to change water flow rates and biota in the receiving watershed (HWAB Minutes, March 2003), and the costs associated with building new infrastructures (HRM RMPS, 2006).

Quality of Life Impacts

The quality of human lives and wildlife are similarly affected by negative impacts on water resources. Single case pollution events may affect quality of life for only a short period, such as when swimming restrictions are put in place due to high bacterial counts, or when boil water orders are issued. The most serious impacts are those that result in long term consequences on quality of life, often as a result of cumulative negative impacts. Some examples include: an added tax burden to rectify infrastructure stresses, jeopardizing traditional natural resource-based industries (e.g., effluent discharging into coastal areas contaminating fish resources), and flood damage due to increased stormwater runoff.

3.1.2 Water Resource Protection

Naturally, the best way to protect water resources from negative land use planning and development activity impacts is to not disturb the land. The next best approach supported by Vaughan (1993) and Brandes et al. (2006) is to permit fewer people to dwell in a given area so less nutrient loading results, thereby protecting the ecological integrity of the system. A collection of water resource protection technique

recommendations considered in the literature is outlined in Appendix E: *Water Protection Techniques Recommended in Literature*. A summary of the techniques includes:

- implementation of stormwater management control techniques to protect water resources from the contaminants found in stormwater including dog feces, lawn and garden fertilizers, and oil/grit from asphalt driveways and parking lots;
- using wildlife habitat protection methods to enhance and protect wildlife habitat within watersheds; and
- monitoring water quality to determine any changes in it, and what, if any, negative impacts there may be on that water quality – especially in the post-development phase.

Implementing these and other water resource protection techniques to mitigate the land use planning and development activities with the potential to impact on water quality, water quantity, and quality of life associated with water resources involves effective water resource planning and management.

3.1.3 Water Resource Planning and Management

Water resource management evolved in Canada in the 1960s in response to the public's increased knowledge of water resource protection issues, awareness of ecosystem functions, and concern about the "massive impacts" on natural resources due to urban development and major industrial activities (Dillon, 2002; and Environment Canada, 2005a1). Governments acknowledged "the importance of planning, managing and developing water in the context of ecosystems covering both aquatic and terrestrial resources" (Sinclair & Hutchison, 1998 citing Mitchell & Shrubsole, 1994). The *Canada Water Act,* proclaimed in 1970, changed the future of water management (Environment Canada, 2005a1). In 1987 the Federal Water Policy (1987) outlined the importance of watershed planning on a national scale.

Dillon (2002) describes differences between a watershed plan, which recommends how "water resources are to be protected and improved as land uses change" and

watershed management strategies which "focus on water protection and supply." Dillon (2002) defined watershed planning and management "as a cooperative effort by stakeholders, municipalities and government agencies to create a long-term management plan for resources within the watershed." Other literature sources (Morris, 1999-2000; Brandes et al., 2005; Branch & Bradbury, 2006; and Webler & Tuler, 2006) support Dillon's (2002) assertion, suggesting that the most effective water resource management structure incorporates collaborative and/or cooperative watershed governance that include established and effective stakeholder groups supported by government authorities.

3.2 WATER RESOURCE GOVERNANCE

Water resources naturally flow across political boundaries, making the governance of water resources very complicated. Brandes et al. (2005) cite the Commission on Global Governance (1995) in its definition of governance as:

> "[T]he sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and co-operative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest."

From a developer's perspective, the key stakeholders in the land use planning and development activity review process are the politicians – particularly the local councillor, HRM staff, and the Chief Executive Officer, HRM planning and development staff, Provincial and sometimes Federal staff, advisory groups, community and special interest groups, and the media (Riles, 2008).

In this study, the governance stakeholders are divided between the key stakeholders just listed above, who are formally responsible to design/develop, review and approve water resource protection policies and regulations within the land use planning and development activity review process (reviewing stakeholders), and those who are responsible for upholding the outcome of the reviewers' activities through the implementation and operation of the land use planning and development activity process

(steward stakeholders). The primary stakeholders focused on in this study are the reviewing stakeholders.

3.2.1 Formal Governance Stakeholders

In Canada, each level of government has some degree of responsibility for regulating and enforcing water use and for regulating and enforcing many of the land and air activities that may impact on water. No agency has sole responsibility over watershed management (Dillon, 2002). Jurisdiction over water resource protection primarily falls under the Federal and Provincial governments.

The Federal level of water resource governance is responsible for areas concerning fisheries and navigation, and specific overall responsibilities in the performances of external affairs defined under the *Canada Water Act*, the *Federal Water Policy*, the *Canadian Environmental Protection Act*, the *Canadian Environmental Assessment Act* 1992, c. 32, and the *Fisheries Act*.

Provinces have jurisdiction under the *Constitution Act (1867)* to create laws governing water through clauses such as "property and civil rights" and "the management and sale of public lands" since water is considered property, and water is included in the term "public lands" (Brandes et al. 2005, citing Pearse et al. 1985). Provinces set policy, legislate fees, permit uses, and manage water sources. Provincial legislation regarding water includes, but is not restricted to, matters regarding flow regulation, authorization of water use development, water supply, pollution control, and thermal and hydroelectric power development (Environment Canada, 2006 3).

In Nova Scotia, the primary provincial ministries responsible for governing water sources include the Department of Environment and Labour (NSDEL), the Department of Natural Resources (NSDNR), and Service Nova Scotia and Municipal Relations (SNSMR). Watercourses are "vested in the Crown by virtue of section 103 of the *Environment Act*" (*Land Registration Act*. 2001, c. 6). Essentially all activities that may affect the banks or bed of a stream[10] require a Water Approval under the *Activities Designation Regulations* and the *Approval Procedure Regulations* of the *Environment Act* except for the installation of a culvert in a watercourse between June 1 and

[10] The "banks or bed of a stream" are defined under "watercourse" in the Provincial *Environment Act*.

September 30, when approval is not required. Fish habitat, however, is governed under the Federal *Fisheries Act*. The province downloads the responsibility of water for urban use to the municipality through a permit process to take water (Brandes et al., 2005). The current legislation/regulations associated with water resource protection under Federal and Provincial jurisdictions are described in Appendix F: *Water Governance Jurisdictions*.

Although municipalities have no empowerment or responsibilities over watercourses unless delegated by the Province, municipalities can play an important role to protect "lands adjacent to and upstream of watercourses and lakes through planning and control of development" (Dillon, 2002).

The HRM RMPS (2006), described in more detail in Chapter 4, provides the formal governance policy regarding how land use planning and development activity in HRM "shall be" applied with respect to water resources.

The HWAB has a formal governance role within the land use planning and development activity process, acknowledged through a "Motion in Council" as advisors to Council in accordance with its ToR.

3.2.2 Informal Governance Stakeholders

The stakeholders involved in the land use planning and development activity review process play a significant role in governing water resources. The definition of governance used in this report includes informal arrangements made by stakeholders and institutions with a perceived or agreed to interest in governing water resources whereby "conflicting or diverse interests may be accommodated and co-operative action may be taken" (Brandes et al., 2005 citing the Commission on Global Governance, 1995). The stakeholders' informal governance activity is guided by each stakeholder sector's interest, which allows them to work together to reach, as closely as possible, each stakeholder's desired outcome of activity, within a common process. With respect to this case study, the common process is the land use planning and development activity review process. The desired outcome of activity, however, may differ with each stakeholder. It is through the informal governance process that the outcome of activity is reviewed by the stakeholders and then applied to a formal governance framework. The stakeholder of

primary interest in this study is the NRAB, which is considered a form of public participation by all the literature sources reviewed in this study. The informal governance factors are those that do not have to be formally approved or sanctioned by a higher agency; they are determined through the working arrangements the stakeholders have agreed to, or perceive to be in their best interest, to augment their ability to influence the outcome of the activity of interest through a cooperative public participation process.

3.2.3 Public Participation

Public participation is not considered just an opportunity; "today's citizens view it as a basic service and integral part of local governance" (Smillie, 2004 citing Phillips & Graham, 1998). Furthermore, public participation is considered in the literature to be an important governance component for any resource-based decision-making framework (Sinclair, 2002; Branch & Bradbury, 2006; and Webler & Tuler 2006). Michaels (1999) considers public participation to be "essential for ensuring watershed-wide respectful use of land and water."

Since the gradual inclusion of public participation in formal decision-making processes began in the 1960s and 1970s, it has become an efficient way to provide citizens with information regarding land use planning and development activities early in the process, and to avoid protests and appeals after considerable investment has been made in a development project (Phillips & Graham, 1998). Ever since, the literature has tangled with answering questions on the topic about when and why the public should be consulted, who should participate, what resources are required, and how we assess whether the public participation process works (Phillips & Graham, 1998). One way to assess whether the public participation process is being "done" correctly is through an exploration of a public participation process' ability to influence the outcome of activity of interest.

Perceptions of a "Good" Public Participation Process

The Webler & Tuler (2006) study takes a close look at stakeholders' or participants' views of what constitutes a "good" public participation process. Webler & Tuler (2006) tested "many elements of public participation in environmental assessment

and decision-making" through 10 different public participation processes, including three advisory boards. Study participants were invited to rank what they felt were essential components in a good assessment, or decision-making public participation process. Webler & Tuler (2006) found that there is "limited agreement and strong differences of opinion for what constitutes a good" public participation process, even within a common decision-making process. Each group of participants preferred a different "mixed" public participation process and each "mix" changed according to the context and the preference for specific outcomes from the process. The consensus arrived at by the Webler & Tuler (2006) study participants was that a "good" process should:

- reach out to all stakeholders;
- share information openly and readily;
- engage people in meaningful interaction; and
- attempt to satisfy multiple interests.

Where participants' rankings differed regarding the elements of a "good" public participation process were with respect to:

- how strongly science and information should be emphasized;
- how much leadership and direction the process needed;
- how participants should behave;
- how to tackle issues of trust and power; and
- what the goals should be to reach the desired outcome of the process.

Webler & Tuler (2006) also found that not all public participation processes are alike due in part to:

- differences of opinion;
- differences in each group's process;
- differences in the backgrounds and interests of the participants; and
- differences between the group's ToR.

Overall, when trying to "do" public participation correctly, "things are not as simple as they may seem" because the outcome of what stakeholders perceive to be a "good" process will vary depending on the stakeholder asked. Knowing how stakeholders think about public participation processes and what stakeholders want from the process is essential to creating and implementing a legitimate and effective process that is largely accepted as meaningful and successful (Webler & Tuler, 2006).

Perceptions Stakeholders Have About Their Roles

The role of each stakeholder or "actor" may vary depending on whom you talk to. Grant (1994) argues that the role each actor plays, i.e. politician, planner, public, developer, is perceived differently. Depending on which "actor" you talk to, there is an inherent ambiguity about what each player's role actually is. According to Lang & Armour (1980), Dockstator (1991), and Grant (1994), not only are there difficulties in determining what roles the stakeholders play, citizens have a strictly limited ability to influence outcomes. On many stages, citizens may have been given roles that give them the impression they are participating in the process. In reality, however, their impact on any given decision is limited (Grant, 1994; and Phillips & Graham, 1997).

Another consideration, Webler & Tuler (2006) determined may influence stakeholder perceptions of a public participation process, is with the wording chosen to describe the process. In their study, the word "cooperative" was used to describe "a form of interaction that is more hierarchical and closer to consulting." The agency-oriented participants of their study, however, distinguished a difference between a cooperative process and a collaborative one. With respect to the importance of building trust in relationships, they defined a cooperative process as one that "seeks to build trust *in* the decision-maker, while a collaborative approach seeks to build trust *among* participants." In this study, the advisory board public participation process is considered to be a cooperative one, defined initially by Webler & Tuler (2006) as a form of interaction that is closer to consulting. This study's focus on a NRAB cooperative public participation process will provide insight into what contributes to its ability to influence the outcome

of activity (i.e., water resource protection) through the land use planning and development activity review process.

3.3 NATURAL RESOURCE ADVISORY BOARDS

In 1930, the Canadian government transferred ownership of provincial natural resources, including water resources, to the Provinces. Since then, resource management has evolved through many stages (Gillies, 1989) – shifting from management aimed at sustaining yields of a single resource toward an ecological decision-making approach that aims to maintain the interconnectedness of natural systems (Bengston, 1994; and Brandes et al., 2005).

Sinclair & Hutchison (1998) found that the central challenge to facilitating ecosystem-oriented planning was in achieving more inclusive decision-making. Having a multi-stakeholder decision-making approach "threatens to replace the traditional three parties or actor groups common to most conflict series: proponents (industry/private sector interests), opponents (organized public interest groups) and regulator (government public sector interests)" (Greer-Wooten, 1992). Sinclair & Hutchison (1998) noted that while there was plenty of material in the literature regarding multi-stakeholder decision-making processes, there were also plenty of Canadian case studies regarding partnerships, alternative dispute resolution, co-management, and public participation. However, according to Sinclair & Hutchison (1998) little consideration was given to "the differences among these approaches, or to their complementary aspects" and that further studies were needed to determine the "synergistic" aspects of the varying approaches involving a broad range of stakeholders in the decision-making process. Vasseur et al., (1997) found that few people explored what "components are essential for successful public participation" processes. Since then, authors including Branch & Bradbury (2006) and Webler & Tuler (2006) have tackled those topics with their studies on the differences and complementary aspects of various public participatory decision-making processes, particularly those involving NRABs.

Examination of the literature of NRAB (Griffiths Muecke, 1988; Gillies, 1989; Webler & Tuler, 2006; and Branch & Bradbury, 2006) indicates that NRABs are non-

government bodies that work outside government in either a formal or informal governance role, depending on the power the NRAB has been assigned by the agency (which could include a government agency, or a Crown corporation which manages a resource on behalf of a government agency). They consist primarily of local citizens who possess the qualifications set out by the ToR. An NRAB works cooperatively, collaboratively and/or as consultants (depending on the dynamics of the relationships between the stakeholders and the roles they have been assigned) within the decision-making process[11]. Their activities are influenced by the circumstances that inspired the board's creation, and are conducted according to the ToR arranged by the stakeholders and the agency. The common function of an NRAB is to provide advice to the agency, their staff, and the activity proponent through recommendations on the outcome of activities affecting the interest of the board and the agency (Griffiths Muecke, 1988; Gillies, 1989, Ho, 1999; Branch & Bradbury, 2006; and Webler & Tuler, 2006). Advice is typically provided at the agency's request.

There are many informal governance factors that contribute to the NRAB's ability to influence the outcome of activities "including the attributes of the organization and the relationship between the government, interests and the public" (Ho, 1999, citing Filyk, 1991). These factors contribute to the NRAB's ability to perform a public mediation and liaison role between a government body and the general public to deal with local and regional concerns with respect to the outcome of activity (Griffths-Muecke, 1988; and Gillies, 1989). Meanwhile, agencies formally request that the board provide them with advice to help them make better-informed decisions (Griffiths Muecke, 1988; Gillies, 1989; Sinclair, 2002; and Branch & Bradbury, 2006). NRABs are known to continually remind the agency "about matters that they would not normally attend to" by keeping the NRAB's concerns high on staff's priority list Griffiths Muecke (1988). Generally, however, NRABs do not have any decision–making power regarding whether or not any of their recommendations will be applied. That power belongs to the formal governance agency to which they make their reports.

[11] There are many different types of public participation processes that have been the subject of many studies that are beyond the scope of this study.

3.4 Informal Governance Factors Contributing to Influence

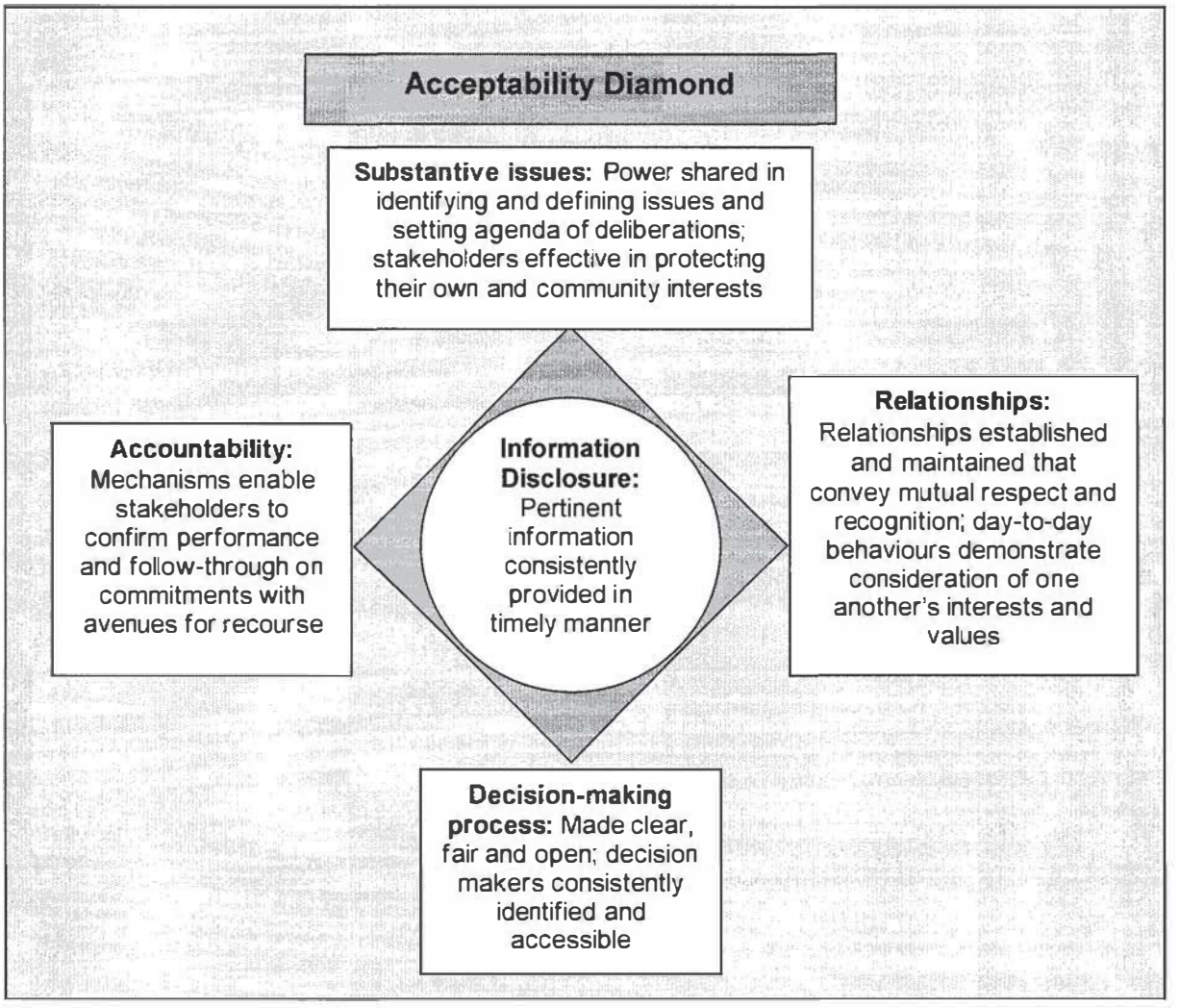
The informal governance factors contributing to an NRAB's ability to influence the outcome of activity are framed in the Branch & Bradbury (2006) Acceptability Diamond model described in section 3.4.1. Many of the elements of this model are supported in the literature by Griffiths Muecke (1988), Gillies (1989), Dockstator (1991), Vasseur (1997), Phillips & Graham (1998), Ho (1999), Sinclair (2002), Wang (2002), Branch & Bradbury (2006) and Webler and Tuler (2006) as contributing factors to an advisory board's ability to influence the desired outcome of activity. These factors, and their purpose are outlined *in Table 1: Informal Governance Factors of Influence Ability* on page 40. They are also used in Chapters 5 to provide a checklist of the informal governance factors found to contribute to the HWAB's ability to influence water resource protection in its role to advise Council through the land use planning and development activity review process.

3.4.1 Acceptability Diamond

Branch & Bradbury (2006) cite a number of literary sources supporting the argument that public participation processes are usually driven by the notion that "the agency, regulators, and/or the public will differ in viewpoints, values, and interests in ways that are important to identify and address". The Acceptability Diamond was developed by Bradbury et al., (1994) from extensive fieldwork on a study of the *Application of a Conceptual Framework for Evaluating Public Participation in Environmental Risk Decision Making* as a way to address stakeholders' differing viewpoints. The Acceptability Diamond is an important framework containing five components of agency-public interactions and public participation programs (shown in Fig. III: *Acceptability Diamond* on the next page) that Branch & Bradbury (2006) used as "the basis for describing and comparing the performance of citizen advisory boards," which they linked to extensive literature sources regarding public participation assessment mechanisms. Branch & Bradbury (2006) found that this framework demonstrates that the decision-making process is just "one (although important) dimension of agency-public interactions and public participation programs that may have many different goals and types of activities." Branch & Bradbury (2006) looked at the

development and applications of two spectrums of advisory bodies based on a number of studies between 1995 and 2005: as many as 20 Site Specific Advisory Boards (SSABs) assigned to gather public perceptions of the risks associated with chemical weapons disposal were surveyed, and at least seven Restoration Advisory Boards (RABs) were included in the studies conducted. These multiple NRAB studies conducted by Branch & Bradbury (2006) provided some guidance as to how the boards' performance could be enhanced using the Acceptability Diamond as the framework for evaluation.

Figure III: The Acceptability Diamond (Branch & Bradbury, 2006)



Information Disclosure Elements

The central component of Branch & Bradbury's (2006) Acceptability Diamond is open disclosure of information. This component is considered the undercurrent of the other four. It is considered a "necessary, though not sufficient" element that demonstrates the commitment an agency has toward public interaction. This component is necessary to ensure community involvement and its ability to influence the decision-making process. Open disclosure provides the foundation for accountability so the public can be confident that tasks are being implemented as planned, that commitments are being kept and that concerns are being addressed (Branch & Bradbury, 2006). When policy and regulations require discretion by the agency, as to when and/or whether the information may be released to the public, the agency may not practice disclosure in such instances, causing relationships between the agency and other stakeholders to become strained (Branch & Bradbury, 2006).

Substantive Issue Elements

Substantive issues elements provide the boundaries for the public participation process where participants are able to make their interests and values known to the agency and have confidence that they will influence the agency. Tuler & Webler (1999) and Branch & Bradbury (2006) citing Stephan (2005) found that "[a] key motivation for stakeholders to participate in public involvement activities" is to protect their and their community's interests and values. Branch & Bradbury (2006) found in the literature they reviewed (Vroom & Yetton, 1973; Vroom & Jago, 1988; Beirle & Konisky, 2000; Lawrence & Deagen, 2001; and Ryfe, 2005) that the main incentive for an agency to engage in a public participation process is the importance they place in addressing the differences of opinions, values, and interests that are expected between the agency, the regulators, and/or the public. A host of literature sources cited by Branch & Bradbury (2006), state that if the public participation process is seen to be ineffective or is "thwarted" by neglecting to provide the information and the means to express their interests and values, stakeholders are likely to view participation with cynicism or drop out of the process altogether.

To ensure that participants feel involved, the important elements for substantive public involvement include facilitating participation, providing a forum to express views and issues, an established structure and jurisdiction, a schedule of interaction, openness and accessibility, consensus decision-making[12], a mix of participants that enable issues important to all stakeholders (including the agency) to be heard and addressed, and the ability to place issues on the agenda and to influence how they are framed (Sinclair & Hutchison, 1998; Webler & Tuler, 2006[12]; and Branch & Bradbury, 2006).

Decision-making Elements

Understanding the decision-making process of the agency poses the most difficult challenges for both the agency and the NRAB since it is often not clear what decisions were being made, who has the responsibility or the authority to make them, or what rules and information guide the decision-making process (Branch & Bradbury, 2006). The agency and group participants must clarify the decision-making elements—transparency, quality, and accessibility—to demonstrate whether involvement in or influence on the activity process is valid and possible (Branch & Bradbury, 2006).

A decision-making influence element that should be included in the formal recommendations provided by an NRAB is ability for each representative to communicate informally and have access to the decision-makers at their level. Additionally, senior staff attendance at board meetings provides opportunities for the group's early input into the activity process and for feedback between the stakeholders (Branch & Bradbury, 2006).

Concerns expressed by the groups in the Branch & Bradbury (2006) study include a decrease in site authority, increased centralization of decision-making at that level, lack of policy regarding their role in the decision-making process, lack of authority they could offer, lack of ability to track their formal recommendations, and the inability to influence decisions informally, i.e., at meetings, and through subcommittees. The primary hindrances to public influence on decision-making were a lack of clear policy guidance

[12] Webler & Tuler (2006) found that not all participants in their studies felt that consensus decision-making was a priority.

and a lack of commitment from the decision-makers "to encourage and accept public influence" (Branch & Bradbury, 2006).

To ensure quality and transparency of the decision-making process, interested stakeholders need:

- to be aware of the decisions being considered;
- to know who is responsible for each aspect of the activity process;
- to have access to all the information that is considered necessary in making decisions to form a position; and
- to have the ability to influence the process by making their interests, preferences and arguments known to the stakeholders at each level of the activity process before the decisions are made (Branch & Bradbury (2006).

Relationship-building Elements

Building relationships that foster respect, recognition, consideration of others' interests, and information accessibility are key factors to a successful relationship and public participation process. A good public space is also necessary to allow relationships to develop and to foster mutual respect and recognition. Leadership skills in managing small group relations and a commitment by each party to listen and to talk are paramount (Branch & Bradbury, 2006).

> "Provide realistic recommendations; continue to 'push the envelope' to get HRM to strengthen its environmental sensitivity; work with HRM to encourage the province to improve its view of environment; educate HRM councillors and planners on alternatives" (Stobo, pers. comm., 2004).

Accountability Elements

Accountability implies an agreed-upon system of responsibilities and commitments that are transparent and enforced (Branch & Bradbury, 2006). Phillips & Graham (1997) argue that experience tells us that effective public participation is best approached as a contract whereby all parties understand their roles and responsibilities. Accountability is the "guiding principle in administrative decision-making and service delivery" (Wang,

2002). Accountability refers to the relationship between two sectors of stakeholders: the "stewards"—those who perform specific tasks; and the "reviewers"—those who have the power of review. Ideally, stewards try to fulfill the tasks assigned by the reviewers. The reviewers concern themselves with how and to what extent the expected tasks are to be fulfilled.

A "good" public participation process provides a means of communication so stakeholders can verify that the accountability mechanisms are in place and are being enforced. Branch & Bradbury (2006) found in their research that the public is generally sensitive to disparities of power and resources between the community they represent, the agencies, and the regulators. To reduce these disparities, a measure of accountability must be provided to the stakeholders in the form of information they need to monitor performance, and a forum for community representatives to bring issues to the attention of the agencies and regulators.

Accountability is linked with transparency. Stakeholders who have the ability to interact are given the information they need to monitor performance, and have a means to bring issues to the attention of the agency, regulators, and the public (Branch & Bradbury, 2006). When a lack of accountability is perceived, distrust, opposition, and/or overly conservative requirements may result. If accountability is limited to the point where stakeholder involvement is undermined, stakeholders tend to feel their involvement in the process is ineffective, again creating cynicism and a propensity to drop out of the process (Branch & Bradbury, 2006).

Table 1: Informal Governance Factors of Influence Ability

FACTORS AND ELEMENTS	PURPOSE
Information Disclosure Elements	
Agency tasks are being implemented as planned	Demonstrates agency commitment toward public interaction and Creates public confidence that tasks are being implemented as planned
Agency commitments are being kept	
NRAB concerns are being addressed	

FACTORS AND ELEMENTS	PURPOSE
Substantive Issues Elements	
Agency facilitates participation in the process	Advocates that community and stakeholder issues will be heard Enables issues important to the community to be addressed by the agency To demonstrate a shared power in identifying and defining issues To allow participants to engage in genuine deliberation about alternatives that consider community interests and priorities as well as agency mission
Agency provides a forum to express views and issues	
NRAB structure and jurisdiction is established by the Agency	
NRAB and Agency have a consistent and frequent schedule of interaction	
Agency is open and accessible to the NRAB	
NRAB operates by consensus decision-making[13],	
NRAB has ability to place issues on the agenda and to influence how they are framed	
NRAB provides for a mix of participants that enable issues important to all stakeholders (including the agency) to be heard and addressed,	
Decision-making Process Elements	
NRAB has awareness of the decisions being considered	To achieve more inclusive decision-making, outside of the "traditional three parties" —proponents, opponents, and regulators To create awareness regarding who has responsibility and authority to make decisions; what information led to the decisions being considered; and who is responsible for what aspects of the decision-making process To determine – and demonstrate – that the public has a genuine opportunity for involvement in and influence on decisions. To ensure understanding of decision-making levels To determine stakeholder interests in the
NRAB and Agency have access to all the information that is considered necessary to form a position in decision-making process	
NRAB has ability to influence the process by making their interests, preferences, and arguments known to the stakeholders at each level of the activi y process before decisions are made	

[13] Webler & Tuler (2006) found that not all participants in their studies felt that consensus decision-making was a priority.

FACTORS AND ELEMENTS	PURPOSE
NRAB representative ability to communicate informally and have access to the decision-makers at their level	process and to provide the ability to develop opinions about alternatives To provide more opportunity for feedback
NRAB being included in the formal recommendations	To allow issues to be studied in detail
Relationships Elements	
Agency reaches out to all stakeholders	To demonstrate an attempt to satisfy multiple interests and foster mutual respect and recognition To engage people in meaningful interaction where relationships can develop To encourage all participants to adhere to certain norms that are assumed to be valid such as honesty and openness To build social capital and trust between stakeholders To enhance the perceived legitimacy of the process and the deliberations
Agency has created a public space for NRAB	
NRAB has a skilled person to manage small group interpersonal relationships	
Agency demonstrates a commitment to listen and to talk	
NRAB and Agency demonstrate an understanding and consideration of each other's rights and interests	
Agency facilitates communication and accessibility	
Agency ensures face to face and out of boardroom interactions between the public and the agency	
Agency gives the public process "standing" in the activity process	
Accountability Elements	
Agency and NRAB have developed agreed upon responsibilities and commitments	To overcome disparities in power and resources between the community and agency, agency and regulators and the agency and individual and social group
Agency has created transparency through agency–public interactions, and public participation programs	
NRAB provides formal recommendations to the Agency	
Agency reduces the power differential through active participation of regulators in the interaction process	

FACTORS AND ELEMENTS	PURPOSE
All stakeholders know who is responsible for each aspect of the activit process	To provide stakeholders with the information they need to monitor performance and a forum for bringing issues to the attention of the agency, regulators and the public
Agency senior staff attend board meetings	
NRAB and Agency share information openly and readily	
Agency has developed clear policy intent with regard to public influence on decision-making	Facilitates consensual and cooperative behaviour
Agency required to provide a repor stating its intended actions to deal with the advice and recommendations of the NRAB	
Agency has established a clear, fair and open process	

Sources: Gillies (1989); Dockstator (1991); Vasseur et al., (1997); Phillips & Graham (1998); Ho (1999); Sinclair (2002); and Branch and Bradbury (2006).

3.5 Formal Governance Factors of Influence Ability

In the Branch & Bradbury (2006) study, differences in agency policy, managerial approach, and structure affected the performance of the board in relation to the five elements of the Acceptability Diamond, and were additional contributing factors to a board's ability to influence the outcome of activity. Ho (1999) citing Filyk (1991) found that "the role of the advisory groups in the policy process" contributes to the NRAB's ability to influence the outcome of activity. The following sections describe the structural, managerial, and policy contexts that were found in the literature to contribute to the ability of the NRABs to influence the outcome of activity through its formal role with respect to the reporting agency.

3.5.1 Policy Context

Griffiths Muecke (1988) cited that lack of formal legislative authority (or the municipal equivalent – through a "Motion in Council") was clearly a hindrance to the influence of an advisory board. The Branch & Bradbury (2006) study also found that an

advisory board's ability to influence the activity process is affected by its status relative to the formal governance agency. NRAB arrangements made in accordance with formal governance policy, legislation, or "Motions in Council" have better ability to influence the outcome of activity than arrangements not connected to a formal governance framework. Boards with formal status exercised most of their energies by providing group recommendations, which required consensus, to the formal governance agency. The formal agency measured the board's effectiveness and value primarily on its ability to make consensus recommendations. In return, the formal governance agency in the Branch and Bradbury (2006) study were first *encouraged* and then later *required* to provide feedback about the board's recommendations on what the agency did with their advice. Conversely, in their study, the NRABs without status within the formal governance agency had more difficulty presenting informed and reasoned assessments of community priorities to the agencies, and were not required to provide recommendations as a group; they provided recommendations as individuals. Lack of status made it more difficult for these groups to perform:

- on substantive issues – getting the issues and ideas on the agenda; and
- on decision-making and accountability – getting recommendations to the agency and feedback in return.

3.5.2 Managerial Context

Branch & Bradbury (2006) found that a formal governance agency must provide "clarity and specificity of the agency's policy commitment to public participation" to help foster relationships and accountability between the agency and the board. Advisory boards with status as a formal advisory board for the agency found upper management level staff, field office managers, and contractor staff actively participating in board meetings. Such participation at meetings provided collaborative communication between the decision-making and public stakeholders, and provided many opportunities to establish personal relationships. In contrast, the NRABs that did not enjoy such collaborative opportunities, due to their informal status "had a greater disconnect" with other stakeholders and the formal agency (Branch & Bradbury, 2006). To ensure

collaboration and to avoid the pitfall of one-sided information gathering (from the public participation group to the agency) the government agency should be required to provide a report stating the agency's intended actions to deal with the advice and recommendations of the NRAB (Gillies, 1989; Sinclair, 2002).

It is important for the agency to really understand the meaning of public participation. The basis of this understanding is found in an established ToR for the NRAB, which the agency should accurately and sincerely implement. Understanding is demonstrated when formal agencies give advisory boards "Mission Critical" status; i.e., they are provided the time and attention of upper level managers, and the necessary resources, training, and staff, resulting in better-performing advisory boards (Branch & Bradbury, 2006). Giving "Mission Critical" status to the NRAB demonstrates to staff and to the public the agency's strong commitment to public participation in general, and its endorsement of the NRAB's purpose.

3.5.3 NRAB Structural Context

The Branch & Bradbury (2006) study found that the composition of the advisory boards and the frequency and intensity of their activities play a role in the advisory board's ability to influence the decision-making process. Agency representatives, who serve on the board with "ex-officio" status provide information/presentations, participate actively in discussions, jointly receive advice and recommendations from the boards' representatives, but may not provide recommendations. Having a citizen member as chair of the board has a significant effect on the advisory board's ability to influence the outcome of activity. The value of having local expertise provided by an advisory board is undermined when there is no role differentiation between the board representatives, especially when the representative from the formal governance agency may provide recommendations in the same capacity as the citizen representatives. Such undermining of the process was most evident in the Branch & Bradbury (2006) study when the co-chairs were evenly divided between the agency and the citizens' advisory group; the agency "co-chair was clearly in the lead." Board composition, therefore, should be chosen carefully. Careful selection processes are needed for choosing representatives on advisory boards to ensure that all interested groups consider the representatives as fairly

representing the full range of interests; "[i]n short, getting the right people in the right context, and vice versa, is key to effective engagements" (Graham & Phillips, 1998). Representatives at the table have a responsibility to effectively network with their respective constituencies to serve as a link to the broader community that they represent rather than representing themselves (Branch & Bradbury, 2006). Overall, the location and expertise that members represent, provides for more balanced representation on the Board. Table 2 below outlines the factors that contribute to the NRAB's ability to influence the outcome of activity from a formal governance perspective.

Table 2: Formal Governance Factors Contributing to Ability to Influence

Policy Context
Formal legislative authority
Ability to make consensus recommendations
Managerial Context
Clarity and specificity of the agency's policy commitment to public participation
Foster relationships and accountability between the agency and the board
Status as a formal advisory board for the agency
Upper management level staff, field office managers, and contractor staff actively participate in board meetings
Collaborative communication between the decision-making and public stakeholders
Location and expertise that members represent, provide for more balanced representation
Accurately and sincerely implement the advisory board's ToR
Advisory board's "mission critical" status; i.e., they are provided the time and attention of upper level managers, and the necessary resources, training, and staff
Structural context
Role differentiation between the board representatives, and formal governance agency (i.e., "ex-officio" members present from agency and chair is from community)
Frequent meetings with consistent NRAB activities
Groups consider representatives as fairly representing the full range of interests
Have responsibility to effectively network with respective constituencies to keep them informed
Government agency required to provide a report stating the agency's intended actions to deal with the advice and recommendations of the NRAB

Sources: Gillies (1989); Dockstator (1991); Vasseur et al., (1997); Phillips & Graham (1998); Sinclair (2002); and Branch and Bradbury (2006)

In a formal context, an NRAB's role varies according to the policies under which they are governed, how and under what circumstances they were created, their operational structure, and how they are managed by the agency.

3.6 SUMMARY

Based on the literature reviewed in this chapter, the ability of an NRAB to influence the outcome of the agency-public activity depends on both formal and informal governance factors. The formal governance factors establish the context of the NRAB's formal role. The formal context then contributes to the NRAB's ability to influence the outcome of activity within the informal governance context, in terms of the information disclosure, substantive issues, decision-making process, relationship, and accountability elements. Together, the formal and informal governance factors contribute to the NRAB's ability to influence the outcome of the activity.

Chapter 4 of this study looks at the case study advisory board, i.e., the HWAB within the context of how it is managed, structured, operates, and formally governed, and how it was developed. Chapter 5 looks at the factors that contribute to the HWAB's ability to influence the outcome of activity in both the formal and informal governance contexts discussed in this chapter.

4 The HWAB: Operational Context and Role

Chapter 3 looked at some of the relevant literature including formal and informal governance models that provide a framework of factors and elements that contribute to an NRAB's ability to influence the outcome of activity. Chapter 4 explains the land use planning and development activity context within HRM, how water resources are managed, and the HWAB's formal role as a water resource protection advisor to Council through an explanation of its ToR.

4.1 HRM Land Use Planning and Development Activity

Consistent with the trend in other areas of North America in the 1960s, land consumption in HRM has quadrupled. The residential development demand that is expected to accumulate in HRM suburban (52 percent) and rural areas (22 percent) will have the greatest impact on water resources in those areas (HRM RMPS, 2006). At a projected rate of growth of 50% over the next 25 years, approximately 50,000 more acres will be required for residential lands in HRM. According to the 2001 Census, the fastest residential growth within HRM is in the rural commutershed. Regardless of the amount of growth, development will impact on water resources through both new housing developments and infrastructures needed to support them (The Natural Step, 2004). Careful planning and responsible governance are vital to protect water resources.

In their study on waters advisory groups in Nova Scotia, Griffiths Muecke (1988) made recommendations about how to protect and maintain water resources for residents and wildlife alike, including:

- incorporating policies and regulations into all development applications to enhance compliance with water resources protection techniques, promoted through watershed management strategies; and
- requiring all developments to include design policies through development agreements that highlight the importance of habitat protection to developers.

In its HRM RMPS (2006) (also referred to as "the Plan") HRM has designed water resource management policies to support watershed protection measures developed through the secondary planning strategy process (HRM RMPS, 2006). An overview of the HRM RMPS (2006) policies respecting water resources is provided in the next section.

4.2 HRM Regional Plan

HRM is rich with an abundance of water. Dartmouth is known as the "City of Lakes". The estimated number of lakes in HRM is 1100, contained within approximately 53 major river basins (watersheds) (Blouin, pers. comm., 2005). With the sustained encroachment on water resources by land use and development activities, HRM and community leaders recognize the need to develop a water resource management strategy.

HRM commissioned Dillon Consulting Ltd. to conduct its Water Resource Management Study (WRMS) report on the existing state of watershed management in HRM, and to make recommendations (Dillon, 2002). The WRMS underscores the importance of watersheds as "the fundamental unit for understanding water resources and undertaking watershed planning" (Dillon, 2002). Dillon (2002) argues that at the municipal level, the ranking of priority that HRM places on the health of water systems will steer land use planning and development activity toward ecologically responsible land use practices that mitigate their impact on water resources. Dillon (2002) also argues that community input will affect how policies will direct development. Subsequently, Dillon's WRMS (2002) provides the basis of the policies regarding the environment in the first HRM RMPS (2006) for HRM, which took effect August, 2006.

> "Water, a limited and precious resource, is one of HRM's highly valued environmental assets. Protection of this resource for potable waters supply, wildlife habitat, recreational enjoyment, and aesthetic value is important to HRM. HRM's strategy is aimed at protecting this resource through land use control and retention of those features that regulate water flow, mitigate flooding, reduce water pollution and protect ecological functions" (HRM RMPS, 2006).

The HRM RMPS (2006) outlines how, when, and where future growth should develop in HRM while considering that "[t]aking a balanced approach toward environmental protection and development is key to an environmentally and economically sustainable future."

4.2.1 The Plan—for Watersheds

The Plan (HRM RMPS, 2006) regards watersheds "as the fundamental unit for understanding water resources and undertaking watershed management" (HRM RMPS, 2006). The Plan recognizes that because the water, soil, flora and fauna are all interconnected, "land use activities in one part of the watershed can adversely affect the quality and quantity of water in another" (HRM RMPS, 2006). Community (secondary) planning, therefore, must be based on a watershed analysis to protect the environmental features and functions needed to "sustain" the desired level of water quality and quantity (HRM RMPS, 2006). The finer details of watershed planning, however, will be undertaken after watershed studies for each watershed community have been carried out at the community (secondary) planning stage. Policies under E-17 of the Plan, listed in Appendix G are the guidelines from which the community planning strategies will be developed.

4.2.2 The Plan—for Water Resource Protection

The Plan aims to protect water resources in HRM through land use control, by regulation of water flow, by flood mitigation, by reducing water pollution and by protecting ecological functions. Restoration and protection of water in Halifax Harbour are also discussed in the Plan. The key areas of concern within the Plan regarding water resources are potable water, wetlands protection, riparian buffers, floodplains, and coastal inundation. These key areas are outlined in *Table 3: Water Resource Protection in HRM's Regional Plan* on the next page. Appendix G provides more detail about the regulations and policies E-8 to E16 that promote water resource protection in HRM.

Table 3: Water Resource Protection in HRM's Regional Plan

Water Resource Protection Policies	Target	Purpose	Benefit
Potable Water Policy statement *E-8* (See Appendix G) outlines the application of a Protected Water Supply Zone.	Create Protected Water Supply Zones in areas that are used for municipal water supplies but are not provincially designated under the *Environment Act*.	Regulate land uses in these areas, including those on private lands, to protect potable water quality.	Manages water quality in Protected Water Supply Zones to allow for a variety of land uses in these water supply areas as long as the municipal water supply is not threatened.
Wetlands Protection Policy E-9 (See Appendix G) outlines the application of a Wetlands Schedule	Create a Wetlands Schedule for all development proponents to refer to when determining the presence of wetlands greater than 2000 m^2 on their properties until such time as they are made suitable for development according to provincial requirements.	Avoid disturbance of wetland systems by requiring development proponents to determine the presence of wetland areas over 2000 m^2.	Wetlands provide a filter for sediment, contaminants and nutrients, help to control floodwaters, offset groundwater extraction, and provide habitat for flora and fauna.
Riparian Buffers Policy statements E-10 - E-13 outline the application of by-laws respecting riparian zones (see Appendix G).	- Require the retention of a 20-metre wide buffer along watercourses throughout HRM. - Does not apply in the Halifax Harbour area designated on the GFLUM Map, Sheet Harbour Industrial Zones or the Waterfront residential Zones (RC-1) under the Shubenacadie Lakes Secondary Planning Strategy. - Allows HRM to designate riparian areas as open space and other uses under a DA. - The policies regarding riparian buffers may be relaxed for existing structures as of the date of the Plan.	A method of watershed protection for all of HRM, by preventing development (or providing HRM a means to acquire ownership for this purpose), except for infrastructures that facilitate recreational and fishing use, and storm and wastewater; but only until more specific needs as determined by the watershed studies are met and implemented through each secondary planning process.	Riparian areas protect water qualit wildlife (including fish) habitat and property by reducing stormwater an flood impacts. They capture contaminants and nutrients, provide streambank stability and regulate water temperature.

Table 3: Water Resource Protection in HRM's Regional Plan

Water Resource Protection Policies	Target	Purpose	Benefit
Floodplains Policy statements E-14 - E15 of the Plan (see Appendix G) outline the application of by-laws respecting Floodplain areas.	Restrict development and prohibit placement of fill in areas that restrict the flow or increase flood levels in 1-100 year floodplains (except where adequately flood-proofed as provided for in secondary strategies), and in 1 - 20 year areas for designated watercourses i.e., lands adjacent to rivers and waterways that are subject to periods of higher than normal water levels, which are unsuitable for development. Subdivision applications, proposed roadways within a floodplain designation will need to meet HRM's stormwater requirements.	Limit development and control placement and stabilization of fill necessary for floodproofing in floodprone areas to protect normal water drainage flows thereby mitigating the consequences of flooding along major rivers and stressing the environmental importance of rivers in regulating and draining water flows through watersheds.	Addresses impacts on peak stormwater flows (the source of flooding events) and mitigates the impacts of flooding along major waterways — allowing them to function as natural water flow regulators.
Coastal Inundation Policy statement E-16 of the Plan (See Appendix G) outlines the application of by-laws respecting Coastal areas.	Prohibit all residential development within a 2.5 metre elevation above the ordinary high water mark except in areas of Halifax Harbour identified by the GFLUM and Sheet Harbour industrial lands.	To prepare for the sea level rise along the Atlantic coast predicted increases in the frequency and severity of storm events for developed areas along the coast.	To help mitigate the impacts on "environmental assets" pending the completion of the *Potential Hazards to Development Functional Plan*.

Source: HRM RMPS, 2006

4.2.3 The Plan—for Water Quality Monitoring

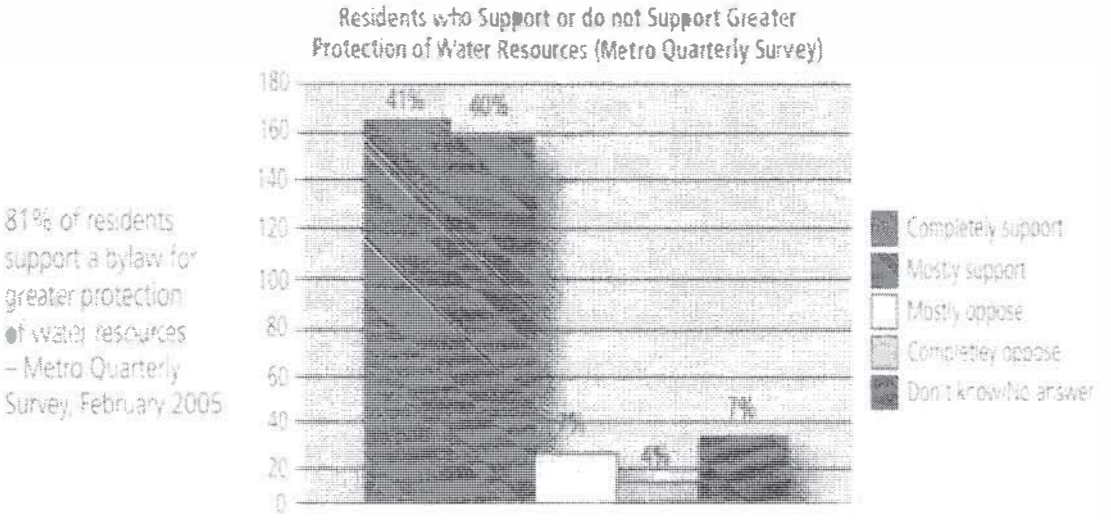
Water quality monitoring provides baseline data that may be used for comparison with future water quality test results to help determine whether water quality objectives are being met. The Plan intends to meet "public health standards for body contact recreation" objectives measured through a long-term water quality monitoring program in selected lakes, conducted by qualified personnel, and financed by developers proposing large-scale development projects that could have a significant impact on the watershed. Details of such a program would be determined in consultation with the appropriate WAB (HRM RMPS, 2006). The Plan policy, regarding water quality monitoring, is specified in Policy E-18 (Appendix G).

4.3 Public Interest in Water Resource Protection in HRM

Historically, HRM has become entangled in land-use disputes that reflect the variety of cultural values of Halifax residents. In many cases, these disputes have arisen as a result of conflicts between Haligonians who propose to keep up with larger centers like New York and Toronto in terms of development and economic progress, and those who propose the preservation of historic landmarks and natural environments (Grant, 1994). Currently, the cultural climate in HRM is more receptive to the public's demand for more environmental protection. This is demonstrated through the incorporation of environmental policy, most notably illustrated through the HRM RMPS (2006) whereby "protection of water, land and air is a significant component ...."

Through the Regional Plan process, HRM found that a strong majority of the general public in HRM supported the protection of water resources, as indicated in Fig. IV: *Residents Level of Support for More Protection of Water Resources* on the next page.

Figure IV: Residents' Support for Protection of Water Resources



Source: HRM Guide to Draft Plan, 2005

HRM Regional Council has acknowledged the importance of the public's concern over water resource protection, through its adoption of the HRM RMPS (2006). The time policy-makers took to acknowledge the public's concern about land use planning and development activity impacts on water resources, however, does not correspond with how long the public has demonstrated this concern.

4.4 EVOLUTION OF HRM WATERS ADVISORY BOARDS

The Halifax County/HRM public also participated in the ground swell of public concern over massive development pressures in the 1960s, as discussed in Chapter 1, and have been advising local governments about how to protect the public's health and safety with respect to local water resources ever since. The City of Dartmouth was the first Halifax County/HRM government agency to recognize, relatively early on in the ground-swell era, the value of tapping into the local water resource protection expertise that citizens were offering, to make up for what was lacking within its provincial and municipal staff (Griffiths Muecke 1988; and Manzer, pers. comm., 2007). In 1971,

Dartmouth City Council formalized a body of expertise offered by citizens, through a "Motion in Council" that recognized the DLAC as the City of Dartmouth's water resource advisor. This Motion created the first waters advisory group in Halifax County/HRM (pers. comm. Audrey Manzer, 2007).

Since then, as many as six[14] waters advisory groups concerned about waters (i.e., any water body or watercourse) have functioned, at the same time, within Halifax County/HRM. These groups provided advice to various agencies about how to protect water resources from the impacts of land use planning and development activities within their jurisdictions (Griffiths Muecke, 1988). In 1986, there were six active waters advisory groups within Halifax County/HRM:

- Dartmouth Lakes Advisory Committee (now the Dartmouth Lakes Advisory Board (DLAB)),
- Halifax Lakes and Waterways Advisory Committee (HLWAC);
- Bedford Waters Advisory Committee (now the Bedford Watershed Advisory Board (BWAB));
- Shubenacadie Lakes Advisory Board (SLAB);
- Shubenacadie/Grand Lake Watershed Advisory Board (SGLWAB); and
- Sackville Rivers Advisory Board (SRAB) (Griffiths Muecke, 1988).

Two of these six waters advisory groups remain active—the DLAB and the BWAB. Most of the jurisdictions of the other waters advisory groups that have disbanded since 1986 were picked up when the Halifax County Municipality Watershed Advisory Board (HCMWAB) (now known as the HWAB) was created in February 1996, and after the HLWAC disbanded in 1998. Because the HWAB is the case study, its formation is described in detail in the following subsection.

4.4.1 Formation of the Halifax Watershed Advisory Board

[14] Only the four waters advisory groups with jurisdiction in Halifax County's four municipal units that existed immediately prior to amalgamation are focused on in this study.

In the summer of 1995, two Halifax County waters protection groups, SWEPS and the Sackville Rivers Association (SRA), requested that "the Mayor of Halifax County take action to ensure that the County area, which represented about 85% of land within the new HRM, [be] covered by a watershed group before amalgamation occurred" (Stobo et al., undated). SWEPS expressed their concern that after amalgamation "it is likely that Halifax County will become subservient to the urban municipalities" (SWEPS, 1995). SWEPS felt that the Cities of Halifax and Dartmouth, and the Town of Bedford waters advisory groups' interests could overshadow Halifax County's interests. Furthermore, since the County area was a mix of rural, suburban and urban areas, it had

> "...divergent objectives for water quality. Generally these objectives are to maintain either drinking water (rural) or recreational (urban) water qualities. In order that Halifax County's interests do not become secondary to the three urban municipalities we recommend that Halifax County set up a watershed advisory committee" (SWEPS, 1995).

It was also argued by SWEPS and the SRA that if an advisory board were not created before the amalgamation process, the opportunity to create this body might be lost. The Chair of the DLAB, Audrey Manzer (pers. comm., 2007), concurred that there was concern at the time that there may not be any provision to create a WAB[15] under a new regional unit. Under the *Municipal Government Act (MGA)*, the "Council may establish, by policy, citizen advisory committees which shall advise the council, as directed by the council". However, there were no guarantees that such a body would be created. What is required is the commitment of the municipal council and the citizenry (SNSMR, 2000-2002: sec. 5.5 p. 2). The groups felt that after amalgamation, the required commitment to create a watershed advisory board for the County area (or indeed to maintain the existing ones) within a new council could be lost in the shuffle that would come with amalgamation.

In response to these arguments and requests, Halifax County Council (HCC) requested that the Municipal Planning Advisory Committee (MPAC) investigate the establishment of a waters advisory committee for Halifax County Municipality (HCM)

[15] There was no guarantee, either, that the existing WABs would remain under the new Municipal Unit. Indeed, there was pressure after amalgamation by some councillors and HRM staff to disband the WABs.

(HCM, Sept. 1995). At an MPAC meeting in September 1995, 32 representatives from various watershed groups and local communities formulated a recommendation to Council that a watershed advisory committee be formed for Halifax County (SWCSMH, Jan. 2005). In October 1995, at an HCM Council session Re: Watershed Advisory Committee for HCM, Councillor Beverly Peters[16] (Dist. 14) moved, seconded by Councillor Gordie Snow (Dist. 17[17]) that:

> "A Watershed Advisory Committee be established, and that further the matter be referred back to the Municipal Planning Advisory Committee with direction that the Municipal Planning Advisory Committee work with community groups, and together, form an appropriate committee structure with terms of reference..." (SWCSMH, Jan 2005).

As directed by HCC, nine representatives from seven community groups, two County Planning Advisory Committee (PAC) representatives and one staff planner drafted the ToR for a Waters Advisory Board (WAB) for HCM, using the three existing waters advisory groups' ToR for discussion and guidance. HCM Council approved the ToR for the HCMWAB in December 1995.

Interested groups were encouraged to apply in writing to HCC, and include their groups' mandate, objectives, interests or concerns related to watershed protection. Citizens at large were also encouraged to apply. Seven individuals requested to be representatives of their polling district. The groups that submitted requests for representation on the Board were:

- Shubenacadie Canal Commission
- Soil and Water Conservation Society of Metro Halifax (SWCMH)
- Ad Hoc Committee for the Sackville River Drainage Basin
- Sackville Rivers Association (SRA)
- Musquodoboit Rivers Association
- Shubenacadie Watershed Environmental Protection Society (SWEPS)

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[16] Beverley Peters was a Director of SWEPS at that time.
[17] The councillors who moved this motion represented the districts within SWEPS' area of interest.

- Petpeswick Inlet Property Owners Association (PIPOA)
- Friends of First Lake (FoFL)

The HCMWAB (now known as the HWAB) held its first meeting in February 1996, filling the waters advisory group representation void in Halifax County. At this point, all municipal units of Halifax County were represented by waters groups: the HLWAC for the City of Halifax, the DLAC for the City of Dartmouth, the BWAC for the Town of Bedford, and the HCMWAB for Halifax County. Two months later, the four Halifax County municipal units amalgamated.

4.4.2 Evolution of HRM WAB Jurisdictions

Immediately preceding amalgamation, each waters advisory group in Halifax County was assigned its jurisdiction, essentially along political boundary lines of the municipal unit it represented; i.e., The City of Halifax, The City of Dartmouth, The Town of Bedford, and The Halifax County Municipality. Changes made to the waters advisory group jurisdictions since amalgamation resulted from the redistribution of the Halifax Lakes and Waters Advisory Committee (HLWAC) jurisdiction after it was disbanded in 1998, and from the efforts of some of the WABs and HRM staff to delineate their jurisdictional boundaries based on watersheds rather than political boundaries.

After its dissolution in 1998, the HLWAC jurisdiction was divided between the HWAB and the BWAB in a way that better reflected the watershed boundaries within the political boundaries of the former City of Halifax and the former Town of Bedford municipal units, respectively. The HWAB jurisdiction currently includes most of the former City of Halifax and virtually all of the former Halifax County municipal unit boundaries as shown in *Table 4: Community Council District WAB Jurisdictions* on page 60. The Map in Appendix B illustrates the current Waters Advisory Board (WAB) jurisdictions in relation to the polling districts.

4.4.3 The Reporting Process

Currently, there are three active waters advisory boards: the BWAB, the DLAB and the HWAB. There are six Community Councils in HRM that have approval authority over land use planning and development activity proposal submissions within their District's Council (see Table 4: *Community Council District WAB Jurisdictions* on the next page). Each District's councillor represents his/her district on one community council, except for District 18, which is represented on two community councils. On each land use planning and development activity application submitted to HRM, directed by planning staff for review by the WAB with the water resource jurisdiction, an advisory report containing the WAB's recommendations is submitted to the Community Council responsible for approving the application.

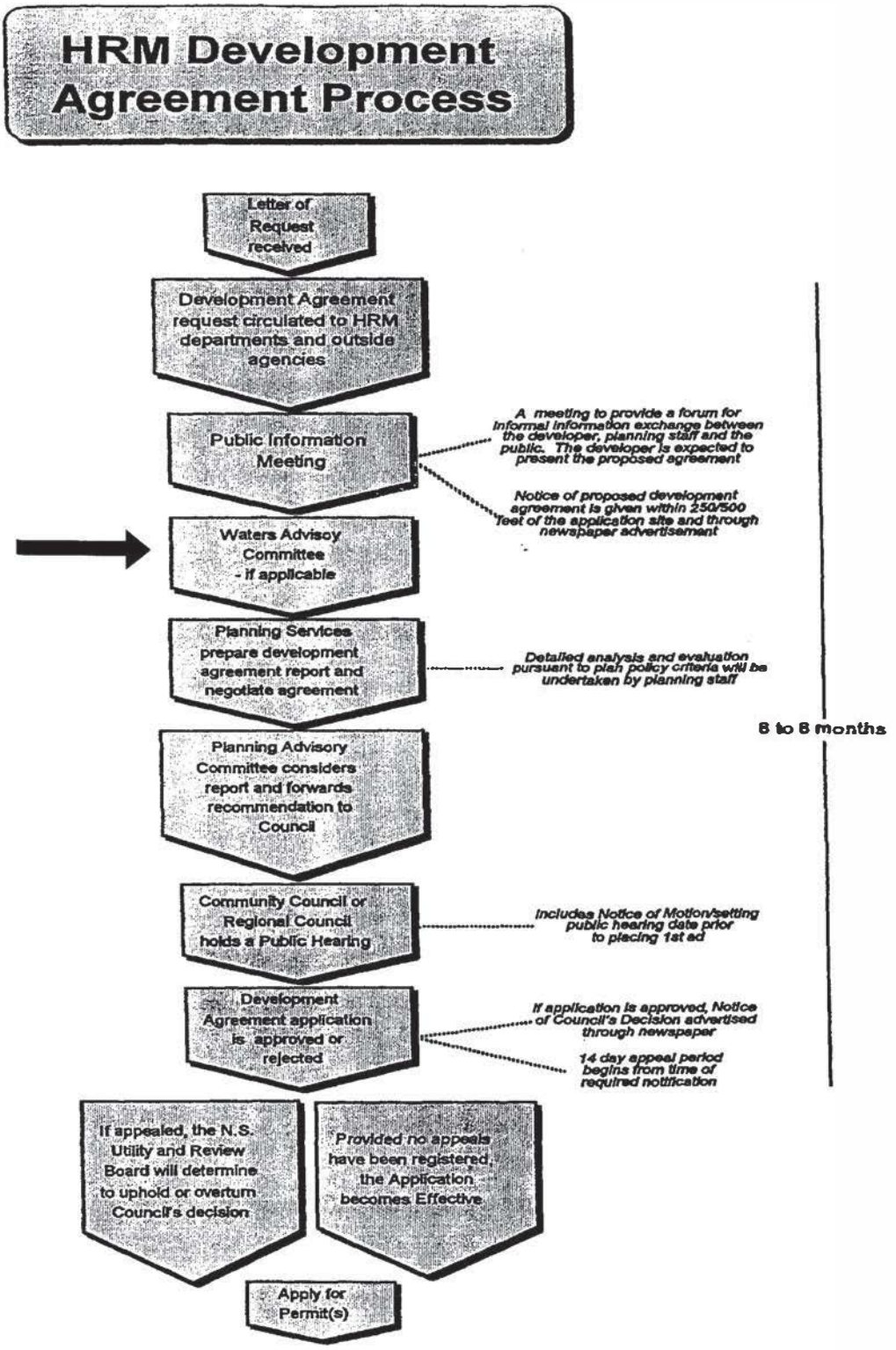
Table 4: Community Council District WAB Jurisdictions

COMMUNITY COUNCIL	DISTRICTS	REPORTING WAB
Marine Drive, Valley & Canal	1	HWAB
	2	HWAB and DLAB: a small portion North of Lake Charles
	3	HWAB and DLAB: a small portion affecting Eastern Passage/Cow Bay, Cole Harbour/ Westphal and Cherry Brook
[18]*HARBOUR EAST	4	DLAB and HWAB: a small portion in the Lake Major area
	5	DLAB
	6	DLAB and HWAB: a small portion in the Lake Major area
	7	DLAB
	8	DLAB
	9	DLAB
PENINSULA	11	HWAB
	12	HWAB
	13	HWAB
	14	HWAB
[18]*CHEBUCTO	10	BWAB and HWAB: the portion east of the 102 Highway
	15	BWAB and HWAB: a portion of Armdale
	16	BWAB
	17	HWAB
	18 (Former City Area)	HWAB
NORTH WEST	19	HWAB
	20	HWAB
	21	BWAB
Western	18 (Former County Area),	HWAB
	22	HWAB AND BWAB: incorporating the subwatershed in the Timberlea area
	23	HWAB AND BWAB: a small portion in Hammonds Plains

The reporting procedures applicable to all HRM WABs are illustrated in *Figure V: HRM Development Agreement Process* on the next page. Although this figure illustrates the development agreement (DA) process, this procedure is the primary one followed by the HWAB for the majority of the land use planning and development activity proposals it reviews at HRM's request.

[18] * **District Boundaries correspond with the Nova Scotia Utility and Review Board, 13 February 2004 decision**

Figure V: HRM Development Agreement Process



Source: HRM

4.5 THE ROLE OF THE HWAB

Each HRM WAB has a ToR that defines its role in terms of purpose, responsibilities, representation, jurisdictions, board meeting structure, relationship to councils, and reporting procedures. Each HRM WAB's ToR are formally acknowledged and passed by a "Motion in Council" which gives the WAB formal status to advise Council, according to the terms defined in its ToR.

This section describes the details of the HWAB's ToR, and briefly summarizes the HWAB's similarities and differences from the other WABs' ToR. Chapter 5 will discuss in more detail how the formal and informal governance factors contribute to the HWAB's ability to influence the outcome of activity, in its role as water resource protection advisor to Council through the land use planning and development activity review process.

4.5.1 HWAB Purpose

The purpose of the Halifax Watershed Advisory Board (HWAB) is:

> "...to advise Community or Regional Council on all matters related to the management and alteration of the lakes, rivers, waterways, coastal inlets and their watersheds within Halifax Regional Municipality[19], and to act as an advisory resource in providing Community or Regional Council with recommendations for their sustainable use" (HWAB ToR, 2005).

4.5.2 HWAB Responsibilities

The HWAB is primarily responsible for:

- providing leadership, promoting public awareness and education to the citizens of HRM[6], and identifying issues and action on matters regarding the lakes, rivers, watercourses, and coastal inlets of HRM[6];
- providing input to Regional and Community Council, and the Planning Advisory Committees on applications for DAs, rezoning, land use by-law amendments, and

[19] Referring "to those areas as defined on (Appendix B) setting out the area of jurisdiction of the Board."

major project proposals of the Halifax Regional Water Commission as to the potential impact on the lakes, rivers, watercourses and coastal inlets of HRM[6];

- monitoring studies being conducted and regulations being formulated by government bodies and providing recommendations to Regional and Community Council about the potential impact on the lakes, rivers, watercourses, and coastal inlets of HRM[6];
- cooperating with other similar agencies to address issues affecting the lakes, rivers, watercourses, and coastal inlets of HRM[6];
- liaising with and encouraging input from community groups involved in watershed protection and related activities; and
- advising on any other matters deemed necessary by Regional or Community Council, or Planning Advisory Committees (HWAB ToR).

4.5.3 HWAB Representation

Community Council-appointed representatives on the HWAB has limited restrictions in that it "*may*" consist of:

- any community-based water interest group that has a broad-based interest in water resource issues within the geographical area of HRM[6];
- one citizen representative appointed from each electoral district under the Board's jurisdictional boundaries who has expressed, in writing, to his/her respective Community Council about his/her interest in broad-based water resource protection within the Board's jurisdictional boundaries;
- one councillor appointed by each Community Council under the Board's jurisdictional boundaries as an "*ex-officio*" (non-voting) member;
- one representative of the Halifax Regional Development Agency; and
- other appointments as determined from time-to-time by Community or Regional Council in consultation with the Board, including consultants (HWAB ToR)

There is no limit to the number of representatives who may sit on the HWAB (Stobo et al., undated). There are no requirements for a representative to be from a specific professional sector. Representation is not considered for community-based water

interest groups with a one-watershed issue mandate. Such groups are encouraged, however, to present their issue(s) to the Board.

Appointments to the Board are for a three-year term (two years for half of the first-year appointments to provide continuity among the representation). Appointees may remain on the Board for subsequent three-year terms, if reappointed by Council. Any community-based organization that applies for representation on the Board must include the group's Memorandum of Understanding in its application to the respective Council. A specific individual from that organization may not be appointed as a representative on the Board. Instead, the appointment applies to the organization that designates a representative from its membership to represent their organization on the Board (HWAB ToR). The district councillor appoints district representatives after s/he reviews all the applications submitted by November 1 of each year.

4.5.4 HWAB Current Jurisdiction

The current jurisdiction of the HWAB encompasses the former Halifax County area and most of the former City of Halifax area (see *Table 4: Community Council District WAB Jurisdictions* on page 60 and Appendix B). The HWAB jurisdiction includes 27% of the residential areas in the downtown Halifax core, most of the 21% of residents who live in the rural commutershed (rural commuters traveling to the urban core to work), and 3% who live in the rural areas not within commuting distance, for a total of 51% of HRM's residential jurisdiction. The remaining 49% of residents who live in the suburbs are within the DLAB and the BWAC jurisdictional boundaries.

The HWAB covers approximately 85% of HRM's land mass (Stobo et al., undated) plus the peninsula portion—former city municipal area—incorporated in the HWAB's jurisdiction[20] after the HLWAC was dissolved in 1998. The land area covered by the BWAB and the DLAB each cover a portion of the downtown and rural commutershed areas, amounting to approximately 15% of the land area of HRM.

The greatest rise in growth within HRM has been in the rural commutershed, approximately 90% of which is covered under the jurisdiction of the HWAB according to

[20] Some of the HLWAC jurisdiction was absorbed by the BWAB as already mentioned. See more discussion on how this took place in Chapter 5.

the Generalized Future Land Use Map referred to in the Regional Plan (HRM RMPS, 2006). This suggests that the HWAB may be concerned with proportionately more land use planning and development activities than its WAB counterparts.

To correspond with the HWAB's jurisdictional boundary changes discussed in section 4.4.2 and in Chapter 5, and to simplify the name, the HWAB's name has changed a few times. The names of the HWAB included the Halifax County Municipality Watershed Advisory Board (HCMWAB), the Halifax/Halifax County Watershed Advisory Board (H/HCWAB), and finally the Halifax Watershed Advisory Board (HWAB).

4.5.5 HWAB Board / Meeting Structure

The Chair and Vice Chair are elected from within the Board's representation and hold office for a period of one year or until the end of their appointed term of office, whichever is less. The Vice Chair assumes the role of chairperson when the Chair is absent. The Board may assign ad hoc committees to work on specific cases from time to time. Meetings are held monthly or when called by the Chair. All meetings are open to the public and "shall include a public participation component" (HWAB ToR). All meetings function by consensus but when necessary "shall follow the Rules of Order approved for Committee of Council" or Community Council.

The HWAB is supported by:

- a legislative assistant from the Municipal Clerk's Office to take notes, to keep records of the proceedings, and to facilitate communication between the WABs, municipal staff and councillors;
- a municipal staff person who provides "advice and expertise on the municipal planning process" (Stobo et al. undated); and
- various municipal planning "staff members who present development proposals or speak to the Board on various issues" (Stobo et al., undated) upon request of the Board.

4.5.6 HWAB Relationship to HRM Staff, Councils, and External Bodies

The HWAB acts in an advisory manner to Community and Regional Councils:

> "Any plan, program, or proposed development activity within any watershed likely to have an effect on any lake, river, waterway, or coastal inlet shall be referred to the Board for its consideration and subsequent recommendations to Community or Regional Council" (HWAB ToR).

The HWAB has no official relationship with any other bodies besides HRM Council. Instead, the HWAB has working relationships with the stakeholders involved with the land use planning and development activity review process (e.g, HRM planning staff, and land use planning and development activity proponents). HRM planning staff representatives on the Board advise the HWAB at meetings regarding planning processes, regulations, and by-laws, and follow-up on questions the Board has about the planning process that cannot be answered at the meeting. In addition to the HRM staff planner representative on the Board, the HWAB relates with each project case planner who presents the land use application proposal to the HWAB.

With approval of Council, the Board may also advise or appoint a liaison to work with a government agency's internal or external board, committee, or department.

4.5.7 HWAB Proposal Application Review Process

Within the land use planning and development application review process that involves all the reviewing stakeholders outlined in ***Figure** I: WAB Input to HRM Development Agreement and Rezoning* on page7, the HWAB has its own review process. This gives the HWAB an opportunity to add its water resource protection advice to the application proposal before Council has a chance to approve or reject the proposal. Before a case comes before the HWAB, a letter of request for a proposed development, rezoning application, or amendment to existing planning documents (Municipal Planning Strategy/Land Use Bylaw/Subdivision Bylaw) is received by HRM planning staff through the municipal clerk. The request is then circulated to HRM departments and to outside agencies (including the HWAB) for review.

Any land use planning and development activity proposal that HRM planning services determines will likely have a direct impact on water resources under the HWAB's jurisdiction is referred to the Board. Concept Plans for municipal planning strategies and events (e.g. high water levels, spills) are also referred to the HWAB for advice. Typically, the HRM planner responsible for the case carries out this referral by informing the HWAB Chair and the HRM Legislative Assistant appointed to the HWAB in writing. A request for a review of the project is usually accompanied with supporting materials outlining the project, reference maps, relevant policies, and any other available documentation (Harvey, pers. comm., February 2007). Prior to each regularly scheduled HWAB meeting, the Legislative Assistant mails the meeting agenda and the required proposal documents to the Board representatives, to give them an opportunity to review project details in advance. Additional project details are often provided when the project is presented at the meeting.

Occasionally, members of the public concerned about a situation that appears or has the potential to negatively impact on a watercourse, may request advice and assistance from the HWAB. Such requests may come by letter to the HWAB from a Board representative, a member of the general public, a community waters group, or any other concerned citizen or organization. Furthermore, since most representatives of the Board serve as "watchdogs" for the Board, occasionally an informal report from representatives about a development prompts the HWAB to make recommendations on cases the HWAB may or may not have previously reviewed.

Generally, the advice provided by the HWAB for each land use planning and development activity proposal review is based on the HWAB representatives' expertise, the HWAB ToR, and the HWAB *Guidelines for Protecting Our Water Resources*. The HWAB review process takes place at regular meetings using the following steps:

1. At HRM's request, the HWAB reviews the land use proposal application, usually together with the planner assigned to the case (or representative on behalf of the assigned planner). Occasionally the proponent also attends the initial presentation of the case.

2. During and/or after the presentation by the case planner, HWAB representatives discuss the case with the planner (and/or the proponent, if present). If enough information is presented at this stage, the HWAB begins to formulate its recommendations. If more information is required, the Board requests that proponents and the case planner come prepared to answer further questions at the next meeting.

3. If the HWAB determines that more clarification is needed, requiring further discussion with the proponent present, further review of the proposal takes place at the next HWAB meeting, usually with the proponent and the case planner present. In very few cases, Board representatives request a site visit before they make recommendations.

4. When enough information has been provided, the Board's recommendations are decided upon by consensus at that meeting, and a designated Board representative subsequently writes a draft report that will be reviewed at the next regularly scheduled HWAB meeting. Further recommendations or amendments may be made at the draft recommendations review stage. Amendments to the draft recommendations are incorporated into the final recommendations.

5. Once approved, the final recommendations are written up by the legislative assistant in HRM report format who then forwards the HWAB recommendations report to the respective Council, the proponent, the case planner, and to other parties as determined by the HWAB.

Time is of the essence with respect to reviewing proposal applications. Ideally, most proposal applications are reviewed and recommendations submitted after two Board meetings (within 4-5 weeks). For larger projects, such as planning strategies, which affect large areas, the review process may take many months.

At the request of the HRM staff planner and/or the proponent, there may be a request to expedite a case. If enough information has been provided to enable the Board to make adequate recommendations, the Board honours the request. With the Board's

approval, the HWAB Chair may prepare the recommendations report before the next HWAB meeting in time for the planner to submit his/her report to Council. In such cases, the Chair reviews the initial draft and circulates it among the representatives between meetings for their approval. With the Board's approval, the Chair reviews and approves the recommendations on behalf of the Board before the next meeting to submit the report within the expedited timeframe.

For larger project cases such as municipal planning strategy reviews, which also may overlap WAB jurisdictions, more than one WAB or a committee of WAB representatives may be called upon to provide recommendations.

In its role as advisor to Council the HWAB has an opportunity to influence land use planning and development activity. The HWAB provides this advice through its formal recommendation reports to Council on each land use planning and development activity proposals it reviews. The HWAB also provides informal advice on land use planning and development activity applications at HRM staff's request, and on issues of concern outside of Council's land use planning and development activity review process. These may be brought to the attention of the HWAB by HRM staff, Board representatives, or by the general public. Informal advice from the HWAB is provided in letters or memoranda (submitted to specific agencies or proponents) as opposed to formal recommendation reports on HRM letterhead to Council. Sometimes copies of formal reports submitted to Councils, are provided to external bodies including other WABs, other government level jurisdictions and/or to the Mayor, and, occasionally, to an individual.

Overall, the HWAB recommendations demonstrate the knowledge and expertise inherent in the HWAB about how water quality, water quantity, and quality of life associated with water resources can be protected. This knowledge and expertise represents the HWAB's inherent ability to influence the protection of water resources through its role defined by its ToR.

4.5.8 HRM WAB Similarities and Differences

The purposes and operations of all of the HRM WABs are similar:

- in their advisory roles to Council on matters related to water resource protection;

- in providing contract-like services for free (Stobo, pers. comm., 2004; and Manzer, pers. comm., 2007).
- in being knowledgeable in the science field and in providing a forum for groups with a special interest in water resource issues;
- in being open to representatives from the development/construction industry;
- in consisting of voting representatives who are volunteers appointed by the WAB's respective Community or Regional Council;
- in requiring HRM staff representation and that each staff member (planner) "*shall*" be appointed by council to his or her respective board;
- in that the request by prospective representatives be sent anytime to the Municipal Clerk and sent for approval to Community Council; and
- in the confidentiality of representative applications, which may not be reviewed by the Board, but are reviewed by the respective councillor for the area in which the application is made.

The purposes and operations of the HWAB differ from the other WABs:

- in that the HWAB does not regard safety issues within their watersheds as part of its ToR;
- in that the HWAB (and the BWAB) include leadership and public awareness and "advocate(s) action on environmental and planning issues" within its ToRs, while the DLAB does not;
- in that the HWAB does not state any professional status as a pre-requisite for representation, while the other WAB ToRs state that voting representatives "*shall*" be from specific professional sectors in an environmental science field;
- in that the HWAB is the only WAB to designate within its ToR the appointment of non-specialized representatives;
- in that the HWAB ToR states that a councillor "*may be*" appointed to the Board, and not "*shall be*" as the other WABs' ToR require;
- in that the HWAB ToR states "One citizen from each electoral district *may* be appointed" and not "*shall*" be;

- in that the HWAB seeks representatives from community groups that have an interest in water resource protection issues *in addition to* having representatives from each electoral district under the HWAB jurisdiction;
- in that the HWAB has no representation number limit;
- in that the HWAB includes in its ToR Rules of Order that meetings "contain a public participation component" allowing observers to participate in meeting discussions at HWAB meetings; and
- in that the DLAB and the BWAB are primarily urban-centred and are therefore affected primarily by urban-type developments whereas the HWAB reviews cases from the urban-rural fringe, rural, and urban-centred areas.

4.5.9 Land Use Activity Review Not Considered in HWAB Role

To further clarify the role of the HWAB, some of the responsibilities not considered part of the HWAB role include follow-up site visits, "as-of-right" development application review, and follow-up of recommendations on land use planning and development activity approvals.

The Board is not required to follow up on cases upon which it has made recommendations. It is not formally responsible for reviewing the land use planning and development activity approved agreement to determine whether its recommendations are included, or for making site visits to determine whether the proponent implemented the recommendations that were incorporated into the agreement. Whether or not the components of an approved land use planning and development activity agreement are implemented and operational is the responsibility of the stewards involved in the land use planning and development activity process (e.g., HRM Development Officer/Technician and inspectors).

As a rule, the HWAB does not review "as-of-right" development applications since they must be reviewed within 14 days, and do not require public scrutiny. As long as the development adheres to the zoning by-laws, and provincial regulations regarding on-site septic systems, the development application may proceed without further public or advisory board scrutiny.

5 Factors Contributing to HWAB Ability to Influence

Chapter 3 set up the formal and informal governance factors that contribute to an NRAB's ability to influence the outcome of activity. Chapter 4 outlined the HRM context within which the HWAB performs its role, established formally through a "Motion in Council". The formal governance factors of influence are those that must be approved or established through a formal process, such as the approval of a WAB's ToR established through a "Motion in Council". The informal governance factors are those that do not have to be formally approved or sanctioned by a higher agency; they are determined through the working arrangements the stakeholders have agreed to, or perceive to be in their best interest to augment their ability to influence the outcome of the activity of interest.

This chapter explains what was found in the documents, surveys and interviews, observations, and archival records to contribute to the HWAB's ability to influence the protection of water resources through the land use planning and development activity review process. The findings show the formal and informal governance factors contributing to the HWAB's ability to influence the protection of water resources through its advice to Council on what ecologically responsible land use practices should be applied to the applications it reviewed between February1996 and January 2005. This chapter begins with an overview of the outcome of the primary responsibilities performed by the HWAB in its role as a stakeholder in the land use planning and development activity review process.

5.1 The HWAB's Reporting Activity Outcomes

The HWAB's primary responsibility involves reviewing land use planning and development activity applications and making recommendations about what ecologically responsible land use practices should be incorporated into each application, through formal advisory reports to Council. When the HWAB was formed in 1996, most committee and advisory group reports, including the HWAB's, were initially sent to the HRM Planning Department. Staff incorporated the reports from the various committees

and advisory groups involved in the application review process and sent them to the PAC who then sent the recommendations to the Community Council. The HWAB changed their reporting procedure from having their recommendations incorporated into a report from staff, to forwarding its recommendation reports directly to the appropriate HRM regulatory agency (i.e., the Community Council responsible for approving the plan application). The HWAB then also sent their reports to the HRM staff case planner to attach it to his/her report to Council, to the proponent, and copied to whatever government department or external body the Board deemed appropriate to the proposal application. This reporting procedure has been maintained ever since. The following sections describe the details on the outcome of the HWAB's reporting activities.

5.1.1 Land Use Planning and Development Activity Review Types

The types of applications and numbers of times the HWAB reviewed each application type during the study timeframe, upon which the HWAB had some ability to influence the outcome of the land use planning and development activity, are listed in Table 5: *Land Use Planning and Development Activity Reviewed* on the next page.

Table 5: Land Use Planning and Development Activity Reviewed

Land use planning and development activity application type	# Reviewed by HWAB
Development Agreement	25
Rezoning	14
Development Agreement Amendment	9
Rezoning and Development Agreement combo	7
MPS Amendment / Creation	5
Large Projects	5
MPS Amendment and Development Agreement combination	3
As-of-right with Schedule K designations	2
Concept Plan of prospective Land-Use or Master Plans	2
Master Plan Strategy	2
MPS and LUB amendment combo	2
Zoning amendment	2
As-of-right subdivision concept plan	1
Development Agreement Stage II	1
Land Use By-law (LUB) Amendment	1
MPS Amendment and Rezoning combo	1
Secondary Planning Strategy	1
Sewage Treatment Plant	1
Stormwater Management Plan	1
Stormwater System upgrade	1
Water Quality impact investigation request	1
Water Quality Baseline Testing review	1
Water Quality Monitoring Program review (i.e., Stormwater Management Plan and Erosion and Sedimentation Control Plan)	1
Water Resource Management Study (Halifax)	1
Total development application types	**90**

The most common type of project reviewed by the HWAB had a golf course component, followed by residential developments, single unit dwellings (including tourist cabins) and commercial developments (e.g., grocery store plaza). Other project types reviewed by the HWAB included specialized commercial developments such as campgrounds, garden centres, gas stations, lobster facilities; utilities/infrastructures for waste collection, a power plant, sewage, stormwater, a water treatment facility, and a highway; and master/land-use plans.

5.1.2 Land Use Planning and Development Activity Recommendations

According to the HWAB's ToR:

> "The Board's recommendations will be submitted to the applicable HRM regulatory body, HRM staff, the proponent, and a copy correspondence to other government departments, as the Board deems appropriate."

The advisory reports the HWAB submits to Council, HRM staff, and to the proponent contain recommendations about which ecologically responsible land use practices should be applied to the project application. The recommendations include emerging technologies and the latest information regarding new issues and concerns. The HWAB made 72 sets of recommendations (amounting to approximately 500 individual recommendations) respecting water resource protection, on 72 of 90 applications it reviewed between 1996 and 2005. The recommendations made by the HWAB were targeted to the activity being proposed and its potential impact on nearby water resources rather than to the application type, as shown in *Table 6: Frequencies of Recommendations / Number of Land Use Projects* on the next page. The most frequently recommended ecologically responsible land use practice the HWAB made was in relation to stormwater management. Other most frequent recommendation categories were with regard to water quality, erosion and sedimentation control, septic/sewage treatment specifications, design/development plan phase and other reports reviewed by advisory and decision-making agencies, and buffer (riparian areas) specifications. In many cases, the same recommendation category applied more than once to a project. For example, under the stormwater category, the HWAB recommended 96 stormwater actions on 42 projects, indicating there were multiple stormwater recommendations made in many or most of these projects. Table 6 on the next page, lists the number of recommendations the HWAB applied to each project type. Appendix H: *Frequencies of Project Types and Recommendations* shows more details on the project types and the recommendations the HWAB made on them.

Table 6: Frequencies of Recommendations / Number of Land Use Projects

Recommendation categories	Frequency recommendation was made	per # of projects
Stormwater	96	42
Water quality (surface and groundwater) protection	73	26
Erosion and Sedimentation Control specifications	70	32
Septic/sewage systems specifications	60	29
Provide design/development plan/phase and other reports for review	56	21
Buffer (riparian areas) around water bodies and along watercourse specifications	42	33
Development specifications	35	25
Wetlands	30	18
Floodplain protection and mitigation specifications	20	8
Retention areas/pond	18	9
Convey land to HRM	16	10
Fish habitat creation/protection/enhancement	16	13
Water quantity (surface and groundwater)	15	7
Refer to HWAB Guidelines	14	13
Public access	14	10
Impervious surfaces	13	11
Expert advice/approval required independent of developer or HRM	12	7
Oil and grit separation	12	11
Remediation and restoration	12	11
Catchment/containment areas on sites where pollutants (examples as listed) are present, to ensure containment before they can enter waterways	12	8
Stormceptor design (CDS brand recommended 2001) to mitigate release of hydrocarbons to the environment from potential developments such as car washes, service stations, welding shops, and any development that may have a negative impact on the wetland/water bodies/courses	11	6
Excavation specifications	11	11
Parkland/Open space	9	9
Conservation	8	8
Wastewater	8	5
Pesticide and fertilizer plans and use monitoring	7	4
Adhere to specific HRM or provincial government strategies and regulations	6	6
Setbacks from watercourses	6	6
Hydrology	6	4
Tree cutting	5	3
Acid/pyritic slate (shale)	5	5
Hazardous material	5	5
Not recommended by HWAB - case examples	4	4
Watercourse (natural) protection considerations	4	3

Recommendation categories	Frequency recommendation was made	per # of projects
Boating access, infrastructures and restrictions	4	4
Road salt contamination mitigation	4	4
Adopt "no net loss" principle	3	3
Bond acquisition	3	3
Enduring covenants in deed/DA	3	3
Cooperation between government departments, different levels of government and commercial enterprises	2	2
Litter control	2	2
Oil tank specifications	2	2
Remove construction debris	1	1
Fire control measures in remote areas	1	1

The HWAB also often supplemented such recommendations with letters to the policy and regulation decision-makers encouraging jurisdictional, policy, and/or regulatory changes designed for greater protection of water resources through policy and regulation.

In addition to providing advice on land use planning and development activity applications presented to the HWAB by HRM staff, the Board identifies "issues and action on matters related to the Municipality's[17] lakes, rivers, watercourses, and coastal inlets" (HWAB ToR). The HWAB exercises this aspect of its ToR by making unsolicited informal recommendations on projects the HWAB feels have the potential to impact water resources under the HWAB's jurisdiction to other agencies, including the Federal and Provincial governments. Where the HWAB felt stricter measures were needed to mitigate the potential impacts of a proposed land use planning and development activity, the HWAB frequently made recommendations beyond set policies and regulations to encourage proponents to implement ecologically responsible land use practises above the minimum requirements. HWAB advice, therefore, includes:

- providing comments at Council's request on studies and processes affecting the management of water resources;
- providing informal advice at the request of HRM staff on applications that do not normally require public scrutiny, as in "as-of-right" cases;

- providing comments that Board representatives and the general public have requested for land use planning and development activities that may fall under provincial and/or federal jurisdictions; and
- providing comments in letters to various agencies including the Mayor, and provincial government departments on projects lead by the Province, upon which the HWAB was not invited to provide comment but took the initiative to due to its concern over water resource protection.

Also with respect to circumstances under which the HWAB reports to other government level activities, the HWAB is responsible "[to] monitor studies being conducted and regulations being formulated by various levels of government and comment and provide recommendations to Community or Regional Council on these with respect to the impact on the Municipality's lakes, rivers, watercourses, and coastal inlets" (HWAB ToR).

The recommendations provided by the HWAB demonstrate the high level of competency the HWAB has with respect to water resource protection. Based on a quantitative data analysis of the Board's recommendations (see Appendix H), the HWAB demonstrates significant knowledge, expertise, and adeptness regarding the latest water resource protection technologies, techniques, and circumstances under which they should be applied, compared with the literature regarding water resource protection techniques (see Appendix E). The HWAB shares its knowledge through its own *Guidelines for Protecting our Water Resources* (Appendix C) as a reference for the HWAB, and for proponents to refer to regarding which water resource protection techniques should be considered and under what circumstances they should be applied. Analysis of the Board's recommendations also provides some insight into where improvements in land use application policies and regulations may be warranted.

Within this advisory role, however, there are many formal and informal governance factors involved in the land use planning and development activity review process that contribute to the HWAB's ability to influence the protection of water resources with its recommendations. The next two sections explain the factors that contribute to the HWAB's ability to influence the incorporation of its water resource protection

recommendations in the outcome of the land use planning and development activity review process.

5.2 FORMAL GOVERNANCE FACTORS

The formal governance factors of this study that contribute to the HWAB's ability to influence the protection of water resources through the land use planning and development activity process are explained within the structural, managerial, and policy contexts. The boundaries within which the HWAB is able to influence the outcome of the land use planning and development activity review process are defined by formal governance factors including its ToR described in Chapter 4, and by policies and regulations set by the Federal, Provincial, and Municipal governments as described in Chapters 3 and 4, and Appendices F and G. This section focuses on five different issues that reoccurred in the research, which encompass the structural, managerial, and policy factors contributing to the HWAB's ability to influence the protection of water resources within the formal governance contexts. These factors are explained in terms of the issues as they move across formal governance context lines. The five recurring issues discussed are Board composition and selection, jurisdiction, "as-of-right" and grandfather clause, secondary (community) planning, and enforcement and compliance.

5.2.1 Composition and Board Selection

Within the HWAB's ToR, there are no prerequisite qualifications for representation on the Board other than to have an interest in water resource issues and be a resident of one of the districts within the HWAB's jurisdiction. One representative left the Board in 2004, in part because s/he did not agree that anyone without a scientific background should be permitted on the Board. However, when the Board was being formed, the same person encouraged community representation regardless of their background other than being a resident of the community and having an interest in water resource protection

issues. The Board's Chair, a qualified scientist[21], takes pride that the HWAB has a good cross-section of community representation.

> "The HWAB is not looking for scientists. The Board looks for someone who is concerned about the environment and the community issues and feels comfortable participating in the process. People stay involved because they get to voice their concerns – people feel that they have a responsibility to protect an area. There is a dynamic that needs to be protected to make people comfortable or else you'll leave scientists around the table pontificating. The lay people have given a different perspective on a number of occasions. The Terms of Reference guide how people are selected. We're talking about practical watershed issues, not just data tables – science does not necessarily address the issue" (Stobo, pers. comm., 2004).

The survey conducted for this study found that of the fourteen (12 current and two past) HWAB representatives who responded to the survey, nine indicated they had experience with watershed management issues before they sat on the Board. Seven indicated they were from recognized watershed groups, and seven were appointed by their district councillors to sit on the HWAB on behalf of their district. Collectively, the representatives had 60 years experience on the Board for an average of 4.5 years each.

If representing the community, the public, the district, or a watershed group makes a person a representative of the general public in some capacity, 86% of HWAB representatives considered they represented the public "very" well.

In March 2002, a councillor from the Chebucto Community Council (CCC) expressed concern that the potential representation on the HWAB was too large, which could make the Board less effective and less efficient. Both the North West and Chebucto Community Councils suggested splitting the H/HCWAB into two committees, one to deal with the former City of Halifax and the other with the former County of Halifax. HRM staff, which would be responsible for facilitating this change, did not feel the proposed splitting to be an option.

The concern about the Board's effectiveness if its potential size were to be realized was expressed again at an HWAB meeting in May 2004 by the newly appointed "ex-

[21] Dr. Wayne Stobo earned his Ph.D. (Ecology) from Dalhousie University in 1973. He recently retired from the Bedford Institute of Oceanography where he worked since 1999 as a Division Manager and Research Scientist. He authored over 130 scientific articles on the biology of finfish, marine mammals and birds on the east coast of Canada (Scotian Windfields Incorporated, 2007).

officio" councillor representative on the Board. The Councillor noted at the time that within the last week, CCC had received three requests to approve representation on the Board. The Councillor suggested that a 'hold' be put on any future appointments and perhaps discuss this at a future meeting. The HWAB Chair took exception to the statement that the Board's representation was too large given the large area of jurisdiction of the Board. After the Councillor attended a few more HWAB meetings and had an opportunity to observe how efficiently and effectively the Board worked, the Councillor subsequently dropped the concern over the large number of potential representatives. This Councillor had an opportunity to, but chose not to suggest changing the representative size of the Board while participating in changing the HWAB's ToR in June 2005.

The potential size of the Board does not appear to pose a problem for the HWAB. The Board's composition could amount to at least 30 assuming there are 10 (but there could be more) "recognized" community waters groups under the Board's jurisdiction, in addition to the potential for 18 district representatives. Despite the potential for such a large number of representatives on the Board, the maximum number of representatives at any time during the Board's existence over the timeframe of this study never exceeded 16. The average attendance over the course of this study (97 meetings) was 12.

Despite several attempts by the HWAB to develop a working relationship with the Nova Scotia Department of Environment and Labour (NSDEL), they remain at arms length. Attempts were made by the HWAB to have a member of NSDEL attend HWAB meetings. A Board representative's conversation with the Environmental Engineer for the then NS Department of Environment[22], recorded in the April 15, 1996 minutes, found that an Environment Department staff member may sit on the Board only if the Minister identifies the WAB in writing as an entity "to promote informed public participation, provide advice to the Minister respecting watershed management and undertake such aspects of watershed management as may be assigned to those persons by the Minister" *Environment Act (1994-95, c. 1, s. 105(4); 2006, c. 30, s. 34)*. The HWAB Chair said that if the HWAB were to request the Board being identified by the Minister, according to the

[22] The NSDEL consists of the former Department of Environment and the Department of Labour. At print time, these Departments had been separated again.

Act as an entity of the Province, this would introduce complications involving the composition of the Board and the HWAB's relationship with HRM (Stobo, pers. commun., June 2007).

NSDEL conducted a Forum in September 1997, to which the HRM WABs were invited. The Forum was about setting up watershed advisory groups for the Province. It was recognized that in order for a WAB to be effective, it would need support from the Province. The resulting report provided by the Forum leaders acknowledged that resources would be required to support advisory groups. The idea apparently was shelved (Stobo, pers. comm., 2007).

5.2.2 Jurisdiction

Factors that have affected the delineations of the HWAB's jurisdictional boundaries set out in its ToR include: amalgamation; other WAB boundary changes; debates among staff, WABs, and Councils regarding whether the WABs' jurisdiction should be delineated according to political vs. watershed boundaries; and the perceptions of councils, staff and other WABs. Changes in jurisdiction have prompted changes in the HWAB's name in the process. What prompted the changes and how they were resolved are discussed in this section.

In addition to being the catalyst for the creation of the HWAB, amalgamation played a significant role in consolidating the roles and responsibilities of the four existing WABs which were representing the four former Halifax County municipal units at the time.

When the Harbour East Community Council (HECC) decided to appoint the DLAB as their sole official watershed advisory group for its Council, the Chair of the HWAB was compelled to express his concerns on behalf of the HWAB that some of the issues relating to the former County area may be missed as a result (HWAB correspondence to HECC, January 14, 1998):

> "I have some concern with the potential consequences ...if [the] DLAB [is] to be the sole water quality/watershed advisory body for your Community Council. ... We are concerned that [this] motion would reconfigure a portion of the responsibilities without consideration of the

> impact on adjacent areas; we could lose some representatives due to a re-partitioning of areas of responsibility and thereby lose the ability to provide advice to Community Councils adjacent to yours."

The HECC subsequently decided to continue having the HWAB report to them regarding projects in the former County areas of their jurisdiction.

The most significant impact on the Board's jurisdictional boundary was caused by the CCC's decision to add the decommissioned HLWAC jurisdiction over Districts 15, 16, 17 and 18 (former City area) to the HWAB's jurisdiction, in July, 1998. This move caused concern among the Board representatives about the potential for an excessive workload. The Chair remarked that the Board's response time, therefore, might be slower than desired by Council. The planner representative on the Board at the time assured them that this situation would be only an interim measure until restructuring was completed (HWAB Minutes, July, 1998). However, the jurisdiction of the HWAB remains much the same. Furthermore, in November 1999, a report to Council recommended that the HWAB take over the jurisdiction of peninsular Halifax, which it did through a "Motion in Council".

When the Board first formed, the HWAB, the HLWAC, and the BWAC, but not the DLAB, wanted to base their jurisdictions on watershed rather than political boundaries. The Department of Planning and Development, however, preferred to see the jurisdictions of each group split up by plan area boundaries (HWAB Minutes, March 1996). The HWAB argued:

> "Our Board would prefer to see the development of advisory bodies based on watershed, rather than political boundaries. The reason is environmentally based – the detailed knowledge and expertise of the sensitivities and existing impacts on a watershed would reside within one group. They would advise more than one Community Council on further development within a watershed, but would be better able to provide ongoing advice consistent with good conservation practices, than several groups responsible for different parts of the same watershed".

Repeated attempts over the years via letters and memos from the HWAB to at least two Councils, requesting that WAB jurisdictions be assigned along watershed lines, did not result in the boundary changes the HWAB desired. This passage from an HWAB

memo dated January 27, 1999 to Ron Cooper, Chair of the HECC, expresses the HWAB's position:

> "Our position, as outlined in the January 1998 letter, is that any revision of geographical areas should be based on watershed boundaries, not political ones. The motions made in January and again in October 1998 to the HECC would perpetuate that arbitrary partitioning."

However, the issue the HECC wanted to deal with in this exchange was their desire to have only one WAB reporting to them (i.e., the DLAB) not two. The argument from the HWAB perspective, on the other hand, was the HWAB did not want to relinquish their jurisdiction unless it was based on watershed boundaries.

HRM staff supported delineating WAB jurisdictions along watershed boundaries. The HRM Environmental Policies Manager (EPM) noted in the HWAB Minutes (March 1998) that staff felt the use of the natural watershed boundaries to be the only sensible way to determine jurisdictions. He acknowledged staff had made recent changes to the DLAB's jurisdiction, but their boundaries still did not entirely follow the natural watershed boundaries. HRM staff determined that each WAB would meet with staff as part of the Regional Planning process to discuss how they wished to be involved in changing jurisdictional areas before staff would develop any specific changes. This position was supported by the HWAB in the same memo quoted above:

> "In the summer of 1998, the HRM decided to review the mandates and jurisdictions of its advisory committees, including watershed/water advisory groups. That process has now been incorporated into the Regional Planning Process review. We hope that watershed boundaries model will be the method chosen to repartition the responsibilities of the various HRM watershed advisory groups. Any changes made during the interim may be redundant once that process is complete."

By October 2001, after meetings between the WABs and HRM staff, HRM staff made an effort to adjust the WAB jurisdictions (which would later require Council's approval) closer toward watershed boundaries. The HWAB agreed that the DLAB could take over some of the HWAB's jurisdiction based on watershed boundaries, and the jurisdictional boundaries were changed to reflect more of a watershed-based structure.

The changes in jurisdiction between these WABs affected Eastern Passage/Cow Bay, Cole Harbour/Westphal and a portion of Lake Major/Cherry Brook. The BWAB wanted to share the Anderson Lake watershed area in Burnside Park in consultation with the DLAB. A portion of the Anderson Lake watershed also fell within the HWAB's jurisdiction. It was discussed whether this should be relinquished to BWAB. The Board decided to do nothing at the time. The representative planner mentioned that it would be a number of years before anything developed in the area. If the issue came up again, it was concluded the Board would relinquish its jurisdiction to the BWAB.

Attempts to further delineate boundaries according to watershed as opposed to political boundaries were resisted by the DLAB "[who] indicated that they had no desire to expand their area of responsibility. Changes had been made, not long ago, regarding identifying their area of jurisdiction in relation to watershed boundaries" (HWAB Minutes, July 2002).

The area size of the HWAB's jurisdiction was initially cited as a reason for the length of the Board meetings. When HRM Regional Council decided that the Board's jurisdiction should include the disbanded HLWAC jurisdiction in 1998, the Board considered alerting HRM that a single group could not be expected to cover such a large area. The Board was assured that the size of the Board's jurisdiction would be considered in due time.

In May and June 2000, the Board decided to address concerns about the length of time it was taking to address the agenda. HRM Planners were also expressing concern about how long it took the Board to respond to project applications (three meetings was the norm) (HWAB Minutes, May 2000). The Board determined that if the Board's jurisdiction was not broken in two, the Board's response time would slow down. At the next meeting, an HRM planner proposed that Halifax Harbour be the divide between the HWAB jurisdictions, along the east and west parts of the Harbour. An HRM staff person surmised at a meeting that neither the BWAB nor the DLAB would want to change their boundaries, so only the Board's jurisdiction would be considered. The CCC suggested splitting the HWAB into two committees, one to deal with the former City of Halifax and the other the former County of Halifax. The EPM expressed that HRM staff did not support splitting the HWAB in this manner. Splitting along the Harbour was a more

attractive option. A map was produced showing how all the HRM waters advisory boards could be split along watershed boundaries. The EPM figured that Regional Council would make a decision at some point after the Regional Plan was adopted. This division was never made. Issues over the length of meetings were resolved informally, however, without changing the HWAB's size or jurisdiction.

Since its inception, the HWAB's ToR was formally changed three times regarding its reporting jurisdiction and its name. Any changes to the ToR must be acknowledged and approved by Council.

The first change in 1998 reflected that the Board would report to the Community Council respective of the land use planning and development activity application, rather than to the Municipal Council (HWAB Minutes, March 1998).

The second change to the ToR included:

- expanding the mandate of the HWAB after the disbanding of the HLWAC, to include most of its former jurisdiction, and reviewing the Halifax Regional Water Commission's major project proposals;
- changing the Board's name to the Halifax and Halifax County Watershed Advisory Board, in light of the expanded mandate; and
- ensuring the Board's ToR reflected the changes that occurred through amalgamation (HWAB Minutes, November 1999).

The third change involved changing the inconsistencies in the three WABs' ToRs. The HRM staff EPM considered the inconsistencies regarding jurisdictional boundaries in the WAB's ToRs a hangover from the four municipal units prior to amalgamation. The HWAB agreed that reviewing the various ToR and deciding on a consistent approach had merit (HWAB Minutes, March 2002). Changes to the Board's jurisdiction were approved in July 2003 including:

- changing the Board's name from Halifax/Halifax County Watershed Advisory Board (H/HCWAB) to Halifax Watershed Advisory Board (HWAB); and

- expanding the BWAB's jurisdiction to Fairview Cove, essentially taking in the Wentworth/Bedford South new development area. The HWAB had previously acquired this area from the HLWAC. However, since none of the Board's existing representatives were from districts contained in this area there was consensus among the Board that the proposed changes were appropriate.

5.2.3 "As-of-right" Development and Grandfather Clauses

A constant issue of concern for the HWAB was with respect to "as-of-right" development and how such developments might benefit from HWAB input. This topic was a recurring issue in the HWAB Minutes, and was discussed at Board meetings with various HRM staff on at least eleven occasions about how the Board could comment on "as-of-right" development applications. HRM staff argued that even if the Board were to have an opportunity to comment on "as-of-right' development and were to indicate concern about potential water resource impacts associated with the plans submitted, as long as the plan conforms to the regulations, the Development Officer can do nothing but approve the application (HWAB Minutes, June 2001). "As-of-right" development applications only need to adhere to regulations already in place. A Public Hearing process (including an HWAB review) is not required for "as-of-right" developments.

To accommodate the Board's desire to comment on "as-of-right" development applications, the planner representative on the Board at the time advised "the Board may wish to make a recommendation to Council on other tools the municipality may wish to employ with regard to 'as-of-right' development" (HWAB Minutes, August 1996). While discussing how the Board could make recommendations on these development applications, HRM staff and some Board representatives were concerned that the volume of work impacting the Board would be prohibitive considering "the turnaround time requirement under the Planning Act" (HWAB Minutes, June 1997), which is 14 days.

This subject was revisited in August and again in October 1997, when the General Manager (GM) of HRM Development Services visited the Board to discuss "as-of-right" issues and solutions. The GM commented that WABs provide good advice but turnaround times are very tight, particularly for "as-of-right" developments. Since "time is money" to the developer, and the Board's comments do not need to be adhered to,

these situations present a problem. As a gesture to rectify the problem, the GM suggested that the Board provide a list of waterways of particular concern so staff could provide information to developers prior to the application submission in particular situations. The Chair of the HWAB felt this was not an option for the Board to consider since it deems all waterways to be important. He also stressed that the Board's advice usually translates into very little cost to the developer and that there are often simple solutions of which the developer is simply not aware. From HRM staff's perspective, the GM said plans often do not identify watercourses on or in the vicinity of the project. Therefore, according to the GM, a public education program would be a better option to raise developers' awareness rather than reviewing "as-of-right" development applications. He also suggested that the NS Home Builders Association might provide suggestions[23].

In September 2003, the subject of commenting on "as-of-right" development applications was raised again by the SRA HWAB representative who questioned the Board's responsibilities in its ToR to review "any plan, program or proposed development activity" with the potential to impact on a water resource, and whether this responsibility included "as-of-right" development. The Planner representative noted that Board responsibilities were never intended to include a review of "as-of-right" development applications. In response, the Board's Chair asked whether HRM had the capacity to enact any of the Board recommendations on "as-of-right" developments. The reply from the Planner representative was that the capacity to make recommendations would only be within the authority of land use by-laws and building by-laws. DAs, on the other hand, are negotiated agreements. Rather than change the wording of the HWAB ToR, Board representatives agreed to leave it as is. However, the Board was not content to leave "as-of-right" development applications completely alone.

Over time, the HWAB was provided with opportunities to review "as-of-right" applications at the request of the case planner, or from a member of the community who had concerns about the potential impact a development might have on a watercourse.

Almost half of the HWAB representatives expressed concern in the surveys about the Board's lack of ability to influence the outcome of "as-of-right" development

[23] A few months later, the Board attempted to contact developers to make a presentation about the HWAB but was discouraged from asking developers to make a presentation to them by then Acting Planning Department Managers at HRM.

applications, since developments may be constructed according to by-laws that may be inconsistent with current water resource protection recommendations. An anonymous HWAB representative expressed "[t]he present 'right of development' practice of HRM is not sensible on an environmental basis. This must stop and these developments must meet all standard development regulations."

Also of concern to the HWAB with respect to its ability to provide recommendations on land use planning and development activity applications is the grandfather clause. This clause is an even more restrictive policy than "as-of-right" because it permits development of land as it is, without adhering to any new policies or bylaws that are put into place. The grandfather clause allows development to occur according to the laws that were in place when the property owner bought the land. "As-of right" developments at least must adhere to new policies once they are put into place.

5.2.4 Secondary (Community) Planning Strategies

As discussed in section 4.2, HRM commissioned Dillon Consulting Ltd. to conduct its WRMS on the existing state of watershed management in HRM, and to make recommendations (Dillon, 2002). Council further directed HRM staff to ensure that the advice of the HRM WABs was sought to provide input into the HRM WRMS compiled by Dillon (2002). The outcome is that the environmental component of the Regional Plan is largely based on the Dillon (2002) WRMS. However, the only place the WABs are acknowledged in the plan, is with regard to the Water Quality Monitoring Functional Plan (HRM RMPS, Section 2.4.1). The Plan states:

> "To examine where and how [managing development on a watershed basis] long-term objectives may be met, an on-going water quality monitoring program is needed for selected lakes. The program is to be designed and undertaken by qualified persons financed in whole or in part by developers proposing large-scale developments that could have a significant impact on lakes through a master planning or development agreement process. ... Details of the program are to be negotiated under the terms of a development agreement in consultation with the applicable Watershed Advisory Board" (HRM RMPS, 2006).

This is the only passage in The Plan to mention the WABs, suggesting that with respect to land use planning and development activities, their advice will

only be required for large-scale developments. HRM's position regarding when a WAB's advice is most needed was also evident when the HWAB was discussing how to overcome its burgeoning workload, and staff suggested that they only look at large projects. The HWAB disagreed with this suggestion, reasoning that regardless of the size of the development, water resource protection strategies must be applied to all land use planning and development activities, regardless, since all land use practices have an impact on water resources.

Upon review of each successive draft plan, more and more responsibility of the watershed-based planning responsibilities was deferred to the Secondary (Community) Planning stage, which follows the completion of the watershed studies. The outcomes of the watershed studies conducted in each area that "determine the carrying capacity of the watersheds to meet the water quality objectives" (HRM RMPS, 2006) will be prepared as "background information to be considered in the development of future secondary planning strategies" (HRM RMPS, 2006). When the community plans are reviewed, the WAB recommendations should be considered and applied in all possible cases. One HWAB representative surveyed recommended "shift[ing the] focus from specific application approvals to policy" (Frank Hope). The Regional Plan sets the stage for watershed management and protection. While the wording in the Regional Plan is not necessarily strong enough to protect water resources with respect to how the HWAB may recommend in most cases, the discretion allowed for in the development of the community (secondary) plans allows for stronger wording if desired.

5.2.5 Enforcement and Compliance

An HWAB representative suggested in the survey that municipal and provincial regulations should be more consistent to better protect water resources from non-ecologically responsible land use practices. The lack of an overall body in charge of water resource management seriously affects the issues of enforcement and compliance; according to an HWAB surveyed representative "[w]hen other levels of government departments, e.g. environment, transportation may be involved" (Spencer Lee).

As a result of informal follow-up activity by HWAB representatives, some disturbing gaps in the enforcement and compliance of HRM's land use planning and

development activity approval, implementation and operational processes were identified. An examination of the land use planning and development activity review process indicated that development proponents' attention to the recommendations varied from one extreme i.e., no regard for the recommendations, whatsoever, to a significant regard for them.

In terms of one type of land use planning and development activity application, i.e., DAs – the dominant application type reviewed by the HWAB – it is NSDEL's and HRM's responsibility to ensure that its conditions are met. The most exemplary demonstration of enforcement and compliance failure was with respect to a golf course development in East Petpeswick, which proceeded without a development permit and violated a number of regulations. Despite attempts by HRM to apply for a Stop Work Order – a provincial jurisdiction (HWAB Minutes, Nov. 2000) – HRM staff discovered that the land use activity did not qualify since Stop Work Orders cannot be issued for earthwork. The letters sent to the proponent under the authority of the HRM DA should have provided the same authoritative weight as a Stop Work Order, according to the Board's planner representative. However, the proponent completely ignored the communications "with impunity." Furthermore, the proponent had not even gotten to the point in the land use planning and development application phase where he could apply for a permit to construct the golf course because the proponent had not yet submitted the Erosion and Sediment Control Plan and Stormwater Management Plan specifically required in the DA. Development Permits must not be issued without these plans. The Development Officer responsible for this project cited one of the problems in HRM's ability to prevent this project from proceeding without the required permits, was the difficulty in getting By-law Enforcement Officers out to inspect the progress of the development in a timely fashion (HWAB Minutes, October 2000).

In another DA case, enforcement was also a concern with a development near Susie's Lake, with respect to the pyretic slate in the area, which, when disturbed, has the potential to seriously harm fish habitat. The presenting HRM Planner concurred that enforcement was a problem at HRM and "felt that there could be a monitoring role for the Board if the certifications were forwarded to the Board" (HWAB Minutes, September 1999).

Community water protection groups also indicated in the group interviews that there were problems with enforcement stating: "Planners and NSDEL agreed that a development situation needed to be fixed, but the situation still exists" (SRA). A SWEPS representative commented, "no one is paying attention to what people are doing (land use–wise)." HWAB representatives have commented on numerous occasions in the Minutes, and in this study's HWAB representatives' surveys, about the lack of application procedures to administer maintenance and operation of protective measures.

5.3 Informal Governance Factors

This section explains how the informal governance factors contribute to the HWAB's ability to influence the protection of water resources, relative to the positions of the other stakeholders involved in the land use planning and development activity process. The factors and elements within the informal governance process that were found to contribute to the HWAB's ability to influence the protection of water resources are framed within the context of the Acceptability Diamond. As explained in Chapter 3, Branch & Bradbury (2006) describe the "broader value of the Acceptability Diamond as a useful approach to evaluation" as a framework for agency managers to use when developing public participation programs that enhance managers' abilities to work with local communities. The Acceptability Diamond factors framing the findings of the HWAB's activities, relative to the other stakeholders involved in the process, are information disclosure, substantive issues, decision-making, relationships, and accountability. Because the information disclosure factor is inherent within the other factors, it is considered within the discussion of the other four factors, in the sections following the description of the roles and opportunities of the stakeholders to influence the land use planning and development activity process.

5.3.1 The Stakeholders Involved in the Process

As described in Chapter 3, Branch and Bradbury (2006), define two types of stakeholders: the "stewards"—those who perform specific tasks; and the "reviewers"—those who have the power of review. The reviewers concern themselves with how and to

what extent the expected tasks are to be fulfilled. Stewards try to fulfill the tasks assigned by the reviewers. This study found that the activities of the "reviewers" and the "stewards" could be broken down into four stages of the land use planning and development activity process, to demonstrate how each stakeholder may influence its outcome. The four stages (and what type of stakeholder is involved at that stage) are:

- the *design and development* stage (reviewer);
- the *review and approval* stage (reviewer) which involves the application review, revisions and approval;
- the *implementation stage* (steward), where presumably most of the decisions have been made (decisions regarding the techniques used to break ground, construction methods, and development decisions also occur and may be tweaked at this stage); and
- the *operations stage* (steward), which carries on until the development is demolished or reclamation takes place.

Furthermore, the number of opportunities a stakeholder has to influence the land use planning and development activity process is a form of measurement regarding the level of influence a stakeholder has on the outcome of activity. *Table 7: Land Use Planning and Development Activity Process Stakeholders* on the next page illustrates the opportunities the two types of land use planning and development activity process stakeholders have to influence the outcome of the land use planning and development activity within the four stages just described.

Table 7: Land Use Planning and Development Activity Process Stakeholders

Stakeholder	Land Use Planning and Development Activity Stages	Level of influence (opportunities in the process)
Council/councillor (reviewer)	- Review and approval	1
PAC (reviewer)	- Review and approval	1
Planner (reviewer)	- Design and development - Review and approval	2
HWAB (reviewer)	- Review and approval - Operations (if reports are sent to Board for subsequent review)	1 – 2
Proponent (reviewer and steward if also the landowner)	- Design and development - Implementation - Operations (if proponent is also landowner)	1 – 3
Public/community groups (reviewers and stewards when also the resident)	- Review and approval - Operations	2
Development Officer/Technician (stewards)	- Implementation	1
Contractor (stewards)	- Implementation	1
Inspectors (stewards)	- Implementation - Operations	2
Construction workers (stewards)	- Implementation	1
Tenants (stewards)	- Operations	1
Landowner (steward and reviewer if also proponent)	- Design and development (if landowner is also proponent) - Implementation (if landowner is also proponent) - Operations	1 – 3
Superintendents (stewards)	- Operations	1
Residents (stewards and reviewers when also the public)	- Operations - Reviewer when also the public	1 – 2

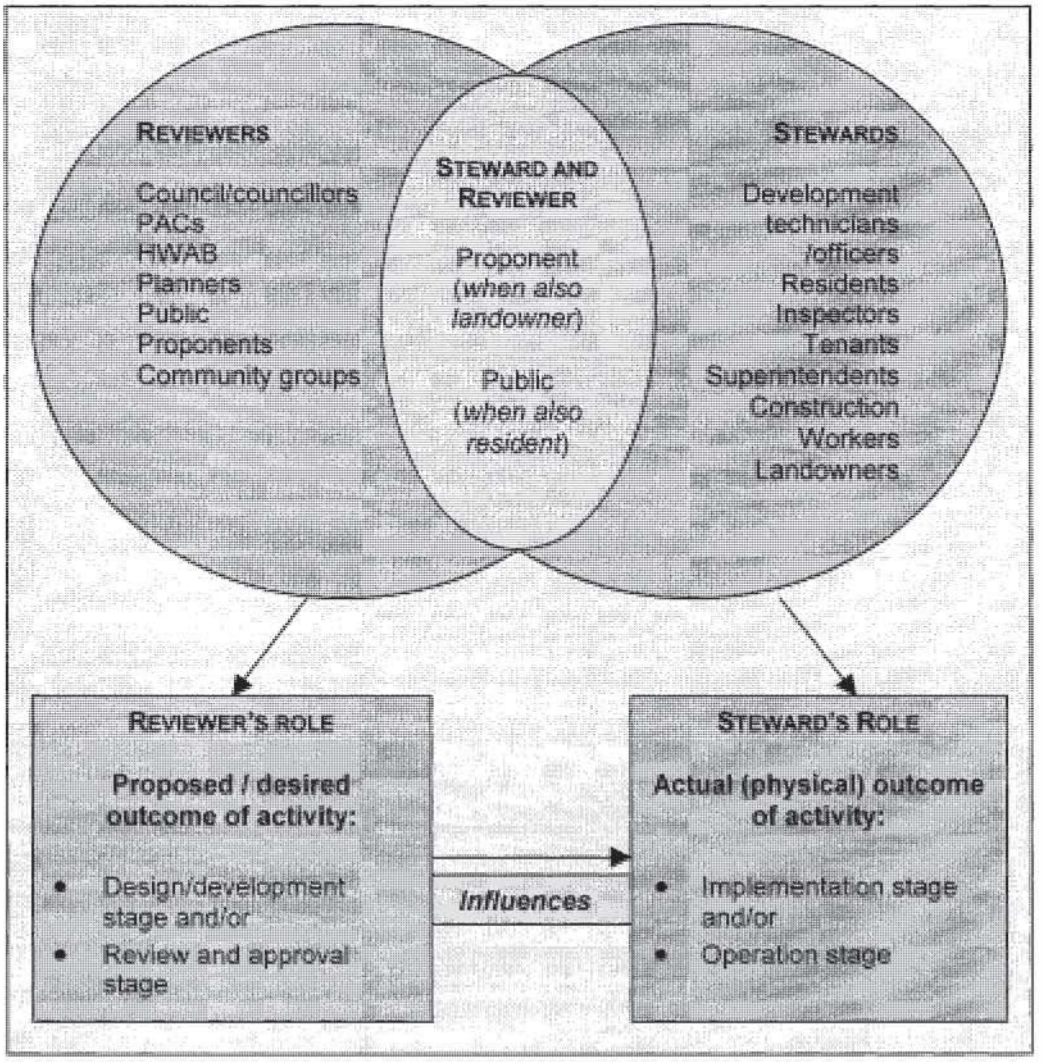
Table 7 above shows if the proponent is also the landowner, s/he has the greatest degree of opportunity to influence the outcome of activity. The other stakeholders who may have multiple opportunities to influence the outcome of activity are the planners, the inspectors, the public (if also the resident), and perhaps the HWAB, depending on whether they have an opportunity to review follow-up reports. The HWAB ability to influence the outcome has the same degree of opportunity to influence the outcome of activity as inspectors, planners, the public/community, and some landowners, but only

when they have an opportunity to review and report on follow-up reports. Otherwise, the HWAB will have the same degree of opportunity to influence as each of the remaining stakeholders including the PAC, Development Officers/Technicians, building contractors, construction workers, tenants, superintendents, and residents.

Councillors/Councils stand alone in their role as stakeholders because they hold the ultimate power within the land use activity decision-making process as determined by Provincial legislation. All the other reviewing stakeholders try to influence Council about what they believe the outcome of activity should be with respect to their interests. The steward stakeholders are expected to deliver the decision made by Council and apply the decisions regarding the outcome of activity. HRM staff are responsible for conducting the functions of Council. This responsibility includes being the liaison between HRM functions and the HWAB, and for facilitating communication between Council, staff, the development proponent, and the HWAB.

Figure VI: Stakeholders on the next page further illustrates the roles performed by the two types of stakeholders and the stages where they have an influence on the outcome of the land use planning and development activity process.

Figure VI: Stakeholders



Within the informal governance framework, the relationships between and perceptions held by each stakeholder factors into each stakeholders' ability to influence the desired outcome of activity. These factors, derived from Branch and Bradbury's (2006) Acceptability Diamond and defined in Chapter 3 are described in the following sections in the context of the HWAB's role as a stakeholder in the land use planning and development activity review process.

5.3.2 Substantive Issues

Substantive issues address the power stakeholders share in identifying and defining issues, setting the agenda of deliberations, and providing stakeholders with the ability to protect their own and their community's interests (Branch & Bradbury, 2006).

The framework of power the HWAB shares with other stakeholders in the land use planning and development activity process was shown in *Table 7: Land Use Planning and Development Activity Process Stakeholders* on page 94. Within this power framework, for example, in the process of formulating its recommendations, the Board takes time to consider and deliberate the merits of various recommendations to practice ecologically responsible land use practices associated with land use planning and development activity, while being responsive to HRM's needs (HWAB Minutes, July 1997). The internal application/issue review process allows time for the HWAB to consider the desires of the other reviewing stakeholders including HRM Planning staff, the development proponent, and the public/community with representation on the Board.

Although the HWAB sets its own agenda, what is put on the agenda relies foremost on what HRM staff brings to the Board's attention, since HRM staff are the front line regarding land use planning and development activity applications. In some cases, Board representatives and the public will ask to have issue items added to the agenda that may be a concern of the community.

The following subsections outline the substantive issues found to factor into the HWAB's ability to exercise its power to influence the land use planning and development activity review process in cooperation with other stakeholders involved in the review process that are also vying for their own interests.

HWAB's Ability to Influence Agenda

Time constraints and an increasing workload being presented to the Board were substantive issues factors that contributed to the HWAB's ability to informally influence its agenda in cooperation with HRM staff, Council, and development proponents.

As previously discussed in the section on formal influence factors, "as-of-right" development applications were of particular concern to the HWAB due to its inability to provide formal recommendation reports on them to Council. One of the reasons cited

during the discussion about why the HWAB could not effectively comment on "as-of-right" developments, was the impracticality to comment due to the timeframe required to provide a response. After some deliberation about how they might have some sort of formal influence on the outcome of such development activity, it was decided that the best the HWAB could do was to review "as-of-right" development applications informally. They decided that the Board would hereafter address "as-of-right" developments on an individual basis. If the Board had major issues with a particular development, it could make informal recommendations directly to the developer rather than make formal recommendations to Council. This action provided preliminary advice to the case planner and to the development proponent as they developed their application. Furthermore, when a planner had serious concerns about an "as-of-right" development application, it was brought to the Board for their informal advice, usually at the concept plan (pre-development plan stage).

During the discussion about "as-of-right" developments with the GM of Development Services in October 1997, the Board learned about an opportunity to fit into the Concept Plan review phase, viewed as a cooperative process with the developer (HWAB Minutes, August 1997). If the Board's comments were received within the required time frame (30 days), then staff would convey them to the developer. The HWAB requested HRM staff provide Concept Plans to the Board for their review. Subsequent to this meeting, the GM requested that when development officers received subdivision concept plans, they were to refer them to the Board (HWAB Minutes, Feb. 1998). Having access to Concept Plans also would allow Board representatives to become "watchdogs" of developments in their area. The information could then be passed along to the groups some of the members represent (HWAB Minutes, July 1998).

Concept Plans were required for "as-of-right" developments only in the former County area of HRM (HWAB Minutes, December 1999) – a good portion of the HWAB's jurisdiction. HRM staff felt the Board could be a part of this development application review process if they could turn around their comments within a two-week period (HWAB Minutes, December 1999).

Review of Subdivision Concept Plans also was offered to the Board by HRM staff as another opportunity for the HWAB to comment on major developments such as

subdivisions – another concern of the Board's – because their scale makes them all "water sensitive" (HWAB Minutes, Feb. 1999). At this time, District 1 and a portion of District 19 were exempt from the Sub-division By-law regarding Concept Plans because these districts were primarily rural (HWAB Minutes, Sept. 1998). Involvement in the Subdivision aspect of the Concept Plan review process was not so easily attained.

In January 1999, the HWAB wrote a letter to the Acting Manager of Development Services about the "deficiencies caused by 'as-of-right' development" to offer some solutions that staff might consider while HRM conducted a review of their Sub-division By-laws. Considering that HRM was reviewing/redrafting its Subdivision By-laws, within which the Concept Plans approval process was included, the HWAB strongly urged HRM to request the Province to change the timeframe for the approval process to allow for an "environmental review component" by an HRM WAB. They also requested that the Concept Plan process be applied to all areas within HRM.

The letter to the Acting Manager of HRM Development Services was unanswered. In April 1999, the planner representative on the HWAB alerted the Board that they had apparently been dropped from the Development Services circulation list since a number of large projects affecting watercourses were not being brought to the Board's attention. Following the Board's attempt to acquire input into the Concept Plan review process via another HRM staff person in November, the Acting Manager of HRM Development Services appeared to the Board in December 1999, informing them of the status of the Subdivision By-law review. It was learned at this meeting that the Concept Plan requirement was extended to cover all of HRM (Letter to Acting Manager of HRM Development Services from the HWAB, January 17, 2000).

HWAB's Ability to Control Workload and HRM Staff's Response

After four months of having the opportunity to review Concept Plans, the Board reconsidered whether or not they should participate in this aspect of the review process. In April 2000, Board representatives acknowledged that they were overwhelmed with the time it was taking to work through their caseload at each meeting – over 5 and 6 hours per meeting – too much to ask of planning staff and volunteer Board representatives.

Subsequently, the Board discussed options to lighten the HWAB's workload so the agenda could be dealt with in a timely manner.

HRM staff considered restricting the HWAB's project review caseload based on the size of the project's physical area thinking this might lighten the Board's workload. For example, they discussed whether the Board should deal with individual residences or focus more exclusively on larger development projects instead. The Chair noted the Board's mandate is to advise on water resource protection issues not just water quality, and that the magnitude of a development does not necessarily change the overall impact on the watershed. HRM staff and the Board decided not to restrict the applications presented to the HWAB by their size.

The Board's increased workload was partly attributed to the Board inviting developers to bring Concept Plans to the HWAB in advance so advice could be provided at an early stage and incorporated into the plans. Problems were identified with developers coming to the Board prematurely, including disrupting Planning staff's caseload, and HWAB recommendations being drafted before a final development proposal (HWAB Minutes, April 2000). Furthermore, HWAB representatives found it frustrating to comment on Concept Plans since it was difficult to make adequate recommendations with so little information provided at this stage. After some discussion, it was determined that the Board "should deal with the big picture and become involved at the early stage" to give proponents a chance to incorporate HWAB advice into their land use plans (HWAB Minutes, May 2000). The Board felt the case planner could help by making the project proponent aware of the project information the HWAB needs. The Planner participating in this discussion agreed, considering the application review process would be streamlined if the planner in charge of the case provided some guidelines to the land use proponent, prior to the concept plan submission, about what the Board needed with respect to commenting on what land use practices should be incorporated into the proposal to protect water resources.

Special meetings in September 2000 between the Chair, Vice Chair and two representatives of HRM staff, including the planner representative on the Board, proposed some solutions to the workload issues. After some discussion with the whole

Board, some general solutions were decided upon to make the project review process more efficient with respect to the Board's performance, including:

- establishing limits on questions;
- establishing presentation guidelines to staff and proponents including drafting recommendations that reflect the Board's mandate;
- adhering to addressing watershed management matters; and
- keeping Board representatives focused and concentrated on the issues at hand, refraining from asking sidebar questions, and coming prepared.

In November 2000, between the Board and HRM planning staff it was decided that requests for presentations to the Board be submitted through the Planning department first, and follow the flowchart provided (see *Figure V: HRM Development Agreement Process*); i.e., letter of request to HRM, circulate applications through HRM staff, WAB receives plans for review, followed up with planning services preparing a report for the applicable council.

Further solutions were proposed and adopted in November 2000 with respect to the development case proponent and planner presentation guidelines including:

- restricting development proponents to half an hour, and to focus only on water quality issues;
- providing all the items listed in the checklist for the initial presentation to the Board; i.e., a site plan, aerial photos of the site, construction schedule, erosion and sedimentation control plan, stormwater management and treatment plan, structures encroaching on or crossing watercourses and/or wetlands, water quality monitoring, and a management plan to deal with pyretic slate (SWCSMH, 2004); and
- having the case planner present what the HWAB's identified concerns are with the application, to the proponent, and encouraging her/him to restrict their subsequent Board presentation to the relevant issues (HWAB Minutes, Nov. 2000).

After April 2001, HWAB meetings rarely but sometimes still went until 10 pm. Previously meetings routinely went beyond this time, often to 11 pm. After the venue of the meetings changed to City Hall in March 2002, meetings rarely went past 9:30 pm because the custodian at this location strictly enforces this time limit.

Ability to Influence Project Application Review Timeframe

Under normal circumstances, the HWAB will take over a month to provide advice on any issue; the proposal is circulated to Board representatives prior to one of its monthly meetings, it is discussed at that meeting, and recommendations are drafted and approved at the next meeting. The Board's review process for major proposals usually takes a minimum of two months. The proposal is circulated before the meeting, it is discussed, and questions (for the proponent) are developed at that meeting. The questions are passed along to the proponent, who is asked to attend the next meeting to answer questions and participate in further discussion; after that discussion, the proponent leaves the meeting and the Board formulates its recommendations. These recommendations are drafted and then approved by the Board at the next meeting. The recommendations are usually provided to the planning officer involved in the project at the draft stage so that s/he can proceed with developing his/her report, with the understanding that until approved by the Board, the report is subject to amendments (HWAB Minutes, July, 1997).

Over time, this presentation schedule evolved into the planner and developer presenting to the Board at the same time. A three meeting process was being compressed into two, placing a larger workload on the Board. An HRM planning staff person expressed concern over asking a developer to be tied up for three meetings, feeling that this was an undue length of time to wait for a recommendation from an advisory committee. Despite this concern, the review process reverted back to the original three-meeting timeframe. The Chair noted that while recommendations are currently only approved at the second or third meeting, the planner working on the proposal could have them sometime prior to the meeting at which they were adopted for consideration in his/her report.

Ability to Influence Protection of HWAB's Interests

Projects that involve multiple development phases and concerns about water quality which were brought to the Board's attention by an HWAB representative, by a member of the public, or by HRM planning staff have proven to be particularly difficult for the HWAB to influence in terms of its ability to protect the Board's interest. For example, one phase of the Glen Arbour development project was brought before the Board for review 42 times between 1996 and 2002, largely due to issues concerning the degradation of water quality in Sandy Lake, apparently the result of post-development phosphorus loading (HWAB Minutes, June 1996 - September 2002) due to the length of time it took the Board – from January to October 2002 – to acquire the water quality monitoring reports it was requesting from HRM. This case exercised the patience of the HWAB and demonstrates the substantive issues weaknesses with respect to the HWAB's ability to protect its and the community it represents' interests.

The Board's recommendations on the project included a request for water quality monitoring reports. In addition to this expectation, concerns reported by community members that nearby lake water quality was being negatively affected by the project prompted the Board to seek the water quality monitoring reports recommended in their initial advisory report. The HWAB's attempt to get these (and other) water quality reports from HRM staff showcased the Board's frustration over HRM staff's apparent evasion to provide the information to the HWAB. The HWAB's level of frustration is highlighted in this excerpt from a letter the Board sent to the Senior Development Officer, Env. & Development, Engineering and Transportation Services, Regional Operations, dated December 16, 1998:

> "The development agreement required baseline sampling prior to initiation of construction, during construction and post-construction monitoring. ...[S]ampling occurred.... Could I again request that your staff provide us with copies of the results of the above sampling activities, in full, as well as any additional sampling periods? Since the HRM entered into a DA ...stipulating such water sampling, there is ... expectation that such information would be reviewed and monitored by HRM staff... If the HRM has not done this, then it may not be adhering to its responsibility to the development agreement. Do you have staff with the expertise to review

these data in the context of negative environmental impact? And if so could you inform our Board of the conclusions drawn?"

After repeated requests that culminated in the letter quoted above, the Board eventually received a staff report which:

- showed when and whether sampling had been conducted;
- showed the results of development effects over time;
- showed the results indicating that water quality in the lake had probably stabilized; and
- showed that while the lake had not yet recovered to pre-development conditions, (despite the promise recorded in the HWAB Minutes (July 1996) that "they will not do anything to impact lakes") it did recover, to some degree, from the effects found in 1998-1999 (HWAB Minutes, February 2002[24]).

In another case, again regarding a large project – the Western Commons Land Use Plan – the consultant's study was completed and their report written before the Board had an opportunity to provide its advice. The Board only became aware of the Plan Study from one of the Board's representatives (HWAB Minutes, November 1998). The Board questioned HRM staff about the matter in a letter expressing "puzzlement...as an advisory group to the HRM, we had not been given the opportunity to become involved in the process to date" (HWAB Minutes, December 1998). The HRM's planner representative on the Board advised that they would be kept informed from that point forward. The planner responsible for the Study notified the Board in June, 1999 and explained that since the Study report was so large, it was not practical for each Board representative to receive a copy, so he gave a status report about what the Study recommended, and what HRM hoped to do with it, instead, at that time.

Another planner explained later, that the delay in the Board getting the reports could be attributed to the strike at HRM (which lasted for many months). The Western Common Land Use Plan developed from the Study was eventually presented to the Board

[24] This was an isolated comment by an HRM staff planner regarding the status of the lake, which was made in February during discussions about how to get the full monitoring reports, which weren't acquired until October.

so they could make their recommendations, as they would do on any other typical land use planning and development activity application. In addition to the comments provided at an HWAB meeting, two Board representatives attended the Public Hearing regarding this project. They reported to the HWAB that the Board's recommendations were not discussed, but were simply identified by the planner as coming from the Board (HWAB Minutes, July 2000).

The Board followed-up with a letter to HRM planning staff expressing its concern about not having the opportunity to comment during the Study process and further expressed hope that they would be involved in future projects/studies of this nature. This was one of a few instances where HRM planning management staff overlooked getting the Board's advice on a major land use planning and development activity project.

5.3.3 Decision-making

Understanding the decision-making process poses the most difficult challenges for both HRM and the HWAB since it is often not clear what decisions were being made, who has the responsibility or the authority to make them, or what rules and information guide the decision-making process. The agency and group participants must clarify the decision-making elements—transparency, quality, and accessibility—to demonstrate whether involvement in or influence on the activity process is valid and possible (Branch & Bradbury, 2006).

The land use planning and development activity review process is the primary avenue through which the HWAB can exercise its ability to influence the implementation of land use practices that protect water resources. The quality and transparency of this process is assessed according to whether the HWAB:

- knows what decisions are being considered;
- knows who is responsible for each aspect of the activity process;
- has access to all the information necessary to form a position to make decisions; and
- has the ability to influence the process by making their interests, preferences and arguments known to the stakeholders at each level of the activity process before the decisions are made (Branch & Bradbury, 2006).

Knowledge of the Decisions Being Considered

The land use planning and development activity process does not stop after the HWAB has provided its advice, but the HWAB's formal involvement in it, does. Once the HWAB makes its advisory report to Council, the decision on the outcome of the project application is formally out of the HWAB's hands and left for the remaining stakeholders to handle. Furthermore, the HWAB does not have any formal avenue to know what decisions were made that resulted in the final outcome of the project. This includes not having any formal avenue to learn whether or not any of their recommendations were applied, and if not, why not. Board representatives often take it upon themselves, informally, to examine the resulting outcome of the application (e.g., a DA) to try to determine whether any of the HWAB's recommendations were formally applied, or visit a site to see whether their recommendations are being physically applied. In latter instances, HWAB representatives voluntarily monitor sites simply because they are "in the neighbourhood" of the project activity. In other cases, considering the size of the jurisdiction of the HWAB, monitoring out-of-the-way sites is prohibitive, due to time and transportation expenses needed to conduct the monitoring. An HWAB representative acknowledged in the survey "[t]he Board needs to get out as individuals or a group to see the results (or lack of) of their recommendations" (Lawrence White).

Knowledge of who is Responsible for Each Aspect of the Activity Process

The HWAB's knowledge of who was responsible for which aspect of the land use planning and development activity process, and other stakeholders' awareness of the Board's role grew over time. When it became evident that certain stakeholders needed clarification of the Board's role, efforts were made by the HWAB and by HRM staff to clarify misconceptions and lack of knowledge about the Board's role.

In some instances, land use planning and development activity proceeded without proper approvals due to: interim planners not being familiar with an application because they may be filling in for the original case planner; misunderstandings of normal procedures by the proponent; or a blatant disregard for regulations and procedures by the proponent. The latter instances revealed where there were knowledge gaps within the

HWAB and HRM staff about who was responsible for the permit, inspection, and enforcement aspects of the land use planning and development activity process, and where performance was wanting.

Has Access to All Information Considered Necessary to Make Decisions

There are many informal opportunities that contribute to the HWAB's ability to access the information it needs to make decisions on a given project application. Many examples were expressed already as an undercurrent of the substantive issues section, especially regarding the discussion about the HWAB's workload and ensuring that proponents and HRM staff are prepared when they present to the Board.

Ability to Influence by Making Interests and Preferences Known

For 72 of the 90 project applications presented to the HWAB during the timeframe of this study, the Board was formally able to make its interests and preferences known to Council regarding water resource protection, HRM staff, and the proponent, via its formal recommendation reports to Council, and informally to other agencies via letters on over 50 issues of concern. For seven of these 72 project applications, recommendations were informally provided to proponents and/or at public hearings through HWAB minutes, rather than formally through official recommendation reports to Council. Such instances were due to either staff or the proponent needing recommendations before the Board had time to prepare an official report; or the case was simple enough that it did not require a detailed report.

In 18 out of the 90 project applications that were presented to the HWAB during the timeframe of this study, the Board did not have a chance to review them before they reached the Public Hearing stage. In these cases the HWAB did not have an opportunity to provide recommendations at all. These lost opportunities were due to:

- the case being put on hold by staff because of concerns about the application;
- the Board not being provided an opportunity by HRM staff to make recommendations until after the application was approved by Council;
- the HWAB failing to produce recommendations; and

- the Board determining that it should not provide comment for "political" reasons.

In some of these cases, a representative of the HWAB might attend the Public Hearing to provide water resource advice as a representative of the public or community group. However, this last ditch attempt to provide comment from an individual HWAB representative's perspective, does not contribute the same influence that recommendations from the whole board would. Furthermore, the collective expertise of the whole Board providing recommendations to Council in advance does not provide councillors with an opportunity to properly assess the HWAB's advice to shape their judgements prior to the Public Hearing.

The HWAB is constrained in its ability to express exactly what it would recommend due to the issue of liability. HRM staff and HWAB representatives expressed a few times, the possibility of HRM exposing itself to greater liability if the Board and others place conditions on a development. If a Board or Committee were to recommend a certain measure that did not work, the developer could sue the municipality (HWAB Minutes, October 1997). Therefore, the recommendations made by the HWAB must not provide technical advice. They should be non-prescriptive not prescriptive; e.g., "redirect stormwater flow" rather than "use 2m berms to direct stormwater flow"

5.3.4 Accountability

Accountability implies an agreed-upon system of responsibilities and commitments that are transparent and enforced (Branch & Bradbury, 2006). To ensure accountability in a good public participation process there should be provision for:

- a means of communication for stakeholders to verify that accountability mechanisms are in place and enforced;
- a measure of accountability in the form of information for stakeholders to monitor performance; and
- a forum for community representatives to bring issues to the attention of the agencies, regulators, and the public.

Avenue to Verify Accountability Mechanisms are in Place and Enforced

Board representatives often expressed in the Minutes, surveys, and in archival documents, and at meetings, particular frustration over:

- lack of water quality monitoring reports received for the Board's review, despite repeated requests;
- lack of opportunity to review and provide recommendations on "as-of-right" developments, and on development plans of large projects like Municipal Planning Strategies;
- lack of adherence to the development agreement by the proponent; and
- lack of knowledge of the Board's recommendations being applied and/or followed.

Within the Board's recommendations, the Board invariably requests that a suite of reports be submitted to the Board for review. One of the HWAB representatives kept track of requested reports including baseline monitoring reports, surface water quality sampling reports, turf management plans (for golf courses), sediment control plans, erosion and sedimentation control plans, stormwater management plans, environmental construction plans, environmental protection plans, and sewage and stormwater treatment device maintenance inspection reports. Out of 18 cases for which various suites of reports were requested in the recommendations, the proponents provided four sets of results through HRM staff. Of the four sets of reports provided, one was incomplete.

Water quality and water quantity data collection, and retrieval are not only important for comparison purposes but in some cases have been used to alert residents of potential health issues (HWAB Minutes, September 2002). Accounting for water quality and water quantity data impacts the influence of the HWAB. For example, Board requests for the Glen Arbour site water quality test results, resulted in HRM staff being unable to provide results for a considerable time because no one seemed to know exactly where the results were. The HRM EPM stated "it might be with the Development Officer or Planner" (HWAB Minutes, October 2002). This response implies that a clear protocol for storing, collecting, and following up on water quality reports may be (or had been) lacking in HRM, and/or that staff was unclear about the data storage protocol.

Available Monitoring Information

An avenue for the HWAB to verify that its recommendations are in place and enforced is not formally established. The only mechanism found in this study for the HWAB to verify whether any of its recommendations are in place and/or enforced is through the watchdog role that HWAB representatives practice informally.

Representatives of the HWAB have frequently expressed their frustration in the Minutes, in surveys, and in letters to HRM staff about the lack of feedback on the recommendations they provide to HRM, on most land use planning and development activity applications that HRM has asked the Board to review. One HWAB representative expressed particular concern in the Minutes that there is no follow-up vehicle, on behalf of the Board, to ensure that the proponent implements the Board's recommendations on any land use planning and development activity case it reviews. That representative felt it would be appropriate for the Board to have follow-up on the projects they reviewed to determine whether their recommendations were being employed. However, the Chair noted that this is not the way the process works. The HWAB is strictly an advisory body at the front end. Once Council makes a decision on the application, the Board has no more formal ability to influence the outcome. An HRM planner in attendance added that the development becomes "as-of-right" at this point (HWAB Minutes, September 1996).

Forum for Bringing Issues to the Attention of Agencies, Regulators, and the Public

The HWAB is the primary forum for community representatives within the Board's jurisdiction to bring water resource issues, in relation to land use practices, to the attention of the agencies and regulators. This is exercised as the HWAB prepares its recommendations to Council through the application review process. In virtually all cases that have been brought to the Board's attention via HWAB representatives, or in letters from the public, the HWAB has been very responsive and has managed to bring the issues to the attention of HRM staff, Council, the Province, and the Federal government, where applicable, through advisory reports, letters, and memoranda.

As a forum for bringing water resource issues to the attention of the public, there is little evidence showing that the HWAB provides much support in that direction, although

there have been desires and attempts to do so. The HWAB have an avenue to bring issues to the attention of the public through its representatives who are encouraged to take issues back to the community group they represent and to provide a watchdog role for specific developments, and by attending Public Hearings on projects. However, the issues raised at Public Hearings by the general public regarding a land use planning and development activity application, do not necessarily concern themselves with water resource protection issues. Many issues raised tend to be concerned more with aesthetics and public infrastructures, such as schools and bussing, than about water resource protection. Although it is important for the general public to focus on aesthetics and public service issues, it is also important to ensure water resources are protected. Unless a waters advisory board representative is present to raise issues regarding land use practices and their impacts on water resources, they may not be considered.

When HWAB representatives were asked about their role as educators of the public: two were "quite" confident; six indicated they were "somewhat" confident; and two were "not very" confident. No one was "very" confident in his/her ability to educate the public. Two of the three people who had no confidence that the HWAB was educating the public felt that it was not in the HWAB's ToR. One HWAB representative did not answer this part of the question. Comments added were that they only educate developers, and that they were a "well kept secret."

On the other hand, this study found HRM staff frequently expressing their recognition and consideration of the valuable role the HWAB plays in educating staff and land use planning and development activity proponents about how to protect water resources. An HRM staff planner commented in the HWAB Minutes (May, 2000) that the HWAB provides "value-added" advice to the Municipality and the development community in terms of environmental protection mechanisms. For instance, only a few years ago stormceptors, infiltration trenches and engineered wetlands were unheard of. He added that this might still be the case, had it not been for the expertise of the volunteer boards (HWAB Minutes, May 2000).

5.3.5 Relationships

Building relationships that foster respect, recognition, consideration of others' interests, and information accessibility are key factors to a successful relationship and public participation process (Branch & Bradbury, 2006). This section examines the informal relationships factors revealed in the surveys and interviews, observed at meetings, and expressed in the documents that the HWAB has with the land use planning and development activity process reviewing stakeholders who have influence over the governance of water resources. Among the reviewing stakeholders interviewed, collectively there were 89 years of experience dealing with the HWAB: an average of 7.5 years among the councillors; an average 9.25 years among HRM staff; and an average of 3.5 years among the developers.

The roles of each stakeholder and the perceptions each has of all of their roles are contributing factors to the HWAB's ability to influence the outcome of an activity in a process involving many stakeholders that represent diverse views and varying degrees of influence. The roles performed and the perceptions of each of the reviewer stakeholders are explained in the subsections below.

Councils, Councillors, and the Mayor

Opportunities for the HWAB to develop a relationship with Councils and their members were sporadic. In a few instances, the HWAB wrote letters to remind the respective Council of the role of the HWAB. Occasionally, Council referred consultants to the HWAB for advice on water protection issues, especially with respect to issues that might impact the whole Region. Otherwise, the primary communication between councils and the HWAB is through recommendation reports for land use application proposals. Personal relationships between the Board and Council/councillors did not have much opportunity to develop (except between specific HWAB representatives and their respective councillor established at the community level) until there was a councillor present on the Board on a relatively consistent basis beginning in April 2004.

Through the timeframe of this study, until April 2004, three HWAB meetings had an HRM councillor in attendance, which did not provide much opportunity for a strong relationship to develop between Council and the HWAB. The HWAB expressed concern

that the Regional Council did not understand how the Board operated, which became apparent through questions from Council about the Board's Terms of Reference (HWAB Minutes, May, 2004). An opportunity to overcome Council's misunderstandings about the HWAB came about by accident, as a result of media attention over assumptions made by the HWAB on a water quality report. A councillor was immediately appointed by Regional Council to sit as an "ex-officio" representative of Council on the Board (in accordance with the existing ToR) to help to clarify issues before they garnered potentially unfavourable media attention. With this appointment, the Chair felt that some of the misunderstandings could be clarified and that perhaps the Board could explore ways to do things differently (HWAB Minutes, May 2004).

Despite the perceived misunderstandings between the HWAB and Council, Councils have frequently demonstrated the value of the HWAB's role in the land use planning and development activity review process. For instance, regarding a rezoning application that was submitted to the HWAB in July 2001, Council agreed with the Board's assessment and recommendation that the application not be approved, despite HRM staff's support for the application. The case proceeded to the Utilities Review Board, which also supported the Board and Council's decision. Council also recognized the HWAB's recommendations during the discussion of a Planning Strategy (HWAB Minutes, June 2002). Council demonstrated that it valued the HWAB's advice in this case when it asked HRM planning staff to clarify some of the issues raised by the Board. At a Board meeting, the Manager of the Regional Municipal Planning Strategy process stated, "Recommendations from the Watershed Advisory Boards, because of the level of knowledge and experience they represent, will be taken very seriously [by Council]. Since the various WABs have been active for such a long time, they have ideas of what works and does not work, which is very valuable information" (HWAB Minutes, July, 2002). This statement was verified in a couple of ways in an HRM staff report to Regional Council regarding the WRMS project prepared by Dillon Consulting Limited (2002). In an HRM staff report, it was noted that Regional Council specifically requested the WRMS report be presented to the WABs for their feedback and recommendations. The report also recommended that HRM staff be directed to begin implementing the process described in the study "using as a basis the WRMS Report and the comments

provided by the Watershed Advisory Boards on the report" (HRM, 2003). It also stated "the WAB's priority recommendations have been considered in development of the implementation plan" and that "additional recommendations submitted by the Boards will [all] be considered when developing and implementing policy" (HRM, 2003).

The Mayor's recognition of the HWAB has been noted in a few instances. On one occasion, the HWAB was invited by the Mayor of HRM to review a strategy paper. In another instance, the HWAB Chair remarked on the HWAB receiving positive feedback from the Mayor regarding the HWAB's work. On matters falling under Provincial jurisdiction, or on matters affecting water resources in HRM in general, the HWAB often alerts the Mayor in the form of a letter or memorandum. The efforts and interest the HWAB has in "protecting and improving the water resources of HRM" was acknowledged in writing in a letter from the Mayor, dated May 1, 2001.

Councillors also frequently demonstrate that they take the HWAB's role very seriously. A past HWAB representative demonstrated the value of his advice to his local councillor, explaining the councillor would call him for advice on water resource issues brought to the councillor's attention by the general public. Such action indicated that the councillor valued the advice provided by the HWAB representative, and that it was a factor in influencing the councillor's answer to the water resource issue question raised by the representative of the public.

However, there is room for improved relations between the HWAB and Council to enhance the HWAB's ability to influence water resource protection with respect to Council. One councillor commented in the survey that to improve the HWAB's influence, the HWAB should outline a policy paper or list of achievements accomplished for the general public (councillors) to understand and appreciate [its] contributions and efforts. Another councillor commented that the HWAB needs "to have more input onto subdivision planning, especially when drainage and water discharge are significant issues." The same councillor felt the HWAB "[n]eeds to encourage water drainage easements and floodplain protection." Another councillor felt that he was better informed locally about water resource protection issues because of the work of groups such as SRA and BWAB more than from the HWAB. Another councillor felt that the lack of authority of the HWAB could be part of the problem and that the HWAB's authority should be

stronger, while another expressed that recommendations from the HWAB needed to be tougher. Active HWAB representatives in his/her community were cited as an important factor of influence by a councillor who stated that "if [a particular representative] wasn't on it I wouldn't know anything about [the HWAB]."

Planning Advisory Committees (PACS)

During a meeting the HWAB and BWAC Chairs had with the North West Community (NWC) PAC in April 1999, it was obvious from the responses of the PAC members that they were unaware of the functions of the WABs. The HWAB Chair was confident that after their meeting, however, the NWCPAC had a better understanding of the WAB functions. The HWAB Vice Chair subsequently suggested that the Board consider introducing themselves to other PACS, either in person or by a letter similar to that provided to development proponents. The HRM Legislative Assistant provided a list of the PACs to contact (HWAB Minutes, April 1999).

In another instance, a PAC demonstrated its awareness of the HWAB's function by redirecting a land use planning and development activity application to the HWAB, with the stipulation that the HWAB's review of the application was required before the PAC could comment. The correct application review protocol is for the HWAB to review applications that have the potential to impact on water resources (*see Figure V: HRM Development Agreement Process* on page61) before review by the PAC. PACs then do their reviews and provide their advice to Community Councils from the perspective of planning matters. This PAC apparently realized that the project application had the potential to impact on water resources and directed the application to the HWAB when the PAC saw that the Board had apparently not had an opportunity to provide its advice on the land use planning and development activity proposal before it made its own recommendations (HWAB Minutes, June 1999). The PAC's awareness of the Board's role provided a safety net regarding the application's potential impact on water resources.

HRM staff

The stakeholder the HWAB relates with most frequently is HRM planning staff. There is plenty of evidence showing a cooperative relationship existing between the

HWAB and HRM staff, which has grown throughout the timeframe of this study. However, the cooperative relationship between HRM staff and the HWAB did not evolve without some challenges, which underscored differing agendas, and sometimes prevented the HWAB from having its desired influence in terms of ensuring the protection of water resources associated with land use planning and development activities.

In many cases, the HWAB's lack of influence was apparently due to HRM staff's misunderstanding of, or reluctance to tap into, the HWAB's knowledge and expertise. Such challenges were especially apparent when HRM played the role of development proponent, dealing with large land use planning and development activity projects. There were frequent instances recorded in the minutes, when such HRM planning staff and management appeared to resist circulating information to and from the HWAB. Not all of HRM's staff, particularly those responsible for large-scale development projects, considered involving the HWAB in the preliminary stages of the land use planning and development activity review process. In one of these instances, HRM staff indicated that the HWAB was not a body they needed to report to. One large-scale-project planning staff person, for example, asserted that "[i]t is not within the HWAB's ToR to report to staff, it reports to Council" (HWAB Minutes, June 2001). This response suggests that some staff did not consider they were accountable to the Board and that the HWAB's requests for information were beyond the Board's mandate. There could have been other issues influencing HRM staff's perceptions as well, considering one HRM staff person's expression in the survey that the review time of the HWAB was a concern compared to another WAB.

Large-scale-project planning staff perceptions of the HWAB's role may have been entrenched during the amalgamation process, when HRM Council was considering who should lead the interaction with the WABs – HRM's engineering or planning department. The planning department was chosen. Later reorganization of the planners' responsibilities determined that the HWAB would primarily liaise with planners working on land use planning and development applications rather than with planners working on more long-range issues such as municipal planning strategies (HWAB Minutes, Aug. 1997). However, relationships with particular planning department staff are not defined

in the ToR other than with respect to reporting, which may account for the unclear role of the HWAB by some HRM staff.

The HWAB continued to strive to demonstrate their influence, although perceptions about the Board's role created significant frustration for the HWAB as it tried to access information it felt it was entitled to review. As suggested in the literature, resistance to providing requested information fosters mistrust. Maintaining open and transparent communications should have "Mission Critical" status within the agency to ensure the NRAB is properly equipped (Branch and Bradbury, 2006).

In its preliminary stages, the Board's expertise and advice was often overlooked, by-passed, or put off, even after repeated requests by the Board for attention to various land use planning and development activity review concerns and issues. As time progressed, however, and the HWAB's experience with the planning process developed, the Board's expertise was readily acknowledged and more readily consulted by HRM staff as it "aged", which was evident through verbal expression occasionally in the Minutes, but most often through staff's actions. The HWAB was frequently invited to provide advice on special projects, to join committees, and to take on more responsibilities (e.g., to review Concept Plans). The HRM staff people who worked most closely with the HWAB, including the planner representative on the Board and the HRM EPM, most often acknowledged the influence of the HWAB and were most eager to provide information to the HWAB. For the most part, it is apparent that many HRM staff people respect the knowledge, expertise, and advice of the HWAB, and try to ensure that its needs are met. However, cooperative relationships rely on follow-up reporting according to HWAB representative, who commented in the survey, "if staff disregards recommendations then the Board should be advised and reasons provided" (Lawrence White). Improvements should be made, especially regarding feedback from HRM.

Land Use Proponents

Proponents of cases reviewed by the HWAB may include: HRM; real estate developers; development and landscaping contractors; individual small landowners; golf clubs; environmental, engineering, and architecture consultants; not-for profit community groups or associations; campground, trucking, tourism, fishing, grocery, recycling,

excavation or construction businesses; provincial government departments; and community economic development cooperatives.

There is some evidence showing land use planning and development activity proponents' respect for the advice of the HWAB. The Board's influence on a proponent was apparent, in one case where the Board's recommendations influenced the developer not to proceed further than the Concept Plan phase. The proponent changed his application so that the environmental concerns associated with the development were addressed. In that case, the development proponent could have developed "as of right" once a rezoning application was passed, but instead chose to abide by the recommendations of the HWAB. This demonstrates that the proponent has the power to decide which land use practices to use, given the information, regardless of whether the application is "as-of-right" or not.

An indication of the Board's influence on land use planning and development activity proponents' preparedness was evident when planners and land use proponents arrived at Board meetings better prepared to present. For example, maps and materials needed for the HWAB to make appropriate recommendations were routinely provided, where they were not a few years earlier.

The Board's relationship with land use planning and development activity proponents might have been more progressive, sooner, had they been encouraged by HRM Planning Staff Managers to proceed with their initial intention to present their *Guidelines for Protecting our Water Resources* (Appendix C) to this sector. The first version of the Board's Guidelines was produced in June 1998 and was designed to be available at all planning offices throughout the region (HWAB Minutes, June, 1998). It was particularly targeted toward proponents when they applied for building permits. When the representative planner on the Board at the time reported the HWAB's anticipated distribution method to the two HRM Acting Managers[25], they suggested that the recommendations be distributed through Customer Services Centres and at Development Services Counters instead, because they did not feel it should be handed out with Building Permits.

[25] HRM was still undergoing reorganization of amalgamated staff at this time.

In late 1998, the Board considered independently approaching development associations asking to appear on their agendas as a way to contact their members. The then Acting Manager of the HRM Planning Department felt the Board should send a copy of the Guidelines with a letter about the Board and its Guidelines and invite them to contact the Board for more information rather than ask to make a presentation. The Board emphasized that it was trying to be helpful and wished to encourage development in an environmentally friendly way (HWAB Minutes, September 1998). The Board representative planner offered instead to include a reference to the Board's Guidelines in the several brochures targeted to homebuilders, and subdivision applicants, in the next revision. An HWAB representative further suggested the contents of the Guidelines be incorporated into the Municipal Planning Strategies (MPS). The effort of the HWAB to have a more proactive relationship with development proponents was discouraged in many respects by the response from HRM management.

One of the developers commented "[i]n dealing with development, environmental protection, etc., all interested parties should first seek to understand all sides of the discussion, and want to achieve a common good. In the past, developments (and the mystique surrounding them) have been clouded with mistrust, half-truths and misinformation. Sadly, all parties are to blame."

Community Waters Protection Groups

Community waters protection groups are the key connection the HWAB has with communities regarding public expertise on water resource protection. Eight community waters protection groups initially submitted a request and were granted representation on the HWAB. Three of these original groups remain active in their community, and two – SWEPS and the SRA – have consistently been represented on the HWAB since its formation.

The community waters protection group interviews conducted for this study indicated that of the 16 SRA members, 14 were aware of the HWAB. All SWEPS members, and the FoFL Chair who filled out the questionnaire on behalf of his group, were aware of the HWAB. However, despite the SRA's consistent representation on the Board, only four of the representatives were aware of the role of the HWAB, while 12

representatives were not. Four of the five SWEPS members were aware while one was "not clear" of the HWAB role. These results indicate that the perceptions of many of the members who make up these community waters protection groups are not clear of the HWAB's role, despite having representation on the Board.

In June 2005, changes to the ToR specified that any community waters group prepared to help protect all water resources under the HWAB's jurisdiction (not only water resources of interest to that particular group), is welcome to request, in writing to Council, to have a representative appointed to the HWAB (HWAB ToR).

Early in the Board's existence, all community waters groups with a seat on the Board were asked to provide a report to the Board indicating their activities and interests so they could be included on the contact sheet in the HWAB Guidelines. Staff felt that it was important to have this information available in case they received calls regarding information on local and community-based waters protection groups, as referred to in the new Guidelines pamphlet (HWAB Minutes, March 1998). Having waters protection groups on the Board was found to help the HWAB raise community awareness regarding local development issues that come to the Board's attention.

The Public

The Rules of Order of the HWAB's ToR state "All meetings of the Board shall be open to the public and shall include a public participation component." This indicates that the public is welcome to attend HWAB meetings and to participate in their discussion of land use planning and development activity applications. The HWAB's relationship with the public is not, however, one of direct outreach. The Board does respond to public concerns that are expressed to the HWAB in writing, and relies on its district and community waters protection group representatives to bring issues of concern to the HWAB's attention.

Having district representation on its Board is perhaps the most unique characteristic of all the HRM WABs. District representatives are not required to have any particular background. It was felt when the HWAB was forming that it was essential for Board influence to have local community representation on the Board, regardless of the representative's background. Having district representation on the HWAB provides an

avenue for individuals with an interest in water resource protection to report to HRM through the Board. Such representation provides an historical and thoughtful perspective on the area in question, and helps to prevent the Board from becoming too scientific (Stobo, pers. comm., 2007). Representation of a particular district is restricted to one person. However, if the waters protection group representative also resides in a district that is already represented on the HWAB by another person, both may have a seat on the Board.

Other groups/agencies/committees

The HWAB occasionally provides advice on and/or support for water resource protection initiatives being generated by agencies outside their geographic boundaries, with the potential to impact on water resources within their jurisdiction. Two examples of outside agencies are the Nova Forest Alliance Model Forest Program and the Municipality of East Hants regarding by-law amendments that could affect a lake on the HRM side of the municipal borders.

5.4 HWAB Perceptions of Its Ability to Influence

Survey questionnaires and interviews were conducted to verify and supplement findings from the documents and direct observations regarding the HWAB representatives' perceptions about:

- how land use planning and development activity practices should change to effectively protect water resources;
- the Board's level of confidence in its ability to provide recommendations that influence policy and regulations that protect water resources;
- other ways the HWAB may influence land use planning and development activities; and
- barriers to the implementation of HWAB recommendations.

5.4.1 How Land Use Practices Should Change to Protect Water Resources

Common themes emerged in surveys in the open-ended response from HWAB representatives to the question asking how to change land use planning and development activities so that water resources are better protected. The themes are listed in order from most to least frequently indicated, with the number of times they were indicated in parentheses.

- Implement bonding/fines/penalties and/or legal action for non-compliance or for not meeting established requirements to protect water quality and water quantity (4).
- Increase capacity to conduct, evaluate, and follow-up on water quality monitoring (3).
- Relationship/communication that affects decision-making regarding water resource protection within municipal government is improving: HWAB – government communication may be further improved by making an annual presentation to Regional Council and providing HWAB meeting minutes/letters of recommendations to all levels of government departments and staff concerned about water resource issues (3).
- "As-of-right" development – set higher standards that protect water quality and water quantity, or remove provisions for it (2).
- Incorporate environmental development practices into municipal by-laws (2).
- Large subdivisions (>600 acres) should undergo an environmental assessment (1).
- Implement new technologies (e.g., on-site sewage treatment systems) (1).
- Governments need to improve ability to halt development in non-compliance development cases (1).

5.4.2 Improvements in Land Activities since HWAB Started

Some of the Board representatives' responses to the question whether land development practices had improved contain inferences indicating that representatives felt they may have had an influence on the land use planning and development activity. For instance, some representatives felt that proponents were better prepared when they presented their proposals, demonstrating the HWAB's influence and recognition of their needs. Another representative felt that they were helping developers understand the

issues. At first the Board found many issues with developments – now they were being dealt with before bringing their proposals to the HWAB for its review.

The HWAB felt they added expertise to the land use planning and development activity process. A few representatives commented that they had seen positive changes in the land use planning and development activity process with respect to:

- development agreements incorporating water resource protection measures;
- more environmentally friendly proposals being submitted by developers;
- planners seeking the HWAB's input; and
- developers being more receptive to the HWAB's recommendations.

Of the thirteen who responded, 5 "neither agreed nor disagreed" and 5 "agreed" that development practices are better than they were than when they started on the HWAB. One representative "strongly disagreed" and two representatives "strongly agreed". HWAB representatives who neither agreed nor disagreed that land use practices were better, stated lack of resources within HRM as being an obstacle. They did, however, feel more attention was being paid to water sampling testing. One representative felt that the "planning department of HRM usually includes all HWAB recommendations in development agreements but politicians often overrule them with bad effects on the watershed." One representative felt that there was "rapid destruction of environments in the absence of laws and up-to-date management practices."

5.4.3 Confidence and Ability in Making Recommendations

The HWAB representatives were asked in the survey to indicate their level of confidence in their ability to make recommendations that protect water resources from development impacts; to make adequate recommendations to council; and to influence changes to policies, development controls and regulations.

Make Adequate Recommendations to Council

Nine participants felt they were "quite" confident and three were "very" confident in their ability to make recommendations that would protect water resources from

development impacts. The representative who was "not very" confident felt they were "too easily overridden by 'as-of- right'." All HWAB representatives indicated that they are either "quite" (7) or "very" (7) confident that they are making the best recommendations possible to protect water sources with respect to development applications. Although their confidence is high, Board representatives expressed some limiting factors.

Most respondents commented on the importance of the Board's activities and its ability to make unanimous recommendations to Councils. There is concern that recommendations may not be followed. One representative indicated "[i]f staff disregards recommendations then the Board should be advised and reasons provided."

Nine of the representatives indicated they were "very" confident that the HWAB was doing its job to make adequate recommendations to councils, while three were "quite" confident. The remaining two were "somewhat" confident.

Influence Changes to Policies, Development Controls and Regulations

In the surveys, most HWAB representatives indicated that they were "very" to "quite" confident in their ability to make recommendations to Council. In comparison, their level of confidence in influencing changes to policies, development controls, and regulations decreased, indicating they were "quite" to "somewhat" confident. Only one representative was "very" confident that the HWAB was influencing changes in policies, development controls, and regulations. The respondent with the least experience of all the respondents on the HWAB – 2 months – had the same level of confidence in both cases. In contrast, the person who had the least amount of confidence that the HWAB is influencing changes at the policy level was the only respondent who felt he represented the business sector. A concern observed at an HWAB meeting about the influence of the Board's recommendations was that the same recommendations are repeated over and over. It was felt that this elicited a sense of complacency among the subsequent reviewers in the sense that these recommendations come to be expected and therefore may be disregarded as "old news". This indicates that people may not really be paying attention. One HWAB representative felt that the Board needed to be more proactive about water

problems aside from those associated with land use planning and development activity proposals.

5.4.4 Other ways the HWAB could influence changes

Recurring themes are listed in order of most frequently mentioned (in parentheses) when the HWAB was asked in an open-ended question to suggest other ways the Board could influence changes to development practices that would effectively protect water resources with respect to development applications.

- Continue the work the HWAB already does – considered by seven (7) of the HWAB representatives.
- Educate/guide and/or lead HRM staff, developers, and provincial authorities toward better understanding of water resource protection issues – considered by six HWAB representatives.
- Use an open/positive approach while working together with HRM staff and developers – considered by four HWAB representatives.
- Develop and promote guidelines/recommendations – considered by five HWAB representatives.
- Shift focus from application approval to changes in policy/legislation – considered by two HWAB representatives.
- Split up HWAB responsibility into districts, improving ability to comment on "as-of-right" development – considered by two HWAB representatives.

5.4.5 Barriers to Implementation of HWAB Recommendations

HWAB representatives are acutely aware that the land use planning and development activity proponent may or may not follow its recommendations in their final proposal submission, and that Council has the power to approve a land use planning and development activity proposal with or without the HWAB's recommendations. One HWAB representative stated that the Board makes the best "practical" rather than "possible" recommendations because they are bound by the ToR and must be "realistic". The Chair of the HWAB also acknowledged that the Board was not making the best

possible recommendations, for example, by asking for limnological studies of added nutrient loading for major residential, recreational and industrial development, except in extreme cases because the Board representatives "know HRM will not require it due to cost" (Stobo, pers. comm., 2004). The HWAB representatives perceive the following factors to have impacted the implementation of their recommendations:

- costs are too high for HRM to administer, maintain or operate activities that help to protect watercourses;
- HRM does not have the clout to stop or restrict developments that are negatively impacting on watercourses or that are disregarding the development agreement;
- HRM cannot legally intervene on "as-of-right" development while the old by-laws and regulations are in place, and until the community planning strategies are passed; and
- water quality monitoring is rarely conducted although recommended regularly.

5.5 The Factors Influencing the HWAB's Ability

This section pulls together the information in this Chapter into two matrices to assess the HWAB's ability to influence the outcome of activity in the context of the literature as presented in Chapter 3. The first looks at the formal governance factors contributing to the ability to influence within the policy, managerial, and structural contexts. The second looks at the information disclosure, substantive issues, decision-making, relationships, and accountability framed within the Branch & Bradbury (2006) Acceptability Diamond. This framework assesses the informal governance factors that contribute to the Board's ability to influence the water resource protection through its role in the land use planning and development activity review process.

The degree of the HWAB's ability to influence the outcome of activity are assessed in formal governance *Table 8: Formal Governance Factors Contributing to HWAB Influence* on page 128 and in the informal governance *Table 9: Informal Factors of HWAB's Ability to Influence* on page 129. The assessment terms used are "yes", "partly", "currently" and "no" and are defined as:

- "yes" – indicating that the HWAB's ability to influence fully meets this condition;
- "partly" – indicating that the HWAB's ability to influence under this condition is partly met and that there is room for improvement in this area;
- "currently" – indicating that the HWAB's ability to influence under this condition was being met during the course of the study, but that this condition could change later, depending on the Board's representatives and unless more definitive terms are established; and
- "no" – indicating that the HWAB's ability to influence does not meet this condition..

5.5.1 Formal Governance Factors

In the Branch & Bradbury (2006) study, differences in agency policy, managerial approach, and structure affected the performance of the board in relation to the five elements of the Acceptability Diamond. Ho (1999) citing Filyk (1991) also argues that "the role of the advisory groups in the policy process" contributes to the NRAB's ability to influence the outcome of activity. The differences affecting the performance of advisory boards in the literature were due to the ranges in governing policies and management regimes under which they were managed and structured and that these were additional contributing factors to a board's ability to influence the outcome of activity in relation to the five elements of the Acceptability Diamond. The HWAB's ability to influence the land use planning and development activity decision-making process is found in a checklist in *Table 8: Formal Governance Factors Contributing to HWAB Influence* on the next page showing which factors contribute to the HWAB's ability to influence through its formal role as an advisor to Council, according to its ToR.

Table 8: Formal Governance Factors Contributing to HWAB Influence

ABILITY TO INFLUENCE FACTORS	HWAB ABILITY TO INFLUENCE Yes/No/Partly/Currently
Formal Governance Policy Context	
Formal legislative authority	No
HRM required to provide a report stating the agency's intended actions to deal with the advice and recommendations of the HWAB	No
HRM Managerial Context	
Clarity and specificity of HRM's policy commitment to public participation	Partly
Foster relationships and accountability between HRM and the HWAB	Partly
Status as a formal advisory board for HRM through a "Motion in Council"	Yes
Upper management level staff, field office managers, and contractor staff actively participate in board meetings	Partly
Collaborative communication between the decision-making and public stakeholders	Partly
Balanced representation based on location and expertise	Currently
Accurately and sincerely implement the HWAB's ToR	Partly
HWAB has "Mission Critical" status; i.e., they are provided the time and attention of upper level managers, and the necessary resources, training, and staff	Partly
HWAB Structural context	
Role differentiation between HWAB representatives, and HRM (i.e., "ex-officio" members present from agency and chair is from community)	Yes
Frequent meetings with consistent HWAB activities	Yes
Groups consider representatives as fairly representing the full range of interests	Yes
Have responsibility to effectively network with respective constituencies to keep them informed	No

5.5.2 Informal Governance Factors

The informal governance factors that are found to contribute to the HWAB's ability to influence the land use planning and development activity review process are adapted from Brandes et al.'s (2005) and Branch's & Bradbury's (2006) definitions of stakeholders; the Branch and Bradbury (2006) "Acceptability Diamond" model; and Gillies (1989), Dockstater (1991); Bengston (1994); Mitchell (1995); Vasseur et al., (1997); Phillips & Graham (1998); Sinclair & Hutchison (1998), and Webler & Tuler (2006) findings regarding a "good" public participation process. Generally the position

held in the literature is that public participation processes are usually driven by the notion that "the agency, regulators, and/or the public will differ in viewpoints, values, and interests in ways that are important to identify and address" (Branch & Bradbury, 2006). These factors are defined in Chapter 3 in *Table 1: Informal Governance Factors of Influence Ability* on page 40 and *Table 2: Formal Governance Factors Contributing to Ability to Influence* on page 46.

The factors and elements framed in the Acceptability Diamond are compared with the factors that were found in this chapter to impact the HWAB's ability to influence the land use planning and development activity review process. *Table 9: Informal Factors of HWAB's Ability to Influence* below, and on the next two pages, shows the degree to which the Acceptability Diamond factors were met that contributed to the HWAB's ability to influence water resource protection through its role in the land use planning and development activity review process.

Table 9: Informal Factors of HWAB's Ability to Influence

FACTORS AND ELEMENTS	HWAB's ABILITY to INFLUENCE
Information Disclosure Elements	
HRM tasks are being implemented as expected by the HWAB	Partly
HRM demonstrates its commitments are being kept and concerns are being addressed	Partly
HWAB concerns are being addressed	Partly
Substantive Issues Elements	
HRM facilitates participation in the process	Partly
HRM provides a forum to express views and issues	Yes
HWAB structure and jurisdiction is established by the HRM	Yes
HWAB and HRM have a consistent and frequent schedule of interaction	Yes
HRM is open and accessible to the NRAB	Partly

FACTORS AND ELEMENTS	HWAB's ABILITY to INFLUENCE
HWAB operates by consensus decision-making[26].	Yes
HWAB has ability to place issues on the agenda and to influence how they are framed	Partly
HWAB provides for a mix of participants that enable issues important to all stakeholders (including HRM) to be heard and addressed	Currently
Decision-making Process Elements	
HWAB has awareness of the decisions being considered	Partly
HWAB and HRM have access to all the information that is considered necessary to form a position in decision-making process	Partly
HWAB has ability to influence the process by making their interests, preferences, and arguments known to the stakeholders at each level of the activity process before decisions are made	Partly
HWAB representative ability to communicate informally and have access to the decision-makers at their level	Partly
HWAB being included in the formal recommendations	Partly
Relationships Elements	
HRM reaches out to all stakeholders	Currently
HRM has created a public space for HWAB	Currently
HWAB has a skilled person to manage small group interpersonal relationships	Currently
HRM demonstrates a commitment to listen and to talk	Partly

[26] Webler & Tuler (2006) found that not all participants in their studies felt that consensus decision-making was a priority.

FACTORS AND ELEMENTS	HWAB's ABILITY to INFLUENCE
HWAB and HRM demonstrate an understanding and consideration of each other's rights and interests	Partly
HRM facilitates communication and accessibility	Currently
HRM ensures face to face and out of boardroom interactions between the public and the HRM	Partly
HRM gives the public process "standing" in the activity process	Partly
Accountability Elements	
HRM and HWAB have developed agreed upon responsibilities and commitments	Partly
HRM has created transparency through agency–public interactions, and public participation programs	Partly
HWAB provides formal recommendations to the HRM	Yes
HRM reduces the power differential through active participation of regulators in the interaction process	Partly
All stakeholders know who is responsible for each aspect of the activity process	Partly
HRM senior staff attend board meetings	Partly
HWAB and HRM share information openly and readily	Partly
HRM has developed clear policy intent with regard to public influence on decision-making	Yes
HRM required to provide a report stating its intended actions to deal with the advice and recommendations of the HWAB	No
HRM has established a clear, fair and open process	Partly

Sources: Gillies (1989); Dockstator (1991); Vasseur et al., (1997); Phillips & Graham (1998); Ho (1999); Sinclair (2002); and Branch and Bradbury (2006).

5.6 CONCLUSIONS

The HWAB's ability to influence water resource protection through its role in the land use planning and development activity review process is relative to formal and informal governance factors. The formal and informal governance factors found to contribute to the HWAB's ability to influence the land use planning and development activity review process explain how the HWAB is able to influence water resource protection within the context of its formal role as a water resource protection advisor to Council. The factors found to contribute to the HWAB's ability to influence the protection of water resources, as a reviewing stakeholder in the land use planning and development activity process, were compared with the factors that were found in the literature to contribute to an NRAB process that fulfills the desired outcome of activity of the stakeholders involved. This study provides insight into how the HWAB is able to influence the protection of water resources through the land use planning and development activity review process, and where its ability to influence could be enhanced.

This study found the decisions made by Council on what land use practices will be used, is based on the influence of all of the stakeholders involved at the reviewing stage of the process. These reviewing stakeholders are the Council, the PACs, the WABs (including the HWAB), HRM staff, the land use planning and development activity proponent, the public, and the community. Of all the reviewing stakeholders, the HWAB has by far the most expertise regarding water resource protection and is therefore a critical influence on the decisions that will impact the health of HRM's water resources. How the HWAB's ability to influence the protection of water resources may be enhanced is discussed in the next chapter.

6 Discussion and Recommendations

This chapter discusses the findings examined in Chapters 5 in response to the research question: Given its role, how is the HWAB able to influence water resource protection? The background explained in Chapter 4 provides the context within which the HWAB performs its role. Chapter 5 presented the findings of this study and assessed them against the literature presented in Chapter 3 to show what factors contribute to the HWAB's ability to influence water resource protection through its role within the land use planning and development activity review process.

This chapter discusses the factors found in Chapter 5 that contribute to the HWAB's ability to influence water resource protection through its advice to Council in relation to the HWAB's role in formal and informal governance contexts. Recommendations about how to enhance the HWAB's ability to influence water resource protection by enhancing its role in relation to the policies, management, and structure, with respect to the Acceptability Diamond factors found in Chapter 5, through the land use planning and development activity review process, is discussed in this chapter.

6.1 HWAB Role

The Board is a formal advisor to Council, through a "Motion in Council", and informal advisor to stakeholders about using ecologically responsible land use practices to protect water resources through the land use planning and development activity review process. Compared with resource-based advisory boards in other jurisdictions outside the province, the HWAB responsibilities are narrowly focused on land use planning and development activities that may impact on water resources under its jurisdiction. In jurisdictions outside HRM, WAB responsibilities tend to range from being responsible for developing and implementing watershed management strategies, to researching and monitoring watershed health, to being a liaison and consultant between the formal governance agency and the public. The HWAB's role is closest to the latter.

The ability of the HWAB to influence the land use planning and development activity review process as a means to protect water resources was demonstrated, on the surface, in the advice it provided to Councils. Suffice to say that if all the HWAB

recommendations were applied, water resources would be very well protected. However, there were other interests influencing the outcome of the land use planning and development activity review process, which inhibited the ability to apply HWAB recommendations.

While deliberating and submitting its recommendations, regardless of whether they are applied, the HWAB educates proponents, HRM staff, and Council members alike about when, where, how and why ecologically responsible land use practices should be used to protect water resources. This is considered the HWAB's informal ability to influence the protection of water resources. To enhance the HWAB's ability to influence informally, involves enhancing the contributing factors and elements that were identified in Chapter 5 in the Acceptability Diamond. According to Branch & Bradbury (2006), the way to do this most efficiently and effectively is to also enhance the formal governance elements which include the policy, managerial, and structural elements affecting the HWAB's ability to influence water resources protection through the land use planning and development activity review process.

6.2 Enhancing HWAB's Formal and Informal Governance Role

With the creation of the Dartmouth Lakes Advisory Board in 1971, the City of Dartmouth was the first municipal unit, in what was then Halifax County (now HRM) to recognize the value of waters group representatives to make up for the lack of water resource expertise to protect water resources within municipal staff (Griffiths Muecke 1988). Since then, the ability of WABs to influence the protection of water resources in HRM has been demonstrated by greater awareness among municipal planners and government policy-makers, resulting in more and more water resource protection measures being implemented. The Regional Plan (HRM RMPS, 2006) is testament to a greater awareness reflected in its water resource protection policies. Despite this desire and consistent advice from WABs for over 35 years, however, water resources are still being negatively impacted upon by ecologically irresponsible land use practices. The factors outlined in the following sections explain some of the reasons why the HWAB's ability, in terms of its formal role, were not more influential in terms of protecting water

resources from the impacts of ecologically irresponsible land use practices. The following sections also explain how its role could be formally enhanced. The HWAB needs more responsibility through its ToR to help the HWAB enhance stakeholder awareness of the Board and its ability to influence through its participation in the land use planning and development activity review process. The recommendations combine both formal and informal governance enhancement factors since the conditions necessary for a "good" public participation process are not mutually exclusive, i.e., they cannot be separated along the lines of formal and informal governance factors.

6.2.1 HWAB Purpose and Responsibilities

The HWAB's ToR indicate that part of its responsibilities is to educate the public. Being an educator implies having the ability to impart knowledge and expertise about a subject that in turn provides an opportunity to influence the audience about the decisions they make about the subject. The primary avenues the HWAB uses to educate stakeholders involved with any stage of the land use planning and development activity process is:

- formally in the advisory reports it provides to Council, HRM staff, and the proponent;
- informally via discussions in HWAB meetings; and
- informally to other agencies via letters which contain recommendations on issues related to land use practices.

The analysis of the HWAB's advisory reports revealed the knowledge and expertise of the HWAB regarding water resource protection techniques. The recommendations the HWAB provides are considered a form of public education about what land use practices the Board considers are necessary to protect water resources. The capacity of this advice as an education tool, however, is limited. The deficiencies appear to lie in the distribution of its recommendations – a primary means by which the HWAB is able to educate and influence stakeholders involved in the land use planning and development activity process about how to protect water resources. The stakeholders involved in the review process, and the opportunities they have to become educated and influenced are:

- Councillors when they read the HWAB advisory reports;
- HRM case planner staff who attend HWAB meetings, as the recommendations are being deliberated, and in the Board's advisory reports;
- HRM staff, including Development Officers, Technicians, and Managers who generally don't attend HWAB meetings, when they read the advisory reports;
- proponents at HWAB meetings and through the advisory report; and
- the public when the HWAB representatives share their knowledge and experience with fellow community residents, and when they attend HWAB meetings.

These education and influence opportunities are the means by which stakeholders also gain insight into the role of the HWAB and how it operates.

The HWAB needs to work on the education aspect of its role. Some HWAB representatives indicated they did not consider public education part of the HWAB's ToR (which it is). The fact that some HWAB representatives are not clear that they have a responsibility to educate the public indicates that the representatives themselves need to become better informed about their role. Also, the remarks made by councillors in particular, regarding the lack of visibility the HWAB has in the community, indicate that the responsibility of public educator may be best directed to individual representatives on the Board in the position to inform the public. For example, community waters protection groups with representatives on the Board need to bring information regarding land use planning and development activities occurring in their communities to the attention of their membership groups. District representatives could do this as well, through any of their group affiliations. Sharing information fosters better understanding about the role of the HWAB, and thereby enhances the Board's ability to influence the protection of water resources through the land use planning and development activity review process.

Gaps have been identified in this study in the Board's ability to influence large projects, municipal plans, and strategies early in the process (generally where HRM is the proponent), and in its ability to review the follow-up monitoring reports requested in its recommendations. To fill these gaps would require educating those responsible (i.e., HRM staff managers, and Development Officers and Technicians) for assuring that the

HWAB is given the opportunity to be involved in these aspects of the land use planning and development activity review processes.

Educating councillors, HRM staff managers, Development Officers and Technicians who, according to the findings of this study, have among the least opportunity to interact with the HWAB, would enhance the HWAB's opportunity to influence these stakeholders. Additionally, if HRM were to formally, through policy, provide an opportunity for the HWAB to educate these stakeholders, this would demonstrate its policy commitment to the HWAB's activities, build relationships between HRM and the HWAB, generate better understanding about substantive issues in relation to the HWAB's role, and facilitate more inclusive decision-making and accountability in the process.

An informal opportunity for the HWAB to educate and influence land use planning and development activity proponents and their subcontractors about water resource protection is through the Board's Guidelines. In later years, the HWAB's advisory reports usually recommended that the proponent refer to its Guidelines, which are "attached to the recommendation (advisory) report." Initial attempts, however, to educate proponents more broadly through a wider distribution of the HWAB's Guidelines was met with some resistance by HRM staff management, which limited its distribution to this sector. Limiting the distributing of the HWAB Guidelines with an attachment on the advisory report, only offers the Guidelines to proponents whose cases have been referred to the Board for advice. They are not provided, for example, for a development permit issued for an "as-of-right" development. Such limited distribution of the Guidelines, restricts the sources of water resource protection information that may help to educate the general public about how to protect water resources through ecologically responsible land use practices. To overcome this limitation, the HRM planning staff representative on the Board offered to mention the Guidelines in its next publication of the brochure handed out to development proponents, but it is not clear whether this was done. Wider distribution of the HWAB's Guidelines would facilitate more awareness of the Board and enhance its ability to influence water resource protection.

Finally, Public Hearings provide an opportunity for members of the public to ask questions and to express to Council the concerns they have regarding a land use planning

and development activity proposal (i.e., for projects required to have a Public Hearing). Considering that councillors may not always read or understand the implications of the HWAB's recommendations in the Board's advisory report, having an HWAB representative present at Public Hearings could reinforce and/or clarify the Board's recommendations to Council and provide another chance to educate and influence councillors and the public regarding protection of water resources.

Recommendation #1:

Exercising the HWAB's ToR responsibility to promote "public awareness and education to the citizens of HRM[5]" about water resource protection by:

a) educating HRM citizens through its community group and district representatives about the HWAB's role and purpose;

b) educating land use planning and development activity proponents about ecologically responsible land use practices that protect water resources, through the distribution of brochures and other materials with all land use planning and development activity applications;

c) training HWAB representatives on the roles and responsibilities of HRM staff involved with the land use planning and development activity process;

d) training HRM staff and councillors on the operations of the HWAB through presentations at yearly intervals; and

e) enhancing Council's and the public's understanding of the HWAB's recommendations by having an HWAB member available at Public Hearings to answer questions.

6.2.2 HWAB Composition and Selection Process

Ensuring a "good" HWAB process with respect to the Board's composition involves careful consideration of the elements that influence representation on the Board. Factors to guard against in the advisory board composition and selection process are the centralization of authority on the Board (Branch & Bradbury, 2006).

The literature indicates having an "ex-officio" councillor representative on the Board, is preferred since the "ex-officio" status allows the Board to make decisions independent of the councillor on the Board while the councillor provides valuable input, avoids conflict of interest, and has the opportunity to develop relationships with the Board representatives. "Ex-officio" status of councillors is included within the HWAB's ToR, which allows the Board flexibility to make the recommendations it desires, and enhances the Board's decision-making ability with a councillor's presence.

However, this study discovered having a consistent councillor presence on the Board was only considered and decided upon by Council after a media report caused Regional Council to ensure Council addressed potentially serious communication issues directly with the HWAB. This suggests that Council was not committed to having a councillor present until a public relations issue prompted an interest to avoid "bad press" in the future. Having Council representation "may" be included on the Board according to its ToR, meaning that a councillor presence is not necessary. The current ToR states, on the other hand, "staff *shall* be made available for consultation purposes as required". Granted, planners generate an understanding between HRM planning processes and staff and the other Board representatives, but a consistent councillor presence on the Board, formally stated in the ToR, is recommended in this study.

According to the literature, to protect water resources, having water resource expertise included in the land use planning and development activity review process is important because scientific understanding of the water quality is necessary to help determine how to mitigate impacts. The literature indicates "[p]roper lake and watershed management requires an adequate scientific understanding of the natural processes that control lake properties, the types of pollutants being added, and their origin, concentrations, and effects on important lake processes" (Keizer et al, 1993). The HWAB ToR only refer to water resource experience in section 2.1 which states the Board "may

include one representative from community based organizations which are recognized by HRM and the Board as having broad-based interest in watershed protection and related activities within the geographical area of responsibility of the Board." There is also a provision for a developer (or any other stakeholder interest) who may sit on the Board i.e., "such other members", included in clause 2.2c of the ToR. Currently, HWAB representatives demonstrate significant knowledge and expertise regarding water resource issues through their recommendations. However, this study could not definitively determine the extent of the scientific expertise on the Board in terms of the representatives' qualifications because they are not indicated in any documents reviewed in this study. HWAB representation applications to councils presumably contain the applicant's qualifications, but these are confidential. The review process, therefore, entrusts the councillors who are reviewing the applications with ensuring that the necessary expertise is provided on the HWAB.

The HWAB provides an opportunity for each district that falls under the HWAB jurisdiction to be represented on the Board, regardless of whether the district already has a representative from a waters group on the Board or not. Community representation, therefore, is very well represented on the HWAB. Having broad community representation on the HWAB "provides a good level of expertise on the Board, via representatives who are familiar with the important environmental, economic and even political issues/concerns in their areas" (Stobo et al., undated). Representatives bring local issues of concern to the Board for consideration, providing an opportunity to be "proactive in advising HRM" as opposed to being reactive to issues that are presented to the Board by Council (Stobo et al., undated). Board representatives also provide a watchdog perspective regarding water resource protection. Having a watchdog component through district representation may be lost if only scientists or other specialized backgrounds are permitted on the Board.

The Board currently recommends that scientific expertise such as qualified hydrological, limnology, or engineering expertise be on hand during the land use planning and development project implementation to provide the expertise needed to ensure water resources are protected. Ensuring that such recommendations are implemented helps to make up for the lack of scientific expertise on Board. However,

while community representation is provided for in clause 2.2b of the ToR, considering the technical nature of the advice provided for by the HWAB, it is also important to ensure water resource science expertise is represented. Under the current ToR, it is possible for the Board to be without such representation.

Recommendation #2:

Ensure adequate representation on the Board is reflected in the ToR

a) The HWAB should ask Council to approve a change in its ToR regarding section 2.2a and add a new section stating: at least one (1) councillor shall represent each Community Council within the area of jurisdiction of the Board, as an "ex-officio" representative for consultation purposes as required.

b) The HWAB should add a section in its ToR regarding Board composition in section 2, stating in effect, at least one (1) HWAB representative shall have water resource science expertise.

6.2.3 HWAB Jurisdiction

Over the course of the HWAB study period, numerous jurisdictional issues surfaced. The first was with regard to amalgamation, which affected the HWAB in a positive manner, as it provided the impetus for waters community groups to form a watershed advisory board for their municipal unit before amalgamation "swallowed up" the County Municipality. Other jurisdictional issues provided challenges with respect to the HWAB's ability to influence the protection of water resources.

After amalgamation, another WAB who wanted to maintain most of its traditional jurisdiction as is, and a Community Council who preferred to have only one WAB report to them, influenced the direction taken to adjust HRM WAB jurisdiction boundary lines. Also affecting the HWAB and BWAB jurisdictions was the dissolution of the HLWAC.

The HWAB's, the BWAB's, and staff's desire to have WAB jurisdictions delineated by watershed rather than political boundaries was frequently a topic of discussion. HRM staff made an attempt to delineate WAB jurisdictions along watershed boundaries, which was initially met with some resistance by the DLAB. After some compromising between the BWAB, the DLAB, and the HWAB, HRM managed to delineate the WAB's jurisdictional boundaries closer to watershed boundary lines, but not completely.

Dillon (2002) and the Natural Step (2004) frequently recommend that watersheds be protected through watershed-based planning boundaries rather than political boundaries. Dillon's (2002) WRMS underscores the importance of watersheds as "the fundamental unit for understanding water resources and undertaking watershed planning."

The HRM RMPS (2006) recognizes that "[e]nvironmental features – water, soils, vegetation, habitat – within a watershed are all interconnected, and land use activities in one part of a watershed can adversely affect the quality and quantity of water in another" (HRM RMPS, 2006). According to the HRM RMPS (2006), planning on a watershed basis will be undertaken during the secondary planning phases. However, even when HRM WAB jurisdictions are delineated by watershed boundaries, jurisdictional problems still persist for the HWAB because some of the watersheds contained in its jurisdiction cross the Municipal boundary. Therefore, delineating WAB jurisdictions by watershed boundaries may require Provincial input, or at the very least, water resource management cooperation between the affected municipal units.[27] The Nova Scotia *Municipal Government Act* provides for such collaboration (R.S.N.S. 1998. s. 200 (1.2)) through joint planning strategies and through joint advisory committees in areas where watersheds cross over political boundaries, as in HRM and Hants Counties, for instance.

[27] Brandes et al. (2005) suggest that the Federal government must have direct responsibility over water resource management since all waters eventually end up in marine waters.

Recommendation #3:

Govern watersheds according to natural watershed boundaries to help overcome political regulatory overlap and enforcement gaps, and to facilitate monitoring and enforcement cooperation of neighbouring municipal jurisdictions by:

a) Delineating HRM WAB jurisdictions based on watershed rather than political boundaries with assistance from the Province to facilitate the cooperation of neighbouring municipal jurisdictions.

6.2.4 HWAB Relationship and Standing within HRM

Factors to guard against in an advisory board's standing within the agency, according to Branch & Bradbury (2006), are lack of a public participation policy at the agency level, lack of the Board's ability to track recommendations, lack of clear policy guidance, and a lack of commitment from the agency to accept public influence. In many relationships, respect and acknowledgement grows with time. The HWAB's meeting structure and Board composition provide a good climate where relationships between the Board, planning staff, and the land use planning and development activity proponents may be formed and mutual understanding may be fostered. Consistent representation of a planner and a councillor on the Board, and having development proponents and the case planner present to the Board, allows the Board to make its interests, preferences, and arguments known to these stakeholders involved in the land use planning and development activity review process. Most Board representatives appear to have good relationships with each other, with the HRM councillors who have served on the Board, and with the planners who have represented HRM staff on the Board. Due to the consistent leadership and tenacity of the Board's Chair and Vice Chairs who have served over the years, this WAB has been able to generate productive relationships. However, there is room for improvement.

There are many other stakeholders involved, at both the reviewer and steward levels of the land use planning and development activity process, who do not have an

opportunity to develop relationships with the Board who, therefore, lack understanding about its role and value. When stakeholders are not exposed to the HWAB's expertise and knowledge, the Board's ability to influence these stakeholders may be undermined, ignored, or dismissed. Each reviewer and steward in the land use planning and development activity process should have an opportunity to understand the HWAB's ability and to be influenced by it.

Sometimes a project that should have been reviewed by the Board either came too late or not at all – after decisions had already been made, or at a time when changes were not possible or too expensive to alter – for the HWAB to make recommendations. In most cases, such neglect or oversight was apparently due to staff management's lack of understanding about the Board's role in the land use planning and development activity review process. They perceived that the Board's role was not to advise staff; its advice was strictly for Council through formal reports. An opportunity the HWAB had to inform PACs about the HWAB's role, on the other hand, demonstrated why it is important for each reviewer of the land use planning and development activity reviewing stage to know the role of the HWAB and its ability to influence the process. When HRM staff overlooked a project that the Board should have reviewed before it was forwarded to the next stage in the review process, the PAC felt that the HWAB should have an opportunity to review the application before they proceeded with their own recommendations. In this instance, the PAC acted on its knowledge of the Board's role, which prevented a project from proceeding without HWAB recommendations. The PAC's action could have prevented ecologically irresponsible land use practices from impacting water resources as a result. To ensure that the HWAB receives all of the projects upon which it is entitled to provide recommendations, per its ToR, all stakeholders should understand the HWAB's responsibilities, its role in the land use planning and development activity review process, its ability to provide valuable advice, and the opportunities to be influenced by it.

HRM WABs are in a league by themselves as they work to influence the municipal decision-makers with their recommendations about what land use practices are the most ecologically responsible to use to protect water resources. As the HWAB works to fulfill its responsibilities with each land use planning and development activity project review, the HWAB's ability to influence the protection of water resources changes. Within each

project review each stakeholder involved is trying to influence Council to include and/or consider the interests specific to their desired project decision outcome. Consider, too, that the interests of such stakeholders may have more in common with each other (e.g., economically) than with the HWAB.

Even when recommendations are incorporated into an application, there is still no guarantee that the recommendations will be followed in practice due to factors that influence the other stakeholders involved in the land use planning and development activity review process. The influence that a recommendation has on the final agreement may depend on the planner, the proponent, and the council involved in each case because the recommendations provided by the HWAB are not required to be incorporated into the land use planning and development activity application. Planners and proponents have demonstrated their will to incorporate HWAB recommendations or aspects thereof into the proposed application, before Council reviews it. However, its up to Council whether or not any recommendations are included as a condition of approval.

There also is an underlying feeling among volunteers, generally, that their efforts are taken for granted and not sufficiently acknowledged or recognized. For example, although HRM provides a legislative assistant to keep track of the meetings and development review process regarding the HWAB, coffee was not even provided at meetings, despite their length, until recently. The most important recommendation for agencies to consider, to get the maximum benefit from the HWAB's ability to influence the protection of water resources, is to regularly and consistently acknowledge the input and expertise provided by the volunteers upon which the regulatory agencies and the health of our water resources depend, by consistently acting on and acknowledging its recommendations.

Recommendation #4:

Foster "Mission-critical status" among staff regarding HWAB activities by:

a) HRM should ensure that the HWAB has "Mission-critical status" within the operations of HRM staff concerning the HWAB's advice on land use planning and development activities with respect to water resources.

b) Clearly state within the HWAB ToR the relationship between HRM staff and the Board in the purpose: "The HWAB is established to advise Community or Regional Council and staff with respect to all matters ...".

6.2.5 "As-of-right" Development and Grandfather Clause

Current policies associated with "as-of-right" development are considered by HWAB representatives to be among the most serious obstacle to water resource protection with respect to land development activity. Virtually all representatives of the HWAB feel that this type of development needs to be seriously overhauled. As commented in the survey by an HWAB representative, "[d]evelopment 'as-of-right' often frustrates good planning recommendations" (Frank Hope).

The HWAB found a way to make recommendations to "as-of-right" development through reviewing Concept Plans, but because they provide few details, the HWAB felt the recommendations might not be adequate in relation to the final plan. Furthermore, proponents are not required to consider HWAB recommendations on Concept Plans because they only need to adhere to the current by-laws and regulations already in place. Reviewing Concept Plans also increases the HWAB's workload.

To overcome the problems associated with "as-of right" developments and grandfather clauses, this study recommends they be addressed at the Secondary (Community) Planning Strategy development stage. Ensuring that the WAB's advice is involved with the development of the secondary plans will usurp the need for WABs to comment on "as-of-right" Concept Plans and grandfather clauses, and decrease the HWAB's workload in the process.

Through the secondary planning process, individual plan areas will be responsible for ensuring that protection of water resources are incorporated into the community planning strategies. The concern is whether water resource protection will be adequately considered.

> "The policies will affect where, when and how development happens and they reflect the priority the community places on the health of water systems including preservation of water quality and habitat for humans and non-humans. Implementation of the policies has significant economic implications because water resource management has a substantial price associated with both action and inaction" (Dillon, 2002).

Within an ecosystem governance regime, policies and programs that change behaviour and promote productivity need to be created to support an infrastructure of a water system where water is viewed as finite and where ecological processes come first (Brandes et al, 2005). The HWAB can play a pivotal role in an ecosystem governance regime. The HRM RMPS falls short of meeting this study's desired model of Brandes et al.'s (2005) which is evident with statements like: "Although it is not the intention of the HRM RMPS (2006) to achieve pristine conditions for every watershed, there is a desire to achieve public health standards for body contact recreation and to maintain the existing trophic status of our lakes and rivers to the extent possible." The words "to the extent possible" opens the door for developers and landowners to find excuses why continuing to downgrade the trophic status of lakes and rivers may be justified, presumably in favour of economic stability. Unless there is WAB involvement in the process, the community planning process may not adequately consider all the implications of a given land use planning and development activity on water resources in the area "aimed at protecting this resource through land use control and retention of those features that regulate water flow, mitigate flooding, reduce water pollution, and protect ecological functions" (HRM RMPS, 2006).

The Plan does provide a means for representatives of "other bodies" to provide direction in the transition between the regional planning and the secondary planning phases. This could provide a means for the HWAB to provide direction, according to the Plan's first governance policy, G-1, which states "HRM shall establish a Standing

Advisory Committee to provide direction for the transition from regional planning to Community Visioning and secondary planning, with representation from:

- HRM Regional Council;
- HRM senior management;
- HRM residents drawn from urban, suburban and rural communities; and
- other bodies as determined by Regional Council" (HRM RMPS, 2006).

Conceivably, the policies set out in the Plan (see Appendix G) could be "watered down" when the by-laws are created in the community planning stage, which may favour economic implications over the environmental ones, unless the HWAB and presumably the other water advisory boards in HRM have adequate ability to influence those policies and regulations. The knowledge and expertise of the HRM WABs would play a very important role in the secondary planning process. To be effective, policies must be backed up with regulations that are supported with expertise, knowledge, and authority vested in the public. However, the WABs do not appear in the HRM RMPS (2006) as stakeholders to be considered in the community planning process, except with respect to watershed plans.

The HWAB currently has an ability to influence the land use planning and development activity process through stakeholders who recognize the HWAB's knowledge and expertise, with regard to water resource protection. The Mayor, the public, HRM staff, and development proponents all have demonstrated their recognition and desire for HWAB input. Statements like "[w]here the Board would fit into this process has not been determined, but the integral role of the Board is recognized" (HWAB minutes, October 1998) are frequently mentioned in the HWAB minutes. In at least one instance, there was a discrepancy between the Board's recommendations and staff's report, which resulted in Council and the Utilities Review Board agreeing with the advice of the Board. This instance demonstrated that Council was influenced by the Board's recommendations over staff's. Recognizing the Board's expertise and knowledge in a more permanent manner, through changes in policy and regulation, rather than through repeated public hearings to settle disagreements between staff, proponents, and

Council would be more cost effective and efficient for both the taxpayer and the proponent.

The HWAB's water protection advice needs to be better supported through regulations to substantively demonstrate HRM's commitment to the HWAB's involvement in the land use planning and development activity review process. In HRM, there are few regulations promoting the use of ecologically responsible land use practices to facilitate water resource oriented planning apart from Erosion and Sedimentation Control and Stormwater Management Plans. Many of the recommendations made by the HWAB are repeated over and over for similar projects, which could become standard policy, exercised through regulations and by-laws. Repeated HWAB recommendations for specific land use practices should be considered in policy and made into regulations. Making such recommendations into policy and/or regulation would enhance the HWAB's ability to influence in a substantive way because it would demonstrate a sharing of power with respect to "identifying issues and setting the agenda of deliberations" and would protect the interests of the HWAB representative's community.

Recommendation # 5:

The HWAB's water resource protection recommendations should be considered in HRM policy and regulation reform by:

a) Considering HWAB recommendations that are consistently advised for a specific land use planning and development activity regardless of the jurisdiction, regulation, economics, or time. Regulations should be made for such activity and adjusted to reflect new water protection approaches as they appear.

b) Assigning an HWAB representative with a seat on the Standing Advisory Committee to provide direction that ensures water resource protection considerations are incorporated into new by-laws created for the new Community Visioning (secondary planning) Strategies.

c) All draft community planning strategies shall be reviewed by the HWAB to ensure water resource protection issues are addressed with respect to land use planning and development activities to overcome "as-of-right" development concerns.

6.2.6 HWAB Monitoring and follow-up

Because most HWAB representatives are interested in knowing whether their recommendations are being followed, many Board representatives take on an informal monitoring role of development project activities at their own discretion. This informal monitoring or "watchdog" role raised many issues, and prompted investigations of some development project activities by the Board and HRM staff. In some cases this watchdog role alerted the HWAB about land use planning and development activities that could have benefited from Board input earlier in the process (as in the Western Common Plan). In other cases it alerted both the HWAB and HRM about projects being improperly applied, to the detriment of the water resources in the area (as in the East Petpeswick project).

Under the former example, the HWAB raised awareness among HRM staff management about the Board's role and where HRM staff may have overlooked the value of their expertise. In the latter example, follow-up investigations exposed many inadequacies regarding the land use planning and development activity steward process, leading HRM staff and the Board to deliberate how to rectify these inadequacies. HRM staff admitted that their ability to monitor all projects was not consistent or practical and that the HWAB may wish to consider informally taking on this role.

Assigning HWAB representatives, who may have more opportunity, to be "watchdogs" on projects upon which the HWAB provided advice, would help to fill a gap toward ensuring that an approved land use planning and development activity is being implemented properly. This role would also help to fulfill a desire of the HWAB to know whether or not its recommendations are being applied in the outcome of the decisions.

Assigning project monitoring responsibilities to HWAB representatives would require changing the HWAB ToR to this effect, since the HWAB currently advises at the front end of the review process. On numerous occasions, however, the Board did request follow up water quality monitoring in its recommendations, a permissible request according to its ToR, but this request was not responded to on a consistent basis. One HWAB representative commented on the survey, "we do need to be kept informed if we are to be effective" (Anonymous participant). There was considerable evidence found in

the minutes, and in correspondence that the HWAB's recommendations were not always followed, with few explanations as to why not. If the ToR were to be changed to assign HWAB representatives a monitoring role, the travel distance some of these projects could be from the usual routes of volunteer representatives may be a deterrent for some who might otherwise take on this responsibility as a volunteer. To overcome this deterrent, travel compensation would be required for representatives to cover the expenses associated with monitoring project sites. Having formal authority to follow-up on projects and to comment on the findings would contribute to the HWAB's ability to influence the outcome of the current project and/or on the outcomes of future projects.

The planner representative on the Board expressed in an HWAB meeting that it is difficult to discern whether the Board's recommendations are put into a development agreement or not, because the final development agreement is worded in a way that takes into account all of the recommendations provided from the broad spectrum of reviewers who provide recommendations for each development case proposal. Council minutes do not always indicate which recommendations should be applied either. Lack of follow-up of the recommendations made by the HWAB is perceived by the researcher to be a weakness to the Board's ability to influence considering how difficult it is to discern by any other method whether the HWAB's recommendations are being followed or not. Although the HWAB only advises councils according to its ToR, other similarly structured resource advisory boards studied by Gillies (1989) and Branch & Bradbury (2006) have reporting systems whereby the agency provides feedback to the Boards on the agency's intended action on the NRAB's recommendations. Such follow-up is considered in the literature to be an important factor in a successful NRAB. For HRM to follow-up with the HWAB would provide a means of accountability between the HWAB, planning staff, councils, and the general public. Furthermore, accountability strengthens the influence and relationships between the stakeholders involved in the decision-making process (Gillies, 1989; Branch & Bradbury, 2006; Webler & Tuler, 2006).

Having to report to the HWAB also would require Council to pay attention to the recommendations provided to it by the HWAB to enable them to demonstrate the reasoning behind why the Board's recommendations were applied or not. Reports from the agency to the Board also provide the HWAB with knowledge about when and

whether the Board's recommendations are being applied. Providing the Board with this insight can further enhance the types of recommendations the Board makes.

Recommendation #6:

Enhance the HWAB's responsibilities and thereby strengthen its ability to influence water resource protection by:

a) Providing HWAB representatives with the ability and mandate to monitor assigned project sites with resource support from HRM for travel expenses.

b) Expanding the HWAB's ToR by entering into an agreement that Councils will provide follow-up reports on the HWAB's advisory reports to HRM, so the HWAB may gain insight into how it might improve or make their advice more effective, and to provide incentive for Councils to be accountable to the advice provided by the HWAB.

6.3 HWAB'S ABILITY TO INFLUENCE

The HWAB has, above all, raised awareness among HRM staff, HRM councillors, land use planning and development activity proponents, and HWAB representatives about water resource protection issues. This study found, however, that given the HWAB's role, its ability to influence the protection of water resources as a reviewing stakeholder in the land use planning and development activity process is limited. Discussion in this chapter of the factors found to contribute to the HWAB's ability to influence the protection of water resources, as a reviewing stakeholder in the land use planning and development activity process, provided insight into how its ability to influence could be enhanced. These insights were expressed in the recommendations specified in this chapter.

The overall recommendation this study offers is to consistently acknowledge and enhance the Board's role. HRM Council and staff could enhance the Board's role by providing the HWAB with "Mission Critical" status in the informal governance aspects of the land use planning and development activity process, and formally through policy

reform and resources provided by HRM Council and municipal government staff. Such support would demonstrate HRM's acknowledgement of the Board's ability to fill the gaps with respect to providing technical, historical, and local expertise about how to protect water resources under its jurisdiction in HRM.

7 HWAB's Ability to Influence Water Resource Protection

Chapter 7 sums up the objectives of this study to explain how the HWAB is able to influence water resource protection in its role to advise Council through the land use planning and development activity review process:

- within the context of the HWAB's advisory role;
- considering the formal and informal governance factors that contribute to the HWAB's ability to influence water resource protection through the land use planning and development activity review process; and
- by recommending how the HWAB's ability to influence water resource protection may be enhanced.

This chapter describes the HWAB's demonstrated ability to influence water resource protection, considering the factors that contribute to the HWAB's ability to influence in its formal and informal role within the land use planning and development activity review process. The recommendations on how the HWAB's ability to influence may be enhanced are recapped in the next section. The future study recommendations are included in the following section. The final remarks about the HWAB's ability to influence water resource protection conclude this Chapter and this study.

7.1 HWAB's Demonstrated Ability to Influence

This case study of the HWAB explains how an NRAB is able to influence the protection of water resources in its role as an advisor to Council, through the land use planning and development activity review process. As shown within the framework of the Acceptability Diamond, the HWAB's ability to influence varies according to the degree in which the HWAB fulfilled the factors that contribute to a "good" NRAB process. The HWAB's ability to influence left some of the factors of a "good" NRAB process unfulfilled.

The terms used to express how far the HWAB was able to demonstrate the Acceptability Diamond factors in the findings, were, "yes", "partly", "currently", and "no". The degree to which the HWAB's ability to influence the protection of water resources was fulfilled, relative to the factors of "good" NRAB process, is listed under these terms in the section below.

7.1.1 Fully ("Yes")

This section lists the desirable factors that fully contribute to the HWAB's ability to influence the protection of water resources.

- HRM provides a forum to express views and issues
- HWAB structure and jurisdiction is established by the HRM
- HWAB and HRM have a consistent and frequent schedule of interaction
- HWAB operates by consensus decision-making[28]
- HWAB provides formal recommendations to the HRM
- HRM has developed clear policy intent with regard to HWAB influence on decision-making

7.1.2 Partly

This section lists the desirable factors that partially contribute to the HWAB's ability to influence the protection of water resources.

- HRM tasks are being implemented as expected by the HWAB
- HRM demonstrates its commitments are being kept and concerns are being addressed
- HWAB concerns are being addressed
- HRM facilitates participation in the process
- HRM is open and accessible to the NRAB
- HWAB has ability to place issues on the agenda and to influence how they are framed
- HWAB has awareness of the decisions being considered

[28] Webler & Tuler (2006) found that not all participants in their studies felt that consensus decision-making was a priority.

- HWAB and HRM have access to all the information that is considered necessary to form a position in decision-making process
- HWAB has ability to influence the process by making their interests, preferences, and arguments known to the stakeholders at each level of the activity process before decisions are made
- HWAB representatives have ability to communicate informally and have access to the decision-makers at their level
- HWAB is included in the formal recommendations
- HRM demonstrates a commitment to listen and to talk
- HWAB and HRM demonstrate an understanding and consideration of each other's rights and interests
- HRM ensures face to face and out of boardroom interactions between the public and the HRM
- HRM gives the public process "Mission Critical" status in the activity process
- HRM and HWAB have developed agreed upon responsibilities and commitments
- HRM has created transparency through agency–public interactions, and public participation programs
- HRM reduces the power differential through active participation of regulators in the interaction process
- All stakeholders know who is responsible for each aspect of the activity process
- HRM senior staff attend board meetings
- HWAB and HRM share information openly and readily
- HRM has established a clear, fair, and open process

7.1.3 Currently

This section lists the desirable factors that are currently satisfied to contribute to the HWAB's ability to influence the protection of water resources.

- HWAB provides for a mix of participants that enable issues important to all stakeholders (including HRM) to be heard and addressed

- HRM reaches out to all stakeholders
- HRM has created a public space for HWAB
- HWAB has a skilled person to manage small group interpersonal relationships
- HRM facilitates communication and accessibility

7.1.4 No

This section lists the desirable factor that did not contribute to the HWAB's ability to influence the protection of water resources.

- HRM required to provide a report stating its intended actions to deal with the advice and recommendations of the HWAB

7.2 Recommendations to Enhance the HWAB's Ability

The recommendations the HWAB provided to Council demonstrated considerable knowledge and expertise regarding water resource protection. However, the formal and informal roles of the HWAB outlined in Chapters 4 and 5, were found to be too limited for HRM water resources to fully benefit from the HWAB's ability. To broaden the HWAB's role, this study made six recommendations to increase its formal and informal ability to influence the protection of water resources through the land use planning and development activity review process. The recommendations in Chapter 6 explained how the HWAB could enhance its ability to influence water resource protection through a "good" public participation process framed in Branch and Bradbury's (2006) Acceptability Diamond, and applied to the case study of the HWAB in Chapter 5.

The six recommendations identified to enhance the HWAB's ability to influence water resource protection through the land use planning and development activity review process are:

- Exercise the HWAB's ToR responsibility to promote "public awareness and education to the citizens of HRM[6]" (HWAB ToR) about water resource protection
- Ensure adequate representation on the Board is reflected in the ToR

- Govern watersheds according to natural watershed boundaries to overcome political regulatory overlap and enforcement gaps, and to facilitate monitoring and enforcement cooperation of neighbouring municipal jurisdictions
- Foster "Mission Critical" status among HRM Council and staff regarding HWAB activities
- Consider the HWAB's water resource protection recommendations in HRM policy and regulation reform
- Enhance the HWAB's responsibilities and thereby strengthen its ability to influence water resource protection

7.3 Questions for Future Study

There were two questions that were raised time and again that were beyond the scope of this study, which frustrated the HWAB in relation to its ability to influence water resource protection. These questions were with respect to enforcement and regulatory issues which the HWAB seemed to be unable to overcome in its role within the land use planning and development activity review process:

1. How can the enforcement gaps, jurisdictional overlap, and disregard for policies, regulations, and the HWAB's advice be overcome with respect to water resource protection?

2. How can the role of the stewards involved in the land use planning and development activity process be enhanced with respect to the HWAB's ability to influence water resource protection?

With regard to the first question: Because different levels of government have differing regulatory regimes over the same watershed areas, there are gaps and overlap in the overall water resource governance regime. Under these circumstances, when it comes to rectifying water resource protection issues in terms of which level of government is responsible for overseeing a problem, no jurisdiction appears to take responsibility. Further study is needed to determine how to address and manage water resource

protection and management problems due to overlapping jurisdictions associated with political vs. watershed boundaries and enforcement issues created by government level regulatory gaps and overlap.

With regard to question 2: many of the negative impacts on water resources occur long after the reviewing stage of the land use planning and development activity process has been completed. This means they occur at the implementation and operational stages. The responsibility to ensure that the reviewed and approved land use planning and development activities are being upheld is in the hands of the stewards, (i.e., the Development Technicians/Officers, residents, inspectors, tenants, superintendents, construction workers, and landowners). They are in a front-line position to ensure that land use planning and development activities are being conducted in accordance with the agreements and bylaws.

This study did not examine the activities of the steward stakeholders who are responsible for the implementation and operational stages of the land use planning and development activity process. However, their activities significantly influence the outcome of the land use planning and development activity process with respect to water resource protection. This study recommends more study on how the stewards' involvement with the land use planning and development activity process may be enhanced to compliment the efforts of the HWAB (and WAB's in general) to influence the protection of water resources in HRM.

7.4 Concluding Thoughts

Over 35 years have passed since the first waters advisory board was established in Canada, right here in HRM. Yet, water quality, water quantity, and quality of life with respect to water resources continue to deteriorate in HRM. HRM is gradually making moves to change land use patterns to help protect water resources, but these efforts are progressing at a much slower rate than the apparent degradation of water resources in HRM. It is time to utilize, to the fullest extent, the HWAB's ability to influence the protection of water resources, by implementing the recommendations provided in this study to further protect the ecological integrity of HRM's water resources.

Appendix A: Halifax Watershed Advisory Board Terms of Reference

HALIFAX WATERSHED ADVISORY BOARD

TERMS OF REFERENCE

1.0 PURPOSE

1.1 The Halifax Watershed Advisory Board is established to advise Community or Regional Council on all matters related to the management and alteration of the lakes, rivers, watercourses, coastal inlets and their watersheds within Halifax Regional Municipality[1], and to act as an advisory resource in providing Community or Regional Council with recommendations for their sustainable use.

Without limiting the generality of the above, the Board shall have the following principal responsibilities:

(a) To provide leadership, promote public awareness and education, and identify issues and action on matters related to the Municipality's lakes, rivers, watercourses and coastal inlets (to the citizens of Halifax Regional Municipality);

(b) To provide input to Community or Regional Council and the Community Planning Advisory Committees, on all applications for development agreements, rezonings, amendments to any land use by-law, and major project proposals of the Halifax Regional Water Commission, with regard to potential impact on the Municipality's lakes, rivers, watercourses and coastal inlets;

(c) To monitor studies being conducted and regulations being formulated by various levels of government and comment and provide recommendations to Community or Regional Council on these with respect to their impact on the Municipality's lakes, rivers, watercourses and coastal inlets;

(d) To cooperate with other similar agencies in addressing issues affecting directly or indirectly the Municipality's lakes, rivers, watercourses and coastal inlets;

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[1] Where the words "Halifax Regional Municipality" or "the Municipality" are stated, this shall refer to those areas as defined on the accompanying map setting out the area of jurisdiction of the Board.

(e) To liaise with and encourage input from local community based organizations involved in watershed protection and related activities; and

(f) To advise on any other matters which Community or Regional Council and the Community Planning Advisory Committees deem necessary.

2.0 COMPOSITION

2.1 The Board may include one representative from community based organizations which are recognized by HRM and the Board as having broad-based interest in watershed protection and related activities within the geographical area of responsibility of the Board. Groups with interest in a single issue would not be considered for membership. Such groups would be encouraged to make a presentation to the Board.

2.2 The Board may also include:

(a) one (1) Councillor appointed by each Community Council within the area of jurisdiction of the Board, as *ex-officio* members;

(b) one (1) citizen from each electoral district within the jurisdiction of the Board.

(c) such other members as determined from time-to-time by Community or Regional Council in consultation with the Board.

2.3 Staff shall be made available to the Board for consultation purposes as required.

3.0 COMMITTEES

3.1 The Board may appoint ad-hoc committees to deal with issues as needed.

4.0 CHAIR AND VICE-CHAIR

4.1 The Board shall have a Chairperson from among its members. The Chairperson shall hold office for a period of one year from the date of election or for the remainder of his/her term of office as a member of the Board whichever is less.

4.2 The Board shall elect a Vice-Chairperson from among its members, who shall hold office for a period of one year from the date of election or for the

remainder of his/her term of office as a member of the Board, whichever is less. The Vice-Chairperson shall act as Chairperson at all times when the Chairperson is absent.

4.3 A person designated by the Municipal Clerks Office shall act as the Recording Secretary for the Board.

5.0 MEETINGS

5.1 The Board shall meet monthly or at the call of the Chair.

5.2 Where a development application has been referred to the Board pursuant to Section 1.1 (b), time shall be of the essence.

6.0 RULES OF ORDER

6.1 All meetings of the Board shall be open to the public and shall include a public participation component. The Board shall function by consensus, but where necessary the Board shall follow the Rules of Order approved for the Committee of Council. In the absence of such approved Rules of Order, the rules shall be identical to those for Community Councils.

7.0 RELATIONSHIP TO COMMUNITY OR REGIONAL COUNCIL

7.1 The Board shall act only in an advisory manner to Community or Regional Council. Any plan, program or proposed development activity within any watershed likely to have an effect on any lake, river waterway or coastal inlet shall be referred to the Board for its consideration and subsequent recommendations to Community or Regional Council.

8.0 RELATIONSHIP TO INTERNAL AND EXTERNAL BOARDS, COMMITTEES, COMMISSIONS AND DEPARTMENTS

8.1 The Board may, with the approval of Community or Regional Council, advise and/or appoint a representative to serve as a liaison with any internal or external board, committee, or department.

9.0 REPORTING

9.1 The Board's recommendations will be submitted to the applicable HRM regulatory body, HRM staff, the proponent, and a copy correspondence to other government departments as the Board deems appropriate.

10.0 QUORUM

10.1 Fifty percent plus one shall constitute a quorum of the Board.

11.0 APPOINTMENTS

11.1 All appointments to the Board shall be made by Community or Regional Council and shall stay in effect until a new appointment is made by Community or Regional Council.

11.2 All appointments shall become effective November 1st of each year.

11.3 The appointment of members of Community or Regional Council shall be made by the Community or Regional Council in November of each year.

11.4 All appointments shall be for three (3) years, with a provision that appointees may remain for subsequent terms, if reappointed by Community or Regional Council. One half of the first appointments to the Board shall be for two (2) years and the other one half shall be for three (3) years. All subsequent appointments shall be three (3) years.

11.5 Any organization (as described in Section 2.1) who wishes to have representation on the Board shall provide Community or Regional Council with a copy of its Memorandum of Association.

11.6 The appointment of a representative from an organization (as outlined in Section 10.5) shall not apply to an individual specifically, but rather, shall apply to any member of that organization who is designated by that organization to sit on the Board as its representative.

11.7 Citizens shall be sought in the usual manner of advertisement. Community or Regional Council shall, on the recommendation of the Board, select appointees from the list of volunteers.

12.0 RESIGNATIONS

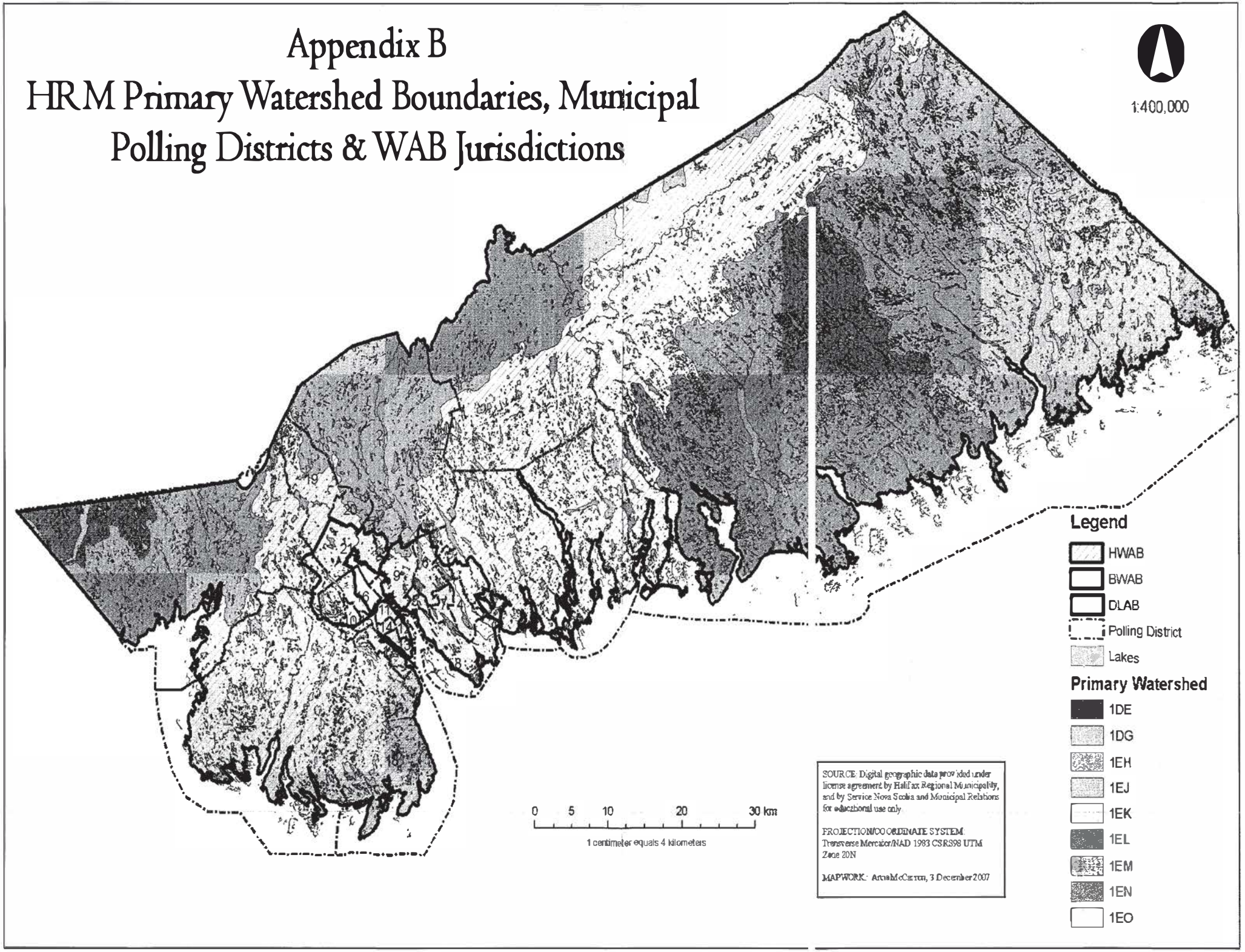
12.1 Any resignation from the Board shall be tendered in writing to the Chairperson and Community or Regional Council.

12.2 If the resignee is a citizen appointee, Community or Regional Council on the recommendation of the Board, shall select an appropriate replacement from the list of volunteers, or shall actively seek a replacement from the community. Such replacement to fill a vacancy shall complete only the

Appendix B: Map of HRM (Contained in Back Pocket)

Contains primary watershed boundaries, municipal polling districts and WAB jurisdictions

Appendix B
HRM Primary Watershed Boundaries, Municipal Polling Districts & WAB Jurisdictions



Appendix C: Guidelines for Protecting Our Water Resources

Guidelines

for

Protecting

our

Water Resources

prepared by the
Halifax Watershed Advisory Board

The focus of the Watershed Advisory Board is on the protection of water quality and quantity, as well as the quality of life associated with our water resources. The Board reviews development applications submitted to the Halifax Regional Municipality that could have an impact on local watercourses. The following guidelines discuss water protection issues associated with development and suggest a variety of ecologically responsible land use practices designed to protect our fragile water resources in freshwater, estuarine and marine environments.

Soil Erosion

Undisturbed soil generally has o high resistance to erosion from wind and water. However, after disturbance (i.e. removal of vegetation and regrading) many soil types are prone to erosion that con result in sedimentation of local watercourses and saltwater inlets. This sedimentation is both unsightly and potentially deadly to many forms of aquatic life. The reduction and elimination of sediment-laden, over-land runoff and erosion should be the goal of all developers and residents. To accomplish this, any development or lot improvement that disturbs soil should have on Erosion and Sedimentation (E&S) Control Plan, in compliance with municipal and provincial codes. In small, single lot, homeowner projects, the E&S Plan could be as simple as soil coverage with tarps or straw and silt fencing to prevent silt laden water from escaping the site. Larger projects may require a comprehensive pion developed by qualified professionals to ensure that every precaution is taken. Methods to reduce or prevent this unwanted occurrence should be diligently undertaken, therefore:

- ✓ Any development that disturbs soil should include an Erosion and Sedimentation Control Plan with the development proposal.
- ✓ Soil disturbance should be kept to a minimum, and where regrading or landscaping is carried out, the area exposed should be stabilized using an environmentally sound method such as sodding, hydro seeding or other proven methods.

Storm Water Management Systems

The term, 'storm water management systems,' generally refers to the infrastructure installed by a developer or a municipality to collect the run-off from roads, parking lots and other impermeable surfaces associated with a development, as well as natural run-off. The system may include ditches, culverts, swales, subsurface interceptor drains, roadway curbs and gutters, catch basins, manholes, retention ponds, canals etc. Current systems often incorporate natural watercourses, flood plains, ravines, gullies, springs and creeks in the area. Storm water management requires that a storm drainage system be carefully designed and implemented before any development proceeds. Any storm water drainage system should be designed to achieve the following objectives:

- to prevent loss of life and to protect structures and property from damage due to a major storm event;
- to provide safe and convenient use of streets, lot areas, and other improvements during and following rain and snow events;
- to adequately convey storm water flow from upstream sources;
- to mitigate the adverse effects of storm water flow; downstream flooding and erosion;
- to preserve natural watercourses and areas of discharge into fresh and salt water bodies;
- to minimize the long term effect of development on receiving watercourses on ground water.

Therefore:

- ✓ Storm water should not be discharged directly into natural watercourses.

- ✓ Storm water management should be on integral part of overall site design and development and must meet all the requirements of the Halifax Regional Municipality Municipal Services System Design Standards.

Buffer Strips

A buffer strip is o zone of undisturbed vegetation and soil on both sides of a watercourse (including lake, pond, wetland) and salt water inlet or estuary. The buffer strip will help control storm water flow, reduce sedimentation and help protect the natural ecosystem processes within the watercourse. The width of the buffer strip is very important to the effectiveness of the buffer. Therefore:

- ✓ A buffer strip of natural undisturbed vegetation should be provided adjacent to the ordinary high water mark on any watercourse and be a minimum of 30 metres wide on each side. Development proposals should identify this clearly on proposed final plans and developers are encouraged to provide deed covenants in an effort to protect watercourses. In situations where natural vegetation does not already exist, indigenous species should be planted to provide a 30 metre buffer.

Setbacks for On-Site Sewage Disposal Systems

Historical research has shown that even with current Nova Scotia Environment and Labour regulated setbacks of 30.5 metres, nutrients, in particular phosphorus compounds, are reaching lakes relatively quickly. Other municipalities are attempting to limit the number of on-site sewage disposal systems around lakes by requiring wider lots or by simply setting the maximum number of lots permitted. However, increased setbacks for onsite systems result in longer time scales (possibly 30 - 40 years) allowing for more nutrients to be utilized before the effluent reaches a water body. Therefore:

- ✓ Setbacks associated with onsite disposal (septic) systems for residential lots in new subdivisions should exceed the minimum standards of NSEL (i.e. 30.5 metres). Where possible, a minimum 100 metre setback is encouraged from lakes and saltwater bodies.

Floodplains

A floodplain is the area adjacent too watercourse that is periodically inundated with floodwaters. The natural tendency of freshwater systems to flood during and after periods of extreme rainfall events or snow melt often leads to the damage of property located within the floodplain or tidal area. At the same time floodplains play an important role in floodwater management as water retention areas, reducing the risk or the extent of flooding downstream. Both to eliminate damage due to periodic

flooding and to conserve this natural floodwater management system, the following restrictions should be followed:

- ✓ There should be no development, land grade alteration or major vegetation removal within the 1:20 year floodplain.

- ✓ Any development within the 1:100 year floodplain fringe should be of such a nature that it will not be overly damaged by flooding or reduce the water storage capacity of the floodplain.

Wetlands including Saltmarshes

Wetlands and salt marshes are very important to the health of our ecosystems. They are the areas of high biomass productivity and therefore require special attention for their continued protection. In the past, wetlands and saltmarshes were considered wastelands and therefore areas to be bulldozed and infilled to make way for development. These areas, especially along watercourses are essential in maintaining water quality and quantity. Wetlands and salt marshes are also important for the storage of carbon (decayed plant material) which would otherwise be released as greenhouse gases, for aquifer recharge, water purification, flood control and stream base flow. Therefore:

- ✓ Natural wetlands and salt marshes should not be infilled, altered or destroyed.

- ✓ Where possible, artificial wetlands should be created to treat storm water and be isolated from natural systems.

Surface Water

This includes all watercourses and wetlands with the exception of groundwater.

- ✓ Wherever possible, all piped watercourses should be returned to their natural state.

Groundwater

The most abundant quantity of fresh water in the Halifax Regional Municipality is stored in the ground in bedrock fractures and in the pore spaces in the soil. Protection of these underground water storage systems (aquifers) from environmental damage requires careful study and cooperation from every land user. Even a small spill of gasoline can cause a major contamination of groundwater. Effluent from septic tanks can result in water quality problems in adjacent wells. Road salting is also a concern since it makes freshwater more saline. Taking water out of the aquifer (particularly when a number of wells are located close together) can change the water flow patterns below ground and affect the overall supply.

Measures can be taken to mitigate the impact of development on the groundwater system but they cannot be relied upon as the only water protection plan for individual water supplies. The most important protection is provided by the well owner; therefore:

- ✓ All citizens should be aware of any water supply well they have on their property. Well owners should be careful not to use chemicals or other materials near the well that could result in a water quality problem.

- ✓ Anyone with a concern about their well should contact Nova Scotia Environment and Labour in their area for assistance.

Landscaping and Lot Maintenance

After a new area has been developed, long term landscaping and lot maintenance has traditionally involved the use of a wide variety of chemicals. Runoff laden with fertilizers and pesticides presents an ever-growing problem to watercourses and estuaries. Care in the planning and design stages can greatly help to reduce the amounts of chemicals used in landscaping and lot maintenance. For example:

Sodded areas:
Sod requires constant maintenance in the form of cutting, fertilizing, and pest control. Natural areas do not require the use of chemicals. Adjacent to watercourses, they cool the run-off and filter out contaminants. Rainfall is more readily absorbed into the ground in natural areas and vegetation slows down the rate of runoff thereby assisting in the prevention of erosion and/or flooding; therefore,

- ✓ The extent of sodded areas should be reduced to allow increased naturalization; this is especially important around watercourses.

Treatment of Pests and Weeds:
The use of natural methods to control pests and weeds are seen as being favourable over the application of certain types of chemicals that may adversely impact water quality. HRM has strict controls on the application of pesticides (and herbicides) through its "Pesticide By-law (P-800)", which prohibits the application of certain chemicals without a permit. HRM is also a resource for information on alternative methods of pest and weed control through a list of permitted treatment applications, a "Sustainable Maintenance Tips" brochure and other documentation. All of these are available from the HRM website under Environmental Management Services.

- ✓ Natural means to control pests and weeds should be used wherever possible.

Winter Maintenance:
During the winter months, the use of salt as a de-icing agent may result in salt-laden run-off into water bodies. Salt has been designated as a toxic substance under the Canadian Environmental Protection Act; therefore:

✓ The use of salt as a de-icing agent should be avoided wherever possible.

Planting for soil and site conditions:
Incorrect plantings will usually fail to adapt to new conditions or rely heavily on chemical supplements to survive. Today many plants are sold based on their ability to grow in dry or wet conditions, shade or sun, sand or clay type soils; therefore:

✓ Native species appropriate to the site conditions should be used where possible.

Run-off:
Water passing over roadways accumulates a high level of oils, fuels, metals, dirt, and other contaminants. When they are flushed into a watercourse, they are at high concentrations and can adversely affect water quality. In addition, rain falling on hot pavement will enter local watercourses at elevated temperatures. These elevated temperatures can kill fish and cause heavy weed growth that displaces natural species, especially in shallow waters. Natural areas trap and filter silt and treat contaminants and the shade from trees and shrubs adjacent to the watercourse helps maintain water temperature, thus sustaining a healthy aquatic habitat; therefore:

✓ Run-off should be directed to natural vegetated areas before entering a watercourse.

Glossary of Terms

erosion
The detachment of soil particles by erosive forces, primarily wind, water, ice and gravity. (Source: Erosion and Sedimentation Control Handbook for Construction Sites, Nova Scotia Department of the Environment)

erosion & sedimentation control plan
A plan which identifies potential problem situations and recommends remedial actions to prevent erosion and the sedimentation of watercourses.

floodplain
The area of land around a watercourse or water body that has a statistical chance of being inundated by water.

ground water
All water naturally occurring under the surface of the Province. (Source: Environment Act, Province of Nova Scotia, 1995)

ordinary high water mark
The accepted normal point of highest water in a watercourse during an average year.

runoff
The portion of precipitation on a drainage area that is not absorbed into the ground but is discharged into streams. Components of runoff include overland flow (sheetflow), open channel flow and ground water flow. (Source: Erosion and Sedimentation Control Handbook for Construction Sites, Nova Scotia Department of the Environment)

sedimentation or siltation
Transportation and deposition of soil particles that become detached through erosion. (Source: Erosion and Sedimentation Control Handbook for Construction Sites, Nova Scotia Department of the Environment)

stabilization
The process of establishing an enduring soil cover of vegetation and/or mulch or other ground cover in combination with installing temporary or permanent structures for the purpose of minimizing soil erosion. (Source: Erosion and Sedimentation Control Handbook for Construction Sites, Nova Scotia Department of the Environment)

1:20 year floodplain
The frequency of a flood of a certain magnitude (to that locale) to occur and cause flooding of the floodplain to a determined depth for that locale. There is a 5% chance of a flood of that magnitude in any given year.

1:100 year floodplain
The frequency of a flood of a certain magnitude (to that locale) to occur and cause flooding of the floodplain to a determined depth for that locale. There is a 1% chance of a flood of that magnitude in any given year.

watercourse
The bed and shore of every river, stream, lake, creek, pond, spring, lagoon or other natural body of water, and the water therein, within the jurisdiction of the Province, whether it contains water or not, and all ground water. (Source: Environment Act, Province of Nova Scotia, 1995)

wetland
Lands commonly referred to as marshes, swamps, fens, bogs and shallow water areas that are saturated with water long enough to promote wetland or aquatic processes which are indicated by poorly drained soil, vegetation and various kinds of biological activity which are adapted to a wet environment. (Source: Environmental Assessment Regulations pursuant to the Environment Act, Province of Nova Scotia, 1995.)

Important contacts and phone numbers...

HALIFAX REGIONAL MUNICIPALITY:

Development Services (for info on development/building permits and subdivision):		
(Eastern Region)	Building Permit Process	490-4490
	Subdivision	490-4435
(Central Region)	Building Permit Process	869-4375
	Subdivision	869-4380
(Western Region)	Building Permit Process	490-5650
	Subdivision	490-5650
Planning Services (for info on land use planning issues and initiatives):		
(Eastern Region)		490-4472
(Central Region)		869-4260
(Western Region)		490-4393
HRM Call Centre		490-4000
HRM website:		www.halifax.ca

DIRECT REGULATORY AUTHORITIES (PROVINCIAL/FEDERAL):

Nova Scotia Department of the Environment, Central Region (for information and permits on alteration of watercourses & wetlands)	424-7773
Coast Guard (Fisheries & Oceans Canada) (for information and permits on alterations (wharves, etc.) affecting navigable waters)	426-2726
(for 24 hour environmental pollution reporting)	1-800-565-1633
Fisheries & Oceans Canada, Habitat Management Branch (for information and permits (thru NSDOE) on fish habitat and alteration of habitat)	426-4612

AGENCIES FOR INFORMATION AND ADVICE:

Environment Canada (for general information)	426-7231
Nova Scotia Department of Natural Resources	
Coastal and Tidal Waters Section (for general information)	424-3160
Wetlands (for classification and information)	679-6224
Nova Scotia Department of Agriculture (for information on natural pest controls & organic fertilizers)	1-877-461-6545

HALIFAX WATERSHED ADVISORY BOARD*:

Sheilagh Edmonds (HRM)	490-6520

* There are a number of local and community based watershed protection groups represented on the Watershed Advisory Board. Information about these groups and contact names available on request.

Appendix D: Surveys and Interview Forms

a) Letter of Invitation to Survey Participants
b) Consent Form
c) Survey for Stakeholders Receiving HWAB Recommendation Reports
d) Survey for HWAB Representatives
e) Questionnaire for Community Group Interviews

a) Letter of Invitation to Survey Participants

Anna McCarron
MURP Candidate
19 Thompson Drive, Wellington, NS B2T 1J4
Phone/fax (please call first): (902) 861-3624
Email: plover@istar.ca

March 8, 2004

Dear Participant

Re: Letter of request for an individual's or focus group's participation in study

I am a Master of Urban and Rural Planning (MURP) candidate at Dalhousie University. I am conducting a research study concerning the effectiveness of the Halifax Watershed Advisory Board (HWAB). The title of research study is: "The role and influence of a watershed advisory board in effecting change in land development practices and regulations: A case study of the Halifax Watershed Advisory Board."

The purpose of this study is to determine the effectiveness of the Halifax Watershed Advisory Board (HWAB) in influencing development processes so that water resources are protected. This study will evaluate the degree to which the HWAB recommendations are followed by Council and by developers. Participants will be asked about the extent to which they feel the HWAB affects change to development processes that protect water bodies and watercourses. Community groups will be asked, through focus group meetings, about development processes in the community and their impact on the water bodies and watercourses and quality of life.

I am hereby requesting your participation in my study about your experiences with the HWAB and how well you feel the watersheds are being protected. A consent form is included which outlines the research method in more detail and what you will be asked to do as a participant. I will follow-up with a phone call in the near future.

If you agree to participate, please return the consent form provided in the enclosed self-addressed stamped envelope, or I will collect it, as discussed. Your participation will be kept strictly confidential and anonymity will be ensured unless you would prefer to be acknowledged. In that case, a waiver of confidentiality would need to be signed on the appropriate line. You should also know that you can withdraw from the interview at any time and any data already collected will be returned to you.

Thank you for considering this request. I look forward to speaking with you soon.

Sincerely,
Anna McCarron

b) HALIFAX WATERSHED ADVISORY BOARD STUDY CONSENT FORM

Title: The role and influence of a watershed advisory board in effecting change in land development practices and regulations: A case study of the Halifax Watershed Advisory Board

Applicant:
Anna McCarron, School of Planning,
Faculty of Architecture and Planning,
Dalhousie University,
P. O. Box 1000, Halifax, Nova Scotia, Canada, B3J 2X4
Ph: (902) 860-1263 E-mail: acmccarr@dal.ca

Degree Program: Master of Urban and Rural Planning

Thesis Supervisor:
Dr. Patricia Manuel, Associate Professor,
School of Planning, Faculty of Architecture and Planning,
Dalhousie University,
P. O. Box 1000, Halifax, Nova Scotia, Canada, B3J 2X4
Ph. (902) 494-6597 Fax: (902) 423-6672
E-mail: pmanuel@dal.ca

Contact Person: Please contact Anna McCarron at any time during the research period if you have any concerns or questions, or require information or assistance regarding this study.

Dear Participant,

I invite you to take part in a research study being conducted by me, Anna McCarron, a graduate student at Dalhousie University. This research project will fulfill part of the requirements for a Master of Urban and Rural Planning degree. The study is described below. This description also tells you about the risks, inconvenience, or discomfort which you might experience. Given the nature of the project, however, such risks are minimal. Participating in the study will not likely benefit you directly, but we will learn things that may benefit the Halifax Watershed Advisory Board, the Halifax Regional Municipality developers, and community watershed groups. You should discuss any questions you have about this study with me. Your participation is greatly appreciated.

The purpose of this study is to determine the effectiveness of the Halifax Watershed Advisory Board (HWAB) in influencing development processes so that water resources are protected. This study will evaluate the degree to which the HWAB recommendations are followed by examining development applications, rezoning applications, and bylaw change requests. Site visits to selected developments will be conducted to determine if and how many of the HWAB recommendations were implemented.

All current and some past HWAB members, all former and present councilors and all developers involved with the process associated with specific development sites, as well as some HRM planning staff, are invited to participate in the research. However, no one is obligated to participate.

Your participation in this study is voluntary and you may withdraw from the study at any time. Also, if you chose to withdraw your information at any point during the research process, you may do so. I will conduct a one-on-one, face-to-face or telephone interview based on the questionnaire, in a location of your preference, or you may simply fill out the questionnaire provided with this package. You will be asked about your experiences with the HWAB process, and how well you believe water bodies, and watercourses are being protected through the HWAB advisory process. An interview process may take approximately one hour. Unfortunately, travel expenses cannot be reimbursed. I will make every effort to alleviate any expenses on your part by traveling to your destination.

I also request permission to use direct quotes from our interview or the questionnaire. If you are willing to sign a waiver acknowledging your contribution to the study, any of your quotes used will be attributable to you. This signature line would also endorse the provision that you may review any attributed quotations prior to publication. Otherwise, all quotes will be kept anonymous, as per your signature on the line confirming your consent to use quotes directly from the interview and that anonymity will be ensured. If you would prefer that your quotes not be used, but still agree to be interviewed, please indicate this on the appropriate line. All data will be secured in a locked cabinet or under a password on a computer. I will be the only person with access to this information. If the thesis supervisor requests data, names will not be associated with it. Through coding, your identity will be confidential and separate from your comments. Once the research is complete, all data will be stored at my supervisor's office at Dalhousie University under lock and key for a period of fives years, after which time the data will be destroyed.

HALIFAX WATERSHED ADVISORY BOARD STUDY CONSENT FORM
(for individual participant's interview)

The role and influence of a watershed advisory board in effecting change in land development practices and regulations: A case study of the Halifax Watershed Advisory Board

I hereby request your permission to interview you about your experiences on the HWAB and agree to the terms set out in this consent form. Please sign below in the appropriate spaces if you agree to participate. Your involvement in this project is greatly appreciated and extremely important to complete the research work.

I (Participant)_____consent to being interviewed by Anna McCarron or filling out the questionnaire provided for the purposes of her research. I furthermore understand that I may withdraw from the research process at any time, that my participation is voluntary and that I have the right to decline to answer any question. I understand that I will not be reimbursed for any travel expenses that may be incurred through the research process.

Participant's Signature:_____

I (Participant)_____hereby consent to being acknowledged as a contributor to this study, and that any quotes used will be attributable to me. I also understand that I will have the opportunity to review any quotations attributable to me prior to publication:

Participant's Signature:_____

I (Participant)_____do ☐ / do not ☐consent to quotes being used in the research thesis and understand that my name will not be associated with the quotes:

Participant's Signature:_____

Researcher's
Signature: _____ Date:_____

In the event that you have any difficulties with, or wish to voice concern about, any aspect of your participation in this study, you may contact Patricia Lindley, Director of Dalhousie University's Office of Human Research Ethics Administration for assistance: (902) 494-1462, patricia.lindley@dal.ca

c) Halifax Watershed Advisory Board Study Questionnaire: (For Councillors and Developers and HRM staff)

1. What is/was (please circle appropriate tense) your involvement with the HWAB?

How many years? ___yrs

Recognized Watershed Group HWAB Rep	☐	HRM Staff	☐
District representative	☐	Developer	☐
Councillor	☐		

2. How important is public participation in achieving the goal of water resource protection in your district?

Not at all Very

1 2 3 4 5

3. How important is protection of water resources?

Not at all Very

1 2 3 4 5

4. Have any development projects impacted on a watercourse or water body in your area?

Yes ☐ No ☐ Don't know ☐

If so, how? If you did not answer yes, please skip to # 6.

5. If you answered yes to #4, did they impact on the citizen's in the area?

Yes ☐ No ☐ Don't know ☐

If yes, how? If you did not answer yes, please skip to #6.

6. How effective do you feel the HWAB is in influencing changes to development so that water resources are protected for wildlife habitat?

Not at all Very Don't know

1 2 3 4 5

7. Please give some examples of how you feel water resources for wildlife habitat should be protected?

8. How effective do you feel the HWAB is in influencing changes to development with respect to protecting quality of life for people living near watercourses?

Not at all Very

1 2 3 4 5

9. Please give some examples of how you feel water resources for quality of life for people who live near watercourses should be protected?

10. Do you think watershed protection should take precedence over development?

Yes ☐ No ☐

Why or why not?

11. Do you have any other comments you would like to offer?

THANK YOU!

d) Halifax Watershed Advisory Board Study Questionnaire:
(for past and present HWAB members)

1. What is/was (please circle appropriate tense) your title as a HWAB member?

How many years? ___yrs

Recognized Watershed Group HWAB Rep	☐	HRM Staff	☐
District representative	☐	Developer	☐
Councilor	☐		

2. How important is public participation in influencing development regulations?

Not at all 1 2 3 4 5 Very

3. As an HWAB member, what sector do (did) you feel you represent(ed) (please check all that apply):

☐ The general public	☐ Your district
☐ A watershed group	☐ Your community
☐ Other _____	

4. I adequately represent(ed) the sector indicated in #3 on the HWAB.

Strongly Disagree 1 2 3 4 5 Strongly Agree

5. The HWAB is making the best recommendations possible to protect watercourses and water bodies with respect to development applications.

Strongly Disagree 1 2 3 4 5 Strongly Agree

6. Please describe any development practices or restrictions that are *not* being implemented that you feel should be, to protect watercourses and water bodies and quality of life.

7. Have any of these practices or restrictions in #6 ever been recommended by the HWAB?

Yes☐ No ☐

Please explain:

8. How do you think the HWAB can best protect water resources?

9. Current development practices are better than they were than when I started my term on the HWAB?

Strongly disagree 1 2 3 4 5 Strongly Agree

Please comment:

10. Did you have any experience in watershed management issues before you sat on the board?

Yes ☐ No ☐

11. How confident are you in your ability to make recommendations that will protect water resources from development impacts?

Not at all 1 2 3 4 5 Very

12. How confident do you feel that the HWAB process is doing its job to:

a) educate the public;

Not at all Very

1 2 3 4 5

b) make adequate recommendations to Council

Not at all Very

1 2 3 4 5

c) influence changes to policies, development controls and regulations?

Not at all Very

1 2 3 4 5

13. Can you suggest other ways to influence changes to development practices that would effectively protect watersheds?

14. Any other comments?

THANK YOU!

e) Halifax Watershed Advisory Board Study Questionnaire: (for watershed/community groups)

1. How long has your group existed?
Years____

2. Are you aware of the Halifax Watershed Advisory Board?

Yes☐ No☐

3. Are you aware of the role of the Halifax Watershed Advisory Board?

Yes☐ No☐

4. Is your watershed/community group represented on the HWAB?

Yes☐ No☐ Don't know ☐

How many years?____

5. Have the citizens in your community ever used the local water resources in the past 15 years for the following:

Drinking	☐	Fishing	☐
Boating	☐	All of the above	☐
Swimming	☐	Other	☐

6. Has the community ever stopped doing any of the activities indicated in #5 because of water quality/quantity issues?

Yes ☐ No ☐ Don't know ☐

If yes, which ones? If no, please skip to question 8.

Drinking	☐	Fishing	☐
Boating	☐	All of the above	☐
Swimming	☐	Other	☐

Please explain.

7. Has the community ever been able to resume the following activities?

Drinking	☐	Fishing	☐
Boating	☐	All of the above	☐
Swimming	☐	Other	☐

Please explain why.

8. What kinds of developments have taken place in your community (please check all that apply):

Residential: single unit ☐ multiple ☐ subdivision ☐

Commercial: single unit ☐ multiple ☐ strip mall ☐
industrial park ☐

Highway: single ☐ double lane ☐

Other: _____

9. How have the developments in your community impacted on (please check all that apply):

a) water bodies and watercourses
negatively ☐ positively ☐

Please describe what kind of development and in what way.

b) residents' ability to use water resources?
negatively ☐ positively ☐

Please describe the kind of development and in what way.

10. Generally, how does your community respond to development? (please check all that apply):

Positively ☐ negatively ☐ indifferently ☐

It depends on what kind of development ☐

11. Please describe any positive or negative reactions your community has expressed to any of the developments described in # 8.

12. Please describe any recommendations with respect to development that you think should be made to Council that would best protect your community's water resources.

13. Current development practices are better now than they were when the watershed group started?

Strongly Disagree 1 2 3 4 5 Strongly Agree

13. Please describe how development practices in your community have improved or worsened.

14. Please describe what development practices or restrictions you feel should be implemented or removed?

15. Are there any further comments you would like to add?

THANK YOU!

Appendix E: Water Protection Techniques Recommended in Literature

Mitigation Technique	Applications of technique	Benefits of technique
Stormwater management control techniques	Stormwater carries contaminants including dog feces, lawn and garden fertilizers, oil/grit from asphalt driveways and parking lots, polluting the waterway it enters.	
Increase permeable surfaces	- Create/maintain more pervious surfaces with rooftop gardens, gravel driveways, permeable road surfaces, parking lots and park pathways.	- Reduces need and costs for high-capacity wastewater treatment systems and stress on collection systems. - Protects watercourses from nutrients and contaminants from entering water systems through stormwater runoff.
Integrated Water Cycle Management (IWCM)	- Use stormwater and wastewater effluent to irrigate golf courses and parkland. - Allow wastewater from one system to become the water source for another e.g., a golf course irrigation system could reuse treated wastewater from a residential area nearby. - Locate a sewage treatment plant next to a power station and reuse the sewage biosolids from the treatment plant next door.	- To preserve wetlands. - To reduce water flow through sanitary sewer systems and the need for wastewater treatment.
Clustered subdivisions	- Subdivisions incorporate onsite rainwater collection and stormwater drainage technologies.	- Creates a "water sensitive" urban design feature.
Wetland creation/preservation	- Filter water through a wetland before gradually percolating into a watercourse, preferably after silt has been collected and high water levels have been reduced beforehand.	- Acts as a secondary filter for run-off as a buffer to watercourses/bodies.
Berms	- Build ledges of earth or other material that direct, reduce or block the flow of water.	- To help control and reduce water run-off and sediment between high water levels and watercourses and allow stormwater a chance to percolate into the ground rather than running straight into a watercourse.

Mitigation Technique	Applications of technique	Benefits of technique
Floodplain areas	- Allow floodplains to remain undeveloped.	- Provide buffers for water bodies/courses (allowing water to drain back into the watercourse gradually). - To minimize property damage resulting from flood events. - Protect the property from flood damage and prevent costs associated with infrastructures such as dykes and reservoirs associated with accommodating floodwaters.
Wildlife habitat protection methods	Enhancing and protecting wildlife habitat within watersheds	
Maintain wetlands	- Conserve existing wetlands	- Reduces changes to current hydrologic regime.
Pollution prevention	- Minimize contaminant loading	- Prevents toxins and sediment from altering habitat health.
Determine contiguous corridors of undeveloped land	- Preserve existing vegetation	- Counteracts the effects of habitat fragmentation.
Manage access to shorelines and wetlands	- Minimize access points. - Ensure access areas are created in an ecologically sound manner (i.e., minimal vegetation removal, permeable surfaces, waste removal/receptacles).	- Reduces damage, disturbance and predation.
Educate users, developers and contractors	- Interpretive displays, school visits	- Creates public awareness and attitudinal change.

Mitigation Technique	Applications of technique	Benefits of technique
Riparian zones	- Create areas around watercourses, supported by natural vegetation. - Ideal distance inland is a minimum 100 metres or 330 ft. (although some b rds require 200 metres) of a stream or open water which is the area most heavily used by wildlife. - Ensure intermittent streams and brooks are protected by at least 50 metres.	- To regulate floodwaters. - To keep waterways cool. - To mitigate sedimentation, erosion and nutrient loading impacts. - To provide wildlife habitat - To lend aesthetic qualities to watershed landscapes.
Adopt (at least) the Nova Scotia Wildlife Habitat and Watercourse Protection Regulations for land-use development (WHWPR)	- Create riparian zones - Leave clumps of trees.	- Provides good riparian buffer function and benefit. - Moderately difficult to implement. - Eliminate the significant contradiction between community development practices and forestry operation practices.
Setbacks	- A relatively (compared with riparian zones) short distance between a building/development and watercourse/body.	- Keep water temperatures cool. - Aesthetic qualities. - Streambank stabilization. - Helps to trap sediment. - Mitigates soil erosion. - Provides a food source for wildlife. - Helps to reduce stormwater flow rates. - Recharges groundwater sources.
Water quality monitoring	Method to determine whether there are changes in the water quality and what the sources, if any, of negative impacts may be on that water quality - especially in the post-development phase.	
Baseline data collection	- Collect data on the suite of water quality parameters as set by CCME standards.	- Results of follow-up testing alerts authorities when there may be a problem.
Testing parameters	- Testing parameters vary according to the whether the testing is baseline, follow-up or to look for or investigate a perceived problem or issue with regard to water quality.	- Standard water quality variables that are sampled for testing water quality.

Mitigation Technique	Applications of technique	Benefits of technique
Implement planning policies and regulations that support the latest water resource management strategies	Compliance with watershed management techniques is enhanced when planning policies and regulations exist to support the use of the techniques.	
Protecting water quality through policies and regulations	Planning regulations to protect water quality should be incorporated into all development applications and practices.	
Designate buffer (riparian) areas	- As described above.	- To protect waterways from a host of impacts as described above.
Protect wetlands as conservation areas.	- As described above.	- As a stormwater management t ol and further contamination control. - To mitigate stormwater damage to property.
Designate slopes over 25% as a no- construction zone	- Incorporate into Development Agreements and other planning regulations.	- To prevent soil erosion.
Designate slopes over 15% as sensitive areas	- Prompt special construction considerations.	- Prevent soil erosion problems.
Protecting water quantity through policies and regulations	Policies that should be applied to protect water quantity	
Make water more expensive to use	- Create a withdrawal fee. - The lack ofwithdrawal fee in many Canadian municipalities is seen as a "perverse subsidy, leading to over-consumption by individuals and other end-users" Brandes et. al. (2005)	- To create awareness among users about the value of the resource and not to take water's availability for granted.
Mandate use of low-flow plumbing fixtures	- Mandate requirements for low water-use plumbing fixtures including low-flow showerheads, and low-volume toilets.	- Limits water use.
Public educa ion	- Maintain/create measures to mitigate impacts post-construction. - Public awareness campaigns and education through local community water groups.	- Stakeholders (residents and landowners) learn how they positively and negatively impact water resources and how to adequately protect water resources.

Mitigation Technique	Applications of technique	Benefits of technique
Create design policies	All developments require design policies through development agreements highlighting the importance of habitat protection to developers. Areas could be protected and maintained for residents and wildlife alike.	
Buffer	- Create buf er width of no less than 15m that respects slope and soil conditions.	- Minimizes erosion and provides a source of contaminant control.
Road width	- Minimize the width and length of road networks and cluster developments.	- Minimizes stormwater runoff and conserves large areas of natural vegetation and promotes wildlife corridors.
Slope design	- Design slopes and roads and driveways with shallow slopes to minimize the need for road salt.	- Slopes allow water to run off rather than pooling - creating patches of ice.
Stormwater analysis	- Compare pre- and post development measures.	- Provides runoff management options and contaminant control measures.
Design and management of contaminant control	- Provide information on the such as fertilizers from golf courses, and treatment of run-off from parking lots and roads.	- Shows commitment to management of contamination.
Maintain vegetation	- Avoid disturbance of the shoreline and its vegetation.	- Prevents erosion and a contamination buffer. - Provides a stop-gap for contamination.
Conserve natural drainage channels, and conserve wetlands	- Maintain these areas.	- Protection against stormwater runoff and contamination.
Reducing the creation of lawns	- Use natural landscaping.	- Reduces the need for artificial aesthetic control products such as fertilizers, herbicides and pesticides.
"Polluter pays" principle	*"Regardless of the funding method chosen for source water protection planning, the "polluter pays" principle should be adopted. The principle assigns polluters responsibility to remedy contamination for which they are responsible. This is one of the only ways to change behaviour and to curb pollution at its source (as opposed to just charging consumers with rate surcharges)" (Mike Price, General Manager, Water and Wastewater Services, City of Toronto; Pollution Probe (2004)).*	

Source: Adapted from Griffiths Muecke (1994); Dillon (2002); Pollution Probe (2004); Bancroft (2005); Brandes et al., (2005) citing Marsalek et al., (2002); Brandes et al (2005); HRM RMPS (2006).

Appendix F: Water Governance Jurisdictions

Summary of Jurisdictions related to surface water, groundwater, wetlands, marine waters and adjacent lands (adapted from Dillon, 2002).

Act and Department of Authority	Streams and Rivers	Lakes and Ponds	Wetlands	Marine Waters	Groundwater
N S *Environment Act*, Nova Scotia Department of Environment and Labour	- Jurisdiction over watercourses, broadly defined ("bed and shore of... creek, spring... and the water therein, whether it contains water or not"); - Essentially all activities that may affect the banks or bed of a stream require a Water Approval under the *Activities Designation Regulations* and the *Approval Procedure Regulations* of the *Act* except for the installation of a culvert in a watercourse between June 1 and September 30, when approval is not required. - Drinking water supply watersheds are designated under this *Act* and the activities within regulated.	- Same jurisdiction as streams and rivers, included in definition of watercourses	- Protected under *Wetlands Operational Bulletin* and *Wetlands Designation Policy* jointly with the NSDNR ; - Not defined under *Environment Act's* definition of a watercourse; - Over 2 ha disturbance Requires Environmental Assessment	- Not explicitly included in definition of watercourse; - Included in the definition of water resource	- Same jurisdiction as streams and rivers; - Included in definition of watercourse

Act and Department of Authority	Streams and Rivers	Lakes and Ponds	Wetlands	Marine Waters	Groundwater
NS *Watercourse Resources Protection Act*, Nova Scotia Department of Environment and Labour	- This *Act* primarily regulates the sale of potable water.	-Same as streams and rivers.	- Not applicable	- Not applicable	- Same as streams and rivers.
NS *Forests Act*, Nova Scotia Department of Natural Resources	- Through the *Forests Act*, forestry operations must be conducted in accordance with the *Wildlife Habitat and Watercourses Protection Regulations* under the *Act* and the "Forest/Wildlife Guidelines and Standards for Nova Scotia."	- Same as for streams and rivers	- Same as under *Environment Act*, NSDNR and NSDEL jointly have jurisdiction over wetlands.	- Not applicable	- Not applicable
NS *Crown Lands Act*, Nova Scotia Department of Natural Resources	- Jurisdiction over bed of streams and rivers as Crown Land	- Jurisdiction over bed of lakes as Crown Land	- Not applicable, except for open water that fits watercourse definition	- Jurisdiction over bottom as Crown Land, with few exceptions for water lots	- Not applicable
NS *Beaches Act*, Nova Scotia Department of Natural Resources	- Not applicable	- Marine waters protections may be applied to shores of lakes	- Not applicable	- Provides protection for seaward side of all beaches; can be extended to landward side. - Specific regulations provide additional protection for selected designated beaches	- Not applicable

Act and Department of Authority	Streams and Rivers	Lakes and Ponds	Wetlands	Marine Waters	Groundwater
NS *Municipal Government Act*, Service Nova Scotia and Municipal Relations	- No jurisdiction over waters; - The *Act* gives authority to municipal councils to pass by-laws and to govern municipalities in a way that council determines is appropriate within their jurisdictions. - Examples of some bylaws protecting water resources in HRM are: --Lot Grading Bylaw L-300 HRM --Topsoil rernoval By-law, Halifax Count --Pesticide bylaw, HRM --Wastewater discharge By-law, HRM	- No jurisdiction over waters; - Lakes and other bodies of water included in definition of watercourse; - Planning authorit given for lands adjacent to watercourse	- Not included in definition of watercourse; - Planning authority given over wetlands as lands	- No jurisdiction over waters, oceans and other bodies of water included in definition of watercourse; - Planning authority given for lands adjacent to watercourses	- No jurisdiction over groundwater; - Not defined as watercourse
Canada *Fisheries Act*, Department of Fisheries and Oceans	- Jurisdiction over fisheries; applies to fish and fish habitat (containing fish or not)	- Jurisdiction over fisheries; applies to fish and fish habitat (containing fish or not)	- Jurisdiction applicable where wetlands are fish habitat	- Jurisdiction over fisheries; - Applies to fish and fish habitat (containing fish or not)	- Not applicable
Canada *Navigable Waters Protection Act*, Department of Fisheries and Oceans Canada	- Approval may be required for structures over, across, through or under navigable waters	- Approval may be required for structures over, across, through or under navigable waters	- Not applicable	- Approval may be required for structures over, across, through or under navigable waters	- Not applicable

Appendix G: HRM RMPS Water Resource Policies

Potable water supply

E-8 HRM shall, through the applicable land use by-law, establish a Protected Water Supply Zone. This Zone shall be applied to all publicly owned lands within designated public watersheds including, but not limited to, the Pockwock, First and Second Chain Lakes, Lake Major, Bennery Lake watersheds and to lands around Topsail Lake and Lake Lamont and Tomahawk Lake. This Zone shall also be applied to private lands within these watersheds as is necessary to protect the public water supply. The Zone shall permit water distribution and purification facilities, passive parks and trails, conservation related uses, and other uses as provided by the existing secondary planning strategies for these areas.

Wetlands protection

E-9 HRM shall, through the applicable land use by-law, establish a Wetlands Schedule to be used as a reference in determining the presence of wetlands 2000 m^2 or greater in area. On all applications for development approval, the by-law shall require the proponent to verify the existence and extent of any wetland shown on the schedule. The by-law shall prohibit development within any such wetland.

Riparian buffers

E-10 HRM shall, through the applicable land use by-law, require the retention of a minimum 20 metre wide riparian buffer along all watercourses throughout HRM to protect the chemical, physical and biological functions of marine and freshwater resources. The by-law shall generally prohibit all development within the riparian buffer but provisions shall be made to permit board walks, walkways and trails of limited width, fences, public road crossings, driveway crossings, wastewater, storm and water infrastructure, marine dependent uses, fisheries uses, boat ramps, wharfs, small-scale accessory buildings or structures and attached decks, conservation uses, parks on public lands and historical sites and monuments within the buffer. In addition, no alteration of land levels or the removal of vegetation in relation to development will be permitted.

E-11 Policy E-10 shall not apply to lands designated Halifax Harbour on the Generalized Future Land Use Map industrial lands within the port of Sheet Harbour and lands within the Waterfront Residential (R-1C) Zone under the Shubenacadie Lakes Secondary Planning Strategy.

E-12 Further to Policy E-10, where a use or development can be considered by development agreement, HRM shall consider, under the development agreement, the acquisition of riparian buffers as public open space as well as alternative uses within the buffers.

E-13 Further to Policy E-10, HRM shall, through the applicable land use by-law, relax the riparian buffer requirement for lots in existence on the effective date of this Plan and lots shown on current tentative and final subdivision applications, where otherwise development would be prohibitive. No relaxation to the buffer under the by-law shall be permitted for lots created after the effective date of this Plan.

Floodplains

E-14 HRM shall restrict development and prohibit the placement of fill or alteration of grades in association with development that restricts the capacity of flow or increases flood levels within the 1 in 100 year and 1 in 20 year floodplains for designated watercourses, under secondary planning strategies and land use by-laws. Boardwalks and walkways, conservation uses, historic sites and monuments and wastewater, stormwater and water infrastructure shall be permitted within floodplains.

E-15 Notwithstanding Policy E-14, within the 1 in 100 year floodplain, provisions may be made in secondary planning strategies and land use by-laws to permit development which has been adequately flood-proofed.

Coastal inundation

E-16 HRM shall, through the applicable land use by-law, prohibit all residential development on the coast within a 2.5 metre elevation above the ordinary high water mark, except for lands designated Halifax Harbour on the Generalized Future Land Use Map (Map 2) and industrial lands within the port of Sheet Harbour. Provisions shall be made within the by-law to permit residential accessory structures, marine dependant uses, open space uses, parking lots and temporary uses within the 2.5 metre elevation.

Watershed planning

E-17 Watershed or sub-watershed studies concerning natural watercourses shall be carried out as part of comprehensive secondary planning processes. These studies shall determine the carrying capacity of the watersheds to meet the water quality objectives which shall be adopted following the completion of the studies. The studies, where appropriate, shall be designed to:

(a) recommend measures to protect and manage quantity and quality of groundwater resources;

(b) recommend water quality objectives for key receiving watercourses in the study area;

(c) determine the amount of development and maximum inputs that receiving lakes and rivers can assimilate without exceeding the water quality objectives recommended for the lakes and rivers within the watershed;

(d) determine the parameters to be attained or retained to achieve marine water quality objectives;
(e) identify sources of contamination within the watershed;
(f) identify remedial measures to improve fresh and marine water quality;
(g) recommend strategies to adapt HRM's stormwater management guidelines to achieve the water quality objectives set out under the watershed study;
(h) recommend methods to reduce and mitigate loss of permeable surfaces, native plants and native soils, groundwater recharge areas, and other important environmental functions within the watershed, and create methods to reduce cut and fill and overall grading of development sites;
(i) identify and recommend measures to protect and manage natural corridors and critical habitats for terrestrial and aquatic species, including species at risk;
(j) identify appropriate riparian buffers for the watershed;
(k) identify areas that are suitable and not suitable for development within the watershed;
(l) recommend potential regulatory controls and management strategies to achieve the desired objectives; and
(m) recommend a monitoring plan to assess if the specific water quality objectives for the watershed are being met.

Functional Plans

E-18 HRM shall prepare a Water Quality Monitoring Functional Plan to establish a comprehensive water quality monitoring program for the Municipality.

Appendix H: Frequencies of Project Types and Recommendations

Land use project type (# instances)	Recommendation types (# of times issued)
Campgrounds (2)	Buffers (6); floodplain protection (2); provide sampling monitoring reports for review (3); STP (sewage treatment plant) specs (4); septic/sewage design or effluent /treatment specs (3); water quality monitoring (2); remediation and restoration (1); protect wetland (1)
Church and its parking lot expansion (1)	Floodplain protection specs (3); catchment areas (1); stormwater discharge (3)
Clubhouse at golf course (1)	Stormwater Management Plan implemented during construction (1)
Commercial (6) re: Grocery Store Plazas (3), buildings (1), with residential (1), grocery and hardware combo (1)	Pyritic slate (2); adopt "no net loss" principle (1); buffer (1); refer to HWAB Guidelines (1); enhance existing wetland with vegetation (1); Erosion and Sedimentation Control Plan (4); water quality monitoring (4); hazardous material storage specs (1); minimize impervious surfaces (2); provide design/development plan for review (3); retention area (3); septic approval process (1); snow removal plan (1); stormceptor design specs (2) re CDS unit to control stormwater outflow (1); stormceptor monitoring specs (3); provide sampling/monitoring reports for review (4); stormwater discharge specs (14) re: constructed wetland (4), fish passage (1), roof drain flow control (1), flow rates (1), overland dispersal (1) and oil and grit separator device (2); groundwater recharge (1); remediation and restoration (1); Stormwater Management Plan (3); wastewater effluent treatment/dispersal (3); wastewater management collection system (1)
Community group application to protect Crown lands (1)	Conservation area (1); rezone to conserve area (1); off-highway vehicle restrictions (1); rezone to passive recreation area (1); on-site septic concerns re: squatter camps (1)
Community Sewage Treatment Plant (STP) (1)	Hydrological analysis (1); on-site septic cumulative effect impact (1); remediation and restoration (1); Replace chlorination with ultraviolet light purification (1); Septic/sewage effluent treatment/dispersal (1); STP concerns including impact of increased water volume (1); STP monitoring specs (3) including employ limnologist (1); provide sampling monitoring reports for review (1) and 5:1 dilution ratio and dissolved oxygen (1)
Construction and demolition (C&D) Recycling facilities (2)	Buffer specs (2); containment system for litter control (2); Erosion and Sedimentation Control (7); fire control measures (1); landfill specs (1); Provide sampling/monitor reports for review (6); remediation and restoration (1); setbacks from watercourse (1); stormwater discharge specs (6); water quality monitoring (9); refer to NSDEL guidelines (3)
Construction debris site (1)	Buffer specs (2); refer to HWAB Guidelines (1); dust monitoring (1); Erosion Control Plan (1); provide design/development plan for review (1); impervious surface and collection system (2); stormwater discharge specs (1); water quality protection precautions (1).
Contract Yard Expansion (1)	Buffer specs (2); containment system (1); impervious surface (2); oil and grit separation system (1); utilize existing documentation re protection of area lakes (1); septic/sewage effluent treatment/dispersal (1); provide sampling/monitor reports for review (1)
Conversion of School to community commercial development (1)	Refer to HWA Board Guidelines re: landscaping (1)
Garden Centre Expansion (1)	Buffer specs (2); protect wetland (2); stormwater discharge specs including CDS/Stormceptor drainage system unit (1); provide design/development plan for review (1)
Gas Bar (at Grocery Store) (1)	Apply existing planning strategy (1); catchment areas (1); litter control (1); minimize impervious surface (1); oil and grit separation (2); provide sampling/monitoring reports for review (1), public access (1), stormwater discharge specs (1); erosion control (1); Stormwater Management Plan (1); Water Quality Monitoring (1)

Land use project type (# instances)	Recommendation types (# of times issued)
Golf course (15); and residential development (7), extension (1) and amendment to extension (1), recreational facilities (1), wetland enlargement (1), and club house development (1), additional residential lot (1), water quality protection plan (1), Environmental Studies and Protection Measures for water at golf course site (1)	Pyritic slate survey (1); adopt "no net loss" principle (1); acquire aquatic expertise (1); Board assistance in design/development plan (1); review HWAB Guidelines (2); boating facilities specs (1); buffer (9); Erosion and Sedimentation Control (4); Erosion and Sedimentation Control Plan (5); fish habitat protection (1); Central Sewage Treatment Facility (CSTF) (1); constructed wetland con (1) pro (1); containment system for hazardous materials (1); pesticide and fertilizer monitoring (1); pesticide and fertilizer control plan (3); provide pesticide use plan to Board for review (1); DA approval by credible organizations (1); provide sampling/monitor reports for review (8); provide development plans for review (4); provide development phase reports for review (1); minimize impervious surfaces (1); oil tank specs (1); golf course not considered as parkland requirement (1); sedentary organism sampling for mercury (1); protect wetland (1); acquire hydrological expertise (1); provide public access (3); remediation and restoration (2); septic approval process (1); septic/sewage treatment effluent/dispersal specs (7); stormwater discharge specs (11); Stormwater Management Plan (1); Sewage treatment Plant (STP) specs (1); protection measures including excavation precautions (1), protection plan (1) and monitoring (17); water quantity protection measures including monitoring of lake water removal and ability to replenish supply (1), hydrogeological survey of groundwater supply (1), approval to increase use (1); natural watercourse flow maintenance (1); waterless toilet facility design specs(1)
Highway 103 Twinning Project (1)	Adopt "no net loss" principle (1); Erosion and Sedimentation Control Plan (1); Fish passage (1); Water quality specs (4) re: baseline and benthic pre and post construction, frequency, parameters
Land Use Plan (1)	Water quality monitoring techniques (1); Fish passage specs (1); Buffer specs for open space plan (1); Protect Wetlands (1); on-site septic specs (1); Refer to NSDEL Guidelines for on-site specs (1); Septic sewage treatment effluent dispersal (1); Stormwater discharge re: treatment systems/mechanisms to remove pollutants and improve bacteriology quality of stormwater (e.g. Nepean, Ontario) (1); Restrict motorized boat use on lakes (1)
Lobster plant expansion (1)	Buffer specs (1); Refer to HWAB Guidelines (1); Wastewater effluent monitoring (1); Wastewater management specs (1); Provide sampling/monitoring reports for review (1); Refer to Env. Can and NS regulations and Water Pollution Control Directorate Guidelines (1); Septic approval process specs (1)
Master Plans (2) *(but with regard to same site, i.e. Prince's Lodge later referred to as Wentworth Bedford South at Secondary Plan stage)*	Buffer specs (2); Development specs re: prohibited in areas with >20% slope (2); Enduring covenants (2); No clear cutting (2); Development not recommended in area re: surface and groundwater quality concerns re: untreated sewage entering waterways; septic/sewage treatment specs re: tertiary system (2); Provide development/design plan for review (1); Stormceptor design specs (2); Constructed wetland in conjunction with stormceptors (2); Environmental Assessment including fish survey (2); Stormwater Management Plan (2); Water quantity (groundwater) (10) re: protection of levels (2), conservation (2), blasting impacts on (4), monitoring (2); Water quality (surface and groundwater) protection (4) re: domestic use (2), reduce pesticide and fertilizer use (2); Water quality (surface) monitoring specs (2); Employ geo-technical engineer and limnologist to conduct environmental assessment (2)
Mixed-use – transit oriented development (1)	Buffer specs (1); Retention pond specs (1); Snow removal plan that minimizes salt impact (1); Stormwater discharge specs (4) re: drainage infiltration, drainage infrastructure including CDS/Stormceptor system (2), flow control/velocity from roofs; Stormwater Management Plan (3) re: wording in DA to include hiring independent company, construction monitoring, erosion and sedimentation control; Water quality monitoring re frequency (1)

Land use project type (# instances)	Recommendation types (# of times issued)
Mobile home park (2); *and extension (1)*	Pyritic slate specs (1); Refer to NS Guidelines re slate (1); Buffer specs (1); Protect wetland (1); Constructed wetland specs (4) re: concept (1), design (1), effluent monitoring (1); Erosion and Sedimentation Control Plan (2); Floodplain protection specs (1); No impact on wetland from boating facilities (1); Public access (1); Sand rather than salt use on roads (1); Septic/sewage design specs (1); Septic/sewage effluent treatment/dispersal (1); Sewage overflow storage capacity (1); Stormwater Management Plan (2); Provide design/development plan for (HRM and DOE) review (1); Stormwater Discharge Specs (1); Sewage Treatment Plant (STP) and constructed wetland monitoring re: baseline water quality testing (1); Water quality monitoring (2) re: baseline (1), sedentary organism sampling for mercury (1); Board offer to provide assistance in developing scope and terms of reference for water quality sampling/ monitoring studies (1); Water quality protection specs re: sewage effluent contamination (1); Water (surface) quantity monitoring re: impacts of withdrawal from river (1)
Ocean side restaurant expansion (1)	Septic approval specs (1); Wastewater treatment specs (1); provide sampling/monitoring reports for review (1)
Private Island Developments (2)	Adhere to topsoil bylaw (1); bonding requirement (1); buffer specs (6); protect wetland (2); erosion (4) and sedimentation (2) control; convey land to HRM (2); Erosion and Sedimentation Control Plan (4); no clear cutting (2); on-site septic (2); protect and convey wetlands to HRM (2); road/causeway development specs (1); Stormwater management plans (2) re utilize cleansing abil ty of wetlands (4); sto water discharge re flow reduction (2); fish passage (2)
Residential (large) (9) including: rural (1), community (1), phased (1), mixed units (2) land use allowances (1), subdivisions (2), multi-unit (1)	Boating facilities specs (1); public access (1); Convey land to HRM (7); Refer to HWAB Guidelines (4); Refer to DFO and NSDEL Guidelines (1); Bonding requirement (2); Buffer specs (14); setback (1); provide design/development plan for review (1); provide sampling/monitoring reports for review (4); enduring covenant (1); fish habitat protection (1); maintain parkland (1); Erosion and Sedimentation Control Plan (6); Erosion and/or sedimentation control measures (4); constructed wetland (2); water quality monitoring specs (1); ensure fish passage (3); fish survey (1); floodplain protection measures (2); maintain natural watercourse (1); on-site septic specs (1); septic/sewage design specs (1); acquire Board assistance in design/development plan (1); Septic/sewage effluent treatment/dispersal (1); hydrogeological study to assess groundwater contamination potential (1); Sewage overflow storage capacity (1); stormceptor design specs (1); stormwater discharge specs (22); no untreated sewage should enter a watercourse (1); refer to NSDEL wharf and dock construction guidelines (1); Stormwater Management Plan (1); Board would like to provide comment on design/development Plan (1); protect wetland (1); water quality monitoring specs (8); public access (1); build conservation area into DA (1); Development specs re: steep gradient (1)
Salvage yard (1)	Buffer (1); Impervious surface (1); Remediation and restoration (1)
Sawmill operation (1)*(operating without a permit)*	Buffer specs (4) re: noise (1), maintain vegetation (2), distance from watercourse (1), no infilling (1); Stormwater discharge specs (1) re infrastructure; Dwelling flooding re consult an expert (1)
Service garage (1) and commercial car lots (3)	Containment/catchment system specs for fluid discharge collection, disposal and system cleaning (5); Hazardous material storage specs (1); Wastewater management and collection system specs (1); Buffer (3) re: distance from watercourse and no vegetation removal; Refer to HWAB Guidelines (1); Oil and grit separation (3); Water (groundwater) quality protection (1); Impervious surface and collection system (1)

Land use project type (# instances)	Recommendation types (# of times issued)
Siltation runoff complaint from resident (1)	Stormwater discharge specs (5) re: drainage infrastructures (2), reduce water flow velocity (2), redirect flow direction and distribution (1), Erosion control (3), Sedimentation management specs (1), Water quality monitoring (1), Provide monitoring/sampling reports for review (1), Remediation and restoration (1) (including cooperation between jurisdictions – see more on this topic in "other issues" section)
Single unit dwellings near water bodies (3) (including cottage expansion)	Buffer specs (3); Floodplain protection (6) re: no grade alteration or vegetation removal (4), no oil tanks (2); Refer to HWAB Guidelines (1); Conservation area, therefore the Board does not approve of proposed development (2); Erosion and/or Sedimentation Control (4); Erosion and Sedimentation Control Plan (3); Provide development plan for review (2); Convey land to HRM (2); Minimize ground disturbance (1); Remove construction debris (1); Setbacks from watercourse specs (1); Stormwater discharge specs (1) re: overland dispersal (1), infrastructures (1), prevent infiltration of on-site septic (1), water flow (3); on-site septic specs (2)
Stormwater drainage system upgrade (1)	Stormwater Discharge specs (3) re: drainage infiltration specs, infrastructure, maintain vegetation; Remediation and restoration (1); Watercourse (natural) flow maintenance (2); Enhance existing wetland with vegetation (1); Erosion and/or sedimentation control (5); Erosion and Sedimentation Control Plan (1); Oil skimmer (1); Protect wetland (1); Buffer (1); Review HWAB Guidelines (1)
Tourist buildings (3) including cottages, cabins, centre with marina	Development specs re distance from shoreline; Emergency response plan re fuel spills (1); Erosion and Sedimentation Control Plan (1); Refer to NSDEL Guidelines (2); Public access pathway specs (1); On-site septic specs (1); Provide design/development plan for review (2); Septic/sewage effluent treatment/dispersal (2); Stormwater Management Plans (1); Catchment areas (1); Oil and grit separation (1); Water quality (groundwater) protection
Townhouse developments (2), one with boat-docking facility	Buffer (1) re: landscape with indigenous species; Erosion and Sedimentation Control Plan (1); Provide development/design plan for review (1); Provide sampling/monitoring reports for review (2); Fish habitat creation (1); Floodplain protection (10) re: convey land to HRM (2), limit development within (2), no buildings, not for snow storage, assessment by qualified engineer, maintain water holding capacity; No refuelling at marina (1); Retention area (1); Septage/sewage treatment /dispersal (1); Sewage Treatment Plant (STP) operation specs (8) including: tertiary treatment, operated by a certified wastewater treatment operator, septic tanks be checked and pumped annually, UV disinfected effluent, install alarm system at the recirculating facility, sewage effluent discharge point at least one metre below low tide level in marine environment, sample effluent quarterly and submit reports to HWAB and HRM for review, monitoring; Setback specs from watercourse (1); Stormwater Discharge specs (8) re: drainage infrastructure, oil and grit separation (2), Impervious surfaces (2), collection system (1), drainage grade standards (2); Remediation and restoration (1)
Water Service District Boundary (WSDB) extension (1)	Pyritic slate specs (1); Erosion and Sedimentation Control Plan (1); Provide design/development plan for review (1); On-site septic re water conservation (1); Public education (1); Septic/sewage effluent treatment dispersal specs (1); Provide sampling/monitoring reports for review (2); Monitoring of system by HRM (1); Water quality (surface) monitoring specs (6) re: baseline testing, frequency pre- and post construction (2), parameters, location, lab (for phosphorus testing) and by qualified person; Water quantity and quality (groundwater) re: protection - maintain soil matrix permeability (1)

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Interviews

Jack Burney
Susan Corser
Rick Gagne
Walter Regan
Councillor Steve Streatch
Wayne Stobo
Audrey Manzer

Group Interviews:
SWEPS
Sackville Rivers Association